2012 $12

# Digest 176

## Global Specialist in Energy Management



# The only good watt is a negawatt.




Due to intrinsic inefficiencies, 33 units of energy consumed at the point of use require 100 units of primary energy.

## What's a negawatt? The one you didn't use.

### Energy saved is money saved.

Yes, the smart grid is coming and we are actively implementing intelligence and innovations to help make it a reality. But we need a solution that will save energy and drive efficiency today as we are building the smarter grids of tomorrow.

### Introducing EcoStruxure: Active Energy Management Architecture from Power Plant to Plug™.

Right now, EcoStruxure™ solutions from Schneider Electric™ can reduce your energy use by up to 30% while cutting capital and operational costs. End-use efficiency is where our focus needs to be! The percentage of revenue spent on energy by companies could reach 30% by 2020. And there is an urgent need to reduce $CO_2$ emissions, especially as energy demand escalates. Energy management is the key – the fastest and most effective solution to curb greenhouse gas emissions while improving business performance. In fact, by 2030, energy efficiency and behavior change will offset more $CO_2$ than all the new wind, solar, and other alternative energy generation methods combined.*

EcoStruxure™




### EcoStruxure solutions cut energy costs today.

As energy prices continue to climb, every unit of energy you save matters. One unit saved at the point of use means three units of primary energy not consumed. Today, only EcoStruxure Active Energy Management architecture can deliver up to 30% energy savings across your buildings, industrial plants, and data centers. You deserve an Efficient Enterprise™!



## Get smarter about energy

Download this White Paper, "Growing a Green Corporation," a $199 value, for FREE.

**Visit www.SEreply.com Key Code b653v**

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, EcoStruxure, Active Energy Management Architecture from Power Plant to Plug, and Efficient Enterprise are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. 35 rue Joseph Monier, CS 30323, 95506 Rueil Malmaison Cedex (France) • 998-3259_US

*Source: World Energy Outlook 2009, IEA/OECD

## How to Use Digest 176

Welcome to the first full color version of the Schneider Electric Digest!

Digest 176 is organized into 29 product sections listed at the right, with color-coded tabs to help you quickly find major product categories. We've added two new sections: Section 28 Universal Enclosures, and Section 29 Advanced Products, with new product offerings that include: Electric Vehicle Charging Stations, Efficient Homes, and Residential Solar Power Solutions.

To aid navigation, a detailed Table of Contents is provided for each section, as well as two indexes in the back of the book: an alphabetical listing and an alphanumeric listing.

The first 32 pages of this Digest highlight a winning lineup of Schneider Electric products, services, and solutions, followed by a two page listing of What's New in each product section.

For the most up-to-date Product Information, visit:

**www.schneider-electric.us**

## Customer Services

**Customer Literature Center**

To obtain literature for product or application needs, contact the Schneider Electric Customer Literature Center. When requesting additional technical catalog information, refer to the catalog section listed at the top of the Digest pages.

**1-800-392-8781**

**Customer Training**

Schneider Electric offers performance-based training for Square D™ and Telemecanique™ products. Whether you have purchased equipment to modernize an operation, or are equipping a new site with the most advanced automation solutions, distribution and power equipment, we have the training to meet your needs.

For more information, select Customer Training from the Support and Resources area:

**www.schneider-electric.us**

**1-866-507-0894**

**Have questions?**
**Need technical support or onsite service?**

**Now there's one toll-free number to get all the information you need.**

**1-888-778-2733**

The **Customer Care Center** (CCC) is a single point of contact where qualified personnel answer your customer service and technical support questions. Serving all Schneider Electric authorized distributors and customers anywhere in the United States.

**Schneider Electric Services** provides you with power, automation and control, and energy management services to support the lifecycle of your system, process or installation. Our solutions help you get the most out of your investment and keep your facility at peak operational performance. Any brand. Any industry. Any time.

## Schneider Mobile



Access a mobile-friendly version of our website, from the web browser on your mobile device. We have developed a specially formatted version of our most popular web content, including the Digest, for mobile devices.

A mobile version of Schneider Electric's MYSE for distributors is also available

**mobile.schneider-electric.us**

## Energy Efficiency

**Leading the way in Energy Efficiency:**

Schneider Electric provides integrated solutions for residential market, buildings, industry and infrastructure, and data centers. Now, you can build a long lasting energy strategy for a growing performance while preserving the environment.

## SolutionOne

Coming Soon!!

An internet based tool that will allow communications with multiple product configurators within Schneider Electric North America to create a "Customer Solution" project bill of material.

**Questions?**
**Send an email to: SolutionOne@Schneider-Electric.com**

## Seismic Qualification and Capabilities

**Seismic Equipment Ratings**

Schneider Electric self certifies seismic equipment ratings to meet the most stringent requirements.

Please contact your local field sales engineer for assistance.

## Selective Coordination

**NEC Requirements for Selective Coordination**

Schneider Electric is providing our customers with valuable selective coordination solutions. Contact your local sales office to learn more.

## Product Index
## Section Listing


1 Load Centers
2 Metering Equipment
3 Safety Switches
4 Power Monitoring and Control
5 Lighting Control and Integrated Home Systems
6 Surge Protective Devices
7 Miniature and Molded Case Circuit Breakers
8 Operator Mechanisms and Disconnect Switches
9 Panelboards
10 Integrated Power and Control Solutions (IPaCS) Equipment
11 Switchboards and Switchgear
12 Busway
13 Wire Management
14 Transformers
15 Medical Products
16 NEMA Contactors and Starters
17 Motor Control Centers
18 IEC Contactors and Starters
19 Push Buttons and Operator Interface
20 Electronic Sensors and Machine Cabling
21 Limit Switches
22 Pressure, Vacuum, and Float Switches
23 Relays and Timers
24 Terminal Blocks
25 Machine Safeguarding Products
26 AC Drives and Soft Starts
27 Automation Products
28 Enclosures
29 Advanced Products

Product Locator Index

# Schneider Electric brands that deliver the solutions you demand.

## Square D power solutions – ready for the future.



Stamped steel version of the enclosed safety switch with the Detroit Fuse and Manufacturing Company's new trademark – the capital "D" in a square (circa 1915).

Square D™ by Schneider Electric brand NEMA power and control solutions have been trusted over 100 years for performance, reliability, and energy saving design. From residential load centers and metering products to commercial panelboards, energy conserving transformers and safety switches, Square D brand products provide you with quality solutions for distributing and monitoring electrical power. It's more than an electrical system. It's the backbone of today's energy demanding homes and businesses.

SQUARE D™
by Schneider Electric

## Taking lighting technology to a new level.

Juno™ by Schneider Electric is a leading manufacturer of energy-efficient commercial and residential lighting solutions and advanced system controls. Since 1976, we have been serving customers throughout North America, including electrical distributors, lighting showrooms, contractors, architects, engineers, lighting designers, and commercial establishments, offering them high-quality, innovative products, designed and engineered in the United States. The Juno Lighting Group product family includes over 50,000 items for commercial and residential construction, and includes a rapidly expanding line of eco-friendly LED fixtures for outdoor, recessed, track, decorative, and under cabinet applications.



JUNO LIGHTING GROUP™
by Schneider Electric

## Delivering the best image quality in video security.

Pelco™ by Schneider Electric is a world leader in the design, development, and manufacture of video and security systems ideal for any industry. From megapixel cameras to video management and recording to display, Pelco solutions deliver the best image quality in video security.

> www.pelco.com



PELCO™
by Schneider Electric

## Committed to data center critical power and cooling.

APC by Schneider Electric™ is a global leader in critical power and cooling, providing industry leading hardware, software, and services designed to ensure availability and higher energy efficiency across the residential, business network, data center, and manufacturing environments. The position of APC on the cutting edge of Data Center thought leadership for over two decades has changed the way the world designs, installs, operates, and maintains data centers. APC has unparalleled commitment to innovation and the world's leading R&D investment (more than $90 million annually) dedicated to critical power and cooling issues.



APC™
by Schneider Electric

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, Square D, Juno, Pelco, and APC are trademarks owned by Schneider Electric Industries SAS or its affiliated companies.

# PowerPact with Micrologic molded case circuit breakers

## Direct access to energy management



## PowerPact™ with Micrologic 15-3000 A

**New-generation circuit breakers with industry leading performance and protection.**

- Smart – A meter in every breaker
- Safe – Combines safety and performance with Micrologic™ reliability
- Simple – Easy to select, install, and use

- Increased energy availability
- Safety and protection
- Energy measurement and control

SQUARE D™

by Schneider Electric

©2011 Schneider Electric. Schneider Electric, PowerPact, Micrologic, and Square D are trademarks owned by Schneider Electric Industries SAS or its affiliated companies.

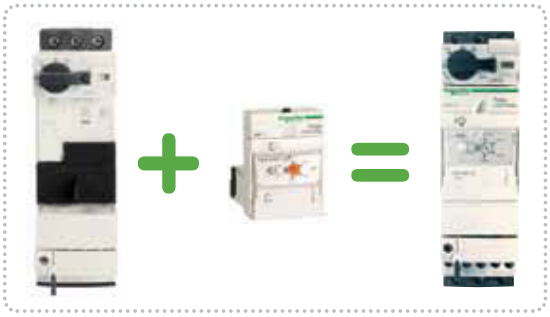
# TeSys

## Motor starters and IEC contactors



### TeSys™ U self-protected combination motor starters

Used in a single combination, two power bases and five separate control modules cover all motor control applications from 0.15 A through 32 A; 1/4 hp to 20 hp at 480 V



- NEMA® rated for motor control
- UL 508 Type E certified
- 65 kA SCCR rating at 480 V
- Incredible energy savings!
  - » 75 percent less than traditional NEMA motor starters
  - » 50 percent less then traditional IEC



### TeSys D IEC contactors

The best-selling line of contactors and starters in the world, offering high reliability with long mechanical and electrical life. Available in 11 contactor ratings from 9 A up to 150 full-load amps for inductive loads and up to 200 A resistive loads.

- Component high-fault short circuit current ratings (available mid-2012):
  - » 9 A to 32 A: 65 kA
  - » 40 A to 150 A: 100 kA
- Energy efficient
  - » 50 percent less than traditional NEMA motor starters
- Dual mounting options: panel and DIN-rail
- IP20 finger-safe screw connections terminals
- Wiring connection flexibility, including spring, ring tongue, slip-on, and screw clamp terminals
- Everlink® termination technology (on 40-65 A products)
- Easy-to-install accessories are common for entire line

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric and TeSys are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. All other trademarks are property of their respective owners.

# Engineering Services

Schneider Electric Engineering Services offers power system design and upgrade, as well as studies and assessments to promote safety and to help ensure reliable and continuous power.



With over 40 years of experience and over 100 professional engineers strategically located throughout the U.S., the Engineering Services team has the knowledge and experience to get the job done.

## Power system design and upgrade projects

- Turnkey Solutions, including Solar and Brownfield Projects
- Electrical Design for Relay Upgrades
- Design for Generator and Synchronous Motor Exciter Packages
- Grounding System Evaluation and Design

## Power system studies and assessments

- Power System Assessments and Code Audits
- Arc Flash Analysis
- Circuit Loading Study
- Harmonics Assessment
- Power Factor Analysis
- Power Quality Analysis
- Short Circuit Study
- Time-current Coordination Study

# Industrial Repair Services

Schneider Electric Industrial Repair Services is the leader in industrial electronic repair management, repairing over 120,000 different products from more than 2,500 manufacturers.



With over 30 years of industry experience and over 70 highly-trained technicians, the Industrial Repair Services team provides dependable, cost-effective repairs.

## Testing and repair services

- PLCs
- I/O Modules
- AC and DC Drives
- Stepper Drives
- Servo Motors and Amplifiers
- HMI/Operator Interfaces
- Clutch Controls
- Power Supplies
- Counters and Timers
- Machine-specific Controls

## And more!

- Certified, Remanufactured Electronics for sale or exchange
- Engineered Replacement Boards
- Integrated Manufacturing Service Solutions (IMSS)
- Schneider Electric™ Automation Product Upgrades

>> For more information on Schneider Electric Services, visit: **www.schneider-electric.us/go/services**

# Electrical Distribution Services







Schneider Electric offers a broad range of electrical distribution services to support the life cycle of any manufacturer's equipment.

Whether you are concerned with providing a safe workplace, increasing electrical reliability, boosting productivity, or reducing operating costs, **you can count on our nationwide network of professional engineers and qualified service representatives** to address your specific requirements.

## Our full-range of electrical distribution services include:

### Engineering Services

The power system engineering team from Schneider Electric™ has the knowledge and experience to help facilities manage their energy and solve complex power system issues that may involve equipment, automation, the electrical system, or the utility.

Our engineering services include:

- Power System Assessment and Design Services
- Power Quality Correction
- Power System Analysis including Arc Flash Studies (NFPA 70E Compliance)

### New Installation Services

Reduce risk and help ensure reliable installation and equipment performance.

Our new equipment services include:

- Start-up and Commissioning
- Turnkey Solutions
- Extended Warranty
- Customer Training

### Modernization and Upgrade

Modernization solutions from Schneider Electric Services will upgrade your existing switchgear or motor control centers to current technology. These engineered solutions are available for most major brands and are designed to minimize downtime, improve reliability, and extend the life of your equipment.

Our modernization and upgrade solutions include:

- Direct Replacement and Retrofill Solutions for LV and MV Switchgear
- Direct Replacement Units for LV Motor Control Centers
- Circuit Breaker Reconditioning

**Want to extend the life of your existing switchgear?**

Register to download our FREE white paper to discover the right solution for your application! Visit **www.SEreply.com** and enter key code **b653v**.

emergency services → **24** hours a day → **7** days a week

## Maintenance and Testing

If your power system isn't performing, your facility isn't performing. To help ensure the reliable operation of your electrical equipment, periodic maintenance, cleaning, and lubrication is needed. Failure to do so could result in costly downtime.

Our maintenance and testing services include:

- Preventive Maintenance
- Maintenance Record Services
- Service Agreements

**Is your maintenance program meeting your expectations?**

Register to download our FREE White Paper "Understanding Maintenance Contracts and Requirements for Low Voltage Power Distribution Equipment." Visit **www.SEreply.com** and enter key code **b653v**.

## Substation Solutions

Schneider Electric sets the standard in quality for the electric industry and serves utilities with highly-reliable products and services.

Our substation solutions include:

- Design and Construction Services to 765 kV
- PowerSub™ MV Vacuum Substation Breakers
- Substation Service & Repair

## Custom Solutions

Do you have unique product requirements or complex power issues? Regardless of the application or location, our engineering, manufacturing, field service, and project management teams can evaluate your situation and propose a cost-effective solution that minimizes downtime or lead-times.

Our custom solutions include:

- Special Application Switchgear
- Solar Power Systems
- Turnkey Installations



## Additional Schneider Electric service teams include:

### Automation and Control Services

Our services support the latest innovations in industrial automation. In addition, they ensure our legacy products function at modern performance levels.

### Building Lifecycle and Energy Services

Our focused approach integrates multiple systems to achieve enterprise-wide facilities management that uses less energy, tightens security, speeds response times, and maintains optimal occupant comfort while reducing overall operating costs.

### Critical Power & Cooling Services

Whether you are planning, building, or operating a data center, we have the expertise and services to support you through the many phases of the data center lifecycle and keep your mission-critical applications operating at optimum performance.

### Energy Sustainability Consultation Services

Our energy experts work on-site with knowledgeable plant personnel to develop a long-term "Energy Action Plan" that serves as the blueprint for ongoing energy savings.

### Power Monitoring Services

Our power monitoring services increase the reliability and efficiency of your installation by providing detailed reporting, testing, and analysis capabilities for your systems and related components.

### Projects and Engineering Center

Our Projects and Engineering Center provides full-service contract and project management capabilities to assist with complex or high-risk projects, resulting in a streamlined, reliable project solution.

For more information call 1-888-778-2733 or visit www.schneider-electric.us/go/services



### Energy and Sustainability Consultation

Our experts develop your blueprint for energy savings.

### Energy Monitoring

Gain visibility to analysis of your facility's energy performance — even when you're off-site.

### Energy Savings Projects

Realize energy savings and reduce utility bills by up to 30%.

# Your building's energy: See it, manage it, and save it with our life cycle services.

## Why spend tomorrow what you can save today?

### How much did you spend on your building's energy today?

As regulations tighten and rates rise, businesses are learning that wasted energy is wasted money. Fortunately, the right partner will show you how much energy your building consumes, and more importantly, where energy — and money — can be saved.

### Our energy services deliver immediate value to your business.

Efficiency improvements reduce the total cost of energy per square foot over the life cycle of your facility. And only we provide the expertise of a Certified Energy Architect, scalable EcoStruxure Active Energy Management™ architecture, and much more that can deliver energy savings of up to 30%, starting today.

### 30% energy savings is just the beginning.

As The Global Specialist in Energy Management™, we are the only provider of comprehensive services and open system architecture that guarantee compatibility among the energy management domains of Power, IT Room, Process & Machine, Building, and Security, allowing businesses to scale up the savings and efficiency from the building to the enterprise level.

It is no wonder that about 75% of *Fortune* 500 companies choose Schneider Electric™ to meet their energy needs. With a savings opportunity like this, future-ready companies know that efficiency initiatives they couldn't afford to implement in the past are projects they can't afford to put off another day.

### Schneider Electric is your ideal energy manager, energy expert, and green partner with specialized services for these facilities and more:



**Healthcare**
Provide superior patient care while controlling costs, eliminating waste, and doing more with less.



**Hotels**
Maximize guest delight while reducing OpEx, improving your carbon footprint, and offering a safe hotel stay.



**Retail**
Reduce costs and keep customers safe and comfortable while complying with environmental efforts and regulations.



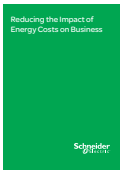
**Office Buildings**
Provide a flexible and productive atmosphere while retaining long-term income and asset value under tightening environmental regulations.



**Education**
Make buildings and campuses safe and efficient while providing a greener, more productive learning environment.



**Life Sciences**
Create a sustainable business while meeting regulations, reducing time to market, and enhancing the security of employees and assets.




Download this **FREE** white paper today for insight on improving facility performance and finding permanent savings

**Visit www.SEreply.com Key Code b653v**

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, APC, The global specialist in energy management, EcoStruxure, and Active Energy Management are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. • 998-3881 • Schneider Electric USA, 1650 West Crosby Road, Carrillton, TX 75006, USA, (972) 323-1111

# 30%* off your building's energy bill is just the beginning.

## Imagine what we could do for the rest of your enterprise.

Managing complex building environments while meeting your energy efficiency targets is no small task. Our EcoStruxure™ energy management architecture achieves this elegantly through intelligent integration of building systems on a single IP platform.

### The savings go far beyond buildings.

Today, only EcoStruxure energy management architecture by Schneider Electric™ delivers up to 30% energy savings, uniting energy-intensive systems like HVAC, access control, video security management, and lighting control across your entire enterprise. Saving up to 30% of a building's energy is a great beginning, and thanks to EcoStruxure energy management architecture, the savings don't have to end there.



**Learn about saving energy from the experts!**

Download this white paper, a $200 value, for FREE!

**Visit www.SEreply.com Key Code b653v Call 800-274-5551**

EcoStruxure™

**Active Energy Management Architecture from Power Plant to Plug™**



**Data centers**

From the rack to the row to the room to the building, energy use and availability of these interconnected environments are closely monitored and adjusted in real time.



**Industrial plants**

Open standard protocols allow for system-wide management of automated processes with minimized downtime, increased throughput, and maximized energy efficiency.



**Buildings**

Intelligent integration of security, power, lighting, electrical distribution, fire safety, HVAC, IT, and telecommunications across the enterprise allows for reduced training, operating, maintenance, and energy costs.




Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, EcoStruxure, and Active Energy Management Architecture from Power Plant to Plug are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. 132 Fairgrounds Road, West Kingston, RI 02892 USA • 998-2758_US

*EcoStruxure architecture reduces energy consumption by up to 30%.

# There's more than the "tip of the iceberg"

Typically, we think of them as huge peaks rising above the water. In reality, the majority of an iceberg is actually under the water, out of view. Utility savings at most facilities can be thought of in much the same way.

Think of your utility bills as being the peak, easy to see every month. By simply installing different light bulbs or a PowerLogic™ power monitoring system, you can realize 1 – 4 percent savings — but that's just the "tip of the iceberg" in terms of your potential savings.

The majority of savings, using Schneider Electric™ energy solutions, can be derived by looking beyond a utility bill — or below the surface. An additional 2 – 5 percent can be saved through better equipment utilization and energy monitoring tools. Another 10 percent can be found by improving power system reliability, and the savings that derive can be utilized towards the capital purchase with a performance contract.

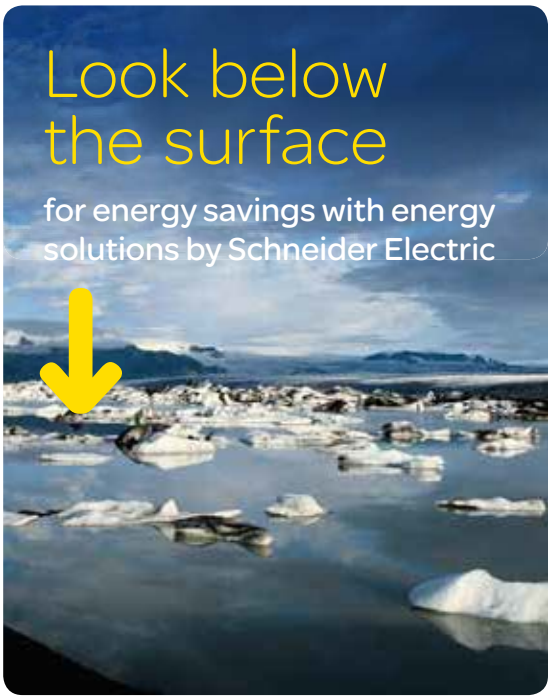
At Schneider Electric, we pride ourselves on reliable Square D™ by Schneider Electric products, innovative solutions, expert engineering services, and our ability to provide single-source power management solutions. It's not just a concept to us, it's a legacy and a promise. We are the Energy Management specialists, striving to help you Make the Most of Your Energy℠. For more information contact your representative or go to www.schneider-electric.com.

Square D PowerLogic systems offer end-to-end advanced solutions for a high return on investment in achieved energy savings.

## Commercial/retail centers

- Attract high-quality, long-term tenants
- Implement in a nationwide chain or one site
- Allocate costs according to actual energy used






## Medical complexes

- Experience outstanding quality and reliability
- Verify utility bills and eliminate errors
- Improve power system uptime

## Education campuses

- Reduce expenses
- Provide environmental leadership
- Gain insights into how to reduce energy use in common areas

## Upgrade payback

Average payback period and ROI of single-technology projects

| Technology | Average Payback Period | Average ROI |
|---|---|---|
| Meters and Monitors | .5 | 200% |
| Lighting | 2.2 | 45% |
| Controls | 2.3 | 43% |
| Motors and Drives | 2.4 | 42% |
| HVAC | 3.6 | 28% |
| Onsite Power | 4.3 | 23% |
| Building Automation | 5.9 | 17% |

## Three dimensions of energy and power management savings

### Reduce energy costs

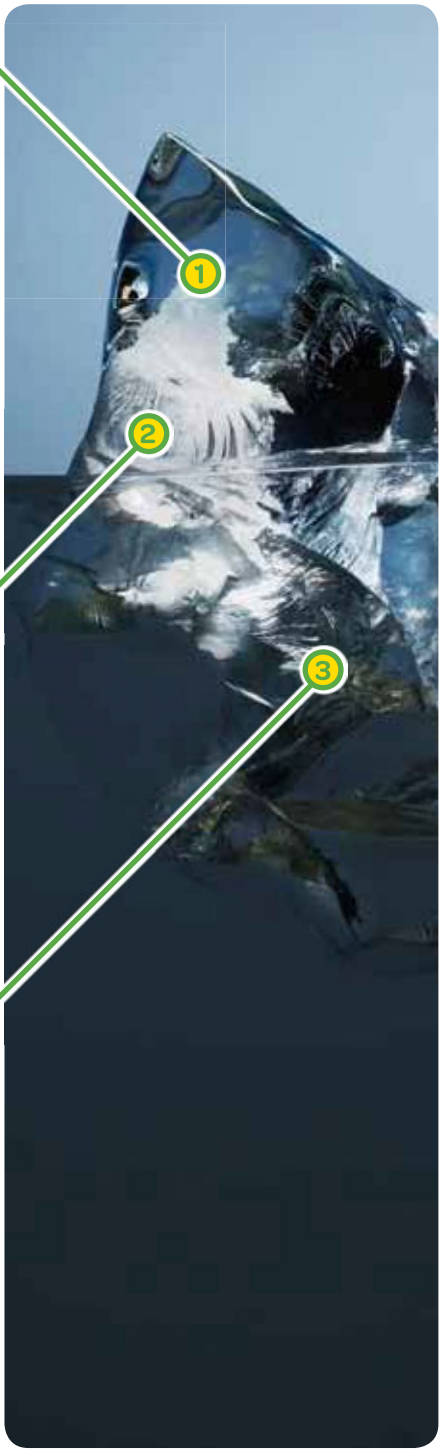
- Access automatic meter reading from revenue, piped utility pulses, and sub-metering
- Verify and reconcile utility bills to catch errors
- Reveal energy inefficiencies and waste
- Allocate or sub-bill energy costs
- Optimize procurement through forecasting, load aggregation, and rate analysis
- Implement power factor correction, lighting control, and fact-based reduction strategies
- Reduce demand through load scheduling, load control, or generator control
- Respond to utility curtailment signals
- Make smart energy efficiency decisions by combining your experience with ours for Total Energy Control strategies that result in an actionable energy plan with quick payback

### Optimize equipment utilization

- Maximize use of existing equipment capacity to defer capital expenses
- Benchmark, profile, and compare the performance of facilities or processes
- Document emergency power system testing results
- Prolong equipment life by identifying transformer and other equipment stresses
- Balance loads on substations, panelboards, and other power equipment
- Perform proactive equipment maintenance and equipment monitoring of transformers, MCCs, switchgear, switchboards, circuit breaker status, protective equipment, capacitors, generators, panelboards, PDU, UPS, and other piped utilities

### Improve reliability and uptime

- Get early warning and remote alarm notification of impending problems
- Isolate problem sources quickly using real-time, historical, and event data
- Pinpoint root cause with precise GPS time and event sequence recording
- Verify reliable equipment operation and identify vulnerabilities
- Diagnose transients, disturbances, power quality, and harmonics
- Determine appropriate corrective measures based on accurate data
- Automate power system throw over and load preservation schemes
- Leverage Energy Solutions' Engineering Services as your single source energy and power management solution provider — product, implementation, consulting, assessment, and support services



# Our energy expertise will help sustain America's bright future.
















## Together, we will meet your facility's energy management challenges of today and tomorrow.

### Your energy expert and green partner

Our experience with government facilities and campuses allows you to realize customized, integrated solutions with up to 30% energy savings, starting today.

Schneider Electric™ specializes in these critical domains of government facilities:

- > Power Management: Experience efficient power use, reliable power supply, low equipment failure rates, and minimized downtime with our proven solutions.
- > IT Room Management: Optimize data center availability and efficiency through monitoring, automation, planning, and implementation.
- > Building Management: Leverage existing investments to achieve reduced energy costs, improved comfort, and increased productivity with our integrated building systems.
- > Process and Machine Management: Eliminate downtime and optimize your systems' performance with our specialized solutions.
- > Security Management: Reduce risks with our integrated security solutions that create the most secure environment possible.

### EcoStruxure: Active Energy Management Architecture from Power Plant to Plug™

EcoStruxure architecture, our approach to integration, saves CapEx and OpEx over your facility's life cycle, from streamlined procurement through long-term maintenance and support. This innovation optimizes energy measurement, management, reliability, efficiency, and security across your entire enterprise.

### The global specialist in energy management™

Schneider Electric has a proven, 100-year long record of supporting government facilities and helps make them more secure, productive, and sustainable. We take the lessons of the past century to help you meet your responsibilities to mandates, missions, and taxpayers throughout the next one.

We combine the expertise of brands you know and trust to make your energy safe, reliable, efficient, productive, and green.

APC™ by Schneider Electric

PELCO by Schneider Electric

SQUARE D™ by Schneider Electric

Juno Lighting Group™ by Schneider Electric

Make the most of your energy℠




Visit our NEW Government Knowledge Portal for FREE white papers, like this one: "Enacting a Life Cycle Approach in Federal Facilities."

**Go to www.SEreply.com • Key Code b653v • Call 866-822-4636**

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, APC, EcoStruxure, Active Energy Management Architecture from Power Plant to Plug, The global specialist in energy management, Pelco, Juno Lighting Group, Make the most of your energy, and Square D are trademarks owned by Schneider Electric. • 998-3352_US




**Flexible Machine Control:**
100 percent flexibility of your machines with a single software suite, SoMachine, plus multiple hardware control platforms.

**Tested, Validated Architectures and Functions:**
Predefined and dedicated to your specific needs for optimum results.

**Co-Engineering Services:**
Design optimal machine solutions with innovative help from our experts.

# MachineStruxure™ cuts time to market by up to 50 percent.

## New integrated machine building solution features single software, proven architectures, and design experts.

Machines today need to be faster, more flexible, and must be able to solve more complex automation functions than ever before. As a machine builder you must constantly look at innovative ways to build more energy-efficient machines, reduce development costs, and get your machines to market much faster.

Our new MachineStruxure™ solution is designed to answer these challenges and to help you take complexity out of the business through use of:

- **Flexible Machine Control:** SoMachine™ is a single software suite that runs on multiple hardware control platforms to achieve 100 percent machine flexibility: HMI, motion, drive, and logic controllers. With SoMachine, you need only one software, one cable, and one download to design, commission, and service your machines from a single point.
- **Tested, Validated Architectures and Functions:** Build a strong automation platform through the use of our ready-to-use, proven, and fully transparent automation architectures and application function libraries implemented with FDT/DTM technology. Our architectures are predefined and dedicated to your specific needs for optimum results.
- **Co-engineering Services:** Design the optimal solutions for your customers with innovative help from our experts! We implement the latest technological evolutions and provide a unique hands-on industry application knowledge that helps you stay ahead of the competition.



"SoMachine offers optimal flexibility when implemented on a standard machine, and it has huge potential in terms of system implementation."

**Fabrizio Ghiro,** software designer and machine developer at Costa Levigatrici in Italy

Make the most of your energy℠



Download our "On the road to green machines" White Paper today – it's FREE and available right now!

**Visit www.SEreply.com Key Code h903v**

Schneider Electric™

©2011 Schneider Electric Industries SAS, All Rights Reserved. Schneider Electric, MachineStruxure, SoMachine, and Make the most of your energy are owned by Schneider Electric, or its affiliated companies in the United States and other countries. • 35 rue Joseph Monier, CS 30323, 95506 Rueil Malmaison Cedex (France) • 998-2705

# A lighting control solution for every need...

Powerlink intelligent panelboards, Relay Panels, C-Bus network lighting control, and Occupancy Sensors from Schneider Electric create one of the most comprehensive energy-saving offers in the industry. They combine automated and web-enabled control with occupancy-based solutions and dimming capabilities.



Powerlink Intelligent Lighting Panel



Relay Panels



C-Bus Lighting Control



Occupancy Sensors

## Powerlink

It takes more than just energy-efficient lighting to significantly reduce your energy costs. Powerlink™ lighting control systems reduce energy costs as much as 30 percent by automatically turning off lighting during unoccupied periods. Retrofit is also easy with Powerlink lighting control systems, with payback periods often less than two years. Compared with other energy savings technologies, a Powerlink control system can provide both a lower initial capital outlay and greater energy savings.

- Eliminate unnecessary energy consumption by switching lights off during non-occupied periods
- Reduce demand by shedding lights during peak demand periods
- Improve productivity by controlling and monitoring panels from remote locations
- Reduce potential lost time and liability by receiving instant alerts to important occurrences with remote email alarming
- Gain important insights into lighting system performance with integral metering

## Relay panel

The Lighting Control Relay Panel family offers both standalone and integrated customized solutions that combines ease of use, versatility, and durability. Each system offers an energy saving solution as unique as your needs.

- LPS Standalone panel
- LPB panel with BACnet capabilities
- LPL LonWorks console-operated panel

Three solutions that adapt to your particular configuration needs.

## C-Bus

C-Bus™ Network Lighting and Whole Home Controls provide a vast array of capabilities, scalable for virtually any size job, from a single room to an entire network. Eliminate wall clutter with programmable multi-function touch screens and keypads. Dim lights, control lighting scenes, HVAC, and audio, while integrating with third party devices using the same touch screen or keypad.

## Occupancy sensors

Occupancy sensors help building owners achieve energy savings and energy code compliance with sensors that are easy to select, install, and commission. Automatically turn lights on/off based on occupancy. Use sensors for Daylight Harvesting to adjust light levels based on natural lighting in areas with large windows or skylights. Use either passive infrared (PIR), ultrasonic, or dual-technology models for ultimate detection capability.

## Service and support

Reliable lighting control systems deserve reliable support to match. With Schneider Electric™ lighting controls, you can always count on our Schneider Electric field sales engineers and factory-trained experts for help when you need it — before, during, or after installation. Whether that means local support, troubleshooting, or on-site commissioning.

**From smaller residential lighting control installations, to entire facility-wide control, Schneider Electric Lighting and Whole Home Controls has the precise solution to meet your needs.**

>> For more information visit **www.SEreply.com** and enter key code **b653v**.

# Diversify your offer with the EcoXpert certification program.



Developed specifically for electrical contractors to grow their business and increase revenue. The Schneider Electric EcoXpert™ program helps you to **advise, sell,** and **install** a broad range of pre-engineered energy solutions across commercial, industrial, and high-end residential applications.

## Program benefits:

- **Accreditation:** gain knowledge and skills to improve your professional recognition and marketability
- **Specialized training:** access to ongoing technical, installation, and best practices curriculum courses
- **Marketing collateral:** enhance your ability to market your business with customizable materials
- **Communication strategies:** includes: how to sell, who to speak to, key questions to ask, and much more
- **Technical expertise:** 24/7 access to tools that help facilitate site assessments and ROI estimates
- **Pre-engineered solutions:** ability to sell a broad range of energy efficient and renewable energy solutions

EcoXpert™

## Certification Paths:

### Energy Efficiency

- Lighting and Lighting Controls
- Power Distribution
- Secure Power
- HVAC Controls
- Energy Monitoring

### Renewable Energy

- Electric Vehicle Charging
- Solar

## Get started!

Become our energy partner today, visit: **www.SEreply.com and enter key code e595v.**

# Driving energy efficient solutions from Power Plant to Plug™.

Schneider Electric™ is committed to developing energy efficient solutions that support sustainable development, and our electric vehicle (EV) chargers are no exception. EVlink™ charging solutions promote a greener, more economical transportation option while helping to reduce the world's global footprint. Schneider Electric offers a wide range of EVlink charging stations that allow users to recharge where they live, work, and play.

## The total package from one provider

- **Compatibility:** UL listed and SAE J1772 compliance ensures compatibility with any plug-in hybrid or electric vehicle entering the market.
- **Support:** Installation and maintenance provided by certified EcoXpert™ contractors, who have been trained to install EVlink solutions and are able to offer an extended warranty option.
- **Efficiency:** Smart-grid connectivity allows for maximum energy management capabilities, assisting with energy control and efficiency.
- **User friendly:** Status indicator lights identify when the charger is ready to charge, if the vehicle is charging, or if the charger requires attention.
- **Safety:** An integral ground fault interrupter set at 5mA provides protection if a fault is detected from a power outage or lost connectivity. Automatic recovery and restart functionality ensures charging will resume following a power loss or ground fault detection.

## Learn more about the global impact of EVs

**Visit www.SEreply.com and enter key code b653v.**





**Exclusive for US electrical contractors**

# Empower your operations with the Schneider Electric Advantage.

## Get FREE business, marketing, training, and product resources developed exclusively for electrical contractors.

Now more than ever, you need real-world solutions to grow your business and meet customer needs. You need a partner who can help you tap into market-leading business, marketing, and electrical industry expertise to enhance your operations.

**The Schneider Electric Advantage** gives you access to:

### Marketing tools

Market your business and improve customer relations with new tools including radio scripts, customizable collateral, and promotional items.

### Training and education

Get ahead with a broad range of educational courses designed specifically for electrical contractors through web-based curriculum and instructor-led training.

### Product information

Find the latest product, service, and solution information for Schneider Electric™ brands including troubleshooting, technical documents, and online tools.

Access our **FREE online training** when you register for

The Schneider Electric

**Advantage**

Visit: **advantage.schneider-electric.us/**

Make the most of your energy℠

Schneider Electric™

© 2011 Schneider Electric. All Rights Reserved. Schneider Electric and Make the most of your energy are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. • 1415 S. Roselle Road, Palatine, IL 60067 • Tel: 847-397-2600 • Fax: 847-925-7500 • www.schneider-electric.us

# Building a smarter grid with reliable, efficient energy

## How Schneider Electric smart grid-ready products and solutions help balance your grid equation

The electricity market is changing. And every day, end-users' expectations increase in terms of reliability and quality, and they gain greater awareness of energy's environmental impact.

It's an evolution. But as our reliance on electricity grows globally, the ways in which we produce, distribute, and use energy must also evolve. The solution will not only involve smarter demand, but also smarter supply — and as such, a smarter grid is at the heart of the issue.

As The Global Specialist in Energy Management,™ **Schneider Electric™ is smart grid-ready**, enabling the products and solutions that support and connect the five key domains of a smarter grid:

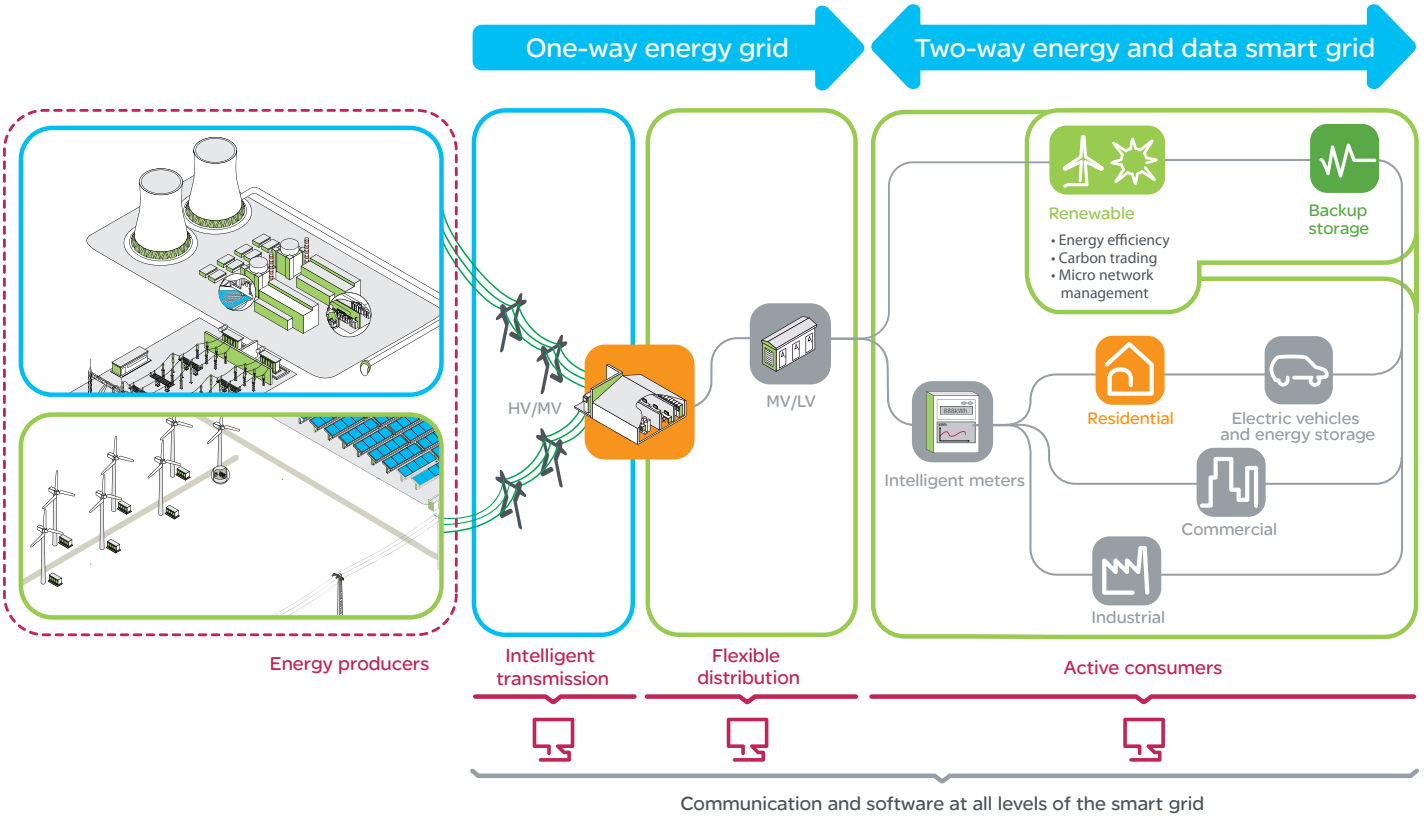
- Flexible distribution
- Smart generation
- Demand-side management
- Efficient Home™ (including electric vehicles)
- Efficient Enterprise™ (buildings, industrial facilities, and data centers)

Our vision isn't just to connect our customers to the smart grid — but also to connect them with each other, facilitating smarter interactions and leading to increased energy management capabilities.



### Our smart grid solutions include:

- **HV/MV Substations**
  - » Substation automation and protection systems compliant with IEC 61850
  - » Gas-insulated switchgear
  - » Station breakers from 15 kV to 38 kV
  - » Capacitor banks and control
  - » Power quality and grid revenue metering
  - » Phasor measurement units
- **Feeder Automation**
  - » Volt/Var management
  - » Automated load break switches
  - » Reclosers and sectionalizers
  - » Communicating faulted circuit indicators
  - » Private license and public mesh network radios
- **Renewable Energy Connectivity**
  - » Switchgear
  - » Protection and control
  - » Power quality and revenue metering
  - » Harmonic filtering
  - » Grid-tie substations
  - » Turnkey project design and management
  - » Smart solar inverters for residential through utility scale projects
  - » Pre-fabricated inverter and transformer stations
  - » Remote SCADA software
- **Electric vehicle load management**
  - » Smart charging stations for residential and commercial applications
  - » Charging station infrastructure management software and services
  - » Communications and integration with other systems
- **Demand Response Consulting**
- **Energy Management Services**
  - » Power system assessments
  - » Equipment upgrades and retrofits
  - » Maintenance and testing
  - » Asset management
  - » Design services
  - » Project management




## HV/MV substations

Complete grid-connection turnkey project management including design, engineering, installation, and maintenance to increase service continuity through trouble-free and reliable operations.

## Demand response programs

Energy auditing services and consultation to assess the best load reduction strategy, including estimating the financial opportunity of Demand Response activities. Comprehensive offer including energy meters and software tools for control, metering, and data management.

## Renewable energy connectivity

Solar and Wind solutions compliant with local regulations enabling uninterrupted connectivity of intermittent sources through end-to-end electrical operation (conversion, transformers, MV network, grid connection, control, supervision, monitoring, and security). Packaged solutions allow for maximum return on investment, driving the cost of renewable energy to grid parity.

## SCADA distribution management systems

Efficient solutions for underground and overhead network management through status updates, complex switching assistance, multitasking control, monitoring functions, and network evolution planning.

## Feeder automation

Flexible, scalable, and simple solutions to reduce outage duration and operate distribution networks more efficiently.

## Energy management services

Prevention- and prediction-focused asset productivity management based on maintenance and retrofitting solutions, system assessments, and uptime audits as well as network planning and demand response consulting.



# Welcome to the 2020 home.

It might have been built in 1925, but it's the most contemporary home in the neighborhood. Thanks to the Wiser™ energy management system from Schneider Electric™, any home can be brought into the Twenty-First Century.

The addition of a Wiser energy management system not only improves a home's energy efficiency, but adds up to significant savings on utility bills that can even offset the cost of other remodeling upgrades. The Wiser system helps homes use less power and lower utility bills by employing user-friendly technology that's easy for homeowners to understand, manage, and control, even remotely, anytime from anywhere. The Wiser systems' smart thermostat, in-home display, and energy dashboard provide real-time energy information to homeowners, alerting them when a home's energy usage is high, so adjustments can be made accordingly, saving them from paying higher rates during peak demand times.

The great news is that any home, no matter its age or architectural style, can be retrofitted and benefit from the Wiser energy management system. Just knowing a home is environmentally friendly and energy efficient is not only a major attraction to today's homeowners, but adds great equity in a home.

The **Wiser energy management system** enables innovative energy conservation that helps homeowners use less power while significantly lowering utility bills.



Green: Low (least expensive)

Blue: Medium

Orange: High

Red: Warning, extremely high (most expensive)

Control your HVAC system-based on the pricing you program into Wiser EMS' smart thermostat. The backlit feature visibly displays real-time energy output and costs incurred, then alerts you with unique color-coded warning screens when energy output is high and needs to be adjusted.

Find out just how **simple and cost effective** installing the Wiser energy management system can be, and how it will continue to significantly impact energy bills in the years ahead.

**Visit www.SEreply.com and enter key code j566v for more information.**

Schneider Electric™

© 2011 Schneider Electric. All Rights Reserved. Schneider Electric, and Wiser are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. 1415 S. Roselle Road, Palatine, IL 60067 • Tel: 847-397-2600 • Fax: 847-925-7500 • www.schneider-electric.us



# A home is more than rooms of a house.

It is a refuge, a place of comfort designed to provide an environment where memories can be made, relationships built, lives nurtured, and dreams realized. Additionally, a home is an investment vehicle where the returns are counted as appreciation in value, but also in the monthly energy savings you generate. At Schneider Electric™ we help you create quality, efficient, and productive homes with smart, next generation residential energy technology that takes a home to an unprecedented level.

Adding energy efficient solutions through installing Juno™ by Schneider Electric LED fixtures, reliable Square D™ by Schneider Electric power distribution products, advanced APC by Schneider Electric™ power protection devices, state-of-the art solar inverters, or electric vehicle charging stations, couldn't be easier and comes without sacrificing comfort or convenience.

Our active energy monitoring technology empowers you to minimize wasted energy and take control of your home's energy usage and output without sacrificing comfort or convenience. From the home office to the bedroom, from the kitchen to the home theater and garage, Schneider Electric transforms every room of a house into the type of efficient, model environment homeowners seek today.

## Looking to upgrade a residential service while saving time and effort?



Make your life easier with the Square D Service Upgrade Load Centers. Its inventive design makes challenging flush-mount service upgrade jobs faster, easier, and cleaner.

The uniquely designed load center end-plate features four removable end plates with four feed-through points, which allow the enclosure to be positioned in the wall in as little as five minutes. The lengthier cover and door eliminate any need for drywall repairs.

*"Thanks Schneider Electric! The Square D Service Upgrade Load Center is a fantastic product! It makes my life easier and reduces installation time!"*

– Mike Fletcher,
Residential Wireman West Side Electric,
Portland, Oregon Member of IBEW Local 48

Learn about the complete residential solutions of Schneider Electric, visit **www.SEreply.com** and enter key code **j562v** for more information.

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, APC, Juno, and Square D are trademarks owned by Schneider Electric Industries SAS or its affiliated companies.
1415 S. Roselle Road, Palatine, IL 60067 • Tel: 847-397-2600 • Fax: 847-925-7500 • www.schneider-electric.us

# How can Schneider Electric help your designs meet today's demands?



## Smart intelligent designs

Make your designs smart from the very beginning of conception, to the final design.

### Design solutions

The task of designing has never been more difficult — new codes, standards, and evolving technology, such as Building Information Management (BIM), all impact a building's design, speed, and efficiency. With teams of on-staff professional engineers and regulatory experts, Schneider Electric™ provides the support you need to accomplish your projects on-time, with intelligence included.

### Energy management solutions

As The Global Specialist in Energy Management™, Schneider Electric focuses heavily on solutions and strategies around sustainable design and energy management. Codes and standards such as NEC® 2011 and ASHRAE 90.1 are under continuous maintenance, as well as the constant evolution of federal and state energy regulations. Our energy experts can help you stay up-to-date. Today project designs require more focus on energy efficiency. Schneider Electric can provide the insight to help your next design exceed its energy goals.

### Safety solutions

Safety is a critical component of any design, and safety regulations must be kept in order to maintain maximum protection against dangerous hazards. Our experts can provide the design information and recommendations you need to understand the dangers of arc flash and how to mitigate risks while complying with current guidelines. Your designs need to be safe and reliable in order to protect and save lives for years to come. Get Schneider Electric involved early in the design process to insure ongoing safety is built-in.




### New web site

Schneider Electric is committed to providing consulting engineers access to comprehensive engineering information that can help you throughout your design process. The consulting engineer website of Schneider Electric is built for you.

Easy access to:

- Design/application guides
- Product specifications
- Technical white papers
- Codes and standards
- Product data bulletins
- Calculators and online tools



Evaluating system through-fault protection designs?

Register to download our "LV Transformer Through-fault Protection" White Paper.

**Visit www.SEreply.com and enter key code b653v.**

Make the most of your energy℠

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric, The global specialist in energy management, and Make the most of your energy are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. All other trademarks are property of their respective owners. • 998-3560_US
1415 S. Roselle Road, Palatine, IL 60067 • Tel: 847-397-2600 • Fax: 847-925-7500 • www.schneider-electric.us

# Square D Integrated Power and Control Solutions (IPaCS)

## Innovative solutions that save space, labor and time

For over 30 years, Square D by Schneider Electric™ IPaCS™ business has been providing integrated electrical solutions for retail construction, commercial, and industrial projects.

The Square D IPaCS family combines electrical distribution equipment, building controls and automation into a single factory-assembled and pre-wired enclosure. These innovative solutions save valuable floor space, shorten construction cycle times, and reduce installation and material handling costs.

## Why specify solutions from Square D IPaCS?

**Minimize space requirements.**
Electrical panels and transformers are stacked in a modular line-up, which saves valuable floor and wall space.

**Reduce contractor labor risks.**
Because the contractor is swapping a variable cost (labor) for a fixed cost (product), their risk on the overall project is reduced.

**Reduce material handling.**
Fewer items to receive, inventory, and move around the jobsite because components are factory-installed and pre-wired into a single lineup or enclosure.

**Save design time.**
For designs with multiple locations, standardized designs can be created to provide consistency between sites.

**Shorten construction cycle times.**
Pre-assembled construction means less time required on-site to install, reducing the overall construction cycle.

**Single point of responsibility.**
Third-party controls/components can be installed, wired, and tested in IPaCS integrated equipment at the factory to assure it works like it's supposed to when it gets to the jobsite.



Integrated power center with third-party controls

## Solutions available from Square D IPaCS

**Modular Panel System (MPS)**
Tailored to customer specifications and typically includes panels, lighting control, and equipment spaces.

**Integrated Power Center (IPC™)**
For more complex applications, including HVAC controls, lighting controls, power quality and power conditioning products, TVSS, building management systems, and power metering/monitoring solutions, as well as electrical distribution equipment.

**Integrated Power Center 2 (IPC2™)**
Features include those found in the IPC and are provided in a free-standing enclosure that can be front and rear aligned when transformers are included. IPC2 is seismically qualified. Enclosure options include NEMA® 1, NEMA 1 with driphood and NEMA 3R.

**Standby Power Connection Solutions (SPQ)**
Provides the ability to quickly connect to a portable standby power generator. Suitable for N-3R (outdoor) installations.



MPS



IPC2



IPC2 transformer combo



SPQ



# Are you overlooking an enormous market?

With the demand for energy skyrocketing, customers will require more sustainable energy solutions. Schneider Electric™ EVlink™ charging stations were developed with this key factor in mind, providing a greener, more economical transportation option while helping to reduce the world's global footprint. EVlink electric vehicle (EV) charging solutions are designed to meet the needs of any customer, while providing the safety you demand from a partner you trust.

- All charging stations are designed and manufactured in-house by Schneider Electric
- UL listed and SAE J1772 compliant to ensure compatibility with any EV entering the market today
- An integral ground fault interrupter set at 5 mA provides superior protection to users if a fault is detected

## Learn more!

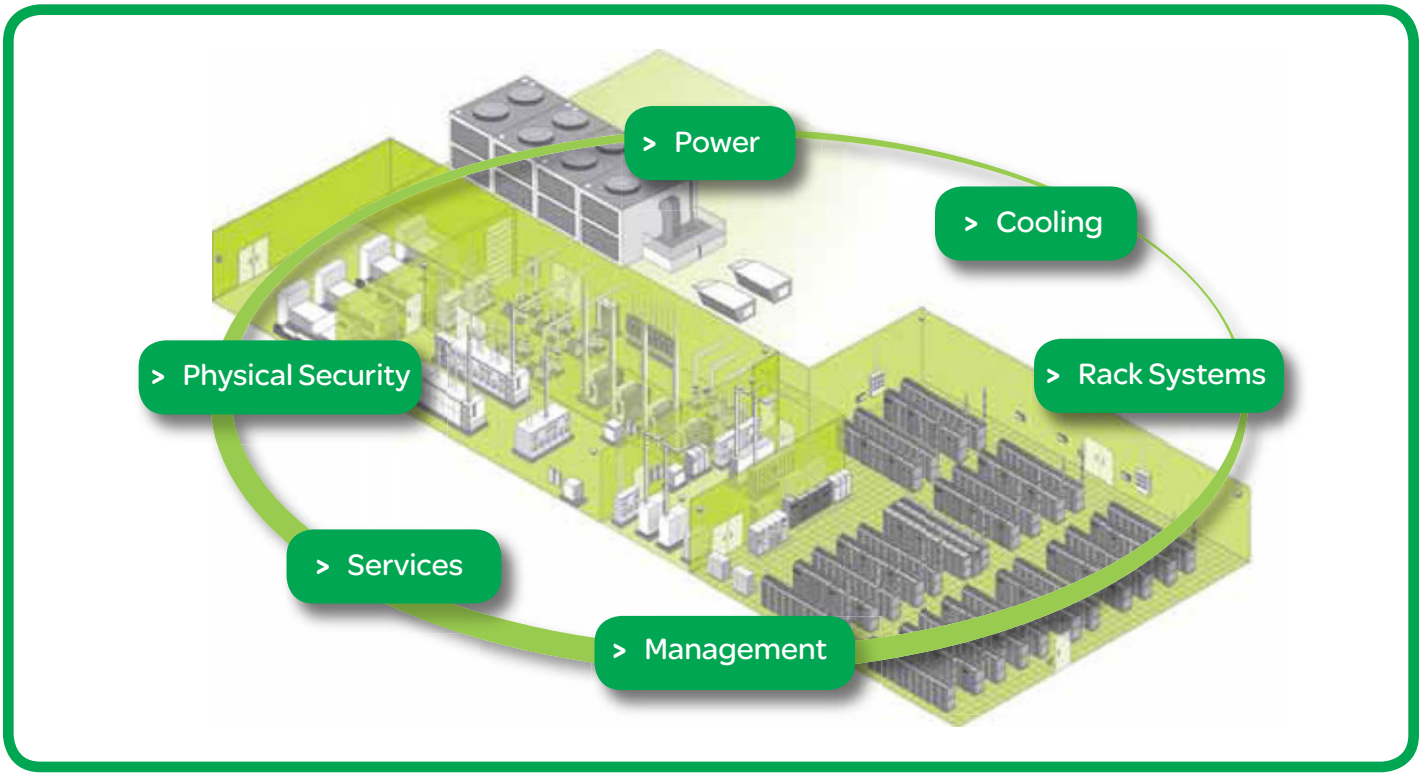
EVs are now a part of everyday transportation. Download a **FREE** EV fact sheet to learn how you can get involved today. Visit **www.SEreply.com** and enter key code **b653v**.

Make the most of your energy℠

Schneider Electric™

© 2011 Schneider Electric. All Rights Reserved. Schneider Electric, Make the most of your energy, and EVlink are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. • 1415 S. Roselle Road, Palatine, IL 60067 • Tel: 847-397-2600 • Fax: 847-925-7500 • www.schneider-electric.us

# Schneider Electric makes the connections.




## Maximum efficiency and availability from rack to row to room to building

### Making the connection between IT and facilities

With today's technology challenges, Schneider Electric™ understands that data centers must be viewed as interconnected environments — from rack to row to room to building. We call this integration the data center physical infrastructure or DCPI. The only clear path to the highest availability and maximum efficiency, DCPI comprises power, cooling, physical security, and rack systems and is monitored and managed via software solutions and professional services.

### Making the connection between efficiency and availability

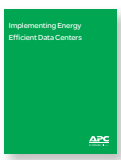
Today, maximized energy efficiency and guaranteed availability must work hand in hand. So Schneider Electric offers integrated cooling strategies across the DCPI. This hybrid approach delivers true energy savings — but never at the expense of availability. And we further optimize availability and efficiency with an integrated software platform that enables end-to-end monitoring and management of all DCPI domains. This holistic solution provides visibility and interoperability across the DCPI.

### Making the connection with key industry partners

Data centers can't be built without constant communication and coordination with vendors and other key players. Only Schneider Electric has the consulting and services network, personal relationships, and real-world experience to give you the single point of contact you need to take your integrated data center from envisioned to online.

### Integrated architectures for Active Energy Management™

- **Power** The power domain connects it all – from generators to UPSs to PDUs – for cross-vendor interoperability.
- **Cooling** Our highly efficient integrated solutions combine chillers, perimeter cooling, hot aisle containment, and row-based options to maximize efficiency and guarantee availability.
- **Physical Security** Our single-pane view includes access control and surveillance across one or multiple facilities.
- **Rack Systems** Interconnected, any-IT, vendor-compatible rack enclosures, accessories, and air containment solutions support HD processing needs.
- **Services** The professional services of Schneider Electric provide provide one point of contact for data center planning, building, and operation.
- **Management** Our exclusive integrated software architecture removes management "silos" for greater energy awareness and efficiency and higher availability across the entire DCPI.




Download the FREE White Paper,
"Tackling Today's Data Center Energy Efficiency Challenges."

**Visit www.SEreply.com and enter key code j754v Call 888-778-2733**

Schneider Electric™

©2011 Schneider Electric. All Rights Reserved. Schneider Electric and Active Energy Management are trademarks owned by Schneider Electric Industries SAS or its affiliated companies.
email: esupport@apc.com Schneider Electric, North American Operating Division, 1415 S. Roselle Road, Palatine, IL 60067, P: 847-397-2600 www.schneider-electric.us/about-us/brands 998-2598_GMA



# Seeing is believing

When you're trying to solve a business or engineering challenge, you need a team of industry experts with extensive knowledge of your industry, as well as the willingness to go anywhere, work with any supplier, to find the most cost-effective, complete solution for you.

As The Global Specialist in Energy Management™ and sustainable manufacturing, we're always coming up with new ways to help businesses work better, faster, more efficiently, and profitably.

That's why we have developed the Schneider Electric™ Centers of Excellence and Innovation Centers. To simplify your understanding of the broadest range of power, control, automation, safety, security, and energy management solutions, and how they can benefit your business.

These facilities give you the ability to see and touch live demonstrations of the innovative solutions for both OEM manufacturers and industrial facilities. You also get access to the multi-disciplined teams that can configure and customize your solutions to meet your specific needs and further minimize your future risk. These experts have access to fully-equipped laboratories, numerous technical experts and the resources of the global Schneider Electric organization all with the sole purpose of demonstrating to you the commitment of Schneider Electric to delivering best-in-class solutions to your business challenges.

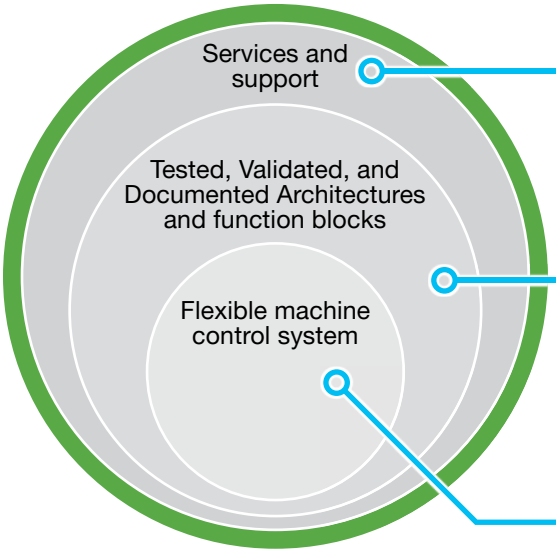
## Visit Schneider Electric Center of Excellence

Want to know more? Be our guest at one of Schneider Electric Centers of Excellence located on the East Coast, West Coast, and in the Midwest. For more information, contact your local Schneider Electric representative or Square D™ by Schneider Electric distributor and ask to schedule a visit.

# MachineStruxure solutions

Automation solutions for industrial machines that can save you up to 50% of design and implementation time.

MachineStruxure™ helps you design integrated, energy-efficient, and cost-effective machines, while maximizing performance and reducing design time and time to market. Based on Tested, Validated, and Documented Architectures (TVDA), MachineStruxure incorporates flexible and scalable hardware platforms with SoMachine,™ a comprehensive single software suite with application function block libraries. Plus, our hardware control platforms optimize control through embedded intelligence in drives, HMI, motion, and logic controllers.




### Stay one step ahead.

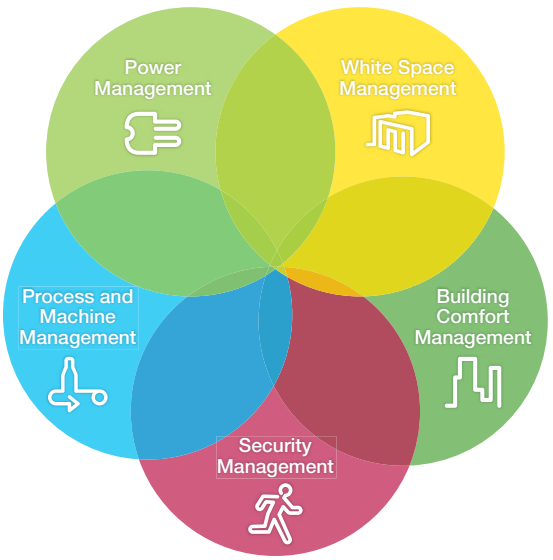
However complex your machine, you can rely on our team of dedicated experts and our international presence to assist you and achieve excellence at every stage of the machine's lifecycle.

### Save up to 50% of design and implementation time.

Use the solid base of Tested, Validated, and Documented Architectures and function blocks to quickly build your automation solutions. Optimized cost, footprint, and performance — all you need to do is adapt them to your applications.

### 100% flexibility and optimization of your machines.

Our different machine control platforms include embedded intelligence. Now you can integrate control that is perfectly suited for your machine requirements. By utilizing SoMachine software, you can move from one application to another capitalizing on your developments.




## MachineStruxure, one of the mainstays of EcoStruxure

EcoStruxure™ is a system based on Active Energy Management™ architectures, from an electrical power plant to a single electrical socket. EcoStruxure enables you to benefit from intelligent and simplified energy management systems, to reduce your investment and operational costs, and reduce waste resulting in energy savings up to 30%.

>> Learn more about MachineStruxure, visit **www.SEreply.com** and enter key code j546v.

# Plantstruxture solutions

As the foundation of the Schneider Electric™ EcoStruxure Active Energy Management™ architecture for industrial customers, the PlantStruxure™ collaborative automation solution enables the achievement of both energy and productivity objectives.

This scalable solution delivers a single environment to measure energy use, process data, asset utilization, and machine performance by:

- Reducing engineering, operations, and maintenance costs
- Maximizing plant and production efficiency
- Improving production quality
- Protecting people, plant assets, and the environment
- Supporting production and business decisions

PlantStruxure™

## What makes PlantStruxure unique?

### Scalable for changing times

From tens of I/O to hundreds of thousands, the scalability of our system means that you can start out small and grow as your requirements change.

### Flexible because your process is unique

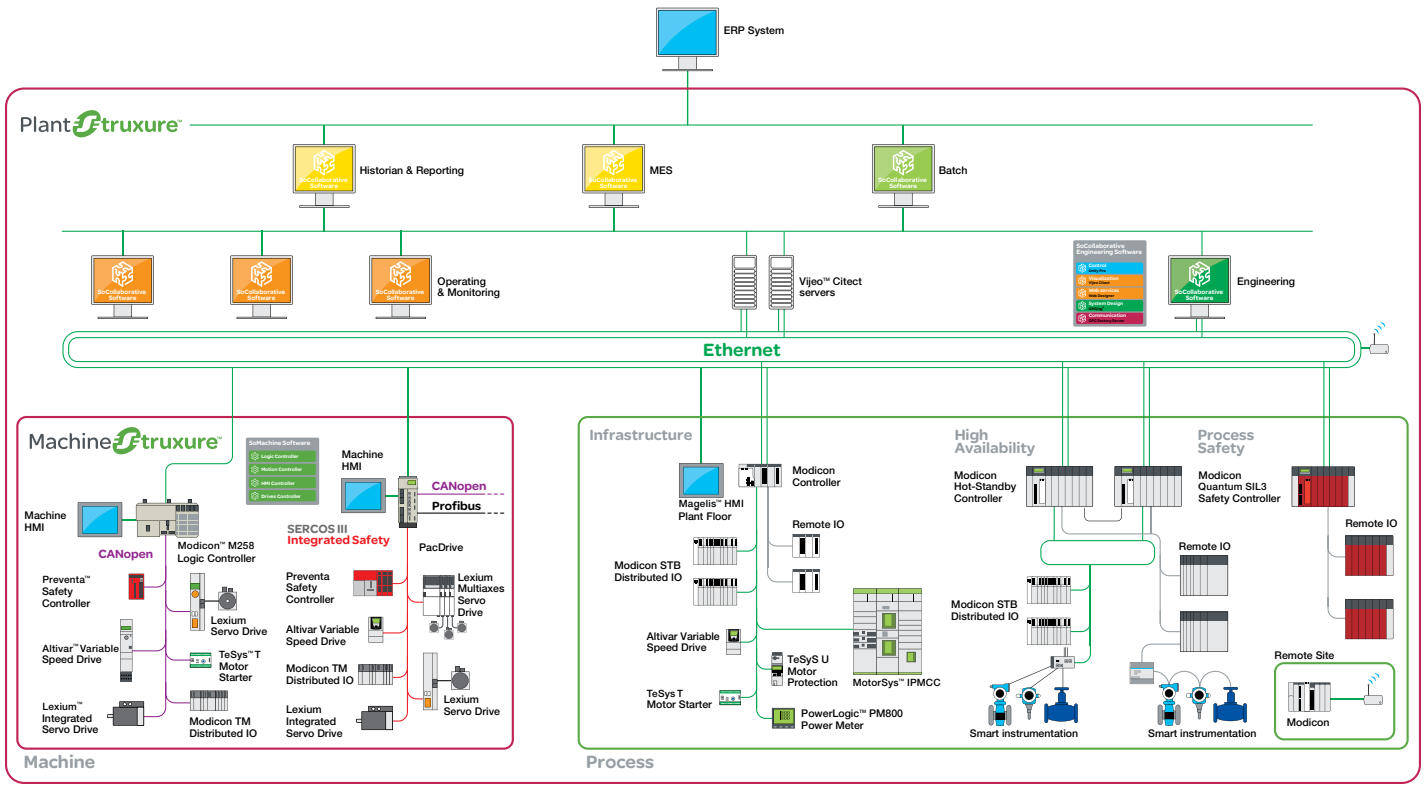
Our system supports the architectures that you need for your application. Single site, multiple sites, distributed control, local control, discrete, process, safety, and batch all within one system.

### Integrated to reduce risk

The entire system, from the manufacturing execution system (MES) to component devices to functionality, are designed to work together with your chosen technology partners.

### Collaborative to increase efficiency

Our system is open to exchange information with other plant and business software, and fosters an environment of collaboration by delivering the process information you need in the way that you like to see it.





# Simplify your machine designs

## with Schneider Electric 2-D and 3-D CAD library.

Schneider Electric™ has simplified the design and development of your machines and applications by publishing a growing list of 2-D and 3-D CAD files for your use. With a broad line of power, control and automation products, Schneider Electric 3-D Library is the perfect place to find detailed product models and specifications.

Built with compatibility to your design tools in mind, the 2-D and 3-D CAD library allows you to simply pick your format, download the file, and insert it into your design. The catalog delivers advanced 2-D and 3-D viewing technology that enables users to pan, zoom, and rotate.




>> Learn more about 2D and 3D CAD library, visit **www.SEreply.com** and enter key code **j564v**.

# Automation & Control Excellence (ACE)

## Need help developing a solution and improving the performance of your facility?

Your Local Schneider Electric™ ACE Distributor is there to provide the answers and deliver the solutions you need. This exclusive group of Schneider Electric distributors has distinguished themselves as Schneider Electric best source of service and support for the unique challenges of the automation and control markets. They specialize in offering:

### The right inventory – when and where you need it

ACE distributors have a wider array of available automation and control inventory on their shelves in your local market. They are your fastest and best source for Schneider Electric products to meet your automation and control needs.

### Unparalleled technical capability

ACE distributors set the standard for Automation & Control Excellence. They offer decades of experience working with leading-edge automation and control solutions.

### A thorough understanding of your business

You can count on our ACE distributors to keep pulse of advancing technology and best practices. ACE distributors have access to Schneider Electric vast array of product, segment, and solution specialists who assist them in understanding which products and solutions are tailored to your business.

### Become an ACE distributor

The ACE program provides its members with a number of exclusive joint market development activities, including local trade shows, sales support tools and resources, marketing programs, and advertising campaigns to help you reach out to customers and prospects in your local market.

Becoming an automation and control expert requires a significant investment in training and resources by knowledgeable personnel. The Automation & Control Excellence program not only promotes development of these capabilities, but also provides a number of resources to make it simple.

For more information on becoming an Automation & Control Excellence Distributor, visit **www.schneider-electric.us/go/ACE** or email **se-ace@schneider-electric.com**.

ACE Automation & Control Excellence



>> Register to win a free trip to the Innovation Center in Raleigh, NC. Visit **www.SEreply.com** and enter key code **j565v**.

# Tested, validated, documented architectures

## Improving your machine and business performance.

Our new MachineStruxure™ solution is designed to help you achieve faster, lower risk, and more energy-efficient and cost-effective designs and installations through the use of proven and innovative tested, validated, documented architectures that shorten time to market. MachineStruxure incorporates flexible and scalable hardware platforms and a comprehensive software suite with application function libraries.

### Increase machine performance and innovation

- Speed up machine concept to design and adapt them to your needs using our best-in-class product offer, predefined machine architectures and application function blocks.

### Reduce total cost of ownership

- Using our international offers, experience, presence, and international post sales support.

### Shorten time to market

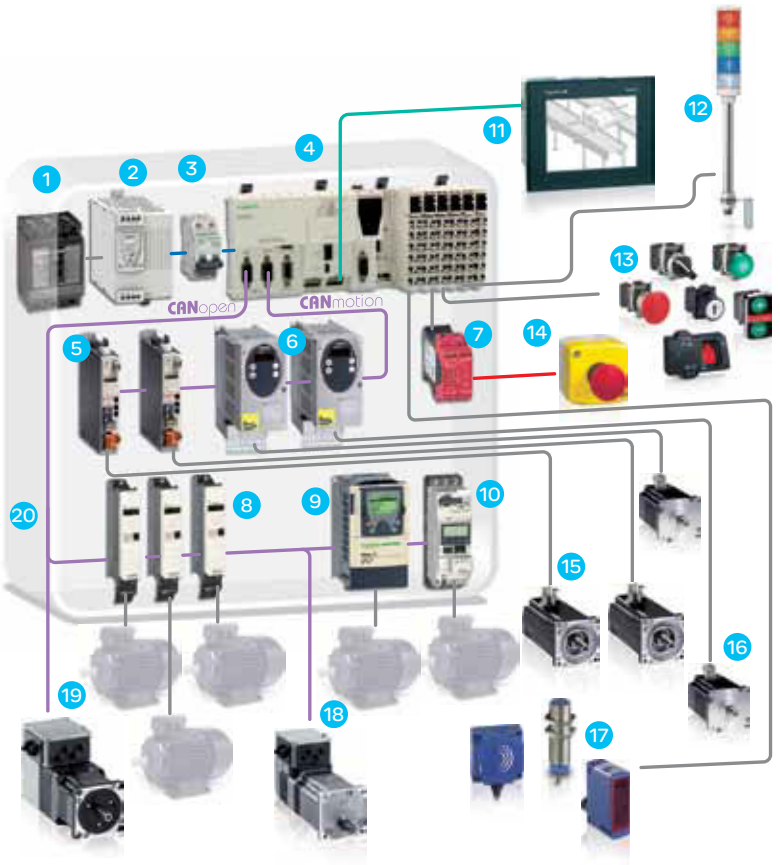
- Save up to 50 percent in control system design and installation time with tested, validated, and documented architectures, ready-to-use function blocks, predefined CAD panel designs and wiring diagrams, fully-documented system user guides.
- Select the control solution to meet your machine requirements with our flexible and scalable machine control platform.
- Choose the appropriate controller with embedded intelligence in drives, HMI displays, motion and logic control products.
- Simplify and speed up control system programming and commissioning with an easy-to-use, single software suite, providing one tool, one connection, one project file and one download with complete openness and transparency.

### Performance automation tested, validated, documented architecture

An excellent solution using simple controls architecture dedicated to machines requiring performance and robustness. This architecture combines the new Modicon™ M258 logic controller, SoMachine™ software, Altivar™ 312 variable speed drive, TeSys™ U motor starters, Lexium™ 32 servo drive, and a Magelis™ XBTGT/GK/GH display unit, with traditional hardwired cabling.

### Compact/Hardwired/Logic Controller/Modicon™ M258

1. Circuit breaker **PowerPact™**
2. Switch mode power supply **Phaseo™ ABL 8**
3. Modular circuit breaker **Compact Multi 9™**
4. Motion controller **Modicon LMC058**
5. Servo drive **Lexium 32**
6. Stepper drive **Lexium SD328**
7. Machine safety **Preventa™ XPS**
8. Variable speed drive **Altivar 32**
9. Variable speed drive **Altivar 71**
10. Motor starter **TeSys U**
11. Display unit Magelis **XBTGT/GK/GH**
12. Tower light **Harmony™ XVM**
13. Push buttons and switches **Harmony XB4/5**
14. Emergency stop **Harmony XALK**
15. Servo motor **BSH**
16. Stepper motor **BRS 3**
17. Sensors **OsiSense™ XC/XS/XU/XM/XX**
18. Integrated drive **Lexium ILE**
19. Integrated drive **Lexium ILA**
20. Enclosure **Himel™**



## OEM Technology and Solutions Center




**OEM Technology and Solutions Center**

### Complete Development and Support Services Throughout Your Project Lifecycle

Machines today are characterized by a growing need to perform faster and have greater flexibility to solve more complex automation challenges than ever before. In addition, engineering costs have an increasingly important impact across the lifecycle of the machine, from concept and design to installation, maintenance, and service. The ability to reduce the time to market and the total cost of the machine, while achieving innovation and increased performance, is a machine builder's continuous challenge.

What's more, we take it one step further with our OEM Technology and Solutions Center — removing the complexity of machine building by offering start-to-finish project lifecycle expertise, including project management, electrical panel design, application co-design, joint marketing, testing, training, and services resources.

## At Schneider Electric, we are more than a component supplier. We are your partner for a full range of technical and support solutions.



**Dedicated support for your success**

### OEM Knowledge Base – Dedicated support for your success

Providing expert project management skills to you and your company is one of the OEM Technology and Solutions Center's greatest values. We're totally committed to our mission of giving you a leg up over the competition and saving you time and budget by utilizing our comprehensive project management services to ensure your project's successful execution. We are your solutions partners throughout the entire project lifecycle, providing a single point of contact, while developing and managing customized solutions, and providing clear communication and project reporting. Whether it's recommending productivity-boosting, efficient designs and innovative solutions, or assisting with conversions or codes and standards issues, our multi-disciplined teams are prepared to meet your specific needs.

### Engineered Panel Solutions

Expand your engineering services without the additional cost through the OEM Technology and Solutions Center. This includes Schneider Electric Engineered Panel Solutions business line that provides original equipment panel design and manufacturing process services for application-based solutions. We serve as an extension of your engineering arm without the overhead costs, thereby freeing up your engineering resources and allowing you to focus on your market offering. We offer application consulting, turn-key engineered solutions, specialized enclosure manufacturing, and turn-key motor control machine solutions.



**OEM Solutions Testing and Training Center**

### Solutions Testing and Training Center

Learn how to simply and easily build and commission flexible machines that reduce costs and time to market — all by the time you complete training. We offer basic and advanced training classes, hands-on testing, and demonstration offered through the OEM Technology and Solutions Center. We also offer on-demand training, schedule at your request and customized to your specific machine and application needs.

>> Learn more about the OEM Technology and Solutions Center, visit **www.SEreply.com** and enter key code **j554v**.

## Section 1: Load Centers

Main Backup Power Solutions and Manual Transfer Accessories . . . 1-9
Meter Mains, 100–200 . . . 1-19
Enclosed Solar Ready CSED Devices . . . 1-25

## Section 2: Metering Equipment

1 Phase Main Devices . . . 2-10
3 Phase Main Devices . . . 2-12

## Section 3: Safety Switches

Special Application Enclosures . . . 3-7
Motor Disconnect and Receptacle Switches . . . 3-8
1000 Vdc Photovoltaic Heavy Duty Disconnect Switch . . . 3-22

## Section 4: Power Monitoring and Control

Power Monitoring Software
Remote Energy Management . . . 4-4
PowerLogic™ Metering
DM6200 Panel Meter . . . 4-10
PM1200 Multifunctional Power Meter . . . 4-10
Arc Flash Protection and Mitigation System
Vamp 221 . . . 4-26, 4-27

## Section 5: Lighting Control and Home Integrated Systems

Mark II Black and White and Spectrum Color Touch Screen . . . 5-7
Mark II Black and White and Spectrum Color Touch Screen (Desktop Model) . . . 5-7
C-Bus™ Keypads, Touch Screens and Accessories
Spectrum Touch Screen . . . 5-8
Wiser™ Home Controller . . . 5-8
8-Channel Low Voltage Relay . . . 5-14
Occupancy Sensors
Fluorescent High Bay Sensors . . . 5-22
UL 924 Emergency Control Device . . . 5-22

## Section 6: Surge Protective Devices

EMA Surge Protective Devices (SPDs)
(25 new catalog numbers and new options) . . . 6-2
Options for L-L Enhanced SPDs and EBA SPDs . . . 6-3
Replacement Modules for EMA SPDs
(15 new catalog numbers) . . . 6-4
Type 1 SPD option for I-Line Branch Units . . . 6-5
Surgelogic™ OEM / Assembler Kits (15 new catalog numbers) . . . 6-6
SDSA3650 600 V 3-phase, 3-wire, Delta SPD . . . 6-6
HWA Surge Protective Devices (SPDs)
(9 new catalog numbers) . . . 6-7
SDSA1175T Surge Protective Device (SPD) . . . 6-7
Flush Mount Kit for XR and HWA Surge Protective Devices . . . 6-7
XR Nipple Mounted Surge Protective Devices (SPDs) . . . 6-8
Whole House SPDs (NEMA 1 Basic, NEMA 3R Basic) . . . 6-8
HEPD80 Home Electronics Protective Device and Replacement Kit . . . 6-8

## Section 7: Circuit Breakers

PowerPact™ H-Frame Circuit Breakers—now available with Micrologic™ Electronic Trip Units . . . 7-4, 7-23
PowerPact J-Frame Circuit Breakers—now available with Micrologic Electronic Trip Units . . . 7-4, 7-23
New R Interrupting for PowerPact H and J-Frame rating . . . 7-4, 7-22, 7-23
400 A PowerPact L-Frame Circuit Breakers with Micrologic Electronic Trip Units . . . 7-5, 7-25
PowerPact L-Frame Motor Circuit Protectors . . . 7-31
PowerPact L-Frame Automatic Switches . . . 7-34
Masterpact™ NW DC Circuit Breakers . . . 7-36
Accessories for L-frame
(mixed in with other accessories) . . . 7-39 thru 7-44
Micrologic Electronic Trip Units for PowerPact H-, J-, and L-frame Circuit Breakers . . . 7-46
Micrologic Trip Unit Accessories for Powerpact H-, J-, and L-frame Circuit Breakers . . . 7-48

## Section 8: Operator Mechanisms and Disconnect Switches

MD Motor Disconnect Switches . . . 8-7
30–60 A Compact LK Nonfusible IEC Style Disconnect Switch . . . 8-8
100–400 A LK Nonfusible IEC Style Disconnect Switch . . . 8-8
GS Fusible IEC Style Disconnect Switches . . . 8-9
3 in. Handle Assembly . . . 8-19
PowerPact D&L, MG and NSJ cable mechs (bottom half of the table) . . . 8-22

## Section 9: Panelboards

NQ 14-inch-wide Merchandised Panelboards . . . 9-8

## Section 10: IPaCS Equipment

Standby Power Quick-Connect (SPQ) Tap Boxes . . . 10-4
Submetering Integrated Power Center . . . 10-4

## Section 11: Switchboards & Switchgear

DVCAS Switchgear for Wind Farm Applications . . . 11-15
Power-Zone™ Model III Package Unit Substations . . . 11-17
Types EOX and VOX Vacuum Substation Circuit Breakers . . . 11-19
Automatic Circuit Recloser . . . 11-20
Load Break Switch/Sectionalizer . . . 11-20
ADVC Controller . . . 11-20

## Section 12: Busway

PowerPact H-, J-, and M-Frame Plug-in Units with Electronic Trip . . . 12-12
PowerPact P-Frame Plug-in Units . . . 12-13

## Section 14: Transformers

NEMA Premium Transformers . . . 14-3, 14-7
Transformer Enclosures . . . 14-9
1201–15,000 V Indoor Transformers . . . 14-20

## Section 15: Medical Products

Iso-Gard™ Series 6 Line Isolation Monitor—UL Recognized . . . 15-4
Iso-Gard IG2000P Remote Alarm Indicator . . . 15-4
Iso-Gard IGR and IGRD Nurses' Station Indicators/Alarm Annunciators . . . 15-5
Iso-Gard IGT Dual Clock/Timer . . . 15-5
Iso-Gard IGT1550 Remote Control . . . 15-5

## Section 16: NEMA Contactors & Starters

TeSys™ T Motor Management System
(NEMA Sizes 1–6) . . . 16-18, 16-46, 16-87

## Section 17: Motor Control Centers

Intelligent Motor Control Center—Model 6 iMCC . . . 17

## Section 18: IEC Contactors and Starters

TeSys™ F1700, F2100 Contactors . . . 18-5
Mechanical Interlock and Power Connection Kit for TeSys D Reversing Contactors . . . 18-14
TeSys D Overload Relay Mounting Kits . . . 18-16
Motor Protector Circuit Breakers . . . 18-33

## Section 19: Push Buttons and Operator Interface

22 mm Push Buttons
XB5R Plastic and XB4R Metal Wireless, Batteryless Push Buttons . . . 19-63 thru 19-64
XB5S Biometric Switches . . . 19-65 thru 19-66
Double and Triple-Headed Push Buttons
XB4 Two Button/Three Button Push Buttons, Momentary . . . 19-23

© 2012 Schneider Electric
All Rights Reserved

ZB4 Two Head/Three Head Operators, Momentary. . . . . 19-27 thru 19-28
ZB4 Two Button with Clear Pilot Light, Momentary . . . . . 19-33
XB5 Two Button/Three Button, Momentary . . . . . 19-42
ZB5 Two Head/Three Head Operator. . . . . 19-47
ZB5 Two Button with Clear Pilot Light, Momentary . . . . . 19-54
30 mm Push Buttons
Momentary Action, Metal Mushroom Head Push Button Operators . . . . . 19-67 thru 19-68
Two-Position, Push-Pull Action Metal Mushroom Head Push Button Operators . . . . . 19-68
Non-Illuminated Turn-to-Release Mushroom Operators . . . . . 19-68
Non-Illuminated Multifunction Turn-to-Release Mushroom Operators . . . . . 19-78
Control Stations and Enclosures
Guarded Enclosures (Empty) . . . . . 19-105
Assembled Guarded Enclosures . . . . . 19-106
Tower Lights and Beacons
Rotating Mirror Beacons . . . . . 19-107
XVC Pre-Assembled and Pre-Wired Tower Lights. . . . . 19-108 thru 19-109
XVS Sirens and Electronic Alarms . . . . . 19-116

## Section 20: Electronic Sensors & Machine Cabling

XU•M Metal Body Photoelectric Sensors. . . . . 20-2
XUVR / XUVA Optical Fork Photoelectric Sensors . . . . . 20-3
XS Inductive Proximity Sensors . . . . . 20-5 thru 20-9
XT Capacitive Proximity Sensors . . . . . 20-9

## Section 21: Limit Switches

Osisense™ XCKM and XCKL limit switches, classic, metal, variable composition. . . . . 21-20 thru 21-21
Osisense™ XCKJ limit switches, standard, industrial format, EN 50041, metal, fixed or plug-in body . . . . . 21-24 thru 21-25
9007C limit switches, heavy duty industrial, plug-in body, metal, adaptable subassemblies. . . . . 21-30 thru 21-31

## Section 22: Pressure, Vacuum, Temp, and Float Switches

XMLK Pressure Transmitters . . . . . 22-6 thru 22-7

## Section 26: AC Drives & Soft Starts

Altivar™ 212 . . . . . 26-6
S-Flex™ 212 Enclosed Drive Controller. . . . . 26-16

## Section 27: Automation Products

HMI
Magelis™ STO/STU Small HMI. . . . . 27-3
Magelis XBT GH Handheld HMI . . . . . 27-3
Magelis Smart+ iPC Industrial PC (without moving parts) . . . . . 27-4
Distributed I/O
Modicon™ TM5 Expansion Modules and Distributed I/O. . . . . 27-5
Modicon TM7 Expansion Modules and Distributed I/O. . . . . 27-5
OEM Controller/Machine Solutions
Modicon M168 Programmable Logic Controller . . . . . 27-8
Modicon 238 Logic Controller. . . . . 27-8
Modicon 258 Logic Controller. . . . . 27-8
Modicon LMC058 Motion Controller . . . . . 27-9
Altivar IMC Integrated Controller Card (for Altivar 61 and Altivar 71 Variable Speed Drives). . . . . 27-9
Magelis XBT GC HMI Controller . . . . . 27-9
SoMachine Software Suite. . . . . 27-10

## Section 28: Enclosures

All new section featuring:
Spacial.pro Software. . . . . .28-3
ProClima Software . . . . . .28-3
Spacial.ref and Thalassa.ref Software. . . . . .28-3
Spacial™ Steel Enclosures . . . . . .28-4
Thalassa™ Polyester Enclosures . . . . . .28-7
ClimaSys™ Thermal Management System . . . . . .28-8

## Section 29: Advanced Products

All new section featuring:
EVlink™ Electric Vehicle Charging Stations (Overview)
Indoor Charging Stations (Residential Applications). . . . . 29-3
Outdoor Charging Stations. . . . . 29-4
Wiser™ Energy Efficiency Solutions (Overview). . . . . .29-6
In-Home Display (IHD) . . . . . 29-6
Programmable Communicating Thermostats (PCT). . . . . 29-6
Smart Plug . . . . . 29-7
Load Control Relays . . . . . 29-7
Large Load Control. . . . . 29-7
Ethernet Gateway . . . . . 29-8
Conext™ Series Grid Tie Solar Inverters . . . . . .29-9

© 2012 Schneider Electric
All Rights Reserved

# Section 1
## Load Centers




QO Plug-On Circuit Breakers, Page 1-2


QO Load Center, Page 1-5


HOM 1P, Page 1-14


Homeline Load Center, Page 1-15


Combination Service Entrance Devices, Page 1-19


**QO™ Miniature Circuit Breakers** 1-2
- QO Plug-On Circuit Breakers 1-2
- Accessories 1-4

**QO Load Centers** 1-5
- Indoor, 1Ø, Main Lugs 1-5
- Indoor, 1Ø Main Circuit Breaker 1-6
- Rainproof 1Ø, Main Lugs, Main Circuit Breaker 1-7
- 3Ø, Main Lugs, Main Circuit Breaker 1-8
- New! Backup Power Solutions and Manual Transfer Accessories 1-9
- Special Applications 1-10
- QO Load Center Accessories 1-11

**Homeline™ Circuit Breakers** 1-14

**Homeline Load Centers** 1-15
- Indoor, 1Ø, Main Lugs, Main Circuit Breaker 1-15
- Rainproof, 1Ø, Main Lugs, Main Circuit Breakers 1-16

**QO and Homeline Load Centers** 1-17
- Load Center Value Packs 1-11
- Load Center Mounted Surge Protection Devices 1-12
- QO and Homeline Accessories 1-12
- Indoor Load Centers, Dimensions, Knockouts 1-17
- Rainproof, Dimensions, Knockouts, Bolt-on Hubs 1-18

**Combination Service Entrance Devices (CSED)** 1-19
- New! Meter Mains, 100—200 A 1-19
- All-In-Ones, 100—225 A 1-20
- Meter Mains and All-In-Ones, 300—400 A 1-21
- Circuit Breakers, Accessories, Hubs 1-22
- Dimensions 1-23

New! **Solar Ready CSED** 1-24

**Enclosed Devices** 1-25

**Servicepak™ Power Outlet Panels** 1-26

**QO™ Load Centers** 1-27
- New! QO Plug-on Neutral CAFI Load Centers 1-27


SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

Square D brand QO miniature circuit breakers are plug-on products for use in QO load centers, NQOD and NQ panelboards, NQOD and NQ OEM interiors or Speed-D™ switchboard distribution panels. Bolt-on QOB circuit breakers are for use in NQOD and NQ panelboards or interiors.▲
The Square D exclusive Qwik-Open™ mechanism, with a trip reaction within 1/60th of a second, is standard on all 1P 15 A and 20 A QO circuit breakers.


QO 1P
1 Space Required


QOT 1P Tandem
1 Space Required


QO 2P
2 Spaces Required


QO2200 2P 200 A
4 Spaces Required


QO 3P
3 Spaces Required

## Table 1.1: Plug-On Circuit Breakers

| Amperes Rating ■ | 1P—120/240 Vac | | 2P—120/240 Vac Common Trip | | 2P—240 Vac ♦ Common Trip | | 3P—240 Vac Common Trip | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **10 k AIR** | | | | | | | | |
| 10 A | QO110 | **29.10** | QO210 | **67.00** | — | — | QO310 | **248.00** |
| 15 A | QO115★▼ | **29.10** | QO215★ | **67.00** | QO215H | **200.00** | QO315★ | **248.00** |
| 20 A | QO120★▼ | **29.10** | QO220★ | **67.00** | QO220H | **200.00** | QO320★ | **248.00** |
| 25 A | QO125★ | **29.10** | QO225★ | **67.00** | QO225H | **200.00** | QO325★ | **248.00** |
| 30 A | QO130★ | **29.10** | QO230★ | **67.00** | QO230H | **200.00** | QO330★ | **248.00** |
| 35 A | QO135 ★ | **29.10** | QO235★ | **67.00** | — | — | QO335★ | **248.00** |
| 40 A | QO140 ★ | **29.10** | QO240★ | **67.00** | QO240H | **200.00** | QO340★ | **248.00** |
| 45 A | QO145 ★ | **29.10** | QO245★ | **67.00** | — | — | QO345★ | **248.00** |
| 50 A | QO150 ★ | **29.10** | QO250★ | **67.00** | QO250H | **200.00** | QO350★ | **248.00** |
| 60 A | QO160 ★ | **29.10** | QO260★ | **67.00** | QO260H | **200.00** | QO360★ | **248.00** |
| 70 A | QO170 ★ | **67.00** | QO270★ | **134.00** | QO270H | **224.00** | QO370★ | **315.00** |
| 80 A | — | — | QO280★ | **189.00** | QO280H | **315.00** | QO380★ | **366.00** |
| 90 A | — | — | QO290★ | **189.00** | QO290H | **315.00** | QO390★ | **366.00** |
| 100 A | — | — | QO2100★ | **189.00** | QO2100H | **315.00** | QO3100★ | **366.00** |
| 110 A | — | — | QO2110★ | **428.00** | — | — | — | — |
| 125 A | — | — | QO2125★ | **428.00** | — | — | — | — |
| 150 A | — | — | QO2150★△◒ | **491.00** | — | — | — | — |
| 175 A | — | — | QO2175★△◒ | **491.00** | — | — | — | — |
| 200 A | — | — | QO2200★△◒ | **491.00** | — | — | — | — |
| Molded Case Switch 60 A max.–240 Vac | | | — | — | QO200 | **70.00** | QO300 | **248.00** |
| Molded Case Switch 100 A max.–240 Vac | | | — | — | QO2000☆ | **200.00** | QO3000☆ | **366.00** |
| **22 k AIR★** | | | | | | | | |
| 15 A | QO115VH ▼ | **63.00** | QO215VH□ | **146.00** | — | — | QO315VH□ | **371.00** |
| 20 A | QO120VH ▼ | **63.00** | QO220VH□ | **146.00** | — | — | QO320VH□ | **371.00** |
| 25 A | QO125VH | **73.00** | QO225VH□ | **146.00** | — | — | QO325VH□ | **371.00** |
| 30 A | QO130VH | **73.00** | QO230VH□ | **146.00** | — | — | QO330VH□ | **371.00** |
| 40 A | QO140VH | **73.00** | QO240VH□ | **146.00** | — | — | QO340VH□ | **371.00** |
| 50 A | QO150VH | **73.00** | QO250VH□ | **146.00** | — | — | QO350VH□ | **371.00** |
| 60 A | QO160VH | **73.00** | QO260VH□ | **146.00** | — | — | QO360VH□ | **371.00** |
| 70 A | QO170VH | **112.00** | QO270VH□ | **224.00** | — | — | QO370VH□ | **477.00** |
| 80 A | — | — | QO280VH□ | **315.00** | — | — | QO380VH□ | **530.00** |
| 90 A | — | — | QO290VH□ | **315.00** | — | — | QO390VH□ | **530.00** |
| 100 A | — | — | QO2100VH□◊ | **315.00** | — | — | QO3100VH□ | **530.00** |
| 110 A | — | — | QO2110VH□◊ | **1034.00** | — | — | — | — |
| 125 A | — | — | QO2125VH□◊ | **1034.00** | — | — | — | — |
| 150 A | — | — | QO2150VH△□◒ | **1061.00** | — | — | — | — |
| 175 A | — | — | QO2175VH△□◒ | **1061.00** | — | — | — | — |
| 200 A | — | — | QO2200VH△□◒ | **1061.00** | — | — | — | — |
| **42 k AIR★** | | | | | | | | |
| 40 A | — | — | QOH240☆ | **317.00** | — | — | — | — |
| 45 A | — | — | QOH245☆ | **317.00** | — | — | — | — |
| 50 A | — | — | QOH250☆ | **317.00** | — | — | — | — |
| 60 A | — | — | QOH260☆ | **317.00** | — | — | — | — |
| 70 A | — | — | QOH270 | **528.00** | — | — | — | — |
| 80 A | — | — | QOH280 | **651.00** | — | — | — | — |
| 90 A | — | — | QOH290 | **651.00** | — | — | — | — |
| 100 A | — | — | QOH2100 | **651.00** | — | — | — | — |
| 110 A | — | — | QOH2110☆ | **1389.00** | — | — | — | — |
| 125 A | — | — | QOH2125 | **1389.00** | — | — | — | — |
| **65 k AIR★** | | | | | | | | |
| 15 A | QH115▼ | **117.00** | QH215 | **293.00** | — | — | QH315★ | **507.00** |
| 20 A | QH120▼ | **117.00** | QH220 | **293.00** | — | — | QH320 | **507.00** |
| 25 A | QH125☆ | **117.00** | QH225☆ | **293.00** | — | — | QH325☆ | **507.00** |
| 30 A | QH130 | **117.00** | QH230 | **293.00** | — | — | QH330 | **507.00** |

▲ See Digest Section 1 for load centers, and Section 9 for panelboards and interiors.
■ 10–30 A circuit breakers are suitable for use with 60oC or 75oC conductors. 35–125 A circuit breakers are suitable for use with 75oC conductors.
♦ UL Listed 5 k AIR on corner grounded Delta systems.
★ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment haing motor group combinations and marked for use with HACR type circuit breakers.
▼ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.
△ Requires four spaces (1 AWG–300 kcmil Al/Cu.) Suitable for switching 120 Vac fluorescent lighting loads.
□ UL Listed for use ahead of QO, QO-GFI, QO-EPD, QOT, QO-AFI, and QO-PL 10 k AIR circuit breakers to permit their application at 22 kA fault level.
◊ 100 A maximum branch mounted opposite.
☆ Order only. Contact your local Field Office.
▽ Includes two circuit breakers (one QO2030 and one QO3020) and handle tie QOTHT.
◒ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.

## Table 1.2: QO/QOB Ring Terminal

(20% $ Price Adder)—Factory-installed only

| Ampere Rating | Poles | Suffix |
|---|---|---|
| 10–30 A | 1, 2, 3 | 5237 |
| 35–60 A | 1,2 | 5238 |
| 35–50 A | 3 | |
| 70–110 A | 2 | 5273 |
| 60–100 A | 3 | |

## Table 1.3: Wire Sizes■

| Circuit Breaker Type | Ampere Rating | Wire Size (AWG/kcmil) |
|---|---|---|
| QO 1P | 10–30 A | 14–8 Al/Cu |
| | 10–30 A | (2) 14–10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| QO 2P | 10–30 A | 14–8 Al/Cu |
| | 10–30 A | (2) 14–10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| | 80–125 A | 4–2/0 Al/Cu |
| | 150–200 A | 4–300 Al/Cu |
| QO 3P | 10–30 A | 14–8 Al/Cu, (2) 14-10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| | 80–125 A | 4–2/0 Al/Cu |
| QOB-VH | 110–150 A | 4–300 Al/Cu |
| QOT | 15–20 A | 12–8 Al 14–8 Cu |
| QO-AFI, QO-GFI or QO-EPD | 15–30 A | 12–8 Al 14–8 Cu |
| | 40, 50, 60 A | 12–4 Al 14–6 Cu |
| QO-PL | 10–60 A | 12–2 Al 14–2 Cu |

## Table 1.4: QOT Tandem Circuit Breakers

| Ampere Rating■ | Cat. No.★ | $ Price |
|---|---|---|
| **1P—120/240 Vac** | | |
| 15 A and 15 A | QOT1515 | **58.00** |
| 15 A and 20 A | QOT1520 | **58.00** |
| 20 A and 20 A | QOT2020 | **58.00** |
| **2P—120/240 Vac Common Trip** | | |

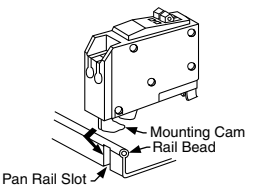
Order two QOT1515 or QOT2020 circuit breakers and handle tie QOTHT for common switching of center two poles.

## Table 1.5: Replacement Tandem Circuit Breakers

For use in Old Style Non-Class CTL QO Load Centers—10 k AIR

| Ampere Rating■ | Cat. No.★ | $ Price |
|---|---|---|
| **1P—120/240 Vac—1 Space Required** | | |
| 15 A and 15 A | QO1515 | **73.00** |
| 15 A and 20 A | QO1520 | **73.00** |
| 20 A and 20 A | QO2020 | **73.00** |
| 20 A and 30 A | QO2030 | **73.00** |
| 30 A and 20 A | QO3020 | **73.00** |
| **Two 1P Individual Trip—120/240 Vac—2 Spaces Required** | | |
| 15 A and 15 A | Order Two QO1515 or QO2020 circuit breakers and handle tie QOTHT | |
| 15 A and 20 A | | |
| 20 A and 20 A | — | — |
| 20 A and 30 A | QO20303020▽ | **134.00** |
| 30 A and 20 A | — | — |

### QOT Tandem




Current limiting QOT tandem circuit breakers have a mounting cam as shown. Installation into a QO load center can only be made in those positions having a mounting pan rail slot. Meets Paragraph 408.15 of the NEC®. UL Listed as Class CTL

Interupting Ratings . . . . . Page 7-2
Accessories . . . . . Page 7-12
Dimensions . . . . . Page 7-54



© 2012 Schneider Electric
All Rights Reserved


1P
QO-CAFI


1P
QO-DF


1P
QO-GFI


2P
QO-GFI


QO-K Key
Operated


QO
1P
With Shunt Trip


Three-wire
QO-SWN

## QO Arc-Fault Circuit Breaker

QO arc-fault circuit breakers provide protection for Series and Parallel Type Arcing as required by the NEC and local code adoption, and comply with UL1699.

**Table 1.6: QO Arc Fault Circuit Breakers▲**

| Circuit Breaker Type | Ampere Rating | 1P 120 Vac 10 k AIR 1 Space Required | | 1P 120 Vac 22 k AIR 1 Space Required | |
|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| Combination Arc-fault Interrupter (Pigtail Neutral) | 15 | QO115CAFI | 282.00 | QO115VHCAFI | 534.00 |
| | 20 | QO120CAFI | 282.00 | QO120VHCAFI | 534.00 |
| Plug-On Neutral Combination Arc-fault Interrupter | 15 | QO115PCAFI | 282.00 | QO115VHPCAFI | 534.00 |
| | 20 | QO120PCAFI | 282.00 | QO120VHPCAFI | 534.00 |

***NOTE:*** *QO Dual Function (Combination Arc Fault and Ground Fault Circuit Interrupter) breakers are on page 1-27.*

### QO-GFI

Qwik-Gard™ circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 mA or more, for people protection. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

**Table 1.7: QO-GFI Circuit Breakers** *New!*

| Ampere Rating♦ | Qwik-Gard Circuit Breakers With Ground Fault Circuit Interrupter | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1P 120 Vac | | | | 2P Common Trip 120/240 Vac | | 3P Common Trip 208Y/120 Vac | |
| | 10 k AIR | | 22 k AIR | | 10 k AIR | | 10 k AIR | |
| | 1 Space Required | | 1 Space Required | | 2 Spaces Required | | 3 Spaces Required | |
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 | QO115GFI | 233. | QO115VHGFI | 482. | QO215GFI | 413. | QO315GFI | 791. |
| 20 | QO120GFI | 233. | QO120VHGFI | 482. | QO220GFI | 413. | QO320GFI | 791. |
| 25 | QO125GFI | 233. | QO125VHGFI | 482. | QO225GFI | 413. | — | — |
| 30 | QO130GFI | 233. | QO130VHGFI | 482. | QO230GFI | 413. | QO330GFI | 791. |
| 40 | — | — | — | — | QO240GFI | 413. | QO340GFI | 791. |
| 50 | — | — | — | — | QO250GFI | 413. | QO350GFI | 791. |
| 60 | — | — | — | — | QO260GFI★ | 413. | — | — |

### QO-EPD/EPE

QO-EPD/EPE circuit breakers provide overload and short circuit protection combined with Class B ground fault protection. They are designed to provide ground fault protection of equipment at a 30 mA level (EPD) or 100 mA level (EPE). They are not designed to protect people from electrical shock.

**Table 1.8: QO-EPD Circuit Breakers** *New!*

| Ampere Rating♦ | 1P 120 Vac | | 2P Common Trip 120/240 Vac | | 3P Common Trip 240 Vac | | | |
|---|---|---|---|---|---|---|---|---|
| | 10 k AIR | | 10 k AIR | | 10 k AIR | | | |
| | 1 Space Required | | 2 Spaces Required | | 3 Spaces Required | | | |
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 | QO115EPD | 410. | QO215EPD | 660. | QO315EPD▼ | 1077. | QO315EPE▼ | 1077. |
| 20 | QO120EPD | 410. | QO220EPD | 660. | QO320EPD▼ | 1077. | QO320EPE▼ | 1077. |
| 25 | QO125EPD | 410. | QO225EPD | 660. | — | — | — | — |
| 30 | QO130EPD | 410. | QO230EPD | 660. | QO330EPD▼ | 1077. | QO330EPE▼ | 1077. |
| 40 | — | — | QO240EPD | 660. | QO340EPD▼ | 1077. | QO340EPE▼ | 1077. |
| 50 | — | — | QO250EPD | 660. | QO350EPD▼ | 1077. | QO350EPE▼ | 1077. |
| 60 | — | — | QO260EPD★ | 660. | — | — | — | — |

### QO-SWN

Switch Neutral Common Trip 2008 NEC® 514.11

**Table 1.9: QO-SWN Circuit Breakers**

| Ampere Rating♦ | 2 Wire 120 Vac 10 k AIR 2 Spaces Required | | 3 Wire 120/240 Vac 10 k AIR 3 Spaces Required | |
|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price |
| 10 | QO210SWN | 95.00 | QO310SWN | 143.00 |
| 15 | QO215SWN | 95.00 | QO315SWN | 143.00 |
| 20 | QO220SWN | 95.00 | QO320SWN | 143.00 |
| 25 | QO225SWN | 95.00 | QO325SWN | 143.00 |
| 30 | QO230SWN | 95.00 | QO330SWN | 143.00 |
| 40 | QO240SWN | 95.00 | QO340SWN | 143.00 |
| 50 | QO250SWN | 95.00 | QO350SWN | 143.00 |

### QO-HID

HID circuit breakers are for use on circuits feeding fluorescent and high intensity discharge (HID) lighting systems such as mercury vapor, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QO circuit breakers.

**Table 1.10: QO-HID Circuit Breakers**

| Ampere Rating♦ | 1P 120/240 Vac 10 k AIR 1 Space Required | | 2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required | | 3P Common Trip 240 Vac 10 k AIR 3 Spaces Required | |
|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 | QO115HID■ | 38.10 | QO215HID | 87.00 | QO315HID | 300.00 |
| 20 | QO120HID■ | 38.10 | QO220HID | 87.00 | QO320HID | 300.00 |
| 25 | QO125HID | 38.10 | QO225HID | 87.00 | QO325HID | 300.00 |
| 30 | QO130HID | 38.10 | QO230HID | 87.00 | QO330HID | 300.00 |
| 40 | QO140HID | 38.10 | QO240HID | 87.00 | — | — |
| 50 | QO150HID | 38.10 | QO250HID | 87.00 | — | — |

### QO-K

Key operated QO circuit breakers are available in single-pole construction and can be mounted in any single-pole space which will accept a standard QO. These circuit breakers can be turned ON or OFF or to RESET with a special key (catalog number QOK10) included with the circuit breaker. These circuit breakers are UL Listed and available as shown in the table.

**Table 1.11: QO-K Circuit Breakers**

| 120 Vac—10 k AIR (1 Space Required) | | |
|---|---|---|
| Ampere Rating ♦ | Cat. No. | $ Price |
| 10 | QO110K | 164.00 |
| 15 | QO115K | 164.00 |
| 20 | QO120K | 164.00 |
| 25 | QO125K | 164.00 |
| 30 | QO130K | 164.00 |

### QO-HM

High magnetic trip circuit breakers are recommended for applications where high initial inrush may occur and for individual dimmer applications.

**Table 1.12: QO-HM Circuit Breakers**

| 120 Vac—10 k AIR | | |
|---|---|---|
| Ampere Rating♦ | 1P | |
| | Cat. No | $ Price |
| 15 A | QO115HM▲■ | 30.60 |
| 20 A | QO120HM▲■ | 30.60 |

## Non-automatic (Standard) Miniature Switches

Miniature non-automatic switches have the same physical packaging as miniature circuit breakers, but open only when the handle is switched to the OFF position.

Non-automatic switches provide no overcurrent protection or short circuit protection. They must not be used on systems that have an available fault current greater than the values listed in the table.

Non-automatic switches are UL Listed per UL 1087 and are CSA certified.

**Table 1.13: QO Non-Automatic Miniature Switches, 240 Vac 10 kA**

| Ampere Rating | 2P | | 3P | |
|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price |
| 60 | QO200 | 70.00 | QO300 | 248.00 |
| 100 | QO2000 | 200.00 | QO3000 | 366.00 |

▲ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

■ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.

♦ 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–60 A circuit breakers are suitable for use with 75°C conductors.

★ Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.

▼ See note in Instruction Bulletin when using in an enclosure with a QO403 or QON prefix.

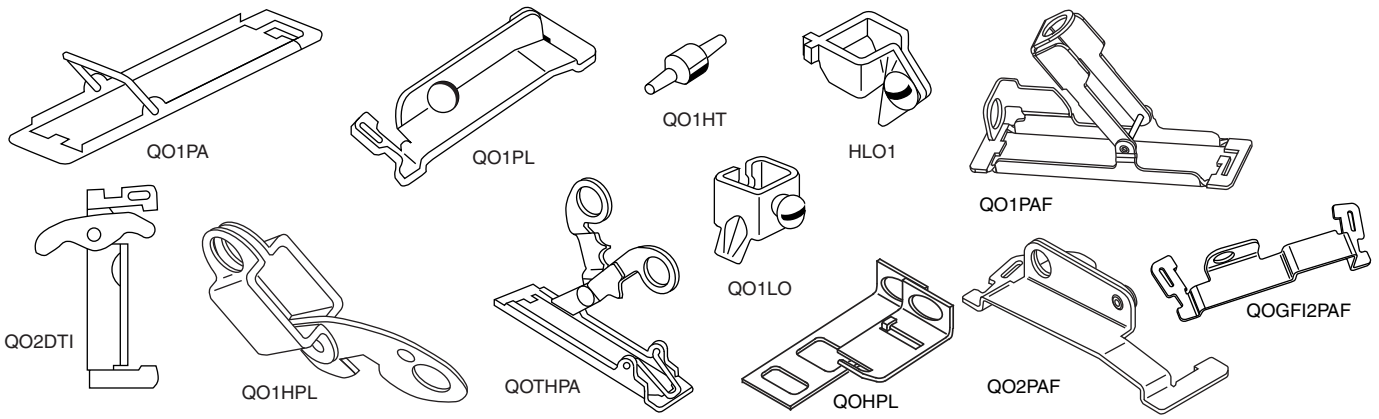
Interrupting Ratings. . . . . Page 7-2
Accessories. . . . . Page 7-12
Dimensions . . . . . Page 7-54

© 2012 Schneider Electric
All Rights Reserved

**Table 1.14: Accessories for use with QO and QOB Miniature Circuit Breakers**

| Description | | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|
| **Handle Attachments** | | | | |
| Handle Tie | Converts any two adjacent 120/240 Vac 1P QO circuit breakers to independent trip 2P | QO1HT | **3.80** | DE2E |
| | Converts any two adjacent 120/240 Vac1P side-by-side QOT circuit breakers to independent trip 2P | QOTHT | **3.80** | DE2E |
| Handle Clamp | Clamp for holding QO 1P handle in ON or OFF position | QO1LO | **3.80** | DE2E |
| | Clamp for holding QO or Q1 either 1P, 2P or 3P circuit breaker handles in ON or OFF position | HLO1 | **9.90** | DE2E |
| Handle Padlock Attachment for Padlocking in ON or OFF position | For padlocking 1P QO circuit breaker in ON or OFF position | | | |
| | Loose attachment | QOHPL | **9.90** | DE2E |
| | Fixed attachment | QO1PA | **10.70** | DE2E |
| | For padlocking 1P side-by-side QOT circuit breaker in ON or OFF position | QOTHPA | **11.10** | DE2E |
| | For padlocking 2P QO-GFI circuit breakers in either ON or OFF position, fixed attachment. | GFI2PA | **9.20** | DE2A |
| | For 2P and 3P QO and Q1 standard circuit breakers which require padlocking in either ON or OFF position. | | | |
| | Loose attachment | QO1HPL | **10.70** | DE2E |
| | Fixed attachment | QO1PL | **10.70** | DE2E |
| Handle Padlock Attachment for Padlocking in OFF position | For padlocking 1P QO circuit breaker in OFF position only, fixed attachment. | QO1PAF | **43.50** | DE2E |
| | For padlocking 2P and 3P QO circuit breakers in OFF position only, fixed attachment. | QO2PAF | **25.80** | DE2E |
| | For padlocking 1P QO-GFI, QO-AFI and QO-EPD circuit breakers in OFF position only, fixed attachment. | QOGFI1PAF | **51.00** | DE2E |
| | For padlocking 2P QO-GFI and QO-EPD circuit breakers in OFF position only, fixed attachment. | QOGFI2PAF | **38.40** | DE2E |
| Ring Terminal | Ring terminals are available as a factory-installed option. | See page 7-10 | **+20% Price Adder** | DE2A |
| Sub-feed Lugs | 60 A 2P plug-on – 2 spaces required (6–2 Al/Cu) | QO60SL | **47.10** | DE2A |
| | 125 A 2P plug-on – 2 spaces required (12–2/0 Al/Cu) | QO2125SL | **137.00** | DE2A |
| | 225 A 2P plug-on – 4 spaces required (4–300 Al/Cu) | QO2225SL▲ | **308.00** | DE2A |
| | 125 A 3P plug-on – 3 spaces required (12–2/0 Al/Cu) | QO3125SL | **137.00** | DE3 |
| Mechanical Interlock Attachment | For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time (Not QOU) | QO2DTI | **24.90** | DE2E |
| With Retaining Kit | QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2Ps or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers. | QO2DTIM | **63.00** | DE2E |

▲ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.




## Factory-Installed Accessories for use with QO and QOB Miniature Circuit Breakers

Factory-installed electrical accessories take up an additional pole space on QO, QO-GFI, QO-EPD, QO-SWN and QOU circuit breakers. All AC electrical accessories shown below are rated for 50/60 Hz. Accessories are not available for QOB-VH (2P 150 A and 3P 110–150 A) circuit breakers or QO, QOU molded case switches. QO circuit breakers will accept only one accessory per circuit breaker. Undervoltage trip is not available on miniature circuit breakers. Factory-installed accessories are not available for QO-AFI or QO-CAFI Arc Fault Circuit Breakers or on QO2150, QO2175, or QO2200 circuit breakers.

**Table 1.15: Factory-Installed Accessories**

| Accessory | Description | Rated Voltage | Coil Burden | Cat. No. Suffix | $ Price Adder |
|---|---|---|---|---|---|
| Shunt Trip | Trips the circuit breaker from a remote location by means of a trip coil energized from a separate circuit. A 120 Vac shunt trip will operate at 55% or more of rated voltage. All other shunt trips will operate at 75% or more of rated voltage.<br>**Application**<br>• For use with momentary or maintained push button.<br>• Not available on QO-GFI, QO-EPD.<br>• Shunt trip terminals accept (2) 0.14– 0.12 AWG Cu. | 12 Vac/Vdc<br>24 Vac/Vdc | 60 VA<br>168 VA | -1042 | **189.00** |
| | | 120 Vac<br>208 Vac<br>240 Vax | 72 VA<br>228 VA<br>288 VA | -1021 | **189.00** |

| Accessory | Description | Contact Comb. | Max. Voltage | Max. Load | Cat. No. Suffix | $ Price Adder |
|---|---|---|---|---|---|---|
| Auxiliary Switches | Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED.<br>**Application**<br>• Auxiliary switch terminals accept (2) 14–12 AWG Cu leads.<br>• Leads (EH): Yellow for "A", Blue for "B", Striped common 18 AWG Cu. | 1A<br>1B | 120 Vac<br>120 Vac | 5 A<br>5 A | -1200<br>-1201 | **132.00**<br>**132.00** |
| Alarm Switches | Used with control circuits and is actuated only when the circuit breaker has tripped. Standard construction includes a normally-open contact.<br>**Application**<br>• Leads: Alarm switch terminals accept (2) 14–12 AWG Cu leads. | 1A | 120 Vac | 5 A | -2100 | **132.00** |



© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

### Table 1.16: Main Lugs (Accepts Only QO Plug-On Circuit Breakers.)

| | Mains Rating | Spaces | Max. 1P Circuits▲ | Max. Tandem Circuit Breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior Cat. No. | Load Center Box and Interior $ Price | Indoor Cover with Door (Order Separately) Flush Cat. No. | Indoor Cover with Door (Order Separately) Surface Cat. No. | Indoor Cover with Door (Order Separately) $ Price | Main Wire Size AWG/kcmil Al | Main Wire Size AWG/kcmil Cu | Equipment Ground Bar Kit (Order Separately) Cat. No. | Equipment Ground Bar Kit (Order Separately) $ Price | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Fixed Mains—Factory-Installed Main Lugs—10 kA Short Circuit Current Rating■** | | | | | | | | | | | | | | |
| | 30 A | 2 | 2 | 0 | **41.70** | QO2L30S♦★ | **41.70** | Cover Included—Without Door | | | 12–10 | 14–10 | PK3GTA1 | **11.40** | 1 |
| | 70 A | 2 | 4 | 2 | **69.00** | QO24L70F/S▼△ | **69.00** | Cover Included—Without Door | | | 12–3 | 14–4 | PK4GTA | **10.80** | 2 |
| | 100 A | 6 | 12 | 6 | **87.00** | QO612L100F/S▼□ | **87.00** | Cover Included—Without Door | | | 8–1 | | PK7GTA | **11.70** | 4 |
| | | 6 | 12 | 6 | **90.00** | QO612L100DF/S▼□ | **90.00** | Cover Included—With Door | | | | | PK7GTA | **11.70** | 4 |
| | | 8 | 16 | 8 | **131.00** | QO816L100F/S▼□ | **131.00** | Cover Included—Without Door | | | | | PK7GTA | **11.70** | 4 |
| | | 8 | 16 | 8 | **143.00** | QO816L100DF/S▼□ | **143.00** | Cover Included—With Door | | | | | | | |
| | | 6 | 12 | 6 | **111.00** | QO612L100DFCU/SCU▼□◊ | **111.00** | Cover Included—With Door | | | | | PK7GTA | **11.70** | 4 |
| | | 8 | 16 | 8 | **174.00** | QO816L100DFCU/SCU▼□◊ | **174.00** | Cover Included—With Door | | | | | PK7GTA | **11.70** | 4 |
| | 125 A | 4 | 8 | 4 | **93.00** | QO148L125GF/S▼☆ | **93.00** | Cover Included—Without Door | | | 12–2/0 | 14–2/0 | PK7GTA✱ | | 21 |
| | **Convertible Mains—Factory-Installed Main Lugs—65 kA Short Circuit Current Rating QOM1 Main Frame Size—Convertible to Main Circuit Breaker—Cu Bus■▽** | | | | | | | | | | | | | | |
| | 125 A | 12 | 12 | 0 | **196.70** | QO112L125G | **159.00** | QOC16UF | QOC16US | **37.70** | 6–2/0 | | PK9GTA✱ | | 6 |
| | | 12 | 24 | 12 | **235.70** | QO11224L125G | **198.00** | QOC16UF | QOC16US | **37.70** | | | PK15GTA✱ | | 6 |
| | | 16 | 16 | 0 | **255.70** | QO116L125G | **218.00** | QOC24UF | QOC24US | **37.70** | | | PK12GTA✱ | | 7 |
| | | 16 | 24 | 8 | **300.70** | QO11624L125G | **263.00** | QOC24UF | QOC24US | **37.70** | | | PK15GTA✱ | | 7 |
| | | 20 | 20 | 0 | **271.70** | QO120L125G | **234.00** | QOC24UF | QOC24US | **37.70** | | | PK15GTA✱ | | 7 |
| | | 20 | 24 | 4 | **370.70** | QO12024L125G | **333.00** | QOC24UF | QOC24US | **37.70** | | | PK15GTA✱ | | 7 |
| | | 24 | 24 | 0 | **381.70** | QO124L125G | **344.00** | QOC24UF | QOC24US | **37.70** | | | PK15GTA✱ | | 7 |
| | | 32 | 32 | 0 | **434.60** | QO132L125G | **395.00** | QOC32UF | Use Flush | **39.60** | | | PK23GTA, LK100AN✱ | | 8 |
| | **Convertible Mains—Factory-Installed Main Lugs—65 kA Short Circuit Current Rating—Convertible To Main Circuit Breaker—Cu Bus■▽** | | | | | | | | | | | | | | |
| | 150 A | 20 | 30 | 10 | **419.00** | QO12030L150G | **332.00** | QOC30UF | QOC30US | **87.00** | 6–250 | | PK23GTA, LK100AN✱ | | 9 |
| | | 24 | 24 | 0 | **431.00** | QO124L150G | **344.00** | QOC30UF | QOC30US | **87.00** | | | PK15GTA✱ | | 9 |
| | | 30 | 30 | 0 | **437.00** | QO130L150G | **350.00** | QOC30UF | QOC30US | **87.00** | | | PK23GTA, LK100AN✱ | | 9 |
| | 200 A | 12 | 12 | 0 | **353.00** | QO112L200G | **266.00** | QOC30UF | QOC30US | **87.00** | | | PK15GTA✱ | | 9 |
| | | 24 | 36 | 12 | **819.00** | QO12436L200TFT◒ | **732.00** | QOC40UF | QOC40US | **87.00** | | | PK23GTA, LK100AN✱ | | 10 |
| | | 30 | 30 | 0 | **494.00** | QO130L200G | **407.00** | QOC30UF | QOC30US | **87.00** | | | PK23GTA, LK100AN✱ | | 9 |
| | | 30 | 40 | 10 | **554.00** | QO13040L200G | **467.00** | QOC30UF | QOC30US | **87.00** | | | PK23GTA, LK100AN✱ | | 9 |
| | | 40 | 40 | 0 | **746.00** | QO140L200G | **659.00** | QOC40UF | QOC40US | **87.00** | | | PK23GTA, LK100AN✱ | | 10 |
| | | 40 | 60 | 20 | **944.00** | QO14060L200G | **857.00** | QOC40UF | QOC40US | **87.00** | | | (2) PK15GTA✱ | | 10 |
| | | 42 | 52 | 10 | **921.00** | QO14252L200G | **810.00** | QOC42UF | QOC42US | **111.00** | | | (2) PK15GTA✱ | | 11 |
| | 225 A | 42 | 42 | 0 | **828.00** | QO142L225G | **717.00** | QOC42UF | QOC42US | **111.00** | 6–300 | | PK23GTA, LK100AN✱ | | 11 |
| | **Fixed Mains—Factory-Installed Main Lugs—65 kA Short Circuit Current Rating■▽** | | | | | | | | | | | | | | |
| | 400 A | 30 | 30 | 0 | **1641.00** | QONQ30LS400 (Int) | **1080.00** | NC50NQVF | NC50NQVS | **486.00** | (1) 1/0–750 or (2) 1/0–300 | | PK27GTA◑ | **33.80** | 15 |
| | | | | | | MH50 (box)✪ | **75.00** | | | | | | or PK15GTA6 | **53.00** | 15 |
| | | 42 | 42 | 0 | **1746.00** | QONQ42LS400 (Int)♦ | **1185.00** | NC50NQVF | NC50NQVS | **486.00** | | | | | |
| | | | | | | MH50 (box) | **75.00** | | | | | | | | |

**Above listings through 200 A mains rating meet Federal Specification W-P-115C as Type 1, Class 2.**

- ▲ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.
- ■ UL short circuit current rating depends on lowest interrupting rating of circuit breaker installed.
- ♦ Will not accept QO-EPD or Qwik-Gard™ QO-GFI or QO-AFI circuit breakers.
- ★ Mains rated 25 A when Al wire is used.
- ▼ Order F for flush device or S for surface device.
- △ Use 10 AWG maximum size wire for GFI and AFI circuit breakers.
- □ 70 A Max. branch circuit breaker and 70 A max. back fed main circuit breaker.
- ◊ CU indicates copper bus.
- ☆ Copper bus.
- ▽ UL Listed 5000 A short circuit current rating for corner grounded Delta systems. Use QO-H circuit breakers only.
- ◒ Supplied with feed-thru lugs.
- ✱ Factory-included.
- ♦ Interior only, order box separately.
- ◑ PK27GTA includes a 6–2/0 AWG Al/Cu lug.
- ✪ PE1A Discount Schedule.



QO120L125G



QO816L100F or S without cover

## 1Ø, Field-Installed Main Circuit Breaker Kits



QOM1 Frame Size
50–125 Amperes



QOM2 Frame Size
100–225 Amperes

### Table 1.17: Use with Convertible Main Load Centers Only

| QOM1 Frame Size | | | | | QOM2 Frame Size † | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Main Circuit Breaker Rating◪ | Convertible Load Center Mains Rating | 22 k AIR♦ Main Circuit Breaker | 22 k AIR♦ $ Price | Lug Wire Size ‡ AWG/kcmil | Main Circuit Breaker Rating◪ | Convertible Load Center Mains Rating | 22 k AIR♦ Main Circuit Breaker | 22 k AIR♦ $ Price | Lug Wire Size ‡ AWG/kcmil |
| 50 A | 100–125 | QOM50VH | **140.00** | 12–2/0 Al or Cu | 100 A | 150–225 | QOM2100VH | **468.00** | 4–300 Al or Cu |
| 60 A | 100–125 | QOM60VH | **140.00** | | 125 A | 150–225 | QOM2125VH | **468.00** | |
| 70 A | 100–125 | QOM70VH | **140.00** | | 150 A | 150–225 | QOM2150VH | **468.00** | |
| 80 A | 100–125 | QOM80VH | **201.00** | | 175 A | 200–225 | QOM2175VH | **468.00** | |
| 90 A | 100–125 | QOM90VH | **201.00** | | 200 A | 200–225 | QOM2200VH | **468.00** | |
| 100 A | 100–125 | QOM100VH | **201.00** | | 225 A | 225 | QOM2225VH | **468.00** | |
| 110 A | 125 | QOM110VH | **468.00** | | — | — | — | — | — |
| 125 A | 125 | QOM125VH | **468.00** | | — | — | — | — | — |

- ◪ Do not exceed the load center mains rating.
- ♦ 22 k AIR main circuit breaker UL Listed for use ahead of QO, QOT and QO-PL 10 k AIR branch circuit breakers to permit their application on systems with up to 22 kA available fault current.
- ‡ Wire range listed for QOM circuit breaker kits is the wire range of that circuit breaker. To find out maximum wire size permitted in a particular load center per UL, see pages 1-5 through 1-11 under Main Wire Size.
- † Add suffix 1021 for 120, 208 or 240 Vac shunt trip.

© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

### Table 1.18: Main Circuit Breaker (Accepts Only QO Plug-On Circuit Breakers.)

INDOOR

| Mains Rating | Spaces | Max. Single Pole Circuits▲ | Max. Tandem Circuit Breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior Cat. No. | Load Center Box and Interior $ Price | Indoor Cover with Door (Order Separately) Flush Cat. No. | Indoor Cover with Door (Order Separately) Surface Cat. No. | Indoor Cover with Door (Order Separately) $ Price | Main Wire Size AWG/kcmil Al or Cu | Equipment Ground Bar Kit (Order Separately) Cat. No. | Equipment Ground Bar Kit (Order Separately) $ Price | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Convertible Mains —Factory-installed Main Circuit Breaker, 22 kA Short Circuit Current Rating, Convertible to Main Lugs (see below) or Lower Amperage Main Circuit Breaker (See page 1-5),■ QOM1 Main Circuit Breaker Frame Size—Copper Bus** | | | | | | | | | | | | | |
| 100 A | 12 | 12 | 0 | **339.70** | QO112M100 | **302.00** | QOC12UF | QOC12US | **37.70** | 6–1 | PK9GTA | **13.40** | 5 |
| | 16 | 16 | 0 | **379.70** | QO116M100 | **342.00** | QOC20U100F | QOC20U100S | **37.70** | | PK12GTA | **15.80** | 6 |
| | 20 | 20 | 0 | **433.70** | QO120M100 | **396.00** | QOC20U100F | QOC20U100S | **37.70** | | PK15GTA | **17.10** | 6 |
| | 24 | 24 | 0 | **553.70** | QO124M100 | **516.00** | QOC24UF | QOC24US | **37.70** | 6–2/0 | PK15GTA | **17.10** | 7 |
| | 32 | 32 | 0 | **726.70** | QO132M100 | **689.00** | QOC32UF | Use Flush | **37.70** | | PK18GTA | **18.80** | 8 |
| 125 A | 24 | 24 | 0 | **819.70** | QO124M125 | **782.00** | QOC24UF | QOC24US | **37.70** | 6–2/0 | PK15GTA | **17.10** | 7 |
| | 32 | 32 | 0 | **1041.60** | QO132M125 | **1002.00** | QOC32UF | Use Flush | **39.60** | | PK18GTA | **18.80** | 8 |
| **Convertible Mains —Factory-Installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs (see below) or Lower Amperage Main Circuit Breaker (See page 1-5) ■ QOM2 Main Circuit Breaker Frame Size—Copper Bus** | | | | | | | | | | | | | |
| 150 A | 20 | 30 | 10 | **821.00** | QO12030M150 | **734.00** | QOC30UF | QOC30US | **87.00** | 4–250 | PK18GTA | **18.80** | 9 |
| | 24 | 24 | 0 | **849.00** | QO124M150 | **762.00** | QOC30UF | QOC30US | **87.00** | | PK15GTA | **17.10** | 9 |
| | 30 | 30 | 0 | **854.00** | QO130M150 | **767.00** | QOC30UF | QOC30US | **87.00** | | PK18GTA | **18.80** | 9 |
| | 32 | 32 | 0 | **969.00** | QO132M150 | **882.00** | QOC40UF | QOC40US | **87.00** | | PK18GTA | **18.80** | 10 |
| 200 A | 20 | 40 | 20 | **821.00** | QO12040M200 | **734.00** | QOC30UF | QOC30US | **87.00** | 4–250 | PK23GTA | **21.30** | 9 |
| | 24 | 24 | 0 | **866.00** | QO124M200 | **779.00** | QOC30UF | QOC30US | **87.00** | | PK15GTA | **17.10** | 9 |
| | 24 | 36 | 12 | **1287.00** | QO12436M200TFT◊ | **1200.00** | QOC40UF | QOC40US | **87.00** | | PK23GTA and LK100AN□ | | 10 |
| | 30 | 30 | 0 | **879.00** | QO130M200 | **792.00** | QOC30UF | QOC30US | **87.00** | | PK18GTA | **18.80** | 9 |
| | 30 | 40 | 10 | **957.00** | QO13040M200 | **870.00** | QOC30UF | QOC30US | **87.00** | | PK23GTA | **21.30** | 9 |
| | 40 | 40 | 0 | **1121.00** | QO140M200 | **1034.00** | QOC40UF | QOC40US | **87.00** | | PK23GTA | **21.30** | 10 |
| | 40 | 60 | 20 | **1431.00** | QO14060M200 | **1344.00** | QOC40UF | QOC40US | **87.00** | | PK23GTA | **21.30** | 10 |
| | 42 | 42 | 0 | **1220.00** | QO142M200 | **1109.00** | QOC42UF | QOC42US | **111.00** | 4–300 | PK23GTA | **21.30** | 11 |
| | 42 | 52 | 10 | **1382.00** | QO14252M200 | **1271.00** | QOC42UF | QOC42US | **111.00** | | PK23GTA | **21.30** | 11 |
| 225 A | 40 | 40 | 0 | **1196.00** | QO140M225 | **1085.00** | QOC42UF | QOC42US | **111.00** | | PK23GTA | **21.30** | 11 |
| | 42 | 42 | 0 | **1253.00** | QO142M225 | **1142.00** | QOC42UF | QOC42US | **111.00** | | PK23GTA | **21.30** | 11 |
| **Fixed Mains—Factory-installed LAL Main Circuit Breaker, 42 kA Short Circuit Current Rating♦** | | | | | | | | | | | | | |
| 300 A | 42 | 42 | 0 | **4909.00** | QONQ42MS300 (int)★ MH62 (box)△ | **4243.00** **75.00** | NC62NQVF | NC62NQVS | **591.00** | (1) 4–500 or (2) 4–3/0 | PK27GTA▼ or PK15GTA6 | **33.80** | 16 |
| 400 A | 42 | 42 | 0 | **4909.00** | QONQ42MS400 (int)★ MH62 (box)△ | **4243.00** **75.00** | NC62NQVF | NC62NQVS | **591.00** | (1) 4–500 or (2) 4–250 | PK27GTA▼ or PK15GTA6 | **53.00** | 16 |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

- ▲ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.
- ■ 22 k AIR main circuit breaker UL Listed for use ahead of QO, QOT and QO-PL 10 k AIR branch circuit breakers to permit their application on systems with up to 22 kA available fault current.
- ♦ UL short circuit current rating depends on lowest interrupting rating of circuit breakers installed. Also, UL Listed 5000 A short circuit current for corner grounded Delta systems. Use QO-H circuit breakers only.
- ★ Interior only, order box separately.
- ▼ PK27GTA includes a 6–2/0 Al/Cu lug.
- △ PE1A Discount Schedule.
- □ Factory included.
- ◊ Supplied with feed-thru lugs.



QO140M200

## 1Ø, Field-Installed Main Lugs Kits

### Table 1.19: Use with Convertible Main Load Centers Only

| Main Lugs Rating☆ | Use on Convertible Load Center with Mains Rating | Cat. No. | $ Price | Lug Wire Size▽ AWG/kcmil Al or Cu |
|---|---|---|---|---|
| 125 A | 100–125 A | QOL125◒ | **44.10** | 6–2/0 |
| 225 A | 150–225 A | QOL225◒ | **104.00** | 6–300 |

- ☆ Do not exceed the load center mains rating.
- ▽ Wire range listed for QOL lug kits is the wire range of that lug. To find out maximum wire size permitted in a particular load center per UL, see pages 1-5 through 1-11 under main wire size.
- ◒ If main circuit breaker knockout has been removed from the load center's trim, order appropriate filler plate from page 1-13.



QOL125



QOL225



© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

### Table 1.20: Main Lugs (Accepts Only QO Plug-On Circuit Breakers.)

RAINPROOF

| Mains Rating | Spaces | Max. Single Pole Circuits▲ | Max. Tandem Circuit Breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior Cat. No. | Load Center Box and Interior $ Price | Main Wire Size AWG/kcmil Al | Main Wire Size AWG/kcmil Cu | Equipment Ground Bar Kit (Order Separately) Cat. No. | Equipment Ground Bar Kit (Order Separately) $ Price | Box No. See Page 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Non-Metallic Enclosure** | | | | | | | | | | | |
| **Fixed Mains—Factory-installed Main Lugs—10 kA Short Circuit Current Rating** | | | | | | | | | | | |
| 60 A | 2 | 4 | 2 | **102.00** | QO24L60NRNM | **102.00** | 14–4 | 14–4 | Factory-installed | — | 1NM |
| **Metallic Enclosure** | | | | | | | | | | | |
| **Fixed Mains—Factory-installed Main Lugs—10 kA Short Circuit Current Rating** | | | | | | | | | | | |
| 40 A | 2 | 2 | 0 | **113.00** | QO2L40RB■ | **113.00** | 12–6 | 14–6 | PK3GTA1 | **11.40** | 1R |
| 70 A | 2 | 4 | 2 | **131.00** | QO24L70RB■ | **131.00** | 12–3 | 14–4 | PK4GTA | **10.80** | 1R |
| 100 A | 6 | 12 | 6 | **143.00** | QO612L100RB♦ | **143.00** | 8–1 | | PK7GTA | **11.70** | 2R |
| | 6 | 12 | 6 | **158.00** | QO612L100TRB♦ | **158.00** | | | Factory-installed | — | 2R |
| | 8 | 16 | 8 | **231.00** | QO816L100RB♦ | **231.00** | | | PK7GTA | **11.70** | 2R |
| | 6 | 12 | 6 | **174.00** | QO612L100RBCU♦★ | **174.00** | | | PK7GTA | **11.70** | 2R |
| | 8 | 16 | 8 | **279.00** | QO816L100RBCU♦★ | **279.00** | | | PK7GTA | **11.70** | 2R |
| 125 A | 4 | 8 | 4 | **152.00** | QO148L125GRB★ | **152.00** | 12–2/0 | 14–2/0 | PK7GTA Factory-included | | 15R |
| **Convertible Mains—Factory-installed Main Lugs—65 kA Short Circuit Current▼△□ QOM1 Main Frame Size—Convertible to Main Circuit Breaker—Copper Bus** | | | | | | | | | | | |
| 125 A | 12 | 12 | 0 | **285.00** | QO112L125GRB | **285.00** | 6–2/0 | | PK9GTA Factory-included | — | 3R |
| | 12 | 24 | 12 | **365.00** | QO11224L125GRB | **365.00** | | | PK15GTA Factory-included | — | 3R |
| | 16 | 24 | 8 | **435.00** | QO11624L125GRB | **435.00** | | | PK15GTA Factory-included | — | 4R |
| | 24 | 24 | 0 | **522.00** | QO124L125GRB | **522.00** | | | PK15GTA Factory-included | — | 4R |
| **Convertible Mains—Factory-installed Main Lugs—65 kA Short Circuit Current▼△□ QOM2 Main Frame Size—Convertible to Main Circuit Breaker—Copper Bus** | | | | | | | | | | | |
| 150 A | 30 | 30 | 0 | **587.00** | QO130L150GRB | **587.00** | 4–250 | | PK23GTA, LK100AN Factory-included | | 6R |
| 200 A | 12 | 12 | 0 | **480.00** | QO112L200GRB | **480.00** | 4–250 | | PK9GTA Factory-included | | 5R |
| | 30 | 30 | 0 | **666.00** | QO130L200GRB | **666.00** | | | PK23GTA, LK100AN Factory-included | | 6R |
| | 30 | 40 | 10 | **714.00** | QO13040L200GRB | **714.00** | | | PK23GTA, LK100AN Factory-included | | 6R |
| | 40 | 40 | 0 | **971.00** | QO140L200GRB | **971.00** | | | PK23GTA, LK100AN Factory-included | | 7R |
| | 40 | 60 | 20 | **1262.00** | QO14060L200GRB | **1262.00** | | | (2) PK15GTA, (1) LK100AN Factory-included | | 7R |
| | 42 | 52 | 10 | **1194.00** | QO14252L200GRB | **1194.00** | | | (2) PK15GTA, (1) LK100AN Factory-included | | 8R |
| 225 A | 42 | 42 | 0 | **1310.00** | QO142L225GRB | **1310.00** | 4–300 | | PK23GTA, LK100AN Factory-included | | 8R |

### Table 1.21: Main Circuit Breaker (Accepts Only QO Plug-On Circuit Breakers.)

RAINPROOF

| Mains Rating | Spaces | Max. Single Pole Circuits ▲ | Max. Tandem Circuit Breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior Cat. No. | Load Center Box and Interior $ Price | Main Wire Size AWG/kcmil Al or Cu | Equipment Ground Bar Kit (Order Separately) Cat. No. | Equipment Ground Bar Kit (Order Separately) $ Price | Box No. See Page 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Convertible Mains —Factory-installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs (see page 1-6) or Lower Amperage Main Circuit Breaker (see page 1-5)◊□ QOM1 Main Circuit Breaker Frame Size—Copper Bus** | | | | | | | | | | |
| 100 A | 12 | 12 | 0 | **461.00** | QO112M100RB | **461.00** | 6–2/0 | PK9GTA | **13.40** | 3R |
| | 16 | 16 | 0 | **504.00** | QO116M100RB | **504.00** | | PK12GTA | **15.80** | 4R |
| | 20 | 20 | 0 | **552.00** | QO120M100RB | **552.00** | | PK15GTA | **17.10** | 4R |
| 125 A | 24 | 24 | 0 | **954.00** | QO124M125RB | **954.00** | 6–2/0 | PK15GTA | **17.10** | 4R |
| **Convertible Mains —Factory-installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs (see page 1-6) or Lower Amperage Main Circuit Breaker (see page 1-5)◊□ QOM2 Main Circuit Breaker Frame Size—Copper Bus** | | | | | | | | | | |
| 150 A | 20 | 30 | 10 | **953.00** | QO12030M150RB | **953.00** | 4–250 | PK18GTA | **18.80** | 5R |
| | 30 | 30 | 0 | **1122.00** | QO130M150RB | **1122.00** | | PK18GTA | **18.80** | 6R |
| 200 A | 20 | 40 | 20 | **954.00** | QO12040M200RB | **954.00** | 4–250 | PK23GTA | **21.30** | 5R |
| | 30 | 30 | 0 | **1154.00** | QO130M200RB | **1154.00** | | PK18GTA | **18.80** | 6R |
| | 30 | 40 | 10 | **1179.00** | QO13040M200GRB | **1179.00** | | PK23GTA | **21.30** | 6R |
| | 40 | 40 | 0 | **1397.00** | QO140M200RB | **1397.00** | | PK23GTA | **21.30** | 7R |
| | 40 | 60 | 20 | **1815.00** | QO14060M200RB | **1815.00** | | PK15GTA | **17.10** | 7R |
| | 42 | 42 | 0 | **1469.00** | QO142M200RB | **1469.00** | | PK23GTA | **21.30** | 8R |
| | 42 | 52 | 10 | **1718.00** | QO14252M200RB | **1718.00** | | PK15GTA | **17.10** | 8R |
| 225 A | 42 | 42 | 0 | **1631.00** | QO142M225RB | **1631.00** | 4–300 | PK23GTA | **21.30** | 8R |
| **Convertible Mains—Factory-installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs (see page 1-6) or Lower Amperage Main Circuit Breaker (see page 1-5) hg ◊ QOM1 or QOM2 Main Circuit Breaker Frame Size—Copper Bus** | | | | | | | | | | |
| 125 A | 6 | 12 | 6 | **620.00** | QO1612M125FTRB☆ | **620.00** | 4–2/0 | PK12GTA | **15.80** | 3R |
| 150 A | 8 | 16 | 8 | **863.00** | QO1816M150FTRB☆ | **863.00** | 4–250 | PK15GTA-L | **35.00** | 6R |
| 200 A | 8 | 16 | 8 | **863.00** | QO1816M200FTRB☆ | **863.00** | 4–250 | PK15GTA-L | **35.00** | 6R |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

- ▲ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.
- ■ Use 10 AWG maximum size wire for AFI and GFI circuit breaker.
- ♦ 70 A max. branch circuit breaker and 70 A max. back fed main circuit breaker.
- ★ Copper bus.
- ▼ UL short circuit current rating depends on lowest interrupting rating of circuit breakers installed.
- △ UL Listed 5000 A short circuit current rating for corner grounded Delta systems. Use QO-H circuit breakers only.
- □ Side hinge door device; allow 1-1/4 in. on left side for door to open.
- ◊ 22 k AIR main circuit breaker UL Listed for use ahead of QO, QOT, QO-GFI, QO-AFI, QO-EPD and QOPL 10 k AIR branch circuit breakers to permit their application on systems up to 22 kA available fault current.
- ☆ QO1612M125FTRB provided with QOM1 frame main circuit breaker. QO1816M150FTRB and QO1816M200FTRB provided with QOM2 frame main circuit breaker.

© 2012 Schneider Electric
All Rights Reserved

## 3Ø4W—208Y/120 Vac, 3Ø4W—240/120 Vac Delta and 3Ø3W—240 Vac Delta—UL Listed

### Table 1.22: Main Lugs and Main Breakers (Accepts Only QO Plug-On Circuit Breakers)

| | Mains Rating | Max. Number of 1P QO circuit breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior | | Indoor Cover with Door (Order Separately) | | | Main Wire Size AWG/kcmil | | Equipment Ground Bar Kit (Order Separately) | | Box No. See Pages 1-17, 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Flush Cat. No. | Surface Cat. No. | $ Price | Al | Cu | Cat. No. | $ Price▽ | |
| I | **Fixed Mains—Factory-installed Main Lugs—Copper Bus—65 kA Short Circuit Current Rating▲** | | | | | | | | | | | | |
| | 60 A | 3 | **107.00** | QO403L60NF/S | **107.00** | Cover Included With Load Center (No Door) | | | — | 10–6 | PK4GTA | **7.20** | 13 |
| | 125 A | 12 | **369.70** | QO312L125G◊ | **332.00** | QOC16UF | QOC16US | **37.70**☆ | 6–2/0 | 6–2/0 | Factory-incl.□ | — | 6 |
| | | 20 | **508.70** | QO320L125G◊ | **471.00** | QOC24UF | QOC24US | **37.70**☆ | | | Factory-incl.□ | — | 7 |
| | | 24 | **577.70** | QO324L125G◊ | **540.00** | QOC24UF | QOC24US | **37.70**☆ | | | Factory-incl.□ | — | 7 |
| | 200 A | 18 | **530.00** | QO318L200G◊ | **443.00** | QOC30UF | QOC30US | **87.00**☆ | 6–250 | 6–250 | Factory-incl.△ | — | 9 |
| | | 30 | **707.00** | QO330L200G◊ | **620.00** | QOC30UF | QOC30US | **87.00**☆ | | | Factory-incl.△ | — | 9 |
| | 225 A | 42 | **953.00** | QO342L225G◊ | **842.00** | QOC42UF | QOC42US | **111.00**☆ | 6–300 | 6–300 | Factory-incl.△ | — | 11 |
| | **Convertible Mains—Factory-installed QDL Main Circuit Breaker—Copper Bus—25 kA Short Circuit Current Rating ■** | | | | | | | | | | | | |
| | 100 A | 27 | **1058.00** | QO327M100♦ | **971.00** | QOC30UF | QOC30US | **87.00**☆ | 4–2/0 | 4–2/0 | PK15GTA | **17.10** | 9 |
| | 125 A | 30 | **1931.00** | QO330MQ125★◊ | **1839.00** | QOC342MQF | QOC342MQS | **92.00** | 4–300 | 4–300 | PK18GTA | **18.80** | 12 |
| | 150 A | 30 | **1931.00** | QO330MQ150★◊ | **1839.00** | QOC342MQF | QOC342MQS | **92.00** | 4–300 | 4–300 | PK18GTA | **18.80** | 12 |
| | | 42 | **2119.00** | QO342MQ150★◊ | **2027.00** | QOC342MQF | QOC342MQS | **92.00** | | | PK23GTA | **21.30** | 12 |
| | 200 A | 30 | **1931.00** | QO330MQ200★◊ | **1839.00** | QOC342MQF | QOC342MQS | **92.00** | 4–300 | 4–300 | PK18GTA | **18.80** | 12 |
| | | 42 | **2119.00** | QO342MQ200★◊ | **2027.00** | QOC342MQF | QOC342MQS | **92.00** | | | PK23GTA | **21.30** | 12 |
| | 225 A | 42 | **2119.00** | QO342MQ225★◊ | **2027.00** | QOC342MQF | QOC342MQS | **92.00** | 4–300 | 4–300 | PK23GTA | **21.30** | 12 |
| RAINPROOF | **Fixed Mains—Factory-installed Main Lugs—Copper Bus—65 kA Short Circuit Current Rating▲▼** | | | | | | | | | | | | |
| | 60 A | 3 | **177.00** | QO403L60NRB | **177.00** | Cover Included | | | — | 10–6 | PK4GTA | **10.80** | 10R |
| | 125 A | 12 | **485.00** | QO312L125GRB | **485.00** | | | | 6–2/0 | 6–2/0 | Factory Incl.□ | — | 3R |
| | | 20 | **629.00** | QO320L125GRB | **629.00** | | | | | | Factory Incl.□ | — | 4R |
| | 200 A | 18 | **618.00** | QO318L200GRB | **618.00** | | | | 6–250 | 6–250 | Factory Incl.△ | — | 6R |
| | | 30 | **839.00** | QO330L200GRB | **839.00** | | | | | | Factory Incl.△ | — | 6R |
| | 225 A | 42 | **1494.00** | QO342L225GRB | **1494.00** | | | | 6–300 | 6–300 | Factory Incl.△ | — | 8R |
| | **Convertible Mains—Factory-installed QDL Main Circuit Breaker—Copper Bus—25 kA Short Circuit Current Rating ■ ▼** | | | | | | | | | | | | |
| | 100 A | 27 | **1185.00** | QO327M100RB♦ | **1185.00** | Cover Included | | | 4–2/0 | 4–2/0 | PK15GTA | **17.10** | 6R |
| | 125 A | 30 | **2147.00** | QO330MQ125RB★ | **2147.00** | | | | 4–300 | 4–300 | PK18GTA | **18.80** | 14R |
| | 150 A | 30 | **2147.00** | QO330MQ150RB★ | **2147.00** | | | | 4–300 | 4–300 | PK18GTA | **18.80** | 14R |
| | 200 A | 30 | **2147.00** | QO330MQ200RB★ | **2147.00** | | | | 4–300 | 4–300 | PK18GTA | **18.80** | 14R |
| | | 42 | **2333.00** | QO342MQ200RB★ | **2333.00** | | | | | | PK23GTA | **21.30** | 14R |
| | 225 A | 42 | **2333.00** | QO342MQ225RB★ | **2333.00** | | | | 4–300 | 4–300 | PK23GTA | **21.30** | 14R |

**Above listings through 200 A mains rating meet Federal Specification W-P-115C as Type 1, Class 2.**

▲ UL short circuit current rating depends on lowest interrupting rating of circuit breaker installed.
■ 25 kA short circuit current rating SSCR maximum with Square D Type QDL main circuit breaker, or 22 kA SCCR maximum with back-fed Type QO-VH main circuit breaker, feeding QO 10 k AIR branch circuit breakers.
♦ Includes factory-installed back fed QO3100VH main circuit breaker.
★ 65 kA Short Circuit Current Rating maximum with field-installed Square D type QGL 65 k AIR minimum main circuit breaker feeding QO and Q1 10 k AIR minimum branch circuit breakers.
▼ Side hinge door device allow 1-1/4 in. on left side for door to open.
△ PK23GTA and LK100AN.
□ PK15GTA.
◊ For Certification to IEC 60439-1 contact the local Square D sales office; otherwise panels are **NOT** CE marked. (For use on 415Y/240 Vac 3-phase 4-wire, 3,000 Short Circuit Current Rating when QODX...branch circuit breakers are used and 10,000 Short Circuit Current Rating when QO...VS branch circuit breakers are used).
☆ DE3A Discount Schedule
▽ DE2 Discount Schedule



QO342MQ200



QO312L125G

### Table 1.23: 3Ø, Main Circuit Breakers

Field-installed alternate main circuit breakers for QO 3Ø main circuit breaker load centers rated 70–225 A. Do not exceed the load center main rating.

| Amperage | 25 k AIR | 65 k AIR | 100 k AIR◒ |
|---|---|---|---|
| 70 A | QDL32070 | QGL32070 | QJL32070 |
| 80 A | QDL32080 | QGL32080 | QJL32080 |
| 90 A | QDL32090 | QGL32090 | QJL32090 |
| 100 A | QDL32100 | QGL32100 | QJL32100 |
| 110 A | QDL32110 | QGL32110 | QJL32110 |
| 125 A | QDL32125 | QGL32125 | QJL32125 |
| 150 A | QDL32150 | QGL32150 | QJL32150 |
| 175 A | QDL32175 | QGL32175 | QJL32175 |
| 200 A | QDL32200 | QGL32200 | QJL32200 |
| 225 A | QDL32225 | QGL32225 | QJL32225 |
| **$ Price (DE2)** | **1784.00** | **2442.00** | **2796.00** |

◒ When these 3P circuit breakers are used as the main circuit breaker of a 3Ø load center, the maximum AIR rating is 65 kA at 240 Vac and 100 kA at 208 Vac.

### Table 1.24: 3Ø, Main Lugs Kits

Field-installed main lugs for convertible 3Ø main circuit breaker load centers.

| Main Lugs Amperage Rating | Cat. No. | $ Price | Lug Wire Size AWG/kcmil |
|---|---|---|---|
| 125 A | QOL3125 | **67.00** | 6–2/0 Cu/Al |
| 225 A | QOL3225 | **158.00** | 6–300 Cu/Al |



© 2012 Schneider Electric
All Rights Reserved

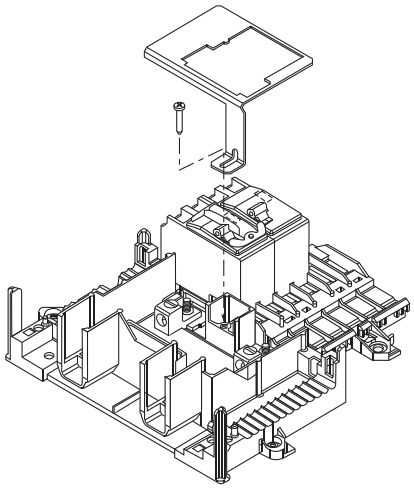
## 1Ø3W—120/240 Vac—UL Listed

### Table 1.25: Backup Power Solutions (Accept Only QO Plug-On Circuit Breakers.)

| | Mains Rating (A) | Spaces | Max. Single Pole Circuits ▲ | Max. Tandem Circuit Breakers | Load Center Box, Interior and Cover | | Equipment Grounding Bar Kit (Order Separately) | | Main Wire Size AWG/kcmil | | Box No. See Page 1-17, 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Al | Cu | |
| **Generator Panels—Manual Transfer for Sub-Feed Applications NEMA 1 (Indoor)** | | | | | | | | | | | |
| INDOOR | Factory-Installed Main Circuit Breakers with Mechanical Interlock—10 kA Short Circuit Current Rating | | | | | | | | | | |
| | 30 | 4 | 8 | 4 | QO48M30DSGP | **563.00** | PK7GTA | **11.70** | 14–8 | 14–8 | 4 |
| | 60 | 4 | 8 | 4 | QO48M60DSGP | **563.00** | | | 8–2 | 8–2 | 4 |
| **Generator Panels—Manual Transfer with Generator Power Inlet Plug for Sub-Feed Applications NEMA 3R (Outdoor)** | | | | | | | | | | | |
| RAINPROOF | Factory-Installed Main Circuit Breakers with Mechanical Interlock—10 kA Short Circuit Current Rating | | | | | | | | | | |
| | 100 | 4 | 8 | 4 | QO1DM10020TRBR | **848.00** | Factory-Installed | | — | 8–2 | 2R |
| | | 4 | 8 | 4 | QO1DM10030TRBR | **848.00** | | | — | | 2R |
| | | 4 | 8 | 4 | QO1DM10050TRBR | **1148.00** | | | — | | 2R |
| **Generator Panel—Automatic Transfer Switch (Contact your local Square D Field Sales office for more information.) ■** | | | | | | | | | | | |
| INDOOR | Factory- or Field-Installed Main Circuit Breaker—22 kA Short Circuit Current Rating | | | | | | | | | | |
| | 150 | 38 | 42 | 42 | QO13842MX150 | **1349.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 12 |
| | 200 | 38 | 42 | 42 | QO13842MX200 | **1499.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 12 |
| | 225 | 38 | 42 | 42 | QO13842MX225 | **1649.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 12 |
| | | 38 | 42 | 42 | QO13842UX225 ♦ | **1199.00** | | | 4–250 | 4–250 | 12 |
| | | | | | QOC38MXUF (Cover) | **149.00** | — | | | | |
| 3R | 150 | 14 | 28 | 28 | QO11428MX150FTRB★▼ | **1349.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 7R |
| | 200 | 14 | 28 | 28 | QO11428MX200FTRB★▼ | **1499.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 7R |
| | | 14 | 28 | 28 | QO11428UX200FTRB♦★▼ | **1199.00** | PK23GTA | **21.30** | 4–250 | 4–250 | 7R |

| QO Load Center Manual Power Transfer Accessories | | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|
| **Manual Transfer Equipment Kit** | For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be "ON" at a time. | QO2DTI | **24.90** | DE2E |
| | QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2P or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers. | QO2DTIM | **63.00** | DE2E |
| | Secures two 2P circuit breakers to right side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 100–125 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4LA | **102.00** | DE3A |
| | Secures two 2P circuit breakers to right side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 150–225 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4HA | **102.00** | DE3A |
| | Secures two 2P circuit breakers to left side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 100–125 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4LAL | **102.00** | DE3A |
| **Generator Circuit Breaker Interlock Kit** | For use on "G" and "S" Series NEMA 1 and "G", "S1" and "S2" Series NEMA 3R load centers. Interlocks a QOM1 2P main circuit breaker of a load center (100–125 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QOCRBGK1 | **105.00** | DE3A |
| | For use on "G" and "S" Series NEMA 1 and "G" and "S1" Series NEMA 3R load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QOCGK2 | **105.00** | DE3A |
| | For use on "S2" Series NEMA 3R load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QORBGK2 | **105.00** | DE3A |

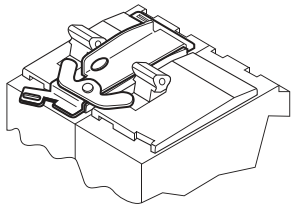
▲ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.
■ One main circuit breaker is included with panel. NEMA 1 indoor device requires cover ordered separately. Alternate source main circuit breaker (QO 125 A max.) ordered separately. Automatic Transfer Switch and Generator for secondary power source are ordered through a Kohler authorized dealer or contractor.
♦ Universal mains – No factory-installed main circuit breaker or main lugs. QOM2 frame size, field-install 22 k AIR. Main circuit breaker or main lugs (see pages 1-5 or 1-6).
★ Supplied with feed-thru lugs.
▼ Device is rated NEMA 3R and can be used for indoor or outdoor applications.



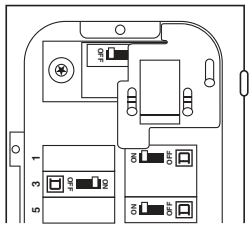
PK4DTIM4HA



QO2DTI



QO2DTI Installed



QOCGK2 Installed

© 2012 Schneider Electric
All Rights Reserved

## 1Ø2W—120Vac—1Ø3W—120/240 Vac—UL Listed

### Table 1.26: QO Special Application (Accepts Only QO Plug-On Circuit Breakers.)

INDOOR

| Mains Rating | Short Circuit Current Rating | Spaces | Max. 1P Circuits ▲ | Max. Tandem Circuit Breakers | Load Center ■ Box, Interior, and Cover | | Equipment Ground Bar Kit (Order Separately) | | Main Wire Size AWG/kcmil | | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Al | Cu | |
| **Manufactured Housing: 1Ø2W 120 Vac—Main Lugs Only—CSA Certified** | | | | | | | | | | | |
| 30 A♦ | 10 kA | 2 | 2 | 0 | QO2L30TTS★ | **51.00** | Factory-installed | | 12–10 | 14–10 | 1 |
| 50 A | 10 kA | 2 | 4 | 2 | QO24L50TTS▼ | **78.00** | | | — | 14–6 | 2 |
| **1Ø2W 120 Vac—Main Circuit Breaker—CSA Certified** | | | | | | | | | | | |
| 30 A | 10 kA | 3 | 5 | 2 | QO35FM30TTF/S | **83.00** | Factory-installed | | △ | | 3 |
| **1Ø3W 120/240 Vac—Main Lugs Only—CSA Certified** | | | | | | | | | | | |
| 70 A | 10 kA | 2 | 4 | 2 | QO24L70TS▼ | **78.00** | | | 12–3 | 14–4 | 2 |
| 100 A | 10 kA | 6 | 12 | 6 | QO612L100TF/S□ | **86.00** | Factory Installed | | 4–1 | | 4 |
| | | 6 | 12 | 6 | QO612L100DTF/S□ | **101.00** | | | | | 4 |
| | | 8 | 16 | 8 | QO816L100TF/S□ | **137.00** | | | | | 4 |
| | | 8 | 16 | 8 | QO816L100DTF/S□ | **159.00** | | | | | 4 |
| **Load Center with Cover: 1Ø3W 120/240 Vac—UL Listed Complete QO Load Center—Box, Interior and Combination Cover in One Package** | | | | | | | | | | | |
| **Convertible Mains—Factory-Installed Main Lugs ☆—QOM1 Main Frame Size—Convertible to Main Circuit Breaker (See page 1-5)—Copper Bus** | | | | | | | | | | | |
| 125 A | 65 kA | 12 | 12 | 0 | QO112L125GC | **188.00** | PK12GTA Incl. | | 6–2/0 | | 6 |
| | 65 kA | 12 | 24 | 12 | QO11224L125GC | **249.00** | PK15GTA Incl. | | 6–2/0 | | 6 |
| | 65 kA | 20 | 20 | 0 | QO120L125GC | **284.00** | PK15GTA Incl. | | 6–2/0 | | 7 |
| **Convertible Mains—Factory-Installed Main Lugs ☆—QOM2 Main Frame Size—Convertible to Main Circuit Breaker (See page 1-5)—Copper Bus** | | | | | | | | | | | |
| 150 A | 65 kA | 30 | 30 | 0 | QO130L150TC | **452.00** | PK23GTA, LK100AN Installed | | 6–250 | | 9 |
| 200 A | 65 kA | 30 | 40 | 10 | QO13040L200GC | **575.00** | PK23GTA, LK100AN Incl. | | 6–250 | | 9 |
| **Convertible Mains—Factory-Installed Main Circuit Breaker— QOM1 Main Frame Size—Convertible to Main Lugs (See page 1-6) or Lower Amperage Main Circuit Breaker (See page 1-5)—Copper Bus ▽** | | | | | | | | | | | |
| 100 A | 22 kA | 12 | 12 | 0 | QO112M100C | **351.00** | PK9GTA | **13.40** | 4–1/0 | | 5 |
| | 22 kA | 12 | 20 | 8 | QO11220M100C | **413.00** | PK15GTA | **17.10** | 4–1/0 | | 5 |
| | 22 kA | 16 | 16 | 0 | QO116M100C | **395.00** | PK12GTA | **15.80** | 4–1/0 | | 6 |
| | 22 kA | 20 | 20 | 0 | QO120M100C | **446.00** | PK15GTA | **17.10** | 4–1/0 | | 6 |
| 125 A | 22 kA | 32 | 32 | 0 | QO132M125C | **1041.00** | PK18GTA | **18.80** | 6–2/0 | | 8 |
| **Convertible Mains—Factory-Installed Main Circuit Breaker— QOM2 Main Frame Size—Convertible to Main Lugs (See page 1-6) or Lower Amperage Main Circuit Breaker (See page 1-5)—Copper Bus ▽** | | | | | | | | | | | |
| 150 A | 22 kA | 20 | 30 | 10 | QO12030M150C | **843.00** | PK18GTA | **18.80** | 4–250 | | 9 |
| | 22 kA | 30 | 30 | 0 | QO130M150C | **870.00** | PK18GTA | **18.80** | 4–250 | | 9 |
| 200 A | 22 kA | 20 | 40 | 20 | QO12040M200C | **843.00** | PK23GTA | **21.30** | 4–250 | | 9 |
| | 22 kA | 30 | 30 | 0 | QO130M200C | **896.00** | PK18GTA | **18.80** | 4–250 | | 9 |
| | 22 kA | 30 | 40 | 10 | QO13040M200C | **974.00** | PK23GTA | **21.30** | 4–250 | | 9 |
| | 22 kA | 40 | 40 | 0 | QO140M200C | **1137.00** | PK23GTA | **21.30** | 4–250 | | 10 |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

- ▲ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.
- ■ Order F for flush device or S for surface device.
- ♦ Mains rating 25 A when Al wire is used.
- ★ Will not accept Qwik-Gard™ QO-GFI or QO-AFI circuit breaker.
- ▼ Use 10 AWG maximum size wire for GFI and AFI circuit breakers.
- △ Main circuit breaker is a field-installed standard QO single pole circuit breaker. Order separately from page 1-2.
- □ 70 A max. branch circuit breaker and 70 A max. back fed main circuit breaker.
- ◊ UL short circuit current rating depends on lowest interrupting rating of circuit breaker installed.
- ☆ UL Listed 5000 A short circuit current rating for corner grounded Delta systems. Use QO-H circuit breakers only.
- ▽ 22 k AIR main circuit breaker UL Listed for use ahead of QO, QOT and QO-PL 10 k AIR branch circuit breakers to permit their application on systems with up to 22,000 A available fault current.

### Table 1.27: Service Upgrade Load Centers: 1Ø3W 120/240Vac—UL Listed Load Center with Removable End Walls

**Convertible Mains—Factory-Installed Main Breaker—22KA**
**QOM2 Main Frame Size—Convertible to Main Lugs (See page1-6) or Lower Amperage Main Circuit Breaker (See page 1-5)▽**

INDOOR

| Mains Rating | | Spaces | Max. 1P Circuits▲ | Max. Tandem Circuit Breakers | $ Price (Interior, Box and Cover) | Load Center Box and Interior | | Extra Long Cover with Door (Order Separately) | | | Main Wire Size AWG / kcmil | | Equipment Ground Bar Kit (Order Separately) | | Box No. See Page 1–17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cat. No. | $ Price | Flush Cat. No. | Surface Cat. No. | $ Price | Al | Cu | Cat. No | $ Price | |
| New! | 200 A | 30 | 40 | 10 | **959.00** | HOM3040M200CEP◒ | **959.00** | HOMC30UFL | — | **111.00** | 4-250 | | PK23GTA | **21.30** | 10 |
| | | 40 | 40 | 0 | **1,137.00** | QO140M200EP♦ | **1137.00** | QOC40UFL | — | **111.00** | | | PK23GTA | **21.30** | 10 |

- ◒ Ships with standard length cover
- ✱ Blank Endwall Plates (4) Available Order: EWPLATE $36.00
- ♦ Copper Bus, order cover separately QOC40UF/S or QOC40UFL

### Table 1.28: Auxiliary Gutter

UL Listed for use with standard 1Ø and 3Ø load centers for riser applications◑. For auxiliary gutter-load center compatibility, see catalog number **1100CT0501**

| Cat. No. | $ Price | Cover | Conduit Riser Size | Width | Height | Depth |
|---|---|---|---|---|---|---|
| SDAG26 | **338.00** | Flush | 1-3/4, 2, 2-1/2 or ✪3 | 13.50 | 26.12 | 3.75 |

- ◑ One tap kit required for each riser wire.
- ✪ When used with B300 bolt-on hubs.

### Table 1.29: Tap Kits 120/240 Vac—UL Listed for use with Auxiliary Gutter SDAG26

| Cat. N0. | $ Price | Use with Auxiliary Gutter Cat. No. | Riser Wire | | Tap Off Wire | |
|---|---|---|---|---|---|---|
| | | | Lug Type | Al/Cu Wire Size | Lug Type | Al/Cu Wire Size |
| SDGT30020 | **81.00** | SDAG26 | Mechanical (Included) | (2) 6 AWG–300 kcmil | Mechanical (Included) | (1) 6–2/0 AWG |
| SDGT300300 | **120.00** | SDAG26 | Mechanical (Included) | (2) 6 AWG–300 kcmil | Mechanical (Included) | (1) 6 AWG–300 kcmil |
| SDGT300C10C | **49.70** | SDAG26 | Anderson VCEL030516H1 (Not included) | (2) 4 AWG–300 kcmil | Anderson VCEL02114S1 (Not Included) | (1) 8–1/0 AWG |
| SDGT300C300C | **70.00** | SDAG26 | Anderson VCEL030516H1 (Not included) | (2) 4 AWG–300 kcmil | Anderson VCEL030516H1 (Not included) | (1) 4 AWG–300 kcmil |
| QOGL20 Grounding Terminals | **40.70** | SDAG26 | Mechanical (Included) | (2) 6–2/0 AWG | — | — |



© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

**Table 1.30: Value Packs Contains Complete Load Center (Box, Interior and Cover) with Selected Branch Circuit Breaker**

| | Mains Rating | Spaces | Max. 1P Circuits♦ | Max. Tandem Circuit Breakers | Load Center Box, Interior, Cover and Branch Circuit Breakers | | | Equipment Ground Bar Kit (Order Separately) | | Main Wire Size AWG/kcmil Al/Cu | Box No. See Pages 1-17, 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cat. No. | Included Load Center/Circuit Breakers | $ Price | Cat. No. | $ Price | | |
| INDOOR | **QO (Accepts Only QO Plug-On Circuit Breakers) QO—Copper Bus Convertible Mains—Factory-Installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible appropriate to Main Lugs (See page 1-6) or QOM Main Circuit Breaker (See page 1-5)** | | | | | | | | | | |
| | 100 A | 32 | 32 | 0 | QOVP2 | (1) QO132M100C, (5) QO120 | **839.00** | PK18GTA | **18.80** | 4–2/0 | 8 |
| | 200 A | 30 | 40 | 10 | QOVP1 | (1) QO13040M200C, (5) QO120 | **1103.00** | PK23GTA | **21.30** | 4–250 | 9 |
| | | 30 | 40 | 10 | QOVP10 | (1) QO13040M200C, (10) QO120 | **1328.00** | PK23GTA | **21.30** | | 9 |
| | **Homeline (Accepts Only HOM Plug-On Circuit Breakers) Convertible Mains—Factory-Installed Main Lugs, 10 kA Short Circuit Current Rating Convertible to appropriate QOM 22 kA Short Circuit Current Rating Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| | 125 A | 12 | 24 | 12 | HOMVPL2 | (1) HOM1224L125TC, (5) HOM120 | **353.00** | Included | — | 6–2/0 | 6 |
| | 200 A | 30 | 40 | 10 | HOMVPL1 | (1) HOM3040L200TC, (6) HOM115, (6) HOM120, (1) HOM230, (1) HOM250 | **962.00** | Included | — | 4–250 | 10 |
| | **Convertible Mains—Factory-Installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible appropriate to Main Lugs or Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| | 100 A | 20 | 20 | 0 | HOMVP4 | (1) HOM20M100C, (5) HOM115 | **528.00** | PK15GTA | **17.10** | 4–2/0 | 7 |
| | | 20 | 20 | 0 | HOMVP5 | (1) HOM20M100C, (5) HOM120 | **528.00** | PK15GTA | **17.10** | | 7 |
| | 150 A | 30 | 30 | 0 | HOMVP12 | (1) HOM30M150C, (5) HOM120, (1) HOM230 | **983.00** | PK23GTA | **21.30** | 4–250 | 10 |
| | 200 A | 20 | 40 | 20 | HOMVP16 | (1) HOM2040M200TC, (5) HOM120, (1) HOM230 | **965.00** | Included | — | 4–250 | 9 |
| | | 30 | 40 | 10 | HOMVP1 | (1) HOM3040M200TC, (5) HOM120, (1) HOM230 | **1083.00** | Included | — | | 10 |
| | | 30 | 40 | 10 | HOMVP2 | (1) HOM3040M200TC, (5) HOM115, (1) HOM230 | **1083.00** | Included | — | | 10 |
| | | 30 | 40 | 10 | HOMVP9 | (1) HOM3040M200TC, (6) HOM115, (6) HOM120, (1) HOM230, (1) HOM250 | **1328.00** | Included | — | | 10 |
| | | 30 | 40 | 10 | HOMVP14 | (1) HOM3040M200TC, (12) HOM120, (1) HOM230, (1) HOM250 | **1328.00** | Included | — | | 10 |
| | | 40 | 40 | 0 | HOMVP15 | (1) HOM40M200C, (10) HOM120 | **1346.00** | PK23GTA | **21.30** | | 12 |
| RAINPROOF | **Homeline (Accepts Only HOM Plug-On Circuit Breakers) Convertible Mains—Factory-Installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs or Lower Amperage QOM2 Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| | 200 A | 20 | 40 | 20 | HOMVPRB1 | (1) HOM2040M200RB, (6) HOM115, (6) HOM120, (1) HOM230, (1) HOM250 | **1253.00** | PK23GTA | **21.30** | 4–250 | 6R |

## QO Riser Panels

**Table 1.31: Offset Interior for Wide Gutter—30 A Maximum Branch Circuit Breaker on left side of interior▲■ (Accepts Only QO Plug-On Circuit Breakers)**

| | Mains Rating | Spaces | Max. Single Pole Circuits♦ | Max. Tandem Circuit Breakers | Load Center Box and Interior | | Load Center Cover | | Equipment Ground Bar Kit (Order Separately) | | Main Wire Size AWG/kcmil | | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Al | Cu | |
| INDOOR | **Convertible Mains—Factory-Installed Main Lugs, 65 kA Short Circuit Current Rating Convertible to QOM1 22 kA Short Circuit Current Rating Main Circuit Breaker (See page 1-5) when used with QOC cover below—Copper Bus** | | | | | | | | | | | | |
| | 125 A | 12 | 24 | 12 | QO11224L125WG | **338.00** | QOC20UFWG | **53.00** | PK15GTA | **17.10** | 6–2/0 | | 14 |
| | | 20 | 30 | 10 | QO12030L125WG | **465.00** | QOC20UFWG | **53.00** | PK15GTA | **17.10** | | | 14 |
| | **Convertible Mains-Factory—Installed Main Lugs, 65 kA Short Circuit Current Rating Convertible to QOM2 22 kA Short Circuit Current Rating Main Circuit Breaker (See page 1-5) when used with QOC cover below—Copper Bus** | | | | | | | | | | | | |
| | 200 A | 30 | 40 | 10 | QO13040L200WG | **701.00** | QOC30UFWG | **102.00** | PK23GTA | **21.30** | 4–250 | | 23 |
| | **Convertible Mains—Factory-Installed Main Circuit Breaker, 22 kA Short Circuit Current Rating Convertible to Main Lugs (See page 1-6) or Lower Amperage QOM2 Main Circuit Breaker (See page 1-5) when used with QOC cover below—Copper Bus** | | | | | | | | | | | | |
| | 200 A | 24 | 24 | 0 | QO124M200WG125★ | **683.00** | QOC30UFWG | **102.00** | PK23GTA | **21.30** | 4–250 | | 23 |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

▲ UL short circuit current rating depends on lowest interrupting rating of circuit breaker installed.

■ UL Listed 5000 A short circuit current rating for corner grounded Delta systems. Use QO-H circuit breakers only.

♦ Maximum single pole branch circuits utilizing QO and/or QOT circuit breakers.

★ Comes with 125 A main circuit breaker factory installed.

## Panelboard-style Covers for Riser Panels

Mono-Flat™ Front available for riser panels as an alternative to standard load center cover listed above. Provides a low-profile, aesthetically pleasing solution for high-traffic areas in upscale multi-family applications. Deadfront included. Lock kit not provided. Cover NQC30FWG CANNOT be used when panel has been converted to a main circuit breaker panel. ▼

| Mains Rating of Load Center | Cat. No. | $ Price |
|---|---|---|
| 125 A | NQC20FWG | **117.00** |
| 200 A | NQC30FWG | **180.00** |

▼ Order catalog number PK4FL for field-installed lock kit.

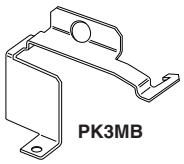
© 2012 Schneider Electric
All Rights Reserved

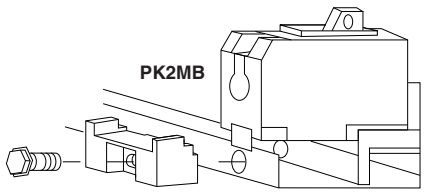
## Table 1.32: QO Load Center Accessories

| | Description | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|
| **Retaining Kit for Breakers Used as Back-fed Mains** | Secures circuit breaker to interior when used as a back-fed main. For QO612L100F/S, RB, QO612L100DF/S, QO816L100F/S, RB, QO816L100DF/S and QO148L125GF/S, GRB load centers | PK2MB | **7.20** | DE3A |
| | Secures 3P circuit breaker without accessories to left side of interior when used as a back-fed main. For 3Ø load centers | PK3MB | **14.70** | DE3A |
| | Secures circuit breaker to interior when used as a back-fed main for 2P QO 150–200 A circuit breakers | PK5RK | **14.70** | DE3A |
| | Secures ONE circuit breaker with or without electrical accessories to right side of interior when used as a back-fed main For 1Ø 100–125 ampere convertible main load centers. Series S01 and S02 | PK4MB2LA | **14.70** | DE3A |
| | Secures ONE circuit breaker with or without electrical accessories to right side of interior when used as a back-fed main For 1Ø 150–225 ampere convertible main load centers. Series S01 and S02 | PK4MB2HA | **14.70** | DE3A |
| **Cover Sealing Strap** | Provides means of sealing trim mounting screws on QO load center covers | QO1SE | **3.60** | DE3A |
| **Replacement Cover Directory Label** | 1 through 42 numbered universal replacement directory label for load center covers | LSDL | **0.54** | DE5 |
| **Circuit Identification Stickers** | Circuit identification stickers for use on cover directory labels to identify branch circuits | PSDS | **0.75** | DE5 |
| **QO Load Center Manual Power Transfer Accessories** | | | | |
| **Manual Transfer Equipment Kit** | For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be "ON" at a time. | QO2DTI | **24.90** | DE2E |
| | QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2P or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers. | QO2DTIM | **63.00** | DE2E |
| | Secures two 2P circuit breakers to right side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 100–125 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4LA | **102.00** | DE3A |
| | Secures two 2P circuit breakers to right side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 150–225 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4HA | **102.00** | DE3A |
| | Secures two 2P circuit breakers to left side of interior when used as back-fed mains, a QO2DTI Kit included for back-up power supply applications. For 1Ø 100–125 ampere convertible main load centers. Series S01 and S02. | PK4DTIM4LAL | **102.00** | DE3A |
| **Generator Circuit Breaker Interlock Kit** | For use on "G" and "S" Series NEMA 1 and "G", "S1" and "S2" Series NEMA 3R load centers. Interlocks a QOM1 2P main circuit breaker of a load center (100–125 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QOCRBGK1 | **105.00** | DE3A |
| | For use on "G" and "S" Series NEMA 1 and "G" and "S1" Series NEMA 3R load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QOCGK2 | **105.00** | DE3A |
| | For use on "S2" Series NEMA 3R load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a QO 2P (15–125 A) branch circuit breaker. Includes a retaining kit. | QORBGK2 | **105.00** | DE3A |
| | For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be "ON" at a time. | QO2DTI | **24.90** | DE2E |

## Table 1.33: Load Center and CSED Surge Protection Devices

| | | | | |
|---|---|---|---|---|
| **Surge Arresters** | For use on 1Ø3W, 150 Vac maximum | SDSA1175 | **92.00** | DE1B |
| | For use on 3Ø4W, 650 Vac maximum | SDSA3650 | **248.00** | DE1B |
| | QO Surgebreaker $_{C}UL_{US}$ Listed Secondary Surge Arrester 150 Vac line-to-ground maximum | QO2175SB | **159.00** | DE1B |
| | Homeline Surgebreaker $_{C}UL_{US}$ Listed Secondary Surge Arrester 150 Vac line-to-ground maximum | HOM2175SB | **159.00** | DE1B |
| **Surge Arrester Mounting Kit** | UL Listed for mounting SDSA1175 surge arrester into ground bar mounting holes on 1Ø convertible main circuit breaker load centers | QOSAMK | **11.40** | DE3A |





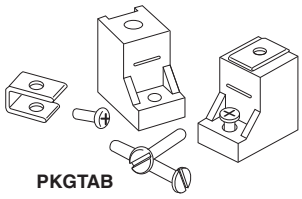



© 2012 Schneider Electric
All Rights Reserved

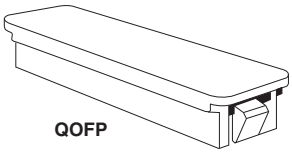
## Table 1.34: QO Load Center Accessories

| Description | | | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|---|
| **Filler Plates** | Fills opening in covers if twistout is removed in error | | QOFP | **3.60** | DE3A |
| | Fills main circuit breaker opening in convertible load center covers100–125 A | | QOM1FP | **20.30** | DE3A |
| | Fills main circuit breaker opening in convertible load center covers150–225 A | | QOM2FP | **20.30** | DE3A |
| | Fills main circuit breaker opening in 3Ø load center covers (S01 and S02 Series) | | KFP | **20.30** | DE3A |
| | Fills main circuit breaker opening in "Q" style 3Ø load center covers (S03 Series) | | Q2FP | **20.30** | DE3A |
| **Door Lock Kits** | Use with QO612L100DF/S, QO612L100DFCU/SCU, QO612L100DTF/S, QO816L100DF/S, QO816L100DFCU/SCU, QO816L100DTF/S, QO48M30DSGP, or QO48M60DSGP | | PK8FL▲ | **98.00** | DE3A |
| | Use with convertible mains, 1Ø and 3Ø 100–225 A, and fixed mains, 3Ø 125–225 A indoor load centers | | PK6FL | **93.00** | DE3A |
| | Use with 300 and 400 ampere indoor load centers | | PK4FL | **90.00** | PE1A |
| **Neutral / Ground Lugs** | Field-installed for 12– 2 Al or 14–4 Cu AWG wire | | LK70AN | **10.10** | DE3A |
| | Field-installed for 6–2/0 Al/Cu AWG wire | | LK100AN | **10.80** | DE3A |
| | Field-installed for 14–2/0 Al/Cu AWG wire | | LK125AN | **22.10** | DE3A |
| | Field-installed for 2–3/0 Al/Cu AWG wire | | LK150AN | **32.40** | DE3A |
| | Field-installed for 4 AWG to 300 kcmil Al/Cu wire. Use in Series S, 150–225 A QO or HOM load center | | LK225AN | **33.20** | DE3A |
| **Ground Bar Kits** | Standard PK15GTA with a 1–4/0 Al/Cu Lug | | PK15GTAL | **35.00** | DE3A |
| | Standard PK18GTA with a 1–4/0 Al/Cu Lug | | PK18GTAL | **37.80** | DE3A |
| | Standard PK23GTA with a 1–4/0 Al/Cu Lug | | PK23GTAL | **40.70** | DE3A |
| | Insulator Kit for PK7GTA through PK27GTA | | PKGTAB | **43.80** | DE3A |
| **Handle Padlock Attachment** | For padlocking main circuit breakers in convertible load centers OFF | 50–125 A | QOM1PA | **11.00** | DE2E |
| | | 100–225 A | QOM2PA | **11.00** | DE2E |

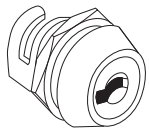
▲ QO403L60NF/S does not have provisions for a field-installed lock.



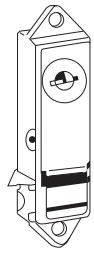
**PKGTAB**



**QOFP**



**PK6FL and PK8FL**



**PK4FL**

## Table 1.35: Homeline Load Center Accessories

| Description | | | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|---|
| **Handle Padlock Attachment** | For padlocking main circuit breakers in convertible load center, "OFF" | 50–125 A | QOM1PA | **11.00** | DE2E |
| | | 100–225 A | QOM2PA | **11.00** | DE2E |
| **Filler Plates** | Fills opening in covers if twistout is removed in error | | HOMFP | **3.20** | DE3C |
| | Fills main circuit breaker opening in convertible load centers | 100–125 A | QOM1FP | **20.30** | DE3A |
| | | 150–225 A | QOM2FP | **20.30** | DE3A |
| **Neutral Lugs** | Field-installed for 14–2 AWG Al or 14–4 AWG Cu wire | | LK70AN | **10.10** | DE3B |
| | Field-installed for 6–2/0 AWG Al/Cu wire | | LK100AN | **10.80** | DE3B |
| | Field-installed for 14–2/0 AWG Al/Cu wire | | LK125AN | **22.10** | DE3B |
| | Field-installed for 4 AWG–300 kcmil Al/Cu wire. Use in Series S, 150–225 A QO or HOM load center | | LK225AN | **33.20** | DE3A |
| **Retaining Kit for Breakers Used as Back-fed Mains** | Secures circuit breaker to interior when used as a back-fed main. For HOM612L100F/S, RB and HOM48L125GC, GRB load centers | | HOM1RK | **6.50** | DE3C |
| | Secures ONE circuit breaker right side of interior when used as a back-fed main For 100–125 A convertible main load centers, Series S01 and S02 | | HOM4RK2LA | **14.70** | DE3C |
| | Secures ONE circuit breaker right side of interior when used as a back-fed main For 150–225 A convertible main load centers, Series S01 and S02 | | HOM4RK2HA | **14.70** | DE3C |
| | Secures circuit breaker to interior when used as a back-fed main For 2P 150–200 A circuit breakers | | HOM5RK | **14.70** | DE3C |
| **Door Lock Kit** | Use with convertible indoor load center covers (Series S-1) | | PK6FL | **93.00** | DE3A |
| **Replacement Cover Directory Label** | 1 through 42 numbered universal replacement directory label for load center covers | | LSDL | **0.54** | DE5 |
| **Circuit Identification Stickers** | Circuit identification stickers for use on cover directory labels to identify branch circuits | | PSDS | **0.75** | DE5 |
| **Generator Circuit Breaker Interlock Kit** | For use on "S" Series NEMA 1 and NEMA 3R load centers. Interlocks a QOM1 2P main circuit breaker of a load center (100–125 A) with a Homeline 2P (15–125 A) branch circuit breaker | | HOMCRBGK1 | **105.00** | DE3D |
| | For use on "S" Series NEMA 1 and "S1" Series NEMA 3R load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a Homeline 2P (15–125 A) branch circuit breaker | | HOMCGK2 | **105.00** | DE3D |
| | For use on "S2" and "S3" Series NEMA 3R QOM2 load centers. Interlocks a QOM2 2P main circuit breaker of a load center (150–225 A) with a Homeline 2P (15–125 A) branch circuit breaker | | HOMRBGK2 | **105.00** | DE3D |

© 2012 Schneider Electric
All Rights Reserved



HOM 1P
1 Space Required



HOM 2P
2 Spaces Required



HOMT 1P
1 Space Required



HOM2200BB
Branch Circuit Breaker
4 Spaces Required



HOMT Quad
Circuit Breaker
2 Spaces Required



HOM 1P CAFI



HOM 1P DF



HOM 1P GFI
(With Ground Fault
Circuit Interrupter)
1 Space Required



HOM 2P GFI
(With Ground Fault
Circuit Interrupter)
2 Spaces Required

The Square D Homeline circuit breakers are in a 1 in. wide format for 1-pole circuit breakers. They are designed to plug into Homeline load centers.

### Table 1.36: HOM

| Ampere Rating | AIR | 1P—120/240 Vac | | 2P—120/240 Vac Common Trip | |
|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 A | 10 kA | HOM115▲■ | 26.30 | HOM215■ | 60.00 |
| 20 A | 10 kA | HOM120▲■ | 26.30 | HOM220■ | 60.00 |
| 25 A | 10 kA | HOM125■ | 26.30 | HOM225■ | 60.00 |
| 30 A | 10 kA | HOM130■ | 26.30 | HOM230■ | 60.00 |
| 35 A | 10 kA | — | — | HOM235■ | 60.00 |
| 40 A | 10 kA | HOM140■ | 26.30 | HOM240■ | 60.00 |
| 45 A | 10 kA | — | — | HOM245■ | 60.00 |
| 50 A | 10 kA | HOM150■ | 26.30 | HOM250■ | 60.00 |
| 60 A | 10 kA | — | — | HOM260■ | 60.00 |
| 70 A | 10 kA | — | — | HOM270■ | 123.00 |
| 80 A | 10 kA | — | — | HOM280■ | 168.00 |
| 90 A | 10 kA | — | — | HOM290■ | 168.00 |
| 100 A | 10 kA | — | — | HOM2100■ | 168.00 |
| 110 A | 10 kA | — | — | HOM2110■ | 369.00 |
| 125 A | 10 kA | — | — | HOM2125■ | 369.00 |
| 150 A | 10 kA | — | — | HOM2150BB■♦ | 428.00 |
| 175 A | 10 kA | — | — | HOM2175BB■♦ | 428.00 |
| 200 A | 10 kA | — | — | HOM2200BB■♦ | 428.00 |

### Table 1.37: HOM-HM

**High magnetic trip circuit breakers are recommended for applications where high initial inrush current may occur.**

| Amperes | 1P—120/240 Vac | | 2Ps |
|---|---|---|---|
| | Cat. No. | $ Price | — |
| 15 A | HOM115HM■ | 27.60 | — |
| 20 A | HOM120HM■ | 27.60 | — |

### Table 1.38: HOM-CAFI

**Homeline Combination Arc Fault Circuit Interrupters—Provide overload and short circuit protection, plus arc fault protection in accordance with the NEC and UL1699.**

| Circuit Breaker Type | Ampere Rating | Poles 120 Vac | Cat. No. | $ Price |
|---|---|---|---|---|
| Combination Arc-fault Circuit interrupter | 15 A | 1 | HOM115CAFI■ | 267.00 |
| | 20 A | 1 | HOM120CAFI■ | 267.00 |

### Table 1.39: HOM-DF

**Homeline Combination Arc Fault and Ground Fault Circuit Interrupters (Dual Function)—Provide overload and short circuit protection, plus arc fault and ground fault protection in a single device in accordance with the NEC, UL1699 and UL943.**

| Circuit Breaker Type | Ampere Rating | Poles 120 Vac | Cat. No. | $ Price |
|---|---|---|---|---|
| Combination Arc-fault and Ground Fault Circuit interrupter | 15 A | 1 | HOM115DF | 312.00 |
| | 20 A | 1 | HOM120DF | 312.00 |

### Table 1.40: HOM-GFI

**HOM-GFI circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 milliamperes or more.**

| Ampere Rating | AIR | 1P—120 Vac | | 2P—120/240 Vac Common Trip | |
|---|---|---|---|---|---|
| | | 1 Space Required | | 2 Spaces Required | |
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 A | 10 kA | HOM115GFI | 212.00 | HOM215GFI | 413.00 |
| 20 A | 10 kA | HOM120GFI | 212.00 | HOM220GFI | 413.00 |
| 30 A | 10 kA | — | — | HOM230GFI | 413.00 |
| 40 A | 10 kA | — | — | HOM240GFI | 413.00 |
| 50 A | 10 kA | — | — | HOM250GFI | 413.00 |

### Table 1.41: HOM-EPD—10 k AIR

**Homeline Equipment Protection Device—Circuit Breakers with 30 mA Equipment Ground Fault Protection (UL Listed)**

| Amperes | 1P—120 Vac | | 2P—120/240 Vac Common Trip | |
|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 A | HOM115EPD | 374.00 | HOM215EPD | 660.00 |
| 20 A | HOM120EPD | 374.00 | HOM220EPD | 660.00 |
| 25 A | — | — | HOM225EPD | 660.00 |
| 30 A | — | — | HOM230EPD | 660.00 |
| 40 A | — | — | HOM240EPD | 660.00 |
| 50 A | — | — | HOM250EPD | 660.00 |

### Table 1.42: HOMT Tandem Circuit Breakers

| Ampere Rating★ | AIR | 1P Tandem—120/240 Vac (One Space Required) | |
|---|---|---|---|
| | | Cat. No. | $ Price |
| 15 and 15 A | 10 kA | HOMT1515■ | 52.00 |
| 15 and 20 A | 10 kA | HOMT1520■ | 52.00 |
| 20 and 20 A | 10 kA | HOMT2020■ | 52.00 |
| 30 and 15 A | 10 kA | HOMT3015■ | 52.00 |
| 30 and 20 A | 10 kA | HOMT3020■ | 52.00 |

▲ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.

■ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

### Table 1.43: HOMT Quad Tandem Circuit Breakers

| Ampere Rating★ | | AIR | 2P Tandem—120/240 Vac (Two Spaces Required) | |
|---|---|---|---|---|
| 1P | 2P | | Cat. No. | $ Price |
| (2) 15 A | 15 A | 10 kA | HOMT1515215■ | 120.00 |
| (2) 15 A | 20 A | 10 kA | HOMT1515220■ | 120.00 |
| (2) 15 A | 25 A | 10 kA | HOMT1515225■ | 120.00 |
| (2) 15 A | 30 A | 10 kA | HOMT1515230■ | 120.00 |
| (2) 15 A | 40 A | 10 kA | HOMT1515240■ | 120.00 |
| (2) 15 A | 50 A | 10 kA | HOMT1515250■ | 120.00 |
| (2) 20 A | 20 A | 10 kA | HOMT2020220■ | 120.00 |
| (2) 20 A | 25 A | 10 kA | HOMT2020225■ | 120.00 |
| (2) 20 A | 30 A | 10 kA | HOMT2020230■ | 120.00 |
| (2) 20 A | 40 A | 10 kA | HOMT2020240■ | 120.00 |
| (2) 20 A | 50 A | 10 kA | HOMT2020250■ | 120.00 |

Note: Typical catalog number (e.g. HOMT 1515230) represents two 1P, outer poles (two 15 A 1P CBs) and one 2P inner circuit breaker with common trip (one 30 A 2P CB).

### Table 1.44: Circuit Breaker Wire Sizes▼

| Breaker Type | Ampere Rating | Wire Size (AWG/kcmil) | |
|---|---|---|---|
| | | Aluminum | Copper |
| HOM 1P | 15–30 A | 14–8 AWG | 14–8 AWG or (2) 14–10 AWG |
| | 40–50 A | 8–2 AWG | 8–2 AWG |
| HOM 2P | 15–30 A | 14–8 AWG | 14–8 AWG or (2) 14–10 AWG |
| | 35–70 A | 8–2 AWG | 8–2 AWG |
| | 80–125 A | 4–2/0 AWG | 4–2/0 AWG |
| | 150–200 A | 4 AWG–300 kcmil | 4 AWG–300 kcmil |
| HOMT and Quad | 15–30 A | 14–8 AWG | 14–8 AWG |
| Quad Only | 40–50 A | 6–12 AWG | 6–14 AWG |
| HOM-GFI - 1P | 15–20 A | 14–10 AWG | 14–10 AWG |
| HOM-GFI - 2P | 15–50 A | 12–4 AWG | 14–6 AWG |

### Table 1.45: Accessories

| Description | | Cat. No. | $ Price |
|---|---|---|---|
| Handle Attachments | | | |
| Handle Tie: Converts any two adjacent 120/240 Vac single HOM circuit breakers to independent trip 2P | | HOM1HT□ | 3.50 |
| Handle Tie: Converts any two adjacent 120/240 Vac 1P side-by-side HOMT circuit breakers to independent trip 2P | | HOMTHT□ | 3.80 |
| Handle Clamp: Clamp for holding HOM 1P handle in the ON or OFF position | | QO1LO◊ | 3.80 |
| Handle Blocking Device: Attaches to standard HOM 2P circuit breakers for holding the handle in the OFF position | | HOM2HBD□ | 10.70 |
| Handle Padlock Attachment: For padlocking 1P Standard HOM breakers in the ON or OFF position. | | HOM1PA□ | 9.90 |
| Handle Padlock Attachment: For padlocking 2P Standard HOM circuit breakers in ON or OFF position | 15–70 A | HOM2PALA□ | 9.90 |
| | 80–125 A | HOM2PAHA□ | 9.90 |
| | 150–200 A | HOM2PAVHA□ | 50.00 |
| Handle Padlock Attachment: For padlocking center poles of Homeline Quad breakers in the OFF position. | | HOMQPA | 9.90 |
| Handle Padlock Attachment: For padlocking main circuit breakers in convertible load center in OFF position | 50–125 A | QOM1PA△◊ | 11.00 |
| | 100–225 A | QOM2PA△◊ | 11.00 |
| Sub-Feed Lugs | | | |
| 125 A 2P plug-on—2 spaces required | | HOML2125 | 47.60 |
| 225 A 2P plug-on—4 spaces required | | HOML2225♦ | 296.00 |

♦ Requires four spaces (1 AWG–300 kcmil Al/Cu). Use only in 1Ø panel rated 150 A or greater.

★ 15–20 A tandem or quad tandem circuit breakers are suitable for use with 60°C or 75°C conductors. 25–50 A tandem or quad tandem circuit breakers are suitable for use with 75°C conductors only.

▼ 15–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 40–125 A circuit breakers are suitable for use with 75°C conductors.

△ 50–125 A QOM1 frame size; 100–225 A QOM2 frame size.

□ DE3C Discount Schedule

◊ DE2E Discount Schedule



© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

### Table 1.46: Convertible Main Load Centers (Accepts Only HOM Plug-On Circuit Breakers.)

| Mains Rating | Spaces | Max. Single Pole Circuits ▲ | Max. Tandem Circuit Breakers | Load Center Box, Interior and Cover ■ Cat. No. | $ Price (DE3C) | Main Wire Size AWG/kcmil Al | Cu | Equipment Ground Bar Kit (Order Separately) Cat. No. | $ Price (DE3A) | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Main Lugs**—10 kA Short Circuit Current Rating Order HOM Circuit Breakers (See page 1-14) Factory-installed Fixed Main Lugs | | | | | | | | | | |
| 70 A | 2 | 4 | 2 | HOM24L70F/S★♦ | **59.00** | 12–3 | 14–4 | PK3GTA1 | **11.40** | 2 |
| 100 A | 6 | 12 | 6 | HOM612L100F/S♦▼ | **78.00** | 8–1 | | PK7GTA | **11.70** | 4 |
| 125 A | 4 | 8 | 4 | HOM48L125GC | **86.00** | 12–2/0 | 14–2/0 | PK7GTA Factory-included | | 21 |
| **Convertible Mains—Factory-installed Main Lugs QOM1 Main Frame Size—Convertible to Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| 125 A | 8 | 16 | 8 | HOM816L125C | **132.00** | 6–2/0 | | PK15GTA | **17.10** | 6 |
| | 8 | 16 | 8 | HOM816L125TC | **150.00** | | | Factory-installed | — | 6 |
| | 12 | 12 | 0 | HOM12L125C | **174.00** | | | PK15GTA | **17.10** | 6 |
| | 12 | 24 | 12 | HOM1224L125TC | **204.00** | | | Factory-installed | — | 6 |
| | 16 | 24 | 8 | HOM1624L125C | **260.00** | | | PK15GTA | **17.10** | 8 |
| | 20 | 20 | 0 | HOM20L125C | **237.00** | | | PK15GTA | **17.10** | 8 |
| | 20 | 24 | 4 | HOM2024L125TC | **288.00** | | | Factory-installed | — | 8 |
| | 24 | 24 | 0 | HOM24L125TC | **344.00** | | | Factory-installed | — | 8 |
| **Convertible Mains—Factory-installed Main Lugs QOM2 Main Frame Size—Convertible to Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| 150 A | 30 | 30 | 0 | HOM30L150C | **375.00** | 4–250 | | PK23GTA | **21.30** | 10 |
| | 30 | 30 | 0 | HOM30L150TC | **396.00** | | | Factory-installed | — | 10 |
| 200 A | 16 | 32 | 16 | HOM1632L200TC | **357.00** | | | | | 9 |
| | 16 | 32 | 16 | HOM1632L200TCFT△ | **575.00** | 4–250 | | Factory-installed | — | 10 |
| | 20 | 40 | 20 | HOM2040L200TC | **417.00** | | | | | 9 |
| 200 A | 30 | 30 | 0 | HOM30L200C | **420.00** | 4–250 | | PK23GTA | **21.30** | 10 |
| | 30 | 30 | 0 | HOM30L200TC | **464.00** | | | Factory-installed | — | 10 |
| | 30 | 40 | 10 | HOM3040L200TC | **479.00** | | | Factory-installed | — | 10 |
| | 40 | 40 | 0 | HOM40L200C | **618.00** | | | PK23GTA | **21.30** | 12 |
| | 40 | 40 | 0 | HOM40L200TC | **671.00** | | | Factory-installed | — | 12 |
| | 40 | 60 | 20 | HOM4060L200TC | **839.00** | | | Factory-installed | — | 12 |
| | 42 | 52 | 10 | HOM4252L200TC | **804.00** | | | Factory-installed | — | 12 |
| 225 A | 42 | 42 | 0 | HOM42L225C | **732.00** | 6–250 | | PK23GTA | **21.30** | 12 |
| **Main Circuit Breaker**—22 kA Short Circuit Current Rating **Convertible Mains—Factory-installed Main Circuit Breaker QOM1 Main Frame Size—Convertible to Main Lugs or Lower Amperage Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| 100 A | 8 | 16 | 8 | HOM816M100C | **315.00** | 6–1 | | PK15GTA | **17.10** | 5 |
| | 8 | 16 | 8 | HOM816M100TC | **333.00** | | | Factory-installed | — | 5 |
| | 12 | 12 | 0 | HOM12M100C | **294.00** | 6–2/0 | | PK15GTA | **17.10** | 6 |
| | 12 | 24 | 12 | HOM1224M100TC | **384.00** | | | Factory-installed | — | 6 |
| | 20 | 20 | 0 | HOM20M100C | **396.00** | 6–1 | | PK15GTA | **17.10** | 7 |
| | 24 | 24 | 0 | HOM24M100C | **513.00** | 6–2/0 | | PK15GTA | **17.10** | 8 |
| | 30 | 30 | 0 | HOM30M100C | **672.00** | | | PK23GTA | **21.30** | 10 |
| 125 A | 12 | 24 | 12 | HOM1224M125C | **606.00** | 6–2/0 | | PK15GTA | **17.10** | 6 |
| | 12 | 24 | 12 | HOM1224M125TC | **620.00** | | | Factory-installed | — | 6 |
| | 24 | 24 | 0 | HOM24M125C | **710.00** | | | PK15GTA | **17.10** | 8 |
| | 30 | 30 | 0 | HOM30M125C | **812.00** | | | PK23GTA | **21.30** | 10 |
| **Convertible Mains—Factory-installed Main Circuit Breaker QOM2 Main Frame Size—Convertible to Main Lugs or Lower Amperage Main Circuit Breaker (See page 1-16)** | | | | | | | | | | |
| 150 A | 16 | 32 | 16 | HOM1632M150TC | **636.00** | 4–250 | | Factory-installed | — | 9 |
| | 20 | 30 | 10 | HOM2030M150TC | **750.00** | | | Factory-installed | — | 9 |
| | 30 | 30 | 0 | HOM30M150C | **776.00** | | | PK23GTA | **21.30** | 10 |
| 200 A | 12 | 24 | 12 | HOM1224M200TC | **572.00** | 4–250 | | Factory-installed | — | 9 |
| | 16 | 32 | 16 | HOM1632M200TC | **675.00** | | | Factory-installed | — | 9 |
| | 20 | 40 | 20 | HOM2040M200C | **711.00** | | | PK23GTA | **21.30** | 9 |
| | 20 | 40 | 20 | HOM2040M200TC | **764.00** | | | Factory-installed | — | 9 |
| | 30 | 30 | 0 | HOM30M200C | **798.00** | | | PK23GTA | **21.30** | 10 |
| | 30 | 40 | 10 | HOM3040M200TC | **891.00** | | | Factory-installed | — | 10 |
| | 40 | 40 | 0 | HOM40M200C | **1019.00** | | | PK23GTA | **21.30** | 12 |
| | 40 | 60 | 20 | HOM4060M200C | **1367.00** | | | PK23GTA | **21.30** | 12 |
| | 42 | 42 | 0 | HOM42M200C | **1094.00** | | | PK23GTA | **21.30** | 12 |
| | 42 | 52 | 10 | HOM4252M200C | **1313.00** | | | PK23GTA | **21.30** | 12 |
| 225 A | 42 | 42 | 0 | HOM42M225C | **1116.00** | 4–250 | | PK23GTA | **21.30** | 12 |
| **Universal Mains**—No Factory-installed Main Circuit Breaker or Main Lugs **QOM2 Main Frame Size—Field-install Main Circuit Breaker or Main Lugs (See page 1-16)** | | | | | | | | | | |
| 200 A | 16 | 32 | 16 | HOM1632U200TC | **293.00** | 4–250 | | Factory-installed | — | 9 |
| | 20 | 40 | 20 | HOM2040U200TC | **357.00** | | | Factory-installed | — | 9 |
| | 30 | 40 | 10 | HOM3040U200TC | **530.00** | | | Factory-installed | — | 10 |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

▲ Maximum single pole branch circuits utilizing HOM and/or HOMT circuit breakers.
■ C at end of catalog number indicates combination flush/surface cover included with device.
♦ F/S at end of catalog number indicates to order F for flush device or S for surface device. The cover does not have a door.
★ HOM-GFI and HOM-AFI branch circuit breakers are limited to number 10 maximum wire.
▼ 70 A maximum branch circuit breaker, 100 A maximum back feed main circuit breaker.
△ Supplied with feed-thru lugs.

© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—UL Listed

**Table 1.47: Convertible Main Load Centers (Accepts Only HOM Plug-On Circuit Breakers.)**

| | Mains Rating | Spaces | Max. Single Pole Circuits ▲ | Max. Tandem Circuit Breakers | Load Center Box, Interior and Cover | | Main Wire Size AWG/kcmil | | Equipment Ground Bar Kit (Order Separately) | | Box No. See Page 1-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cat. No. (DE3C) | $ Price | Al | Cu | Cat. No. (DE3A) | $ Price | |
| RAINPROOF | **Main Lugs**—10 kA Short Circuit Current Rating<br>Factory-installed Fixed Main Lugs, 10 kA Short Circuit Current Rating | | | | | | | | | | |
| | 70 A | 2 | 4 | 2 | HOM24L70RB■ | **111.00** | 12–3 | 14–4 | PK4GTA | **10.80** | 1R |
| | 100 A | 6 | 12 | 6 | HOM612L100RB△ | **129.00** | 8–1 | | PK7GTA | **11.70** | 2R |
| | 125 A | 4 | 8 | 4 | HOM48L125GRB | **137.00** | 12–2/0 | 14–2/0 | PK7GTA Factory-included | | 15R |
| | **Convertible Mains with Factory-installed Main Lugs ♦, QOM1 Main Frame Size—Convertible to Main Circuit Breaker (See Below)** | | | | | | | | | | |
| | 125 A | 8 | 16 | 8 | HOM816L125RB | **248.00** | 6–2/0 | | PK15GTA | **17.10** | 3R |
| | | 12 | 12 | 0 | HOM12L125RB | **234.00** | | | PK15GTA | **17.10** | 3R |
| | | 12 | 24 | 12 | HOM1224L125RB | **278.00** | | | PK15GTA | **17.10** | 3R |
| | | 20 | 20 | 0 | HOM20L125RB | **383.00** | | | PK15GTA | **17.10** | 4R |
| | **Convertible Mains with Factory-installed Main Lugs ♦, QOM2 Main Frame Size—Convertible to Main Circuit Breaker (See Below)** | | | | | | | | | | |
| | 200 A | 12 | 12 | 0 | HOM12L200RB | **423.00** | 4–250 | | PK23GTA | **21.30** | 5R |
| | | 20 | 40 | 20 | HOM2040L200RB | **560.00** | | | PK23GTA | **21.30** | 6R |
| | | 30 | 30 | 0 | HOM30L200RB | **587.00** | | | PK23GTA | **21.30** | 7R |
| | | 30 | 40 | 10 | HOM3040L200RB | **759.00** | | | — | — | — |
| | | 40 | 40 | 0 | HOM40L200RB | **911.00** | | | PK23GTA | **21.30** | 14R |
| | | 40 | 60 | 20 | HOM4060L200RB | **1139.00** | | | PK23GTA | **21.30** | 14R |
| | | 42 | 52 | 10 | HOM4252L200RB | **1092.00** | | | PK23GTA | **21.30** | 14R |
| RAINPROOF | **Main Circuit Breaker**—22 kA Short Circuit Current Rating<br>Convertible Mains with Factory-Installed Main Circuit Breaker, QOM1 Main Frame Size—Convertible to Main Lugs or Lower Amperage Main Circuit Breaker (See Below) ★ | | | | | | | | | | |
| | 100 A | 8 | 16 | 8 | HOM816M100RB | **429.00** | 6–1 | | PK15GTA | **17.10** | 3R |
| | | 12 | 12 | 0 | HOM12M100RB | **416.00** | | | PK15GTA | **17.10** | 3R |
| | | 20 | 20 | 0 | HOM20M100RB | **531.00** | 6–2/0 | | PK15GTA | **17.10** | 4R |
| | | 24 | 24 | 0 | HOM24M100RB | **606.00** | | | PK15GTA | **17.10** | 6R |
| | 125 A | 8 | 16 | 8 | HOM816M125RB | **716.00** | 6–2/0 | | PK15GTA | **17.10** | 3R |
| | | 24 | 24 | 0 | HOM24M125RB | **858.00** | | | PK15GTA | **17.10** | 6R |
| | **Convertible Mains with Factory-installed Main Circuit Breaker, QOM2 Main Frame Size—Convertible to Main Lugs or Lower Amperage Main Circuit Breaker (See Below)** | | | | | | | | | | |
| | 150 A | 30 | 30 | 0 | HOM30M150RB | **978.00** | 4–250 | | PK23GTA | **21.30** | 7R |
| | 200 A | 20 | 40 | 20 | HOM2040M200RB | **872.00** | 4–250 | | PK23GTA | **21.30** | 6R |
| | | 30 | 30 | 0 | HOM30M200RB | **1004.00** | | | PK23GTA | **21.30** | 7R |
| | | 30 | 40 | 10 | HOM3040M200RB | **1152.00** | | | PK23GTA | **21.30** | 7R |
| | | 40 | 40 | 0 | HOM40M200RB | **1277.00** | | | PK23GTA | **21.30** | 14R |
| | | 40 | 60 | 20 | HOM4060M200RB | **1596.00** | | | PK23GTA | **14.20** | 14R |
| | | 42 | 52 | 10 | HOM4252M200RB | **1532.00** | | | PK23GTA | **14.20** | 14R |
| | 225 A | 16 | 24 | 8 | HOM1624M225RB | **1182.00** | 4–250 | | PK15GTA | **17.10** | 7R |
| | | 42 | 42 | 0 | HOM42M225RB | **1323.00** | | | PK23GTA | **21.30** | 14R |
| | **Convertible Mains with Factory-installed Main Circuit Breaker with Feed-thru Lugs,<br>QOM2 Main Frame Size—Convertible to Main Lugs or Lower Amperage Main Circuit Breaker (See Below) ♦** | | | | | | | | | | |
| | 150 A | 8 | 16 | 8 | HOM816M150FTRB | **785.00** | 4–250 | | PK15GTAL | **35.00** | 6R |
| | 200 A▼ | 8 | 16 | 8 | HOM816M200FTRB | **785.00** | 4–250 | | PK15GTAL | **35.00** | 6R |
| | **Universal Main with Feed-thru Lugs—No Factory-installed Main Circuit Breaker or Main Lugs ♦<br>QOM2 Main Frame Size—Field-install Main Circuit Breaker or Main Lugs (See Kits Below)** | | | | | | | | | | |
| | 200 A | 8 | 16 | 8 | HOM816U200FTRB | **446.00** | 4–250 | | PK15GTAL | **35.00** | 6R |

**Above listings through 200 A mains rating meet Federal Specification W-P-115c as Type 1, Class 2.**

▲ Maximum single pole branch circuits utilizing HOM and/or HOMT circuit breakers.
■ HOM-GFI and HOM-AFI branch circuit breakers are limited to number 10 maximum wire.
♦ Side hinge door device allow 1-1/4 in. on left side for door to open.
★ 22 k AIR main circuit breaker UL Listed for use ahead of HOM and HOMT 10 k AIR branch circuit breakers to permit their application on systems with up to 22 kA available fault current.
▼ Rated 200 A when using copper wire. Reference NEC® Table 310.15(B)(6) when using Al wire.
△ 70 A maximum branch circuit breaker, 100 A maximum back feed main circuit breaker.

## 1Ø, Field-Installed Mains Kits

**Main Lug Kit**



QOL125



QOL225

**Table 1.48: For Convertible Load Centers Only**

| Field-Installed Main Type | Frame Size | Main □ Ampere Rating | Use on Convertible Load Center with Mains Rating | Cat. No. | $ Price (DE3A) | Lug Wire Size ▽ AWG/kcmil |
|---|---|---|---|---|---|---|
| Main Lugs ◊ | — | 125 A | 100–125 A | QOL125 | **44.10** | 6–2/0 Al or Cu |
| | | 225 A | 150–225 A | QOL225 | **104.00** | 6–300 Al or Cu |
| Main Circuit Breaker ☆ | QOM1 | 50 A | 100–125 A | QOM50VH | **140.00** | 12–2/0 Al or Cu |
| | | 60 A | 100–125 A | QOM60VH | **140.00** | |
| | | 70 A | 100–125 A | QOM70VH | **140.00** | |
| | | 80 A | 100–125 A | QOM80VH | **201.00** | |
| | | 90 A | 100–125 A | QOM90VH | **201.00** | |
| | | 100 A | 100–125 A | QOM100VH | **201.00** | |
| | | 110 A | 125 A | QOM110VH | **468.00** | |
| | | 125 A | 125 A | QOM125VH | **468.00** | |
| | QOM2◒ | 100 A | 150–225 A | QOM2100VH | **468.00** | 4–300 Al or Cu |
| | | 125 A | 150–225 A | QOM2125VH | **468.00** | |
| | | 150 A | 150–225 A | QOM2150VH | **468.00** | |
| | | 175 A | 200–225 A | QOM2175VH | **468.00** | |
| | | 200 A | 200–225 A | QOM2200VH | **468.00** | |
| | | 225 A | 225 A | QOM2225VH | **468.00** | |

□ Do not exceed the load center mains rating.
◊ If main circuit breaker knockout has been removed from the load center's trim, order appropriate filler plate from page 1-13.
☆ 22 k AIR main circuit breaker UL Listed for use ahead of HOM and HOMT 10 k AIR branch circuit breakers to permit their application on systems with up to 22 kA available fault current.
▽ Wire range listed for main device kits is the wire range of that device. To find out maximum wire size permitted in a particular load center per UL, see pages 1-5 through 1-11 under Main Wire Size.
◒ Add suffix 1021 for 120, 208, 240 Vac shunt trip.



© 2012 Schneider Electric
All Rights Reserved

## Indoor Knockout Information and Enclosure Dimensions

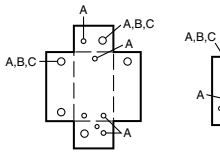
### Table 1.49: Enclosure Dimensions

| Box No. | Dimensions W in. | W mm | H in. | H mm | D in. | D mm |
|---|---|---|---|---|---|---|
| 1 | 3.81 | 97 | 6.72 | 171 | 3.00 | 76 |
| 2 | 4.81 | 122 | 9.30 | 236 | 3.19 | 81 |
| 3 | 4.81 | 122 | 9.30 | 236 | 3.19 | 81 |
| 4 | 8.88 | 226 | 12.57 | 319 | 3.80 | 97 |
| 5 | 14.25 | 362 | 14.92 | 379 | 3.75 | 95 |
| 6 | 14.25 | 362 | 17.92 | 455 | 3.75 | 95 |
| 7 | 14.25 | 362 | 20.92 | 531 | 3.75 | 95 |
| 8 | 14.25 | 362 | 26.04 | 661 | 3.75 | 95 |
| 9 | 14.25 | 362 | 29.86 | 758 | 3.75 | 95 |
| 10 | 14.25 | 362 | 33.78 | 858 | 3.75 | 95 |
| 11 | 14.25 | 362 | 37.98 | 965 | 3.75 | 95 |
| 12 | 14.25 | 362 | 39.37 | 1000 | 3.75 | 95 |

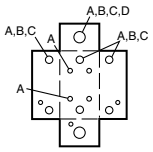
| Box No. | Dimensions W in. | W mm | H in. | H mm | D in. | D mm |
|---|---|---|---|---|---|---|
| 13 | 5.88 | 149 | 13.12 | 333 | 3.38 | 86 |
| 14 | 14.25 | 362 | 20.92 | 531 | 3.75 | 95 |
| 15 | 20.00 | 508 | 50.00 | 1270 | 5.75 | 146 |
| 16 | 20.00 | 508 | 62.00 | 1727 | 5.75 | 146 |
| 17 | 20.00 | 508 | 53.00 | 1346 | 5.75 | 146 |
| 18 | 5.88 | 149 | 16.12 | 409 | 3.38 | 86 |
| 19 | 7.56 | 192 | 23.12 | 587 | 4.25 | 108 |
| 20 | 9.62 | 244 | 26.12 | 663 | 4.75 | 121 |
| 21 | 8.88 | 226 | 14.80 | 376 | 3.80 | 97 |
| 22 | 8.55 | 217 | 23.92 | 608 | 3.95 | 100 |
| 23 | 14.25 | 362 | 29.86 | 758 | 3.75 | 95 |

### Table 1.50: Knockout Information

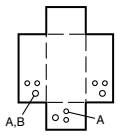
| Knockouts | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Symbol | A | B | C | D | E | F | G | H | I |
| Conduit Size | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 |



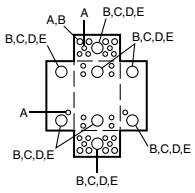
Box 1



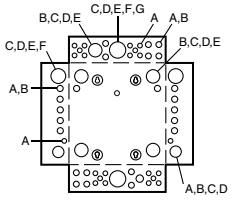
Box 2



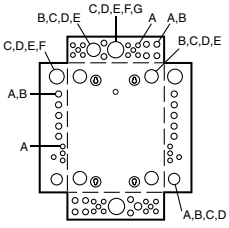
Box 3



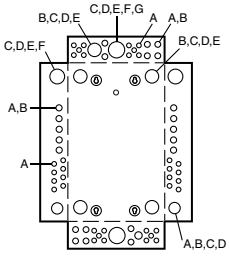
Box 4



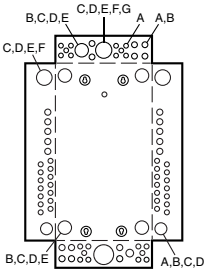
Box 5



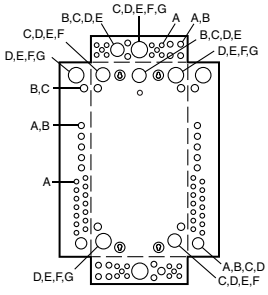
Box 6



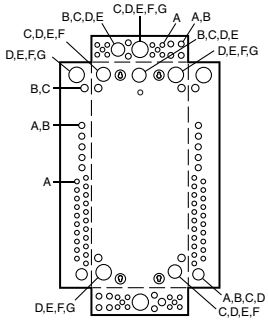
Box 7



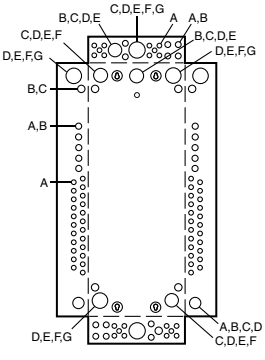
Box 8



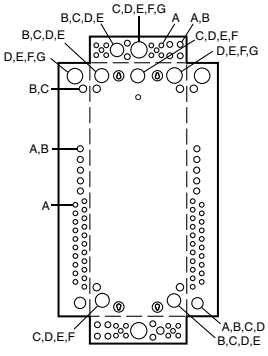
Box 9



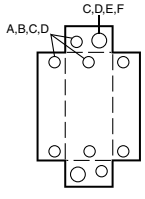
Box 10



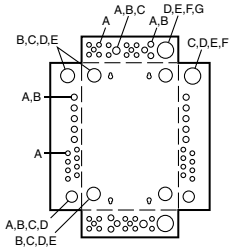
Box 11



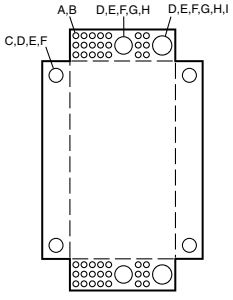
Box 12



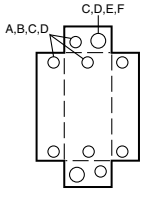
Box 13



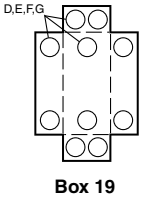
Box 14



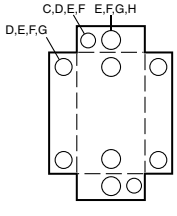
Box 15, 16, 17



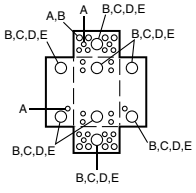
Box 18



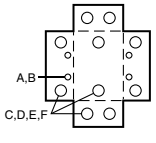
Box 19



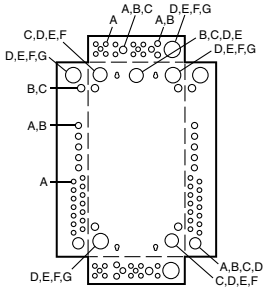
Box 20



Box 21

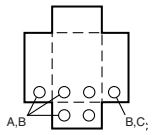


Box 22

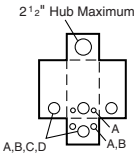


Box 23

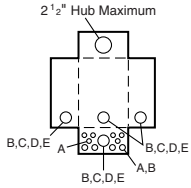
© 2012 Schneider Electric
All Rights Reserved



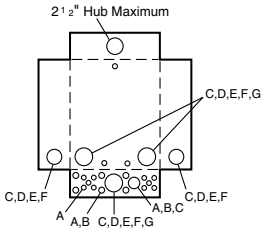
Box 1NM



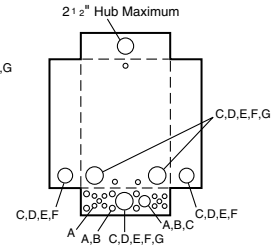
Box 1R



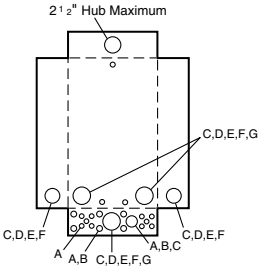
Box 2R



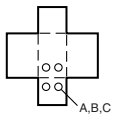
Box 3R, 4R



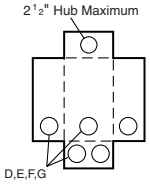
Box 5R



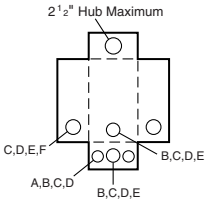
Box 6R, 7R, 8R



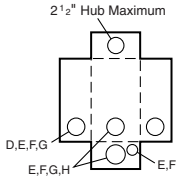
Box 9R



Box 11R



Box 10R, 13R



Box 12R

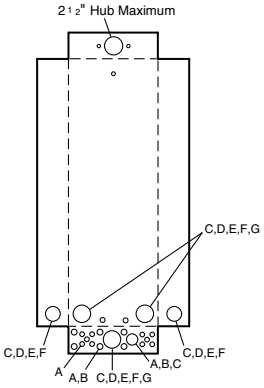
## Table 1.51: Enclosure Dimensions

| Box No. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | W | | H | | D | |
| | in. | mm | in. | mm | in. | mm |
| 1NM | 6.52 | 166 | 8.79 | 223 | 3.90 | 99 |
| 1R▲ | 4.88 | 124 | 9.38 | 238 | 4.00 | 102 |
| 2R | 8.88 | 226 | 12.65 | 321 | 4.27 | 108 |
| 3R | 14.75 | 375 | 18.92 | 481 | 4.52 | 115 |
| 4R | 14.75 | 375 | 22.06 | 560 | 4.52 | 115 |
| 5R | 14.75 | 375 | 26.04 | 661 | 4.52 | 115 |
| 6R | 14.75 | 375 | 29.86 | 758 | 4.52 | 115 |
| 7R | 14.75 | 375 | 33.78 | 858 | 4.52 | 115 |
| 8R | 14.75 | 375 | 37.98 | 965 | 4.52 | 115 |
| 9R | 4.56 | 116 | 6.50 | 165 | 3.88 | 99 |
| 10R | 6.92 | 176 | 13.18 | 335 | 4.12 | 105 |
| 11R | 7.56 | 192 | 23.24 | 590 | 4.75 | 121 |
| 12R | 9.62 | 244 | 26.24 | 666 | 5.50 | 140 |
| 13R | 6.92 | 176 | 16.18 | 411 | 4.12 | 105 |
| 14R | 14.75 | 375 | 39.37 | 1000 | 4.52 | 115 |
| 15R | 8.88 | 226 | 14.80 | 376 | 4.27 | 108 |
| 16R | 8.55 | 217 | 24.75 | 629 | 4.16 | 106 |
| 17R | 8.88 | 226 | 12.65 | 321 | 4.27 | 108 |

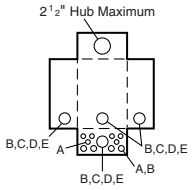
▲ HOME250SPA and QO260NATR top endwall has no hub opening.

## Table 1.52: Knockout Information

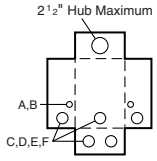
| Knockouts | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Symbol** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** |
| **Conduit Size** | 1/2 in. | 3/4 in. | 1 in. | 1-1/4 in. | 1-1/2 in. | 2 in. | 2-1/2 in. | 3 in. |



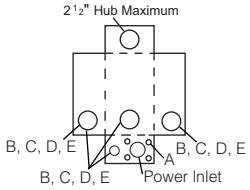
Box 14R



Box 15R



Box 16R



17R


"RB" Hub

## Bolt-On Hubs

Square D equipment with "R" or "RB" suffix, designated NEMA 3R rainproof construction, utilizes bolt-on hubs listed below. "RB" devices will accept 3/4 in. through 2-1/2 in. bolt-on hubs without the use of reducers. Off-center conduit thread openings and elongated mounting holes provide quick and easy adjustment to eliminate costly conduit offsets and bends. Catalog suffix "R" devices require 3 in. through 4 in. field cut opening. Hubs are suitable for use with conduit having ANSI standard taper pipe thread.

## Table 1.53: Bolt-On Hubs UL Listed for "RB" Devices■

| **Conduit Size** | 3/4 in. | 1 in. | 1-1/4 in. | 1-1/2 in. | 2 in. | 2-1/2 in. |
|---|---|---|---|---|---|---|
| **Hub Cat. No.** | B075 | B100 | B125 | B150 | B200 | B250 |
| **$ Price** | **33.30** | **33.30** | **33.30** | **33.30** | **61.35** | **102.00** |

■ Closing cap (Cat. No. BCAP) is provided factory-installed on each device having "RB" suffix. Price if ordered separately; $2.50

## Table 1.54: Bolt-On Hubs UL Listed for Mounting in Field-Cut Opening

| **Conduit Size** | 3 in. | 3-1/2 in. | 4 in. | Designed for mounting in field cut opening. Includes gasket and four mounting bolts and nuts. |
|---|---|---|---|---|
| **Hub Cat. No.** | B300 | B350 | B400 | |
| **$ Price** | **186.00** | **300.00** | **368.00** | |


© 2012 Schneider Electric
All Rights Reserved

## Table 1.55: Meter Mains *New!*

**Meets Federal Spec. W-P-115c as Type 1, Class 2, UL Listed, suitable only for use as service equipment, 120/240 Vac, 1Ø3W, NEMA 3R enclosure**

| | | Ampere Rating | Bypass Type | Service (Type of Feed) | | Short Circuit Current Rating | Cat. No. | $ Price | Service Disconnect(s) | | | Load Center and Branch Circuit Breakers (Order separately Pages 1-2, 1-3, 1-4) | | | | Hub Type (Order separately from page 1-17) | Line Side Main Lugs AWG/ kcmil (Al/Cu) | Service Ground Lug AWG/ kcmil (Al/Cu) | Weight Each (Lbs) and Pallet Qty. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Max. Quantity | | | | | | | |
| | | | | | | | | | 2P Circuits (Max.) | Type (Order separately from page 1-22 except as noted) | Ampere Rating (Max.) | Spaces | 1P Circuits | 1P Tandems | Ampere Rating (Max.) | | | | |
| | | | | UL | UL and EUSERC | | | | | | | | | | | | | | |
| Ring Type | QO™ | **Surface Mount Only** | | | | | | | | | | | | | | | | | |
| | | 125 A | None | OH/UG | — | 10 kA | C125RB | **368.00** | 1 | QOM1-VH | 125 A | — | — | — | — | B | 4–1/0 | 8–1/0 | 15, 54 |
| | | 200 A | None | OH/UG | — | 22 kA | CM200S | **1022.00** | 1 | QOM2-VH | 200 A | — | — | — | — | A | 4–250 | (2) 8–2/0 | 26, 24 |
| | | | | OH/UG | —<br>— | 22 kA | C2M200S | **1083.00** | 1<br>1 | QOM2-VH<br>QO-VH | 200 A<br>50 A | —<br>— | —<br>— | —<br>— | —<br>— | A | 4–250 | (2) 8–2/0 | 27, 20 |
| | | | | OH/UG | — | 10 kA | C4L200S | **1143.00** | 2 | QO | 100 A | — | — | — | — | A | 4–250 | (2) 8–2/0 | 27, 28 |
| | Homeline™ | **Surface Mount Only** | | | | | | | | | | | | | | | | | |
| | | 125 A | None | OH/UG | OH/UG | 10 kA | SC8L125S | **846.00** | 4 | HOM | 125 A■ | — | — | — | — | A | 6–2/0 | 6–2/0 | 31, 24 |
| | | 200 A | None | OH/UG | OH/UG | 10 kA | SC12L200S | **1419.00** | 6 | HOM | 200 A◆ | — | — | — | — | A–L | 4–250 | 8–2/0 | 40, 10 |
| | | **Semiflush Mount only** | | | | | | | | | | | | | | | | | |
| | | 125 A | None | OH/UG | OH/UG | 10 kA | SC8L125F | **846.00** | 4 | HOM | 110 A | — | — | — | — | A or B300 | 6–2/0 | 6–2/0 | 37, 20 |
| | | 200 A | None | OH★/UG | OH★/UG | 10 kA | SC12L200F | **1419.00** | 6 | HOM | 200 A▽ | — | — | — | — | A–L | 4–250 | 8–2/0 | 47, 10 |
| | | | None | OH★/UG | OH★/UG | 22 kA | SC816F200F▼ | **1187.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | A–L | 4–250 | 8–2/0 | 51, 10 |
| | | **Surface Mount—Supplied with Feed-Thru Lugs and provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | | | |
| | | 150 A | None | OH/UG | OH/UG | 22 kA | SC816F150S▼ | **1187.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◑ | A–L | 4–250 | 8–2/0 | 40, 10 |
| | | | | | — | 10 kA | SC816D150C▼△ | **1250.00** | 1 | HOM2150▲ | 150 A | 8 | 16 | 8 | 100 A✱ | A or A–L | 6–300 | 8–1/0 | 48, 18 |
| | | | | | UG | | SU816D150C▼△ | | 1 | HOM | 50 A | | | | | | | | |
| | | 200 A | None | OH/UG | OH/UG | 22 kA | SC816F200S▼ | **1187.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A◆ | A–L | 4–250 | 8–2/0 | 40, 10 |
| | | | | | — | 10 kA | SC816D200C▼△ | **1250.00** | 1 | HOM2200▲ | 200 A | 8 | 16 | 8 | 100 A✱ | A or A–L | 6–300 | 8–1/0 | 48, 18 |
| | | | | | UG | | SU816D200C ▼△ | **1250.00** | 1 | HOM | 50 A | | | | | | | | |
| Ringless | QO | **Surface Mount Only** | | | | | | | | | | | | | | | | | |
| | | 200 A | None | OH/UG | — | 22 kA | RC200S□ | **1022.00** | 1 | QOM2-VH | 200 A | — | — | — | — | A | 6–350 | (2)8–2/0 | 26, 24 |
| | | | Lever | | | 10 kA | RCM200SL□☆ | **1950.00** | 1 | QOM2-VH | 200 A | | | | | A | 6–350 | 8-1/0 | 60 / 14 |
| | | | None | | | 22 kA | RC2M200S□ | **1083.00** | 1 | QOM2-VH | 200 A | | | | | A | 6–350 | (2)8–2/0 | 27, 20 |
| | | | Horn | | | | RC2M200SH□ | **1136.00** | 1 | QO-VH | 50 A | | | | | A | 6–350 | (2)8–2/0 | 27, 20 |
| | | | Lever | | | 10 kA | RC2M200SL□☆ | **2090.00** | 1 | QOM2-VH | 200 A | | | | | A | 6–350 | 8-1/0 | 60 / 14 |
| | | | | | | | | | 1 | QO-VH | 50 A | | | | | | | 8-1/0 | |
| | | | None | | | 22 kA | QC12L200S◪□☆ | **1562.00** | 6 | QO-VH | 200 A | | | | | A | 6–350 | 8–2/0 | 43, 21 |
| | | | None | | | | QC12L200C□ | **1562.00** | 6 | QO-VH | 200 A▽ | | | | | A | 6–350 | 12-2/0 | 40, 21 |
| | | **Surface Mount Only, Supplied with Feed-Thru Lugs and provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | | | |
| | | 100 A | Horn | OH/UG | — | 22 kA | QC816F100SH◪▼□☆ | **1356.00** | 1 | QOM2100VH▲ | 100 A | 8 | 16 | 8 | 100 | A | 6–350 | 8–2/0 | 43, 21 |
| | | 100 A | Horn | OH/UG | — | 22 kA | QC816F100CH▼□☆ | **1356.00** | 1 | QOM2100VH▲ | 100 A | 8 | 16 | 8 | 100 | A | 6–350 | 12-2/0 | 40, 21 |
| | | 125 A | None | OH/UG | — | 22 kA | QC816F125S▼□☆ | **1304.00** | 1 | QOM2125VH▲ | 125 A | 8 | 16 | 8 | 100 | A | 6–350 | 8–2/0 | 43, 21 |
| | | | None | OH/UG | — | 22 kA | QC816F125C▼□ | **1304.00** | 1 | QOM2125VH▲ | 125 A | 8 | 16 | 8 | 100 | A | 6–350 | 12-2/0 | 40, 21 |
| | | | Horn | OH/UG | — | 22 kA | QC816F125SH◪▼□☆ | **1356.00** | 1 | QOM2125VH▲ | 125 A | 8 | 16 | 8 | 100 | A | 6–350 | 8–2/0 | 43, 21 |
| | | 150 A | None | OH/UG | — | 22 kA | QC816F150S◪▼□☆◪ | **1304.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | A | 6–350 | 8–2/0 | 43, 21 |
| | | | None | OH/UG | — | 22 kA | QC816F150C▼□ | **1304.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | A | 6–350 | 12-2/0 | 40, 21 |
| | | | Horn | OH/UG | — | 22 kA | QC816F150SH◪▼□☆ | **1356.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | A | 6–350 | 8–2/0 | 43, 21 |
| | | | Lever | OH/UG | — | 22 kA | QC816F150SL◊☆□ | **2690.00** | 1 | QOM2150-VH▲ | 200 A | 8 | 16 | 8 | 150 A | A | 6–350 | 8–2/0 | 74 / 12 |
| | | 200 A | None | OH/UG | — | 22 kA | QC816F200S◪▼□☆ | **1356.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | A | 6–350 | 8–2/0 | 43, 21 |
| | | | Horn | OH/UG | — | 22 kA | QC816F200SH◪▼□☆ | **1356.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | A | 6–350 | | |
| | | | Horn | OH/UG | — | 22 kA | QC816F200CH▼□ | **1356.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | A | 6–350 | 12-2/0 | 40, 21 |
| | | | Lever | OH/UG | — | 22 kA | QC816F200SL◊☆□ | **2690.00** | 1 | QOM2200-VH▲ | 200 A | 8 | 16 | 8 | 200 A | A | 6–350 | 8–2/0 | 74 / 12 |
| | Homeline | **Surface Mount Only** | | | | | | | | | | | | | | | | | |
| | | 125 A | None | OH/UG | — | 10 kA | RC8L125S✪ | **846.00** | 4 | HOM | 125 A■ | — | — | — | — | A | 6–2/0 | 6–2/0 | 27, 32 |
| | | 200 A | None | OH/UG | — | 10 kA | RC12L200S◪□☆ | **1419.00** | 6 | HOM | 200 A▽ | — | — | — | — | A | 6–350 | 8–2/0 | 43, 21 |
| | | 200 A | None | OH/UG | — | 22 kA | QC12L200C□ | **1419.00** | 6 | HOM | 200 A▽ | — | — | — | — | A | 6–350 | 12-2/0 | 40, 21 |
| | | **Surface Mount Only, Supplied with Feed-Thru Lugs and provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | | | |
| | | 100 A | Horn | OH/UG | — | 22 kA | RC816F100SH◪▼□☆ | **1227.00** | 1 | QOM2100VH▲ | 100 A | 8 | 16 | 8 | 100 A | | | 8–2/0 | 43, 21 |
| | | 100 A | Horn | OH/UG | — | 22 kA | RC816F100CH▼□☆ | **1227.00** | 1 | QOM2100VH▲ | 100 A | 8 | 16 | 8 | 100 A | | | 12-2/0 | 40, 21 |
| | | 125 A | Horn | OH/UG | — | 22 kA | RC816F125SH◪▼□☆ | **1227.00** | 1 | QOM2125VH▲ | 125 A | 8 | 16 | 8 | 100 A | | | 8–2/0 | 43, 21 |
| | | 125 A | Horn | OH/UG | — | 22 kA | RC816F125CH▼□ | **1227.00** | 1 | QOM2125VH▲ | 125 A | 8 | 16 | 8 | 100 A | | | 12-2/0 | 40, 21 |
| | | 150 A | None | OH/UG | — | 22 kA | RC816F150S◪▼□ | **1187.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | | | 8–2/0 | 43, 21 |
| | | | None | OH/UG | — | 22 kA | RC816F150C▼□ | **1187.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | | | 12-2/0 | 40, 21 |
| | | | Horn | OH/UG | — | 22 kA | RC816F150SH◪▼□☆ | **1227.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | A | 6–350 | 8–2/0 | 43, 21 |
| | | | Horn | OH/UG | — | 22 kA | RC816F150CH▼□☆ | **1227.00** | 1 | QOM2150VH▲ | 150 A | 8 | 16 | 8 | 150 A◒ | | | 12-2/0 | 40, 21 |
| | | | Lever | OH/UG | — | 22 kA | RC816F150SL◊☆□ | **2690.00** | 1 | QOM2150-VH▲ | 200 A | 8 | 16 | 8 | 150 A | | | 8-2/0 | 72 / 12 |
| | | 200 A | None | OH/UG | — | 22 kA | RC816F200S◪▼□☆ | **1227.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | | | 8–2/0 | 43, 21 |
| | | | None | OH/UG | — | 22 kA | RC816F200C▼□ | **1227.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | | | 12-2/0 | 40, 21 |
| | | | Horn | OH/UG | — | 22 kA | RC816F200SH◪▼□☆ | **1227.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | | | 8–2/0 | 43, 21 |
| | | | Horn | OH/UG | — | 22 kA | RC816F200CH▼□☆ | **1227.00** | 1 | QOM2200VH▲ | 200 A | 8 | 16 | 8 | 200 A▽ | | | 12-2/0 | 40, 21 |
| | | | Lever | OH/UG | — | 22 kA | RC816F200SL◊☆□ | **2690.00** | 1 | QOM2200-VH▲ | 200 A | 8 | 16 | 8 | 200 A | | | 8-2/0 | 72 / 12 |
| | | 200 A | Horn | OH/UG | — | 10 kA | RC816D200CH▼△✪☆ | **1292.00** | 1<br>1 | HOM2200▲<br>HOM | 200 A<br>50 A | 8 | 16 | 8 | 100 A✱ | A or B300 | 6–300 | 6–1/0 | 48, 18 |

▲ Service disconnect supplied factory-installed.
■ 125 A Homeline™ 2P circuit breaker can be installed in top position only. All other positions are limited to 100 A max.
◆ UL short circuit current rating is equal to the lowest interrupting rating of any circuit breaker installed.
★ Suitable for OH service with addition of tunnel kit SCTK20. Order separately.
▼ Supplied with load side feed-thru lugs, for 4 AWG–250 kcmil (Al/Cu) conductors.
△ Convertible to semiflush with SC200F flange kit (order separately).
□ Device supplied with barrel lock provisions factory-installed.
◊ —
☆ 5th jaw factory-installed.
▽ Use only 15–100 A and 150–200 A circuit breakers.
◒ Use only 15–100 A and 150 A circuit breakers.
✱ A 100 A circuit breaker can be installed in bottom position only, all other positions are limited to 70 A max.
◆ Use only 15–110 A and 150–200 A breakers.
◑ Use only 15–110 A and 150 A breakers.
✪ Knockout provided in cover for use with barrel lock kit SCBRLLOCK (see Accessories, page 1-22).
◪ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBS, see accessories p 1-22, check with local utility for approval.
◆ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBL, see accessories p 1-22, check with local utility for approval.

© 2012 Schneider Electric
All Rights Reserved

## Meter Mains and All-In-Ones

- Ring or ringless type meter socket designs available
- UL Listed, suitable only for use as service equipment
- Meets EUSERC standards
- Service disconnect(s) are supplied factory-installed, except where noted
- Semiflush-reverse design available, supplied with load center (indoor access)
- Supplied with 100% branch neutrals, all unused terminals may be used for equipment grounding wires.
- Meets Federal Specification W-P-115c as Type 1, Class 2

**Table 1.56: All-In-One Combination Service Entrance Devices**

| | | Ampere Rating | Bypass Type | Service (Type of Feed) UL and EUSERC | Short Circuit Current Rating | Cat. No. (DE3A) | List $ Price | Service Disconnect(s) | | | Load Center and Branch Circuit Breakers (Order Separately Pages 1-2, 1-3, 1-14) | | | | Hub Type (Order Separately page 1-22) | Line Side Main Lugs AWG/ kcmil (Al/Cu) | Service Ground Lug AWG/ kcmil (Al/Cu) | Weight Each (Lbs) and Pallet Qty. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2P Circuits (Max.) | Type (Factory Installed) | Ampere Rating (Max.) | Max. Quantity Spaces | 1P Circuits | 1P Tandems | Ampere Rating (Max.) | | | | |
| Ring Type | Homeline™ | **Surface Mount Only** | | | | | | | | | | | | | | | | |
| | | 100 A | None | OH/UG | 10 kA | SC1624M100S | **744.00** | 1 | HOM2100 | 100 A | 16 | 24 | 8 | 100 A | A | 6–2/0 | 6–2/0 | 32, 24 |
| | | 125 A | None | OH/UG | 10 kA | SC1624M125S | **1518.00** | 1 | HOM2125 | 125 A | 16 | 24 | 8 | 125 A▲ | | | | |
| | | 200 A | None | OH/UG | 22 kA | SC2040M200S | **1671.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A◒ | A-L | 4–250 | 6–2/0 | 45, 10 |
| | | 200 A | None | OH/UG△ | 10 kA | SC2040M200C■ | **1799.00** | 1 | HOM2200 | 200 A | 20 | 40 | 20 | 100 A | A or A-L | 6–300 | 8–1/0 | 47, 18 |
| | | 200 A | None | UG | 10 kA | SU2040M200C■ | **1799.00** | 1 | HOM2200 | 200 A | 20 | 40 | 20 | 100 A | A or A-L | 6–300 | 8–1/0 | 47, 18 |
| | | **Semiflush Mount Only** | | | | | | | | | | | | | | | | |
| | | 100 A | None | OH/UG | 10 kA | SC1624M100F | **744.00** | 1 | HOM2100 | 100 A | 16 | 24 | 8 | 100 A | A or B300 | 6–2/0 | 6–2/0 | 44, 20 |
| | | 125 A | None | OH/UG | 10 kA | SC1624M125F | **1518.00** | 1 | HOM2125 | 125 A | 16 | 24 | 8 | 110 A | | | | |
| | | | | OH♦/UG | 22 kA | SC2040M125F | **1671.00** | 1 | QOM2125VH | 125 A | 20 | 40 | 20 | 110 A | A-L | 4–250 | 8–2/0 | 51, 10 |
| | | 200 A | None | OH♦/UG | 22 kA | SC2040M200F | **1671.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A◒ | | | | |
| | | | | OH▼/UG | 22 kA | SC2636M200FPV★ | **2244.00** | 1 | QOM2200VH | 200 A | 26 | 36 | 10 | 100 A | A-L | 4–250 | 8–2/0 | 56, 10 |
| | | | | | | SC3040M200F | **2064.00** | 1 | QOM2200VH | 200 A | 30 | 40 | 10 | 200 A | | | | |
| | | 225 A | None | OH▼/UG | 22 kA | SC3040M225F | **2280.00** | 1 | QOM2225VH | 225 A | 30 | 40 | 10 | 200 A | | | | |
| | | | | | | SC2636M225FPV★ | **2520.00** | 1 | QOM2225VH | 225 A | 26 | 36 | 10 | 100 A | | | | |
| | | **Surface Mount Only** | | | | | | | | | | | | | | | | |
| | | 100 A | None | OH△ | 10 kA | SO1020M100S | **443.00** | 1 | HOM2100 | 100 A | 10 | 20 | 10 | 80 A | A | 6–1 | 8–4 | 20, 42 |
| | | 200 A | None | OH△ | 22 kA | SO2040M200S | **1161.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | A | 6–350 | 8–2/0 | 43, 21 |
| | | 200 A | None | OH/UG | 22 kA | SC3040M200S | **2010.00** | 1 | QOM2200VH | 200 A | 30 | 40 | 10 | 200 A | A-L | 4–250 | 8–2/0 | 50, 10 |
| | | | | | | SC40M200S | **2432.00** | 1 | QOM2200VH | 200 A | 40 | 40 | 0 | 200 A | | 4–250 | 8–2/0 | 52, 10 |
| | | **REVERSE All-In-One—Semiflush Mount with Service Disconnect (outdoor access) and Load Center (indoor access)** | | | | | | | | | | | | | | | | |
| | | 200 A | None | UG | 10 kA | SU3040M200R | **2223.00** | 1 | QOM2200VH | 200 A | 30 | 40 | 10 | 200 A◒ | A or B300 | 6–300 | 12–1/0 | 60, 15 |
| | | 225 A | None | UG | 10 kA | SU3040M225R | **2646.00** | 1 | QOM2225VH | 225 A | | | | | | | | |
| Ringless | Homeline | **Surface Mount Only** | | | | | | | | | | | | | | | | |
| | | 100 A | None | OH/UG△ | 10 kA | RC1624M100S | **744.00** | 1 | HOM2100 | 100 A | 16 | 24 | 8 | 100 A | A | 6–2/0 | 6–2/0 | 32, 24 |
| | | 125 A | | | | RC1624M125S | **1518.00** | 1 | HOM2125 | 125 A | | | | 125 A▲ | | | | |
| | | 125 A | Horn | OH/UG△ | 22 kA | RC2040M125SH✱□ | **1601.00** | 1 | QOM2125VH | 125 A | 20 | 40 | 20 | 125 A | | 6–350 | 8–2/0 | 43, 21 |
| | | 125 A | Horn | OH/UG△ | 22 kA | RC2040M125CH□◊ | **1601.00** | 1 | QOM2125VH | 125 A | 20 | 40 | 20 | 125 A | | | | 40, 21 |
| | | 150 A | Horn | OH/UG△ | 22 kA | RC2040M150SH✱□ | **1713.00** | 1 | QOM2150VH | 150 A | 20 | 40 | 20 | 150 A | | | | 43, 21 |
| | | | Horn | OH/UG△ | 22 kA | RC2040M150CH□◊ | **1713.00** | 1 | QOM2150VH | 150 A | 20 | 40 | 20 | 150 A | | | | 40, 21 |
| | | | Lever | OH/UG | 22 kA | RC3040M150SL⬨ | **4900.00** | 1 | QOM2150VH▲ | 200 A | 30 | 40 | 10 | 150 A | | | | 76 / 12 |
| | | 200 A | None | OH/UG△ | 22 kA | RC2040M200S✱□ | **1713.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | | | | 43, 21 |
| | | | None | OH/UG△ | 22 kA | RC2040M200C□ | **1713.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | | | | 40, 21 |
| | | | Horn | OH/UG△ | 22 kA | RC2040M200SH✱□ | **1713.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | | | | 43, 21 |
| | | | Horn | OH/UG△ | 22 kA | RC2040M200CH□ | **1713.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | | | | 40, 21 |
| | | | Lever | OH/UG | 22 kA | RC3040M200SL⬨ | **4900.00** | 1 | QOM2200VH▲ | 200 A | 30 | 40 | 10 | 200 A | | | | 76 / 12 |
| | | | None | OH/UG△ | 22 kA | RC2040M200SGP | **2602.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | | | | 48 / 21 |
| | QO | **Surface Mount Only** | | | | | | | | | | | | | | | | |
| | | 150 A | Horn | OH/UG△ | 22 kA | QC2442M150SH✱□ | **1905.00** | 1 | QOM2150VH | 150 A | 24 | 42 | 18 | 150 A | A | 6–350 | 8–2/0 | 43, 21 |
| | | 200 A | None | OH/UG△ | 22 kA | QC2442M200S✱□ | **1905.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | | | | 43, 21 |
| | | | None | OH/UG△ | 22 kA | QC2442M200C□ | **1905.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | | | | 40, 21 |
| | | | Horn | OH/UG△ | 22 kA | QC2442M200SH✱□ | **1905.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | | | | 43, 21 |
| | | | Horn | OH/UG△ | 22 kA | QC2442M200CH□◊ | **1905.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | | | | 40, 21 |
| | | 200 A | Horn | OH/UG△ | 22 kA | QC3040M200SH✱ | **2120.00** | 1 | QOM2200VH | 200 A | 30 | 40 | 10 | 200 A | | | | 40, 21 |

▲ 125 A Homeline™ 2P circuit breaker can be installed in top position only. All other positions are limited to 100 A max.
■ Convertible to semiflush with SC200F flange kit (order separately).
♦ Suitable for OH service with addition of tunnel kit (SCTK20). Order separately.
★ For use with Photovoltaic Systems. Provisions for field-installed CT. If required by adopted code, order retaining kit PK2SCPV separately. See page 1-22.
▼ Suitable for OH service with addition of tunnel kit (SCTK30). Order separately.
△ Device does not meet EUSERC Specifications.
□ Device supplied with barrel lock provisions factory-installed.
◊ 5th jaw factory-installed.
☆ Use only 15–100 A and 150 A circuit breakers.
▽ Use only 15–100 A and 150–200 A circuit breakers.
◒ Use only 15–110 A and 150–200 A circuit breakers.
✱ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBS, see accessories p 1-22, check with local utility for approval.
⬨ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBL, see accessories p 1-22, check with local utility for approval.



© 2012 Schneider Electric
All Rights Reserved

## Meter Mains and All-in-Ones

- Ring or ringless type meter socket designs available
- UL Listed, suitable **only** for use as service equipment
- Meets EUSERC standards where indicated.
- Service disconnects are supplied factory-installed, except where noted
- Supplied with 100% branch neutrals; all unused terminals may be used for equipment grounding wires
- Meets Federal Specification W-P-115c as Type 1, Class 2

### Table 1.57: Meter Mains

**Meets Federal Specification W-P-115c as Type 1, Class 2, UL Listed, suitable only for use as service equipment, 120/240 Vac, 1Ø3W, NEMA 3R Enclosure**

| | | Ampere Rating | Bypass Type | Service (Type of Feed) | | Short Circuit Current Rating | Cat. No. | List $ Price | Service Disconnect(s) ▲ | | | Load Center and Branch Circuit Breakers (Order Separately Pages 1-2, 1-3, 1-14) | | | | Hub Type (Order Separately page 1-22) | Line Side Main Lugs AWG/ kcmil (Al/Cu) | Service Ground Lug AWG/ kcmil (Al/Cu) | Weight Each (Lbs) and Pallet Qty. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Max. Quantity | | | | | | | |
| | | | | | | | | | | | | | 1P | | | | | | |
| | | | | UL | UL and EUSERC | | | | 2P Circuits (Max.) | Type (Order separately from page 1-22 except as noted) | Ampere Rating (Max.) | Spaces | Circuits | Tandems | Ampere Rating (Max.) | | | | |
| Ring Type | QO™ | **Surface and Semiflush Mount ■** | | | | | | | | | | | | | | | | | |
| | | 400 A | None | UG | UG | 25 kA | CU12L400CN ♦ | **3810.00** | 1 | QDL22200 ★ | 200 A | — | — | — | — | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | CU12L400FN ♦ | **4007.00** | 1 | QDL, QGL, QJL▼ | 200 A | — | — | — | — | | | | |
| | | | | | | | | | 4 | QO, QO-VH or QOH | 125 A ◊ | — | — | — | — | | | | |
| | | 400 A | Class 320 Manual Bypass | UG | — | 25 kA | CU12L400CB ♦◒ | **3986.00** | 1 | QDL22200 ★ | 200 A | — | — | — | — | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | CU12L400FB ♦◒ | **4182.00** | 1 | QDL, QGL, QJL▼ | 200 A | — | — | — | — | | | | |
| | | | | | | | | | 4 | QO, QO-VH or QOH | 125 A ◊ | — | — | — | — | | | | |
| | | 400 A | None | UG | UG | 25 kA | CU816D400CN ♦☆ | **3975.00** | 1 | QDL22200 ★ | 200 A | 8 | 16 | 8 | 200 A | A–L | (2) Studs | 4–250 | 98, 4 |
| | | 400 A | Class 320 Manual Bypass | UG | — | 25 kA | CU816D400CB ♦☆◒ | **4151.00** | 1 | QDL22200 ★ | 200 A | 8 | 16 | 8 | 200 A | A–L | (2) Studs | 4–250 | 98, 4 |
| | | 400 A | Class 320 Manual Bypass | UG | — | 65 kA▲ | CUM400CB ♦◒ | **8688.00** | 1 | DGP36400E20LH★ | 400 A | — | 2 △ | — | 200 A | A–L | (2) Studs | 4–250 | 115, 4 |
| Ringless Type | | 400 A | Class 320 Lever | UG | — | 25 kA | QU12L400SL □◒ | **3810.00** | 1 | QDL22200 ★ | 200 A | — | — | — | — | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | | | 1 | QDL, QGL, QJL▼ | 200 A | — | — | — | — | | | | |
| | | | | | | | | | 4 | QO, QO-VH or QOH⬙ | 125 A ◊ | — | — | — | — | | | | |
| | | **Surface Mount Only, Supplied with Feed-Thru Lugs and Provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | | | |
| | | 400 A | * | UG | — | 25 kA | QU816D400SL☆□◒ | **4065.00** | 1 | QDL22200 ★ | 200 A | 8 | 16 | 8 | 200 A | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | QU816D400CK ☆◒ | | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |
| | | **Surface and Semiflush Mount ■** | | | | | | | | | | | | | | | | | |
| | | 400 A | Class 320 Lever | UG | — | 25 kA | QU12L400CL□▽◒ | **3810.00** | 1 | QDL22200 ★ | 200 A | — | — | — | — | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | | | 1 | QDL, QGL, QJL▼ | 200 A | — | — | — | — | | | | |
| | | | | | | | QU12L400FL□▽◒ | **4007.00** | 4 | QO, QO-VH or QOH | 125 A ◊ | — | — | — | — | | | | |
| | | 400 A | | UG | — | 25 kA | QU816D400CL□▽☆◒ | **4065.00** | 1 | QDL22200★ | 200 A | 8 | 16 | 8 | 200 A | A–L | (2) Studs | 4–250 | 98, 4 |
| | | | | | | | QU816D400FL□▽☆◒ | **4262.00** | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |
| | | 400 A | Class 320 Lever | UG | — | 65 kA▲ | QUM400CL□◒ | **10000.00** | 1 | DGP36400E20LH★ | 400 A | — | 2 △ | — | 200 A | A–L | (2) Studs | 4–250 | 120, 4 |
| | | 400 A | K-4 Bolt-None | UG | — | 65kA▲ | QUM400CK♦◒ | **11175.00** | 1 | DGP36400E20LH★ | 400 A | — | 2 △ | — | 200 A | A–L | (2) Studs | 4–250 | 123, 4 |

### Table 1.58: All-in-One Combination Service Entrance Devices

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring Type | Homeline™ | **Surface and Semiflush Mount ■** | | | | | | | | | | | | | | | | | |
| | | 300 A | Class 320 Manual | UG | — | 25 kA | SU3040D300CB ♦▽◒ | **6600.00** | 1 | QDL22200 ★ | 200 A | 30 | 40 | 10 | 200 A | A–L | (2) Studs | 4–250 | 100, 4 |
| | | | | | | | SU3040D300FB ♦▽◒ | **6797.00** | 1 | QDL, QGL, QJL▼ | 100 A | | | | | | | | |
| | | 400 A | None | UG | UG | 25 kA | SU3040D400CN ♦▽ | **7050.00** | 1 | QDL22200 ★ | 200 A | 30 | 40 | 10 | 200 A | A–L | (2) Studs | 4–250 | 100, 4 |
| | | | | | | | SU3040D400FN ♦▽ | **7247.00** | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |
| | | 400 A | Class 320 Manual | UG | — | 25 kA | SU3040D400CB♦▽◒ | **7167.00** | 1 | QDL22200 ★ | 200 A | 30 | 40 | 10 | 200 A | A–L | (2) Studs | 4–250 | 100, 4 |
| | | | | | | | SU3040D400FB ♦▽◒ | **7364.00** | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |
| Ringless | | 400 A | Class 320 Lever | UG | — | 25 kA | RU3040D400CL □▽◒ | **6993.00** | 1 | QDL22200 ★ | 200 A | 30 | 40 | 10 | 200 A | A–L | (2) Studs | 4–250 | 100, 4 |
| | | | | | | | RU3040D400FL □▽◒ | **7190.00** | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |
| | | 400 A | K-4 Bolt-on | UG | — | 25 kA | RU3040D400CK ▽◒ | **6993.00** | 1 | QDL22200 ★ | 200 A | 30 | 40 | 10 | 200 A | A–L | (2) Studs | 4–250 | 100, 4 |
| | | | | | | | RU3040D400FK ▽◒ | **7190.00** | 1 | QDL, QGL, QJL▼ | 200 A | | | | | | | | |

▲ UL short circuit current rating is equal to the lowest interrupting rating of any circuit breaker installed.
■ For 400 A device with suffix CB, CK, CL, or CN, surface-mount convertible to semiflush with FK400 flange kit (order kit separately). Devices wtih suffix FB, FL, FN or FK are semiflush only, with the top endwall factory-installed and flanges factory-included.
♦ For use only on 120/240 Vac 1Ø3W system (4-jaw meter socket).
★ Service disconnect supplied factory-installed.
▼ Additional service disconnect for field-installation: order prefix QBL at 10 kA, QDL at 25 kA, QGL at 65 kA, or QJL at 100 kA. Order separately. For complete circuit breaker catalog number, see Section 7.
△ Option for field installation of two Q-frame, 200 A max. 2-pole branch circuit breakers used as mains for two downstream load centers. Purchase installation kit BMK2Q400 and two Q-frame circuit breakers separately. Order QBL prefix at 10 kA, QDL prefix at 25 kA, or QGL prefix at 65 kA.
□ Fifth jaw factory-installed.
◊ QO panel is rated 200 A maximum.
☆ Supplied with load side feed-thru lugs for 6 AWG–250 kcmil (Al/Cu) conductors.
▽ Knockout provided in cover for use with barrel lock kit SCBRLLOCK (see Accessories, page 1-22).
◒ Device configuration is not included in EUSERC standards. Consult applicable utility for acceptance.
* Device with suffix L has Class 320 lever bypass and device with suffix K has a K-4 bolt-on, no bypass.
⬙ Order two pole circuit breakers for field installation: order catalog designation QO for 10 kA, QO-VH for 22 kA or QOH for 42 kA short circuit current rating. See page 1-22 or 1-2.

© 2012 Schneider Electric
All Rights Reserved

## Table 1.59: Circuit Breakers for use with Meter Mains and All-In-One Devices

| Ampere Rating ▲ | Type: HOM, 1P | | Type: HOM, 2P | | Type: QO, 1P | | Type: QO, 2P | | Type: QO-VH, 1P | | Type: QO-VH, 2P | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cat. No. (DE3D) | $ Price | Cat. No. (DE3D) | $ Price | Cat. No. (DE2A) | $ Price | Cat. No. (DE2A) | $ Price | Cat. No. (DE2A) | $ Price | Cat. No. (DE2A) | $ Price |
| 10 | — | — | — | — | QO110 | 29.10 | — | — | — | — | — | — |
| 15 | HOM115 | 26.30 | — | — | QO115 | 29.10 | — | — | QO115VH | 63.00 | — | — |
| 20 | HOM120 | 26.30 | — | — | QO120 | 29.10 | — | — | QO120VH | 63.00 | — | — |
| 25 | HOM125 | 26.30 | — | — | QO125 | 29.10 | — | — | QO125VH | 73.00 | — | — |
| 30 | HOM130 | 26.30 | HOM230 | 60.00 | QO130 | 29.10 | QO230 | 67.00 | QO130VH | 73.00 | QO230VH | 146.00 |
| 35 | — | — | HOM235 | 60.00 | QO135 | 29.10 | QO235 | 67.00 | — | — | — | — |
| 40 | HOM140 | 26.30 | HOM240 | 60.00 | QO140 | 29.10 | QO240 | 67.00 | — | — | QO240VH | 146.00 |
| 45 | — | — | HOM245 | 60.00 | QO145 | 29.10 | QO245 | 67.00 | — | — | — | — |
| 50 | HOM150 | 26.30 | HOM250 | 60.00 | QO150 | 29.10 | QO250 | 67.00 | — | — | QO250VH | 146.00 |
| 60 | — | — | HOM260 | 60.00 | QO160 | 29.10 | QO260 | 67.00 | — | — | QO260VH | 146.00 |
| 70 | — | — | HOM270 | 123.00 | QO170 | 67.00 | QO270 | 134.00 | — | — | QO270VH | 224.00 |
| 80 | — | — | HOM280 | 168.00 | — | — | QO280 | 189.00 | — | — | QO280VH | 315.00 |
| 90 | — | — | HOM290 | 168.00 | — | — | QO290 | 189.00 | — | — | QO290VH | 315.00 |
| 100 | — | — | HOM2100 | 168.00 | — | — | QO2100 | 189.00 | — | — | QO2100VH | 315.00 |
| 110 | — | — | HOM2110 | 369.00 | — | — | QO2110 | 428.00 | — | — | QO2110VH | 1034.00 |
| 125 | — | — | HOM2125 | 369.00 | — | — | QO2125 | 428.00 | — | — | QO2125VH | 1034.00 |
| 150 | — | — | HOM2150BB | 428.00 | — | — | QO2150 | 491.00 | — | — | QO2150VH | 1061.00 |
| 175 | — | — | HOM2175BB | 428.00 | — | — | QO2175 | 491.00 | — | — | QO2175VH | 1061.00 |
| 200 | — | — | HOM2200BB | 428.00 | — | — | QO2200 | 491.00 | — | — | QO2200VH | 1061.00 |

| Ampere Rating ▲ | Type: QOM1-VH, 2P | | Type: QOM2-VH, 2P | | Type: QDL, 2P ♦ | |
|---|---|---|---|---|---|---|
| | Cat. No. (DE3D) | $ Price | Cat. No. (DE3D) | $ Price | Cat. No. (DE2A) | $ Price |
| 50 | QOM50VH■ | 140.00 | — | — | — | — |
| 60 | QOM60VH | 140.00 | — | — | — | — |
| 70 | QOM70VH | 140.00 | — | — | QDL22070 | 1143.00 |
| 80 | QOM80VH | 201.00 | — | — | QDL22080 | 1143.00 |
| 90 | QOM90VH | 201.00 | — | — | QDL22090 | 1143.00 |
| 100 | QOM100VH | 201.00 | QOM2100VH | 468.00 | QDL22100 | 1143.00 |
| 110 | QOM110VH | 468.00 | — | — | QDL22110 | 1143.00 |
| 125 | QOM125VH | 468.00 | QOM2125VH | 468.00 | QDL22125 | 1143.00 |
| 150 | — | — | QOM2150VH | 468.00 | QDL22150 | 1143.00 |
| 175 | — | — | QOM2175VH | 468.00 | QDL22175 | 1143.00 |
| 200 | — | — | QOM2200VH | 468.00 | QDL22200 | 1143.00 |
| 225 | — | — | QOM2225VH | 468.00 | — | — |

▲ Do not exceed mains rating of device
■ Reference National Electrical Code Article 230-79.
♦ For additional interrupting rating circuit breakers, order circuit breaker prefix QBL at 10 kA, QGL at 65 kA or QJL at 100 kA.

## Table 1.60: Accessories, Hubs and Closing Plates

### Accessories

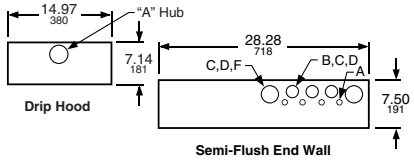
| Description | Cat. No. | $ Price | Disc. Sch. |
|---|---|---|---|
| Generator Kit: Interlocks main service disconnect and generator circuit breaker (order separately). For : | | | |
| • Homeline™ CSED Devices RC816F-, RC2040M-, SO2040M- | RCGK2 | 245.00 | DE4 |
| • QO CSED Devices QC816F-, QC2442M- | QCGK3 | 245.00 | DE4 |
| Backfed inverter circuit breaker retaining kit for SC2636M200FPV and SC2636M225FPV | PK2SCPV | 47.40 | DE4 |
| **Fifth Jaw Kit for:** Meter Main Types: C, RC, SC, QC<br>All-In-One Types: SC, SU (100–225 A), QC, RC, SO | 5J | 18.30 | DE4 |
| Bypass (Horn Type) for Ringless Type Meter Mains and All-In-Ones (100–200 A) (except for RC8L125S, RC1624M100S and RC1624M125S–use RCHB). | MMHB | 16.70 | DE4 |
| Lexan Meter Socket Cover Plate for:<br>• Ring and Ringless Type Meter Mains<br>• Ring and Ringless Type All-In-Ones | 29007 | 10.10 | DE4 |
| Meter Socket Sealing Rings for Ring Type Meter Mains and All-In Ones: | | | |
| • Snap Type Aluminum (Std.) | 2920910001 | 7.95 | DE5 |
| • Screw Type Aluminum | 29008W | 20.10 | DE4 |
| • Snap Type Stainless Steel | ARP00026 | 16.70 | DE4 |
| Anti-Inversion Kit . For use ONLY on 400 A Meter Mains and All-In-Ones with lever bypass. | MMLRK | 12.00 | DE4 |
| Trim Kit for 2 in. X 6 in. stud wall, used with Reverse All-In-Ones, SU3040M200R, and SU3040M225R | SU2X6TRIM | 266.00 | DE4 |
| Barrel Lock Kit (Barrel Lock not included), supplied with bracket and mounting screw, refer to listings for where used. | SCBRLLOCK | 53.00 | DE4 |
| **Semiflush Flange Kit for:** Meter Mains: SC816D150/200C and RC816D200CH<br>All-In-Ones: SC2040M200C | SC200F | 31.80 | DE4 |
| Semiflush Flange Kit for ring- and ringless-type Meter Mains and All-In-Ones (400 A Only) | FK400 | 197.00 | DE4 |
| Ringless Type Utility Cover for RU3040D400CL/FL, QU12L400CL/FL, and QU816D400CL/FL. Includes one piece meter socket and pull box cover with handles and closing plate. | R400L | 266.00 | DE4 |
| Lug Kit includes (4) lugs, for use with 2 AWG–600 kcmil Al/Cu conductors. Lugs are for standard 2-Hole mounting. Meter Main and All-In-One units supplied with (2) studs per phase and neutral will accept one lug per phase and neutral. Not for use on 400 A devices with "K" suffix. | CMELK4 | 137.00 | DE4 |
| Branch Circuit Breaker Field Installation Kit for two Q-Frame Circuit Breakers (QBL, QDL, or QGL, order separately). For CUM400CB, QUM400CL or QUM400CK - includes (2) mounting pans, (4) wires. | BMK2Q400 | 153.00 | DE4 |
| Overhead Feed Trough for 400 A ring- and ringless-type Meter Mains and All-In-Ones. | OCK400 | 567.00 | DE4 |
| Touch-Up Paint (ASA49 Gray) | PK49SP | 39.00 | DE1 |
| Ground Bar Kit, Meter Mains and All-In-Ones QC, RC, and SC (100–225 A) | PK15GTA | 17.10 | DE3A |
| **Filler Plate for:** Meter Main Types: QC, CU All-In-One Types: QC | QOFP | 3.60 | DE3A |
| **Filler Plate for:** Meter Main Types: RC, SC All-In-One Types: SC, RC, SU | HOMFP | 3.20 | DE3A |
| **Neutral Lug (6-2/0 AWG) for:** Meter Main Types: RC, SC, QC All-In-One Types: SC, SU, QC, RC | LK100AN | 10.80 | DE3A |
| **Overhead Barrier Tunnel Kit for Ringless & Horn Bypass in RC/QC Devices** | OHBS | 86.00 | DE4 |
| **Overhead Barrier Tunnel Kit for Lever Bypass RC/QC Devices** | OHBL | 94.00 | DE4 |

### Hubs and Closing Plates

| Hub Series | Conduit Size (inches) | Cat. No. | $ Price | Disc. Sch. |
|---|---|---|---|---|
| Closing Plate for "A" Hub opening | | ACP | 13.40 | DE4 |
| A | 1.00 | A100 | 33.90 | DE4 |
| | 1.25 | A125 | 33.90 | DE4 |
| | 1.50 | A150 | 33.90 | DE4 |
| | 2.00 | A200 | 47.90 | DE4 |
| | 2.50 | A250 | 61.00 | DE4 |
| Adapter plate to allow use of "A" Hubs on "A-L" size hub openings | | AAP | 33.80 | DE4 |
| Closing Plate for "A-L" Hub opening | | ACPL | 18.30 | DE4 |
| A-L | 2.00 | A200L★ | 83.00 | DE4 |
| | 2.50 | A250L | 87.00 | DE4 |
| | 3.00 | A300L | 111.00 | DE4 |
| | 3.50 | A350L | 114.00 | DE4 |
| | 4.00 | A400L | 119.00 | DE4 |
| Closing Plate for "B" Hub opening | | BCAP | 3.80 | DE1A |
| B | 0.75 | B075 | 33.30 | DE1A |
| | 1.00 | B100 | 33.30 | DE1A |
| | 1.25 | B125 | 33.30 | DE1A |
| | 1.50 | B150 | 33.30 | DE1A |
| | 2.00 | B200 | 61.35 | DE1A |
| | 2.50 | B250 | 102.00 | DE1A |
| B300 | 3.00 | B300 | 186.00 | DE1A |

★ Supplied with AAP adapter plate and "A" hub.


© 2012 Schneider Electric
All Rights Reserved



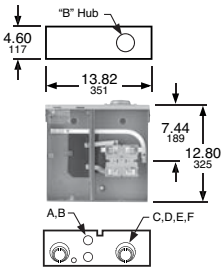

▲ Driphood supplied factory-installed and is required for surface mount installation.
For semi-flush installation, remove driphood and install flange kit SC200F (order separately).

■ Unit supplied with blank top endwall (factory-installed) for surface mount installation. For semi-flush installation, install flange kit FK400 (order separately). Kit includes replacement top endwall (with knockouts) and flanges.

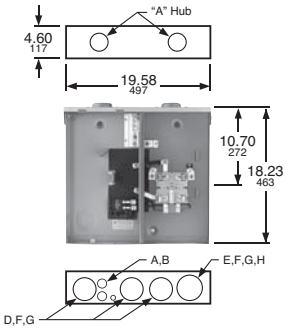
♦ Unit supplied with semi-flush top endwall factory installed and semi-flush flanges factory included.

**Table 1.61: Knockouts**

| Symbol | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Conduit Size (in.) | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |

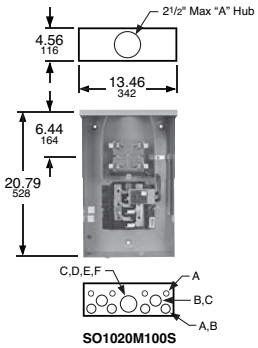



**C125RB (Shown)**
**CQRB100**

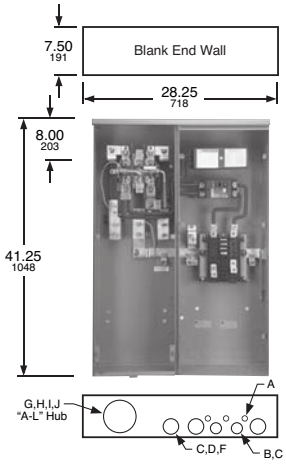



**Ring Type:**
**CM200S**
**C2M200S (Shown)**
**C4L200S**

**Ringless Type:**
**RC200S**
**RC2M200S**
**RC2M200SH**

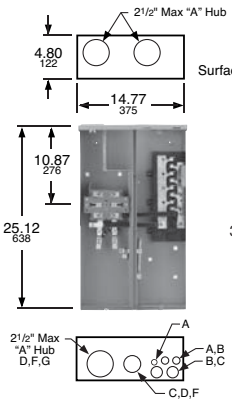



**SO1020M100S**

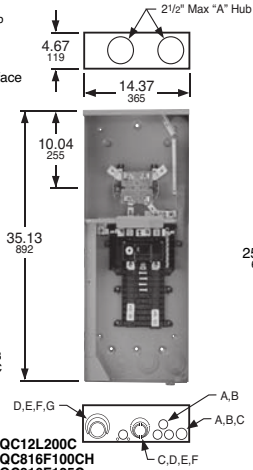



**CU12L400CN■**
**CU12L400CB■**
**QU12L400CL■**
**QU12L400SL**
**CU12L400FN♦**
**CU12L400FB♦**
**CU816D400FN♦**
**CU816D400FB♦**
**QU816D400CK■**
**QU12L400FL♦**
**QU816D400FL♦**

**CU816D400CB■**
**CU816D400CN■**
**QU816D400CL■**
**QU816D400SL (Shown)**

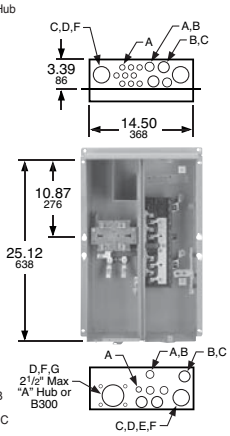



**SC8L125S (Shown)**
**RC8L125S**
**SC1624M100S**
**SC1624M125S**
**RC1624M100S**
**RC1624M125S**

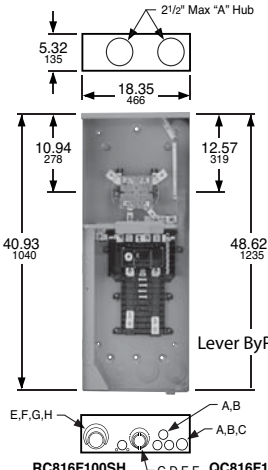



**QC12L200C**
**QC816F100CH**
**QC816F125C**
**QC816F150C**
**QC816F200C**
**QC816F200CH**
**RC12L200C**
**RC816F100CH**
**RC816F125CH**
**RC816F150C**
**RC816F150CH**

**RC816F200C**
**RC816F200CH**
**RC2040M125CH**
**RC2040M150CH**
**RC2040M200C**
**RC2040M200CH**
**QC2442M200C**
**QC2442M200CH**



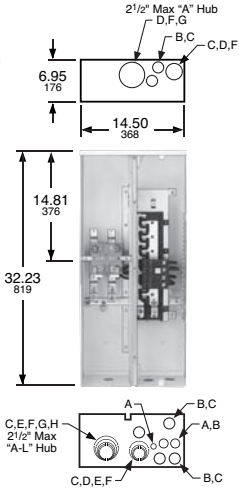

**SC8L125F (Shown)**
**SC1624M100F**
**SC1624M125F**



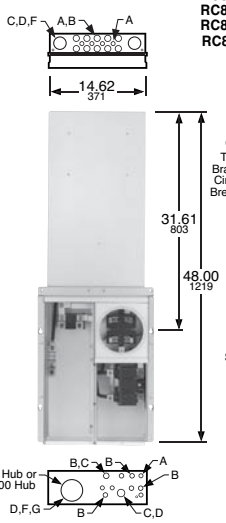

Lever ByPass Devices

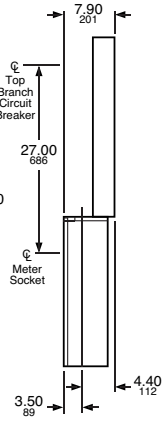
**RC816F100SH**
**RC816F125SH**
**RC816F150SL**
**RC816F150S,SH**
**RC816F200SL**
**RC816F200S,SH**
**RC12L200S**
**RC2040M125SH**
**RC2040M150SH**
**RC2040M200S,SH**
**RC3040M150SL**
**RC3040M200SL**

**QC816F100SH**
**QC816F125SH**
**QC816F150S,SH (Shown)**
**QC816F150SL**
**QC816F200SL**
**QC816F200S,SH**
**QC12L200S**
**QC2442M150SH**
**QC2442M200S,SH**
**SO2040M200S**
**QC3040M200SH**

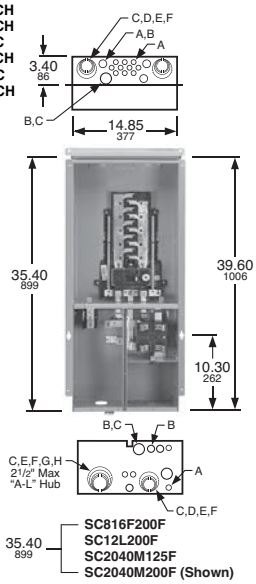



**SU816D150C▲**
**SU816D200C▲**
**SU2040M200C▲**
**RC816D200CH▲**
**SC816D150C▲**
**SC816D200C▲(Shown)**



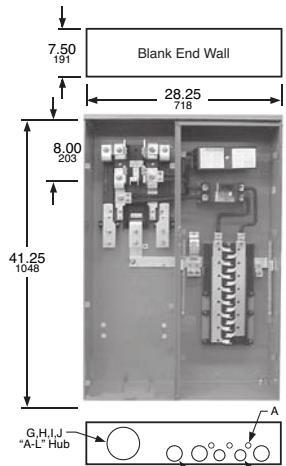




**SU3040M200R (Shown)**
**SU3040M225R**



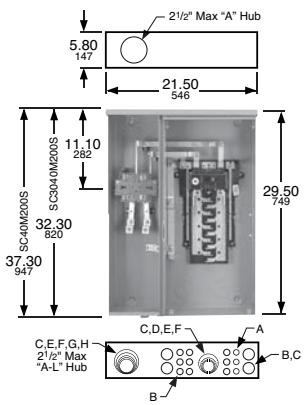

35.40 899 — **SC816F200F**, **SC12L200F**, **SC2040M125F**, **SC2040M200F (Shown)**

39.60 1006 — **SC3040M200F**, **SC3040M2225F**, **SC2636M200FPV**, **SC2636M225FPV**




**SU3040D400CB■ (Shown)**
**RU3040D400CL■**
**RU3040D400CK■**
**SU3040D300FB♦**
**SU3040D400FB♦**
**SU3040D400FN♦**

**SU3040D300CB■**
**SU3040D400CN■**
**RU3040D400FL♦**
**RU3040D400FK♦**
**CUM400CB■**
**QUM400CL■**
**QUM400CK■**




**SC12L200S**
**SC816F150S**
**SC816F200S**

**SC40M200S**
**SC2040M200S (Shown)**
**SC3040M200S**

© 2012 Schneider Electric
All Rights Reserved

**SC/SU SOLAR READY CSED Devices Coming Soon—See On-Line Digest Updates for Availability**

## Meter Mains and All-In-Ones

- Ringless Meter Sockets with barrel lock provisions factory installed except for Cat. No. SO2040M200SS which is a Ring Style meter socket with no provisions for barrel lock to secure the meter cover.
- UL Listed, suitable only for use as service equipment
- Service disconnect(s) are supplied factory-installed, except where noted
- Supplied with 100% branch neutrals, all unused terminals may be used for equipment grounding wires.
- Meets Federal Specification W-P-115c as Type 1, Class 2
- Solar Ready kit SR69064A fits All Devices Below, order from Table 1.70
- All devices have a 3" KO in the bottom endwall.
- Provisions for Field Installed CTs  All Devices

**Table 1.62: All-In-One Combination Service Entrance Devices**

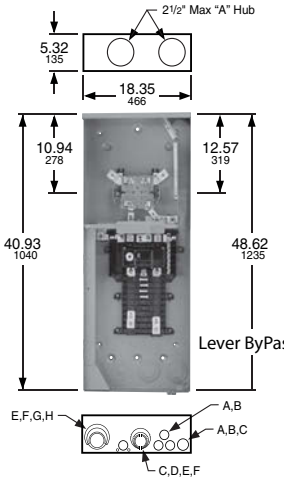
| | Ampere Rating | Bypass Type | Service Type | Short Circuit Current Rating | Cat. No. | List $ Price | Service Disconnect(s) | | | Load Center and Branch Circuit Breakers (Order Separately Pages 1-2, 1-3, 1-14) | | | | Hub Type (Order Separately page 1-18) | Line Side Main Lugs AWG/ kcmil (Al/Cu) | Service Ground Lug AWG/ kcmil (Al/Cu) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2P Circuits (Max.) | Type (Factory Installed except where noted) | Ampere Rating | Max. Quantity Spaces | 1P Circuits | 1P Tandems | Ampere Rating (Max.) | | | |
| **Meter Mains◊** | | | | | | | | | | | | | | | | |
| QO | **Surface Mount Only** | | | | | | | | | | | | | | | |
| | **Surface Mount—Supplied with Feed-Thru Lugs and Provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | |
| | 150 A | None | OH/UG | 22 kA | QC816F150SS■△ | **1408.00** | 1 | QOM2150VH | 150 A | 8 | 16 | 8 | 150 A | A | 350 | 8–2/0 |
| | | Lever | OH/UG | 22 kA | QC816F150SLS■□ | **2905.00** | 1 | QOM2150VH | 150 A | 8 | 16 | 8 | 150 A | | | |
| | 200 A | None | OH/UG | 22 kA | QC816F200SS■△ | **1408.00** | 1 | QOM2200VH | 200 A | 8 | 16 | 8 | 200 A | | | |
| | | Lever | OH/UG | 22 kA | QC816F200SLS■□ | **2905.00** | 1 | QOM2200VH | 200 A | 8 | 16 | 8 | 200 A | | | |
| Homeline | **Surface Mount—Supplied with Feed-Thru Lugs and provisions for Branch Circuit Breakers** | | | | | | | | | | | | | | | |
| | 150 A | None | OH/UG | 22 kA | RC816F150SS■△ | **1270.00** | 1 | QOM2150VH | 150 A | 8 | 16 | 8 | 150 A | A | 6-350 | 8–2/0 |
| | | Lever | OH/UG | 22 kA | RC816F150SLS■□ | **2878.00** | 1 | QOM2150VH | 150 A | | 16 | 8 | 150 A | A | 6-350 | 8–2/0 |
| | 200 A | None | OH/UG | 22 kA | RC816F200SS■△ | **1270.00** | 1 | QOM2200VH | 200 A | 8 | 16 | 8 | 200 A | A | 6-350 | 8–2/0 |
| | | Horn | OH/UG | 22 kA | RC816F200SHS■★△ | **1313.00** | 1 | QOM2200VH | 200 A | 8 | 16 | 8 | 200 A | A | 6-350 | 8–2/0 |
| | | Lever | OH/UG | 22 kA | RC816F200SLS■□ | **2878.00** | 1 | QOM2200VH | 200 A | | 16 | 8 | 200 A | A | 6-350 | 8–2/0 |
| **All-in-One Combination Service Entrance Devices◊** | | | | | | | | | | | | | | | | |
| QO | **Surface Mount Only** | | | | | | | | | | | | | | | |
| | 200 A | None | OH/UG | 22 kA | QC2442M200SS△ | **2057.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | A | 6-350 | 8–2/0 |
| | | Horn | OH/UG | 22 kA | QC2442M200SHS★△ | **2057.00** | 1 | QOM2200VH | 200 A | 24 | 42 | 18 | 200 A | A | 6-350 | 8–2/0 |
| Homeline | 150 A | Horn | OH/UG | 22 kA | RC2040M150SHS★△ | **1833.00** | 1 | QOM2150VH | 150 A | 20 | 40 | 20 | 150 A | A | 6-350 | 8–2/0 |
| | | Lever | OH/UG | 22 kA | RC3040M150SLS□ | **2226.00** | 1 | QOM2150VH | 150 A | 30 | 40 | 10 | 150 A | A | 6-350 | 8–2/0 |
| | 200 A | None | OH/UG | 22 kA | RC2040M200SS△ | **1833.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | A | 6-350 | 8–2/0 |
| | | Horn | OH/UG | 22 kA | RC2040M200SHS★△ | **1833.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | A | 6-350 | 8–2/0 |
| | | None | OH | 22 kA | SO2040M200SS△ | **1242.00** | 1 | QOM2200VH | 200 A | 20 | 40 | 20 | 200 A | A | 6-350 | 8–2/0 |
| | | Lever | OH/UG | 22 kA | RC3040M200SLS□ | **2226.00** | 1 | QOM2200VH | 200 A | 30 | 40 | 10 | 200 A | A | 6-350 | 8–2/0 |

* Kit is to be installed between meter socket and Main Disconnect. May be used with Solar PV, Wind, fuel generators, and other power generation sources up to 80% of Mains Rating Maximum 160 A.

▲ Order two pole QO, QO-VH or QOH circuit breakers separately from page 1-22 or 1-2. The short circuit current rating is equal to the lowest interrupting rating of any circuit breaker installed.
■ Supplied with load side feed-thru lugs, for 4AWG-250 kcmil Al/Cu conductors.
♦ Ring style device. Barrel lock provisions not provided.
★ Device supplied with horn bypass and 5th jaw factory installed
▼ Order two pole Homeline circuit breakers separately from page 1-22.
△ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBS. See accessories p 1-22, check with local utility for approval.
□ Suitable for load wires to exit top endwall with addition of Tunnel Kit OHBL. See accessories p 1-22, check with local utility for approval.
◊ **Solar Ready Kit Part Number SR69064A * (This Kit Fits All Solar Ready Devices) List Price: $78.00**

**Table 1.63: Knockouts**

| Symbol | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Conduit Size (in.) | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |




RC816F150SS
RC816F200SS
RC816F200SHS
QC816F150SS
QC816F200SS
RC2040M150SHS
RC2040M200SS
RC2040M200SHS
SO2040M200SS
QC2442M200SS
QC2442M200SHS
QC816F150SLS
RC816F150SLS
RC3040M150SLS
QC816F200SLS
RC816F200SLS
RC3040M200SLS



© 2012 Schneider Electric
All Rights Reserved

## 1Ø3W—120/240 Vac—240 Vac—UL Listed

### Table 1.64: Enclosed Molded Case Switch, Switch Included, Does NOT provide overcurrent protection

| Service | Ampere Rating | General Purpose Cat. No. | General Purpose $ Price | Rainproof Cat. No. | Rainproof $ Price | Box. No. See Page 1-17 |
|---|---|---|---|---|---|---|
| 240 Vac G B | 60 A▲■ | QO260NATS | **161.00** | QO200TR | **161.00** | 2, 9R♦ |
| | | | | QO200TRNM | **191.00** | 1NM |
| | | | | QO260NATR | **168.00** | 1R |
| 120/240 Vac S N | 100 A★ | QO2000NS | **276.00** | QO2000NRB | **338.00** | 13, 10R |

### Table 1.65: Housing Bracket

| Description | Cat. No. | $ Price |
|---|---|---|
| Bracket used with QO200TR for stucco, aluminum and vinyl siding. Order quantity multiples of 10. | PKHB | **6.30** |



QO200TRNM



QO3100BNF
With Cover Removed



PKHB
Housing
Bracket

### Table 1.66: Enclosed GFCI Circuit Breakers, GFCI Circuit Breaker Included—10 kA Short Circuit Current Rating

| Service | Ampere Rating | Type 3R—Rainproof Cat. No. | Type 3R—Rainproof $ Price | Circuit Breaker Included | Box. No. See Page 1-17 |
|---|---|---|---|---|---|
| 120/240 Vac S N | 50 A | QOE250GFINM<br>HOME250SPA | **528.00**<br>**473.00** | QO250GFI<br>HOM250GFI | 1NM (Non-metallic)<br>1R (Metallic) |

### Table 1.67: 2-Pole Circuit Circuit Breaker Enclosures—22 kA Short Circuit Current Rating

**Not for use with one pole QO or QOVH breakers. Circuit breakers not included. Order QO™, QOVH, QO-GFI, QO-AFI, QO-EPD and QO-PL circuit breakers separately from pages 1-2 and 1-3. Accepts QO circuit breakers with factory-installed accessories. Order equipment ground bar PKOGTA2, if required.**

| Service | Ampere Rating | General Purpose▼ Cat. No. | General Purpose▼ $ Price | Rainproof Cat. No. | Rainproof $ Price | Box. No. See Page 1-17 |
|---|---|---|---|---|---|---|
| 120/240 Vac S N | 100 A<br>125 A | QO2100BNF/S<br>QO2125BNF/S | **83.00**<br>**108.00** | QO2100BNRB<br>QO2125BNRB | **135.00**<br>**158.00** | 13, 10R<br>18, 13R |
| 240 Vac S N | 100 A | QO3100BNF/S | **149.00** | QO3100BNRB | **207.00** | 13, 10R |

### Table 1.68: 60A Max. Circuit Breaker Enclosures—10 kA Short Circuit Current Rating

**Circuit breaker not included. Order separately from page 1-2. Will not accept QO-GFI circuit breaker nor QO circuit breakers with factory-installed accessories.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 240 Vac G B | 60 A▲ | — | — | QO2TR | **95.00** | 9R♦ |

### Table 1.69: Q Frame Enclosures and Q Frame Circuit Breakers

| Service | Enclosure Only □ Type 1—General Purpose▼ Cat. No. | Type 1 $ Price | Type 3R—Rainproof Cat. No. | Type 3R $ Price | Box No. See Page 1-17 | Ampere Rating | Circuit Breaker (Order Separately) 10 k AIR Cat. No. | 10 k AIR $ Price | 25 k AIR Cat. No. | 25 k AIR $ Price | 65 k AIR Cat. No. | 65 k AIR $ Price | 100 k AIR Cat. No. | 100 k AIR $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2P 240 Vac Maximum S N | Q22200NS ◊ or Q23225NF/S | **176.00** **218.00** | Q22200NRB◊ or Q23225NRB | **380.00** **417.00** | 19, 11R 20, 12R | 70 A | QBL22070 | **474.00** | QDL22070 | **1143.00** | QGL22070 | **1521.00** | QJL22070 | **1890.00** |
| | | | | | | 80 A | QBL22080 | **474.00** | QDL22080 | **1143.00** | QGL22080 | **1521.00** | QJL22080 | **1890.00** |
| | | | | | | 90 A | QBL22090 | **474.00** | QDL22090 | **1143.00** | QGL22090 | **1521.00** | QJL22090 | **1890.00** |
| | | | | | | 100 A | QBL22100 | **474.00** | QDL22100 | **1143.00** | QGL22100 | **1521.00** | QJL22100 | **1890.00** |
| | | | | | | 110 A | QBL22110 | **474.00** | QDL22110 | **1143.00** | QGL22110 | **1521.00** | QJL22110 | **1890.00** |
| | | | | | | 125 A | QBL22125 | **474.00** | QDL22125 | **1143.00** | QGL22125 | **1521.00** | QJL22125 | **1890.00** |
| | | | | | | 150 A | QBL22150 | **474.00** | QDL22150 | **1143.00** | QGL22150 | **1521.00** | QJL22150 | **1890.00** |
| | | | | | | 175 A | QBL22175 | **474.00** | QDL22175 | **1143.00** | QGL22175 | **1521.00** | QJL22175 | **1890.00** |
| | | | | | | 200 A | QBL22200 | **474.00** | QDL22200 | **1143.00** | QGL22200 | **1521.00** | QJL22200 | **1890.00** |
| | | | | | | 225 A | QBL22225 | **474.00** | QDL22225 | **1143.00** | QGL22225 | **1521.00** | QJL22225 | **1890.00** |
| 3P 240 Vac S N | Q23225NF/S | **218.00** | Q23225NRB | **278.00** | 20, 12R | 70 A | QBL32070 | **1248.00** | QDL32070 | **1784.00** | QGL32070 | **2442.00** | QJL32070▽ | **2796.00** |
| | | | | | | 80 A | QBL32080 | **1248.00** | QDL32080 | **1784.00** | QGL32080 | **2442.00** | QJL32080▽ | **2796.00** |
| | | | | | | 90 A | QBL32090 | **1248.00** | QDL32090 | **1784.00** | QGL32090 | **2442.00** | QJL32090▽ | **2796.00** |
| | | | | | | 100 A | QBL32100 | **1248.00** | QDL32100 | **1784.00** | QGL32100 | **2442.00** | QJL32100▽ | **2796.00** |
| | | | | | | 110 A | QBL32110 | **1248.00** | QDL32110 | **1784.00** | QGL32110 | **2442.00** | QJL32110▽ | **2796.00** |
| | | | | | | 125 A | QBL32125 | **1248.00** | QDL32125 | **1784.00** | QGL32125 | **2442.00** | QJL32125▽ | **2796.00** |
| | | | | | | 150 A | QBL32150 | **1248.00** | QDL32150 | **1784.00** | QGL32150 | **2442.00** | QJL32150▽ | **2796.00** |
| | | | | | | 175 A | QBL32175 | **1248.00** | QDL32175 | **1784.00** | QGL32175 | **2442.00** | QJL32175▽ | **2796.00** |
| | | | | | | 200 A | QBL32200 | **1248.00** | QDL32200 | **1784.00** | QGL32200 | **2442.00** | QJL32200▽ | **2796.00** |
| | | | | | | 225 A | QBL32225 | **1248.00** | QDL32225 | **1784.00** | QGL32225 | **2442.00** | QJL32225▽ | **2796.00** |

### Table 1.70: QOM2 Enclosures and QOM2 Circuit Breakers



QOM22225NS
With Cover Removed



Q22200NS
With Cover Removed



Q23225NF

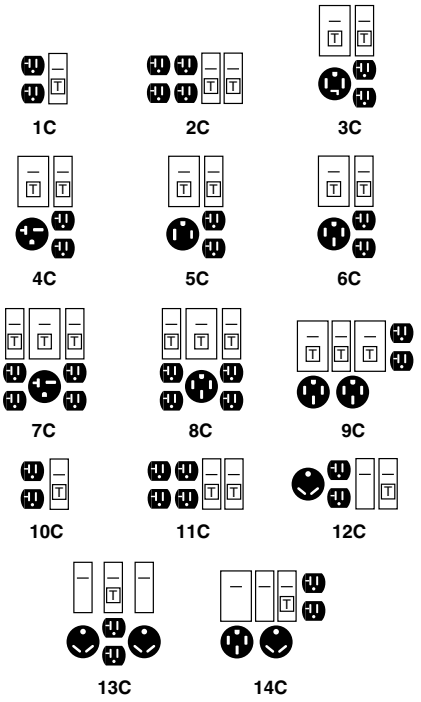
(Order Q-Frame circuit breaker separately)

| Service | Enclosure Only△ Type 1 General Purpose▼ Cat. No. | Type 1 $ Price | Type 3R Rainproof Cat. No. | Type 3R $ Price | Box No. See Pages 1-17 | QOM2 Circuit Breaker (Order Separately) ☆ Ampere Rating | 22 k AIR Cat. No.◒ | 22 k AIR $ Price |
|---|---|---|---|---|---|---|---|---|
| 2P 240 Vac Maximum S N | QOM22225NF/S | **234.00** | QOM22225NRB | **440.00** | 22, 16R | 100 A | QOM2100VH | **468.00** |
| | | | | | | 125 A | QOM2125VH | **468.00** |
| | | | | | | 150 A | QOM2150VH | **468.00** |
| | | | | | | 175 A | QOM2175VH | **468.00** |
| | | | | | | 200 A | QOM2200VH | **468.00** |
| | | | | | | 225 A | QOM2225VH | **468.00** |

▲ Not suitable for service equipment.
■ Maximum 10 hp 240 Vac.
♦ Top endwall has no hub opening.
★ Maximum 20 hp 240 Vac.
▼ Order F for flush, S for surface.
△ Equipment ground bar kit PKOGTA2 factory-included.
□ Factory-installed groundable neutral assembly includes (2) ground lugs and (2) neutral lugs. Equipment ground kit PKOGTA2 also included.
◊ Accepts 200 A max. 2P Q Frame circuit breakers.
☆ Add suffix 1021 for 120, 208 or 240 Vac shunt trip. Add $126.
▽ When these 3P circuit breakers are mounted in an enclosure, the maximum AIR rating is 65 kA at 240 Vac and 100 kA at 208 Vac.
◒ DE3A Discount Schedule.

© 2012 Schneider Electric
All Rights Reserved

**(For Dimensions/Drawings go to Supplemental Digest, hardcopy or on-line version.)**




| | | |
|---|---|---|
| A |  | 20 A 125 V 2W and Grd. NEMA 5-20R |
| B |  | 30 A 125 V 2W and Grd ANSI 73.13 |
| C |  | 50 A 125/250 V 3W and Grd. NEMA 14-50R |
| D |  | 20 A 250 V 2W and Grd. NEMA 6-20R |
| E |  | 30 A 125/250 V 3W and Grd. NEMA 14-30R |
| F |  | 50 A 250 V 2W and Grd. NEMA 6-50R |

**All non-pedestal devices have provisions to field-install a Type "B" hub on the bottom endwall for bottom feed from a conduit riser. Order Type "B" bolt-on hub (B250 Max.) and two mounting screws (Cat. No. 8002505501) and two hex nuts (Cat. No. 2340102000).**

## For Construction Sites

- Provide temporary power at construction sites.
- Each receptacle protected by QO-GFI circuit breaker in compliance with NEC® requirements.
- Each enclosure is rainproof.
- 10 kA short circuit current rating.
- UL Listed as suitable for use as temporary site service equipment.
- Provided with neutral bonding provisions.
- Boxes have provisions for type "B" hubs to be field-installed.

**Table 1.71: Construction Site Panels**

| Power Outlet Configuration | Service ▲ | Mains Ampere Rating | Circuit Breaker (Included) | Receptacles (Included) A | C | D | E | F | Cat. No. ♦ | $ Price | Main Wire Size AWG ★ Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1C | 1Ø2W | 40 A | (1) QO120GFI | 1 | | | | | PAK10C1 | **441.00** | 14–6 | 12–6 |
| 2C | 1Ø2W | 40 A | (2) QO120GFI | 2 | | | | | PAK11C ▼ | **818.00** | 14–6 | 12–6 |
| 2C | 1Ø2W | 40 A | (2) QO120GFI | 2 | | | | | PAK11C1 | **818.00** | 14–6 | 12–6 |
| 3C | 1Ø3W | 70 A | (1) QO120GFI (1) QO230GFI | 1 | | | 1 | | PAK31CGFI | **974.00** | 8–1 | 8–1 |
| 4C | 1Ø3W | 70 A | (1) QO120GFI (1) QO220GFI | 1 | | 1 | | | PAK36C1GFI | **974.00** | 8–1 | 8–1 |
| 5C | 1Ø3W | 70 A | (1) QO120GFI (1) QO250GFI | 1 | | | | 1 | PAK51CGFI | **974.00** | 8–1 | 8–1 |
| 6C | 1Ø3W | 70 A | (1) QO120GFI (1) QO250GFI | 1 | 1 | | | | PAK55CGFI | **974.00** | 8–1 | 8–1 |
| 7C | 1Ø3W | 70 A | (2) QO120GFI (1) QO220GFI | 2 | | 1 | | | PAK72CGFI | **1323.00** | 8–1 | 8–1 |
| 8C | 1Ø3W | 70 A | (2) QO120GFI (1) QO250GFI | 2 | 1 | | | | PAK76CGFI | **1323.00** | 8–1 | 8–1 |
| 9C | 1Ø3W | 100 A | (1) QO120GFI (2) QO250GFI | 1 | 2 | | | | PAK1004CGFI | **1581.00** | 14–1 | 12–1 |

## For Recreational Vehicle Parks

- Provide electrical power to individual recreational vehicle park sites.
- Each receptacle protected by appropriate GFI or Standard QO™ circuit breaker.
- All receptacles and circuit breakers included.
- 10 kA short circuit current rating.
- UL Listed.
- All enclosures are rainproof.
- No neutral bonding provisions.
- Loop-feed provisions.

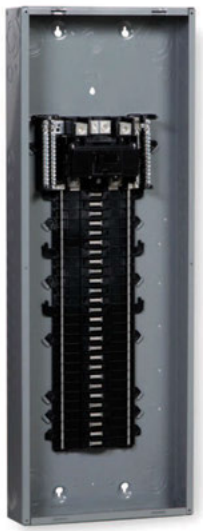
**Table 1.72: Recreational Vehicle Park Panels**

| Power Outlet Configuration | Service ▲ | Mains Ampere Rating | Circuit Breaker (Included) | Receptacles (Included) ■ A | B | C | Cat. No. | $ Price | Main Wire Size AWG/kcmil △ Phase and Neutral Cu | Al |
|---|---|---|---|---|---|---|---|---|---|---|
| **Underground or Overhead Loop-Feed Terminals—Non-Pedestal ♦ □** | | | | | | | | | | |
| 11C | 1Ø2W | 40 A | (2) QO120GFI | 2 | | | PAK11CTG | **795.00** | 14–6 | 12–6 |
| 12C | 1Ø2W | 50 A | (1) QO120GFI (1) QO130 | 1 | 1 | | PAK41CTG ◊ | **564.00** | | |
| | | | (2) QO130 | | | | | | | 12–1 |
| 14C | 1Ø3W | 100 A | (1) QO120GFI (1) QO250 (1) QO130 | 1 | 1 | 1 | PAK75CTG (Not Loop Feed) ◊ | **669.00** | 14–1 | 12–1 |
| **Pedestal Mounted—Underground Loop-Feed Terminals ☆ ▽** | | | | | | | | | | |
| 11C | 1Ø2W | 40 A | (2) QO120GFI | 2 | | | PAK11PG | **1035.00** | (2)6–250 | (2)6–250 |
| 12C | 1Ø2W | 50 A | (1) QO120GFI (1) QO130 | 1 | 1 | | PAK41PG ◊ | **852.00** | | |
| 13C | 1Ø2W | 75 A | (1) QO120GFI (2) QO130 | 1 | 2 | | PAK61PG ◊ | **914.00** | | |
| 14C | 1Ø3W | 100 A | (1) QO120GFI (1) QO250 (1) QO130 | 1 | 1 | 1 | PAK75PG ◊ | **1007.00** | | |

▲ (1Ø2W 120 Vac) (1Ø3W 120/240 Vac)
■ 20 A receptacles protected by 20 A GFI circuit breaker.
♦ Devices have a bolt-on factory-installed closing cap. Order type "B" bolt-on hub separately from page 1-18.
★ Equipment ground terminal suitable for (2) 14 or 12 AWG Cu or (2) 12 or 10 AWG Al.
▼ Receptacles in this device are in bottom endwall and are accessible with outer door padlocked. "Order Only" from Lexington—Minimum order quantity is 50 devices.
△ Two wires each per phase, neutral, and equipment ground—for loop feed (except PAK75CTG).
□ Equipment ground terminal suitable for (2) 14–12 AWG Cu or (2) 12–10 Al.
◊ GFI circuit breaker can be substituted for standard 30 A circuit breaker. For 30 ampere receptacles add $**140.00** per circuit breaker. Add suffix "FI" to catalog number. Example: PAK41CTGFI.
☆ Stabilizer foot available for use in unstable ground, order HNPSF $**27.50** list.
▽ Equipment ground terminals suitable for (2) 10–2/0 AWG Cu or (2) 6–2/0 AWG Al.



© 2012 Schneider Electric
All Rights Reserved



QO154M200P

*New!*

QO Plug-on Neutral Load Centers and CAFI Breakers connect are engineered for a quick Plug-on Neutral connection on every unit.

**Table 1.73: QO Plug-on Neutral CAFI Load Center (accepts QO Circuit Breakers only)**

| | Mains Rating | Spaces | Max. 1P Circuits | Max. Tandem Breakers | $ Price (Interior, Box & Cover) | Load Center Box and Interior | | Indoor Cover with Door (Order Separately) | | | Main Wire Size AWG/kcmil | Equipment Ground Bar Kit (Order Separately If Priced) | | Box No. See Page 1-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cat. No. | $ Price | Flush Cat. No. | Surface Cat No. | $ Price | Al/Cu | Cat. No. | $ Price | |
| INDOOR | **Convertible Mains — Factory-Installed Main Lugs — 65 kA Short Circuit Current Rating — Copper Bus QOM1 Main Frame Size, Convertible to Main Circuit Breaker** | | | | | | | | | | | | | |
| | 125 A | 24 | 24 | 0 | **572.00** | QO124L125PG | **534.00** | QOC24UF | QOC24US | **37.70** | 6–2/0 | PK15GTA | | 7 |
| | **Convertible Mains — Factory-Installed Main Lugs — 65 kA Short Circuit Current Rating — Copper Bus QOM2 Main Frame Size, Convertible to Main Circuit Breaker** | | | | | | | | | | | | | |
| | 200 A | 30 | 30 | 0 | **684.00** | QO130L200PG | **597.00** | QOC30UF | QOC30US | **87.00** | 6–250 | PK23GTA, LK100AN | | 9 |
| | 225 A | 42 | 42 | 0 | **1018.00** | QO142L225PG | **907.00** | QOC42UF | QOC42US | **111.00** | 6–300 | (2) PK15GTA | | 11 |
| | | 54 | 54 | 0 | **1356.00** | QO154L225PG | **1177.00** | QOC54UF | — | **179.00** | | PK23GTA, LK100AN | | 12 |
| | **Convertible Mains — Factory-Installed Main Circuit Breaker — 22 kA Short Circuit Current Rating — Copper Bus QOM1 Main Circuit Breaker Frame Size, Convertible to Main Lugs or Lower Amperage Main Circuit Breaker** | | | | | | | | | | | | | |
| | 100 A | 24 | 24 | 0 | **743.70** | QO124M100P | **706.00** | QOC24UF | QOC24US | **37.70** | 6–2/0 | PK15GTA | **17.10** | 7 |
| | **Convertible Mains — Factory-Installed Main Circuit Breaker — 22 kA Short Circuit Current Rating — Copper Bus QOM2 Main Circuit Breaker Frame Size, Convertible to Main Lugs or Lower Amperage Main Circuit Breaker** | | | | | | | | | | | | | |
| | 200 A | 30 | 30 | 0 | **1069.00** | QO130M200P | **982.00** | QOC30UF | QOC30US | **87.00** | 4–250 | PK18GTA | **18.80** | 9 |
| | | 42 | 42 | 0 | **1410.00** | QO142M200P | **1299.00** | QOC42UF | QOC42US | **111.00** | | PK23GTA | **21.30** | 11 |
| | | 54 | 54 | 0 | **1720.00** | QO154M200P | **1541.00** | QOC54UF | — | **179.00** | | PK23GTA | **21.30** | 12 |
| | | 60 | 60 | 0 | **1956.00** | QO160M200PC▲ | **1689.00** | QOC60UF▲ | — | **267.00** | | PK23GTA | **21.30** | 24 |
| OUTDOOR■ | **Convertible Mains — Factory-Installed Main Lugs — 65 kA Short Circuit Current Rating — Cu Bus QOM1 Main Circuit Breaker Frame Size, Convertible to Main Circuit Breaker — Equipment Ground Bar Included** | | | | | | | | | | | | | |
| | 125 A | 24 | 24 | 0 | **712.00** | QO124L125PGRB | **712.00** | — | — | — | 6–2/0 | PK15GTA | | 4R |
| | **Convertible Mains — Factory-Installed Main Lugs — 65 kA Short Circuit Current Rating — Cu Bus QOM2 Main Circuit Breaker Frame Size, Convertible to Main Circuit Breaker — Equipment Ground Bar Included** | | | | | | | | | | | | | |
| | 200 A | 30 | 30 | 0 | **856.00** | QO130L200PGRB | **856.00** | — | — | — | 6–250 | PK23GTA, LK100AN | | 6R |
| | 225 A | 42 | 42 | 0 | **1500.00** | QO142L225PGRB | **1500.00** | — | — | — | 6–300 | (2) PK15GTA | | 8R |
| | **Convertible Mains — Factory-Installed Main Circuit Breaer — 22 kA Short Circuit Current Rating — Copper Bus Convertible to Main Lugs (see below) or Lower Amperage Main Circuit Breaker (See page 1-5), QOM1 Main Circuit Breaker Frame Size** | | | | | | | | | | | | | |
| | 100 A | 24 | 24 | 0 | **1144.00** | QO124M100PGRB | **1144.00** | — | — | — | 6–2/0 | PK15GTA | **17.10** | 4R |
| | **Convertible Mains — Factory-Installed Main Circuit Breaer — 22 kA Short Circuit Current Rating — Copper Bus Convertible to Main Lugs (see below) or Lower Amperage Main Circuit Breaker (See page 1-5), QOM2 Main Circuit Breaker Frame Size** | | | | | | | | | | | | | |
| | 150 A | 30 | 30 | 0 | **1344.00** | QO130M150PRB | **1344.00** | — | — | — | 4–250 | PK18GTA | **18.80** | 6R |
| | 200 A | 30 | 30 | 0 | **1344.00** | QO130M200PRB | **1344.00** | — | — | — | | PK18GTA | **21.30** | 6R |
| | | 42 | 42 | 0 | **1659.00** | QO142M200PRB | **1659.00** | — | — | — | | PK23GTA | **21.30** | 8R |

▲ Door kit available separately Order QOCDK60 **$237.00**.
■ All OUTDOOR devices are available FACTORY ORDER only.

**Table 1.74: QO Arc Fault Circuit Breakers**

| Circuit Breaker Type | Ampere Rating | 1P 120 Vac 10 k AIR 1 Space Required | | 1P 120 Vac 22 k AIR 1 Space Required | |
|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| Combination Arc-fault Interrupter (Pigtail Neutral) | 15 | QO115CAFI | **282.00** | QO115VHCAFI | **534.00** |
| | 20 | QO120CAFI | **282.00** | QO120VHCAFI | **534.00** |
| Plug-On Neutral Combination Arc-fault Interrupter | 15 | QO115PCAFI | **282.00** | QO115VHPCAFI | **534.00** |
| | 20 | QO120PCAFI | **282.00** | QO120VHPCAFI | **534.00** |



1P
QO-DF

*New!* **QO-Dual Function Circuit Breaker**

QO Combination Arc Fault and Ground Fault Circuit Interrupters (Dual Function) provide overload and short circuit protection, plus arc fault and ground fault protection in accordance with the NEC, UL1699 and UL943.

**Table 1.75: QO-Dual Function Arc Fault Circuit Breakers▲**

| Circuit Breaker Type | Ampere Rating | 1P 120 Vac 10 k AIR 1 Space Required | | 1P 120 Vac 22 k AIR 1 Space Required | |
|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| Combination Arc-fault and Ground Fault Circuit Interrupter (Pigtail Neutral) | 15 | QO115DF | **326.00** | QO115VHDF | **578.00** |
| | 20 | QO120DF | **326.00** | QO120VHDF | **578.00** |
| Plug-On Neutral Combination Arc-fault and Ground Fault Circuit Interrupter | 15 | QO115PDF | **326.00** | QO115VHPDF | **578.00** |
| | 20 | QO120PDF | **326.00** | QO120VHPDF | **578.00** |

© 2012 Schneider Electric
All Rights Reserved

© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 2
## Metering Equipment



Individual Meter Socket
Page 2-2



MP Meter-Pak Metering Equipment
Page 2-5



EZ Meter-Pak Metering Equipment
Page 2-8


### Meter Sockets

| | | |
|---|---|---|
| | Ring and Ringless Type Individual Meter Sockets | 2-2 |
| | Horizontal Ganged, Test Block Bypass Sockets and Accessories | 2-3 |
| | Dimensions | 2-4 |

### MP Meter-Pak™ Meter Centers

| | | |
|---|---|---|
| | Ring and Ringless Devices | 2-5 |
| | Tenant Circuit Breakers and Accessories | 2-6 |
| | Dimensions | 2-7 |

### EZ Meter-Pak Meter Centers

| | | |
|---|---|---|
| | Indoor/Rainproof EZM General Information | 2-8 |
| | Selection Information | 2-9 |
| New! | 1 Phase Main Devices | 2-10 |
| | 1 Phase Branch Devices | 2-11 |
| New! | 3 Phase Main Devices | 2-12 |
| | 3 Phase Branch Devices | 2-13 |
| | 3 Phase Branch Devices and Main Devices with Busway Taps | 2-14 |
| | Tenant Circuit Breakers and EZM Accessories | 2-15 |
| | Dimensions | 2-16 |




SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

# Ring and Ringless Type Individual Meter Sockets

Class **4131** / Refer to Catalog **4100CT0701**





UTRS101B



UTRS202B
(cover not shown)



UTH5203T
(cover not shown)



URTRS213B

- Available single or three phase, 600 Vac max., with and without horn or lever bypass, overhead and underground service feed.
- 10 kA short circuit current rating (or higher with utility approval).
- UL Listed, NEMA 3R enclosure.
- Units supplied with bonded neutral.
- Units supplied with hub opening in top endwall require the use of a bolt-on hub, or closing plate.
- Units supplied with solid top are for underground feed only.
- Accessories, refer to page 2-3.

**This metering is generally utility specific. Always check with local utility company before installing. Contact your nearest Field Sales Office for additional catalog numbers, if required by utility.**

**Table 2.1: Individual Meter Sockets**

| Ampere Rating▽ | Jaw Qty. | Service Type | Cat. No.▲ | $ Price | Lug Wire Range (Al/Cu) | | | Enclosure Information | | | Box No. see page 2-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Line, Load, and Neutral (AWG/kcmil) | Wire Binding | Gnd. (AWG) | Material | Top Endwall Conf. | | |
| | | | | | | | | | Hub Opening■ | Closing Plate ■ | |
| **Ringless Type, 1Ø3W 600 Vac Max., Without Bypass or Jaw Release** | | | | | | | | | | | |
| 125 | 4 | UG | UTZRS101A★ | **123.00** | 8–2/0 | 1/2 in. Hex | 14–2 | Steel | Solid Top★ | — | 1R |
| 125 | 4 | OH | UTRS101B | **123.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP | 1R |
| 125 | 4 | OH | UATRS101B | **137.00** | 8–2/0 | Slotted | 14–2 | Aluminum | Series A | ACPA | 1R |
| 125 | 4 | OH | URS101BCPL | **135.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP | 1R |
| 125 | 5 | OH/UG | 1003880A▼ | **161.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP | 1R |
| 200 | 4 | OH | UTRS202B | **177.00** | 8–250 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 3R |
| 200 | 4 | OH | UATRS202B | **195.00** | 8–250 | 1/2 in. Hex | 14–2 | Aluminum | Series A | ACPA | 3R |
| 200 | 4 | UG | UTRS213A★ | **212.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | Solid Top★ | — | 5R |
| 200 | 4 | OH/UG | UTRS213B▼ | **212.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 5R |
| 200 | 4 | OH/UG | UATRS213B▼ | **225.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Aluminum | Series A | ACPA | 5R |
| 200 | 4 | OH/UG | U92197CCCPL□ | **240.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | (2)Series A | (2)ACP□ | 7R |
| **Ringless Type, 1Ø3W 600 Vac Max., With Horn Bypass, Without Jaw Release** | | | | | | | | | | | |
| 125 | 4 | OH/UG | UHTRS101B | **161.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP | 1R |
| 125 | 5 | OH | UGHTRS101L♦ | **161.00** | 8–2/0 | Slotted | 14–2 | Steel | A125 ♦ | — | 1R |
| 125 | 4 | OH | URS101BDQ◊ | **138.00** | 8–2/0 | 1/2 in. Hex | None | Steel | Series A | ACP | 1R |
| 125 | 5 | OH/UG | UGHTRS111C△ | **207.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP △ | 4R |
| 200 | 4 | OH/UG | UBHMRS212B▼ | **210.00** | 8–250 | 1/2 in. Hex | None | Steel | Series A | ACP | 4R |
| 200 | 4 | OH | UHTRS202B | **206.00** | 8–250 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 3R |
| 200 | 4 | OH/UG | UHTRS212B▼ | **206.00** | 8–250 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 4R |
| 200 | 4 | OH/UG | UHTRS213B▼ | **213.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 5R |
| 200 | 4 | UG | UHTRS223A★ | **272.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | Solid Top★ | — | 2R |
| 200 | 4 | UG | URS212ADQ★◊ | **203.00** | 8–250 | 1/2 in. Hex | None | Steel | Solid Top★ | — | 4R |
| **Ringless Type, 1Ø3W 600 Vac Max., With Lever Bypass and Jaw Release** | | | | | | | | | | | |
| 200 | 4 | OH | UTH4203T | **465.00** | 6–350 | 1/2 in. Hex | 14–2 | Steel | Series A-L | ACPL | 8R |
| 200 | 4 | OH/UG | UTH4213T▼ | **479.00** | 6–350 | 1/2 in. Hex | 14–2 | Steel | Series A-L | ACPL | 9R |
| 200 | 5 | OH | UTH5203T | **494.00** | 6–350 | 1/2 in. Hex | 14–2 | Steel | Series A-L | ACPL | 8R |
| 200 | 5 | OH/UG | UTH5213T▼ | **564.00** | 6–350 | 1/2 in. Hex | 14–2 | Steel | Series A-L | ACPL | 9R |
| 320 | 4 | OH/UG | UTH4330T▼☆ | **749.00** | Studs Only | 3/8 in. dia. studs | 14–1/0 | Steel | Series A-L | ACPL | 11R |
| **Ringless Type, 3Ø4W 600 Vac Max., With Lever Bypass and Jaw Release** | | | | | | | | | | | |
| 200 | 7 | OH/UG | UTH7213T▼ | **666.00** | 6–350 | 1/2 in. Hex | 14–2 | Steel | Series A-L | ACPL | 9R |
| 320 | 7 | OH | UTH7300T☆ | **830.00** | Studs Only | 3/8 in. dia. studs | 14–1/0 | Steel | Series A-L | ACPL | 10R |
| **Ringless Type, 3Ø4W 600 Vac Max., Bolt-On Socket Without Bypass** | | | | | | | | | | | |
| 400 | 7 | OH/UG | UK7T▼☆ | **2423.00** | Studs Only | 1/2 in.–20 dia. studs | 1/2 in.–20 dia. studs | Steel | Series A-L | ACPL | 12R |
| 400 | 7 | OH/UG | UAK7T▼☆ | **2678.00** | Studs Only | 1/2 in.–20 dia. studs | 1/2 in.–20 dia. studs | Aluminum | Series A-L | ACPLA | 12R |
| **Ring Type, 1Ø3W 600 Vac Max., Without Bypass or Jaw Release** | | | | | | | | | | | |
| 125 | 4 | OH/UG | URTRS101B▼ | **123.00** | 8–2/0 | Slotted | 14–2 | Steel | Series A | ACP | 1R |
| 200 | 4 | OH/UG | URTRS213B▼ | **212.00** | 1/0–350 | 1/2 in. Hex | 14–2 | Steel | Series A | ACP | 5R |

▲ Device requires approval from the serving utility, consult your nearest Schneider Electric sales office.
■ Order appropriate bolt-on hub or closing plate separately and install on TOP endwall.
♦ Device supplied with 1-1/4 in. bolt-on hub (Cat.No. A125) mounted on TOP endwall.
★ Device supplied with solid top endwall (without hub opening).
▼ When unit is installed for underground feed, the appropriate closing plate must be ordered separately and installed over hub opening in TOP endwall of device.
△ Device supplied with closing plate ACP mounted on TOP endwall.
□ Device supplied with two closing plates ACP mounted in TOP endwall.
◊ Contains "Duquesne Light Co." approved label.
☆ Order lugs separately, refer to accessories, page 2-3.
▽ Rating is continuous.





DE4 Discount Schedule

© 2012 Schneider Electric
All Rights Reserved



UT2R1121B

## Horizontal Ganged Meter Sockets

- 1Ø, 600 Vac max., main lugs only, 2 through 6 meter positions, with and without horn or lever bypass, end or center feed, overhead and underground service feeds.
- 10 kA short circuit current rating (or higher with utility approval).
- UL Listed, NEMA 3R enclosure.
- Supplied with ground lugs.
- Supplied with hub opening in top endwall, requires the use of a bolt-on hub, or closing plate.

**This metering is generally utility specific. Always check with local utility company before installing. Contact your nearest Field Sales Office for additional catalog numbers, if required by utility.**

### Table 2.2: Ringless Type, 1Ø3W, 600 Vac Max., Without Bypass or Jaw Release

| Branch Ratings | | | | Mains Rating (A) | Cat. No. | $ Price | Main Lugs Phase and Neutral Al/Cu (AWG/kcmil) | Branch Lugs Phase and Neutral Al/Cu (AWG) | Top Endwall▲ | | Box No. See Page 2-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Amperes♦ | No. of Positions | Socket Jaw Qty.■ | Service Type | | | | | | Hub Type (Order Separately) | Closing Plate (Order Separately) | |
| 100 A | 2 | 4 | OH/UG | 200 | UT2R1121B | **453.00** | 6–250 | 8–2/0 | Series A | ACP | 13R |
| | 3 | | | 205 | UT3R1121B | **560.00** | 6–250 | | | | 13R1 |
| | 4 | | | 205 | UT4R1131B | **660.00** | 6–350 | | | | 14R |
| | 5 | | | 250 | UT5R1131B | **908.00** | 6–350 | | | | 15R |
| | 6 | | | 300 | UT6R1131B | **1157.00** | 6–350 | | | | 16R |
| 200 A | 2 | 4 | OH/UG | 205 | UT2R2122B | **647.00** | 6–250 | 8–250 | Series A | ACP | 17R |
| | 4 | | | 360 | UT4R2352T | **1106.00** | 1/0–500 | | Series A-L | ACPL | 18R |
| | 5 | | | 500 | UT5R2392TU | **1383.00** | 1/0–500 or (2)1/0–350 | | Series A-L | ACPL | 19R |
| | 6 | | | 620 | UT6R2392TU | **1548.00** | 1/0–500 or (2)1/0–350 | | Series A-L | ACPL | 20R |

▲ For hubs and closing plates, see Accessories table below.
■ Fifth jaw kit available to convert 4-jaw socket to a 5-jaw socket. See Accessories table below.
♦ Rating is continuous.



EMT3225CB

## Meter Mains with Test Block Bypass (Meets EUSERC Requirements)

### Table 2.3: Ring Type, 1Ø3W and 3Ø4W, Meter Main with Test Block Bypass (Meets EUSERC Requirements)

**Supplied with bondable neutral, suitable for use as service equipment. Suitable for overhead or underground service. UL Listed File E6294.**

| System (Incoming) and Service (Outgoing) | Meter Socket Type | Ampere Rating (Max.) | Short Circuit Current Rating | Cat. No.△ | $ Price | Main Circuit Breaker Type (Order Separately)★ |
|---|---|---|---|---|---|---|
| 120/240 Vac 1Ø3W | 5-Jaw | 225 A | 100 kA max. | EMT1225CB | **4095.00** | 2P Type QB, QD, QG, QJ, QO▼, QO-VH▼ or QOH▼ |
| 208Y/120 Vac 3Ø4W□ or 240/120 Vac 3Ø4W Delta | 7-Jaw | 225 A | 65 kA max. | EMT3225CB | **5355.00** | 3P Type QB, QD, QG or QJ |

★ Refer to page 2-15 to select main circuit breaker.
▼ Requires use of EZM125QOA adapter (order separately), when using QO (40 A–125 A, 2-pole) 10 kA max. SCCR, QO-VH (40 A–60 A, 2-pole) 22 kA max. SCCR, or QOH (40 A–60 A, 2-pole) 42 kA max. SCCR. Refer to page 2-15 for pricing.
△ Refer to page 2-4 for box dimensions.
□ 100 kA max.



EMT1225CB
Without Covers

### Table 2.4: EMT Terminal Wire Size ◊

| Line Phase Lug | Line Neutral Lug | Service Ground Lug | Equipment Ground Lug | Load Neutral Lug |
|---|---|---|---|---|
| 6 AWG–300 kcmil Al/Cu | 6 AWG–350 kcmil Al/Cu | 4 AWG–300 kcmil Al/Cu | 6 AWG–300 kcmil Al/Cu | 4 AWG–300 kcmil Al/Cu |

◊ Refer to circuit breaker listings for usable load lug wire sizes.

## Meter Socket Accessories

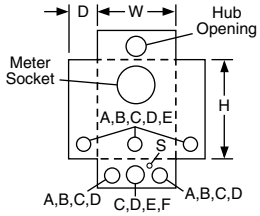
### Table 2.5: Meter Socket Accessories

| Accessory | | Description | Cat. No. | $ Price |
|---|---|---|---|---|
| **Fifth-Jaw Kit** | | Converts a 4-jaw meter socket to a 5-jaw meter socket. For use on meter sockets supplied without lever bypass or jaw release only. | A5J | **14.90** |
| **Closing Plates (to seal hub openings)** | | For Series A (steel) | ACP | **13.40** |
| | | For Series A (aluminum) | ACPA | **11.90** |
| | | For Series A-L (steel) | ACPL | **18.30** |
| | | For Series A-L (aluminum) | ACPLA | **16.50** |
| **Hubs (listed by conduit size)** | **Series A** | 1.00 inch | A100 | **33.90** |
| | | 1.25 inch | A125 | **33.90** |
| | | 1.50 inch | A150 | **33.90** |
| | | 2.00 inch | A200 | **47.90** |
| | | 2.50 inch | A250 | **61.00** |
| | **Series A-L** | 2.00 inch | A200L | **83.00** |
| | | 2.50 inch | A250L | **87.00** |
| | | 3.00 inch | A300L | **111.00** |
| | | 3.50 inch | A350L | **114.00** |
| | | 4.00 inch | A400L | **119.00** |
| | **Series B** | 3.00 inch | B300☆ | **186.00** |
| **Adapter Plate** | | To allow the use of a Series A Hub on a device that is setup for a series A-L Hub. | AAP | **33.80** |
| **Lug Kits** | | For use on meter sockets supplied with Line, Load, and Neutral Studs only. Be sure to order enough lugs for each device (a typical 1Ø device requires 6 lugs). | | |
| | | Includes one, two-barrel lug (6-250 kcmil) | ARP00118 | **38.10** |
| | | Includes one, single barrel lug (4-600 kcmil) | ARP00129 | **55.00** |
| | | Includes three, two-barrel lugs (6-350 kcmil) | ARP00427 | **135.00** |
| **Sealing Ring** | | Snap-on Aluminum (Standard) | 2920910001 | **8.00** |
| | | Snap-on Stainless Steel (Non-standard) | ARP00026 | **16.70** |
| | | Screw Type Aluminum (Non-standard) | 29008W | **20.10** |

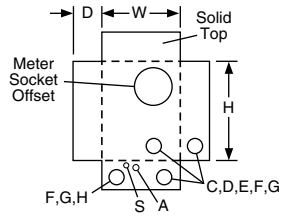
☆ DE1A Discount.



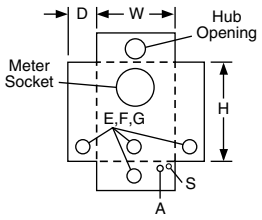
© 2012 Schneider Electric
All Rights Reserved



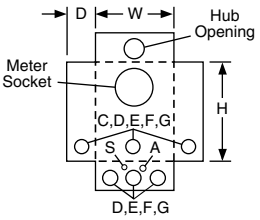

**1R**



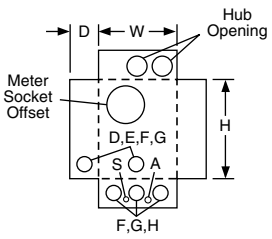

**2R**



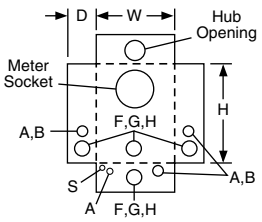

**3R, 6R**



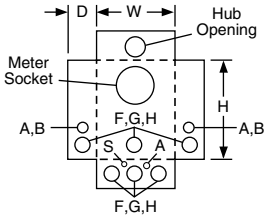

**4R, 5R**



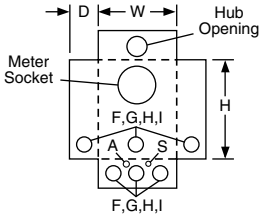

**7R**



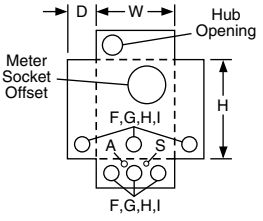

**8R**




**9R**




**10R**




**11R**

**Table 2.6: Enclosure Dimensions**

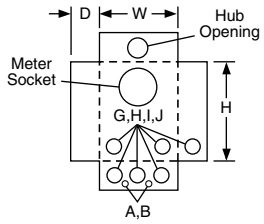
| Dimensions (Inches) | | | | |
|---|---|---|---|---|
| **Box No.** | **H** | **W** | **D** | **Hub Opening (Max. Conduit Size) ▲** |
| 1R | 10.88 | 8.00 | 3.50 | Series A |
| 2R | 13.00 | 13.00 | 4.94 | Solid Top |
| 3R | 14.00 | 8.00 | 4.38 | Series A |
| 4R | 14.00 | 11.00 | 4.38 | Series A |
| 5R | 15.00 | 11.00 | 4.38 | Series A |
| 6R | 15.50 | 8.00 | 4.36 | Series A |
| 7R | 17.13 | 13.00 | 4.94 | (2) Series A |
| 8R | 19.00 | 10.50 | 4.94 | Series A-L |
| 9R | 19.00 | 13.00 | 4.94 | Series A-L |
| 10R | 34.50 | 15.00 | 5.68 | Series A-L |
| 11R | 36.62 | 15.00 | 5.68 | Series A-L |
| 12R | 43.00 | 20.25 | 6.00 | Series A-L |
| 13R | 14.12 | 24.31 | 4.50 | Series A |
| 13R1 | 14.12 | 32.50 | 4.50 | Series A |
| 14R | 14.12 | 40.62 | 4.50 | Series A |
| 15R | 14.12 | 48.75 | 4.50 | Series A |
| 16R | 14.12 | 57.00 | 4.50 | Series A |
| 17R | 14.12 | 24.31 | 5.38 | Series A |
| 18R | 14.12 | 40.62 | 5.38 | Series A-L |
| 19R | 14.12 | 54.75 | 5.38 | (2) Series A-L |
| 20R | 14.12 | 63.00 | 5.38 | (2) Series A-L |

▲Refer to page 2-3 for closing plates and hubs.

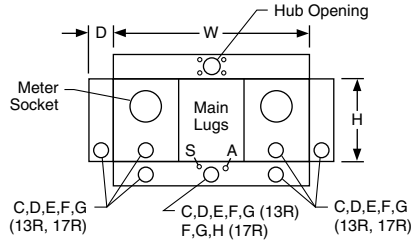
**Table 2.7: Knockout Information**

| Knockouts | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **S** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** |
| Conduit Size (in.) | 5/16 ■ | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |

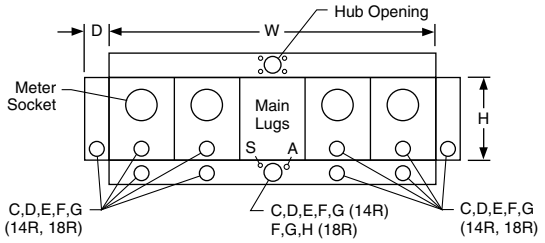
■Knockout for grounding conductor.



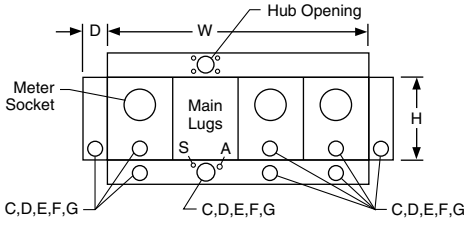

**12R**



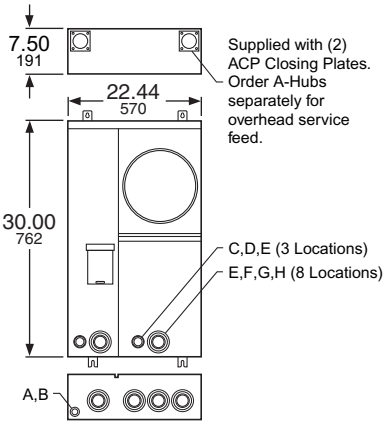

**13R and 17R**



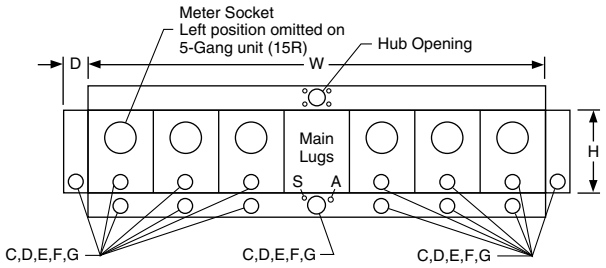

**14R and 18R**



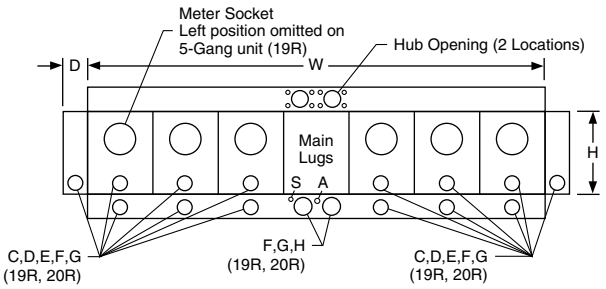

**13R1**




**EMT1225CB and EMT3225CB**




**15R and 16R**




**19R and 20R**



© 2012 Schneider Electric
All Rights Reserved

## Ring and Ringless Type Devices


MP44125

- Consult local utility for approval before installation.
- 120/240 Vac 1Ø3W.
- Main lugs only—two to six meter sockets.
- Enclosures are indoor/rainproof NEMA 3R construction.
- Suitable only for use as service equipment.
- Swingable mounting feet supplied at bottom of device.
- Factory-installed mechanical lugs, alternate lugs and NEMA/EUSERC lug landing kits available.
- Surface mount, convertible to semi-flush with field installed flange kit.
- Ring type devices supplied with 4-jaw meter sockets (5th jaw kits available, order separately).
- Ringless type devices supplied with 5-jaw meter sockets, available with and without horn or lever bypass.
- Provisions for mounting 2-pole circuit breaker for each meter socket position (order circuit breakers separately).
- Mounting channel supplied, except for box 1R (125 A, 2-position).
- Combination overhead/underground feed.

**Table 2.8: Ring Type MP Meter-Pak Metering Equipment with 125 A (42 kA Maximum SCCR) or 200 A (22 kA Maximum SCCR) Meter Socket Positions**

| Amperes per Pole | No. of Poles | Factory-Installed Main Lug Ampacity (See page 2-6 for alternate lugs) | Main Bus Ampacity (A) | Cat. No. | $ Price | Line Lug Wire Size Al/Cu AWG/kcmil | Circuit Breaker Type (2P) | Hub Prov.▲ | Semi-Flush Flange Kit | Wt Lbs | Box No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | 2 | 200 | 200 | MP22125 ■ | **977.00** | (1) 4–250 | QO, QO-VH, QOH | A/B300 | MPSF12 | 46 | 1R |
| | 3 | 300 | 300 | MP33125 ♦ | **1187.00** | (1) 1/0–600 or (2) 1/0–250 | | A-L | MPSF14 | 95 | 2R |
| | 4 | 400 | 400 | MP44125 ♦ | **1730.00** | (1) 1/0–600 or (2) 1/0–250 | | A-L | MPSF14 | 97 | 2R |
| | 5 | 400 Al 500 Cu | 500 | MP55125 ♦ | **2079.00** | (1) 1/0–600 or (2) 1/0–250 | | (4) A-L | MPSF16 | 130 | 3R |
| | 6 | 400 Al 500 Cu | 600 | MP66125 ♦ | **2415.00** | (1) 1/0–600 or (2) 1/0–250 | | (4) A-L | MPSF16 | 132 | 3R |
| 200 | 2 | 400 | 400 | MP42200 ♦ | **1274.00** | (1) 1/0–600 or (2) 1/0–250 | QOM2-MM, QOM2-MVH | (4) A-L | MPSF23 | 99 | 4R |
| | 3 | 400 | 400 | MP43200 ♦ | **2151.00** | (1) 1/0–600 or (2) 1/0–250 | | | MPSF23 | 99 | 4R |
| | 4 | 400 | 600 | MP64200 ♦ | **2814.00** | (1) 1/0–600 or (2) 1/0–250 | | | MPSF24 | 135 | 5R |
| | 5 | 600 Al, 750 Cu | 800 | MP85200 ♦ | **3377.00** | (2) 3/0–500 | | | MPSF26 | 173 | 6R |
| | 6 | 600 Al, 750 Cu | 800 | MP86200 ♦ | **4040.00** | (2) 3/0–500 | | | MPSF26 | 173 | 6R |

▲ For A and A-L Hubs see page 2-3, for B Hubs see page 3-9.
■ Meets EUSERC standards.
♦ Meets EUSERC standards with addition of lug landing kit, MMSK2.

**Table 2.9: Ringless Type MP Meter-Pak Metering Equipment with 125 A (42 kAMaximum SCCR) or 200 A Type MPR, MPH (22 kA Maximum SCCR) or 225 A Type MPL (100 kA Maximum SCCR) Meter Socket Positions**

| Amperes Per Pos. | No. of Pos. | Factory-Installed Main Lugs Ampacity (See page 2-6 for alternate lugs) | Main Bus Ampacity | No. Bypass Cat. No. | $ Price | Horn Bypass Cat. No. | $ Price | Lever Bypass Cat. No. | $ Price | Line Lug Wire Size Al/Cu AWG/kcmil | Circuit Breaker Type (2P) (See page 2-6) | Hub Prov. ★ | Semi-Flush Flange Kit | Wt Lbs | Box No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | 2 | 200 | 200 | MPR22125 | **995.00** | MPH22125 | **1002.00** | — | — | (1) 4–250 | QO, QO-VH, QOH | A/B300 | MPSF12 | 46 | 1R |
| | 3 | 300 | 300 | MPR33125 | **1220.00** | MPH33125 | **1253.00** | — | — | (1) 1/0–600 or (2) 1/0–250 | | A-L | MPSF14 | 95 | 2R |
| | 4 | 400 | 400 | MPR44125 | **1781.00** | MPH44125 | **1830.00** | — | — | (1) 1/0–600 or (2) 1/0–250 | | | MPSF14 | 97 | 2R |
| | 5 | 400 Al 500 Cu | 500 | MPR55125 | **2246.00** | MPH55125 | **2330.00** | — | — | (1) 1/0–600 or (2) 1/0–250 | | (2) A-L | MPSF16 | 130 | 3R |
| | 6 | 400 Al 500 Cu | 600 | MPR66125 | **2615.00** | MPH66125 | **2715.00** | — | — | (1) 1/0–600 or (2) 1/0–250 | | | MPSF16 | 132 | 3R |
| 200 | 2 | 400 | 400 | MPR42200 | **1290.00** | MPH42200 | **1299.00** | — | — | (1) 1/0–600 or (2) 1/0–250 | QOM2-MM, QOM2-MVH | (2) A-L | MPSF23 | 99 | 4R |
| | 3 | 400 | 400 | MPR43200 | **2186.00** | MPH43200 | **2219.00** | | | | | | MPSF23 | 99 | 4R |
| | 4 | 400 | 600 | MPR64200 | **2865.00** | MPH64200 | **2916.00** | | | | | | MPSF24 | 135 | 5R |
| 225 | 2 | 350 | 350 | — | — | — | — | MPL32225 | **1739.00** | (1) 1/0–600 or (2) 1/0–250 | QBP-TM, QDP-TM, QGP-TM or QJ-TM QO▼, QO-VH▼ or QOH▼ | | N/A | 105 | 7R |
| | 3 | 400 | 500 | — | — | — | — | MPL53225 | **2741.00** | | | | N/A | 147 | 8R |
| | 4 | 400 | 600 | — | — | — | — | MPL64225 | **3656.00** | | | | N/A | 200 | 9R |
| 200 | 5 | 600 Al, 750 Cu | 800 | MPR85200 | **3545.00** | MPH85200 | **3627.00** | — | — | (2) 3/0–500 | QOM2-MM, QOM2-MVH | | MPSF26 | 173 | 6R |
| | 6 | 600 Al, 750 Cu | 800 | MPR86200 | **4241.00** | MPH86200 | **4341.00** | — | — | (2) 3/0–500 | | | MPSF26 | 173 | 6R |

★ For A and A-L Hubs see page 2-3, for B Hubs see page 3-9.
▼ Requires use of EZM125QOA adapter (order separately). Refer to oage 2-15 for pricing.

UL Listed short circuit current rating depends on lowest interrupting rating of circuit breaker installed.



© 2012 Schneider Electric
All Rights Reserved



QO2100VH
2P, Plug-on Type
Circuit Breaker



QDP22200TM
2P, Bolt-on Type
Circuit Breaker



QOM2200MVH

## Tenant Circuit Breakers

UL Listed Short Circuit Current Rating depends on lowest interrupting rating of circuit breaker installed. (Refer to the table on the bottom of page 2-9 for Square D certified ratings for downstream panelboards and load centers.)

### Table 2.10: Tenant Circuit Breakers

| Amperes | 10 k AIR 120/240 Vac | $ Price (DE2A) | 22 k AIR 120/240 Vac | $ Price (DE2A) | 42 k AIR 120/240 Vac | $ Price (DE2A) | 100 k AIR 120/240 Vac | $ Price (DE2A) |
|---|---|---|---|---|---|---|---|---|
| **For use in 125 A Max. Type MP, MPR and MPH Meter-Pak Metering Equipment** | | | | | | | | |
| 40 | QO240 | **67.00** | QO240VH▲ | **146.00** | QOH240 | **317.00** | — | — |
| 50 | QO250 | **67.00** | QO250VH▲ | **146.00** | QOH250▲ | **317.00** | — | — |
| 60 | QO260 | **67.00** | QO260VH | **146.00** | QOH260▲ | **317.00** | — | — |
| 70 | QO270 | **134.00** | QO270VH | **224.00** | QOH270▲ | **528.00** | — | — |
| 80 | QO280 | **189.00** | QO280VH | **315.00** | QOH280▲ | **651.00** | — | — |
| 90 | QO290 | **189.00** | QO290VH | **315.00** | QOH290 | **651.00** | — | — |
| 100 | QO2100 | **189.00** | QO2100VH | **315.00** | QOH2100 | **651.00** | — | — |
| 125 | QO2125 | **428.00** | QO2125VH | **1034.00** | QOH2125 | **1389.00** | — | — |
| **For use in 200 A Max. Type MP, MPR and MPH Meter-Pak Metering Equipment** | | | | | | | | |
| 100 | QOM2100MM | **474.00** | QOM2100MVH | **1143.00** | — | — | — | — |
| 125 | QOM2125MM | **474.00** | QOM2125MVH | **1143.00** | — | — | — | — |
| 150 | QOM2150MM | **474.00** | QOM2150MVH | **1143.00** | — | — | — | — |
| 175 | QOM2175MM | **474.00** | QOM2175MVH | **1143.00** | — | — | — | — |
| 200 | QOM2200MM | **474.00** | QOM2200MVH | **1143.00** | — | — | — | — |
| **Amperes** | **10 k AIR 120/240 Vac** | **$ Price (DE2A)** | **25 k AIR 120/240 Vac** | **$ Price (DE2A)** | **65 k AIR 120/240 Vac** | **$ Price (DE2A)** | **100 k AIR 120/240 Vac** | **$ Price (DE2A)** |
| **For use in 225 A MPL Lever Bypass Meter-Pak Metering Equipment** | | | | | | | | |
| 40 | QO240■ | **67.00** | QO240VH▲♦■ | **146.00** | QOH240■★ | **317.00** | — | — |
| 50 | QO250■ | **67.00** | QO250VH▲♦■ | **146.00** | QOH250■★▲ | **317.00** | — | — |
| 60 | QO260■ | **67.00** | QO260VH▲♦■ | **146.00** | QOH260■★▲ | **317.00** | — | — |
| 70 | QBP22070TM | **474.00** | QDP22070TM | **1143.00** | QGP22070TM | **1521.00** | QJP22070TM | **1890.00** |
| 80 | QBP22080TM | **474.00** | QDP22080TM | **1143.00** | QGP22080TM | **1521.00** | QJP22080TM | **1890.00** |
| 90 | QBP22090TM | **474.00** | QDP22090TM | **1143.00** | QGP22090TM | **1521.00** | QJP22090TM | **1890.00** |
| 100 | QBP22100TM | **474.00** | QDP22100TM | **1143.00** | QGP22100TM | **1521.00** | QJP22100TM | **1890.00** |
| 110 | QBP22110TM | **474.00** | QDP22110TM | **1143.00** | QGP22110TM | **1521.00** | QJP22110TM | **1890.00** |
| 125 | QBP22125TM | **474.00** | QDP22125TM | **1143.00** | QGP22125TM | **1521.00** | QJP22125TM | **1890.00** |
| 150 | QBP22150TM | **474.00** | QDP22150TM | **1143.00** | QGP22150TM | **1521.00** | QJP22150TM | **1890.00** |
| 175 | QBP22175TM | **474.00** | QDP22175TM | **1143.00** | QGP22175TM | **1521.00** | QJP22175TM | **1890.00** |
| 200 | QBP22200TM | **474.00** | QDP22200TM | **1143.00** | QGP22200TM | **1521.00** | QJP22200TM | **1890.00** |
| 225 | QBP22225TM | **474.00** | QDP22225TM | **1143.00** | QGP22225TM | **1521.00** | QJP22225TM | **1890.00** |

▲ Order only. Not stocked in PDS. Order Point: Lincoln.
■ Requires use of EZM125QOA adapter (order separately). Refer to page 2-15 for pricing.
♦ QO-VH tenant circuit breakers are rated 22 kAIR at 120/240 Vac.
★ QOH tenant circuit breakers are rated 42 k AIR at 120/240 Vac.

## Accessories



MMLK500

### Table 2.11: Accessories

| Accessory | Description | Cat. No. | $ Price |
|---|---|---|---|
| Fifth Jaw Kit | Fifth Jaw Kit | 5J | **18.30** |
| Horn Bypass Kit | For MPR and MPH only | MMHB | **16.70** |
| QO Adapter | For Bolt-on Q2M tenant circuit breakers (40–125 A, 2P) | EZM125QOA | **273.00** |
| Slider Type Manual Circuit Closing: | 125 A Ring Style 2 Position Top Meter (Only) | MM125MB▼ | **171.00** |
| | 125 and 200 A Ring Style | MM200MB▼ | **171.00** |
| Sealing Rings: | Snap-on Aluminum | 2920910001 | **8.00** |
| | Screw Type Aluminum | 29008W | **20.10** |
| | Snap-on Type Stainless Steel | ARP00026 | **16.70** |
| Meter Cover-Lexan™ | Meter Cover-Lexan™ | 29007 | **10.10** |
| Optional Lug Kits: | (1) 1/0–600 AWG/kcmil or (2) 1/0–250 AWG/kcmil per phase | MMLK250△□ | **150.00** |
| | (2) 3/0–500 AWG/kcmil per phase | MMLK500□ | **200.00** |
| | (2) 2–600 AWG/kcmil per phase | MMLK600□ | **233.00** |
| Semiflush Kits: | 125 A 2 Position | MPSF12 | **101.00** |
| | 125 A 3–4 Position | MPSF14 | **134.00** |
| | 125 A 5–6 Position | MPSF16 | **218.00** |
| | 200 A 2–3 Position | MPSF23 | **144.00** |
| | 200 A 4 Position | MPSF24 | **171.00** |
| | 200 A 5–6 Position | MPSF26 | **255.00** |
| NEMA/EUSERC Lug Landing Kit: | For 3 through 6 position 125 A and 200 A devices. Each pad rated 600 A maximum and includes (2) 1/2-13 studs and mounting hardware. | MMSK2□ | **185.00** |
| NEMA Lug Landing Kit: | For use ONLY on MPL43225, MPL53225 and MPL64225 with optional lugs. See wiring diagram of each device for optional lugs. | MMSK4 | **276.00** |
| MP Meter-Pak Wireway: (Wall Mount Pedestal) | 125 A 2 Position ONLY | MP43X8PED | **441.00** |
| | 125 A 3–6 Position | MP43X11PED | **504.00** |
| | 200 A 2–6 Position | MP43X11PED | **504.00** |
| | MPL32-225 | MP35X11PED◊ | **504.00** |
| | MPL53-225 | MP43X11PED | **504.00** |
| | MPL64-225 | MP35X11PED◊ | **504.00** |
| MP Meter-Pak Wireway Extensions: | Used ONLY with MP43X8PED | MP12X8PEDEXT◊ | **102.00** |
| | Used with MP43X11PED and MP35X11PED | MP12X11PEDEXT◊ | **126.00** |

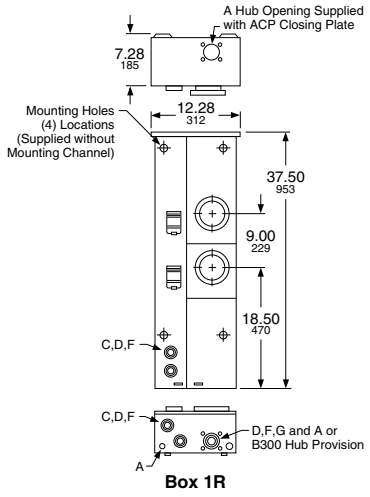
▼ The meter center short circuit current rating is 10 kA when manual circuit closing is used. Not rated for continuous duty.
△ Standard lug for 3 through 6 position 125 A and 2 through 4 position 200 A devices.
□ Cannot be installed on 2 position 125 A device.
◊ Order only. Not stocked in PDS. Order point: Lexington.

For hubs and closing plates . . . . . Page 2-3

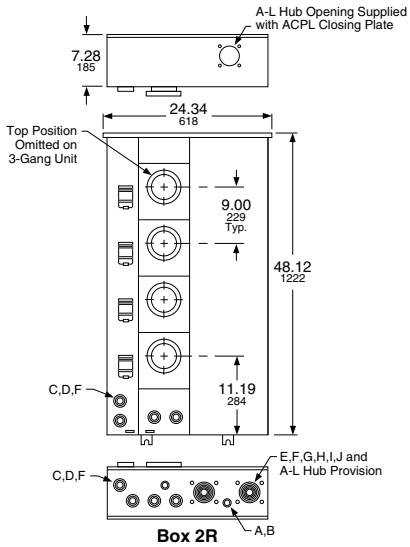


© 2012 Schneider Electric
All Rights Reserved

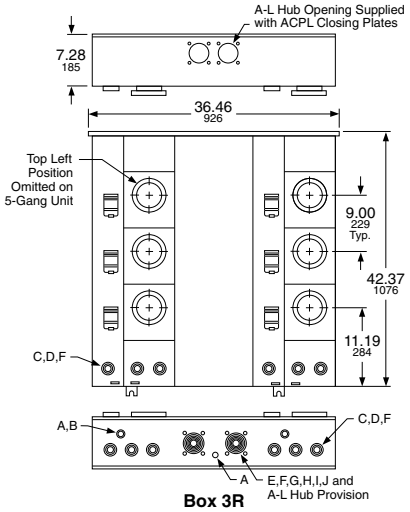
## Dimensions and Knockouts



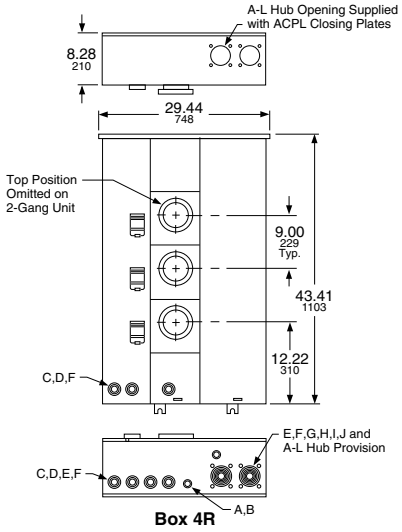

**Box 1R**



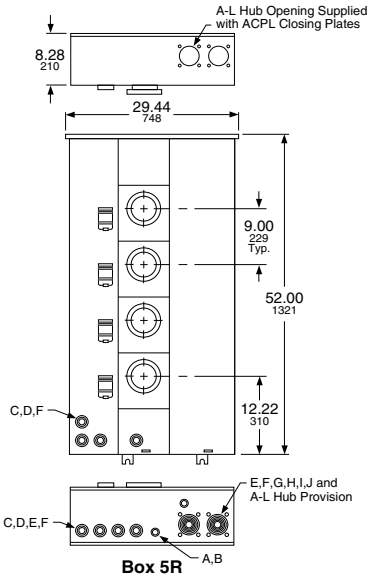

**Box 2R**



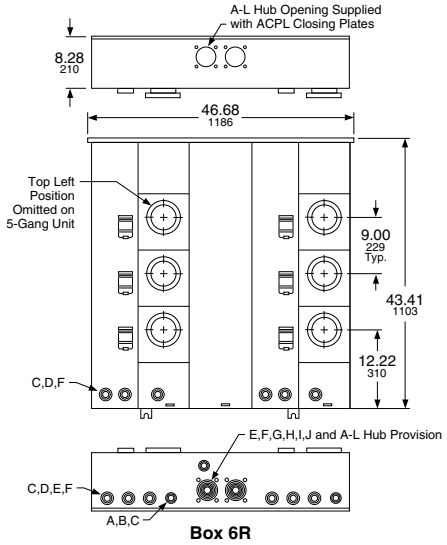

**Box 3R**



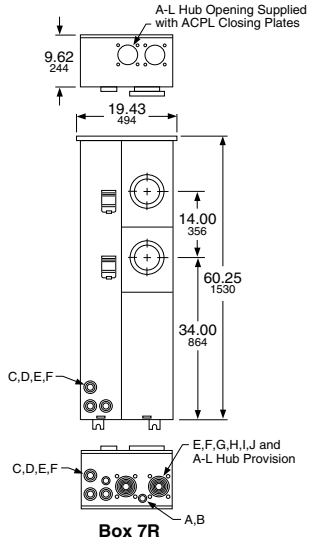

**Box 4R**



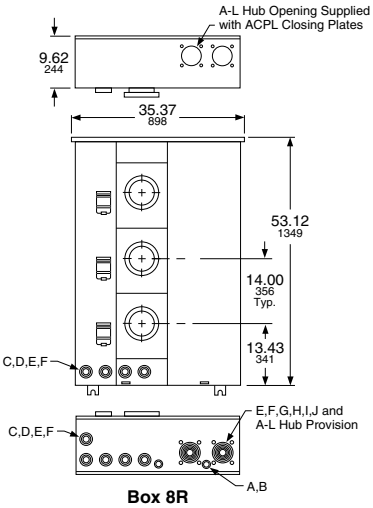

**Box 5R**



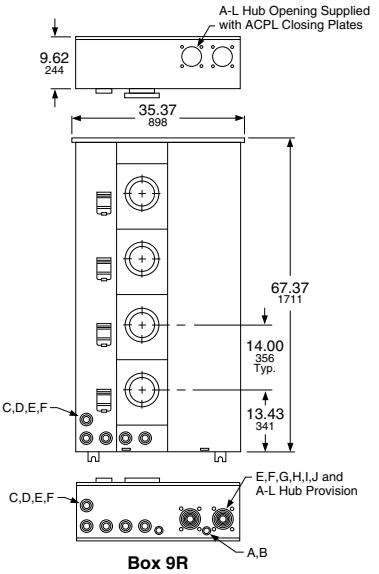

**Box 6R**




**Box 7R**




**Box 8R**




**Box 9R**

| Knockouts | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** |
| Conduit Size (in.) | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |



© 2012 Schneider Electric
All Rights Reserved

## NEMA 3R Construction

**240 Vac Maximum,** for use on AC systems, suitable for use as Service Equipment.

**Utility Company Requirements Review local utility requirements to ensure that metering equipment meets their standards.**

**EZ Meter-Pak** meter center enclosures meet NEC wire bending requirements, and are designed for wall mounting only (not suitable for floor mounting). All unmetered conductor compartments may be sealed by the utility company.

**EZ Meter-Pak** meter centers have UL Listed short circuit current ratings up to 100 kA at 240 Vac when properly applied. For three-tier series ratings refer to Data Bulletin 4100DB0301 and Instruction Bulletin 80043-303-22.

**Suitable incoming services for an EZM main device and available outgoing feeder(s) to downstream panelboards from EZM branch section(s)—**

**Incoming Service to Main Device 120/240 Vac, 1Ø3W**

Available outgoing feeder(s) to downstream panelboards:

- 120/240 Vac, 1Ø3W
  (4-jaw ring type meter sockets, two-pole circuit breakers)
  (5-jaw ringless meter sockets, two-pole circuit breakers).

**Incoming Service to Main Device 240/120 Vac, 3Ø4W Delta**

Available outgoing feeder(s) to downstream panelboards:

- 120/240 Vac, 1Ø3W (Fed from transformer's "A-Phase" and "C-Phase" only.) NOTE: Connection to High-Leg "B-Phase" not permitted for this service
  (4-jaw ring type meter sockets, two-pole circuit breakers)
  (5-jaw ringless meter sockets, two-pole circuit breakers)
  Standard 3Ø IN/1Ø OUT branch units **are not suitable for use on this Delta System.** Special branch units are available for this System by adding suffix: **"CA"** to catalog number (Typical Examples: EZM313125CA, EZM313125XCA, EZM313125CUXCA, EZM314225CA, EZM314225XCA, EZM314225CUXCA, EZM315225CA, EZM314225CUCA, etc.).
- 240/120 Vac, 3Ø4W Delta (7-jaw meter sockets, three-pole circuit breakers).

**Incoming Service to Main Device 208Y/120 Vac, 3Ø4W**

Available outgoing feeder(s) to downstream panelboards:

- 120/208 Vac, 1Ø3W (5-jaw meter sockets, two-pole circuit breakers)
- 208Y/120 Vac, 3Ø4W (7-jaw meter sockets, three-pole circuit breakers).

## Main Devices

- 400, 600 and 800 A main disconnects may be end mounted with branch units having 800 A or 1200 A continuous horizontal cross bus.
- 1000 and 1200 A main disconnect or terminal box **must be center mounted** when used with branch devices with main bus rated 800 A continuous.
- 1600 A main disconnect or terminal box **must be center mounted.**
- 2000 A main disconnect **must be center mounted** and requires use of branch units having 1200 A continuous horizontal cross bus.
- 400, 800 and 1200 A Type EZM-TBU terminal boxes supplied with lug landings to meet EUSERC requirements.

**Main Circuit Breaker ratings**: 400, 600, 800, 1000, 1200, 1600 and 2000 A

**Main Fusible Switch ratings:** 400, 600, 800, and 1200 A (1Ø3W only)

**Main Lugs Terminal Box ratings:**
225, 400, 600, 800, 1200, 1600, and 2000 A

## Branch Units

- **125 A and 225 A residential branch units** are available in ring type or ringless type construction and are supplied with 800 A continuous aluminum horizontal cross bus as standard (Example: EZM314125). For optional 1200 A continuous copper horizontal cross bus with aluminum vertical connectors, add suffix **"X"** to catalog number (Example: EZM314125X). For optional 1200 A continuous all-copper bussing, add suffix **"CUX"** to catalog number (Example: EZM314125CUX). NOTE: 5-gang 225 A EZM, EZMR and EZMH residential branch units are supplied with 1200 A continuous Cross Bus as standard, do not add suffix "X" or "CUX" to these units (Examples: EZMR315225 or EZMR315225CU). Plug-in style residential meter sockets are available as ring type **EZM** without bypass, ringless type **EZMR** without bypass, and ringless type **EZMH** with horn bypass.

  Tenant circuit breakers must be ordered separately for these branch units. 125 A max. units make use of Type QO, QO-VH or QO-H two-pole tenant circuit breakers (40–125 A). 225 A max. units make use of Type QDP-TM, QBP-TM, QGP-TM and QJP-TM two-pole tenant circuit breakers (70–225 A), and may also make use of two-pole Type QO (40–125 A at 10 kA max.), two-pole Type QO-VH (40–60 A at 100 kA max.), or two-pole Type QO-H (40–60 A at 100 kA max.) tenant circuit breakers.
- **225 A commercial branch units** are available in ring type or ringless type construction and are supplied with 1200 A copper horizontal cross bus with aluminum vertical connectors as standard (Example: EZML314225). For optional 1200 A continuous all-copper bussing, add suffix **"CU"** to catalog number (Example: EZML314225CU). Plug-in style commercial meter sockets are available as ring type **EZMT** with test block bypass (meets EUSERC requirements), ringless type **EZMR** without bypass, and ringless type **EZML** with lever bypass.

  225 A max. units make use of type QDP-TM, QBP-TM, QGP-TM and QJP-TM two-pole or three-pole tenant circuit breakers (70– 225 A), and may also make use of two-pole type QO (40–125 A at 10 kA max.), two-pole type QO-VH (40–60 A at 100 kA max.), or two-pole type QO-H (40–60 A at 100 kA max.) tenant circuit breakers.

**Note:** QO, QO-VH and QO-H tenant circuit breakers used in 225 A branch units require the use of adapter **EZM125QOA** (purchased separately). Refer to page 2-15 for pricing.

- **400 A branch units** are available in ringless type construction only, and are supplied with 1200 A continuous all-copper bussing as standard (Example: EZML332400). These branch units are supplied with factory-installed type DJM tenant circuit breakers that have a field adjustable ampere rating trip setting from 160 A min. to 400 A max. A tamper-evident seal kit is available where needed, order seal kit **29375** (refer to NEC 240-6 [c]). 400 A branch units are available as Type **EZML** with plug-in style lever bypass type meter sockets, or Type **EZMK** with bolt-on style with manual bypass type meter sockets.
- Units having **800 A continuous horizontal cross bus** WILL CONNECT with units having **1200 A continuous horizontal cross bus**.
- **Single phase units** (three bus bars in horizontal cross bus) WILL NOT CONNECT with **three phase units** (four bus bars in horizontal cross bus).

**For Load Center Three-Tiered Series Ratings used downstream from Metering Equipment, refer to Data Bulletins : 4100DB0301 and 2700DB9901.**

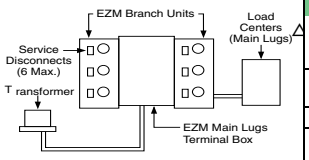
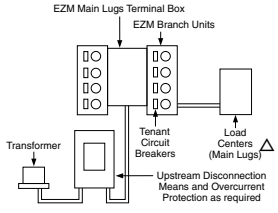
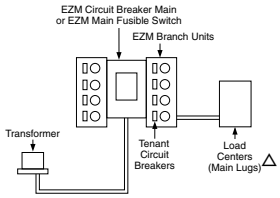


© 2012 Schneider Electric
All Rights Reserved

- Review local utility requirements to ensure that metering equipment meets their standards.
- Check local utility to determine available fault current at the meter center.
- Using the SCCR table:
  - Select meter center configuration, main lugs only (Six Disconnect Rule), or remote main, main circuit breaker, or main fusible switch.
  - Read down to select SCCR equal to, or greater than desired rating.
  - Read across to select branch unit tenant circuit breaker type.
  - Continue reading across to select EZM main device type.

## Table 2.12: UL Listed Meter Center Short Circuit Current Ratings (SCCR)

**Tenant circuit breakers of same frame size having higher AIR values may replace tenant circuit breakers as listed in tables below and maintain the series rating.**

| Figures | Short Circuit Current Rating (240 Vac Maximum)▲■ | EZM Meter Center Overcurrent Protection Devices | |
|---|---|---|---|
| | | EZM Branch Unit Tenant Circuit Breaker Types Available (Branch Unit Amperes max., Number of Poles, Tenant Circuit Breaker Amperes Rating Range) | EZM Main Device with Integral Mounted Main, Remote Mounted Main or without an Upstream Mounted Main (Six Disconnect Rule) |
|  Figure 1 | **EZ Meter-Pak (Six Disconnect Rule Applications)—See Figure 1** | | |
| | 10 kA | QO (**125 A**, 2P, 40–125 A)<br>QO (**225 A**, 2P, 40–125 A)★<br>QB (**225 A**, 2P or 3P, 70–225 A) | 400–2000 A Main Lugs Terminal Box<br>(Tenant Circuit Breakers used as Service Disconnects—6 maximum) |
| | 22 kA | QO-VH (**125 A**, 2P, 40–125 A )<br>QO-VH (**225 A**, 2P, 40–60 A)★ | |
| | 25 kA | QD (**225 A**, 2P or 3P, 70–225 A) | |
| | 42 kA | QOH (**125 A**, 2P, 40–125 A)<br>QOH (**225 A**, 2P, 40–60 A)★ | |
| | 65 kA | QG (**225 A**, 2P or 3P, 70–225 A) | |
| | 100 kA | QJ (**225 A**, 2P or 3P, 70–225 A) ♦<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼♦ | |
| | **EZ Meter-Pak 225–2000 A Main Lugs Terminal Box Applications Protected by Remote Main—See Figure 2** | | |
| | 10 kA | QO (**125 A**, 2P, 40–125 A)<br>QO (**225 A**, 2P, 40–125 A)★<br>QB (**225 A** 2P or 3P, 70–225 A)<br>DJM (**400 A**, 2P or 3P 160–400 A)▼ | Must be protected by an upstream disconnecting means rated 10 k AIR minimum |
| | 22 kA | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | Must be protected by an upstream disconnecting means rated 22 k AIR minimum |
| | 25 kA | QD (**225 A** 2P or 3P, 70–225 A)<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | Must be protected by an upstream disconnecting means rated 25 k AIR minimum |
|  Figure 2 | 42 kA | QOH (**125 A**, 2P, 40–125 A)<br>QOH (**225 A**, 2P, 40–60 A)★<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | Must be protected by an upstream disconnecting means rated 42 k AIR minimum |
| | | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>QD (**225 A** 2P or 3P, 70–225 A) | Must be protected by a Square D circuit breaker Type LA (400 A max.) or MA (1000 A max.) Rated 42 k AIR minimum |
| | 65 kA | QG (**225 A** 2P or 3P, 70–225 A)<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | Must be protected by an upstream disconnecting means rated 65 k AIR minimum |
| | | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>QD (**225 A** 2P or 3P, 70–225 A)<br>DJM (400 A, 2P or 3P, 160-400 A)▼ | Must be protected by a Square D circuit breaker Type LH (400 A max.), MG (800 A max.), MH (1000 A max.), PG (1200 A max.) or RG (2000 A max.) rated 65 k AIR minimum. |
| | 100 kA | QJ (**225 A** 2P or 3P, 70–225 A )♦<br>DJM (**400 A** 2P or 3P, 160–400 A)▼♦ | Must be protected by an upstream disconnecting means rated 100 k AIR minimum |
| | | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★ | Must be protected by an upstream disconnection means with Class R (600 A Max.); Class J (600 A Max); Class T6 (800 A Max.); Class T3 (1200 A Max.) or Class L (1200 A Max.). |
| | | QD (**225 A** 2P only, 70–225 A)<br>DJM (400 A, 2P or 3P, 160-400 A)▼<br>QD (**225 A** 3P only, 70–225 A)♦ | Must be protected by an upstream disconnection means with Class R (600 A Max.); Class J (600 A Max); Class T6 (800 A Max.); Class T3 (1200 A Max.) or Class L (1200 A Max.) fuses or by a Square D circuit breaker Type MJ (800 A Max.); PJ (1200 A Max.); or RJ (2000 A Max.) rated 100 k AIR minimum. |
| | **EZ Meter-Pak—Main Circuit Breaker Applications—See Figure 3** | | |
| | 10 kA | QO (**125 A**, 2P, 40–125 A)<br>QO (**225 A**, 2P, 40–125 A)★<br>QB (**225 A** 2P or 3P, 70–225 A) | 400-2000 A EZM Main Device with Type LH (400 A Max.); MH (1000 A Max.); PG or PJ (1200 A Max.); RG or RJ (2000 A Max.) |
| | 65 kA | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>QD (**225 A** 2P or 3P, 70–225 A)<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | |
|  Figure 3 | 100 kA | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>QD (**225 A** 2P only, 70–225 A)<br>QD (**225 A** 3P only, 70–225 A)♦<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | 1000 A Main Device with catalog number suffix "CBU" supplied with Type MHF circuit breaker. |
| | | QD (**225 A** 2P only, 70–225 A)<br>QD (**225 A** 3P only, 70–225 A)♦<br>DJM (**400 A** 2P or 3P, 160–400 A)▼ | 1200–2000 A EZM Main Device with Type PJ (1200 A Max.) or RJ (2000 A Max.) |
| | **EZ Meter-Pak—Main Fusible Switch Applications—See Figure 3** | | |
| | 10 kA | QO (**125 A**, 2P, 40–125 A)<br>QO (**225 A**, 2P, 40–125 A)★<br>QB (**225 A** 2P or 3P, 70–225 A) | 400–1200 A EZM Main Device (1Ø or 3Ø) with Class T (300 Vac) fuses installed. |
| | 100 kA | QO-VH (**125 A**, 2P, 40–125 A)<br>QO-VH (**225 A**, 2P, 40–60 A)★<br>QD (**225 A** 2P, only, 70–225 A)<br>QD (**225 A** 3P only, 70–225 A)♦<br>DJM (**400 A**, 2P or 3P, 160–400 A)▼ | 400–1200 A EZM Main Device (1Ø or 3Ø) with Class T (300 Vac) fuses installed. |

▲ Meter center short circuit current rating is equal to the lowest short circuit current rating given in table for any circuit breaker installed in any meter panelboard in the meter center.
■ Short circuit current rating is measured at the LINE SIDE terminals of the integral mounted or remote mounted main providing overcurrent protection for the EZM metering equipment lineup.
♦ 3P only tenant circuit breaker(s) are limited to: 100 kA Max. at 208Y/120 Vac or 65 kA Max at 240/120 Vac.
★ Requires use of EZM125QOA adapter (order separately). Refer to page 2-15 for pricing.
▼ Supplied with factory-installed circuit breaker(s), with an adjustable trip range of 160–400 A.
△ For three-tier series ratings refer to Data Bulletin 4100DB0301 and Instruction Bulletin 80043-303-22.



© 2012 Schneider Electric
All Rights Reserved

## 1Ø 3W 120/240 Vac EZ Meter-Pak Meter Centers—1Ø, Indoor/Rainproof, UL Listed

## 1200 A Main CB/Fusible Switch Devices come Standard with 2-STEP Removable Service Entrance Endwalls



EZM1800CB



EZM1800CBU

Select EZM meter center short circuit current rating from Table 2.12 on page 2-9. Using this table as a reference, make the following selections:

1. Select EZM 1Ø main device from Table 2.13 or 2.14, below, with an equal or higher short circuit rating than the application.
2. Select EZM 1Ø branch units from Tables 2.15, 2.16 or 2.17.
3. Select proper 2P type QO, QO-VH, QOH, QBP-TM, QDP-TM, QGP-TM or QJP-TM branch circuit breakers for use as tenant mains in branch unit from Table 2.24, page 2-15.
4. Select accessories as required from Table 2.25, page 2-15.
5. Dimensions; page 2-16.

## Select Main Devices—NEMA 3R Construction

### Table 2.13: Main Devices, Overhead/Underground Feed

| Ampere Rating | Horizontal Cross Bus Rating and Bus Bar Material | Cat. No.△ | | | | Width (in.) | Factory-Installed Line Side Lug (Conductors per Phase and Neutral) Wire Size (AWG/kcmil) |
|---|---|---|---|---|---|---|---|
| **Main Circuit Breaker (1Ø Incoming and 1Ø Outgoing)** | | | | | | | |
| | | 65 kA | $ Price | 100kA | $ Price | | |
| 400 | 400 A Al | EZM1400CB▲ | **6180.00** | — | — | 18.66 | (1) 1–600 or (2) 1–250 |
| 600 | 600 A Al | EZM1600CB▲ | **8573.00** | — | — | 18.66 | (3) 3/0–500 |
| 800 | 800 A Al | EZM1800CB▲ | **11364.00** | — | — | 18.66 | (3) 3/0–500 |
| 1000 | 1000 A Al | EZM11000CB▲ | **15767.00** | — | — | 18.66 | (3) 3/0–500 |
| 1200 | 1200 A Cu | EZM11200GCBT■▽ | **20366.00** | EZM11200JCBT■▽ | **23563.00** | 23.69 | (4) 3/0-500 |
| 1600 | 1200 A Al/Cu | EZM11600GCBC♦■ | **29904.00** | EZM11600JCBC♦■ | **34650.00** | 30.19 | (6) 1/0–750 or (12) 1/0–250 |
| 2000 | 1200 A Al/Cu | — | — | EZM12000CB♦ | **54518.00** | 30.19 | (6) 1/0–750 or (12) 1/0–250 |
| **Main Fusible Switches (1Ø Incoming and 1Ø Outgoing) Requires 300 Vac Class T Fuses (Order Separately)** | | | | | | | |
| 400 | 400 A Al | — | — | EZM1400FS | **3989.00** | 18.66 | (1) 1–600 or (2) 1–250 |
| 600 | 600 A Al | — | — | EZM1600FS | **6978.00** | 18.66 | (3) 3/0–500 |
| 800 | 800 A Al | — | — | EZM1800FS | **8972.00** | 18.66 | (3) 3/0–500 |
| 1200 | 1200 A Cu | — | — | EZM11200FST▽ | **11564.00** | 23.69 | (4) 3/0-500 |
| **Main Lug Terminal Boxes (1Ø Incoming and 1Ø Outgoing)** | | | | | | | |
| 225 | 800 A Al | — | — | EZM1225TB★ | **798.00** | 11.66 | (1) 4–300 |
| 400 | 800 A Al | — | — | EZM1400TB□ | **915.00** | 17.15 | (2) 3/0–500 |
| 600 | 800 A Al | — | — | EZM1600TB□ | **998.00** | 17.15 | (2) 1/0–750 or (4) 1/0–300 |
| 800 | 800 A Al | — | — | EZM1800TB□ | **1236.00** | 18.66 | (4) 3/0–500 |
| 800 | 800 A Cu | — | — | EZM1800TBCU◊□ | **1658.00** | 24.08 | (4) 3/0–500 |
| 1600 | 1200 A Al/Cu | — | — | EZM11600TB♦◊□ | **3588.00** | 22.48 | (6) 1/0-750 or (12) 1/0-300 |
| 2000 | 1200 A Cu | — | — | EZM12000TB□ | **9600.00** | 30.19 | 6 (Order Lugs Separately) |

### Table 2.14: Main Devices, Underground Feed Only

| Ampere Rating | Horizontal Cross Bus Rating and Bus Bar Material | Cat. No. | | | | Width (in.) | Factory-Installed Lug Landings for use with Crimp-Type Lugs (2-Hole Mounting) Qty. per Phase and Neutral, except non-EUSERC 1200A device. ▼ |
|---|---|---|---|---|---|---|---|
| **Main Circuit Breakers (1Ø Incoming and 1Ø Outgoing)▼** | | | | | | | |
| | | 65 kA | $ Price | 100 kA | $ Price | | |
| 400 | 400 A Al | EZM1400CBU▲ | **6380.00** | — | — | 20.46 | 1 (Order Lugs Separately) |
| 600 | 600 A Al | EZM1600CBU▲ | **9171.00** | — | — | 26.19 | 2 (Order Lugs Separately) |
| 800 | 800 A Al | EZM1800CBU▲ | **11762.00** | — | — | 26.19 | 2 (Order Lugs Separately) |
| 1000 | 1000 A Al/Cu | — | — | EZM11000CBU♦ | **16547.00** | 34.19 | 3 (Order Lugs Separately) |
| 1200 | 1200 A Cu | EZM11200GCBU☆△■ | **17590.00** | EZM11200JCBU☆△■ | **20372.00** | 23.69 | (4) 3/0-500 |
| 1200 | 1200 A Cu | EZM11200GCBE■ | **18550.00** | EZM11200JCBE■ | **21332.00** | 32.39 | 3 (Order Lugs Separately) |
| 1600 | 1200 A Al/Cu | EZM11600GCBU♦△■ | **31658.00** | EZM11600JCBU♦△■ | **36404.00** | 30.19 | 6 (Order Lugs Separately) |
| 2000 | 1200 A Al/Cu | — | — | EZM12000CBU△♦ | **52755.00** | 30.19 | 6 (Order Lugs Separately) |
| **Main Fusible Switches (1Ø Incoming and 1Ø Outgoing)▼ Requires 300 Vac Class T Fuses (Order Separately)** | | | | | | | |
| 400 | 400 A Al | — | — | EZM1400FSU | **6180.00** | 20.46 | 1 (Order Lugs Separately) |
| 600 | 600 A Al | — | — | EZM1600FSU | **9369.00** | 20.46 | 2 (Order Lugs Separately) |
| 800 | 800 A Al | — | — | EZM1800FSU | **11564.00** | 20.46 | 2 (Order Lugs Separately) |
| 1200 | 1200 A Cu | — | — | EZM11200FSB☆ | **13194.00** | 23.69 | (4) 3/0-500 |
| 1200 | 1200 A Cu | — | — | EZM11200FSE | **14154.00** | 32.39 | 3 (Order Lugs Separately) |
| **Main Lug Terminal Boxes (1Ø Incoming and 1Ø Outgoing)** | | | | | | | |
| 400 | 800 A Al | — | — | EZM1400TBU□ | **1544.00** | 17.16 | 1 (Order Lugs Separately) |
| 800 | 800 A Al | — | — | EZM1800TBU□ | **1827.00** | 25.16 | 2 (Order Lugs Separately) |
| 1200 | 1200 A Al/Cu | — | — | EZM11200TBU□ | **3725.00** | 33.16 | 3 (Order Lugs Separately) |

▲ Available by special order with main circuit breaker supplied with other standard ampere ratings, consult local Field Office (allow 6 weeks for delivery).
■ Ampere rating of the circuit breaker supplied with this device can be changed to a LOWER value in the field by changing the setting on the circuit breaker.
♦ Supplied with copper horizontal bus bars and aluminum vertical bus bars.
★ 225 A terminal box supplied with isolated neutral that cannot be bonded Not suitable for use on the LINE side of service equipment.
▼ For mechanical lugs (3/0 AWG–600 kcmil) order kit CMELK4, Price $91.00. Kit includes 4 lugs only. Multiple kits may be required, consult factory. For crimp-type lugs refer to Anderson Electrical Connector Products Catalog AEC-40R.
△ Does not meet EUSERC Standards.
□ Terminal box is suitable for use on LINE or LOAD side of service equipment. Supplied with isolated neutral and provided with neutral bonding kit for use as required. Refer to page 2-9 for appropriate short circuit current ratings.
◊ Feed-thru lug kit available, see Accessories, page 2-15.
☆ For field installed Lug Landing Kit Order catalog number EZM1200ULL, List Price $460.00, order lugs separately.
▽ Top feed only.





© 2011 Schneider Electric
All Rights Reserved

## Branch Devices—NEMA 3R Construction



EZMH114125

### Table 2.15: Branch Units—1Ø Incoming and 1Ø Outgoing

| System Type | Width (in.) | Number of Meter Sockets | Horizontal Cross Bus Rating and Bus Bar Material | Ring Type 4-Jaw Meter Socketm without Bypass▲ | | Ringless Type 5-Jaw Meter Socket without Bypass | | Ringless Type 5-Jaw Meter Socket with Horn Bypass | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **125 A Maximum (Order Type QO, QO-VH or QOH Circuit Breakers Separately) ■** | | | | | | | | | |
| 1Ø3W 120/240 Vac 2P Branch Circuit Breakers | 12.25 | 3 | 800 A Al | EZM113125♦ | **1436.00** | EZMR113125♦ | **1436.00** | EZMH113125♦ | **1755.00** |
| | | | 1200 A Cu | EZM113125CUX | **2282.00** | EZMR113125CUX | **2282.00** | EZMH113125CUX | **2282.00** |
| | | 4 | 800 A Al | EZM114125♦ | **1914.00** | EZMR114125♦ | **1914.00** | EZMH114125♦ | **2153.00** |
| | | | 1200 A Cu | EZM114125CUX | **3043.00** | EZMR114125CUX | **3043.00** | EZMH114125CUX | **3043.00** |
| | | 5 | 800 A Al | EZM115125♦ | **2354.00** | EZMR115125♦ | **2354.00** | EZMH115125♦ | **2910.00** |
| | | | 1200 A Cu | EZM115125CUX | **3742.00** | EZMR115125CUX | **3742.00** | EZMH115125CUX | **3742.00** |
| | | 6 | 800 A Al | EZM116125♦ | **2792.00** | EZMR116125♦ | **2792.00** | EZMH116125♦ | **3549.00** |
| | | | 1200 A Cu | EZM116125CUX | **4438.00** | EZMR116125CUX | **4438.00** | EZMH116125CUX | **4438.00** |
| **225 A Maximum Branch Units (Order Type QBP-TM, QDP-TM, QGP-TM or QJP-TM Circuit Breakers Separately) ★** | | | | | | | | | |
| 1Ø3W 120/240 Vac 2P Branch Circuit Breakers | 17.38 | 2 | 800 A Al | EZM112225♦ | **2273.00** | EZMR112225♦ | **2273.00** | EZMH112225♦ | **2474.00** |
| | | | 1200 A Cu | EZM112225CUX | **3615.00** | EZMR112225CUX | **3615.00** | EZMH112225CUX | **3615.00** |
| | | 3 | 800 A Al | EZM113225♦ | **2792.00** | EZMR113225♦ | **2792.00** | EZMH113225♦ | **3069.00** |
| | | | 1200 A Cu | EZM113225CUX | **4438.00** | EZMR113225CUX | **4438.00** | EZMH113225CUX | **4438.00** |
| | | 4 | 800 A Al | EZM114225♦ | **3588.00** | EZMR114225♦ | **3588.00** | EZMH114225♦ | **4028.00** |
| | | | 1200 A Cu | EZM114225CUX | **5705.00** | EZMR114225CUX | **5705.00** | EZMH114225CUX | **5705.00** |
| | | 5 | 1200 A Al/Cu | EZM115225 | **4715.00** | EZMR115225 | **4715.00** | EZMH115225 | **4715.00** |
| | | | 1200 A Cu | EZM115225CU | **7090.00** | EZMR115225CU | **7090.00** | EZMH115225CU | **7090.00** |

▲ Snap-on aluminum sealing rings supplied as standard.
■ Supplied with removable drip hood and equipped with an indoor top endwall with knockouts provided.
♦ For 1200 A main cross bus add suffix "X" to catalog number (Example: EZM314125X). Add **3% adder to list** per device. Allow 6 weeks for delivery.
★ Type QO, QO-VH and QOH branch circuit breakers (40–60 A) may be installed with use of EZM125QOA adapter kits, refer to page 2-15.



EZML113225

### Table 2.16: Branch Units—225 A Maximum Commercial (Order Type QBP-TM, QDP-TM, QGP-TM or QJP-TM Circuit Breakers Separately, see page 2-15)▼

| System Type | Number of Meter Sockets | Horizontal Cross Bus Ratingand Bus Bar Material | Ringless Type 5-Jaw Meter Socket with Lever Bypass and Jaw Release | | | Ring Type 5-Jaw Meter Socket with Test Block Bypass. Meets EUSERC Requirements | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | Width (in.) | $ Price | Cat. No. | Width (in.) | $ Price |
| 1Ø3W 120/240 Vac 2P Branch Circuit Breakers | 1 | 1200 A Al/Cu | EZML111225 | 19.44 | **2453.00** | EZMT111225△ | 22.42 | **3387.00** |
| | | 1200 A Cu | EZML111225CU | | **3901.00** | — | — | — |
| | | 1200 A Al/Cu | EZML111225D□ | | **2576.00** | — | — | — |
| | 2 | 1200 A Al/Cu | EZML112225 | 19.44 | **4466.00** | EZMT112225△ | 22.42 | **6143.00** |
| | | 1200 A Cu | EZML112225CU | | **7101.00** | — | — | — |
| | | 1200 A Al/Cu | EZML112225D□ | | **4689.00** | — | — | — |
| | 3 | 1200 A Al/Cu | EZML113225 | 19.44 | **6579.00** | EZMT113225△◊ | 22.42 | **9215.00** |
| | | 1200 A Cu | EZML113225CU | | **10461.00** | — | — | — |
| | | 1200 A Al/Cu | EZML113225D□ | | **6908.00** | — | — | — |
| | 4 | 1200 A Al/Cu | EZML114225 | 19.44 | **8813.00** | — | — | — |
| | | 1200 A Cu | EZML114225CU | | **14013.00** | — | — | — |
| | | 1200 A Al/Cu | EZML114225D□ | | **9254.00** | — | — | — |

▼ 2P Type QO (40–125 A, 10 kA max. meter center SCCR) or QO-VH and QO-H (40–60 A, 100 kA max. meter center SCCR) may be installed using EZM125QOA adapter kit, refer to page 2-15.
△ Supplied with bondable neutral, suitable for use as service equipment. Use main lugs terminal box type EZM-TBU for Six Disconnect Rule applications to feed this device. Supplied with copper horizontal bus bars and aluminum vertical bus bars.
□ Supplied with removable drip hood and equipped with an indoor top endwall with knockouts provided.
◊ Does not meet EUSERC 48 in. minImum / 75 in. maximum meter height requirements for outdoor installations. The bottom meter socket is 37 inches above ground when the device is mounted with the top meter socket at 75 inches above ground. EUSERC indoor requirements are 36 in. minimum / 75 in. maximum.



EZMT111225

### Table 2.17: Branch Units—400 A Maximum Commercial

| System Type | Number of Meter Sockets | Main Cross Bus Rating and Bus Bar Material | Ringless Type 5-Jaw Meter Socket with Lever Bypass and Jaw Release. Includes Factory-Installed 400 A Type DJM Circuit Breaker ☆▽ | | | Ringless Type K Bolt-on 4-Jaw Meter Socket with Manual Bypass. Includes Factory-Installed 400 A Type DJM Circuit Breaker ☆ | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | Width (in.) | $ Price | Cat. No. | Width (in.) | $ Price |
| 1Ø3W 120/240 Vac 2P Branch Circuit Breakers | 1 | 1200 A Cu | EZML111400 | 23.21 | **5981.00** | EZMK111400 | 27.56 | **7424.00** |
| | 2 | 1200 A Cu | EZML112400 | 23.21 | **11963.00** | EZMK112400 | 27.56 | **14531.00** |

☆ DJM circuit breaker has adjustable trip settings from 160–400 A. Use seal kit 29375, if required. DJM circuit breaker terminal lug kit 32508 factory-installed and accomodates (1) 2 AWG–500 kcmil Al or (1) 2 AWG–600 kcmil Cu per phase. Alternate lug kit 32510 for DJM circuit breaker is available, see Accessories, page 2-15. Additional field-installed DJ circuit breaker accessories are available, see page 7-35.
▽ Supplied with Class 320 lever bypass meter socket. Utilizes anti-inversion clip kit MMLRK, if required, refer to page 2-15.



© 2012 Schneider Electric
All Rights Reserved

# 3Ø4W 208Y/120 Vac or 240/120 Vac Delta EZ Meter-Pak Meter Centers—3Ø Indoor/Rainproof, UL Listed

**1200 A Main CB/Fusible Switch Devices come Standard with 2-STEP Removable Service Entrance Endwalls**

Select EZM meter center short circuit current rating from Table 2.12 on page 2-9. Using this table as a reference, make the following selections:

1. Select 3Ø EZM main device below with an equal or higher short circuit rating than the application from Tables 2.18 and 2.19.
2. Select EZM 3Ø branch units from Tables 2.20, 2.21 and 2.22.
3. Select proper 2P type QO, QO-VH, QOH, QBP-TM, QDP-TM, QGP-TM or QJP-TM or 3P QBP-TM, QDP-TM, QGP-TM or QJP-TM branch circuit breakers for use as tenant mains in branch unit; from Table 2.24.
4. Select accessories as required, from Table 2.25.
5. Dimensions, page 2-16.

## Main Devices—NEMA 3R Construction



EZM3600FS



EZM31600CB

### Table 2.18: Main Device, Overhead/Underground Feed

| Ampere Rating | Horizontal Cross Bus Rating and Bus Bar Material | Cat. No.△ | | | | Width (in.) | Factory-Installed Line Side Lug (Conductors per Phase and Neutral) Wire Size (AWG–kcmil) |
|---|---|---|---|---|---|---|---|
| **Main Circuit Breakers (3Ø Incoming and 3Ø Outgoing) 65 kA Short Circuit Current Rating (400–1600 A Max.), 100 kA Short Circuit Current Rating (2000 A Max.)** | | | | | | | |
| **Short Circuit Rating** | | **65 kA** | **$Price** | **100 kA** | **$Price** | | |
| 400 | 400 A Al | EZM3400CB▲ | **6620.00** | — | — | 18.66 | (1) 1–600 or (2) 1–250 |
| 600 | 600 A Al | EZM3600CB▲ | **10247.00** | — | — | 18.66 | (3) 3/0–500 |
| 800 | 800 A Al | EZM3800CB▲ | **13650.00** | — | — | 18.66 | (3) 3/0–500 |
| 1000 | 1000 A Al | EZM31000CB▲ | **17027.00** | — | — | 18.66 | (3) 3/0–500 |
| 1200 | 1200 A Cu | EZM31200GCBT■◒ | **23127.00** | EZM31200JCBT■◒ | **26237.00** | 23.69 | (4) 3/0-500 |
| 1600 | 1200 A Al/Cu | EZM31600GCBC♦ | **35288.00** | EZM31600JCBC♦ | **40034.00** | 30.19 | (6) 1/0–750 or (12) 1/0–250 |
| 2000 | 1200 A Al/Cu | — | — | EZM32000CB♦ | **57518.00** | 30.19 | (6) 1/0–750 or (12) 1/0–250 |
| **Main Fusible Switches (3Ø Incoming and 3Ø Outgoing) Requires 300 Vac Class T Fuses (Order Separately)** | | | | | | | |
| 400 | 400 A Al | — | — | EZM3400FS | **4466.00** | 18.66 | (1) 1–600 or (2 )1–250 |
| 600 | 600 A Al | — | — | EZM3600FS | **8373.00** | 18.66 | (3) 3/0–500 |
| 800 | 800 A Al | — | — | EZM3800FS | **11565.00** | 18.66 | (3) 3/0–500 |
| 1200 | 1200 A Cu | — | — | EZM31200FST◒ | **14906.00** | 23.69 | (4) 3/0-500 |
| **Main Lug Terminal Boxes (3Ø Incoming and 3Ø Outgoing)** | | | | | | | |
| 225 | 800 A Al | — | — | EZM3225TB★ | **1013.00** | 11.66 | (1) 4–300 |
| 400 | 800 A Al | — | — | EZM3400TB□ | **1113.00** | 17.15 | (2) 3/0–500 |
| 600 | 800 A Al | — | — | EZM3600TB□ | **1196.00** | 17.15 | (2) 1/0–750 or (4) 1/0–300 |
| 800 | 800 A Al | — | — | EZM3800TB□ | **1442.00** | 18.66 | (4) 3/0–500 |
| 800 | 800 A Cu | — | — | EZM3800TBCU◊□ | **3545.00** | 24.08 | (4) 3/0–500 |
| 1600 | 1200 A Al/Cu | — | — | EZM31600TB♦◊□ | **4028.00** | 22.48 | (6) 1/0-750 or (12) 1/0-300 |
| 2000 | 1200 A Cu | — | — | EZM32000TB□ | **11820.00** | 30.19 | 6 (Order Lugs Separately) |

### Table 2.19: Main Device, Underground Feed Only

| Ampere Rating | Horizontal Cross Bus Rating and Bus Bar Material | Cat. No. | | | | Width (in.) | Factory-Installed Lug Landings For use with Crimp-Type Lugs (2-Hole Mounting) Qty. per Phase and Neutral, except non-EUSERC 1200A device.▼ |
|---|---|---|---|---|---|---|---|
| **Main Circuit Breakers (3Ø Incoming and 3Ø Outgoing)** | | | | | | | |
| **Short Circuit Rating** | | **65 kA** | **$ Price** | **100 kA** | **$Price** | | |
| 400 | 400 A Al | EZM3400CBU▲ | **7178.00** | — | — | 20.46 | 1 (Order Lugs Separately) |
| 600 | 600 A Al | EZM3600CBU▲ | **10806.00** | — | — | 26.19 | 2 (Order Lugs Separately) |
| 800 | 800 A Al | EZM3800CBU▲ | **14115.00** | — | — | 26.19 | 2 (Order Lugs Separately) |
| 1000 | 1000 A Al/Cu | — | — | EZM31000CBU♦ | **17943.00** | 34.19 | 3 (Order Lugs Separately) |
| 1200 | 1200 A Cu | EZM31200GCBU☆△■ | **20609.00** | EZM31200JCBU☆△■ | **23363.00** | 23.69 | (4) 3/0-500 |
| 1200 | 1200 A Cu | EZM31200GCBE■ | **21569.00** | EZM31200JCBE■ | **24323.00** | 32.39 | 3 (Order Lugs Separately) |
| 1600 | 1200 A Al/Cu | EZM31600GCBU♦△■ | **37170.00** | EZM31600JCBU♦△■ | **41916.00** | 30.19 | 6 (Order Lugs Separately) |
| 2000 | 1200 A Al/Cu | — | — | EZM32000CBU♦△ | **57255.00** | 30.19 | 6 (Order Lugs Separately) |
| **Main Fusible Switches (3Ø Incoming and 3Ø Outgoing) Requires 300 Vac Class T Fuses (Order Separately)** | | | | | | | |
| 400 | 400 A Al | — | — | EZM3400FSU | **6978.00** | 20.46 | 1 (Order Lugs Separately) |
| 600 | 600 A Al | — | — | EZM3600FSU | **11364.00** | 26.19 | 2 (Order Lugs Separately) |
| 800 | 800 A Al | — | — | EZM3800FSU | **15152.00** | 26.19 | 2 (Order Lugs Separately) |
| 1200 | 1200A Cu | — | — | EZM31200FSB☆△ | **17586.00** | 23.69 | 3 (Order Lugs Separately) |
| 1200 | 1200A Cu | — | — | EZM31200FSE | **18546.00** | 32.39 | 3 (Order Lugs Separately) |
| **Main Lugs Terminal Boxes (3Ø Incoming and 3Ø Outgoing)** | | | | | | | |
| 400 | 400 A Al | — | — | EZM3400TBU□ | **1838.00** | 17.16 | 1 (Order Lugs Separately) |
| 800 | 800 A Al | — | — | EZM3800TBU□ | **2100.00** | 25.16 | 2 (Order Lugs Separately) |
| 1200 | 1200 A Cu | — | — | EZM31200TBU□ | **4463.00** | 33.16 | 3 (Order Lugs Separately) |

▲ Available by special order with main circuit breaker supplied with other standard ampere ratings, consult your nearest Field Sales Office (allow 6 weeks for delivery).
■ Ampere rating of the circuit breaker supplied with this device can be changed to a LOWER value in the field by changing the setting on the circuit breaker.
♦ Supplied with copper horizontal bus bars and aluminum vertical bus bars.
★ 225 A terminal box supplied with isolated neutral that cannot be bonded.
▼ For mechanical lugs (3/0 AWG–600 kcmil) order kit CMELK4, Price **$91.00**. Kit includes 4 lugs only. Multiple kits may be required, consult factory. For crimp-type lugs refer to Anderson Electrical Connector Products Catalog AEC-40R.
△ Does not meet EUSERC requirements.
□ Terminal box is suitable for use on LINE or LOAD side of service equipment. Supplied with isolated neutral and provided with neutral bonding kit for use as required. Refer to page 2-9 for appropriate short circuit current ratings.
◊ Feed-thru lug kit available, see Accessories, page 2-15.
☆ For field installed Lug Landing Kit order catalog number EZM1200ULL, List Price $460.00, order lugs separately.
▽ Does not meet EUSERC requirements.
◒ Top feed only.





© 2012 Schneider Electric
All Rights Reserved

## Branch Devices—NEMA 3R Construction



EZML313225



EZMT311225



EZMT311225
Without Cover

### Table 2.20: Branch Units—3Ø Incoming and 1Ø Outgoing

| System Type | Width (in.) | Number of Meter Sockets | Horizontal Cross Bus Rating▲ and Bus Bar Material | Ring Type 5-Jaw Meter Socket without Bypass■ | | Ringless Type 5-Jaw Meter Socket without Bypass | | Ringless Type 5-Jaw Meter Socket with Horn Bypass | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **125 A Maximum (Order Type QO, QO-VH or QOH Circuit Breakers Separately)♦★** | | | | | | | | | |
| 3Ø4W 208Y/120 Vac 5-Jaw-Meter Socket 2P Branch Circuit Breakers | 12.25 | 3 | 800 A Al | EZM313125▲ | **1554.00** | EZMR313125▲ | **1554.00** | EZMH313125▲ | **1875.00** |
| | | | 800 A Cu | EZM313125M10▼ | **4253.00** | — | — | — | — |
| | | | 1200 A Cu | EZM313125CUX | **2473.00** | EZMR313125CUX | **2473.00** | EZMH313125CUX | **2980.00** |
| | | 4 | 800 A Al | EZM314125▲ | **2034.00** | EZMR314125▲ | **2039.00** | EZMH314125▲ | **2474.00** |
| | | | 800 A Cu | EZM314125M10▼ | **5670.00** | — | — | — | — |
| | | | 1200 A Cu | EZM314125CUX | **3234.00** | EZMR314125CUX | **3234.00** | EZMH314125CUX | **3933.00** |
| | | 5 | 800 A Al | EZM315125▲ | **2592.00** | EZMR315125▲ | **2592.00** | EZMH315125▲ | **3111.00** |
| | | | 800 A Cu | EZM315125M10▼ | **7088.00** | — | — | — | — |
| | | | 1200 A Cu | EZM315125CUX | **4121.00** | EZMR315125CUX | **4121.00** | EZMH315125CUX | **4947.00** |
| | | 6 | 800 A Al | EZM316125▲ | **2991.00** | EZMR316125▲ | **2991.00** | EZMH316125▲ | **3788.00** |
| | | | 1200 A Cu | EZM316125CUX | **4756.00** | EZMR316125CUX | **4756.00** | EZMH316125CUX | **6023.00** |
| **225 A Maximum (Order Type QBP-TM, QDP-TM,QGP-TM or QJP-TM Circuit Breakers Separately)♦△** | | | | | | | | | |
| 3Ø4W 208Y/120 Vac 5-Jaw-Meter Socket 2P Branch Circuit Breakers | 17.38 | 2 | 800 A Al | EZM312225▲ | **2273.00** | EZMR312225▲ | **2273.00** | EZMH312225▲ | **2474.00** |
| | | | 1200 A Cu | EZM312225CUX | **3615.00** | EZMR312225CUX | **3615.00** | EZMH312225CUX | **2473.00** |
| | | 3 | 800 A Al | EZM313225▲ | **2792.00** | EZMR313225▲ | **2792.00** | EZMH313225▲ | **3111.00** |
| | | | 1200 A Cu | EZM313225CUX | **4438.00** | EZMR313225CUX | **4438.00** | EZMH313225CUX | **4947.00** |
| | | 4 | 800 A Al | EZM314225▲ | **3749.00** | EZMR314225▲ | **3749.00** | EZMH314225▲ | **4148.00** |
| | | | 1200 A Cu | EZM314225CUX | **5961.00** | EZMR314225CUX | **5961.00** | EZMH314225CUX | **6595.00** |
| | | 5 | 1200 A Al/Cu | EZM315225 | **4920.00** | EZMR315225 | **5457.00** | EZMH315225 | **5718.00** |
| | | | 1200 A Cu | EZM315225CU | **7409.00** | EZMR315225CU | **7409.00** | EZMH315225CU | **8154.00** |

▲ For 1200 A main cross bus, add suffix "X" to catalog number. Example: EZMR313125X. Add **3% adder to list** per device. Allow 6 weeks for delivery.
■ Snap-On aluminum sealing rings supplied as standard.
♦ For 240/120 Vac Delta Systems add Suffix "CA" to catalog number (Example: EZM314125**CA**). All meter sockets are phased A and C only. Price remains the same as the base catalog number. Order only branch units, not stocked in PDS (6-week delivery).
★ Supplied with removable drip hood and equipped with an indoor top endwall with knockouts provided.
▼ Distance between meter sockets as measured from centerline to centerline is 10 inches.
△ 2P Type QO (40–125 A, 10 kA max. meter center SCCR) or QO-VH and QO-H (40–60 A, 100 kA max. meter center SCCR) may be installed using EZM125QOA adapter kit, refer to page 2-15.

### Table 2.21: Branch Units—225 A Maximum Commercial

| System Type | Number of Meter Sockets | Horizontal Cross Bus Rating and Bus Bar Material | Ringless Type Meter Socket without Bypass | | | Ringless Type Meter Socket with Lever Bypass and Jaw Release | | | Ring Type Meter Socket with Test Block Bypass. Meets EUSERC Requirements | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | Width (in.) | $ Price | Cat. No. | Width (in.) | $ Price | Cat. No. | Width (in.) | $ Price |
| **3Ø Incoming and 1Ø Outgoing □ (Order Type QBP-TM, QDP-TM,QGP-TM or QJP-TM circuit breakers separately) ◊** | | | | | | | | | | | |
| 3Ø4W 208Y/120 Vac 5-Jaw Meter Sockets 2P Branch Circuit Breakers | 1 | 1200 A Al/Cu | — | — | — | — | — | — | EZMT311225☆ | 22.42 | **3545.00** |
| | 2 | 1200 A Al/Cu | — | — | — | EZML312225 | | **4266.00** | EZMT312225☆ | 22.42 | **6695.00** |
| | | 1200 A Cu | — | — | — | EZML312225CU | 19.44 | **6785.00** | — | — | — |
| | | 1200 A Al/Cu | — | — | — | EZML312225D▽ | | **4479.00** | — | — | — |
| | 3 | 1200 A Al/Cu | — | — | — | EZML313225 | | **6420.00** | EZMT313225☆◒ | 22.42 | **10041.00** |
| | | 1200 A Cu | — | — | — | EZML313225CU | 19.44 | **10208.00** | — | — | — |
| | | 1200 A Al/Cu | — | — | — | EZML313225D▽ | | **6741.00** | — | — | — |
| | 4 | 1200 A Al/Cu | — | — | — | EZML314225 | | **8732.00** | — | | — |
| | | 1200 A Cu | — | — | — | EZML314225CU | 19.44 | **13884.00** | — | — | — |
| | | 1200 A Al/Cu | — | — | — | EZML314225D▽ | | **9168.00** | — | | — |
| **3Ø Incoming and 3Ø Outgoing (Order QBP-TM, QDP-TM, QGP-TM or QJP-TM circuit breakers separately, see page 2-15)** | | | | | | | | | | | |
| 3Ø4W 240/120 Vac Delta or 208Y/120 Vac 7-Jaw Meter Socket 3P Branch Circuit Breakers | 1 | 1200 A Al/Cu | — | — | — | EZML331225 | | **2792.00** | EZMT331225☆ | 22.42 | **3938.00** |
| | | 1200 A Cu | — | — | — | EZML331225CU | 19.44 | **4438.00** | — | — | — |
| | | 1200 A Al/Cu | — | — | — | EZML331225D▽ | | **2931.00** | — | — | — |
| | 2 | 1200 A Al/Cu | EZMR332225 | | **4686.00** | EZML332225 | | **5105.00** | EZMT332225☆ | 22.42 | **6957.00** |
| | | 1200 A Cu | EZMR332225CU | 19.44 | **7451.00** | EZML332225CU | 19.44 | **8117.00** | — | — | — |
| | | 1200 A Al/Cu | — | | — | EZML332225D▽ | | **5360.00** | — | — | — |
| | 3 | 1200 A Al/Cu | EZMR333225 | | **7337.00** | EZML333225 | | **7794.00** | EZMT333225☆◒ | 22.42 | **10304.00** |
| | | 1200 A Cu | EZMR333225CU | 19.44 | **11664.00** | EZML333225CU | 19.44 | **12395.00** | — | — | — |
| | | 1200 A Al/Cu | — | | — | EZML333225D▽ | | **8184.00** | — | — | — |
| | 4 | 1200 A Al/Cu | EZMR334225 | | **10169.00** | EZML334225 | | **10667.00** | — | | — |
| | | 1200 A Cu | EZMR334225CU | 19.44 | **16167.00** | EZML334225CU | 19.44 | **16959.00** | — | — | — |
| | | 1200 A Al/Cu | — | | — | EZML334225D▽ | | **11214.00** | — | | — |

□ For 240/120 Vac Delta Systems add Suffix "CA" to catalog number (Example: EZM314125**CA**). All meter sockets are phased A and C only. Price remains the same as the base catalog number. Order only branch units, not stocked in PDS (6-week delivery).
◊ 2P Type QO (40–125 A, 10 kA max. meter center SCCR) or QO-VH and QO-H (40–60 A, 100 kA max. meter center SCCR) may be installed using EZM125QOA adapter kit, refer to page 2-15.
☆ Supplied with bondable neutral, suitable for use as service equipment. Use main lugs terminal box type EZM-TBU for Six Disconnect Rule applications to feed this device. Supplied with copper horizontal bus bars and aluminum vertical bus bars.
▽ Supplied with removable drip hood and equipped with an indoor top endwall with knockouts provided.
◒ Does not meet EUSERC 48 in. minImum / 75 in. maximum meter height requirements for outdoor installations. The bottom meter socket is 37 inches above ground when the device is mounted with the top meter socket at 75 inches above ground. EUSERC indoor requirements are 36 in. minimum / 75 in. maximum.

400 A maximum Commercial Branch Units . . . . . Page 2-14.



© 2012 Schneider Electric
All Rights Reserved

## Branch Devices—NEMA 3R Construction (Continued)



EZMK311400

### Table 2.22: Branch Units—400 A Maximum Commercial

| System Type | Number of Meter Sockets | Horizontal Cross Bus Rating | Ringless Type Meter Socket with Lever Bypass and Jaw Release—IncludesFactory-Installed 400 A Type DJM Circuit Breaker. ▲■ | | | Ringless Type K Bolt-on Meter Socket with Manual Bypass—Includes Factory-Installed 400 A Type DJM Circuit Breaker. ▲ | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | Width (in.) | $ Price | Cat. No. | Width (in.) | $ Price |
| **3Ø Incoming and 1Ø Outgoing ♦** | | | | | | | | |
| 3Ø4W 208Y/120 Vac 5-Jaw Meter Socket 2P Branch Circuit Breakers | 1 | 1200 A Cu | EZML311400 | 23.21 | **5981.00** | EZMK311400 | 27.56 | **8924.00** |
| | 2 | 1200 A Cu | EZML312400 | 23.21 | **11963.00** | EZMK312400 | 27.56 | **17534.00** |
| **3Ø Incoming and 3Ø Outgoing** | | | | | | | | |
| 3Ø4W 240/120 Vac Delta or 208Y/120 Vac 7-Jaw Meter Socket 3P Branch Circuit Breakers | 1 | 1200 A Cu | EZML331400 | 23.21 | **6978.00** | EZMK331400 | 27.56 | **10515.00** |
| | 2 | 1200 A Cu | EZML332400 | 23.21 | **13956.00** | EZMK332400 | 27.56 | **20715.00** |

▲ DJM circuit breaker has adjustable trip settings from 160–400 A. If required, order seal kit, catalog number 29375. DJM circuit breaker terminal lug kit 32508 factory-installed and accomodates (1) 2 AWG–500 kcmil Al or (1) 2 AWG–600 kcmil Cu per phase. Alternate lug kit 32510 for DJM circuit breaker is available, see Accessories, page 2-15. Additional field-installed DB circuit breaker accessories are available, see page 7-35.
■ Supplied with Class 320 lever bypass meter socket. Use anti-inversion clip kit, catalog number MMLRK, if required. Order from page 2-15.
♦ For 240/120 Vac Delta Systems add Suffix "CA" to catalog number (Example: EZML312400**CA**). All meter sockets are phased A and C only. Price remains the same as the base catalog number. "Order only" branch units, not stocked in PDS (4–6 week delivery). Order point Lexington.

## EZM Main with Busway Tap

EZ Meter-Pak metering equipment is available for use in high rise applications for connection to 800–5000 A I-Line™ or I-Line II plug-in busway installed as a vertical riser. Three phase only EZM main devices in the form of a main circuit breaker or main fusible switch are available with an integral busway tap extending from the right or left side of the main device and phased to align with the busway for either neutral front or neutral back installations.

### Busway Mains, 3Ø only (Indoor only) ordering instructions:

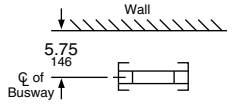
Step 1: Determine height to center line of busway plug-in opening, check local utility requirements for minimum and maximum meter socket heights.

Step 2: Determine side of EZM main section for busway tap to extend from (busway tap is an integral part of the main and extends to the left or right on the EZM device as viewed from the front).

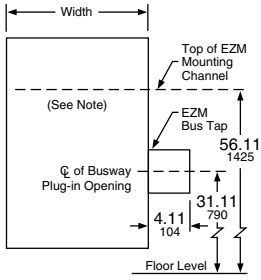
Step 3: Check phasing of busway riser to insure that it matches phasing of busway tap on main section (indicated as neutral front or neutral back as viewed from the front).

Step 4: Select Cat. No. from tables below.

Step 5: Busway main devices are build to order specials and require 4 to 6 weeks for delivery (order point Lexington).



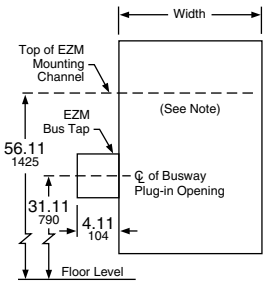

**Plan View Detail**




**EZM3800CBNFBTR**

### Table 2.23: 1200 A EZM Mains with Busway Tap (Three Phase Only—Note positioning left or right below)

| Ampere Rating | Width (in.) | Horizontal Cross Bus Rating | Main Circuit Breaker with Busway Tap ★ | | | Main Fusible Switch with Busway Tap ▼ | | |
|---|---|---|---|---|---|---|---|---|
| | | | Neutral Front | Neutral Back | $ Price | Neutral Front | Neutral Back | $ Price |
| **Busway to Right of metering equipment lineup** | | | | | | | | |
| 400 | 18.66 | 400 A Al | EZM3400CBNFBTR | EZM3400CBNBBTR | **8886.00** | EZM3400FSNFBTR | EZM3400FSNBBTR | **6732.00** |
| 600 | 18.66 | 600 A Al | EZM3600CBNFBTR | EZM3600CBNBBTR | **12513.00** | EZM3600FSNFBTR | EZM3600FSNBBTR | **10640.00** |
| 800 | 18.66 | 800 A Al | EZM3800CBNFBTR | EZM3800CBNBBTR | **15744.00** | EZM3800FSNFBTR | EZM3800FSNBBTR | **13830.00** |
| 1000 | 18.66 | 1000 A Al | EZM31000CBNFBTR□ | EZM31000CBNBBTR□ | **19292.00** | — | — | — |
| **Busway to Left of metering equipment lineup** | | | | | | | | |
| 400 | 18.66 | 400 A Al | EZM3400CBNFBTL | EZM3400CBNBBTL | **8886.00** | EZM3400FSNFBTL | EZM3400FSNBBTL | **6732.00** |
| 600 | 18.66 | 600 A Al | EZM3600CBNFBTL | EZM3600CBNBBTL | **12513.00** | EZM3600FSNFBTL | EZM3600FSNBBTL | **10640.00** |
| 800 | 18.66 | 800 A Al | EZM3800CBNFBTL | EZM3800CBNBBTL | **15744.00** | EZM3800FSNFBTL | EZM3800FSNBBTL | **13830.00** |
| 1000 | 18.66 | 1000 A Al | EZM31000CBNFBTL□ | EZM31000CBNBBTL□ | **19292.00** | — | — | — |
| **Main Circuit Breaker with Busway Tap** | | | | | | | | |
| **Busway to Right of Metering Equipment Lineup** | | | | | | | | |
| 1200 | 23.36 | 1200 A Al/Cu | EZM31200GBNFTBR△□★ | EZM31200GBNFBTR★△□ | **25394.00** | EZM31200JBNFBTR◊△□ | EZM31200JBNBBTR◊△□ | **29108.00** |
| **Busway to Left of Metering Equipment Lineup** | | | | | | | | |
| 1200 | 23.36 | 1200 A Al/Cu | EZM31200GBNFTBL△□★ | EZM31200GBNFBTL★△□ | **25394.00** | EZM31200JBNFBTL◊△□ | EZM31200JBNBBTL◊△□ | **29108.00** |
| **Main Fusible Switch with Busway Tap** | | | | | | | | |
| **Busway to Right of Metering Equipment Lineup** | | | | | | | | |
| 1200 | 23.36 | 1200 A Al/Cu | — | — | — | EZM31200FSNFBTR▼△□ | EZM31200FSNBBTR▼△□ | **23480.00** |
| **Busway to Left of Metering Equipment Lineup** | | | | | | | | |
| 1200 | 23.36 | 1200 A Al/Cu | — | — | — | EZM31200FSNFBTL▼△□ | EZM31200FSNBBTL▼△□ | **23480.00** |




**EZM3800FSNBBTL**

★ Has a maximum 65 kA short circuit current rating.
▼ Has a 100 kA short circuit current rating. Requires Class T ( 300 Vac) fuses, order separately.
△ Supplied with copper horizontal bus bars and aluminum vertical bus bars.
□ Requires use of branch units supplied with 1200 A horizontal cross bus.
◊ Has a 100 kA short circuit current rating.
Note: Dimensions shown will position the centerline of top meter socket of a 125 A, 5-Gang or 6-Gang branch unit at 72" above floor level. Check with utility to meet local requirements.


© 2012 Schneider Electric
All Rights Reserved

## Table 2.24: Tenant Circuit Breakers



QO2100VH
2P, Plug-on Type
Circuit Breaker



QDP22200TM

| Poles | Ampere Rating | 10 k AIR | | 22 k AIR | | 42 k AIR | | 100 k AIR | |
|---|---|---|---|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **125 A Max. EZM Branch Unit Tenant Circuit Breakers** | | | | | | | | | |
| 2 | 40 | QO240 | 67.00 | QO240VH | 146.00 | QOH240 | 317.00 | — | — |
| | 50 | QO250 | 67.00 | QO250VH | 146.00 | QOH250 | 317.00 | — | — |
| | 60 | QO260 | 67.00 | QO260VH | 146.00 | QOH260 | 317.00 | — | — |
| | 70 | QO270 | 134.00 | QO270VH | 224.00 | QOH270 | 528.00 | — | — |
| | 80 | QO280 | 189.00 | QO280VH | 315.00 | QOH280 | 651.00 | — | — |
| | 90 | QO290 | 189.00 | QO290VH | 315.00 | QOH290 | 651.00 | — | — |
| | 100 | QO2100 | 189.00 | QO2100VH | 315.00 | QOH2100 | 651.00 | — | — |
| | 110 | QO2110 | 428.00 | QO2110VH | 1034.00 | QOH2110 | 1389.00 | — | — |
| | 125 | QO2125 | 428.00 | QO2125VH | 1034.00 | QOH2125 | 1389.00 | — | — |
| **Poles** | **Ampere Rating** | **10 k AIR** | | **25 k AIR** | | **65 k AIR** | | **100 k AIR** | |
| **225 A Max. EZM Branch Unit Tenant Circuit Breakers** | | | | | | | | | |
| 2 | 40 | QO240▲ | 67.00 | QO240VH■▲ | 146.00 | QOH240♦▲ | 317.00 | — | — |
| | 50 | QO250▲ | 67.00 | QO250VH■▲ | 146.00 | QOH250♦▲ | 317.00 | — | — |
| | 60 | QO260▲ | 67.00 | QO260VH■▲ | 146.00 | QOH260♦▲ | 317.00 | — | — |
| | 70 | QBP22070TM | 474.00 | QDP22070TM | 1143.00 | QGP22070TM | 1521.00 | QJP22070TM | 1890.00 |
| | 80 | QBP22080TM | 474.00 | QDP22080TM | 1143.00 | QGP22080TM | 1521.00 | QJP22080TM | 1890.00 |
| | 90 | QBP22090TM | 474.00 | QDP22090TM | 1143.00 | QGP22090TM | 1521.00 | QJP22090TM | 1890.00 |
| | 100 | QBP22100TM | 474.00 | QDP22100TM | 1143.00 | QGP22100TM | 1521.00 | QJP22100TM | 1890.00 |
| | 110 | QBP22110TM | 474.00 | QDP22110TM | 1143.00 | QGP22110TM | 1521.00 | QJP22110TM | 1890.00 |
| | 125 | QBP22125TM | 474.00 | QDP22125TM | 1143.00 | QGP22125TM | 1521.00 | QJP22125TM | 1890.00 |
| | 150 | QBP22150TM | 474.00 | QDP22150TM | 1143.00 | QGP22150TM | 1521.00 | QJP22150TM | 1890.00 |
| | 175 | QBP22175TM | 474.00 | QDP22175TM | 1143.00 | QGP22175TM | 1521.00 | QJP22175TM | 1890.00 |
| | 200 | QBP22200TM | 474.00 | QDP22200TM | 1143.00 | QGP22200TM | 1521.00 | QJP22200TM | 1890.00 |
| | 225 | QBP22225TM | 474.00 | QDP22225TM | 1143.00 | QGP22225TM | 1521.00 | QJP22225TM | 1890.00 |
| 3 | 70 | QBP32070TM | 1248.00 | QDP32070TM | 1784.00 | QGP32070TM | 2442.00 | QJP32070TM★ | 2796.00 |
| | 80 | QBP32080TM | 1248.00 | QDP32080TM | 1784.00 | QGP32080TM | 2442.00 | QJP32080TM★ | 2796.00 |
| | 90 | QBP32090TM | 1248.00 | QDP32090TM | 1784.00 | QGP32090TM | 2442.00 | QJP32090TM★ | 2796.00 |
| | 100 | QBP32100TM | 1248.00 | QDP32100TM | 1784.00 | QGP32100TM | 2442.00 | QJP32100TM★ | 2796.00 |
| | 110 | QBP32110TM | 1248.00 | QDP32110TM | 1784.00 | QGP32110TM | 2442.00 | QJP32110TM★ | 2796.00 |
| | 125 | QBP32125TM | 1248.00 | QDP32125TM | 1784.00 | QGP32125TM | 2442.00 | QJP32125TM★ | 2796.00 |
| | 150 | QBP32150TM | 1248.00 | QDP32150TM | 1784.00 | QGP32150TM | 2442.00 | QJP32150TM★ | 2796.00 |
| | 175 | QBP32175TM | 1248.00 | QDP32175TM | 1784.00 | QGP32175TM | 2442.00 | QJP32175TM★ | 2796.00 |
| | 200 | QBP32200TM | 1248.00 | QDP32200TM | 1784.00 | QGP32200TM | 2442.00 | QJP32200TM★ | 2796.00 |
| | 225 | QBP32225TM | 1248.00 | QDP32225TM | 1784.00 | QGP32225TM | 2442.00 | QJP32225TM★ | 2796.00 |

▲ Must use EZM125QOA adapter.
■ QO-VH tenant circuit breaker is rated 22 k AIR max.
♦ QOH tenant circuit breaker is rated 42 k AIR max.
★ 3-pole QJP tenant circuit breaker is rated 65 k AIR max. at 240/120 Vac, 3Ø4W High Leg Delta, or 100 k AIR max. at 208Y/120 Vac, 3Ø4W.



## Accessories

### Table 2.25: Accessories

| Accessory | Description | Cat. No. | $ Price |
|---|---|---|---|
| 1200 A Bus Extension (Indoor/ Outdoor Cu bus) | 1Ø3W Bus Extension (6 in.wide)<br>1Ø3W Bus Extension (12 in.wide)<br>3Ø4W Bus Extension (6 in. wide)<br>3Ø4W Bus Extension (12 in. wide) | EZM1EXT6<br>EZM1EXT<br>EZM3EXT6<br>EZM3EXT | 767.00<br>767.00<br>966.00<br>966.00 |
| 1200 A Bussed Corner Sections (Indoor Cu bus only) | 1Ø3W Inside Corner (14.75 in. wide)<br>1Ø3W Outside Corner (6.20 in. wide)<br>3Ø4W Inside Corner (14.75 in. wide)<br>3Ø4W Outside Corner (6.20 in. wide) | EZM1CORNER<br>EZM1ELBOW<br>EZM3CORNER<br>EZM3ELBOW | 1788.00<br>1788.00<br>2217.00<br>2217.00 |
| 1200 A Transition Sections— Old to New (10.7 in. wide Cu bus) | Add right of old style 1Ø EZM lineup<br>Add right of old style 3Ø EZM lineup<br>Add left of old style 1Ø EZM lineup<br>Add left of old style 3Ø EZM lineup | EZM1TRANR<br>EZM3TRANR<br>EZM1TRANL<br>EZM3TRANL | 237.00<br>252.00<br>315.00<br>332.00 |
| Mounting Channel | 72" long | EZM72MC | 63.00 |
| Secondary Surge Arrester Mounting kit | For use with 1 or 2-SDSA1175 or 1-SDSA3650 (order surge arrester separately) | MMSAMK▼ | 80.00 |
| Stud Kit for EZM-TB 400–600 A terminal box | Includes (2) 1/2 in.-13 studs per pad and mounting hardware. Four pads per kit. | EZMSK2 | 246.00 |
| Al/Cu Lug Kits (Each kit includes three, 2-barrel lugs.) | (1) 1/0–600 kcmil or (2) 1/0–250 kcmil per lug | MMLK250 | 150.00 |
| | (2) 3/0–500 kcmil per lug | MMLK500 | 200.00 |
| | (2) 2–600 kcmil per lug | MMLK600 | 233.00 |
| Feed -Thru for EZM-TBCU 800 A Terminal Box | (4) 750 kcmil Al/Cu lugs per phase and neutral. Al wire 600 A max. Cu wire 800 A max. | EZM600FTLK3 | 480.00 |
| Feed-Thru for EZM-TB 1600 A Terminal Box | (24) additional lugs, 600 kcmil Al/Cu, (6) per phase and neutral. | EZM1600FTLK3 | 915.00 |
| Fifth jaw Kit | 1 per kit | 5J △ | 18.30 |
| Horn Bypass Kit | Use with Type EZMR 1Ø meter socket only | MMHB | 16.70 |
| Slider Type Manual Circuit Closer | For (1) 125–225 A ring-type socket only—indoor/outdoor | MM200MB□◊ | 171.00 |
| Anti-inversion Clip | Rejects 100 A and 200 A watt-hour meters in Class 320 meter sockets in Type EZML branch units. | MMLRK | 12.00 |
| QO Adapter for bolt-on Q-frame tenant circuit breakers | For 2P Type QO (40–125 A, 10 kA max. meter center SCCR) or QO-VH and QOH (40–60 A, 100 kA max. meter center SCCR) | EZM125QOA | 273.00 |
| DJM Circuit Breaker Alternate Lug (DE2) | Kit includes (3) 2-barrel lugs for (2) 2/0 AWG–350 kcmil AL/Cu or (2) 2/0 AWG–500 kcmil AL per lug. | 32510 | — |
| DJM Circuit Breaker Seal Kit | Tamper-evident kit to seal DJM trip dial cover, (1) per circuit breaker, if required. Meets NEC 240-6 [c] | 29375 | — |
| Meter Socket Closing Plates | Lexan Closing Plate—EZM, EZMR, EZMH, EZMT<br>Metal Closing plate—EZMR, EZMH, EZML | 29007<br>RSG4 | 10.10<br>122.00 |

### Table 2.25: Accessories *(continued)*

| Accessory | Description | Cat. No. | $ Price |
|---|---|---|---|
| Sealing Rings | Snap-on (Stainless Steel)<br>Screw-Type (Aluminum)<br>Latch-Type (Aluminum)-standard | ARP00026<br>29008W<br>2920910001 | 16.70<br>20.10<br>8.00 |
| Barrel Lock Kit | For use on ringless EZM or MP branch unit covers, includes 6 each of head protectors, lock nuts and sealing caps. (Barrel lock not included.) | MMBLC | 66.00 |
| Tenant Circuit Breaker Filler Plates | 125 A Branches—2P Type QO (2 per opening)<br>225 A Branches—2P and 3P Q-Frame | QOFP<br>EZMPCP | 3.60<br>26.00 |

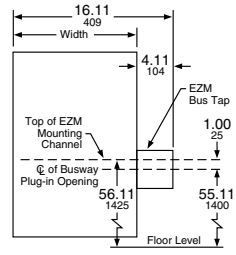
▼ Consult your nearest Schneider Electric sales office for details.
△ All sockets include 5th Jaw factory-installed except EZM11__ devices.
□ Meter center short circuit current rating is 10,000 RMS symmetrical amperes with manual circuit closers installed (bypass is not designed for use as continuous duty).
◊ For use on ring type meter sockets only.

## Busway Transition Section

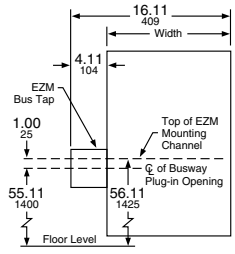
EZM busway transition section provides no overcurrent protection for the downstream EZM branch units. Tenant main circuit breakers in these branch units must be selected as "fully rated" equipment. (Examples: QO for 10 kA, QO-VH for 22 kA or QOH for 42 kA.)

### Table 2.26: EZM Busway Transition Sections (3Ø only)

| Ampere Rating | I-Line™ Busway location | Neutral Front | Neutral Back | Width (in.) | $ Price |
|---|---|---|---|---|---|
| 1200 | RIGHT of EZM Transition Section | EZM3BUSRF | EZM3BUSRB | 12.00 | 2625.00 |
| 1200 | LEFT of EZM Transition Section | EZM3BUSLF | EZM3BUSLB | 12.00 | 2625.00 |

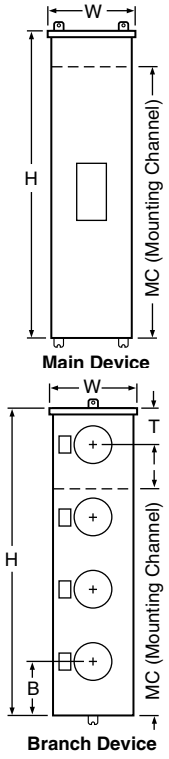



EZM3BUSRF and EZM3BUSRB




EZM3BUSLF and EZM3BUSLB

© 2012 Schneider Electric
All Rights Reserved




## Dimensions

### Table 2.27: Main Devices Dimensions (in.)

| Cat. No. | Height | Width | Depth | MC |
|---|---|---|---|---|
| EZM11000CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM11000CBU | 70.05 | 34.19 | 18.33 | 46.99 |
| EZM11200G/JCBT | 46.90 | 23.69 | 13.69 | 13.75 |
| EZM11200G/JCBE | 66.20 | 32.39 | 13.69 | 50.09 |
| EZM11200FST | 46.90 | 23.69 | 13.69 | 13.75 |
| EZM11200FSE | 66.20 | 32.39 | 13.69 | 50.09 |
| EZM11200G/JCBU | 65.30 | 23.69 | 13.69 | 49.11 |
| EZM11200FSB | 65.30 | 23.69 | 13.69 | 49.11 |
| EZM11200TBU | 44.71 | 33.16 | 11.68 | 31.17 |
| EZM11600G/JCBC | 68.70 | 30.19 | 18.33 | 38.13 |
| EZM11600G/JCBU | 68.70 | 30.19 | 18.33 | 49.12 |
| EZM11600TB | 55.09 | 22.48 | 13.00 | 27.92 |
| EZM12000CB | 68.70 | 30.19 | 18.33 | 44.25 |
| EZM12000CBU | 68.70 | 30.19 | 18.33 | 44.25 |
| EZM12000TB | 71.09 | 30.19 | 21.46 | 37.62 |
| EZM1225TB | 21.81 | 11.66 | 6.37 | 13.00 ■ |
| EZM1400CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1400CBU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1400FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1400FSU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1400TB | 30.46 | 17.15 | 7.09 | 16.29 |
| EZM1400TBU | 35.71 | 17.16 | 8.00 | 27.17 |
| EZM1600CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1600CBU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1600FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1600FSU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1600TB | 30.46 | 17.15 | 7.09 | 16.29 |
| EZM1800CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1800CBU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1800FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1800FSU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM1800TB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM1800TBCU | 51.76 | 22.48 | 7.09 | 28.01 |
| EZM1800TBU | 39.96 | 25.16 | 11.68 | 31.17 |
| EZM1EXT | 19.34 | 11.66 | 6.37 | 11.85 ■ |
| EZM1EXT6 | 19.34 | 6.00 | 6.37 | 11.85 ■ |
| EZM1CORNER (indoor only) ♦ | 19.50 | 14.40 | 8.02 | 11.85 ■ |
| EZM1ELBOW (indoor only) ▲ | 19.50 | 14.52 | 8.01 | 11.85 ■ |
| EZM31000CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM31000CBU | 70.05 | 34.19 | 18.33 | 46.99 |
| EZM31200G/JCBT | 46.90 | 23.69 | 13.69 | 13.75 |
| EZM31200G/JCBE | 66.20 | 32.39 | 13.69 | 50.09 |
| EZM31200TBU | 44.71 | 33.16 | 11.68 | 31.17 |
| EZM31200G/JCBU | 65.30 | 23.69 | 13.69 | 49.11 |
| EZM31200FSB | 65.30 | 23.69 | 13.69 | 49.11 |
| EZM31200FST | 46.90 | 23.69 | 13.69 | 13.75 |
| EZM31200FSE | 66.20 | 32.39 | 13.69 | 50.09 |
| EZM31600G/JCBC | 68.70 | 30.19 | 18.33 | 38.13 |
| EZM31600G/JCBU | 68.70 | 30.19 | 18.33 | 49.12 |
| EZM31600TB | 55.09 | 22.48 | 13.00 | 27.92 |
| EZM32000CB | 68.70 | 30.19 | 18.33 | 44.25 |
| EZM32000CBU | 68.70 | 30.19 | 18.33 | 44.25 |
| EZM32000TB | 71.09 | 30.19 | 21.46 | 37.62 |
| EZM3225TB | 21.81 | 11.66 | 6.37 | 13.00 ■ |
| EZM3400CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3400CBU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM3400FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3400FSU | 69.03 | 20.46 | 11.50 | 49.37 |
| EZM3400TB | 30.46 | 17.15 | 7.09 | 16.29 |
| EZM3400TBU | 35.71 | 17.16 | 8.00 | 27.17 |
| EZM3600CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3600CBU | 69.03 | 26.19 | 11.65 | 49.37 |
| EZM3600FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3600FSU | 69.03 | 26.19 | 11.65 | 49.37 |
| EZM3600TB | 30.46 | 17.15 | 7.09 | 16.29 |
| EZM3800CB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3800CBU | 69.03 | 26.19 | 11.65 | 49.37 |
| EZM3800FS | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3800FSU | 69.03 | 26.19 | 11.65 | 49.37 |
| EZM3800TB | 53.97 | 18.66 | 11.50 | 34.30 |
| EZM3800TBCU | 51.76 | 22.48 | 7.09 | 28.01 |
| EZM3800TBU | 39.96 | 25.16 | 11.68 | 31.17 |
| EZM3EXT | 19.34 | 11.66 | 6.37 | 11.85 ■ |
| EZM3EXT6 | 19.34 | 6.00 | 6.37 | 11.85 ■ |
| EZM3CORNER (indoor only) | 19.50 | 14.40 | 8.02 | 11.85 ■ |

▲ Each leg of elbow section measures 6.17 in. corner of wall to start of next enclosure.
■ Device supplied without mounting channel, secure to wall by use of swingable mounting feet.
♦ Each leg of this corner section measures 14.72 in. from wall to start of next enclosure.

### Table 2.28: Branch Device Dimensions (in.)★

| Cat. No. | Height | Width | Depth | MC | Top | Bottom |
|---|---|---|---|---|---|---|
| **Single Phase** | | | | | | |
| EZM112225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZM113125 [X, CUX] | 42.37 | 12.25 | 7.09 | 31.30 | 13.18 | 11.19 |
| EZM113225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZM114125 [X, CUX] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZM114225 [X, CUX] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZM115125 [X, CUX] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZM115225 [CU] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZM116125 [X, CUX] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMH112225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZMH113125 [X, CUX] | 42.37 | 12.25 | 7.09 | 31.30 | 13.18 | 11.19 |
| EZMH113225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZMH114125 [X, CUX] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMH114225 [X, CUX] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZMH115125 [X, CUX] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMH115225 [CU] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZMH116125 [X, CUX] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMK111400 | 45.55 | 27.56 | 9.74 | 37.81 | 24.51 | 21.04 |
| EZMK112400 | 72.99 | 27.56 | 9.74 | 37.81 | 22.26 | 21.04 |
| EZML111225 [CU] | 39.06 | 19.44 | 9.44 | 25.51 | 25.67 | 13.39 |
| EZML111225D | 39.06 | 19.44 | 9.44 | 25.51 | 25.67 | 13.39 |
| **Three Phase** | | | | | | |
| EZM312225 [X, CUX, CA, XCA, CUXCA] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZM313125 [X, CUX, CA, XCA, CUXCA] | 42.37 | 12.25 | 7.09 | 31.30 | 13.18 | 11.19 |
| EZM313125M10 | 42.37 | 12.25 | 7.09 | 24.29 | 10.18 | 12.19 |
| EZM313225 [X, CUX, CA, XCA, CUXCA] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZM314125 [X, CUX, CA, XCA, CUXCA] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZM314125M10 | 52.12 | 12.25 | 7.09 | 34.29 | 9.93 | 12.19 |
| EZM314225 [X, CUX, CA, XCA, CUXCA] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZM315125 [X, CUX, CA, XCA, CUXCA] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZM315125M10 | 62.12 | 12.25 | 7.09 | 34.29 | 9.93 | 12.19 |
| EZM315225 [CU, CA, CUCA] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZM316125 [X, CUX, CA, XCA, CUXCA] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMH312225 [X, CUX, CA, XCA] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZMH313125 [X, CUX, CA, XCA] | 42.37 | 12.25 | 7.09 | 31.30 | 13.18 | 11.19 |
| EZMH313225 [X, CUX, CA, XCA] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZMH314125 [X, CUX, CA, XCA] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMH314225 [X, CUX, CA, XCA] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZMH315125 [X, CUX, CA, XCA] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMH315225 [CU, CA, CUCA] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZMH316125 [X, CUX, CA, XCA] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMK311400 [CA] | 45.55 | 27.56 | 9.74 | 30.60 | 24.51 | 21.04 |
| EZMK312400 [CA] | 72.99 | 27.56 | 9.74 | 37.81 | 22.26 | 21.04 |
| EZMK331400 | 45.55 | 27.56 | 9.74 | 30.60 | 24.51 | 21.04 |
| EZMK332400 | 72.99 | 27.56 | 9.74 | 37.81 | 22.26 | 21.04 |
| EZML311400 [CA] | 45.55 | 23.21 | 9.44 | 37.81 | 24.02 | 21.53 |
| EZML311225 [CU, CA, CUCA] | 39.06 | 19.44 | 9.44 | 25.51 | 25.67 | 13.39 |
| EZML312225 [CU, CA, CUCA] | 39.06 | 19.44 | 9.44 | 25.51 | 11.67 | 13.39 |
| EZML312225D [CA] | 39.06 | 19.44 | 9.44 | 25.51 | 11.67 | 13.39 |
| EZML312400 [CA] | 69.61 | 23.21 | 9.44 | 37.82 | 20.64 | 21.53 |
| EZML313225 [CU, CA, CUCA] | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML313225D [CA] | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML111400 | 44.55 | 23.21 | 9.44 | 37.81 | 24.02 | 21.53 |
| EZML112225 [CU] | 39.06 | 19.44 | 9.44 | 25.51 | 11.67 | 13.39 |
| EZML112225D | 39.06 | 19.44 | 9.44 | 25.51 | 11.67 | 13.39 |
| EZML112400 | 69.61 | 23.21 | 9.44 | 37.81 | 20.64 | 21.53 |
| EZML113225 [CU] | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML113225D | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML114225 [CU] | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML114225D | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZMR112225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZMR113125 [X, CUX] | 42.37 | 12.25 | 7.09 | 31.30 | 13.18 | 11.19 |
| EZMR113225 [X, CUX] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZMR114125 [X, CUX] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMR114225 [X, CUX] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZMR115125 [X, CUX] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMR115225 [CU] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZMR116125 [X, CUX] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMT111225 | 25.45 | 22.42 | 9.38 | 16.19 | 4.67 | 20.45 |
| EZMT112225 | 60.56 | 22.42 | 9.38 | 43.63 | 12.67 | 28.89 |
| EZMT113225 | 79.56 | 22.42 | 9.38 | 48.25 | 12.67 | 28.89 |
| EZML314225 [CU, CA, CUCA] | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML314225D [CA] | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML331225 [CU] | 39.06 | 19.44 | 9.44 | 25.51 | 25.67 | 13.39 |
| EZML331225D | 39.06 | 19.44 | 9.44 | 25.51 | 25.67 | 13.39 |
| EZML331400 | 45.55 | 23.21 | 9.44 | 37.81 | 24.02 | 21.53 |
| EZML332225 [CU] | 39.06 | 19.44 | 9.44 | 35.51 | 11.67 | 13.39 |
| EZML332225D | 39.06 | 19.44 | 9.44 | 35.51 | 11.67 | 13.39 |
| EZML332400 [CU] | 69.61 | 23.21 | 9.44 | 37.82 | 20.64 | 21.53 |
| EZML333225 [CU] | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML333225D | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML334225 [CU] | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZML334225D | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZMR312225 [X, CUX, CA, XCA] | 43.41 | 17.38 | 8.09 | 32.34 | 22.18 | 12.23 |
| EZMR313125 [X, CUX, CA, XCA] | 42.37 | 12.25 | 8.09 | 31.30 | 13.18 | 11.19 |
| EZMR313225 [X, CUX, CA, XCA] | 43.41 | 17.38 | 8.09 | 32.34 | 13.18 | 12.23 |
| EZMR314125 [X, CUX, CA, XCA] | 48.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMR314225 [X, CUX, CA, XCA] | 52.00 | 17.38 | 8.09 | 32.34 | 12.77 | 12.23 |
| EZMR315125 [X, CUX, CA, XCA] | 57.12 | 12.25 | 7.09 | 31.30 | 9.93 | 11.19 |
| EZMR315225 [CU, CA, CUXCA] | 61.00 | 17.38 | 8.09 | 32.35 | 12.77 | 12.23 |
| EZMR316125 [X, CUX, CA, XCA] | 66.12 | 12.25 | 7.09 | 40.30 | 9.93 | 11.19 |
| EZMR332225 [CU] | 39.06 | 19.44 | 9.44 | 25.51 | 11.67 | 13.39 |
| EZMR333225 [CU] | 53.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZMR334225 [CU] | 67.06 | 19.44 | 9.44 | 39.51 | 11.67 | 13.39 |
| EZMT311225 [CA] | 25.45 | 22.42 | 9.38 | 16.19 | 4.67 | 20.45 |
| EZMT312225 [CA] | 60.56 | 22.42 | 9.38 | 43.63 | 12.67 | 28.89 |
| EZMT313225 [CA] | 79.56 | 22.42 | 9.38 | 48.25 | 12.67 | 28.89 |
| EZMT331225 | 25.12 | 22.42 | 9.38 | 16.19 | 4.67 | 20.45 |
| EZMT332225 | 60.56 | 22.42 | 9.38 | 43.63 | 12.67 | 28.89 |
| EZMT333225 | 79.56 | 22.42 | 9.38 | 48.25 | 12.67 | 28.89 |

★ Standard branch units are available without suffix added.





© 2012 Schneider Electric
All Rights Reserved

**Table of Contents**

# Section 3

## Safety Switches



Light Duty, p. 3-2



General Duty, p. 3-2



Heavy Duty, p. 3-4



Stainless Steel Heavy Duty, p. 3-7


### Light Duty

Fusible **3-2**

Application Data and Dimensions **3-3**

Standards:

- UL 98 Enclosed and Dead Front Switches.
  UL Listed under File E2875.
- NEMA Standards Publication KS1. Enclosed Switches.

### General Duty

Fusible and Non-Fusible **3-2**

Application Data and Dimensions **3-3**

Standards:

- UL 98 Enclosed and Dead Front Switches.
  UL Listed under File E2875.
- NEMA Standards Publication KS1. Enclosed Switches.

### Heavy Duty

Fusible **3-4**

Non-Fusible **3-6**

New! Special Application Enclosures **3-7**

New! Motor Disconnect and Receptacle Switches **3-8**

Accessories **3-11**

Application Data and Dimensions **3-13**

Standards:

- UL 98 Enclosed and Dead Front Switches.
  UL Listed under files E2875, E154828, E233505 and E317818.
- UL 508 Industrial Control Equipment, file E 164864.
- NEMA Standards Publication KS1 Enclosed Switches (UL98 Switches Only).

### Double Throw

Fusible and Non-Fusible **3-15**

Accessories **3-18**

Standards:

- UL 98 Enclosed and Dead Front Switches.
  UL Listed under files E2875 (unless otherwise noted).
- NEMA Standards Publication KS1 Enclosed Switches (applies to Type DT and DTU series F only).

Application Data and Dimensions **3-19**

### New! 1000 Vdc Photovoltaic Heavy Duty Disconnect Switch **3-22**

Standards:

- UL 98 Enclosed and Dead Front Switches
- UL Listed under file E343347
- IEC 60947 - 1 Electrical
- IEC 60947 - 3 Mechanical
- NEMA standard. Publication KS-1 Enclosed Switches
- IP 63 and NEMA 3 Enclosure




SQUARE D by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved



L221N



D223N

## Light Duty—Visible Blades 10 kA Short Circuit Current Rating

The Square D light duty enclosed switch is ideal for home applications in disconnecting power to workshops, hobby rooms, furnaces, and garages.

**Table 3.1: Fusible**

| System | Amperes | Fuse | NEMA 1 Indoor Cat. No. | NEMA 1 Indoor $ Price | Horsepower Ratings Std. | Horsepower Ratings Max. |
|---|---|---|---|---|---|---|
| **2 Wire (1 Blade and Fuseholder, 1 Neutral)—120 Vac** | | | | | | |
| | 30 | Plug | L111N | **$54.00** | 1/2 | 2 |
| **3 Wire (2 Blades and Fuseholders, 1 Neutral)—120/240 Vac** | | | | | | |
| | 30 | Plug | L211N | **72.00** | 1-1/2▲ | 3▲ |
| | 30 | Cart. | L221N | **98.00** | 1-1/2▲ | 3▲ |

▲ For single phase hp rating, use two switching poles.

## General Duty—Up To 100 kA Short Circuit Current Rating With Proper Current Limiting Fusing

General duty safety switches are designed for residential and commercial applications where durability and economy are prime considerations. Typical loads are lighting, air conditioning, and appliances. They are suitable for use as service equipment when equipped with a factory- or field-installed neutral assembly or a field-installed service grounding kit, (see Table 3.6) as applicable.

General duty safety switches are UL Listed, File E2875, and meet or exceed the NEMA Standard KS1.

| UL Listed Short Circuit Withstand Rating | | |
|---|---|---|
| **Switch Type** | **Fuse Class** | **Short Circuit Rating** |
| Fusible | Plug | 10 kA |
| | H | 10 kA |
| | K | 10 kA |
| | J | 100 kA |
| | R | 100 kA |
| | T | 100 kA |
| Non-Fusible▲ | H | 10 kA |
| | K | 10 kA |
| | J | 100 kA |
| | R | 100 kA■ |
| | T | 100 kA |

▲ The UL Listed short-circuit current rating for Square D general duty, not fusible switches is based on the switch being used in conjunction with fuses. Evaluation of non-fusible switches in conjunction with molded case circuit breakers above 10,000 amps has not been performed. For applications requiring greater protection, consider using a heavy duty safety switch. Refer to UL Listed Maximum Short Circuit Current Ratings—AC only—on page 3-6. If a UL Listed short-circuit current rating is required, this non-fusible switch must be replaced with a Square D general duty fusible safety switch equipped with the appropriate class and size fusing. Consult the wiring diagram of the switch to verify the UL Listed short-circuit current rating.

■ 50 kA for 60 A non-fusible switch.

**Table 3.2: Fusible**

| System | Amperes | Fuse | NEMA 1 Indoor Cat. No. | NEMA 1 Indoor $ Price | NEMA 3R▲ Rainproof Cat. No. | NEMA 3R▲ Rainproof $ Price | Class R Fuse Kits Field-Installed■ Cat. No. | Class R Fuse Kits Field-Installed■ $ Price | Horsepower Ratings Std. (Fast Acting One-Time Fuses) 1Ø | Horsepower Ratings Std. (Fast Acting One-Time Fuses) 3Ø | Horsepower Ratings Max. (Dual Element Time-Delay Fuses) 1Ø | Horsepower Ratings Max. (Dual Element Time-Delay Fuses) 3Ø |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2 Wire (1 Blade and Fuseholder, 1 Neutral)—120 Vac** | | | | | | | | | | | | |
| | 30 | Plug | Use Light Duty Device for this Application (see below) | | | | | | — | — | — | — |
| | 30 | Cart. | Use three-wire devices for this application. | | | | | | — | — | — | — |
| **3 Wire (2 Blades and Fuseholders, 1 Neutral)—120/240 Vac (Plug), 240 Vac (Cart.) Maximum** | | | | | | | | | | | | |
| | 30 | Plug | D211N | **90.00** | D211NRB | **177.00** | — | — | 1-1/2 | — | 3 | — |
| | 30 | Cart. | D221N | **122.00** | D221NRB | **188.00** | DRK30 | **25.65** | 1-1/2 | 3♦ | 3 | 7-1/2♦ |
| | 60 | Cart. | D222N | **206.00** | D222NRB | **326.00** | RFK03H | **25.50** | 3 | 7-1/2♦ | 10 | 15♦ |
| | 100 | Cart. | D223N | **426.00** | D223NRB | **480.00** | RFK10 | **47.70** | 7-1/2 | 15♦ | 15 | 30♦ |
| | 200 | Cart. | D224N▼ | **884.00** | D224NRB▼ | **1200.00** | HRK1020 | **47.70** | 15 | 25♦ | — | 60♦ |
| | 400 | Cart. | D225N | **2555.00** | D225NR | **3459.00** | DRK40 | **111.00** | — | — | — | — |
| | 600□ | Cart. | D226N | **5109.00** | D226NR | **6569.00** | DRK600 | **111.00** | — | — | — | — |
| **4 Wire (3 Blades and Fuseholders, 1 Neutral)—240 Vac Maximum** | | | | | | | | | | | | |
| | 30 | Cart. | D321N | **188.00** | D321NRB | **293.00** | DRK30 | **25.65** | 1-1/2 | 3 | 3 | 7-1/2 |
| | 60 | Cart. | D322N | **326.00** | D322NRB | **441.00** | RFK03H | **25.50** | 3 | 7-1/2★ | 10 | 15★ |
| | 100 | Cart. | D323N | **564.00** | D323NRB | **816.00** | RFK10 | **47.70** | 7-1/2 | 15★ | 15 | 30★ |
| | 200 | Cart. | D324N▼ | **1202.00** | D324NRB▼ | **1461.00** | HRK1020 | **47.70** | 15 | 25★ | — | 60★ |
| | 400 | Cart. | D325N | **3113.00** | D325NR | **3893.00** | DRK40 | **111.00** | — | 50 | — | 125 |
| | 400△ | Class T | D325NT | **2994.00** | D325NTR | **3741.00** | — | — | — | 50 | — | — |
| | 600□ | Cart. | D326N | **5823.00** | D326NR | **7877.00** | DRK600 | **111.00** | — | 75 | — | 150 |
| | 600△ | Class T | D326NT | **5598.00** | D326NTR | **7569.00** | — | — | — | 75 | — | — |
| | 800△ | Class T | T327N | **9722.00** | T327NR | **12438.00** | — | — | — | 100 | — | — |

▲ Bolt-on hubs—Refer to page 3-10.
■ When installed, this kit rejects all but Class R fuses.
♦ For corner grounded delta systems only. Use switching poles for ungrounded conductors. See data bulletin 2700DB0202 for additional information.
★ If corner grounded delta, use outer switching poles for ungrounded conductors.
▼ For 200% neutral, order (1) additional neutral kit SN20A and (1) neutral jumper kit SN20NI.
△ Class T 400–800 A general duty safety switches use 300 Vac Class T fuses and are UL Listed for use on systems with up to 100 kA available fault current.
□ Order Class J fuse kit: GDJK600 for Class J fuses.

**Table 3.3: Non-Fusible**

| System | Amperes | NEMA 1 Indoor Cat. No. | NEMA 1 Indoor $ Price | NEMA 3R Rainproof ◊ Cat. No. | NEMA 3R Rainproof ◊ $ Price | Horsepower Ratings (Max.) 1Ø | Horsepower Ratings (Max.) 3Ø |
|---|---|---|---|---|---|---|---|
| **2 Wire (2 Blades)—240 Vac Maximum** | | | | | | | |
| | 30 | — | — | DU221RB | **177.00** | 3 | — |
| | 60 | — | — | DU222RB | **353.00** | 10 | — |
| | 60 | QO260NATS☆▽ | **161.00** | QO200TR☆▽◒ | **161.00** | 10 | — |
| | 100 | QO2000NS☆▽ | **276.00** | QO2000NRB☆◒ | **338.00** | 20 | — |
| | 200 | Use 3P Switch | — | Use 3P Switch | — | — | — |
| | 400◪ | Use 3P Switch | — | Use 3P Switch | — | — | — |
| | 600 | Use 3P Switch | — | Use 3P Switch | — | — | — |
| **3 Wire (3 Blades)—240 Vac Maximum** | | | | | | | |
| | 30 | DU321 | **155.00** | DU321RB | **293.00** | 3 | 7-1/2 |
| | 60 | DU322 | **206.00** | DU322RB | **443.00** | 10 | 15 |
| | 100 | DU323✱ | **477.00** | DU323RB✱ | **816.00** | 15 | 30 |
| | 200 | DU324♦ | **884.00** | DU324RB♦ | **1461.00** | 15 | 60◑ |
| | 400◪ | DU325 | **2198.00** | — | — | — | 125 |
| | 600 | DU326◑ | **4191.00** | — | — | — | 150 |

◊ Bolt-on hubs—Refer to page 3-10.
☆ Enclosed molded case switch—Refer to page 1-24.
▽ Includes factory-installed grounding kit.
◒ Not service entrance rated—Refer to page 1-19 for more information.
✱ If a neutral assembly is required, order and field-install SN0610.
♦ If a neutral assembly is required, order and field install a SN20A Neutral Assembly Kit. For a 200% neutral application, order and field install (2) SN20A Neutral Assembly Kits and (1) SN20NI Neutral Jumper Kit.
◑ If a neutral assembly is required, order part number D600SN. Available for field-installation.
✪ For single phase hp rating, use two switching poles.
◪ To accept J class fuses, move fuse bases to the embossed guide inside of the switch.





© 2012 Schneider Electric
All Rights Reserved

**Table 3.4: Terminal Lug Data ▲**

| Amperes | Conductors Per Phase | Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil | Lug Wire Range AWG/kcmil |
|---|---|---|---|
| 30 | 1 | 12–6 (Al) or 14–6 (Cu) | 12–6 (Al) or 14–6 (Cu) |
| 60 | 1 | 10–3 (Al) or 14–3 (Cu) | 10–2 (Al) or 14–2 (Cu) |
| 100 | 1 | 12–1 (Al) or 14–1 (Cu) | 12–1/0 (Al) or 14–1/0 (Cu) |
| 200 | 1 | 6 –250 (Al/Cu) | 6 –300 (Al/Cu) |
| 400 NEMA 1 | 1 or 2 | 1/0 –600 (Al/Cu) or 1/0 –300 (Al/Cu) | (1) 1/0 –750 (Al/Cu) or (2) 1/0 –300 (Al/Cu) |
| 400 NEMA 3R | 2 | 1/0–250 (Al/Cu) | (1) 1 –600 (Al/Cu) or (2) 1/0 –250 (Al/Cu) |
| 600 | 2 | 4 –500 (Al/Cu) | 4 –600 (Al/Cu) |
| 800 | 3 | 3/0 –500 (Al/Cu) | 3/0 –500 (Al/Cu) |

▲ 30–100 A switches suitable for 60°C or 75°C conductors. 200–800 A switches suitable for 75°C conductors.

***NOTE:*** *Field-installed lug kits are located in the Supplemental Digest page 2.2.*

## Field-Installed Fuse Puller Kits

Kit consists of three fuse pullers as required for a 3P, fusible, 60 and 100 A general duty switch. Kits can be installed in 60 and 100 A Series F switches.

**Table 3.5: Fuse Puller Kits**

| Description | Cat. No. | $ Price |
|---|---|---|
| Series F 60 A Fuse Puller Kit | FPK03 | **30.00** |
| Series F 100 A Fuse Puller Kit | FPK0610 | **42.60** |

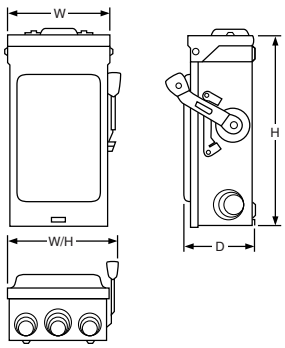



**Table 3.6: Field-Installed Service Grounding Kits**

| Amperes | Cat. No. | $ Price | Wire Size (AWG) |
|---|---|---|---|
| 30 | PK3GTA1 | **11.40** | (2) 12 Cu or (2) 10 Al or (1) 4 Al/Cu Max. |
| 60▲ | PK3GTA1 | **11.40** | (2) 12 Cu or (2) 10 Al or (1) 4 Al/Cu Max. |
| 60■ | GTK03 | **11.40** | (2) 12 Cu or (2) 10 Al or (1) 4 Al/Cu Max. |
| 100 | GTK0610 | **18.90** | (2) 1/0 Al/Cu Max. |
| 200 | PKOGTA2 | **55.00** | (2) 2/0 Al/Cu Max. |
| 400 600 | PKOGTA2 (Two Required) | **55.00** | (2) 2/0 Al/Cu Max. Per Lug |
| 800 | PKOGTA3 | **123.00** | (6) 3/0 Al/Cu Max. |

▲ Series E switch only.
■ Series F switch only.

## Field-Installed Electrical Interlock Kits

Electrical interlocks for Series F 100–200 A general duty safety switches and Series F 60 A fusible general duty safety switches are available in kit form for field installation. Each kit contains instructions for proper field mounting. A pivot arm operates from switch mechanism, breaking the control circuit before the main switch blades break. Switches with electrical interlocks installed are UL Listed.

**Table 3.7: Electrical Interlock Kit**

| Switch's Amperes Rating | Series | Electrical Interlock Kit Cat. No.▲ | $ Price |
|---|---|---|---|
| 60 | F■ | EIK031 or EIK032 | **218.00** |
| 100–200 | F | EIK1 or EIK2 | **311.00** |

▲ Electrical interlock kit catalog numbers with -1 suffix indicates one normally open and one normally closed contact; -2 indicates two normally open and two normally closed contacts. Kits are UL Listed.
■ Fusible series.

**Table 3.8: Approximate Dimensions**

| Cat. No. | Series | H | | W | | W/H | | D | | Std. Pack |
|---|---|---|---|---|---|---|---|---|---|---|
| | | in. | mm | in. | mm | in. | mm | in. | mm | |
| L111N | E2 | 7.63 | 194 | 5.00 | 127 | 6.13 | 156 | 4.00 | 102 | 1 |
| L211N | E2 | 7.63 | 194 | 5.00 | 127 | 6.13 | 156 | 4.00 | 102 | 1 |
| L221N | E2 | 7.63 | 194 | 5.00 | 127 | 6.13 | 156 | 4.00 | 102 | 1 |
| D211N♦ | E3 | 9.25 | 235 | 6.75 | 171 | 7.25 | 184 | 3.63 | 92 | 5 |
| D211NRB♦ | E2 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| D221N♦ | E3 | 9.25 | 235 | 6.75 | 171 | 7.25 | 184 | 3.63 | 92 | 5 |
| D221NRB♦ | E3 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| D222N | F1 | 14.63 | 372 | 6.50 | 165 | 7.45 | 189 | 4.88 | 124 | 1 |
| D222NRB | F1 | 14.88 | 378 | 6.63 | 168 | 7.45 | 189 | 4.88 | 124 | 1 |
| D223N | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| D223NRB | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| D224N | F1 | 29.00 | 737 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| D224NRB | F1 | 29.25 | 743 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| D225N | E3 | 45.12 | 1146 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D225NR | E1 | 30.63 | 778 | 21.38 | 543 | 22.25 | 565 | 10.13 | 257 | 1 |
| D226N♦ | E3 | 49.13 | 1248 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D226NR♦ | E1 | 49.13 | 1248 | 24.75 | 629 | 25.13 | 638 | 8.88 | 226 | 1 |
| D321N♦ | E3 | 9.25 | 235 | 6.75 | 171 | 7.25 | 184 | 3.63 | 92 | 5 |
| D321NRB♦ | E3 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| D322N | F1 | 14.63 | 372 | 6.50 | 165 | 7.45 | 189 | 4.88 | 124 | 1 |
| D322NRB | F1 | 14.88 | 378 | 6.63 | 168 | 7.45 | 189 | 4.88 | 124 | 1 |
| D323N | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| D323NRB | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| D324N | F1 | 29.00 | 737 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| D324NRB | F1 | 29.25 | 743 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| D325N♦ | E3 | 45.12 | 1146 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D325NT♦ | E3 | 45.12 | 1146 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D325NR♦ | E1 | 30.63 | 778 | 21.38 | 543 | 22.25 | 565 | 10.13 | 257 | 1 |
| D325NTR♦ | E1 | 30.63 | 778 | 21.38 | 543 | 22.25 | 565 | 10.13 | 257 | 1 |
| D326N♦ | E3 | 49.13 | 1248 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D326NT♦ | E3 | 49.13 | 1248 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| D326NR♦ | E1 | 49.13 | 1248 | 24.75 | 629 | 25.13 | 638 | 8.88 | 226 | 1 |
| D326NTR♦ | E1 | 49.13 | 1246 | 24.75 | 629 | 25.13 | 638 | 8.88 | 226 | 1 |
| DU221RB♦ | E2 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| DU222RB♦ | E1 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| DU321♦ | E2 | 9.25 | 235 | 6.75 | 171 | 7.25 | 184 | 3.63 | 92 | 5 |
| DU321RB♦ | E2 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| DU322♦ | E1 | 9.25 | 235 | 6.75 | 171 | 7.25 | 184 | 3.63 | 92 | 5 |
| DU322RB♦ | E1 | 9.63 | 245 | 7.25 | 184 | 7.75 | 197 | 3.75 | 95 | 5 |
| DU323 | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| DU323RB | F3 | 17.50 | 445 | 8.50 | 216 | 10.50 | 267 | 6.50 | 165 | 1 |
| DU324 | F1 | 29.00 | 737 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| DU324RB | F1 | 29.25 | 743 | 17.25 | 438 | 19.00 | 483 | 8.25 | 210 | 1 |
| DU325♦ | E3 | 45.12 | 1146 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| DU326♦ | E3 | 49.13 | 1248 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| QO200TR♦ | G3 | 6.50 | 165 | 4.63 | 118 | — | — | 3.88 | 99 | 5 |
| QO260NATS♦ | E2 | 9.25 | 235 | 4.88 | 124 | — | — | 3.25 | 83 | 1 |
| QO2000NRB♦ | E1 | 14.00 | 356 | 7.75 | 197 | — | — | 4.50 | 114 | 1 |
| QO2000NS♦ | E1 | 13.38 | 340 | 6.13 | 156 | — | — | 3.50 | 89 | 1 |
| T327N♦ | E1 | 49.13 | 1248 | 24.00 | 610 | 24.88 | 632 | 8.88 | 226 | 1 |
| T327NR♦ | E1 | 49.13 | 1248 | 24.75 | 629 | 25.13 | 638 | 8.88 | 226 | 1 |

♦ 30–100 A switches suitable for 60°C or 75°C conductors. 200–800 A switches suitable for 75°C conductors.



© 2012 Schneider Electric
All Rights Reserved



NEMA 1 | NEMA 3R | NEMA 4, 4X and 5 Stainless Steel | NEMA 12

Visible blade heavy duty safety switches are designed for application where maximum performance and continuity of service are required. All heavy duty safety switches feature quick-make, quick-break operating mechanism, a dual cover interlock and a color coded indicator handle. They are suitable for use as service equipment when equipped with a field- or factory-installed neutral assembly or equipment grounding kit, unless a 600Y/347 V or 480 Y/277 V, 1000 A or greater, solidly grounded WYE system is used, per NEC 215-10. Heavy duty safety switches are UL Listed (except as noted), File E2875 and 154828 and meet or exceed the NEMA Standard KS1. For UL Listed short circuit current ratings, see page 3-6.

**Table 3.9: 240 Volt—Single Throw Fusible**

| System | Amperes | NEMA 1 Indoor | | NEMA 3R Rainproof (Bolt-on Hubs, page 3-10) | | NEMA 4, 4X, 5, ▲ 304 Stainless Steel (for 316 stainless, see page 3-7) Dust tight, Watertight, Corrosion Resistant (Watertight Hubs, page 3-10) | | NEMA 12K With Knockouts (Watertight Hubs, page 3-10) | | NEMA 12, 3R ■ Without Knockouts (Watertight Hubs, page 3-10) | | Horsepower Ratings 240 Vac Std. (Using Fast Acting, One Time Fuses) | | Horsepower Ratings 240 Vac Max. (Using Dual Element, Time Delay Fuses) | | 250 Vdc ♦ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 1Ø | 3Ø | 1Ø | 3Ø | |
| **2-Wire (2 Blades and Fuseholders)—240 Vac, 250 Vdc** | | | | | | | | | | | | | | | | |
| | 30 | Use three-wire devices For two-wire applications | | | | H221DS | 1947.00 | H221A | 504.00 | H221AWK | 473.00 | 1-1/2 | 3 ★ | 3 | 7-1/2★ | 5 |
| | 30 | | | | | — | — | — | — | H2212AWK▼ | 588.00 | 1-1/2 | — | 3 | — | 5 |
| | 60 | | | | | H222DS | 2337.00 | — | — | H222AWK | 647.00 | 3 | 7-1/2★ | 10 | 15 ★ | 10 |
| | 100 | | | | | H223DS | 5094.00 | H223A | 1008.00 | H223AWK | 948.00 | 7-1/2 | 15 ★ | 15 | 30 ★ | 20 |
| | 200 | | | | | H224DS | 6960.00 | H224A | 1737.00 | H224AWK | 1643.00 | 15 | 25 ★ | — | 60 ★ | 40 |
| | 400 | H225 | 2729.00 | H225R | 3884.00 | H225DS | 14481.00 | — | — | H225AWK | 4163.00 | — | — | — | — | 50 |
| | 600 | H226 | 5424.00 | H226R | 7281.00 | H226DS | 20772.00 | — | — | H226AWK | 6543.00 | — | 75 ★ | — | 200 ★ | 50 |
| | 800 | H227 | 8459.00 | H227R△ | 11483.00 | — | — | — | — | H227AWK | 10325.00 | 50 | — | 50 | — | 50 |
| | 1200 | H228 | 11682.00 | H228R△ | 15486.00 | — | — | — | — | H228AWK | 15815.00 | 50 | — | 50 | — | 50 |
| **3-Wire (2 Blades and Fuseholders, 1 Neutral)—240 Vac, 250 Vdc** | | | | | | | | | | | | | | | | |
| | 30 | H221N | 236.00 | H221NRB | 447.00 | Use two-wire devices, Field-installed solid neutral assemblies Order separately See page 3-11. | | | | | | 1-1/2 | 3 ★ | 3 | 7-1/2 ★ | 5 |
| | 60 | H222N | 471.00 | H222NRB | 842.00 | | | | | | | 3 | 7-1/2★ | 10 | 15 ★ | 10 |
| | 100 | H223N | 716.00 | H223NRB | 1086.00 | | | | | | | 7-1/2 | 15 ★ | 15 | 30 ★ | 20 |
| | 200 | H224N | 1289.00 | H224NRB | 1562.00 | | | | | | | 15 | 25 ★ | — | 60 ★ | 40 |
| | 400 | H225N | 3092.00 | H225NR | 4245.00 | H225NDS | 14787.00 | — | — | H225NAWK | 4304.00 | — | 50 ★ | — | 125 ★ | 50 |
| | 600 | H226N | 5819.00 | H226NR | 7677.00 | H226NDS | 21081.00 | — | — | H226NAWK | 6936.00 | — | 75 ★ | — | 200 ★ | 50 |
| | 800 | H227N | 10067.00 | H227NR△ | 12216.00 | — | — | — | — | H227NAWK | 12338.00 | 50 | — | 50 | — | 50 |
| | 1200 | H228N | 12422.00 | H228NR△ | 16665.00 | — | — | — | — | H228NAWK | 17184.00 | 50 | — | 50 | — | 50 |
| **3-Wire (3 Blades and Fuseholders)—240 Vac, 250 Vdc** | | | | | | | | | | | | | | | | |
| | 30 | Use four-wire devices For three-wire applications | | | | H321DS | 2049.00 | H321A | 639.00 | H321AWK | 639.00 | 1-1/2 | 3 | 3 | 7-1/2 | 5 |
| | 60 | | | | | H322DS | 2532.00 | H322A | 914.00 | H322AWK | 864.00 | 3 | 7-1/2 | 10 | 15 | 10 |
| | 100 | | | | | H323DS | 5346.00 | H323A | 1412.00 | H323AWK | 1331.00 | 7-1/2 | 15 | 15 | 30 | 20 |
| | 200 | | | | | H324DS | 7496.00 | H324A | 2040.00 | H324AWK | 1926.00 | 15 | 25 | — | 60 | 40 |
| | 400 | H325 | 3425.00 | H325R | 3975.00 | H325DS | 14961.00 | — | — | H325AWK | 4253.00 | — | 50 | — | 125 | 50 |
| | 600 | H326 | 6170.00 | H326R | 8286.00 | H326DS | 21399.00 | — | — | H326AWK | 7365.00 | — | 75 | — | 200 | 50 |
| | 800 | H327 | 11456.00 | H327R△ | 14849.00 | — | — | — | — | H327AWK | 14528.00 | 50 | 100 | 50 | 250 | 50 |
| | 1200 | H328 | 14517.00 | H328R△ | 18728.00 | — | — | — | — | H328AWK | 17450.00 | 50 | 100 | 50 | 250 | 50 |
| **4-Wire (3 Blades and Fuseholders, 1 Neutral)—240 Vac, 250 Vdc** | | | | | | | | | | | | | | | | |
| | 30 | H321N | 314.00 | H321NRB | 555.00 | Use three-wire devices, Field-installed solid neutral assemblies Order separately. See page 3-11 | | | | | | 1-1/2 | 3 | 3 | 7-1/2 | 5 |
| | 60 | H322N | 528.00 | H322NRB | 891.00 | | | | | | | 3 | 7-1/2 | 10 | 15 | 10 |
| | 100 | H323N | 842.00 | H323NRB | 1278.00 | | | | | | | 7-1/2 | 15 | 15 | 30 | 20 |
| | 200 | H324N | 1451.00 | H324NRB | 1748.00 | | | | | | | 15 | 25 | — | 60 | 40 |
| | 400 | H325N | 3788.00 | H325NR | 4322.00 | H325NDS | 15321.00 | — | — | H325NAWK | 4635.00 | — | 50 | — | 125 | 50 |
| | 600 | H326N | 6519.00 | H326NR | 8622.00 | H326NDS | 21759.00 | — | — | H326NAWK | 7757.00 | — | 75 | — | 200 | 50 |
| | 800 | H327N | 12189.00 | H327NR△ | 15563.00 | — | — | — | — | H327NAWK | 15879.00 | 50 | 100 | 50 | 250 | 50 |
| | 1200 | H328N | 15314.00 | H328NR△ | 19709.00 | — | — | — | — | H328NAWK | 20015.00 | 50 | 100 | 50 | 250 | 50 |
| **4-Wire (4 Blades and Fuseholders)** | | | | | | | | | | | | | | | | |
| | 30 | Use 600 Vac devices. See page 3-5. | | | | | | | | | | | | | | |
| | 60 | | | | | | | | | | | | | | | |
| | 100 | | | | | | | | | | | | | | | |
| | 200 | | | | | | | | | | | | | | | |
| | 400 | | | | | | | | | | | | | | | |
| | 600 | | | | | | | | | | | | | | | |

▲ Complete rating is NEMA 3, 3R, 4, 4X, 5 and 12. For NEMA 3R applications, remove drain screw from bottom endwall.
■ Also suitable for NEMA 3R application by removing drain screw from bottom endwall.
♦ For switching dc, use two outside switching poles.
★ For corner grounded delta systems only and with neutral assembly installed. Use switching poles for ungrounded conductors.
▼ 60 ampere switch with 30 ampere fuse spacing and clips. Must use 60 A enclosure accessories including electrical interlocks.
△ Suitable for NEMA 5 applications with drain screw installed.

Accessories: . . . . . pages 3-10 through 3-12
Dimensions: NEMA 1 and 3R . . . . . page 3-13
Dimensions: NEMA 4, 4X and 5 Stainless and NEMA 12 . . . . . page 3-14



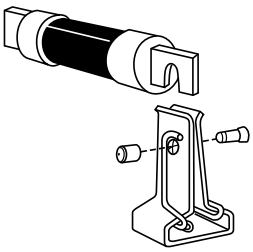


© 2012 Schneider Electric
All Rights Reserved

**Table 3.10: 600 Volts—Single Throw Fusible**

| System | Amperes | NEMA 1 Indoor | | NEMA 3R Rainproof (Bolt-on Hubs, page 3-10) | | NEMA 4, 4X, 5▲ 304 Stainless Steel (for 316 stainless, see page 3-7) Dust tight, Watertight, Corrosion Resistant (Watertight Hubs, page 3-10) | | NEMA 12K With Knockouts (Watertight Hubs, page 3-10) | | NEMA 12, 3R■ Without Knockouts (Watertight Hubs, page 3-10) | | Horsepower Ratings | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 480 Vac | | 600 Vac | | dc★ | |
| | | | | | | | | | | | | Std. (Using Fast Acting, One Time Fuses) | Max. (Using Dual Element, Time Delay Fuses) | Std. (Using Fast Acting, One Time Fuses) | Max. (Using Dual Element, Time Delay Fuses) | | |
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 3Ø | 3Ø | 3Ø | 3Ø | 250 | 600 |
| **2-Wire (2 Blades and Fuseholders)—600 Vac, 600 Vdc** | | | | | | | | | | | | | | | | | |
| | 30 | Use three-wire devices for two-wire applications | | | | | | | | | | — | — | — | — | — | — |
| | 60 | | | | | | | | | | | — | — | — | — | — | — |
| | 100 | | | | | | | | | | | — | — | — | — | — | — |
| | 200 | | | | | | | | | | | — | — | — | — | — | — |
| | 400 | H265 | **4206.00** | H265R | **5424.00** | H265DS | **14961.00** | — | — | H265AWK | **5025.00** | 100 ♦ | 250 ♦ | — | — | 50 | 50 |
| | 600 | H266 | **6653.00** | H266R | **10686.00** | H266DS | **21399.00** | — | — | H266AWK | **7341.00** | 150 ♦ | 400 ♦ | — | — | 50 | 50 |
| | 800 | H267 | **10365.00** | H267R△ | **16385.00** | — | — | — | — | H267AWK | **15276.00** | — | — | — | — | 50 | 50 |
| | 1200 | H268 | **14570.00** | H268R△ | **17991.00** | — | — | — | — | H268AWK | **18044.00** | — | — | — | — | 50 | 50 |
| **3-Wire (3 Blades and Fuseholders)—600 Vac, 600 Vdc★** | | | | | | | | | | | | | | | | | |
| | 30 | H361 | **528.00** | H361RB | **899.00** | H361DS | **2520.00** | H361A | **1014.00** | H361AWK | **956.00** | 5 | 15 | 7-1/2 | 20 | 5 | 15 |
| | 30 | H361-2△ | **617.00** | H3612RB▼ | **1049.00** | — | — | H361-2A▼ | **1035.00** | H3612AWK▼ | **977.00** | 5 | 15 | 7-1/2 | 20 | — | 15 |
| | 60 | H362 | **638.00** | H362RB | **1055.00** | H362DS | **2771.00** | H362A | **1047.00** | H362AWK | **984.00** | 15 | 30 | 15 | 50 | — | 30 |
| | 100 | H363 | **1188.00** | H363RB | **1644.00** | H363DS | **5493.00** | H363A | **1626.00** | H363AWK | **1539.00** | 25 | 60 | 30 | 75 | — | 50 |
| | 200 | H364 | **1707.00** | H364RB | **2259.00** | H364DS | **7685.00** | H364A | **2544.00** | H364AWK | **2400.00** | 50 | 125 | 60 | 150 | 40 | 50 |
| | 400 | H365 | **4551.00** | H365R | **5532.00** | H365DS | **15321.00** | — | — | H365AWK | **5462.00** | 100 | 250 | 125 | 350 | 50 | 50 |
| | 600 | H366 | **7649.00** | H366R | **10899.00** | H366DS | **21084.00** | — | — | H366AWK | **9203.00** | 150 | 400 | 200 | 500 | 50 | 50 |
| | 800 | H367 | **13319.00** | H367R △ | **16500.00** | — | — | — | — | H367AWK | **16352.00** | 200 | 500 | 250 | 500 | 50 | 50 |
| | 1200 | H368 | **17507.00** | H368R△ | **20009.00** | — | — | — | — | H368AWK | **19706.00** | 200 | 500 | 250 | 500 | 50 | 50 |
| **4-Wire (3 Blades and Fuseholders, 1 Neutral)—600 Vac, 600 Vdc★** | | | | | | | | | | | | | | | | | |
| | 30 | H361N | **617.00** | H361NRB | **986.00** | Use three-wire devices field-installed solid neutral assemblies. Order separately. See page 3-11. | | | | | | 5 | 15 | 7-1/2 | 20 | — | 15 |
| | 60 | H362N | **710.00** | H362NRB | **1134.00** | | | | | | | 15 | 30 | 15 | 50 | — | 30 |
| | 100 | H363N | **1278.00** | H363NRB | **1737.00** | | | | | | | 25 | 60 | 30 | 75 | — | 50 |
| | 200 | H364N | **1869.00** | H364NRB | **2408.00** | H364NDS | **7871.00** | H364NA | **2715.00** | H364NAWK | **2558.00** | 50 | 125 | 60 | 150 | 40 | 50 |
| | 400 | H365N | **4898.00** | H365NR | **5765.00** | H365NDS | **15668.00** | — | — | H365NAWK | **5823.00** | 100 | 250 | 125 | 350 | 50 | 50 |
| | 600 | H366N | **8019.00** | H366NR | **11054.00** | H366NDS | **22122.00** | — | — | H366NAWK | **9600.00** | 150 | 400 | 200 | 500 | 50 | 50 |
| | 800 | H367N | **14043.00** | H367NR△ | **17205.00** | — | — | — | — | H367NAWK | **17253.00** | 200 | 500 | 250 | 500 | 50 | 50 |
| | 1200 | H368N | **18114.00** | H368NR△ | **20993.00** | — | — | — | — | H368NAWK | **20820.00** | 200 | 500 | 250 | 500 | 50 | 50 |
| **4-Wire (4 Blades and Fuseholders)—600 Vac, 600 Vdc□** | | | | | | | | | | | | **2Ø** | **2Ø** | **2Ø** | **2Ø** | | |
| | 30 | H461 | **914.00** | — | — | H461DS | **2937.00** | — | — | H461AWK | **1115.00** | 7-1/2 | 20 | 10 | 25 | 5 | 15 |
| | 60 | H462 | **1065.00** | — | — | H462DS | **3069.00** | — | — | H462AWK | **1257.00** | 15 | 40 | 20 | 50 | 10 | 30 |
| | 100 | H463 | **1778.00** | — | — | H463DS | **8345.00** | — | — | H463AWK | **1932.00** | 25 | 50 | 30 | 75 | 20 | 30 |
| | 200 | H464 | **2957.00** | — | — | H464DS | **12596.00** | — | — | H464AWK | **3222.00** | 50 | — | 50 | — | 40 | 50 |
| | 400 | H465 | **6210.00** | — | — | — | — | — | — | H465AWK | **6807.00** | **100** | **250** | **125** | **350** | **50** | **50** |
| | 600 | H466 | **10104.00** | — | — | — | — | — | — | — | — | **150** | **400** | **200** | **500** | **50** | **50** |
| **6-Wire (6 Blades and Fuseholders)—600 Vac □** | | | | | | | | | | | | **3Ø** | **3Ø** | **3Ø** | **3Ø** | | |
| | 100 | — | — | — | — | H663DS | **25964.00** | — | — | H663AWK | **5112.00** | 25 | 60 | 30 | 75 | — | — |
| | 200 | — | — | — | — | H664DS | **35393.00** | — | — | H664AWK | **12222.00** | For applications requiring motor disconnect capability, use electrical interlock. Refer to page 3-10. | | | | | |

▲ Complete rating is NEMA 3, 3R, 4, 4X, 5 and 12.
■ Also suitable for NEMA 3R application by removing drain screw from bottom endwall.
♦ For corner grounded delta systems only and with neutral assembly installed. Use switching poles for ungrounded conductors.
★ For switching dc use two outside switching poles.
▼ 60 A switch with 30 A fuse spacing and clips. Must use 60 A enclosure accessories including electrical interlocks.
△ Suitable for NEMA 5 applications with drain screw installed.
□ Not suitable for use as service equipment.



**Class R Fuse**

## Class H Fuse Provisions:

Fusible Square D 30 through 600 A heavy duty safety switches accept Class H fuses as standard. With Class H fuses installed, the switch is UL Listed for use on systems with up to 10 kA available fault current.

## Class R Fuse Provisions:

Fusible Square D 30–600 A heavy duty safety switches will accept Class R fuses as standard. A field-installed rejection kit is available which, when installed, rejects all but Class R fuses. With the installation of the rejection kit and Class R fuses, the switch is UL Listed for use on systems with up to 200 kA available fault current. See Class R fuse kits on page 3-10.

## Class J Fuse Provisions:

Provisions for installing Class J fuses are included in 30 through 400 A 600 Volt, and 100 through 400 A 240 Volt, fusible heavy duty safety switches. Conversion to Class J fuse spacing requires relocating the load side fuse base assembly from the standard Class H fuse location to an alternate position as marked in the enclosure. With Class J fuses installed, the switch is UL Listed for use on systems with up to 200 kA available fault current. Switches rated 600 A, 240 or 600 Volt, require the addition of an adapter kit, H600J at **$456.** One kit per 3P switch.

## Class L Fuse Provisions:

Fusible 800 A and 1200 A safety switches use Class L bolt-in fuses and are rated for use on systems with up to 200 kA at 600 Vac maximum. 1200 A switches accept class L fuses from 601–1200 A, 800 A switches accept class L fuses from 601–800 A.

Accessories: . . . . . pages 3-10 through 3-12
Dimensions: NEMA 1 and 3R . . . . . page 3-13
Dimensions: NEMA 4, 4X and 5 . . . . . page 3-14



© 2012 Schneider Electric
All Rights Reserved

### Table 3.11: 600 Volt—Single Throw Non-Fusible

| System | Amperes | NEMA 1 Indoor | | NEMA 3R Rainproof (Bolt-on Hubs, page 3-10) | | NEMA 4, 4X, 5 ▲ 304 Stainless Steel (for 316 stainless, see page 3-7) Dust tight, Watertight Corrosion Resistant (Watertight Hubs, page 3-10) | | NEMA 12K With Knockouts (Watertight Hubs, page 3-10) | | NEMA 12, 3R ■ Without Knockouts (Watertight Hubs, page 3-10) | | Horsepower Ratings (Max.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Volts ac | | | | | | dc ♦ | |
| | | | | | | | | | | | | 240 | | 480 | | 600 | | | |
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | 250 | 600 |
| **2-Wire (2 Blades)—600 Vac, 600 Vdc** | | | | | | | | | | | | | | | | | | | |
| | 30 | Use three-wire devices for two-wire applications. | | | | | | | | | | — | — | — | — | — | — | — | — |
| | 60 | | | | | | | | | | | — | — | — | — | — | — | — | — |
| | 100 | | | | | | | | | | | — | — | — | — | — | — | — | — |
| | 200 | | | | | | | | | | | — | — | — | — | — | — | — | — |
| | 400 | HU265 | **2750.00** | HU265R | **3764.00** | HU265DS | **12812.00** | — | — | HU265AWK | **3212.00** | — | — | — | — | — | — | 50 | 50 |
| | 600 | HU266 | **4896.00** | HU266R | **7533.00** | HU266DS | **18455.00** | — | — | HU266AWK | **5408.00** | — | — | — | — | — | — | 50 | 50 |
| | 800 | HU267 | **7467.00** | HU267R★ | **12884.00** | — | — | — | — | HU267AWK | **12957.00** | 50 | — | 50 | — | 50 | — | — | 50 |
| | 1200 | HU268 | **10226.00** | HU268R★ | **17393.00** | — | — | — | — | HU268AWK | **17522.00** | 50 | — | 50 | — | — | — | 50 | 50 |
| **3-Wire (3 Blades)—600 Vac, 600 Vdc** | | | | | | | | | | | | | | | | | | | |
| | 30 | HU361 | **279.00** | HU361RB | **488.00** | HU361DS | **2120.00** | HU361A | **689.00** | HU361AWK | **647.00** | 5 | 10 | 7-1/2 | 20 | 10 | 30 | 5 | 15 |
| | 30 | HU361EI▼ | **638.00** | HU361RBEI▼ | **846.00** | HU361DSEI▼ | **2480.00** | HU361AEI▼ | **1047.00** | HU361AWKEI▼ | **1007.00** | 5 | 10 | 7-1/2 | 20 | 10 | 30 | 5 | 15 |
| | 30 | HU3612△ | **369.00** | HU3612RB△ | **638.00** | — | — | HU3612A△ | **710.00** | HU3612AWK△ | **666.00** | 5 | 10 | 7-1/2 | 20 | 10 | 30 | 5 | 15 |
| | 60 | HU362 | **488.00** | HU362RB | **876.00** | HU362DS | **2520.00** | HU362A | **875.00** | HU362AWK | **833.00** | 10 | 20 | 25 | 50 | 30 | 60 | 10 | 30 |
| | 60 | — | — | — | — | HU362DSEI▼ | **2972.00** | — | — | — | — | 10 | 20 | 25 | 50 | 30 | 60 | 10 | 30 |
| | 100 | HU363 | **783.00** | HU363RB | **1226.00** | HU363DS | **5102.00** | HU363A | **1265.00** | HU363AWK | **1194.00** | 20 | 40 | 40 | 75 | 40 | 100 | 20 | 50 |
| | 200 | HU364 | **1209.00** | HU364RB | **1485.00** | HU364DS | **6960.00** | HU364A | **1697.00** | HU364AWK | **1604.00** | 15 | 60 | 50 | 125 | 50 | 150 | 40 | 50 |
| | 400 | HU365 | **2804.00** | HU365R | **3840.00** | HU365DS | **14294.00** | — | — | HU365AWK | **4023.00** | — | 125 | — | 250 | — | 350 | 50 | 50 |
| | 600 | HU366 | **4992.00** | HU366R | **7683.00** | HU366DS | **19062.00** | — | — | HU366AWK | **6711.00** | — | 200 | — | 400 | — | 500 | 50 | 50 |
| | 800 | HU367 | **9978.00** | HU367R★ | **13050.00** | — | — | — | — | HU367AWK | **13097.00** | 50 | 250 | 50 | 500 | 50 | 500 | 50 | 50 |
| | 1200 | HU368 | **13421.00** | HU368R★ | **17867.00** | — | — | — | — | HU368AWK | **17940.00** | 50 | 250 | 50 | 500 | 50 | 500 | 50 | 50 |
| **4-Wire (4 Blades)—600 Vac, 600 Vdc ▽** | | | | | | | | | | | | **2Ø** | **3Ø** | **2Ø** | **3Ø** | **2Ø** | **3Ø** | | |
| | 30 | HU461□ | **827.00** | — | — | HU461DS | **2586.00** | — | — | HU461AWK◊ | **915.00** | 10 | 10 | 20 | 20 | 25 | 30 | 10☆ | 15☆ |
| | 60 | HU462□ | **914.00** | — | — | HU462DS | **3027.00** | — | — | HU462AWK | **1008.00** | 20 | 20 | 40 | 50 | 50 | 60 | 10 | 30 |
| | 100 | HU463□ | **1647.00** | — | — | HU463DS | **7401.00** | — | — | HU463AWK | **1791.00** | 30 | 40 | 50 | 75 | 50 | 75 | 20 | 30 |
| | 200 | HU464□ | **2399.00** | — | — | HU464DS | **11244.00** | — | — | HU464AWK | **2832.00** | 50 | 60 | 50 | 125 | 50 | 150 | 40 | 50 |
| | 400 | HU465 | **5201.00** | — | — | — | — | — | — | HU465AWK | **5672.00** | — | **125** | — | **250** | — | 350 | 50 | 50 |
| | 600 | HU466 | **9072.00** | — | — | — | — | — | — | — | — | — | **200** | — | **400** | — | **500** | 50 | 50 |
| **6-Wire (6 Blades)—600 Vac ▽** | | | | | | | | | | | | | **3Ø** | | **3Ø** | | **3Ø** | | |
| | 30 | — | — | — | — | HU661DS | **11903.00** | — | — | HU661AWK◒ | **3357.00** | — | 10 | — | 20 | — | 30 | — | — |
| | 60 | — | — | — | — | HU662DS | **13254.00** | — | — | HU662AWK◒ | **3884.00** | — | 20 | — | 50 | — | 60 | — | — |
| | 100 | — | — | — | — | HU663DS | **20643.00** | — | — | HU663AWK◒ | **4793.00** | — | 40 | — | 75 | — | 75 | — | — |
| | 200 | — | — | — | — | HU664DS | **28316.00** | — | — | HU664AWK◒ | **10538.00** | — | 60 | — | 125 | — | 150 | — | — |

▲ Complete rating is NEMA 3, 3R, 4, 4X, 5 and 12.
■ Also suitable for NEMA 3R application by removing drain screw from bottom endwall.
♦ For switching dc, use two outside switching poles.
★ Suitable for NEMA 5 applications with drain screw installed.
▼ Switches with EI suffix are stocked with factory-installed electrical interlocks with one normally-open and one normally-closed contact.
△ Use 60 A enclosure accessories, including electrical interlocks.
□ No knockouts are provided.
◊ Requires 60 A accessories. See page 3-14 for series rating..
☆ HU461AWK (Series F6) is rated 5 hp@250 Vdc, 10 hp@600 Vdc.
▽ Not suitable for use as service equipment.
◒ One enclosure for NEMA 1, 3, 3R or 12 applications. UL Listed.

## UL Listed Maximum Short Circuit Current Ratings—AC only

***NOTE:*** *Consult the wiring diagram of the switch to verify the UL Listed short circuit current rating.*

### Table 3.12: Fusible Safety Switches

**For the short circuit current rating, refer to the table below.**

| Heavy Duty Safety Switch Type | UL Listed Fuse Class | UL Listed Short Circuit Current Ratings |
|---|---|---|
| Fusible | H, K | 10 kA |
| | R, J, L | 200 kA✱ |

✱ On 600 V, 200 A switches, 100,000 A max. on corner grounded delta when protected by Class J or R fuses.

## Non-Fusible Safety Switches

Any brand of circuit breaker or fuse not exceeding the ampere rating of the switch may be used in conjunction with an non-fusible safety switch when there is up to 10 kA short circuit current available (see table below).

**Above 10 kA**—When applied on systems with greater than 10 kA short circuit current available, the UL Listed short circuit current rating for Square D non-fusible switches is based upon the switch being used in conjunction with fuses or Square D circuit breakers or Mag-Gard motor circuit protectors.

### Table 3.13: Non-Fusible Safety Switches

| Heavy Duty Safety Switch Type | Switch Rating (A) ♦ | Fuse or Circuit Breaker Type◑ | 3-Phase | | |
|---|---|---|---|---|---|
| | | | 240 Vac | 480 Vac | 600 Vac |
| Non-Fusible Switches | All | Any brand circuit breaker | Up to 10 kA | | |
| | | H, K | | | |
| | | R,T,J.L | 200 kA | 200 kA | 200 kA |
| | 30–100 | H ✪ | 65 kA | 35 kA | 35 kA |
| | 30–100 | FA | 14 kA | 14 kA | 14 kA |
| | 30–100 | FH | 18 kA | 18 kA | 18 kA |
| | 200 | H, J ✪ | 65 kA | 35 kA | 35 kA |
| | 400 | LA | 22 kA | 22 kA | 22 kA |
| | 400 | LH | 25 kA | 25 kA | 25 kA |

♦ Applies to NEMA 1, 3R, 4X stainless, 12 switches.
◑ Ampere rating of fuse or circuit breaker not to exceed switch ampere rating.
✪ All H and J circuit breakers are acceptable, but will only support the noted Short Circuit Current Ratings.





© 2012 Schneider Electric
All Rights Reserved

## 316 Grade Stainless Steel—NEMA 3, 3R, 4, 4X, 5, 12

Type 316 stainless steel enclosure safety switches offer superior corrosion resistance to a wider range of chemicals than Type 304 stainless switches. Type 316 better resists chloride and is often used in marine, waste treatment and transportation applications. Use watertight hubs from page 3-10. Equipment grounding lugs are supplied as standard.
(For Type 304 stainless switches see pages 3-4–3-6.)


H361SS

**Table 3.14: 3P 600 Vac, 600 Vdc**

| Amperes | Cat. No | $ Price | Horsepower Ratings– 3Ø▲ | | | | |
|---|---|---|---|---|---|---|---|
| | | | 480 Vac | | 600 Vac | | 600 Vdc■ |
| | | | Std. | Max. | Std. | Max. | Max. |
| **Fusible** | | | | | | | |
| 30 | H361SS | **3444.00** | 5 | 15 | 7-1/2 | 20 | 15 |
| 60 | H362SS | **3792.00** | 15 | 30 | 15 | 50 | 30 |
| 100 | H363SS | **7562.00** | 25 | 60 | 30 | 75 | 50 |
| 200 | H364SS | **10592.00** | 50 | 125 | 60 | 150 | 50 |
| 400 | H365SS | **21622.00** | 100 | 250 | 125 | 350 | 50 |
| 600 | H366SS | **30528.00** | 150 | 400 | 200 | 500 | 50 |
| **Non-Fusible** | | | | | | | |
| 30 | HU361SS | **2898.00** | — | 20 | — | 30 | 15 |
| 60 | HU362SS | **3444.00** | — | 50 | — | 60 | 30 |
| 100 | HU363SS | **7029.00** | — | 75 | — | 100 | 50 |
| 200 | HU364SS | **9623.00** | — | 125 | — | 150 | 50 |
| 400 | HU365SS | **17758.00** | — | 250 | — | 350 | 50 |
| 600 | HU366SS | **26306.00** | — | 400 | — | 500 | 50 |

## Fiberglass Reinforced Polyester Enclosures—NEMA 4X

Fiberglass reinforced polyester enclosures are watertight, corrosion resistant, and impervious to windblown dust, rain, and splashing liquid. The molded fiberglass is extremely stable in a wide range of operating temperatures and can withstand heavy impact. Switches are furnished with hubs (page 3-14) and equipment grounding lugs. UL Listed.


H363DF

**Table 3.15: 3P 600 Vac, 600 Vdc**

| Amperes | Cat. No. | $ Price | Class R Fuse Kits | | Electrical Interlock Kits Field-Installed Cat. No. | | Horsepower Ratings– 3Ø▲ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 480 Vac | | 600 Vac | | 600 Vdc■ |
| | | | Cat. No. | $ Price | 1 NO/1 NC Contacts | 2 NO/2 NC Contacts | Std. | Max. | Std. | Max. | Max. |
| **Fusible** | | | | | | | | | | | |
| 30 | H361DF | **3570.00** | RFK06 | **25.50** | 9999TC10 | 9999TC20 | 5 | 15 | 7-1/2 | 20 | 15 |
| 60 | H362DF | **3968.00** | RFK06H | **25.50** | 9999TC10 | 9999TC20 | 15 | 30 | 15 | 50 | 30 |
| 100 | H363DF | **7613.00** | RFK10 | **47.70** | 9999TC10 | 9999TC20 | 25 | 60 | 30 | 75 | 50 |
| 200 | H364DF | **9729.00** | HRK1020 | **47.70** | 9999R8 | 9999R9 | 50 | 125 | 60 | 150 | 50 |
| **Non-Fusible** | | | | | | | | | | | |
| 30 | HU361DF | **3402.00** | — | — | 9999TC10 | 9999TC20 | — | 20 | — | 30 | 15 |
| 60 | HU362DF | **3782.00** | — | — | 9999TC10 | 9999TC20 | — | 50 | — | 60 | 30 |
| 100 | HU363DF | **7241.00** | — | — | 9999TC10 | 9999TC20 | — | 75 | — | 100 | 50 |
| 200 | HU364DF | **9695.00** | — | — | 9999R8 | 9999R9 | — | 125 | — | — | 50 |

## Krydon™ Enclosures—NEMA 4X

Krydon enclosures are compression molded of fiberglass reinforced polyester, specially formulated to withstand attack from almost any corrosive atmosphere found in the toughest industrial application. Switches are furnished with hubs (page 3-14) and equipment grounding lugs. UL Listed.


H361DX

**Table 3.16: 3P, 600 Vac, 600 Vdc**

| Amperes | Cat. No. | $ Price | Class R Fuse Kits | | Electrical Interlock Kits Field-Installed Cat. No. | | Horsepower Ratings– 3Ø▲ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 480 Vac | | 600 Vac | | 600 Vdc■ |
| | | | Cat. No. | $ Price | 1 NO/1 NC Contact | 2 NO/2 NC Contacts | Std. | Max. | Std. | Max. | Max. |
| **Fusible** | | | | | | | | | | | |
| 30 | H361DX | **4161.00** | RFK06 | **25.50** | 9999TC10 | 9999TC20 | 5 | 15 | 7-1/2 | 20 | 15 |
| 60 | H362DX | **4626.00** | RFK06H | **25.50** | 9999TC10 | 9999TC20 | 15 | 30 | 15 | 50 | 30 |
| 100 | H363DX | **8858.00** | RFK10 | **47.70** | 9999TC10 | 9999TC20 | 25 | 60 | 30 | 75 | 50 |
| **Non-Fusible** | | | | | | | | | | | |
| 30 | HU361DX | **3960.00** | — | — | 9999TC10 | 9999TC20 | — | 20 | — | 30 | 15 |
| 60 | HU362DX | **4406.00** | — | — | 9999TC10 | 9999TC20 | — | 50 | — | 60 | 30 |
| 100 | HU363DX | **8438.00** | — | — | 9999TC10 | 9999TC20 | — | 75 | — | 100 | 50 |

## NEMA 7 and 9

An enclosed automatic molded case switch for use in Divisions 1 and 2 of the following: Class I, Groups C and D; Class II, Groups E, F and G; or Class III, Hazardous Locations as defined in NEC™ Article 500. Furnished with threaded conduit openings in both top and bottom endwall (page 3-14). Suitable for use as service equipment and listed as “Raintight” for outdoor applications. cULus Listed. Equipment grounding lugs supplied as standard.


H60XFA

**Table 3.17: 3 Pole Molded Case Switch, 600 Vac, 250 Vdc Maximum, Short Circuit Current Rating 10 kA AIR**

| Amperes | Enclosed Molded Case Switch★ | | Solid Neutral Assembly | | Horsepower Ratings—3Ø | | |
|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | 240 Vac | 480 Vac | 600 Vac■ |
| 60 | H60XFA | **2571.00** | 100SNA | **143.00** | 15 | 30 | 50 |
| 60 | H60XFA1212▼ | **2886.00** | 100SNA | **143.00** | 15 | 30 | 50 |
| 100 | H100XFA | **3045.00** | 100SNA | **143.00** | 30 | 60 | 75 |
| 100 | H100XFA1212▼ | **3287.00** | 100SNA | **143.00** | 30 | 60 | 75 |
| 225 | H225XJG□ | **6387.00** | 225SNA | **189.00** | 60 | 125 | 150 |
| 225 | H225XJGAA▼□ | **6701.00** | 225SNA | **189.00** | 60 | 125 | 150 |

New!

▲ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
■ For switching dc use two switching poles.
♦ Electrical interlock not available. For auxiliary switches, refer to page 7-4 for catalog number suffix and price adder (e.g. H60XFA1212).
★ Includes PKDB1, breather and drain kit, required for rainproof application—NEMA 7 only.
▼ Includes auxiliary contacts.
△ For available options, contact customer service prior to placing an order.
□ Not UL listed or CSA Certified due to wire bending space.

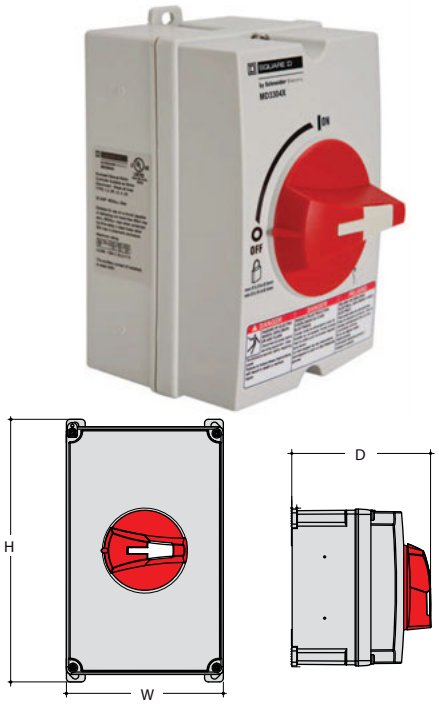


© 2012 Schneider Electric
All Rights Reserved

# New! MD Motor Disconnect Switches

Class **3110** / Refer to Catalog **3100CT0901**






MD Motor Disconnect Switches

The MD motor disconnect switch is listed UL508 Suitable For Motor Control (UL File E164864). It is in a compact NEMA 4X enclosure suitable for use in NEMA Type 1, 3, 3R, 4, 4X and 12 applications. The MD's key benefits are an extremely small footprint, a more economically efficient NEMA 4X solution and a handle interlock preventing cover removal when the switch is in the ON position.

**Table 3.18: MD Motor Disconnect Switch—Non Metallic NEMA 1, 3, 3R, 4, 4X and 12 Enclosure▲■♦**

| Amperes | Cat. No. | Maximum Horse Power Ratings | | | $ Price | Height (in.) | Width (in.) | Depth (in.) |
|---|---|---|---|---|---|---|---|---|
| | | Three Phase Vac | | | | | | |
| | | 220–240 | 440–480 | 600 | | | | |
| 30 | MD3304X | 7.5 | 20 | 25 | **121.00** | 6.38 | 3.9 | 4.37 |
| 60 | MD3604X | 20 | 40 | 40 | **161.00** | 8.27 | 4.94 | 4.37 |

▲ See table 8.9 for accessories.
■ Complies with OSHA lockout/tagout requirements—accepts up to three 8 mm padlocks.
♦ Suitable for NEMA 1, 3R, 4, 4X and 12 enclosure applications.

**Table 3.19: MD Motor Disconnect Accessories**

| Cat. No. | Description | $ Price |
|---|---|---|
| MDSAN20 | 2 Normally open auxiliary contact module | **57.00** |
| MDSAN11 | 1 normally open and 1 normally closed auxiliary contact module | **27.00** |
| MDS30P | 30 Amp Add on power pole | **35.00** |







© 2012 Schneider Electric
All Rights Reserved

## Interlocked Receptacle Switches

**Interlocked Receptacle Switches** are furnished with a factory-installed three-phase four-wire Appleton Powertite™, Crouse-Hinds Style 2 Arktite™, or Hubbellock™ receptacle. The fourth wire is connected to the switch equipment grounding terminal and is not a neutral termination. Interlocking linkage between the receptacle and switch mechanism prevents insertion or removal of the plug while the switch is in the "ON" position or insertion of any plug other than specified. Grounding lugs are included.



H362AWA
Interlocked Receptacle Switch with Appleton Powertite Receptacle

### Appleton Powertite Receptacle

- Devices are UL Listed and CSA Certified, suitable for use as service equipment.
- Receptacles are epoxy powder coated over copper-free cast aluminum and NEMA 3, 3R, 4, 4X and 12 rated. Appleton receptacles are UL Classified for use with the Crouse-Hinds plugs listed below.
- Short circuit rating: 10 kA when used in conjunction with Class H or K fuses; 200 kA when used in conjunction with Class R or J fuses.

| Amperes | NEMA 1 | | NEMA 3, 3R, 4, 4X, 5, 12 304 Stainless Steel Enclosure | | NEMA 12, 3R | | Use with Plug ▲ | | Horsepower Ratings–3Ø■ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 480 Vac | | 600 Vac | | 250 Vdc♦ | |
| | | | | | | | | | Std. | Max. | Std. | Max. | Std. | Max. |
| **Fusible—3P, 600 Vac, 250 Vdc** | | | | | | | | | | | | | | |
| 30 | H361WA | **2076.00** | H361DSWA | **4401.00** | H361AWA | **2289.00** | ACP3034BC | **1235.00** | 5 | 15 | 7-1/2 | 20 | 5 | — |
| 60 | H362WA | **2412.00** | H362DSWA | **4668.00** | H362AWA | **2508.00** | ACP6034BC | **1295.00** | 15 | 30 | 15 | 50 | 10 | — |
| 100 | H363WA | **3689.00** | H363DSWA | **8468.00** | H363AWA | **3758.00** | ACP1034CD | **1928.00** | 25 | 60 | 30 | 75 | 20 | — |
| **Non-Fusible—3P, 600 Vac, 250 Vdc** | | | | | | | | | | | | | | |
| 30 | HU361WA | **1893.00** | HU361DSWA | **4001.00** | HU361AWA | **2076.00** | ACP3034BC | **1235.00** | — | 20 | — | 30 | — | 5 |
| 60 | HU362WA | **2306.00** | HU362DSWA | **4412.00** | HU362AWA | **2357.00** | ACP6034BC | **1295.00** | — | 50 | — | 60 | — | 10 |
| 100 | HU363WA | **3153.00** | HU363DSWA | **8010.00** | HU363AWA | **3347.00** | ACP1034CD | **1928.00** | — | 75 | — | 100 | — | 20 |

▲ Receptacle UL Listed for use with "Appleton ACP or CPH" plugs; UL Classified for use with Crouse-Hinds "APJ" Arktite plugs listed on this page.
■ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
♦ For switching dc, use two switching poles.



H362AWC
Interlocked Receptacle Switch with Crouse-Hinds Arktite Receptacle

### Crouse-Hinds Arktite Receptacle

- UL Listed, suitable for use as service equipment.
- Short circuit ratings: 10 kA when used in conjunction with Class H or K fuses; 200 kA when used in conjunction with Class R or J fuses.

**Table 3.20:**

| Amperes | NEMA 1 | | NEMA 3, 3R, 4, 4X, 5, 12 304 Stainless Steel Enclosure | | NEMA 12, 3R | | Use with Plug | | Horsepower Ratings–3Ø★ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 480 Vac | | 600 Vac | |
| | | | | | | | | | Std. | Max. | Std. | Max. |
| **Fusible—3P, 600 Vac Maximum** | | | | | | | | | | | | |
| 30 | H361WC | **2139.00** | H361DSWC | **6377.00** | H361AWC | **2355.00** | APJ3485 | **1235.00** | 5 | 15 | 7-1/2 | 20 |
| 60 | H362WC | **2751.00** | H362DSWC | **7749.00** | H362AWC | **2846.00** | APJ6485 | **1295.00** | 15 | 30 | 15 | 50 |
| 100 | H363WC | **6005.00** | H363DSWC | **14826.00** | H363AWC | **6087.00** | APJ10487 | **1928.00** | — | 60 | — | 75 |
| **Non-Fusible—3P, 600 Vac Maximum** | | | | | | | | | | | | |
| 30 | HU361WC | **1952.00** | HU361DSWC | **5888.00** | HU361AWC | **2136.00** | APJ3485 | **1235.00** | — | 20 | — | 30 |
| 60 | HU362WC | **2634.00** | HU362DSWC | **7374.00** | HU362AWC | **2678.00** | APJ6485 | **1295.00** | — | 50 | — | 60 |
| 100 | HU363WC | **5249.00** | HU363DSWC | **14025.00** | HU363AWC | **5444.00** | APJ10487 | **1928.00** | — | 60 | — | 100 |

★ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.

### Hubbellock Receptacle

- UL Listed, suitable for use as service equipment.
- Short circuit rating: 10 kA.

**Note:** The Hubbellock receptacle switch utilizes the Square D interlocked plug SD12781 available only from Square D.



H362AWH
Interlocked Receptacle Switch with Hubbell™ Hubbellock Receptacle

**Table 3.21:**

| Amperes | NEMA 1 | | NEMA 12 | | Use with Plug | | Horsepower Ratings—3Ø▼ | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 480 Vac | | 600 Vac | |
| | | | | | | | Std. | Max. | Std. | Max. |
| **Fusible—3P, 600 Vac Maximum** | | | | | | | | | | |
| 60 | H362WH | **2351.00** | H362AWH | **2459.00** | SD12781△ | **609.00** | 15 | 30 | 15 | 50 |
| **Non-Fusible—3P, 600 Vac Maximum** | | | | | | | | | | |
| 60 | HU362WH | **2237.00** | HU362AWH | **2310.00** | SD12781△ | **609.00** | — | 50 | — | 60 |

▼ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
△ Hubbell plug is furnished with a Kellems grip for 1-1/2 in. to 1-21/64 in. cable diameter.

Accessories . . . . . pages 3-10 through 3-12.



© 2012 Schneider Electric
All Rights Reserved



RB Hub

### Rainproof Bolt-On Hubs—for use on NEMA 3R Enclosure

| Conduit Size | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 | Closing Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| Hub Cat. No. | B075 | B100 | B125 | B150 | B200 | B250 | B300 | B350 | B400 | BCAP |
| $ Price Each (DE1A) | 33.30 | 33.30 | 33.30 | 33.30 | 61.00 | 102.00 | 186.00 | 300.00 | 368.00 | 3.80 |

Note: NEMA 3R rainproof enclosures with Cat. No. ending in RB have a bolt-on closing cap factory-installed. Order bolt-on hubs separately from table above. For more details see page 1-13. Hubs through size 2-$^{1}/_{2}$ can be directly installed on RB devices. Devices requiring three-inch or larger hubs must have holes cut in the field. Gaskets are provided on three-inch and larger hubs.

Note: All hubs are UL Listed for indoor and rainproof applications and suitable for use with conduit having ANSI standard taper pipe thread.

### Watertight Hubs—for use on NEMA 4, 4X and 5 Stainless Steel and NEMA 12 Enclosures

| Conduit Trade Size | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard-Zinc Hub Cat. No. | H050 | H075 | H100 | H125 | H150 | H200 | H250 | H300 | H350 | H400 |
| Zinc $ Price Each | 31.10 | 45.00 | 47.10 | 54.00 | 83.00 | 120.00 | 138.00 | 177.00 | 282.00 | 381.00 |
| Chrome Plated Hub Cat. No. | H050CP | H075CP | H100CP | H125CP | H150CP | H200CP | — | — | — | — |
| Chrome Plated $ Price Each | 40.70 | 56.00 | 64.00 | 67.00 | 96.00 | 137.00 | — | — | — | — |

## Electrical Interlock Kits

Electrical interlocks for heavy duty 30–1200 A safety switches are available factory-installed or in kit form for field installation. Each kit contains instructions for proper field mounting. A pivot arm operates from switch mechanism, breaking the control circuit before the main switch blades break. Switches with electrical interlocks installed are UL Listed. For factory-installed electrical interlocks add EI (for one contact) or EI2 (for two contacts) suffix to catalog number. See Supplemental Digest page 2-3 for electrical interlock contact ratings.

**Table 3.22: Electrical Interlock Kit ▲**

| Switch's Amperes Rating | Series Number (See pages 3-13, 3-14) | Electrical Interlock Kit Cat. No. ■ | $ Price | Factory-Installed $ Price |
|---|---|---|---|---|
| 30 | F1, F5–F7 | EIK031♦ ★<br>EIK032♦ ★ | 218.00 | 359.00 |
| | F3 | EIK1<br>EIK2 | 311.00 | 452.00 |
| 60 | F1-F3<br>F5–F7 (600 V) | EIK1<br>EIK2 | 311.00 | 452.00 |
| | F4<br>F5–F6 (240 V) | EIK031▼<br>EIK032▼ | 218.00 | 359.00 |
| 100–200 | F2–F7 | EIK1<br>EIK2 | 311.00 | 452.00 |
| 400–1200 | E1–E4 | EIK40601<br>EIK40602 | 533.00 | 674.00 |

▲ See page 3-7 for electrical interlocks on NEMA 4X fiberglass reinforced polyester and Krydon™.

■ Electrical interlock kit catalog numbers with 1 suffix indicates one normally open and one normally closed contact; 2 indicates two normally open and two normally closed contacts. Kits are UL Listed.

♦ HU461AWK uses EK3061 or EK3062.

★ The following Series F5–F7 devices use EIK-1, 2: H3612, H3612A, H3612AWK, H3612RB, H461, H461DS, H461AWK, HU461, HU461DS, HU661DS, HU661AWK, H361AWA, H361AWC, HU361AWA and HU361AWC.

▼ H362WA, HU362WA, H362WC, H362AWA, HU362AWA, H362AWC, HU362AWC, and H2212AWK use EIK1 or EIK2 electric interlock.

△ Single-pole single-throw interlock kits are rated 1/2 hp @ 110 and 220 Vac.

## Class R Fuse Kits

When installed, this kit rejects all but Class R fuses. Kits are available for field installation. For factory installation, add "CLR" suffix to catalog number.

**Table 3.23: Class R Fuse Kits—240 V (one kit per 3P switch)**

| Amperes | Series Number (See pages 3-13, 3-14) | Class R Fuse Kit Cat. No. | $ Price | Factory-Installed $ Price |
|---|---|---|---|---|
| 30 | F5–F7 | RFK03L□ | 25.50 | 195.00 |
| 60 | F1, F2, F3 | RFK06 | 25.50 | 195.00 |
| 60 | F4–F7 | RFK03H | 25.50 | 195.00 |
| 100 | F2–F7 | RFK10 | 47.70 | 231.00 |
| 200 | F5–F6 | HRK1020 | 47.70 | 231.00 |
| 400–600 | E | HRK4060 | 111.00 | 360.00 |

□ H221-2AWK uses RFK06 Class R fuse kit.

**Table 3.24: Class R Fuse Kits—600 V (one kit per 3P switch)**

| Amperes | Series Number (See pages 3-13, 3-14) | Class R Fuse Kit Cat. No. | $ Price | Factory-Installed $ Price |
|---|---|---|---|---|
| 30 ◊ | F1, F5–F7 | RFK03H☆ | 25.50 | 293.00 |
| 30 ◊ | F3 | RFK06 | 25.50 | 293.00 |
| 60 ◊ | F1–F7 | RFK06H ☆ | 25.50 | 293.00 |
| 100 ◊ | F2–F7 | RFK10 | 47.70 | 231.00 |
| 200 | F5–F6 | HRK1020 | 47.70 | 231.00 |
| 400–600 | E2–E4 | HRK4060 | 111.00 | 360.00 |

◊ See page 3-7 for Class R Fuse Kits in NEMA 4X Fiberglass Reinforced Polyester and Krydon switches.

☆ The following Series F5–F7 devices use RFK06: H3612, H3612A, H3612AWK, H3612RB, H461, H461DS, H461AWK, H361AWA and H361AWC.

## Internal Barrier Kits

**Internal Barrier Kits** provide an additional barrier that helps prevent accidental contact with live parts. Field-installed transparent barriers do not restrict visual inspection of the switch. Barriers provide IEC529 IP2X "finger safe" protection when door of enclosed disconnect switch is open. Convenient door allows use of test probes without accessing fuses and replacement of fuses without removing barrier. Barrier can also be used with the skirt kit to enclose a panel mounted Type 9422 disconnect.

| Cat. No. | Description | Safety Switch Application (F Series Only) | 9422 Type T Disconnect Application | $ Price |
|---|---|---|---|---|
| SS03 | Interior Barrier for 30 A Safety Switch▽ | 240 / 600 Vac – 30 A<br>240 Vac – 60 A | NA | 150. |
| SS06 | Interior Barrier for 60 A Safety Switch, 30 or 60 A 9422 Switch | 600 Vac – 60 A | 600 Vac – 30 A<br>600 Vac – 60 A | 165. |
| SS10 | Interior Barrier for 100 A Safety Switch or 100 A 9422 Switch | 240 / 600 Vac – 100 A | 600 Vac – 100 A | 195. |
| SS20 | Interior Barrier for 200 A Safety Switch | 240 / 600 Vac – 200 A | NA | 225. |
| SS0306SK | Skirt Kit to Enclose 30 or 60 A 9422 Switch (requires SS06) | NA | 600 Vac – 30 A<br>600 Vac – 60 A | 225. |
| SS10SK | Skirt Kit to Enclose 100 A 9422 Switch (requires SS10) | NA | 600 Vac – 100 A | 255. |

▽ Requires arc shield on 240 V switches be changed to 600 V arc suppressor.

## Fuse Puller Kits

Kit consists of three fuse pullers as required for a 3-pole fusible 240 V or 600 V heavy duty switch. Kits can be installed in switches manufactured after February, 1980. Fuse pullers supplied as standard equipment on NEMA 12, 12K, NEMA 4, 4X, 5 stainless steel, NEMA 4X fiberglass reinforced polyester and KRYDON switches through 100 A.

| Amperes | Series Number | Fuse Puller Kit Cat. No. | $ Price |
|---|---|---|---|
| 30<br>30 | F1, F5–F7<br>F3 | FPK03 ◒<br>FPK0610 | 30.00<br>42.60 |
| 60<br>60 ✱ | F1, F2, F3, F5–F7 (600 V)<br>F4 ✱, F5–F7 (240 V) | FPK0610<br>FPK03 ✱ | 42.60<br>30.00 |
| 100 | F2–F7 | FPK0610 | 42.60 |

◒ 30 A 4- and 6-pole, H361-2 and H361-2RB Series F5 use FPK0610.

✱ H362WA, H362WC, H362AWA, H362AWC, H362WH and H362AWH use FPK0610 fuse puller kit.





© 2012 Schneider Electric
All Rights Reserved

### Neutral Assemblies—Field-Installed Neutral Assemblies for Fusible and Non-Fusible 240 and 600 Volt Safety Switches

| Amperes | Series Number (See pages 3-13, 3-14) | Standard Neutral Kit Cat. No. | Terminal Data AWG/kcmil | $ Price | Optional Copper Only Neutral Kit Cat. No. | Terminal Data AWG/kcmil | $ Price |
|---|---|---|---|---|---|---|---|
| 30 | F1, F5–F6 | SN03▲ | (3) 2 Max. Al/Cu | **83.00** | SN03C▲ | (3) 6 Max. Cu | **102.00** |
| 60 | F1–F3, F5–F6 (600 V) | SN0610 | (2) 1/0 Max. Al/Cu<br>(2) 6 Max. Al/Cu | **107.00** | SN0610C | (2) 1/0 Max. Cu<br>(2) 6 Max. Cu | **114.00** |
| | F4, F5–F6 (240 V) | SN03▲ | (3) 2 Max. Al/Cu | **83.00** | SN03C▲ | (3) 6 Max. Cu | **102.00** |
| 100 | F2–F6 | SN0610 | (2) 1/0 Max. Al/Cu<br>(2) 6 Max. Al/Cu | **107.00** | SN0610C | (2) 1/0 Max. Cu<br>(2) 6 Max. Cu | **114.00** |
| 200■ | F5–F6 | SN20A | (2) 250 Max. Al/Cu<br>(1) 1/0 Max. Al/Cu | **200.00** | SN20C | (2) 250 Max. Cu<br>(1) 1/0 Max. Cu | **246.00** |
| 400 and 600 | E1–E4 | H600SN | (4) 750 Max. Al/Cu<br>(1) 300 Max. Al/Cu | **327.00** | H600SNC | (2) 600 Max. Cu<br>(2) 350 Max. Cu<br>(1) 250 Max. Cu | **452.00** |
| 800 | E2–E4 | H800SNE4 | (6) 750 Max. Al/Cu<br>(2) 350 Max. Al/Cu | **753.00** | — | — | — |
| 1200 | E2–E4 | H1200SNE4 | (8) 750 Max. Al/Cu<br>(2) 350 Max. Al/Cu | **1034.00** | — | — | — |

Note: Neutrals cannot be installed in 4P, 6P, or 200 A NEMA 4X fiberglass reinforced polyester safety switches.

▲ The following Series F5–F6 devices use SN0610(C): H-361-2, H-361-2RB, H-361-2A and H-361-2AWK.

■ For 200% neutral, order (2) neutral kits and (1) SN20NI neutral jumper kit. (2) 350 Max. Al/Cu.

## Equipment Grounding Kits□

Equipment grounding kits are field-installed and UL Listed in 30–1200 A heavy duty switches. For factory installation of equipment grounding kit, add suffix GL to standard Cat. No. (Example: H361GL).
Price = Switch + Kit Price.

### Equipment Grounding Kits—Field- or Factory-Installed Equipment Grounding Kits–240 and 600 V

| Amperes | Series Number (See pages 3-13, 3-14) | Standard Cat. No. | Terminal Data AWG/kcmil | $ Price | Optional Copper Only Cat. No. | Terminal Data AWG/kcmil | $ Price |
|---|---|---|---|---|---|---|---|
| 30 | F1, F5–F7 | GTK03♦ | (2) 12 Cu or (2) 10 Al or (1) 4 Max. Al/Cu | **11.40** | GTK03C♦ | (1) 6 Max. Cu | **13.40** |
| 60★ | F1–F3★, F5–F7 (600 V) | GTK0610★ | (2) 1/0 Max. Al/Cu | **18.90** | GTK0610C★ | (2) 4 Max. Cu | **22.70** |
| 60 | F4, F5–F6 (240 V) | GTK03 | (2) 12 Cu or (2) 10 Al or (1) 4 Max. Al/Cu | **11.40** | GTK03C | (1) 6 Max. Cu | **13.40** |
| 100 | F2–F7 | GTK0610 | (2) 1/0 Max. Al/Cu | **18.90** | GTK0610C | (2) 4 Max. Cu | **22.70** |
| 200 | F5–F7 | PKOGTA2 | (2) 2/0 Max. Al/Cu | **55.00** | PKOGTC2 | (2) 4 Max. Cu | **58.00** |
| 400 and 600 | E2–E4 | PKOGTA2▼ (2 Required) | (2) 2/0 Max. Al/Cu | **55.00** | PKOGTC3 | (3) 1/0 Max. Cu | **107.00**△ |
| 800 | E2–E4 | PKOGTA7 | (4) 350 Max. Al/Cu | **198.00**△ | — | — | — |
| 1200 | E2–E4 | PKOGTA8 | (8) 350 Max. Al/Cu | **203.00**△ | — | — | — |

♦ The following Series F5–F6 devices use GTK0610(C): H-361-2 and H-361-2RB.

★ 4- and 6-pole 30 A F Series.

▼ Two required if grounding conductors are run in parallel.

△ PE1A Discount Schedule

□ Equipment Ground Kits are factory-installed standard in 30–200 A series F NEMA 4-4X-5 (stainless) and 12. Equipment Ground Kits are standard on all NEMA Types, Series F 30–200 A 4 and 6 pole switches.

### Table 3.25: Square D Gray Paint

| Description | Cat. No. | $ Price |
|---|---|---|
| 16 oz. Aerosol Paint Can, Square D Gray Paint | PK49SP | **39.00 ea.** |

Note: Shipped in quantities of 6.

## Special Paint

UL Listed heavy duty switches are available painted with special safety colors. To order safety colored switches add suffixes as noted in Table 3.26 to the standard switch commercial reference number.

All colors comply with OSHA Standard 1910.144 and ANSI Specification Z535.1 for marking physical hazards.

### Table 3.26: Safety Colors

| Safety Color | Suffix |
|---|---|
| Black | SP0 |
| Red | SP2 |
| Orange | SP3 |
| Yellow | SP4 |
| Green | SP5 |
| Blue | SP6 |
| Purple | SP7 |
| Gray | SP8 |
| Gray ANSI 61 | SP861▲ |
| White | SP9 |

▲ Standard Square D ANSI 49 grey paint, when selecting this suffix, switches will receive additional coat of paint.

**A minimum quantity of 10 is required.** Not available for NEMA Type 7/9 or stainless steel products.

### Price Adder Each Switch

| Quantity | $ Price | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 30 A | 60 A | 100 A | 200 A | 400 A | 600 A | 800 A | 1200 A |
| 10 | **242.00** | **278.00** | **434.00** | **479.00** | **1137.00** | **2801.00** | **3501.00** | **4376.00** |

## Lock-Off Guard Kits★

Available factory- or field-installed the lock-off guard works by covering the lockout/tagout opening whenever the switch is in the ON position. This prevents a padlock from being inadvertantly inserted into the switch lockplate. The device is designed to help prevent accidental misapplication of a lockout device. These kits are marked cURus (UL Component Recognized) for field or factory installation.



| Amperes♦ | Kit Cat. No. | Field-Installed $ Price | Factory-Installed $ Price |
|---|---|---|---|
| 30 A<br>60 A 240 V | LOGK1 | **44.30** | **146.00** |
| 60 A 600 V<br>100 and 200 A | LOGK2 | **45.00** | **177.00** |

■ For factory installation, add suffix "LOG" to the switch catalog number.

♦ For use with 30–200 Ampere Series F NEMA 1, 3R, 12 and 12K switches only.

★ Factory install and kits are available for NEMA 1, 3R, 12 and 12K switch enclosures only.



© 2012 Schneider Electric
All Rights Reserved

## Key Interlock Systems



Factory-installed only on heavy duty safety switches and double throw safety switches.

Interlocks are used to prevent the authorized operator from making an unauthorized operation. Not available on hazardous location devices (NEMA 7/9) or fiberglass reinforced polyester (NEMA 4X).

The key interlock system is a simple and easy method of applying individual key interlock units and assemblies to the above equipment so as to require operation in a predetermined sequence. UL Listed.

Quoting:

Contact Schneider Electric for catalog number, availability, and pricing prior to quoting a job.

Detailed information is required before an order can be processed. Please see Supplemental Digest Section 2 for further information.

Use these suffixes on switch catalog numbers:

- KI = 1 lock per switch
- KI2 = 1 lock with 2 cylinders (2 keys) per switch
- KIKI = 2 separate locks per switch

Table 3.27: Price Adder Per Lock ▲

| Switch Type | $ Price |
|---|---|
| 30–1200 A Heavy Duty | 2055.00 |
| 30–600 A Double Throw | 1988.00 |

▲ Prices do not apply when more than three devices are interlocked, as these schemes normally require more than one key assembly per device.

## Lock-On Provisions

Lock-off provisions are standard on all heavy duty safety switches. Provision for one $\frac{3}{8}$-inch hasp padlock is available factory-installed on NEMA 1, 3R, 4-4X-5 stainless steel and 12 switches. This modification will allow the switch to be locked in the "ON" position. UL Listed.

Table 3.28: Price Adder Per Each Switch

| Safety Switch Rating | $ Price |
|---|---|
| 30–1200 A | 155.00 |

To order, add suffix SPLO to standard catalog number. Example: H364-SPLO

## Cover Viewing Window



Optional cover viewing window is positioned over the blades to allow visual verification of "ON-OFF" status. Available on 30 through 1200 A heavy duty switches, all NEMA Types. (Not available on NEMA 4X fiberglass reinforced polyester, Krydon™ enclosures, or NEMA 7 and 9 devices.)

Factory-installed only: add "VW" suffix to the Cat. No. See table below for price adder.

Table 3.29: Price Adder Per Switch—UL Listed

| Class | Amperes | 2- and 3-Pole | 4- and 6-Pole |
|---|---|---|---|
| Heavy Duty | 30–100 A | 38.00 | 75.00 |
| Heavy Duty | 400–1200 A | 2297.00 | — |
| Double Throw | 30–100 A | 255.00 | 510.00 |

## Switch Lubricant

Field maintenance lubricant is available for servicing blade and jaw components in switches 600 V and below. Catalog number SWLUB (list price $24.14) consists of one tube of BG20 High Performance Synthetic Grease manufactured by Dow Corning®. SWLUB is available in warehouse stock, shipped individually or in multiples of 12 units per carton.

## Copper Only Lug Kits

Heavy duty safety switches are supplied standard with Al lugs, which accept both Cu and Al wires. For field installation of copper-only lug kits, order kits below. For factory installation of copper only lugs, add suffix SLC to standard Cat. No. Note: 30 through 200 Amperes NEMA 12, 12K and stainless steel switches with factory-installed lugs bear the UL Marine Listed manifest for use on vessels over 65 feet long. 30 through 200 Amperes NEMA 12, 12K and stainless steel switches using field-installed copper only lug kits are UL Marine Listed, but do not bear the marine manifest.

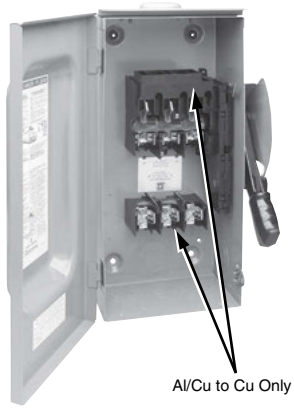



Table 3.30: Kits–Wire size (pp 3-13)

| Amperes | Lug Kit Cat. No.■ | Kit $ Price | Factory-Installed Adder per Switch |
|---|---|---|---|
| 30 | CL0306F | 69.00 | 224.00 |
| 60 | CL0306F | 69.00 | 224.00 |
| 100 | CL10F | 159.00 | 431.00 |
| 200 | CL20F | 264.00 | 717.00 |
| 400 | CL40F | 549.00 | 1490.00 |
| 600 | CL60F | 893.00 | 2426.00 |
| 800 | — | — | — |
| 1200 | — | — | — |

■One kit includes all phase line/load lugs for a 3-pole switch.

## Double Lug Kits

200 A heavy duty F-series switches are supplied standard with lugs listed on page 3-13 (one wire per phase). For lugs that accept two wires per phase and neutral, order the following kit:

| Amperes | Lug Kit♦ Cat. No. | Kit $ Price★ | Lug wire range per phase and neutral AWG/kcmil | Switch wire range per phase and neutral AWG/kcmil |
|---|---|---|---|---|
| 200 | AL20DTF | 159.00 | (2) 6 –300 Cu/Al | (2) 6 –250 Cu/Al |

♦ Not UL Listed.
★ Kit contains 3 lugs. For double lugs for line and load, order 2 kits.

Table 3.31: 800 and 1200 A Compression Lug Kits–Field- Installed (See page 3-13 for 100–600 A Switches)

Series E4 800 and 1200 A safety switches are equipped as standard with mechanical lugs. Alternate compression lug kits are available for field installation and are UL Listed. Each kit consists of VCEL07512H1 Versa-Crimp™ Compression Lugs and lug landing connectors capable of converting line and load side of one switch pole or neutral.

Order one field-installed kit per pole or neutral per table below. Example: Three-pole three-wire requires three kits; three-pole, four-wire requires four kits.

| Amperes | Lug Kit Cat. No. | $ Price Per Pole or Neutral |
|---|---|---|
| 800 | H8LKE2 | 893.00 |
| 1200 | H12LKE2 | 1109.00 |

Note: For terminal lug data, refer to table below.

Table 3.32: Factory-Installed

Series E4 800 and 1200 A safety switches are available with factory-installed VCEL-075-12H1 Versa-Crimp compression lug kits (above). For factory installation, add suffix LK to standard Cat. No. (Example: H367LK) and use price adder from table below based on system type.

| Amperes | System | Factory-Installed $ Price Adder Per Switch |
|---|---|---|
| 800 | 2 Wire | 2106.00 |
| | 3 Wire | 2972.00 |
| | 4 Wire | 3839.00 |
| 1200 | 2 Wire | 2591.00 |
| | 3 Wire | 3696.00 |
| | 4 Wire | 4806.00 |

Note: For terminal Lug data refer to table below.

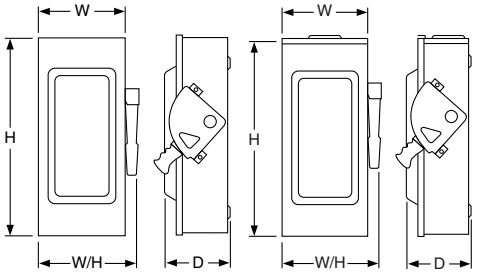
Table 3.33: Terminal Lug Data—800 and 1200 A Compression Lugs

| Amperes | Conductors Per Phase | Compression Lug (VCEL-075-12H1) Wire Range |
|---|---|---|
| 800 | (3) Line and (3) Load | 500–750 kcmil (Al) or 500 kcmil (Cu) |
| 1200 | (4) Line and (4) Load | 500–750 kcmil (Al) or 500 kcmil (Cu) |





© 2012 Schneider Electric
All Rights Reserved




Typical NEMA 1 Typical NEMA 3R

**Table 3.34: Terminal Lug Data (NEMA 1, 3R, 4, 4X, 5, 7, 9, 12)▲**

| Rating (A) | Conductors Per Phase and Neutral | Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil | Lug Wire Range AWG/kcmil | Optional Versa-Crimp™ Compression Lug Field-Installed■ |
|---|---|---|---|---|
| 30♦ | 1 | 12–6 (Al) or 14–6 (Cu) | 12–2 (Al) or 14–2 (Cu) | — |
| | 2 | 14–10 (Cu) solid or 14–10 (Cu) stranded | | |
| 60★ | 1 | 14–3 (Al) or 14–3 (Cu) | 12–2 (Al) or 14–2 (Cu) | — |
| 100 | 1 | 12–1/0 (Al) or 14–1/0 (Cu) | 12–1/0 (Al) or 14–1/0 (Cu) | VCEL02114S1 |
| 200▼ | 1 | 6–250 (Al/Cu) | 6–300 (Al/Cu) | VCEL030516H1 |
| 400 | 1 or 2 | 1/0–750 (Al/Cu)△ or 1/0–300 (Al/Cu) | 1/0–750 (Al/Cu) and 1/0–300 (Al/Cu) | VCEL07512H1 or VCEL030516H1□ and VCEL05012H1 |
| 600 | 2 | 3/0–500 (Al/Cu) | 3/0–500 (Al/Cu) | VCEL05012H1 |
| 800 | 3 | 3/0–750 (Al/Cu) | 3/0–750 (Al/Cu) | H8LKE2◊ |
| 1200 | 4 | 3/0–750 (Al/Cu) | 3/0–750 (Al/Cu) | H12LKE2◊ |

▲ 30–100 A switches suitable for 60°C or 75°C conductors. 200–1200 A switches suitable for 75°C conductors.
■ For NEMA 1 and 3R only.
♦ HU461AWK— 14–3 AWG (Al or Cu).
★ H60XFA— 14–6 AWG (Cu).
▼ H225XKA— 4 AWG–300 kcmil (Cu).
△ Max. wire range is (1) 600 kcmil or (2) 300 kcmil Al/Cu on NEMA 4X Stainless and NEMA 12.
□ Order two PK516KN mounting kits when installing VCEL030516H1 lugs. Only one kit is required on 2-Pole switches.
◊ See page 3-12, 800 and 1200 A compression lug kits for additional information.

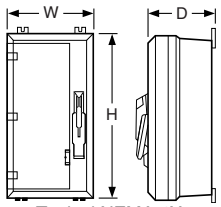
| Cat. No. | Series | Approximate Dimensions H in. | H mm | W in. | W mm | D in. | D mm | W/H in. | W/H mm |
|---|---|---|---|---|---|---|---|---|---|
| H221N | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| H221NRB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| H222N | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| H222NRB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| H223N | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H223NRB | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H224N | F5 | 29.00 | 737 | 17.13 | 435 | 8.25 | 210 | 18.50 | 470 |
| H224NRB | F5 | 29.25 | 743 | 17.25 | 438 | 8.50 | 216 | 18.63 | 473 |
| H225, N | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H225NR, R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H226, N | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H226NR, R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H227, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H227NR, R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H228, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H228NR, R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H265 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H265R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H266 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H266R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H267 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H267R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H268 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H268R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H321N | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| H321NRB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| H322N | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| H322NRB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| H323N | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H323NRB | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H324N | F5 | 29.00 | 737 | 17.13 | 435 | 8.25 | 210 | 18.50 | 470 |
| H324NRB | F5 | 29.25 | 743 | 17.25 | 438 | 8.50 | 216 | 18.63 | 473 |
| H325, N | E4 | 50.25 | 1276 | 27.88 | 708 | 10.13 | 257 | 27.88 | 708 |
| H325R, NR | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H326, N | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H326R, NR | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H327, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H327R, NR | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H328, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H328R, NR | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H361, N | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| H361-2 | F5 | 17.50 | 445 | 9.00 | 229 | 6.38 | 162 | 10.50 | 267 |
| H361NRB, RB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| H361WA | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| H361WC | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| H362, N | F5 | 17.50 | 445 | 9.00 | 229 | 6.38 | 162 | 10.50 | 267 |
| H362NRB, RB | F5 | 17.50 | 445 | 9.00 | 229 | 6.38 | 162 | 10.50 | 267 |
| H362WA | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| H362WC | F6 | 16.75 | 425 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362WH | F5 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| H363, N | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H363NRB, RB | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| H363WA | F6 | 21.85 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| H363WC | F6 | 21.85 | 555 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |

| Cat. No. | Series | Approximate Dimensions H in. | H mm | W in. | W mm | D in. | D mm | W/H in. | W/H mm |
|---|---|---|---|---|---|---|---|---|---|
| H364, N | F5 | 29.00 | 737 | 17.13 | 435 | 8.25 | 210 | 18.50 | 470 |
| H364RB, NRB | F5 | 29.25 | 743 | 17.25 | 438 | 8.50 | 216 | 18.63 | 473 |
| H365, N | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H365R, NR | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H366, N | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| H366NR, R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| H367, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H367NR, R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H368, N | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H368NR, R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H461 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| H462 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| H463 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| H464 | F5 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| H465 | E4 | 50.25 | 1276 | 33.88 | 861 | 10.13 | 257 | 33.88 | 861 |
| H466 | E4 | 50.25 | 1276 | 33.88 | 861 | 10.13 | 257 | 33.88 | 861 |
| HU265 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| HU265R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| HU266 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| HU266R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| HU267 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU267R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU268 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU268R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU361 | F5 | 14.60 | 371 | 6.50 | 165 | 4.88 | 124 | 7.55 | 192 |
| HU361RB | F5 | 14.88 | 378 | 6.63 | 168 | 4.88 | 124 | 7.55 | 192 |
| HU361WA | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU361WC | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU362 | F5 | 17.50 | 445 | 9.00 | 229 | 6.38 | 162 | 10.50 | 267 |
| HU362RB | F5 | 17.50 | 445 | 9.00 | 229 | 6.38 | 162 | 10.50 | 267 |
| HU362WA | F6 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU362WC | F6 | 16.75 | 425 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU362WH | F5 | 18.19 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU363 | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| HU363RB | F5 | 21.25 | 540 | 8.50 | 216 | 6.38 | 162 | 10.50 | 267 |
| HU363WA | F6 | 21.85 | 462 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU363WC | F6 | 21.85 | 555 | 9.00 | 229 | 6.81 | 173 | 10.50 | 267 |
| HU364 | F5 | 29.00 | 737 | 17.13 | 435 | 8.25 | 210 | 18.50 | 470 |
| HU364RB | F5 | 29.25 | 743 | 17.25 | 438 | 8.50 | 216 | 18.63 | 473 |
| HU365 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| HU365R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| HU366 | E4 | 50.25 | 1276 | 27.63 | 702 | 10.13 | 257 | 27.63 | 702 |
| HU366R | E5 | 50.31 | 1278 | 27.76 | 705 | 9.53 | 242 | 27.88 | 708 |
| HU367 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU367R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU368 | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU368R | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU461 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| HU462 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| HU463 | F5 | 20.50 | 521 | 14.75 | 375 | 6.85 | 174 | 16.13 | 410 |
| HU464 | F5 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| HU465 | E4 | 50.25 | 1276 | 33.88 | 861 | 10.13 | 257 | 33.88 | 861 |
| HU466 | E4 | 50.25 | 1276 | 33.88 | 861 | 10.13 | 257 | 33.88 | 861 |

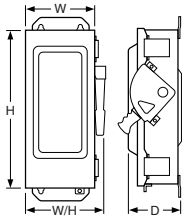


© 2012 Schneider Electric
All Rights Reserved

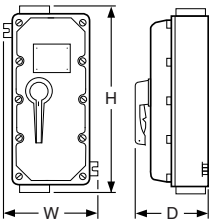
## NEMA Type 4, 4X, 5, 7, 9 and 12




Typical NEMA 4X Fiberglass Reinforced Polyester and Krydon™




Typical NEMA 4, 4X, 5, 12, 12K (Stainless has flat front)




Typical NEMA 7, 9

### Table 3.35: Optional Copper Only Lug Kits

**(See page 3-12 for pricing.** See page 3-13 for terminal lug data for the series switches listed in the dimension table below.**)**

| Amperes | Optional Lug Kit Cat. No.▲ | Lug Wire Range Per Phase AWG/kcmil |
|---|---|---|
| 30–60 | CL0306F | (1) 14–8 Cu solid or 14–4 Cu strand |
| 100 | CL10F | (1) 14–8 Cu solid or 14–1/0 Cu strand |
| 200 | CL20F | (1) 6–250 Cu |
| 400 | CL40F | (1) 1–600 Cu plus (1) 6–250 Cu |
| 600 | CL60F | (2) 4–350 Cu |

▲ One kit includes all phase line/load lugs for a 3-pole switch.

### Table 3.36: Conduit Provisions

(NEMA 4X Fiberglass Reinforced Polyester and Krydon, NEMA 7 and 9.)

| Amperes | Top and Bottom Endwall | |
|---|---|---|
| | NEMA 4X Fiberglass Reinforced Polyester and Krydon■ | NEMA 7 and 9♦ |
| 30 | 3/4 in. | — |
| 60 | 1-1/4 in. | 3/4 in. |
| 100 | 2 in. | 1-1/4 in. |
| 200 | 2-1/2 in. | 2-1/2 in. |

■ Hubs and hub drilling templates are provided for field-installation.
♦ Threaded conduit opening.

| Cat. No. | Series | Approximate Dimensions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | H | | W | | D | | W/H | |
| | | in. | mm | in. | mm | in. | mm | in. | mm |
| H60XFA | E1 | 15.93 | 405 | 9.87 | 251 | 6.96 | 177 | 9.87 | 251 |
| H100XFA | E1 | 15.93 | 405 | 9.87 | 251 | 6.96 | 177 | 9.87 | 251 |
| H221AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| H221DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H221-2AWK | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H222AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| H222DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H223AWK, A | F6 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H223DS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H224A,AWK | F6 | 29.00 | 737 | 17.25 | 438 | 8.75 | 216 | 18.63 | 473 |
| H224DS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| H225AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H225NAWK, NDS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H225XJG | C2 | 22.56 | 573 | 10.88 | 276 | 7.75 | 197 | 10.88 | 276 |
| H226AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H226NAWK, NDS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H227AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H228AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H265AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H266AWK, A, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H267AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H268AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H321AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| H321DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H322AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| H322DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H323AWK, A | F6 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H323DS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H324A,AWK | F6 | 29.00 | 737 | 17.25 | 438 | 8.75 | 216 | 18.63 | 473 |
| H324DS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| H325AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H325NAWK, NDS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H326AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H326NAWK, NDS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H327AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H328AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H361AWA | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H361AWC | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H361AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| H361DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H361DSWA | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.81 | 275 |
| H361DSWC | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.79 | 274 |
| H361DF | F1 | 16.50 | 419 | 11.00 | 279 | 8.80 | 224 | 11.00 | 279 |
| H361DX | F1 | 19.40 | 493 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| H361SS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| H361-2AWK, A | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362AWA | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362AWC | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362AWH | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362AWK, A | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H362DS | F6 | 16.87 | 428 | 8.92 | 227 | 6.97 | 177 | 10.81 | 275 |
| H362DSWA | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.81 | 275 |
| H362DSWC | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.79 | 274 |
| H362DF | F1 | 16.50 | 419 | 11.00 | 279 | 8.80 | 224 | 11.00 | 279 |
| H362DX | F1 | 19.40 | 493 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| H362SS | F6 | 16.87 | 428 | 8.92 | 227 | 6.97 | 177 | 10.81 | 275 |
| H363AWA | F7 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H363AWC | F7 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H363AWK, A | F6 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| H363DS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H363DSWA | F7 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H363DSWC | F7 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H363DF | F1 | 24.80 | 630 | 13.70 | 348 | 12.00 | 305 | 13.70 | 348 |
| H363DX | F1 | 25.25 | 641 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| H363SS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| H364A,AWK | F6 | 29.00 | 737 | 17.25 | 438 | 8.75 | 216 | 18.63 | 473 |
| H364DS,NDS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| H364NA,NAWK | F6 | 29.00 | 737 | 17.25 | 438 | 8.75 | 216 | 18.63 | 473 |
| H364DF | E1 | 31.30 | 795 | 26.30 | 668 | 11.80 | 300 | 26.30 | 668 |
| H364SS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| H365AWK, DS, SS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H365NAWK, NDS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H366AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H366NAWK, NDS, SS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| H367AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H368AWK, NAWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| H461AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| H461DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| H462AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| H462DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| H463AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| H463 DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| H464AWK | F6 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| H464DS | F6 | 29.00 | 737 | 23.75 | 603 | 8.88 | 226 | 25.25 | 641 |
| H465AWK | E4 | 46.25 | 1175 | 32.50 | 826 | 10.13 | 259 | 32.50 | 826 |
| H663AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| H663DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| H664AWK | F6 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| H664DS | F6 | 29.00 | 737 | 23.75 | 603 | 8.88 | 226 | 25.25 | 641 |
| HU265AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| HU266AWK, DS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| HU267AWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU268AWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU361AWA | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU361AWC | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU361AWK, A | F6 | 14.60 | 371 | 6.63 | 168 | 4.96 | 125 | 7.55 | 192 |
| HU361DS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| HU361DSWA | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.81 | 275 |
| HU361DSWC | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.79 | 274 |
| HU361DF | F1 | 16.50 | 419 | 11.00 | 279 | 8.80 | 224 | 11.00 | 279 |
| HU361DX | F1 | 19.40 | 493 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| HU361SS | F6 | 14.93 | 379 | 7.22 | 183 | 5.11 | 130 | 8.67 | 220 |
| HU362AWA | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU362AWC | F7 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU362AWH | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU362AWK, A | F6 | 16.50 | 419 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU362DS | F6 | 16.87 | 428 | 8.92 | 227 | 6.97 | 177 | 10.81 | 275 |
| HU362DSWA | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.81 | 275 |
| HU362DSWC | F7 | 16.87 | 428 | 8.92 | 227 | 5.11 | 130 | 10.79 | 274 |
| HU362DF | F1 | 16.50 | 419 | 11.00 | 279 | 8.80 | 224 | 11.00 | 279 |
| HU362DX | F1 | 19.40 | 493 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| HU362SS | F6 | 16.87 | 428 | 8.92 | 227 | 6.97 | 177 | 10.81 | 275 |
| HU363AWA | F7 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU363AWC | F7 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU363AWK, A | F6 | 20.50 | 521 | 9.00 | 229 | 7.00 | 178 | 10.50 | 267 |
| HU363DS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| HU363DSWA | F7 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| HU363DSWC | F7 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| HU363DF | F1 | 24.80 | 630 | 13.70 | 348 | 12.00 | 305 | 13.70 | 348 |
| HU363DX | F1 | 25.25 | 641 | 11.40 | 290 | 8.60 | 218 | 11.40 | 290 |
| HU363SS | F6 | 20.82 | 529 | 9.36 | 238 | 6.97 | 177 | 11.25 | 286 |
| HU364A,AWK | F6 | 29.00 | 737 | 17.25 | 438 | 8.75 | 216 | 18.63 | 473 |
| HU364DF | E1 | 31.30 | 795 | 26.30 | 668 | 11.80 | 300 | 26.30 | 668 |
| HU364DS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| HU364SS | F6 | 29.00 | 737 | 17.75 | 451 | 8.88 | 226 | 19.25 | 489 |
| HU365AWK, DS, SS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| HU366AWK, DS, SS | E4 | 46.25 | 1175 | 26.25 | 667 | 10.13 | 259 | 26.25 | 667 |
| HU367AWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU368AWK | E4 | 69.13 | 1756 | 36.62 | 930 | 17.75 | 451 | 36.62 | 930 |
| HU461AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 411 |
| HU461DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU462AWK | F6 | 21.25 | 540 | 16.13 | 410 | 6.80 | 173 | 16.13 | 410 |
| HU462DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU463AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| HU463DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU464AWK | F6 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| HU464DS | F6 | 29.00 | 737 | 23.75 | 603 | 8.88 | 226 | 25.25 | 641 |
| HU465AWK | E4 | 46.25 | 1175 | 32.50 | 826 | 10.13 | 259 | 32.50 | 826 |
| HU661AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| HU661DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU662AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| HU662DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU663AWK | F6 | 20.50 | 521 | 14.75 | 375 | 6.80 | 173 | 16.13 | 410 |
| HU663DS | F6 | 20.82 | 529 | 15.08 | 383 | 6.97 | 177 | 16.85 | 428 |
| HU664AWK | F6 | 29.00 | 737 | 23.25 | 591 | 8.75 | 222 | 24.88 | 632 |
| HU664DS | F6 | 29.00 | 737 | 23.75 | 603 | 8.88 | 226 | 25.25 | 641 |





© 2012 Schneider Electric
All Rights Reserved



## 30–100 A Types DT, DTU (Series F)

- Fusible (DT) and non-fusible (DTU) switches available
- Manually-operated switch suitable for use in accordance with article 702 of the NEC, ANSI/NFPA 70
- Standards: UL 98, NEMA KS1, CSA, and NOM
- Modular design—switch handle, lock-plate, switch mechanism; line and load bases are field replaceable
- UL Listed short circuit current ratings up to 200 kA (using Class R, J, or T fuses—see table for rating)
- Load make/break rated
- Meets NEMA hp ratings
- Dual cover interlock
- May be padlocked ON (I) or OFF (O)
- Lock-off accepts up to three padlocks
- Side-opening door
- Quick make / quick break mechanism
- Meets NEMA requirements as heavy duty switch
- Field-installed electrical interlock kits
- Field-installed neutral assembly kits (2P and 3P switches)
- UL Listed as suitable for use as service equipment
- Supplied as standard for switching one load between two power sources, and may be field-converted to switch on power source between two loads.



30–100 A DT, DTU (Series F)
NEMA 1

## 30 (Series T4), 200–600 A Types 82,000 and 200 A DTU (Series E, A)

- Non-fusible
- Designed for manual transfer of loads from one supply to another
- UL Listed switches are suitable for use in accordance with Article 702 of the National Electrical Code, ANSI / NFPA 70
- All 82,000 and DTU double throw switches are continuous duty rated for their nameplate ampere rating
- The 82,000 and DTU (Series E, A) switches are load make/break rated
- UL Listed as suitable for use as service equipment
- Horsepower rated only as footnoted.

### Field-Installed Accessories:

—Neutral
—Electrical Interlock
—Grounding Terminals

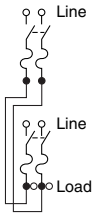
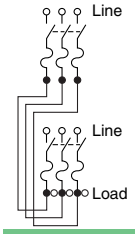
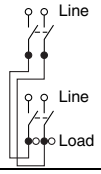
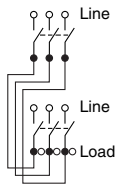
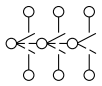
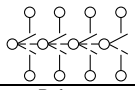


82,000 Line
NEMA 1



© 2012 Schneider Electric
All Rights Reserved

**Table 3.37: 240 V Double Throw Safety Switches**

| System | Amperes | Current Series | NEMA 1 | | NEMA 3R | | NEMA 4,4X,5 304 Stainless Steel | | NEMA 12 Gasketed | | Horsepower Ratings ▲■ 240 Vac Std. 1Ø | 240 Vac Std. 3Ø | 240 Vac Max. 1Ø | 240 Vac Max. 3Ø | 250 Vdc♦ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | | | | | |
| **Fusible—2P, 240 Vac—250 Vdc** | | | | | | | | | | | | | | | |
|  | 100 | F | DT223 | **2379.00** | DT223RB | **3056.00** | — | — | — | — | 7.5 | 15 ★ | 15 | 30 ★ | 20 |
| **Fusible—3P, 240 Vac—250 Vdc** | | | | | | | | | | | | | | | |
|  | 30 | F | DT321 | **1646.00** | DT321RB | **2216.00** | — | — | — | — | 1.5 ▼ | 3 ★ | 3 ▼ | 7.5 ★ | 5 |
| | 60 | F | DT322 | **1970.00** | DT322RB | **2612.00** | — | — | — | — | 3 ▼ | 7.5 ★ | 10 ▼ | 15 ★ | 10 |
| | 100 | F | DT323 | **3104.00** | DT323RB | **3725.00** | — | — | — | — | 7.5 ▼ | 15 ★ | 15 ▼ | 30 ★ | 20 |
| **Non-Fusible—2P, 240 Vac—250 Vdc** | | | | | | | | | | | | | | | |
|  | 60 | F | DTU222 | **962.00** | — | — | — | — | — | — | — | — | 10 | — | 10 △ |
| | 100 | F | DTU223 | **1371.00** | DTU223RB | **1347.00** | — | — | — | — | — | — | 15 | — | 20 △ |
|  | 30 | T4 | 92251 □ | **585.00** | — | — | — | — | — | — | — | — | — | — | — |
| | 200 | E | 82254 ◒ | **1815.00** | DTU224NRB □ ◊ ◒ | **2177.00** | — | — | H82254 | **4671.00** | 15 | — | — | — | — |
| | — | — | — | — | — | — | — | — | — | — | 15 | — | — | — | — |
| | 400 | A | 82255 □ | **5850.00** | 82255R □ | **8715.00** | — | — | H82255 □ | **10335.00** | — | — | — | — | — |
| **Non-Fusible—3P, 240 Vac—250 Vdc** | | | | | | | | | | | | | | | |
|  | 30 | F | DTU321 | **804.00** | — | — | — | — | — | — | — | 3 ★ | 5 ▼ | 10 ★ | 5 △ |
| | 60 | F | DTU322 | **1119.00** | — | — | — | — | — | — | — | — | 10 ▼ | 15 ★ | 10 △ |
| | 100 | F | DTU323 | **1764.00** | DTU323RB | **1953.00** | — | — | — | — | — | — | 15 ▼ | 30 ★ | 20 △ |
|  | 30 | T4 | 92351 □ | **687.00** | — | — | — | — | — | — | — | — | — | — | — |
| | 200 | E | 82354 □ | **2564.00** | DTU324NRB □ ◊ | **3005.00** | — | — | H82354 □ ☆ | **5408.00** | — | 15 | — | — | — |
| | 200 | E | DTU324N □ ◊ | **2798.00** | — | — | — | — | — | — | — | 15 | — | — | — |
| | 400 | A | 82355 □ | **8040.00** | 82355R □ | **13038.00** | — | — | H82355 □ | **11715.00** | — | — | — | — | — |
| | 600 | A | DTU326 | **12555.00** | DTU326R | **13890.00** | — | — | — | — | — | 125 | — | — | 50 |
| **Non-Fusible—4P, 240 Vac** | | | | | | | | | | | | | | | |
|  | 30 | T4 | 92451 | **953.00** | — | — | — | — | — | — | — | — | — | — | — |
| | 200 | E | 82454 ◒ | **5184.00** | 82454R ◒ | **7517.00** | — | — | H82454 ▽ | **6779.00** | — | 15 ▽ | — | — | — |
| | 400 | A | 82455 | **11505.00** | 82455R | **16200.00** | — | — | H82455 | **15975.00** | — | — | — | — | — |
| | 600 | A | DTU426 | **20355.00** | DTU426R | **20595.00** | — | — | — | — | — | 125 | — | — | 50 |

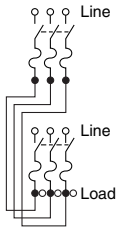
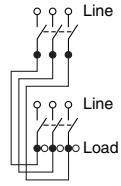
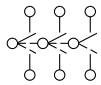
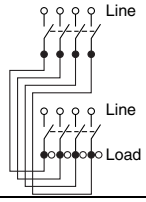
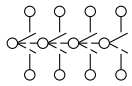
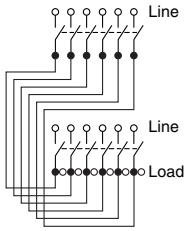
▲ Refer to page 7-31 for additional motor application data. The starting current of motors or more than standard horsepower may require the use of fuses with appropriate time delay characteristics.
■ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
♦ For switching dc, use two switching poles.
★ If used on corner grounded delta systems, install neutral and use outer switching pole for ungrounded conductors.
▼ Use outer switching poles.
△ Maximum rating.
□ 240 Vac only.
◊ Neutral included with device.
☆ Suitable for use as service equipment.
▽ Hp rating applies only to H82454.
◒ 250 V dc rated.

600 V Double Throw . . . . . page 3-17
Accessories . . . . . page 3-18
Application Data . . . . . page 3-19
Dimensions: 30–100 A (Series F) . . . . . page 3-20
Dimensions: 30, 200–600 A (Series E, T4, A) . . . . . page 3-21



© 2012 Schneider Electric
All Rights Reserved

## Table 3.38: 600 V Double Throw Safety Switches

| System | Amperes | Current Series | NEMA 1 | | NEMA 3R | | NEMA 4,4X,5 304 Stainless Steel | | NEMA 12 Gasketed | | Horsepower Ratings ▲✪ | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 240 Vac | | 480 Vac | | 600 Vac | | Vdc■ | |
| | | | | | | | | | | | std | max | std | max | std | max | 250 | 600 |
| | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | 3Ø | 3Ø | 3Ø ■ | 3Ø■ | 3Ø | 3Ø | | |
| **Fusible 3P, 600 Vac—600 Vdc** | | | | | | | | | | | | | | | | | | |
|  | 30 | F | DT361 | **2016.00** | DT361RB | **2678.00** | — | — | — | — | — | — | 5 | 15 | 7.5 | 20 | 5 | 15 |
| | 60 | F | DT362 | **2111.00** | DT362RB | **3135.00** | — | — | — | — | — | — | 15 | 30 | 15 | 50 | — | 30 |
| | 100 | F | DT363 | **3686.00** | DT363RB | **4427.00** | — | — | — | — | — | — | 25 | 60 | 30 | 75 | — | 50 |
| **Non-Fusible 3P, 600 Vac—600 Vdc** | | | | | | | | | | | 1Ø ★ | 3Ø ■ | 1Ø ★ | 3Ø ■ | 1Ø ★ | 3Ø | | |
|  | 30 | F | DTU361 | **879.00** | DTU361RB | **1544.00** | — | — | — | — | 5 | 10 | 7.5 | 20 | 10 | 30 | 5 | 15 |
| | 60 | F | DTU362 | **1254.00** | DTU362RB | **2045.00** | DTU362DS | **6306.00** | DTU362AWK ◪ | **3635.00** | 10 | 20▼ | 25 | 50 □ | 30 | 60 □ | 10 | 30 |
| | 100 | F | DTU363 | **2036.00** | DTU363RB | **3425.00** | DTU363DS | **9414.00** | DTU363AWK ◪ | **3894.00** | 20 | 40◊ | 40 | 75 ◊☆ | 40 | 75 ◊ | 20 | 50 |
|  | 200 | E | 82344▽◑ | **2783.00** | 82344RB ▽◑ | **5868.00** | 82344DS▽‡ | **11415.00** | H82344 ✱▽◊ | **7503.00** | — | — | — | 15 ◒ | — | — | — | — |
| | 400 | A | 82345 ◑ | **8213.00** | 82345R ◑ | **13140.00** | 82345DS ◑ | **15675.00** | H82345 ◑ | **12105.00** | — | — | — | — | — | — | — | — |
| | 600 | A | DTU366 ◑† | **13890.00** | DTU366R ◑† | **19800.00** | — | — | DTU366AWK◑† | **21675.00** | — | 125 | — | 250 | — | 350 | 50 | — |
| **Non-Fusible 4P, 600 Vac—600 Vdc** | | | | | | | | | | | 2Ø | 3Ø | 2Ø | 3Ø | 2Ø | 3Ø | | |
|  | 60 | F | DTU462 | **3035.00** | Use NEMA 12 | — | DTU462DS | **6683.00** | DTU462AWK ◪ | **4184.00** | 20 | 20 | 40 | 50 | 50 | 60 | 10 | 30 |
| | 100 | F | DTU463 | **3851.00** | | — | DTU463DS | **9978.00** | DTU463AWK ◪ | **6123.00** | 30 | 40 | 50 | 75 | 50 | 75 | 20 | 30 |
|  | 200 | E | 82444 ◑ | **6143.00** | 82444R ◑ | **8130.00** | 82444DS ◑ | **15105.00** | H82444 ✱▽◑ | **7143.00** | — | — | — | — | — | — | — | — |
| | 400 | A | 82445 ◑ | **12578.00** | 82445R◑ | **16800.00** | — | — | H82445◑ | **16845.00** | — | — | — | — | — | — | — | — |
| | 600 | A | DTU466 ◑ | **20355.00** | DTU466R ◑ | **23475.00** | — | — | — | — | — | 125 | — | 250 | — | 350 | 50 | — |
| **Non-Fusible 6P, 600 Vac—600 Vdc** | | | | | | | | | | | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | | |
|  | 60 | F | — | — | — | — | — | — | DTU662AWK ◪ | **8474.00** | — | 20 | — | 50 | — | 60 | 10 | 30 |
| | 100 | F | — | — | — | — | — | — | DTU663AWK ◪ | **12735.00** | — | 40 | — | 75 | — | 75 | 20 | 50 |

▲ Refer to page 7-31 for additional motor application data. The starting current of motors or more than standard horsepower may require the use of fuses with appropriate time delay characteristics.
■ If used on corner grounded delta systems, install neutral and use outer switching pole for ungrounded conductors.
♦ For switching dc, use two switching poles.
★ Use outer switching poles.
▼ Maximum Hp is 15 for corner grounded delta systems.
△ Maximum Hp is 30 for corner grounded delta systems.
□ Use 75°C #4 Cu or #2 Al conductors only.
◊ Use 75°C #1 Cu conductors only.
☆ Maximum Hp is 60 for corner grounded delta systems.
▽ 480 Vac maximum only, 250Vdc.
◒ Standard Hp rating.
✱ Not suitable for use as service equipment.
◊ 600 Vac max.
◑ 250 V dc rated.
✪ Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
(Non-fusible switches have max rating unless noted.)
◪ Complete rating on switch is NEMA 3R or 12.
For 3R applications, remove drain screw from bottom endwall.
◊ H82 ... and H92 ... devices are NEMA 12 only, intended for use indoors only.
‡ Not UL Listed.
† Copper lugs not listed or available.

240 V Double Throw . . . . . page 3-16
Accessories . . . . . page 3-18
Application Data . . . . . page 3-19
Dimensions: 30–100 A (Series F) . . . . . page 3-20
Dimensions: 30, 200–600 A (Series E, T4, A) . . . . . page 3-21



© 2012 Schneider Electric
All Rights Reserved

### Table 3.38: Neutral Assembly

| Switch | Field-Installed Standard Neutral Kit Cat. No. | Terminal Data AWG/kcmil | $ Price | Field-Installed Copper only Neutral Kit Cat. No. | Terminal Data AWG/kcmil | $ Price |
|---|---|---|---|---|---|---|
| 30–100 A Type DT, DTU (Series F) (2- and 3-pole switches only) | SN0310 | 14–1/0 Al/Cu | **114.00** | SN0310C | 14–1/0 Cu | **120.00** |
| 30 A (Series T4) (2- and 3-pole switches only) | ▲ | ▲ | **908.00** | — | — | — |
| 200 A Type 82000 and DTU (Series E) ■ | ▲ | ▲ | **1110.00** | — | — | — |
| 400 A Type 82000 | DT400N | (1) 4–600kcmil or (2) 1/0–250kcmil | **105.00** | — | — | — |
| 600 A Type DTU (Series A) | DT600NKD | 250–500kcmil | **452.00** | — | — | — |

▲ For Type 82,000 switches, neutral is available factory-installed on 2P and 3P double throw switches. Not UL Listed. To order, add suffix N to the standard catalog number and add the above price to the list price of the switch. For DTU switches, neutral is factory-installed in standard device and is UL Listed.

■ Neutral assembly catalog number DT200N can be added to 4P Type 82000 switches in the field.

### Table 3.39: Electrical Interlocks (For Electrical Interlock Contact Ratings, see Supplemental Digest page 2-4.)

| Switch | Field-Installed Electrical Interlock Kit Cat. No. ♦ | $ Price | Factory-Installed $ Price Adder Per Switch |
|---|---|---|---|
| 30–100 A Type DT, DTU (Series F) | EIK1, EIK2 ★◊ | **311.00** | **905.00▼** |
| 200 A Type 82000 and DTU (Series E) △ | □ | — | **1113.00▼** |
| 400 A Type 82000 | EK400DTU2 | **260.00** | **1533.00** |
| 600 A Type DTU (Series A) | DS200EK2D | **438.00** | — |

♦ Electrical interlock kit catalog numbers with "1" suffix indicate one normally open and normally closed contact; "2" indicates two normally open and two normally closed contacts. See page 3-10 for electrical interlock ratings.

★ 30–100 A Type DT, DTU (Series F) switches contain (2) separate switching mechanisms. Each mechanism will accept an electrical interlock. Some applications may therefore require (2) electrical interlocks.

▼ 30–100 A Type DT, DTU (Series F) switches with factory-installed electrical interlocks installed are UL Listed and interlocks are furnished with 2 N.O. /2 N.C. contacts installed in both "ON" positions. To order, add suffix EI to standard catalog number.

△ Electrical interlock EK400DTU2 can be added to 4-pole Type 82000 switches in the field.

□ Type 82000 and DTU switches are available with electrical interlock factory-installed only. Not UL listed. Electrical interlocks are furnished with 2 N.O./N.C. contacts and are installed in both "ON" positions. To order, add suffix EI to standard switch catalog number.

◊ Double throw switches 92251, 92351, and 92451 are not available with factory or field installed electrical interlocks.

### Table 3.40: Service Grounding Kit (Required for service equipment use.)

| Switch | Field-Installed Service Grounding Lug Kit Cat. No. | Terminal Data AWG/kcmil | $ Price |
|---|---|---|---|
| 30–100 A Type DT, DTU (Series F) | Included | Included | **std.** |
| 30 A Type 92,000 | DT30SG | (4) 14–4 Cu/Al | **29.40** |
| 200 A Type 82000 and DTU (Series E) | DT100SG | (3) 14–1/0 Cu/Al | **30.00** |
| 400 A Type 82000 | PKOGTA2 (2 required) | (4) 10–2/0 Cu or (4) 6–2/0 Al | **55.00** |
| 600 A Type 82000 (Series A) | DS468GKD | 6–250kcmil | **309.00** |

### Table 3.41: Class R Fuse Kits

When installed, this kit rejects all but Class R fuses. Kits are available for field installation. For factory installation, add "CLR" suffix to catalog number.

| Switch | Series Number | Class R Fuse Kit Cat. No. | $ Price | Factory-Installed | $ Price |
|---|---|---|---|---|---|
| **Class R Fuse Kits—240 V (two kits per 3P switch)** | | | | | |
| 30 A | F5 | RFK03 | **24.50** | | **390.00** |
| 60 A | F5 | RFK06 | **25.50** | | **390.00** |
| 100 A | F5 | RFK10 | **47.70** | | **390.00** |
| **Class R Fuse Kits—600 V (two kits per 3P switch)** | | | | | |
| 30 A | F5 | RFK06 | **25.50** | | **390.00** |
| 60 A | F5 | RFK06H | **25.50** | | **390.00** |
| 100 A | F5 | RFK10 | **47.70** | | **390.00** |

### Viewing Windows

See Table 3.29 for list price. Accessory available on 30–100 A DTU switches only.

### Key Interlock Systems

For factory-installed key interlocks, refer to page 3-12.

### Phenolic Legend Plate

For factory-installed phenolic legend plates, refer to Supplemental Digest page 2.3.

### Lock-On Provisions—UL Listed

Standard and feature on 30–100 A type DT and DTU (Series F), 82,000 (400 A only) and type 92,000 switches.

Feature available as facatory installed option for Type 82,000 (200 A only) and 200 A DTU (Series E) switches. Add the suffix SPLO to the catalog number and add **$410.** to the switches list price.



"RB Hub"

### Table 3.42: Rainproof Bolt-On Hubs—for use on NEMA 3R Enclosures

| Conduit Size | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 | Closing Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| **Hub Cat. No.** | B075 | B100 | B125 | B150 | B200 | B250 | B300 | B350 | B400 | BCAP |
| **$ Price Each☆** | **33.30** | **33.30** | **33.30** | **33.30** | **61.00** | **102.00** | **186.00** | **300.00** | **368.00** | **3.80** |

Note: NEMA 3R rainproof enclosures with catalog number ending in RB have a bolt-on closing cap factory-installed. Order bolt-on hubs separately from table above. For more details see page 1-13. Hubs through size 2-1/2 in. can be directly installed on RB devices. Devices requiring 3 in. or larger hubs must have holes cut in the field. Gaskets are provided on 3 in. and larger hubs.

Note: All hubs are UL Listed for indoor and rainproof applications and suitable for use with conduit having ANSI standard taper pipe thread.

☆ See Discount Schedule.

### Table 3.43: Watertight Hubs—for use on NEMA 4, 4X and 5 Stainless Steel and NEMA 12 Enclosures

| Conduit Trade Size | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 3-1/2 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Standard-Zinc Hub Cat. No.** | H050 | H075 | H100 | H125 | H150 | H200 | H250 | H300 | H350 | H400 |
| **Zinc $ Price Each** | **31.10** | **45.00** | **47.10** | **54.00** | **83.00** | **120.00** | **138.00** | **177.00** | **282.00** | **381.00** |
| **Chrome Plated Hub Cat. No.** | H050CP | H075CP | H100CP | H125CP | H150CP | H200CP | — | — | — | — |
| **Chrome Plated $ Price Each** | **40.70** | **56.00** | **64.00** | **67.00** | **96.00** | **137.00** | — | — | — | — |

240 V Double Throw . . . . . page 3-16
600 V Double Throw . . . . . page 3-17
Application Data . . . . . page 3-19
Dimensions: 30–100 A (Series F) . . . . . page 3-20
Dimensions: 30, 200–600 A (Series E, T4, A) . . . . . page 3-21





© 2012 Schneider Electric
All Rights Reserved

### Situations Requiring Fuses

30–100 A Type DT (Series F):

Select DT switches from pages 3-16, 3-17, which have provisions for accepting fuses.

30 A, 200–600 A Type 82,000 (Series E, T4, A), all DTU devices:

Use the non-fusible double throw switches from pages 3-16, 3-17 in conjunction with standard fusible devices, and install them according to diagram 1 or 2, below.

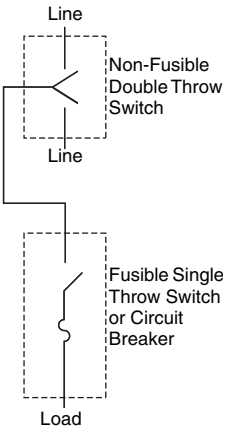



**Diagram 1**

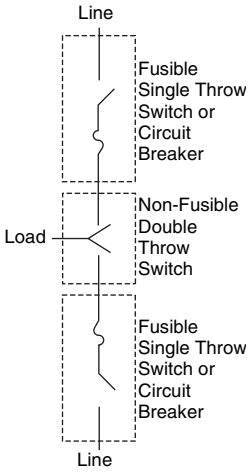



**Diagram 2**

### Table 3.44: UL Listed Short Circuit Current Ratings

| Switch Type | Amperes | Voltage Rating | UL Listed Fuse Class | Short Circuit Current Rating ▲ (A) |
|---|---|---|---|---|
| Type DT (Series F) | 30–100 A | 240 V or 600 V | H, K | 10,000 |
| | | | R, J | 200,000 |
| Type DTU ■ (Series F) | 30–100 A | 240 V or 600 V | H or K | 10,000 ♦ |
| | | | R, J or T | 200,000 |
| DTU224NRB and DTU324NRB (Series E) | 200 A | 240 V | H, K | 10,000 ♦ |
| DTU324N (Series E) | 200 A | 240 V | H, K | 10,000 ♦ |
| | | | R, J | 100,000 |
| Type 82,000 | all | 240 V | H, K | 10,000 ♦ |
| | | | R, J | 100,000 ★ |
| | | 600 V | H, K | 10,000 ♦ |
| Type DTU (A series) | 600 A | 240 V or 600 V | H, K | 10,000 |
| | | | R, J, T | 100,000 |

▲ Rating applies to AC only. The UL Listed short circuit current rating for non-fusible switches is based on the switch being used in conjunction with the corresponding fuse type. Evaluation of non-fusible switches in conjunction with molded case circuit breakers has not been performed.

■ The DTU361 and DTU361RB are also suitable for use on a circuit capable of delivering not more than
(A) 18 kA, 600 Vac maximum when protected by Type FH circuit breaker rated 30 A maximum or
(B) 14 kA, 600 Vac maximum when protected by Type FA circuit breaker rated 30 A maximum.

♦ Any brand of circuit breaker or fuse not exceeding the ampere rating of the switch may be used ahead of a non-fusible safety switch when there is up to 10 kA short circuit current available.

★ 400 A 82,000 switch is only 10 kA.

### Table 3.45: Terminal Lug Data for Type DT, DTU (Series F) Double Throw Safety Switches

| Switch Type | Wires per Phase | NEMA 1, 3R, 4, 4X, 12 | | | Optional Copper Only Lug |
|---|---|---|---|---|---|
| | | Wire Range Wire Bending Space Per NEC Table 373-6 AWG/kcmil | Standard Lug Wire Range AWG/kcmil | Optional Compression Lug Field-Installed | |
| 30–60 A Type DT, DTU (Series F) | 1 | 12–2 Al or 14–2 Cu | 12–2 Al or 14–2 Cu | C10-14, D8-14, or E6-14 ▼ | See pages 3-12 and 3-14 for appropriate kit. Order two kits per switch. |
| 100 A Type DT, DTU (Series F) | 1 | 12–1/0 Al or 14–1/0 Cu | 12–1/0 Al or 14–1/0 Cu | VCEL02114S1 △ | |

▼ Thomas and Betts catalog numbers.

△ Hubbell Versa-Crimp™ catalog numbers.

### Table 3.46: Terminal Lug Data for Types 82,000 and for A and E-Series DTU devices □

| Amperes | Wires per Phase | Wire Range Wire Bending Space Per NEC Table 373-6 AWG/kcmil | Lug Wire Range AWG/kcmil | Optional Compression Lugs Field-Installed |
|---|---|---|---|---|
| 30 A (Series T4) ◊ | 1 | 14–8 Al/Cu | 12–2 Al or 14–2 Cu | — |
| 200 | 1 | 6–300 Al/Cu | 6–300 Al/Cu | VCEL030516H1 ☆ |
| 400 | 1 or 2 | 1/0–600 Al/Cu or 1/0–300 Al/Cu | 1/0–600 Al/Cu | — |
| 600 | 2 | 250–500 Al/Cu | 250–500 Al/Cu | — |

□ 200–600 A switches suitable for 75°C conductors.

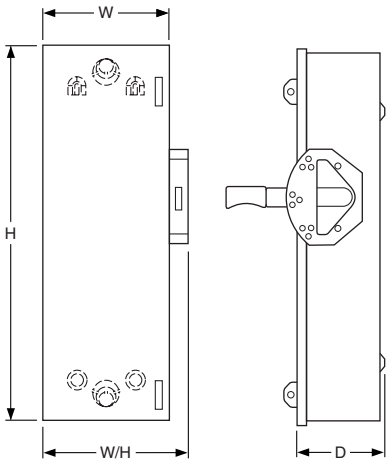
◊ 30 A switches suitable for 60°C or 75°C conductors.

☆ Hubbell Versa-Crimp™ catalog numbers.

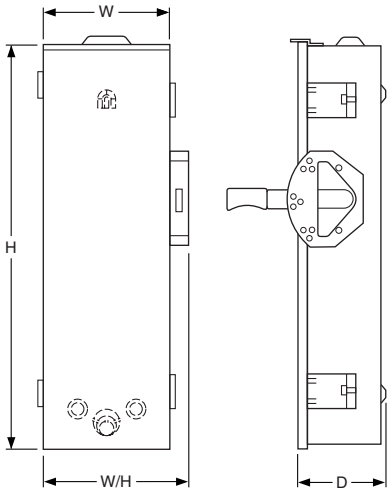
240 V Double Throw . . . . . page 3-16
600 V Double Throw . . . . . page 3-17
Accessories . . . . . page 3-18
Dimensions: 30–100 A (Series F) . . . . . page 3-20
Dimensions: 30, 200–600 A (Series E, T4, A) . . . . . page 3-21



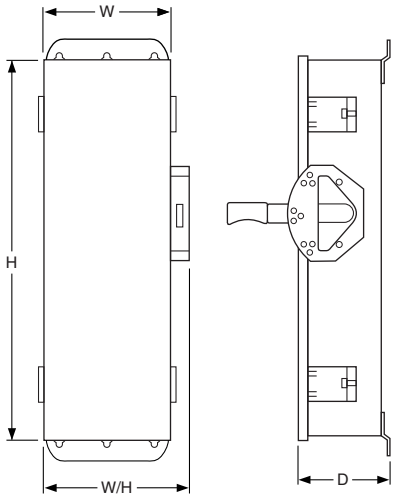
© 2012 Schneider Electric
All Rights Reserved




NEMA 1




NEMA 3R




NEMA 4, 4X, 5 and 12

**Table 3.47: 30–100 A Type DT, DTU (Series F)—Approximate Dimensions**

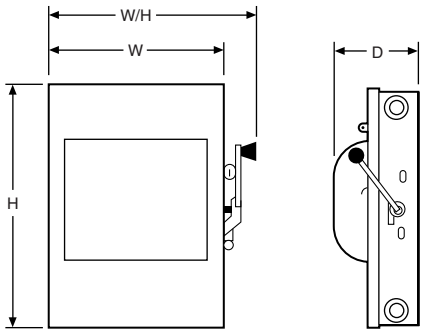
| Cat. No. | Series | H | | W | | W/H | | D | |
|---|---|---|---|---|---|---|---|---|---|
| | | in. | mm | in. | mm | in. | mm | in. | mm |
| DT223 | F5 | 38.00 | 965 | 9.88 | 251 | 11.13 | 283 | 6.75 | 171 |
| DT223RB | F5 | 38.00 | 965 | 6.87 | 174 | 8.12 | 206 | 6.60 | 168 |
| DT321 | F5 | 38.00 | 965 | 10.25 | 260 | 11.50 | 292 | 6.75 | 171 |
| DT321RB | F5 | 38.00 | 965 | 10.25 | 260 | 11.80 | 300 | 6.60 | 168 |
| DT322 | F5 | 38.00 | 965 | 10.25 | 260 | 11.50 | 292 | 6.75 | 171 |
| DT322RB | F5 | 38.00 | 965 | 10.25 | 260 | 11.80 | 300 | 6.60 | 168 |
| DT323 | F5 | 38.00 | 965 | 9.88 | 251 | 11.13 | 283 | 6.75 | 171 |
| DT323RB | F5 | 38.00 | 965 | 6.87 | 174 | 8.12 | 206 | 6.60 | 168 |
| DT361 | F5 | 38.00 | 965 | 10.25 | 260 | 11.50 | 292 | 6.75 | 171 |
| DT361RB | F5 | 38.00 | 965 | 10.25 | 260 | 11.80 | 300 | 6.60 | 168 |
| DT362 | F5 | 38.00 | 965 | 10.25 | 260 | 11.50 | 292 | 6.75 | 171 |
| DT362RB | F5 | 38.00 | 965 | 10.25 | 260 | 11.80 | 300 | 6.60 | 168 |
| DT363 | F5 | 38.00 | 965 | 9.88 | 251 | 11.13 | 283 | 6.75 | 171 |
| DT363RB | F5 | 38.00 | 965 | 6.87 | 174 | 8.12 | 206 | 6.60 | 168 |
| DTU222 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU223 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU223RB | F5 | 30.50 | 775 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU321 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU322 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU323 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU323RB | F5 | 30.50 | 775 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU361 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU361RB | F5 | 30.50 | 775 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU362 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU362AWK | F6 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU362DS | F6 | 30.26 | 769 | 10.25 | 260 | 11.50 | 292 | 7.12 | 181 |
| DTU362RB | F5 | 30.50 | 775 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU363 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU363AWK | F6 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU363DS | F6 | 30.26 | 769 | 10.25 | 260 | 11.50 | 292 | 7.12 | 181 |
| DTU363RB | F5 | 30.50 | 775 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU462 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU462AWK | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |
| DTU462DS | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |
| DTU463 | F5 | 29.94 | 760 | 10.25 | 260 | 11.96 | 304 | 6.93 | 176 |
| DTU463AWK | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |
| DTU463DS | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |
| DTU662AWK | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |
| DTU663AWK | F6 | 30.26 | 769 | 15.50 | 394 | 16.75 | 425 | 7.12 | 181 |

240 V Double Throw . . . . . page 3-16
600 V Double Throw . . . . . page 3-17
Accessories . . . . . page 3-18
Application Data . . . . . page 3-19
Dimensions: 30, 200–600 A (Series E, T4, A) . . . . . page 3-21

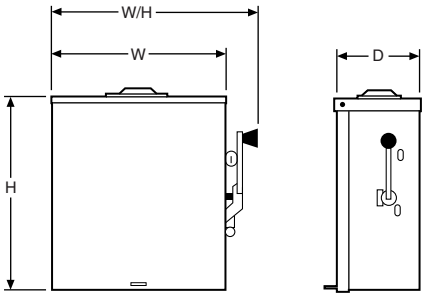




© 2012 Schneider Electric
All Rights Reserved




NEMA 1




DTU—200 A
NEMA 3R

**Table 3.48: 30, 200–600 A Types 82,000 and E-Series DTU devices, NEMA 1 and 3R—Approximate Dimensions**

| Cat. No. | Series | H | | W | | W/H | | D | |
|---|---|---|---|---|---|---|---|---|---|
| | | in. | mm | in. | mm | in. | mm | in. | mm |
| DTU224NRB ▲ | E1 | 32.50 | 826 | 20.63 | 524 | 24.00 | 610 | 10.63 | 270 |
| 82254 ▲ | E1 | 30.88 | 784 | 15.75 | 400 | 19.63 | 499 | 9.75 | 248 |
| 82254NW ▲ | E1 | 30.88 | 784 | 20.00 | 508 | 23.88 | 607 | 11.75 | 298 |
| 82344 ▲ | E2 | 30.88 | 784 | 20.00 | 508 | 23.88 | 607 | 11.75 | 298 |
| 82344RB ▲ | E1 | 32.50 | 826 | 20.63 | 524 | 24.00 | 610 | 10.63 | 270 |
| 82354 | E1 | 30.88 | 784 | 20.00 | 508 | 23.88 | 607 | 11.75 | 298 |
| 92251 | T4 | 10.00 | 254 | 8.00 | 203 | 9.75 | 248 | 4.75 | 121 |
| 82344DS | E1 | 30.88 | 784 | 20.00 | 508 | 23.88 | 607 | 11.75 | 298 |
| DTU324N | E1 | 32.50 | 826 | 24.50 | 622 | 26.25 | 667 | 10.63 | 270 |
| DTU324NRB | E1 | 32.50 | 826 | 24.50 | 622 | 26.25 | 667 | 10.63 | 270 |
| H82344 | E2 | 32.50 | 826 | 24.50 | 622 | 26.25 | 667 | 10.63 | 270 |
| H82444 ▲ | E2 | 32.50 | 826 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| H82454 | E3 | 32.50 | 826 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| 82454 | E3 | 38.00 | 965 | 29.62 | 753 | 33.02 | 839 | 10.63 | 270 |
| 82444 | E3 | 38.00 | 965 | 29.62 | 753 | 33.02 | 839 | 10.63 | 270 |
| 82454R ▲ | E3 | 38.00 | 965 | 29.62 | 753 | 33.02 | 839 | 10.63 | 270 |
| 82444R | E3 | 38.00 | 965 | 29.62 | 753 | 33.02 | 839 | 10.63 | 270 |
| H82254 | E3 | 32.50 | 826 | 24.50 | 622 | 26.25 | 667 | 10.63 | 270 |
| H82354 | E3 | 32.50 | 826 | 24.50 | 622 | 26.25 | 667 | 10.63 | 270 |
| 82444DS ▲ | E3 | 38.00 | 965 | 29.62 | 753 | 33.02 | 839 | 10.63 | 270 |
| 82255 ▲ | A1 | 38.50 | 978 | 26.10 | 663 | 29.51 | 750 | 10.63 | 270 |
| 82255R | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| 82345▲ | A1 | 38.50 | 978 | 26.10 | 663 | 29.51 | 750 | 10.63 | 270 |
| 82345DS▲ | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| 82345R▲ | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| 82355 ▲ | A1 | 38.50 | 978 | 26.10 | 663 | 29.51 | 750 | 10.63 | 270 |
| 82355R ▲ | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| 82445 | A1 | 38.50 | 978 | 30.10 | 765 | 33.50 | 851 | 10.63 | 270 |
| 82445R | A1 | 39.00 | 991 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| 82455 ▲ | A1 | 38.50 | 978 | 30.10 | 765 | 33.50 | 851 | 10.63 | 270 |
| 82455R | A1 | 39.00 | 991 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| H82255 | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| H82345 | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| H82355 | A1 | 39.00 | 991 | 26.62 | 676 | 30.02 | 763 | 10.63 | 270 |
| H82445 | A1 | 39.00 | 991 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| H82455 | A1 | 39.00 | 991 | 30.21 | 767 | 33.61 | 854 | 10.63 | 270 |
| DTU326 | A1 | 63.31 | 1608 | 23.66 | 601 | 24.46 | 621 | 8.88 | 226 |
| DTU426 | A1 | 63.31 | 1608 | 27.00 | 686 | 27.80 | 706 | 8.88 | 226 |
| DTU366 | A1 | 63.31 | 1608 | 23.66 | 601 | 24.46 | 621 | 8.88 | 226 |
| DTU466 | A1 | 63.31 | 1608 | 27.00 | 686 | 27.80 | 706 | 8.88 | 226 |
| DTU326R | A1 | 63.76 | 1619 | 23.66 | 601 | 24.46 | 621 | 8.88 | 226 |
| DTU426R | A1 | 63.76 | 1619 | 27.00 | 686 | 27.80 | 706 | 8.88 | 226 |
| DTU366R | A1 | 63.76 | 1619 | 23.66 | 601 | 24.46 | 621 | 8.88 | 226 |
| DTU466R | A1 | 63.76 | 1619 | 27.00 | 686 | 27.80 | 706 | 8.88 | 226 |
| DTU366AWK | A1 | 63.76 | 1619 | 23.66 | 601 | 24.46 | 621 | 8.88 | 226 |

▲ 250 V dc rated.

240 V Double Throw . . . . . page 3-16
600 V Double Throw . . . . . page 3-17
Accessories . . . . . page 3-18
Application Data . . . . . page 3-20
Dimensions: 30–100 A (Series F) . . . . . page 3-20



© 2012 Schneider Electric
All Rights Reserved



Put over 100 years of Schneider Electric's experience as a global specialist in energy management to work on your photovoltaic (PV) project. The Square D™ 1000 Vdc disconnect switch is the perfect solution for your 1000 Vdc PV disconnect applications. It is compact and available in both a 100 and 200 amp non-fusible versions. IEC 60947-1 and 3 certified (file 136861) and UL 98 certified (file E343341).

### Extended Life Expectancy

Exceeds IEC 60947-3 mechanical endurance requirements by factor of 18

Exceeds IEC 60947-1 electrical endurance requirements by factor of 10

Exceeds NEMA KS-1 mechanical endurance requirements by factor of 3.

### Designed for Harsh PV Environments

NEMA Type 3 and IP63 enclosure

- Resists windblown dirt/dust
- Exceeds NEMA Type 1, 3R and 12

Operating range of -37°C to 50°C

Specially designed PV paint reduces solar gain up to 35% over standard grey enclosures

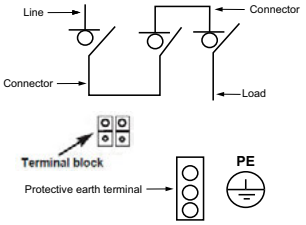
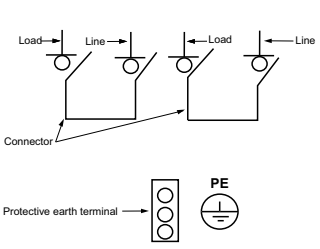
### Easy to Install

Preconfigured solar solution

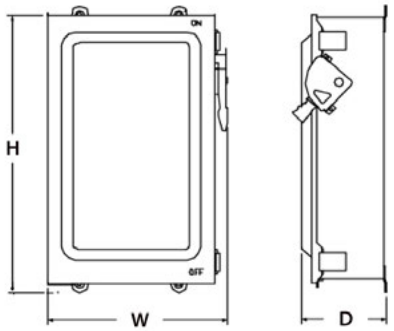
Familiar enclosed safety switch design

Suitable for both grounded and ungrounded PV

**Table 3.49: 1000 Vdc Photovoltaic Heavy Duty Disconnect Switch Pricing and Accessories**

| System | NEMA 1, 3R, 12, 3 and IP63 | | | Factory Installed Accessories | | | | | | | | | | Height (in.) | Width (in.) | Depth (in.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Electrical Interlock Single Contact▲ | | Electrical Interlock Two Contacts■ | | Viewing Windows | | Terminal Blocks (Copper)♦ | | 3 Wire Ground Lug★ | | | | |
| | Amperes | Cat. No. | $ Price | No. Suffix | $ Price Adder | No. Suffix | $ Price Adder | No. Suffix | $ Price Adder | No. Suffix | $ Price Adder | No. Suffix | $ Price Adder | | | |
| **3 Pole Grounded▼** | | | | | | | | | | | | | | | | |
| **Three-Pole (Grounded System)**   | 100 | REHU393IP | **1672.00** | EI | **452.00** | EI2 | **496.00** | VW | **150.00** | TBC | **409.00** | GL | **263.00** | **22.13** | **18.63** | **8.75** |
| | 200 | REHU394IP | **2246.00** | EI | **452.00** | EI2 | **496.00** | VW | **175.00** | TBC | **409.00** | GL | **263.00** | **22.13** | **18.63** | **8.75** |
| **4 Pole Ungrounded** | | | | | | | | | | | | | | | | |
| **Four-Pole (Ungrounded System)**   | 100 | REHU493IP | **2507.00** | EI | **452.00** | EI2 | **496.00** | VW | **150.00** | — | — | GL | **263.00** | **29.00** | **18.63** | **8.75** |
| | 200 | REHU494IP | **3965.00** | EI | **452.00** | EI2 | **496.00** | VW | **175.00** | — | — | GL | **263.00** | **29.00** | **18.63** | **8.75** |

▲ Order EIK1PV for single contact field-installed kit **$311.00**.
■ Order EIK2PV for double contact field-installed kit **$355.00**.
♦ Accommodates (2) 250 max Cu or (1) 1/0 max Cu wiring; Order SN20CPV for field-installed kit **$246.00**.
★ Order REHGND KIT for field installable kit **$100.00**.
▼ Terminal blocks standard with 3 pole switches; accommodates (2) 1/0 max Al/Cu or (2) 6 max Al/Cu wiring.




200 A Enclosed Switch Dimensions (inches)

Schneider Electric gives the Photovoltaic market place the most comprehensive one stop shop for Residential and Light Commercial Photovoltaic Balance of System components. Schneider Electric's Inverters, and Square D brand DC and AC disconnect switches and Load Centers are ideal solutions to your Balance of Systems requirements. See the Balance of System solution chart below for your single phase PV system.

**Table 3.50: PV Balance of System Solution Package—Grid Tie**

| System Voltage | Kilowatts | Amps | DC Disconnect | Inverter | AC Disconnect | Load Center Product |
|---|---|---|---|---|---|---|
| 250 Vdc | 2.8 | 30 | HU361RB | 878-2801 | D221NRB | QO130M200 |
| 250 Vdc | 3.3 | 60 | HU362RB | 878-3301 | D222NRB | QO140M225 |
| 250 Vdc | 3.3 | 100 | HU363RB | 878-3301 | D223NRB | QONQ42MS400 |
| 600 Vdc | 3.8 | 30 | HU361RB | 878-3801 | D221NRB | QO130M200 |
| 600 Vdc | 5.0 | 60 | HU362RB | 878-5001 | D222NRB | QO140M225 |
| 600 Vdc | 5.0 | 100 | HU363RB | 878-5001 | D223NRB | QONQ42MS400 |

For internal 600 Vdc PV combiner box switches please see our offering of 9422 switches 600 Vdc UL98 listed in digest pages 8-14.

For our 600 Vdc PV switch offering please see digest pages 3-5–3-6.





© 2012 Schneider Electric
All Rights Reserved



Square D PV string combiner boxes are used to integrate multiple PV strings into one output circuit. Its tough exterior and safety features protect wiring from weather and overcurrent. The exterior coating ensures low operating temperatures and longer life of internal components. The specially engineered enclosure is designed to provide dust tight and rain tight protection; it meets or exceeds NEMA® 3R, 12, and 4 requirements. Traditional Square D visible blade switch architecture confirms disconnection, while touch-safe interior shielding protects against accidental contact with live components.

## Features

### Flexible

- Vertical, horizontal, and angled mounting options
- Flexible installation with top, bottom, and side entry
- Substantial wire-bending space

### Robust

- Dust tight and rain tight engineered enclosure for outdoor use
- UV-resistant white exterior coating to reduce solar gain by 35%
- Meets or exceeds NEMA 3R, 12, and 4 requirements

### Safe

- Square D traditional visible blade switch architecture for confirmation of disconnect
- Touch-safe interior shielding guards against accidental contact with current-carrying components
- Seismic-certified 100–400 amp string combiner boxes for earthquake safety
- Optional integrated 2.5 kV surge arrestor to protect PV electronics from lightning strikes

## Listings

- UL 1741
- Switches tested to UL98B
- CSA C22.2 Spec 107.1

**Table 3.51: 600 Vdc Photovoltaic Combiner Boxes**

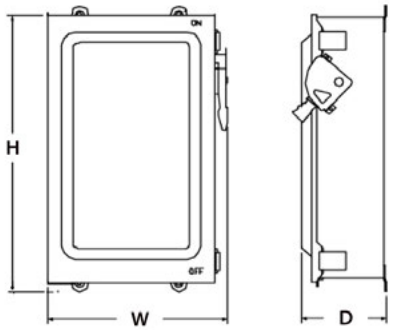
| Catalog Number▲ | Number Input Circuits (Max.) | Continuous DC Output Current (Max.) | Maximum PV Module Isc Rating (Amps) | Maximum Continuous Input Current Per String (Amps) | List Price $ | Wire Range (AWG/kcmil—Copper Only) | | | | | Outside Dimmensions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Input Circuit (+ and -) | Output Circuit (+ and -) | Output Number of Conductors (+ or -) | Ground In | Ground Out | Height | | Width | | Depth | |
| | | | | | | | | | | | in. | mm | in. | mm | in. | mm |
| REHSC126100 | 12 | 100 | 10.4 | 13 | **838.00** | #12–#6 | #6–1/0 | 1 | #14–4 Or 2X #14–#12 | #6–2/0 | 20.78 | 528 | 14.50 | 368 | 6.13 | 156 |
| REHSC166200 | 16 | 200 | | | **1067.00** | #12–#6 | #6–300 MCM | 1 | | #6–2/0 | 27.78 | 706 | 20.25 | 514 | 6.13 | 156 |
| REHSC246300 | 24 | 300 | | | **1378.00** | #12–#6 | 1/0–300 | 2 | | #6–2/0 | 35.78 | 909 | 20.25 | 514 | 6.13 | 156 |
| REHSC326400 | 32 | 400 | | | **2226.00** | #12–#6 | 1/0–300 | 2 | | #6–2/0 | 35.78 | 909 | 20.25 | 514 | 6.13 | 156 |

▲ For factory installed surge protection device add the suffix “S” to the catalog number.

**Table 3.52: 600 Vdc Photovoltaic Combiner Boxes With Disconnects**

| Catalog Number▲ | Number Input Circuits (Max.) | Continuous DC Output Current (Max.) | Maximum PV Module Isc Rating (Amps) | Maximum Continuous Input Current Per String (Amps) | List Price $ | Wire Range (AWG/kcmil—Copper Only) | | | | | Outside Dimmensions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Input Circuit (+ and -) | Output Circuit (+ and -) | Output Number of Conductors (+ or -) | Ground In | Ground Out | Height | | Width | | Depth | |
| | | | | | | | | | | | in. | mm | in. | mm | in. | mm |
| REHSC126100DU | 12 | 100 | 10.4 | 13 | **1438.00** | #12–#6 | #6–1/0 | 1 | #14–4 Or 2X #14–#12 | #6–2/0 | 31.00 | 787 | 19.00 | 483 | 9.00 | 229 |
| REHSC166200DU | 16 | 200 | | | **1899.00** | #12–#6 | #6–300 MCM | 1 | | #6–2/0 | 31.00 | 787 | 25.00 | 635 | 9.00 | 229 |
| REHSC246300DU | 24 | 300 | | | **3035.00** | #12–#6 | 1/0–300 | 2 | | #6–2/0 | 41.00 | 1041 | 25.00 | 635 | 10.50 | 267 |
| REHSC326400DU | 32 | 400 | | | **3883.00** | #12–#6 | 1/0–300 | 2 | | #6–2/0 | 41.00 | 1041 | 25.00 | 635 | 10.50 | 267 |

▲ For factory installed surge protection device add the suffix “S” to the catalog number.




Typical String Combination Box Dimensions

## Surge Protection Device

The 600 Vdc Type 2 Surge Protection Device (SPD) is for medium risk PV applications. The SPD when installed in a Square D combiner box protects solar modules, power tracking and blocking diodes from physical damage resulting from lightning induced transients. The SPD device uses Metal Oxide Varistor (MOV)/Gas-Filled Spark Gap (GSP) protection circuits for longer life and no current leakage. The devices are UL1449 ed 2 compliant Low Voltage TVSS. The SP are available as factory installed by adding the suffix “S” to the combiner box catalog number or as kits a kit: REHTYPE2SP.

**Table 3.53: 600 Vdc Type 2 Surge Protection Device**

| Catalog Number | Network Voltage | Nominal Discharge Current per 20 micro sec | Maximum Discharge Current per 20 micro sec | Operating Current | Operating Temperature; Celsius | List Price $ | |
|---|---|---|---|---|---|---|---|
| | | | | | | Kit | Factory Installed |
| REHTYPE2SP | 600 Vdc | 20kA | 40kA | <0.1nA | -40 to +85 | **337.00** | **490.00** |



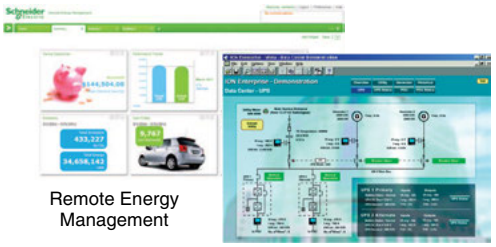
© 2012 Schneider Electric
All Rights Reserved

© 2012 Schneider Electric
All Rights Reserved

Table of Contents

# Section 4

## Power Monitoring and Control



Remote Energy Management

ION-E software



CM4000



ION7650



HDM4 Panel



Sepam series 80



Low Voltage Automatic Capacitor Bank



Active Harmonic Filter


### PowerLogic™ Energy and Power Management Systems

Introduction 4-2, 4-3

Power Monitoring Software

- PowerLogic ION Enterprise Software 4-4
- New! Remote Energy Management 4-4
- PowerLogic Scada 4-5
- PowerLogic ION EEM Enterprise Energy Management Software 4-6

PowerLogic Metering

- ION8650 4-7
- ION7550/7650 4-7
- ION7350/7330/7300 4-8
- ION6200 4-8
- PowerLogic ION and Power and Energy Meter Selection 4-9
- New! DM6200 Panel Meter 4-10
- New! PM1200 Multifunctional Power Meter 4-10
- Series 700 Power Meter 4-10
- Series 800 Power Meter 4-10
- Series 4000 Circuit Monitor 4-11

Submetering

- Tenant Metering Software 4-13
- PowerLogic E5600 Socket Meter 4-13
- High Density Meter Enclosures (HDM) 4-14
- Multi Circuit Energy Meters 4-14
- Energy Meter 4-15
- Enercept™ Meter 4-15
- Split Core Current Transformers 4-15
- Branch Circuit Power Meter 4-16
- Branch Current Monitor 4-16
- Multi-Circuit Meter 4-16
- Submeter Display 4-16

Remote Energy Management Solutions

- PowerLogic Energy Profiler Online 4-17 4-18

Communications

- Ethernet Gateways 4-19
- Web Page Generator 4-19

Engineering Services

- Consulting & Analysis 4-20
- Industrial Energy Efficiency 4-20
- Power Monitoring Applications 4-21
- Power System Control Applications 4-21
- System Integration 4-21
- Factory Assembled Enclosures 4-22
- Technical Support 4-23
- Power Management University 4-23

### Sepam Digital Protective Relays

Series 80, 60, 40 & 20 Features 4-24
Series 80, 60, 40, 20 & 10 Applications 4-25

### Arc Flash Protection and Mitigation Systems

New! VAMP 221 4-26

### ReactiVar™ Reactive Power Compensation and Harmonic Mitigation Solutions

Reactive Power Compensation and Harmonic Mitigation Solutions 4-28
Low Voltage Fixed Capacitor 4-29
Low Voltage Automatic Capacitor Banks 4-31
LV Transient Free Reactive Compensation Banks 4-32
Medium Voltage Capacitors 4-33
Accusine™ PCS Active Harmonic Filter 4-34
Hybrid VAR Compensator (HVC) 4-36




SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric




## Three dimensions of energy and power management savings

Volatile energy prices and stringent emissions standards have made it more challenging to control operational costs thus putting profits at risk. Square D PowerLogic™ energy and power management systems will help you make the most of your energy by:

### Reducing Utility Costs & Increasing Energy Efficiency

Achieve significantly reduced direct consumption-related costs through improved efficiency, lower emissions and more accountability. And if you're a property manager, you can increase the accuracy of energy settlements that can help attract or retain tenants. By simply installing a PowerLogic™ power monitoring system, our customers over the past twenty years have reported realizing a 2–4% savings in utility costs-but that's just the “tip of the iceberg” in terms of your potential savings.

### Optimizing Equipment Utilization

Avoid or defer capital costs by better utilizing existing electrical infrastructure typically results in another 2–5% savings. By monitoring key points and collecting system loading information, engineering is able to make decisions on a plant's capacity to handle new production lines or to determine if additional distribution equipment is required for a building expansion.

### Improving System Reliability & Safety

Typically, another 10% can be found by discovering power system reliability improvements with powerful PowerLogic™ metering that offers extremely accurate and high speed event capture information. Once detected, future power disturbances are often correctable and can help facilities avoid expensive and often hidden risks to productivity. As an added benefit, PowerLogic monitoring system information is accessible from the safety of your personal computer. This offers improved worker safety since it is not necessary to suit up in personal protective equipment to access energized equipment over the network.

PowerLogic™ systems give you the power to achieve this kind of savings, resulting in a quick return on your investment. We pride ourselves on reliable products, innovative systems, expert engineering services, and our ability to provide single-source energy and power management solutions. It's not just a concept to us, it's a legacy and a promise-for companies that seek an edge in productivity. That's why leaders turn to Schneider Electric.





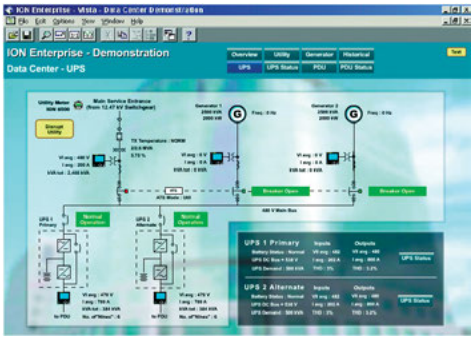
© 2012 Schneider Electric
All Rights Reserved

**Table 4.1:**

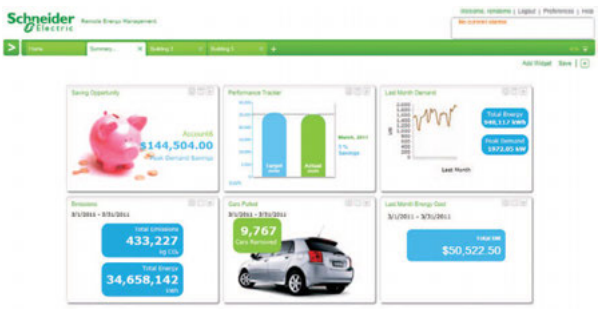
| | | Data Presentment & Management | | Data Acquisition, Alarms & Monitoring | | |
|---|---|---|---|---|---|---|
| | | Enterprise | Online Energy Analysis | Supervisory Control & Data Acquisition | Power Monitoring System | Tenant Submetering |
| | | Data Centers; Industrial Buildings, Property Management, Utilities | Utilities | Water/Wastewater, Heavy Process Industry, Data Centers, Critical Power | Industrial, large commercial buildings, Military Bases, Healthcare | Commercial Buildings, Government Buildings, Military Bases |
| | For products see DIGEST section: | 4–6 | 4–17 | 4–5 | 4–4 thru 4–12 | 4–13 thru 4–16 |
| | For services see DIGEST section: | 4–20 | 4–20 | 4–21 | 4–21 | 4–22 |
| **Reduce Energy Costs & Energy Efficiency** | **Meter Application** | | | | | |
| | Automatic Meter Reading | | | • | •••• | •• |
| | Revenue Metering | | | • | •••• | •• |
| | WAGES Utility Pulses | | | | ••• | |
| | Sub-billing | ••• | ••• | | | •••• |
| | Measurement & Verification | •••• | •• | | ••• | |
| | **Cost Allocation & Utility Billing** | | | | | |
| | Energy Usage Analysis | •••• | ••• | • | •• | • |
| | Procurement Optimization | •• | ••• | • | • | |
| | Allocate Energy Costs | • | | | • | |
| | Interval Benchmarking & Profiling | •••• | ••• | • | •• | |
| | Total Load Aggregation | •••• | | | | |
| | **Energy Efficiency** | | | | | |
| | Emissions Tracking | •• | ••• | | | |
| | Power Factor Correction | • | • | | ••• | |
| | Peak Demand Reduction | •• | • | ••• | ••• | |
| | Demand Response & Curtailment | | | ••• | ••• | |
| **Optimize Equipment Utilization** | **Improve Maintenance Practices** | | | | | |
| | Commissioning & Troubleshooting | | | ••• | •••• | |
| | Equipment Monitoring: transformers, MCCs, switchgear, switchboards, circuit breaker status, protective equipment, capacitors, generators, panelboards, PDU, UPS, etc. | | | ••• | •••• | |
| | **Facility Planning** | | | | | |
| | Identify Equipment Capacity | | | | ••• | |
| | Determine Transformer Stress | | | | ••• | |
| | Equipment Asset Optimization | •• | | •• | ••• | |
| | **Improve Efficiency** | | | | | |
| | Balance Circuit Loading | | | | ••• | |
| | Balance Generator Usage | | | | ••• | |
| | Optimize Chiller & Mechanical Equipment | | | | • | |
| **Improve Reliability & Safety** | **System Monitoring & Analysis** | | | | | |
| | Transient Voltage Detection | | | | •••• | |
| | Sag/Swell Disturbance Monitoring | | | | •••• | |
| | Power Quality & Harmonic Analysis | | | | •••• | |
| | Power Quality Compliance | •••• | | • | ••• | |
| | **Alarm & System Diagnositics** | | | | | |
| | Electrical Distribution Alarm & Event Analysis | • | | ••• | •••• | |
| | Waveform capture viewing | | | | •••• | |
| | Remote alarm notification | | | •••• | ••• | |
| **Engineering Services** | **Energy Services** | | | | | |
| | Total Energy Control Services | •••• | see section 4–20 for Engineering Services | | ••• | see section 4–20 for Engineering Services |
| | Peak Shaving/Generator Control | see section 4–20 for Engineering Services | | •••• | •• | |
| | Load Management/Shedding | | | •••• | •• | |
| | WAGES | | | | ••• | |
| | **Advanced Reliability Services** | | | | | |
| | Auto Throw Over (ATO) | see section 4–20 for Engineering Services | | •••• | •• | see section 4–20 for Engineering Services |
| | Emergency Power Supply System Test Reporting | | | | •••• | |
| | Sequence of Events Recording (1ms time/stamp) | | | •••• | ••• | |
| | GPS Time Stamping | | | •••• | ••• | |
| | Power System Control | | | •••• | • | |
| | Network Protection | | | •••• | •• | |
| | **Consulting Services** | | | | | |
| | System Studies (SC/TCC/Arc Flash) | see section 4–20 for Engineering Services | | | | |
| | Power System Assessments | | | | | |



© 2012 Schneider Electric
All Rights Reserved




ION Enterprise Software




Remote Energy Management

## PowerLogic ION Enterprise Software

PowerLogic ION Enterprise software is an all-in-one package for operational power system monitoring, analysis and control that helps you reduce energy-related costs. It offers control capabilities, comprehensive power quality and reliability analysis and helps reduce energy related costs. The software is a suite of applications that allows you to collect, process, analyze, store, and share data across your entire enterprise. PowerLogic ION Enterprise software is designed to give you the information and analysis tools you need to make sound decisions. Its cutting-edge flexibility and compatibility allow you to extend your energy management system at your own pace, adding newer components as they become available, without interrupting or impacting existing functions. PowerLogic ION Enterprise collects data through serial, wireless, modem or Ethernet links and can manage a single site or, through the Internet, connect a global network of devices.

**Table 4.2: PowerLogic ION Enterprise Software Ordering Information**

| Description | Catalog No. | $ Price |
|---|---|---|
| **Core Software Products▲** | | |
| ION Enterprise Base software | IE60BASEENG | **1079.00** |
| ION Enterprise Device license (For 100+ devices, please call the factory for volume pricing) | IE60DLS | **252.00** |
| ION Enterprise Client license | IE60CL | **1079.00** |
| ION Enterprise Quantity 50 Pack Device licenses | IE60DLS50 | **10080.00** |
| ION Enterprise v6.0 Device licenses | IE60DLUNLTD | **24750.00** |
| OPC Server support for ION Enterprise | IONEOPCV1 | **3055.00** |
| SQL Server 2005 bundle option (CD and 1-CPU license) | IONESQL2005 | **3509.00** |
| SQL Server 2005 additional CPU license | IONESQL2005CPU | **2157.00** |
| PQDIF Exporter for ION Enterprise | IONEPQDIFV1 | **3660.00** |
| **Upgrades to PowerLogic ION Enterprise 6.0** | | |
| ION Enterprise Base Upgrade from v5.5 or later | IE60BASEENGUPG | **288.00** |
| ION Enterprise Single Device License Upgrade | IE60DLSUPG | **126.00** |
| ION Enterprise Quantity 50 Pack Device Licenses Upgrade | IE60DLS50UPG | **5040.00** |
| ION Enterprise v6.0 Unlimited Device License Upgrade | IE60DLUNLTDUPG | **12375.00** |
| ION Enterprise Client license upgrade | IE60CLUPG | **520.00** |
| **Related Items** | | |
| ION Enterprise Replacement CD | IONE60REPCD | **215.00** |

▲ Every new system must be ordered with 1 IONE56-Base software and a minimum of 5 IONE56-DL device licenses.

Note: Software versions may have upgraded since release of this digest. Please check with your Schneider Electric Sales Rep or local distributor for latest ION Enterprise version.

## *New!* Remote Energy Management Web-Hosted Service

Schneider Electric Remote Energy Management (REM) is a web-hosted service that easily turns energy usage data into actionable information, accessible via any standard web browser. With REM, users can easily identify energy waste, reduce energy consumption, save on utility bills, and measure, report on and implement energy and emission reduction initiatives...all easily made available through predefined reports and customizable dashboards

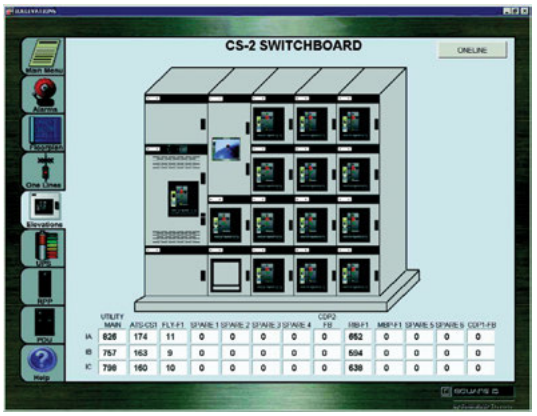
- Compare energy usage among similar facilities to establish benchmarks and identify poorly performing facilities.
- Normalize consumption against weather, production, hours of operation, sq footage, and occupancy.
- Measure the effectiveness of various energy efficiency efforts.
- View carbon emissions reports.
- Easily view all monitored sites around the globe on a single screen through the Enterprise Map View.
- Optimize equipment run hours and setting to avoid setting costly new demand peaks.
- Compare consumption data between different meters or a group of meters.
- Identify exceptional usage patterns.
- Track, report, and analyze information from all utility sources including water, gas, electric, and steam.
- Compare usage to utility bills to verify correct billing from the utility.
- Use “what if” analysis tools to make accurate assessments of what utility costs would be on different utility rates.

Contact your local Schneider Electric sales office for pricing and availability.





© 2012 Schneider Electric
All Rights Reserved







PowerLogic Scada Software

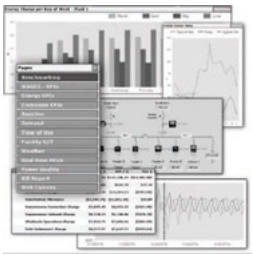
## PowerLogic SCADA

PowerLogic™ SCADA software was created to meet the requirement for real-time monitoring and control of electrical distribution systems, including fast response times and high reliability through redundancy. PowerLogic SCADA is powered by Citect™ SCADA technology but is specifically designed for electrical power systems applications. The complete PowerLogic supervisory control and data acquisition (SCADA) solution includes a dynamic graphical user interface, enhanced alarm management, one second response times for control operation and status, transparent redundancy, and reliable communications (through hardware components and network topology). The system also features Sequence of Events Recorder (SER) logs with time stamps of 1ms resolution. PowerLogic SCADA software includes a web-based client for remote viewing capability. The graphical user interface consists of animated objects which change according to status information. The flexible graphics editor includes both ANSI and IEC electrical symbols to facilitate easy one-line diagram creation. Real-time and historical trending is also supported.

For pricing information, please contact your local PowerLogic representative.



© 2012 Schneider Electric
All Rights Reserved



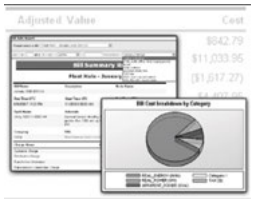
Personalized dashboards help management and operations personnel monitor all aspects of energy use and respond to opportunities or threats.

PowerLogic ION EEM is a complete enterprise energy management solution that unites business and energy strategies across your entire enterprise by unifying and extending the benefits of your existing energy-related data resources. Stakeholders from management to operations will be empowered by actionable energy intelligence to reveal opportunities, isolate problems and drive cost and risk reduction strategies.



PowerLogic ION EEM automatically acquires data from power monitoring and control systems, building and process automation systems, utility information systems, weather services, spot-market energy pricing feeds, and enterprise business applications, cleanses and warehouses it. Personalized, browser-based dashboards and innovative visualization and modeling tools then make the information available to whomever needs it, so you can accurately monitor, validate, predict and control energy-related expenses.

From operational cost reductions to procurement support through cost allocation, benchmarking and budgeting, key performance indicators and advanced analytics, PowerLogic ION EEM helps you manage energy in financial terms. It also helps you gain unique insight into the impacts of power quality on your business and all energy assets. From the service entrance to the boardroom, PowerLogic ION EEM software allows energy to be managed as a variable cost.



Produce aggregate billing, load profile, cost allocation, power quality, forecasting or budget reports to help inform stakeholders and track results against goals.

## Key features

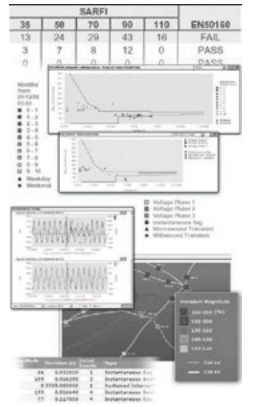
- True enterprise-level software architecture: data quality assurance, data warehouse, web framework
- Web portal: personalized dashboards, key performance indicators, charts, trends, real-time conditions
- Reporting: rich and customized content, support for complex data and graphics, scheduled distribution
- Trending: advanced visualization, dimensional analysis, prediction, statistical rollups
- Modeling: regression analysis, normalization, correlation, integration of all relevant drivers and contextual data
- Billing: built-in rate engine and rate wizard
- Power quality analysis: wide-area event monitoring, classification, filtering, correlation
- Alarms and events: triggering on complex conditions, notification, logging
- Integration: data acquisition systems, weather and pricing feeds, other enterprise applications (e.g. BAC, ERP)
- $CO^2$ Report



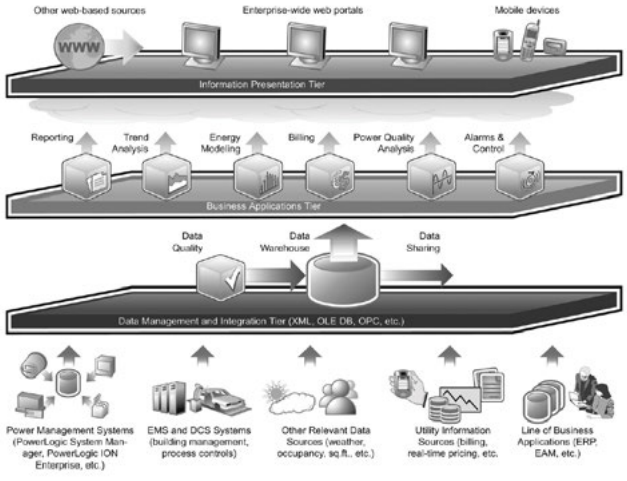
Use advanced billing functions to support energy procurement and manage load or generation assets in response to curtailment or pricing signals.

## Typical applications

- Manage all utilities (electricity, gas, water, etc.) and emissions through a single, unified interface
- Benchmark facility performance across an entire enterprise to identify energy inefficiencies
- Measure and verify savings from energy conservation projects or performance contracts
- Reduce operational costs, improve processes, and prolong asset life
- Meet corporate environmental stewardship goals or mandated impact targets
- Manage demand control schemes, load shedding, peak shaving, base loading or on-site generation
- Enable participation in real-time pricing and load curtailment programs
- Optimize procurement by forecasting and budgeting for energy needs and comparing utility rates
- Identify utility billing errors and validate contract compliance
- Allocate and recover utilities costs from tenants, departments, processes, etc.
- Maximize the use of existing infrastructure capacity and avoid overbuilding
- Identify and reduce risks to uptime



Monitor power quality risk factors, benchmark performance, determine impacts, validate contract compliance, isolate problem sources, and confirm your return-on-investment.




### Data presentation tier

Web portal delivers enterprise-wide access through personalized dashboards, reports, detailed analytics, and integration of views from third-party systems. Schedule information and report distribution to the people who need it, for use on their desktop or mobile devices.

### Business applications tier

Standard and optional modules tailor functionality to specific needs. Advanced analytics and reporting on every driver and relationship affecting energy cost and reliability.

### Data management tier

Integration of data from many sources: power monitoring and control systems (PowerLogic or third party), utility metering systems (water, air, gas etc.), Internet weather, real-time energy pricing feeds, manual input, energy assets (power distribution and reliability equipment, generators), line-of-business systems (BAC, DCS, ERP, EAM, accounting). Data quality module assures complete and reliable data from all inputs.

For price and ordering information, contact your local PowerLogic Sales Specialist or PowerLogic Inside Sales at 615-287-3535.





© 2012 Schneider Electric
All Rights Reserved

## ION8650/7550/7650 Power and Energy Meters

The web-enabled PowerLogic ION8650 is used to monitor electric distribution networks, service entrances and substations. It enables businesses to manage complex energy supply contracts that include power quality guarantees. Low-range current accuracy makes it ideal for independent power producers and cogeneration applications that require the accurate bi-directional measurement of energy. It is well suited to load curtailment, equipment monitoring and control and energy pulsing and totalization applications. Integrate it with PowerLogic ION EEM enterprise energy management software, PowerLogic ION Enterprise operations software or other energy management and SCADA systems.

## PowerLogic ION8650 Power and Energy Meter Features



**Feature set C includes:**

- 9S, 35S, 36S socket and switchboard cases
- True RMS 3-phase voltage, current, power and meets stringent ANSI revenue metering standards including ANSI C12.20 0.2 and Class 2, 10, & 20
- Power quality: sag/swell, individual, even, odd, total harmonics to the 31st and symmetrical components
- 32MB log/event memory, min/max for any parameter, historical logs up to 64 channels, timestamp resolution to 0.001 seconds and GPS time synchronization
- Transformer/line loss compensation and Instrument transformer correction
- Communications: Ethernet, Serial, Modem, Internet and Ethernet to serial gateway and ION, DNP 3.0, Modbus RTU, Modbus TCP, MV-90 protocols, IEC 61850
- Dial-out capability when memory is near full
- Multi-user, multi-level security with control and customized access to sensitive data for up to 16 users
- Data push capability through SMTP (email)
- 65 setpoints — math, logic, trig, log, linearization formulas
- Password protection and anti-tamper seal protection
- Built-in I/O: 4 KYZ digital outs and 3 form A digital ins, 4 KYZ digital outs and 1 form A digital out and 1 form A digital in, an optional external I/O expander provides additional I/O

**Feature set B adds the following to feature set C:**

- Harmonics—individual, total even, total odd up to the 63rd
- 64MB standard memory
- Historical logs up to 320 channels
- Modbus RTU Master on serial ports
- Cycle setpoint minimum response time

**Feature set A adds the following to feature sets C and B:**

- Waveform capture up to 1024 samples/cycle, PQ compliance monitoring, flicker to EN50160, IEC 61000-4-7/4-15 (also configurable to IEEE 519-1992, IEEE159, SEMI) CBEMA/ITIC
- Transient detection to 6517µs at 60Hz;
- Harmonics: magnitude, phase and inter-harmonics to the 50th
- 128MB standard memory
- Max 96 cycles of waveform logs and 800 channels of historical logs

**Table 4.3: Typical PowerLogic ION8650 Power and Energy Meter Ordering Configurations**

| Description | Catalog No. | $ Price |
|---|---|---|
| ION8650, feature set A, 9S socket base, 5 A nominal current inputs, 10MB memory, 127–177 Vac, 60 Hz, communications card with: 10BaseT, RS-232/485, RS-485, Optical port, 4 Digital Outputs, 3 Digital Inputs | S8650A0C0E6E0B0A | **7077.00** |
| ION8650, feature set A, 35S socket base, 5 A nominal current inputs, 10MB memory, 120–480 Vac, 60 Hz, communications card with: 10Base T, RS-232/485, RS-485, Optical port, 4 Digital Outputs, 3 Digital Inputs | S8650A1C0E6E0B0A | **7077.00** |
| ION8650, feature set C, 9S socket base, 5 A nominal current inputs, 2MB memory, 120–277 Vac, 60 Hz, communications card with: RS-232/485, RS-485, Optical port, 4 Digital Outputs, 3 Digital Inputs | S8650C0C0E6A0B0A | **2889.00** |
| ION8650, feature set C, 35S socket base, 5 A nominal current inputs, 2MB memory, 120–277 Vac, 60 Hz, communications card with: RS-232/485, RS-485, Optical port, 4 Digital Outputs, 3 Digital Inputs | S8650C1C0E6A0B0A | **2889.00** |

## PowerLogic ION7550 and ION7650 Power and Energy Meters

Used at key distribution points and sensitive loads, the web-enabled PowerLogic ION7550 and PowerLogic ION7650 meters combine a wealth of advanced features from power quality analysis capabilities, revenue accuracy and multiple communications options, through web compatibility, and control capabilities. Both are compatible with PowerLogic ION EEM enterprise energy management software, PowerLogic ION Enterprise operations software can be integrated with other energy management or building control systems through multiple communication channels and protocols.

The meters are ideal for compliance monitoring, disturbance analysis, cost allocation and billing, demand and power factor control and equipment monitoring and control. The meters have a high visibility, adjustable front panel display that can depict TOU, harmonics, event logs, phasers, and instantaneous power parameters. They meet stringent ANSI C12.20 0.2, Class 10 & 20 revenue metering standards.

## PowerLogic ION7550 and ION7650 Power and Energy Meter Features



**The PowerLogic ION7550 includes:**

- 3.5" x 4.5" (87 x 112 mm) backlit LCD display
- True RMS 3-phase voltage, current, and power that meets stringent ANSI C12.20 0.2, Class 2, 10, & 20
- Power quality: sag/swell, harmonics - individual, even, odd, total to the 63rd, waveform capture at 256 samples/cycle
- 5MB log/event memory (10MB optional), waveform logging up to 96 cycles, up to 800 channels historical, min/max, timestamp resolution to 0.001 seconds, GPS time synchronization and historical trends through front panel
- Communications: fiber, Ethernet, serial, internal modem, optical port, and a gateway functionality, ION, DNP 3.0, Modbus RTU - master & slave, Modbus TCP, MV-90, and IEC 61850. IEC 61850 only available with 5MB memory and Ethernet options
- Dial-out capability when memory is near full
- Data push capability through SMTP (email)
- Multi-user, multi-level security with control and customized access to sensitive data for up to 16 users
- 65 configurable 1/2 cycle setpoints for single, multi-condition and dial out on alarm and math, logic, trig, log, linearization formulas
- Password protection and anti-tamper seal protection enhance meter security
- Extensive standard I/O includes: 8 digital inputs, 4 digital outputs and 3 onboard relays

**The ION7650 has all the features of the ION7550 and adds:**

- Waveform capture up to 1024 samples/cycle
- Transient detection to 17µs at 60Hz
- Harmonics: magnitude, phase and inter-harmonics to the 40th
- Flicker to EN50160 and IEC 61000-4-7/4-15 (also configurable for IEEE 519-1992, IEEE159, SEMI), plus CBEMA/ITIC
- Symmetrical components
- Power quality measurements per IEC 61000-4-30 Class A, Ed. 2

**Table 4.4: Typical PowerLogic ION7550/7650 Power and Energy Meter Ordering Configurations**

| Description | Catalog No. | $ Price |
|---|---|---|
| **Typical PowerLogic ION7550 Power and Energy Meter Ordering Configurations** | | |
| Integrated display, with 256 samples/cycle, 5 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O | S7550A0C0B6E0A0A | **6318.00** |
| Integrated display, with 256 samples/cycle, 5 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port), standard I/O | S7550A0C0B6A0A0A | **5589.00** |
| **Typical PowerLogic ION7650 Power and Energy Meter Ordering Configurations** | | |
| Integrated display, with 1024 samples/cycle, 10 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O, EN50160 compliance monitoring | S7650B1C0B6E0A0E | **9279.00** |
| Integrated display, with 512 samples/cycle, 5 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O | S7650A0C0B6E0A0A | **7869.00** |
| Integrated display, with 512 samples/cycle, 5 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet and 56k modem, standard I/O | S7650A0C0B6C1A0A | **8409.00** |
| Integrated display, with 512 samples/cycle, 5 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port), standard I/O | S7650A0C0B6A0A0A | **7140.00** |
| Integrated display, with 1024 samples/cycle, 10 MB logging memory, 5 A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O | S7650B1C0B6E0A0A | **9279.00** |

Note: Please refer to powerlogic.com for the most complete and up-to-date list of feature availability. Some features are optional.



© 2012 Schneider Electric
All Rights Reserved



Used in diverse applications such as feeder monitoring and sub-metering, the PowerLogic ION7300 series meters are also suitable for high-accuracy power and energy metering, bill verification, cost allocation and billing, demand and power factor control, load studies, circuit optimization, equipment monitoring and control and preventative maintenance. They are ideal replacements for analog meters, with a multitude of power and energy measurements, analog and digital I/O, communication ports and industry-standard protocols. The ION7330 meter adds on-board data storage, emails of logged data and an optional modem. The ION7350 meter is further augmented by more sophisticated power quality analysis, alarms and a call-back-on-alarm feature. They are compatible with PowerLogic ION EEM enterprise energy management software, PowerLogic ION Enterprise operations software or can be integrated with other energy management or building control systems through multiple communication channels and protocols.

## PowerLogic ION7350, ION7330 and ION7300 Power and Energy Meter Features

**The PowerLogic ION7300 includes:**

- Multiple form factors: transducer integrated and remote display models
- True RMS 3-phase voltage, current, and power that meets stringent ANSI C12.16, Class 10
- Power quality: harmonics—individual, even, odd, total to the 15th, maximum 32 samples/cycle
- Communications: 1 RS-485 port, 1 optional Ethernet port, 1 ANSI Type 2 infrared optical port, 1 PROFIBUS DP port (ION7300 only), onboard web server
- Supported protocols include : ION, Modbus RTU slave on serial, modem, I/R ports, Modbus TCP through Ethernet
- Extensive standard I/O includes: 4 analog inputs, 4 analog outputs, 4 digital relay outputs
- Minimum/maximum recording

**The ION7330 adds the following features:**

- Time of use - multi-year scheduling, hourly activity profiles
- 4 digital inputs for status monitoring and pulse counting
- Communications: a second RS-485 port, internal modem, DNP 3.0 through serial, modem and I/R ports, EtherGate and ModemGate, data/alarms via e-mail and MV-90 on serial and Ethernet ports
- 12, one second setpoints for single, multi-condition alarms, plus math, logic, trig, log, and linearization formulas
- Non-volatile onboard memory capacity of 300kb, min/max logging, min/max logging, up to 32 channels of historical logs, timestamp resolution to 0.001 seconds

**The ION7350 includes the following additional features:**

- Power Quality: sag/swell, individual, even, odd, total harmonics up to 31st , maximum 64 samples/cycle
- Up to 96 channels of logs and up to 48 cycles of waveform logs
- Alarm notifications via e-mail

**Table 4.5: Typical PowerLogic ION7350/7330/7300 Power and Energy Ordering Configurations**

| Description | Catalog No. | $ Price |
|---|---|---|
| **Typical PowerLogic ION7350 Power and Energy Meter Ordering Configurations** | | |
| Integrated display with optical port, 5 A inputs, standard power supply, standard comms, (two RS-485 ports) plus 10BaseT Ethernet | S7350A0B0B0E0A0A | **3567.00** |
| Integrated display with optical port, 5 A inputs, standard power supply, standard comms, (two RS-485 ports) | S7350A0B0B0A0A0A | **2906.00** |
| **Typical PowerLogic ION7330 Power and Energy Meter Ordering Configurations** | | |
| Integrated display with optical port, 5 A inputs, standard power supply, standard comms, (two RS-485 ports) plus 10BaseT Ethernet | S7330A0B0B0E0A0A | **2800.00** |
| Integrated display with optical port, 5 A inputs, standard power supply, standard comms, (two RS-485 ports) | S7330A0B0B0A0A0A | **2159.00** |
| **Typical PowerLogic ION7300 Power and Energy Meter Ordering Configurations** | | |
| Integrated display with optical port, 5 A inputs, standard power supply, standard comms, (one RS-485 port) | S7300A0B0B0A0A0A | **1436.00** |



The modular PowerLogic ION6200 is a low-cost, ultra-compact meter that offers outstanding versatility and functionality. It is simple to use, and has a big, bright LED display. It offers four-quadrant power, demand, energy, power factor and frequency measurements, and is available in a variety of flexible configurations. It is available as a low-cost base model to which enhanced functionality can be added over the long term. The PowerLogic ION6200 is ideal for customers who need revenue-accurate and/or certified measurements and want easy integration with power distribution assemblies and building automation systems. A Megawatt version is available for applications requiring readings in megawatts and kilovolts. It is well suited for sub-metering, energy cost tracking load profiling, and substation panel metering and is an ideal replacement for analog meters. It can be used for stand-alone metering in custom panels, switchboards, switchgear, gensets, motor control centers and UPS systems.

The meter consists of a base unit with options card and a power supply pack, with a remote display being optional.

## PowerLogic ION6200 Power and Energy Meter Features

- Only two inches deep, and fits a standard ANSI four-inch switchboard cutout, or as a TRAN model with no display and can be fastened to a flat surface with a 4" (10cm) ANSI bolt pattern or mounted to a DIN rail. A remote display module (RMD) can be ordered for the TRAN and mounted through an ANSI 4" (10cm) and DIN 96 cutout.
- LED display with twelve 3/4" (19mm) high digits that display all basic power parameters
- Pulse Outputs: optional kWh, kVARh and/or kVAh pulsing
- Via two Form A outputs
- Communications: optional RS-485 port with Modbus RTU and ION compatible
- 64 samples per cycle true RMS
- 3-phase voltage and current inputs

**The standard ION6200 is available with the following parameters:**

Voltage L-N average and per phase, Voltage L-L average and per phase, Current average and per phase

**Option EP#1, includes the standard measurements and provides the following additional parameters:**

I4, kW/mW total, kWh/mWh total, kW/mW peak, Current demand average and per phase, Current peak demand average and per phase, Power factor total

**Optional Enhanced Package, includes the standard measurements and provides the following additional parameters:**

kW/mW per phase, kVAR/mVAR total and per phase, kVA/mVA total and per phase, kWh/mWh and del/rec per phase, kVARh/mVARh total and del/rec per phase, kVAh/mVAh total and per phase, kW/mW demand, kVAR/mVAR demand and peak, kVA/mVA demand and peak, Power Factor per phase, Voltage THD per phase, Current THD per phase

**Table 4.6: Typical PowerLogic ION6200 Power and Energy Meter Ordering Configurations**

| Description | Catalog No. | $ Price |
|---|---|---|
| Integrated display, 10 A inputs, standard 100–240 Vac power supply, RS485 port (Modbus RTU), 2 pulse outputs, Enhanced Package #2 | S6200A0A0B0A0B0R | **1021.00** |
| TRAN Model, with remote display, 10 A inputs, standard 100–240 Vac power supply, RS485 port (Modbus RTU), 2 pulse outputs, Enhanced Package #2 | S6200R1A0B0A0B0R | **1055.00** |
| TRAN Model, (no display), 10 A inputs, standard 100–240 Vac power supply, RS485 port (Modbus RTU), 2 pulse outputs, Enhanced Package #2 | S6200T1A0B0A0B0R | **831.00** |

Note: Please refer to powerlogic.com for the most complete and up-to-date list of feature availability. Some features are optional.





© 2012 Schneider Electric
All Rights Reserved

**Table 4.7: PowerLogic ION Power and Energy Meter Selection**

| Features■ | ION8650 | | | ION7650 | ION7550 | ION7350 | ION7330 | ION7300 | ION6200 |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | | | | | | |
| **Inputs, outputs and control power** | | | | | | | | | |
| 3-phase / single-phase | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/• |
| Digital in and out / analog in and out | 8,8 / 3,4 | 8,8 / 3,4 | 8,8 / 3,4 | 16,4 / 4,4 | 16,4 / 4,4 | 4,4 / 4,4 | 4,4 / 4,4 | 4,4 / 4,4 | 0,2 / |
| Power supply options | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC |
| **Power and energy measurements** | | | | | | | | | |
| V, I, F, PF | • | • | • | • | • | • | • | • | |
| Power, demand | • | • | • | • | • | • | • | • | • |
| Energy / time-of-use (energy per shift) | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/ | •/ |
| ANSI energy accuracy class (% of reading) | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 0.5 | 0.5 | 0.5 |
| Measurement Canada Approval | • | | | • | • | • | • | • | • |
| Loss compensation | • | • | • | • | • | | | | |
| **Power quality analysis** | | | | | | | | | |
| Compliance monitoring (e.g. EN50160) | • | • | | • | | | | | |
| Flicker measurement | • | • | | • | | | | | |
| Transient disturbance capture | • | | | • | | | | | |
| Sag and swell monitoring | • | • | • | • | • | • | | | |
| Disturbance direction detection | | | | • | • | | | | |
| Harmonics measurement | 63 rd | 63 rd | 31st | 63 rd | 63 rd | 31st | 15th | 15th | THD |
| Waveform capture | • | | | • | • | • | | | |
| **Data and event logging** | | | | | | | | | |
| Trend / snapshot | •/• | •/• | •/• | •/• | •/• | • | • | | |
| Min/max | • | • | • | • | • | • | • | | |
| Events | • | • | • | • | • | • | • | | |
| Timestamp resolution (seconds) | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | | |
| GPS sync | • | • | • | • | • | | | | |
| **Setpoints, alarms and control** | | | | | | | | | |
| Annunciation / call out on alarm | •/• | •/• | •/• | •/• | •/• | •/• | •/ | | |
| Trigger logging | • | • | • | • | • | • | • | | |
| Trigger relay or digital output control | • | • | • | • | • | • | • | | |
| **Special features** | | | | | | | | | |
| Custom programming: arithmetic, boolean, object-oriented | • | • | • | • | • | • | • | | |
| Downloadable firmware | • | • | • | • | • | • | • | • | • |
| **Communications** | | | | | | | | | |
| Ethernet port / web / email | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/•/ | •/ / |
| Telephone modem port | • | • | • | • | • | • | • | | |
| Infrared port | • | • | • | • | • | • | • | • | |
| RS485 / RS232 ports | •/• | •/• | •/• | •/• | •/• | •/ | •/ | •/ | •/ |
| Modbus / DNP / MV-90 protocols | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | •/ / | •/ / |
| IEC 61850 protocol | • | • | • | • | • | | | | |

■ Specifications represent maximum capabilities with all options installed. Some options are not available concurrently. This is not a complete feature list, please refer to detailed product specifications.



© 2012 Schneider Electric
All Rights Reserved



New!

DM6200 Panel Meter



New!

PM1200 Multifunction Power Meter

## PowerLogic DM6200 Panel Meter and PowerLogic PM1200 Multifunction Power Meter

The PowerLogic DM6200 digital panel meter and the PM1200 multifunction power meter provide all the basic features needed to monitor an electrical panel or circuit affordably. Rugged enough to withstand industrial and commercial environments, these meters will help save on energy and installation costs, are easy to use, and adapts to various circuit requirements onsite.

### DM6200 Features

- Measures basic measurements (V, A, Hz & PF).
- Used for equipment monitoring, preventative maintenance scheduling, monitoring load locally, and replacing multiple analog meters.
- Onsite configuration of CT and PT ratios and various other set points.
- Configurable analog bar for at-a-glance check of lad on feeders.
- Standard modbus output fo remote monitoring and data logging.

### PM1200 Features

- Measures basic measurements (V, A, Hz & PF) PLUS energy, power, demand, and THD.
- Used for energy and power monitoring, demand monitoring, load studies and circuit optimization, energy balancing and optimization, etc.

**Table 4.8:**

| Description | Catalog No. | $ Price |
|---|---|---|
| Basic V, A, F, PF meter w/display, Modbus RS 485 comm port | METSEDM6200 | 400.00 |
| Power Meter w/display basic readings, THD, demand, Modbus RS 485 comm port | METSEPM1200 | 550.00 |

## PowerLogic Series 700 Power Meter



Series 700 Power Meter

The PowerLogic PM700 series power meters offer all of the measurement capabilities required to monitor an electrical installation in a single 96 x 96 mm unit extending only 50 mm behind the mounting surface (less than 2 inches).

With its large display, you can monitor all three phases and neutral at the same time. The anti-glare display features large 11 mm high characters and powerful backlighting for easy reading, even in extreme lighting conditions and viewing angles.

- Panel instrumentation (OEMs)
- Sub-billing and cost allocation
- Remote monitoring of an electrical installation
- Harmonic monitoring (THD)

**Power and current demand, THD and min/max reading in basic version**

A high-performance solution for trouble-free monitoring of your electrical installation.

**Energy IEC 62053-22 Class 0.5S (PM750 Only) and IEC62053-21 Class 1 (PM710)**

Suitable for sub-billing and cost-allocation applications.

**Alarms and Digital I/O**

The PM750 adds alarming functionality (no RTC) and two digital inputs and one output.

**Table 4.9:**

| Description | Catalog No. | $ Price |
|---|---|---|
| **Series 700 Power Meters** | | |
| PM710 Class 1 (IEC62053-21) Power Meter with integrated display and RS-485 communications port | PM710 | 710.00 |
| PM750 Class 0.5S (IEC 62053-22) Power Meter with integraded display, alarms (no RTC), (2) digital inputs, (1) digital output and RS-485 communications port | PM750 | 950.00 |

## PowerLogic Series 800 Power Meters



Series 800 Power Meter

The PowerLogic PM800 series Power Meter is a high-performance power-monitoring unit able to provide advanced power measurement capabilities in a compact 96x96 mm unit. Its large, easy to read display allows you to monitor all three phases and neutral simultaneously. With its easy to use intuitive interface and self guiding menus, the large anti-glare and back lit display makes this meter the easiest yet to navigate and use. The modular design allows for flexibility with an easy upgrade path to grow the meter's capabilities with the addition of Communication and I/O Modules.

- Monitor current, voltage, power and energy simultaneously
- Trending/Forecasting Curves functionality (PM850/870)
- 128 samples/cycle-zero blind metering
- Waveform capture (PM850), configurable waveform capture (PM870)
- Onboard logging (80k in PM820, 800k in PM850/PM870)
- Detection of sub-cycle sags/swells on both voltage and current (PM870 Only)
- V & I individual harmonics up to 31st (PM820) or up to the 63rd for the PM850 and PM870.
- Five input metering channels WAGES
- PQ Advanced Evaluation (EN50160, ITI/CBEMA, SEMI F-47) for the PM850 and PM870
- Type 12 Remote Display Compliant
- Complies with ANSI C37.90 for Surge Withstand Capability (SWC) and IEC 61000-4-12 for Surge Immunity
- Available with 2 standard Digital I/O
- Field installable Digital and Analog I/O
- THD measurement
- Meets ANSI 12.20 Class 0.2 and IEC 62053-22 Class 0.5S accuracy for active energy.
- Optional field installable Ethernet communications card with standard and custom web pages
- GPS Time Synchronization

**Table 4.10:**

| Description | Catalog No. | $ Price |
|---|---|---|
| **Series 800 Power Meters** | | |
| PM820 Power Meter with integrated display, THD, Alarming, 80 kb Logging | PM820 | 2390.00 |
| PM850 Power Meter with integrated display, THD, Alarming, 800 kb Logging, Waveform Capture | PM850 | 3889.00 |
| PM870 Power Meter with integrated display, THD, Alarming, 800 kb Logging, configurable Waveform Capture, Sag/Swell Detection | PM870 | 4799.00 |
| PM820RD Power Meter with remote display, THD, Alarming, 80 kb Logging | PM820RD | 2550.00 |
| PM850RD Power Meter with remote display, THD, Alarming, 800 kb Logging, Waveform Capture | PM850RD | 4058.00 |
| PM870RD Power Meter with remote display, THD, Alarming, 800 kb Logging, configurable Wafeform Capture, Sag/Swell Detection | PM870RD | 4958.00 |
| PM820 Meter unit only without display | PM820U | 2050.00 |
| PM850 Meter unit only without display | PM850U | 3529.00 |
| PM870 Meter unit only without display | PM870U | 4460.00 |
| **Series 800 Power Meter Accessories** | | |
| PM800 Display for integrated meter unit | PM8D | 443.00 |
| PM800 remote display and adapter with 12' cable | PM8RD | 584.00 |
| PM800 remote display adapter only | PM8RDA | 428.00 |
| PM800 Module, 2 digital outputs (relays), 6 digital inputs | PM8M26 | 635.00 |
| PM800 Module, 2 digital out, 2 digital in, 2 analog out, 2 analog in | PM8M2222 | 856.00 |
| PM800 Mounting adapter for CM2000 | PM8MA | 267.00 |
| PM8ECC Ethernet Communications Card; provides a 10/100 Base Tx UTP port, an RS-485 Modbus serial master port, Ethernet-to-serial line gateway functionality, and an embedded web server that is fully compliant with Transparent Ready—Level 1 (TRe1) systems. The PM8ECC supports a private host PM8ECC MIB. Use of this MIB allows the reading of Basic Metering Data, Configuration and Status of I/Os and Configuration and Status of Alarms, plus SNMP Trap generation in response to any PM8 on-board alarms. | PM8ECC | 1150.00 |





© 2012 Schneider Electric
All Rights Reserved

## PowerLogic Series 4000 Circuit Monitor



CM4000T with VFD Display

The award winning, Web-enabled PowerLogic Series 4000 Circuit Monitor (CM4250) is the most advanced permanently mounted circuit monitor in the industry today. Designed for critical power and large energy users who cannot afford to be shut down, the CM4250 provides the ability to monitor, troubleshoot and preempt power quality problems. Transients (disturbances lasting less than one cycle) are particularly difficult to detect, due to their short duration. The CM4000T detects and captures oscillatory and impulsive transients (up to 10,000V peak, line-to-line at 5 MHz per channel) as short as one microsecond in duration. The CM4000T automatically performs a high-speed transient waveform capture and a longer disturbance capture to show the conditions surrounding an event. The CM4000T maintains a complete historical record of the number of transients per phase, along with the magnitude, duration and time of occurrence of each. It also performs a stress calculation to determine the circuits that have received the greatest stress from transient overvoltages.

- Waveform capture with up to 512 samples/cycle
- Built-in Trending and Forecasting functionality allows you to forecast energy usage up to 4 days in advance
- Sag/Swell disturbance monitoring
- Two option card slots for field installable cards
- Optional field installable Ethernet communications card with standard and custom web pages
- Alarm Setpoint Learning feature allowing optimum threshold setting (patent pending)
- Multiple alarms including standard, digital, Boolean, high-speed, and disturbance alarms
- Waveshape alarm monitoring
- High speed transient voltage detection at 5 MHz per channel with field installable CVMT current/voltage module
- True RMS Metering through the 255th harmonic
- Extended waveform capture (up to 110 seconds)
- Field installable Digital/Analog I/O cards and flexible I/O extender modules
- Harmonic powerflows up to the 40th harmonic
- Standard KYZ pulse output
- Standard 32 MB of non-volatile memory
- Integrated power quality standards including EN50160, IEC 61000-4-15 (Flicker)
- Sequence of events recording using GPS synchronization technology
- Oscillatory transient detection and recording
- UL Listed, CSA Approved, CE Marking, NOM Approved, FCC compliant

## PowerLogic Series 4000 Circuit Monitor Optional Displays

- High visibility remote VF (vacuum fluorescence) display
- Displays metering data, min/max values, alarms, inputs
- Remote LC (liquid crystal) display with backlighting also available
- Optional user configurable display screens



ECC21



IOC44 I/O Card

### Table 4.11: Series 4000 Circuit Monitors

| Description | Catalog No. | $ Price |
|---|---|---|
| **Series 4000 Circuit Monitors** | | |
| Instrumentation, On-board Data Logging, Waveform Capture, Disturbance Recording, Configurable I/O, 0.04% Accuracy | CM4250 | **6386.00** |
| Same as CM4250 plus Impulsive Transient Detection and Flicker (IEC 61000-4-15) | CM4000T | **8474.00** |
| **Series 4000 Circuit Monitor Accessories** | | |
| Field installable I/O card with 3 relay outputs, 1 pulse output (KYZ) and 4 status inputs | IOC44 | **796.00** |
| I/O Extender module with 4 DC status inputs, 2 DC digital outputs, 1 analog input and 1 analog output | IOX2411 | **1253.00** |
| I/O Extender module with 4 status inputs and 4 analog inputs (4–20 mA) | IOX0404 | **1650.00** |
| I/O Extender module with 8 status inputs | IOX08 | **703.00** |
| I/O Extender module with no pre-installed I/O ▲ | IOX | **459.00** |
| Ethernet Communications Card; 100 MB Fiber or 10/100 MB UTP Ethernet port and 1 RS-485 master port | ECC21 | **1948.00** |
| Current/Voltage module | CVM42 | **2251.00** |
| Current/Voltage module with high speed transient detection■ | CVMT | **5393.00** |
| 4-line x 20—character liquid crystal display with backlighting | CMDLC | **688.00** |
| 4-line x 20—character vacuum fluorescent display with proximity sensor | CMDVF | **1207.00** |
| 4 foot display cable | CAB4 | **53.00** |
| 12 foot display cable | CAB12 | **89.00** |
| 30 foot display cable | CAB30 | **161.00** |

▲ Contact your nearest Square D/Schneider Electric sales office for additional I/O options.
■ CM4250 is field upgradeable to provide additional features of specified module.

### Table 4.12: SER Time Synchronization

| Description | Catalog No. | $ Price |
|---|---|---|
| PowerLogic Satellite Time System, Circuit Monitor and SEPAM GPS Time Synchronization, 100 microsecond accuracy | STS3000 | **5348.00** |
| Satellite Time Reference Module | STRM | **2827.00** |
| CyTime Sequence of Events Recorder, 24 Vdc power / 24 Vdc inputs, 32 inputs, web server | 9788SER3200 | **2700.00** |
| SER 3200 EZ connector for IRIG-B signal | 9788EZCIRIGB | **115.00** |
| Smart Antenna Module | SAM | **2292.00** |
| Smart Antenna Module Interface Cable—200 FT | SAIF200 | **611.00** |
| Power Supply, 24DC/50W, DIN-mountable | PS080 | **558.00** |



© 2012 Schneider Electric
All Rights Reserved

**Table 4.13: PowerLogic Circuit Monitor and Power Meter Selection**

| Features | CM4000T | CM4250 | PM870 | PM850 | PM820 | PM750 | PM710 | PM1200 | DM6200 |
|---|---|---|---|---|---|---|---|---|---|
| **Inputs, outputs and control power** | | | | | | | | | |
| 3-phase / single-phase | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/• |
| Digital in and out / analog in and out | 24 / 4 | 24 / 4 | 18 / 8 | 18 / 8 | 18 / 8 | 3/ | | | |
| Power supply options | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC | AC/DC |
| **Power and energy measurements** | | | | | | | | | |
| V, I, F, PF | • | • | • | • | • | • | • | • | • |
| Power, demand | • | • | • | • | • | • | • | • | |
| Energy / energy per shift (time-of-use) | •/• | •/• | •/• | •/• | •/• | •/ | •/ | •/ | |
| Energy accuracy (%) | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 1.0 | 1.0 | |
| Standards compliance to ANSI / IEC | •/• | •/• | •/• | •/• | •/• | •/• | •/• | •/ | |
| **Power quality analysis** | | | | | | | | | |
| Compliance monitoring (e.g. EN50160) | • | • | • | • | | | | | |
| Flicker measurement | • | | | | | | | | |
| High-speed transient disturbance capture (200 ns) | • | | | | | | | | |
| Transient disturbance capture | • | • | sag/swell | | | | | | |
| Disturbance direction detection | • | • | | | | | | | |
| Sag/swell monitoring | • | • | • | | | | | | |
| Harmonics measurement | • | • | • | • | • | THD | THD | • | |
| Uptime (number of 9's) calculation | • | • | | | | | | | |
| Waveform capture | • | • | • | • | | | | | |
| Waveshape alarm | • | • | | | | | | | |
| **Data and event logging** | | | | | | | | | |
| Trend / billing | •/ | •/ | •/• | •/• | /• | | | | |
| Minimum and maximum | • | • | • | • | • | • | • | | |
| Events / maintenance | •/• | •/• | •/ | •/ | •/ | •/ | •/ | | |
| Timestamp resolution (seconds) | 0.001 | 0.001 | 1 | 1 | 1 | | | | |
| GPS sync | • | • | • | • | • | | | | |
| **Setpoints, alarms and control** | | | | | | | | | |
| Annunciation / call out on alarm | •/• | •/• | •/ | •/ | •/ | •/ | | | |
| Trigger logging | • | • | • | • | • | | | | |
| Trigger relay or digital ouput control | • | • | • | • | • | | | | |
| **Special features** | | | | | | | | | |
| Custom programming: arithmetic, boolean | • | • | | | | | | | |
| Downloadable firmware | • | • | • | • | • | • | • | | |
| **Communications** | | | | | | | | | |
| Ethernet port / web / email | •/•/• | •/•/• | •/•/• | •/•/• | •/•/• | | | | |
| RS485 / RS232 ports | •/• | •/• | •/• | •/• | •/• | •/ | •/ | • | • |
| Modbus protocol | • | • | • | • | • | • | • | • | • |





© 2012 Schneider Electric
All Rights Reserved




## PowerLogic Submetering

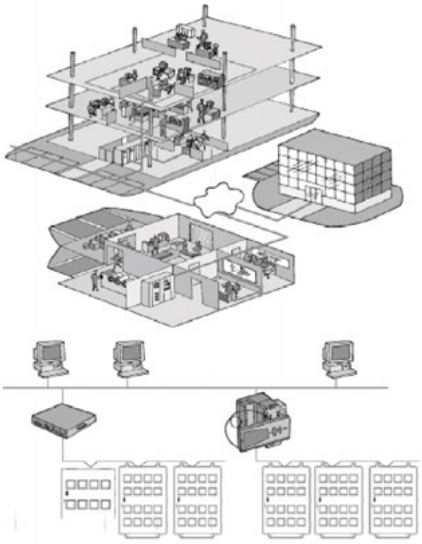
In today's increasingly competitive commercial property market, attracting and retaining high-quality, long-term tenants by offering exceptional value is the primary goal. Balancing these premium services and reliable infrastructure vs. the financial exposure to volatile utility costs is the challenge.

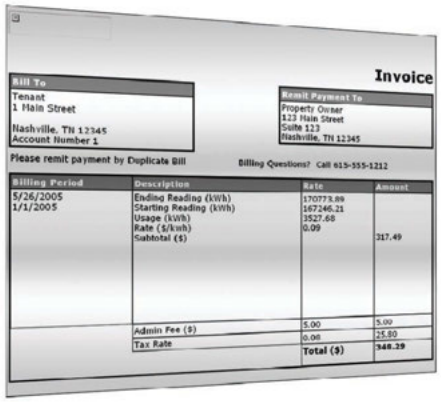
Minimizing energy costs requires information on how energy usage translates into money spent. PowerLogic energy sub-metering systems are specifically engineered to address the measurement, verification and billing needs of multi-tenant properties.

- Residential high-rise and low-rise
- Campuses
- Shopping centers
- Malls / food courts
- Offices
- Commercial buildings

PowerLogic energy management and metering systems are ideal for multi-tenant buildings providing:

- Metering & Verification tools to assure compliance to Energy Policy Act 2005
- Integrated approach from simple energy allocation requirements to high-end power quality
- Monitor energy usage and efficiency to accurately recover the costs while providing tenants with energy and a reliable infrastructure
- Implement energy efficiency initiatives essential to obtaining LEED certification








PowerLogic E5600 Socket Meter

## PowerLogic E5600 Socket Meter

The E5600 is a cost effective socket meter that combines high accuracy, superior quality and wide-ranging capability in a device that is simple to install. The PowerLogic E5600 socket meter can help reduce electrical costs, increase property values and attract good tenants by providing the information needed to manage energy costs. Track and allocate costs by circuit or suite, accurately bill tenants for energy used, and verify energy conservation efforts. It is a foundational component for LEED and Energy Star certification as a part of green buildings. Green buildings enjoy higher tenant retention, higher tenant quality, and recognition by the community while typically allowing property managers to charge more for rent.

Unlike traditional sub-metering solutions, which must be manually read or may lack software for effective sub-billing or comprehensive energy management, the PowerLogic E5600 enables businesses to utilize their existing S-based socket infrastructure with a low-cost meter that is part of an end-to-end solution for tenant sub-metering.

- Real, reactive, and apparent energy values.
- Onboard interval data logging (load profiles).
- Revenue grade accuracy – ANSI C12.20 0.2% / 0.5%.
- Automatic configuration of service type and voltage.
- Onboard diagnostics continually monitors for equipment failures, improper installation wiring, poor load conditions, poor power quality conditions and tampering.
- S-base meter socket compatible.

**Table 4.14:**

| Description | Catalog No. | $ Price |
|---|---|---|
| Form 2S, Single-Phase, Class 200, S Based Meter | E5600020SQD | **960.00** |
| Form 9S, 3-Phase, Class 20, S Based Meter | E5600090SQD | **1080.00** |
| Form 12S, 3-Phase, Class 200, S Based Meter | E5600120SQD | **1080.00** |
| Form 16S, 3-Phase, Class 200, S Based Meter | E5600160SQD | **1080.00** |
| Form 36S, 3-Phase, Class 20, S Based Meter | E5600360SQD | **1080.00** |
| Form 45S, 3-Phase, Class 20, S Based Meter | E5600450SQD | **1080.00** |
| Optional USB Optical Communications Probe | OPTICALPROBEUSB | **719.00** |



© 2012 Schneider Electric
All Rights Reserved

## PowerLogic High Density Metering

High Density Metering (HDM) is engineered to answer the metering and billing needs of multi-tenant properties:



High Density Metering factory assembled enclosure for multi-tenant properties

## Features and Benefits

- HDM comes standard with the PowerLogic PM210, PM750, PM820 or ION6200 meters.
- Lockable, 16 gauge NEMA Type 1 enclosure provides tamper-resistant security.
- NEMA Type 3R also availalbe. Please consult factory.
- Mounting channel and surface-mount flanges simplify installation.
- Factory installed cover plates are included to cover empty meter spaces.
- Factory installed wiring harness simplifies installation of additional meters and provides future system expansion.
- Each High Density Metering cabinet is provided with standard RS485 Modbus®, and optional Modbus Ethernet TCP communications are availalbe. For wireless communications, please consult factory.
- Available in the following configurations: 208 Y/120 V wye; 240 V delta, 48 = 480 Y/277 V wye (PM210, PM750, and PM820), and with provided 2.5:1 CPT (control power transformer) 480 Y/277 V wye (6200); 480 V delta (6200, PM210, PM750 or PM820).
- CTs required. Must select separately.

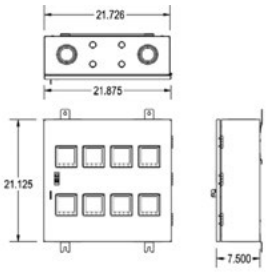
### Table 4.15: High Density Metering Cabinet

| Category | Meter Series | Voltage | Phasing | Enclosure Size | # Meters | Enclosure Rating | Description |
|---|---|---|---|---|---|---|---|
| HDM | ION6200 | 12, 4T▲ | 3 | 1 or 4 | 1-4■ | R♦ or 1 | 1 or 4 High Density Meter Enclosure with ION6200 meters; ideal for outdoor as well as indoor applications at all voltage levels including 600V delta and 347/600 V wye systems |
| HDM | PM210 | 12, 48, 4T▲ | 1 or 3 | 1, 4, 8, or 16 | 1-16■ | 1 | 8 or 16 High Density Meter Enclosure with PM210 meters; ideal for single or three phase indoor commercial building applications |
| HDM | PM750 | 12, 48, 4T▲ | 3 | 1, 4, 8 or 16 | 1-16■ | 1 | 8 or 16 High Density Meter Enclosure with PM750 meters; ideal for 3 phase indoor commercial building applications |
| HDM | PM820 | 12, 48, 4T▲ | 3 | 1, 4, 8 or 16 | 1-16■ | 1 | 8 or 16 High Density Meter Enclosure with PM750 meters; ideal for 3 phase indoor commercial building applications |

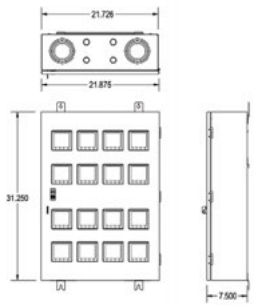
▲ Voltage Ordering Notes:
12 = 208 Y/120 V wye; 240 V delta. 48 = 480 Y/277 wye; (PM210/PM750)
4T = with provided 2.5:1 CPT (control power transformer); 480 Y/277 wye (6200); 480 V delta (6200, PM210 or PM750)

■ Meters Ordering Notes: Please indicate the number of meters to be pre-installed when placing your order. You may order any number of meters in the enclosure between one and the maximum number of meters each cabinet will hold.

♦ Please enter R as the last digit for Type 3R outdoor on 1 or 4 HDM enclosure with the 6200 series meter.




8 meter configuration




16 meter configuration

## High Density Meter System includes:

- Enclosure
- Power Meters, installed
- Installation bulletin for Enclosure
- Wall hanging bracket
- Installation bulletin for Meters

### Table 4.16: Accessories and Options

| Description | Catalog No. | $ Price |
|---|---|---|
| Auxiliary Wiring Harness for installation of additional meters (includes connectors and shorting terminal blocks) | HDMPMHKIT27 | 221.00 |
| Cover plate for empty meter base | HDMCVRPLT | 5.90 |
| Water and Gas Meters | Consult factory for details | |
| 50 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT050S1 | 51.00 |
| 100 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT100S1 | 51.00 |
| 125 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT125S1 | 73.00 |
| 150 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT150S1 | 62.00 |
| 200 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT200S1 | 62.00 |
| 250 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT250S1 | 62.00 |
| 400 Amp HDM Solid Core Current Transformer, 1.13" window size | HDMCT400S1 | 62.00 |
| Power Meter with display, basic readings, Modbus RS485 communications port▲ | PM210 | 550.00 |

▲ To order all other loose meters, please visit metering sections within digest related to particular meter.

## Multi Circuit Energy Meters

The PowerLogic EM4800 multi-circuit energy meter combines accurate electricity sub-metering with advanced communications technology. They are ideal for multi-tenant or departmental metering applications within office towers, condominiums, apartment buildings, shopping centers and other multi-point environments, metering up to 24 individual circuits from the same meter. The EM4800 series has an accuracy of Class 0.5% for power and energy. Each meter is available separately or as part of a Scquare D integrated power center (IPC) for use in building retrofits or new construction.

### Table 4.17:

| Description | Catalog No. | $ Price |
|---|---|---|
| Energy measurement for 24 (1CT) or 12 (2CT) single-phase circuits or 8 (3CT) 3-phase circuits; Ethernet; modem; onboard interval logging; compatible with 80mA low-power CTs (solid-core) | METSQEM488016 | 3980.00 |
| Energy measurement for 24 (1CT) or 12 (2CT) single-phase circuits or 8 (3CT) 3-phase circuits; Ethernet; modem; onboard interval logging; compatible with 333mV low-power CTs (solid-core or split-core) | METSQEM483316 | 3980.00 |
| Energy measurement for 24 (1CT) or 12 (2CT) single-phase circuits or 8 (3CT) 3-phase circuits; Ethernet; modem; onboard interval logging; compatible with standard 5A CTs (solid-core or split-core) | METSQEM480516 | 5350.00 |
| 200 A current transformer (CT), 80 mA secondary, solid-core (1 CT) | METSECT802000 | 38.00 |
| 50 A .333 V Split Core Current Transformer with 0.75 in Window Size | ECT075050SC | 90.00 |
| 100 A .333 V Split Core Current Transformer with 0.75 in Window Size | ECT075100SC | 90.00 |
| 150 A .333 V Split Core Current Transformer with 0.75 in Window Size | ECT075150SC | 90.00 |
| 200 A .333 V Split Core Current Transformer with 0.75 in Window Size | ECT075200SC | 90.00 |
| 100 A .333 V Split Core Current Transformer with 1.25 in Window Size | ECT125100SC | 141.00 |
| 150 A .333 V Split Core Current Transformer with 1.25 in Window Size | ECT125150SC | 141.00 |
| 200 A .333 V Split Core Current Transformer with 1.25 in Window Size | ECT125200SC | 141.00 |
| 400 A .333 V Split Core Current Transformer with 1.25 in Window Size | ECT125400SC | 141.00 |
| 200 A .333 V Split Core Current Transformer with 2.00 in Window Size | ECT200200SC | 171.00 |
| 400 A .333 V Split Core Current Transformer with 2.00 in Window Size | ECT200400SC | 171.00 |
| 600 A .333 V Split Core Current Transformer with 2.00 in Window Size | ECT200600SC | 171.00 |
| 600 A .333 V Split Core Current Transformer with 3 x 5 in Window Size | ECT300600SC | 241.00 |
| 800 A .333 V Split Core Current Transformer with 3 x 5 in Window Size | ECT300800SC | 241.00 |








PL1 Discount Schedule

© 2012 Schneider Electric
All Rights Reserved



Energy Meter

## PowerLogic Energy Meter

The Energy Meter is ideal for stand-alone and systems-based submetering applications. It is easy to install and provides exceptional metering accuracy. Available in Basic and Extended Range models. The Basic model is designed for metering of 120/240 and 208Y/120 volt services. The Extended Range model will meter 120/240 volt up to 480 volt Wye connected services. Extended Range meters come with pulse output and phase loss output not available on the Basic unit. Optional Modbus™ RS-485 serial communications are provided with the Energy Meter Comms Board, EMCB. Optional kW demand is also provided by the EMCB.

Meter up to 3 individual services with one Energy Meter. The Energy Meter will allow the addition of up to 3 sets of parallel CTs for metering multiple electric loads. Additional sets of CTs can be ordered separately. Please refer to the multiple CT application notes in the Energy Meter instruction bulletin for the proper installation procedures.

## Energy Meter

### Table 4.18: Basic 120/240 V to 208Y/120 V

| Catalog No. | Description | $ Price |
|---|---|---|
| EMB1010 | Basic 100 A, .518"x1.28" ID, 1 CT | 426.00 |
| EMB1021 | Basic 200 A, 0.75" x 1.10" ID, 1 CT | 440.00 |
| EMB1032 | Basic 300 A, .90"x1.90" ID, 1 CT | 482.00 |
| EMB2010 | Basic 100 A, .518"x1.28" ID, 2 CTs | 438.00 |
| EMB2021 | Basic 200 A, 0.75" x 1.10" ID, 2 CTs | 464.00 |
| EMB2032 | Basic 300 A, .90"x1.90" ID, 2 CTs | 480.00 |
| EMB2043 | Basic 400 A, 2.45"x2.89" ID, 2 CTs | 505.00 |
| EMB2083 | Basic 800 A, 2.45"x2.89" ID, 2 CTs | 517.00 |
| EMB3010 | Basic 100 A, .518"x1.28" ID, 3 CTs | 750.00 |
| EMB3021 | Basic 200 A, 0.75" x 1.10" ID, 3 CTs | 766.00 |
| EMB3032 | Basic 300 A, .90"x1.90" ID, 3 CTs | 799.00 |
| EMB3043 | Basic 400 A, 2.45"x2.89" ID, 3 CTs | 825.00 |
| EMB3083 | Basic 800 A, 2.45"x2.89" ID, 3 CTs | 855.00 |
| EMB3084 | Basic 800 A, 2.45"x5.50" ID, 3 CTs | 903.00 |
| EMB3164 | Basic 1600 A, 2.45"x5.50" ID, 3 CTs | 903.00 |

### Table 4.19: Additional CT Sets

| Catalog No. | Description | $ Price |
|---|---|---|
| EMCT010 | 100 A, .518" x 1.28" ID, 1 CT | 92.00 |
| EMCT021 | 200 A, 0.75" x 1.10" ID, 1 CT | 99.00 |
| EMCT032 | 300 A, .90" x 1.90" ID, 1 CT | 106.00 |
| EMCT043 | 400 A, 2.45" x 2.89" ID, 1 CT | 106.00 |
| EMCT083 | 800 A, 2.45" x 2.89" ID, 1 CT | 123.00 |
| EMCT084 | 800 A, 2.45" x 5.50" ID, 1 CT | 130.00 |
| EMCT164 | 1600 A, 2.45" x 5.50" ID, 1 CT | 130.00 |

Note: CT quantity and amperage must match meter model. Total of combined loads must not exceed rating of meter. All additional CTs shipped with 6 ft. white and black color-coded wire leads.

### Table 4.20: Extended Range 120/240 V to 480Y/277 V

| Catalog No. | Description | $ Price |
|---|---|---|
| EME1010 | Extended Range 100 A, .518"x1.28" ID, 1 CT | 471.00 |
| EME1021 | Extended Range 200 A, 0.75" x 1.10" ID, 1 CT | 483.00 |
| EME1032 | Extended Range 300 A, .90"x1.90" ID, 1 CT | 518.00 |
| EME2010 | Extended Range 100 A, n.518"x1.28" ID, 2 CTs | 511.00 |
| EME2021 | Extended Range 200 A, 0.75" x 1.10" ID, 2 CTs | 536.00 |
| EME2032 | Extended Range 300 A, .90"x1.90" ID, 2 CTs | 550.00 |
| EME2043 | Extended Range 400 A, 2.45"x2.89" ID, 2 CTs | 567.00 |
| EME2083 | Extended Range 800 A, 2.45"x2.89" ID, 2 CTs | 585.00 |
| EME3010 | Extended Range 100 A, .518"x1.28" ID, 3 CTs | 811.00 |
| EME3021 | Extended Range 200 A, 0.75" x 1.10" ID, 3 CTs | 829.00 |
| EME3032 | Extended Range 300 A, .90"x1.90" ID, 3 CTs | 864.00 |
| EME3043 | Extended Range 400 A, 2.45"x2.89" ID, 3 CTs | 880.00 |
| EME3083 | Extended Range 800 A, 2.45"x2.89" ID, 3 CTs | 921.00 |
| EME3084 | Extended Range 800 A, 2.45"x5.50" ID, 3 CTs | 971.00 |
| EME3164 | Extended Range 1600 A, 2.45"x5.50" ID, 3 CTs | 971.00 |

### Table 4.21: Energy Meter Accessories

| Catalog No. | Description | $ Price |
|---|---|---|
| EMCB | Energy Meter Communication Board▲ | 267.00 |
| EMFP1 | Energy Meter Fuse Pack, Set of 1 | 47.00 |
| EMFP2 | Energy Meter Fuse Pack, Set of 2 | 94.00 |
| EMFP3 | Energy Meter Fuse Pack, Set of 3 | 142.00 |
| EMBOND | Energy Meter Bonding Kit | 117.00 |

▲ Energy Meter communication board (EMCB) can be used with all models of the Energy Meter. Order one EMCB for each Energy Meter where either kW demand and/or communication is specified.



Enercept Meter

## PowerLogic Enercept™ Meter

The Enercept Meter is the ideal solution for submetering electric loads where space is at a premium. The compact design consists of three interconnected split-core CTs with the metering and communication electronics built into the CT housing. Simply snap on the CTs, connect the voltage inputs, the communication lines, and installation is complete. Both versions can be connected to either three-phase or single-phase circuits.

Enercept meters employ the Modbus™ RTU 2-wire communication protocol, and can utilize the same communication network and PowerLogic System Manager™ software as other PowerLogic devices. Data from the Enercept meters can be presented in tabular or graphical format, used for alarming and historical logging and trending, and to produce reports.

Optional Submeter display (SMD) acts as a stand-alone operator interface supporting up to 32 meters (63 with a repeater). In addition, the Submeter display (SMD) can act as a network adapter allowing Enercept meters to be incorporated into a network.

### Table 4.22: Enercept Meter

| Catalog No. | Description | $ Price |
|---|---|---|
| 3020B012■ | Basic 100 A, 1.25" x 1.51" ID | 776.00 |
| 3020B032■ | Basic 300 A, 1.25" x 1.51" ID | 800.00 |
| 3020B043■ | Basic 400 A, 2.45" x 2.89" ID | 823.00 |
| 3020B083■ | Basic 800 A, 2.45" x 2.89" ID | 847.00 |
| 3020B084■ | Basic 800 A, 2.45" x 5.50" ID | 869.00 |
| 3020B164■ | Basic 1600 A, 2.45" x 5.50" ID | 893.00 |
| 3020B244■ | Basic 2400 A, 2.45" x 5.50" ID | 916.00 |
| 3020E012 | Enhanced 100 A, 1.25" x 1.51" ID | 1035.00 |
| 3020E032 | Enhanced 300 A, 1.25" x 1.51" ID | 1066.00 |
| 3020E043 | Enhanced 400 A, 2.45" x 2.89" ID | 1097.00 |
| 3020E083 | Enhanced 800 A, 2.45" x 2.89" ID | 1128.00 |
| 3020E084 | Enhanced 800 A, 2.45" x 5.50" ID | 1159.00 |
| 3020E164 | Enhanced 1600 A, 2.45" x 5.50" ID | 1190.00 |
| 3020E244 | Enhanced 2400 A, 2.45" x 5.50" ID | 1221.00 |

■ See Handout / Instruction Bulletin for derating properties.

### Table 4.23: Accessories

| Catalog No. | Description | $ Price |
|---|---|---|
| SMD | Submeter display mounted in enclosure | 725.00 |
| SMD OPN | Open style submeter display, no enclosure | 595.00 |
| 2W485C | 2-Wire 232–485 Conv | 78.00 |
| EMBK-3 | Enercept Mounting Brackets (Set of 3) | 75.00 |
| PS24 | 24 Vdc Power Supply (for use with EDI or ENA) | 157.00 |

### Table 4.24: Enercept Metering Quantities

| Basic■ | Enhanced• |
|---|---|
| kWh, energy usage kW, real power | kWh, kW per phase and total, min kW, max kW, kWd, kVAR, kVA, PF per phase and total voltage- V, L-L, L-N per phase and avg. Current - A, per phase and average |



SA Split-Core Current Transformers

## PowerLogic Split Core Current Transformers-Instrument Grade 5 Amp Split-Core Current Transformers

The 3090 SCCT series of split-core current transformers provide secondary amperage proportional to the primary (sensed) current. For use with Circuit Monitors, Power Meters, data loggers, chart recorders and other instruments the 3090 SCCT series provides a cost-effective means to transform electrical service amperages to a 0–5A level compatible with monitoring equipment.

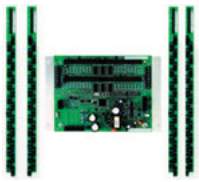
### Table 4.25:

| Catalog No. | Description | $ Price |
|---|---|---|
| 3090SCCT022 | Split Core CT—200 A (sz.2): 1.25" x 1.51 | 120.00 |
| 3090SCCT032 | Split Core CT—300 A (sz.2): 1.25" x 1.51 | 120.00 |
| 3090SCCT043 | Split Core CT—400 A (sz.3): 2.45" x 2.89 | 129.00 |
| 3090SCCT063 | Split Core CT—600 A (sz.3): 2.45" x 2.89 | 129.00 |
| 3090SCCT083 | Split Core CT—800 A (sz.3): 2.45" x 2.89 | 129.00 |
| 3090SCCT084 | Split Core CT—800 A (sz.4): 2.45" x 5.05 | 137.00 |
| 3090SCCT124 | Split Core CT—1200 A (sz.4): 2.45" x 5.50 | 160.00 |
| 3090SCCT164 | Split Core CT—1600 A (sz.4): 2.45" x 5.50 | 165.00 |

**Note:** Max. Voltage without additional insulation 600 Vac. Do not apply 600 V Class current transformers to circuits having a phase-to-phase voltage greater than 600 V, unless adequate additional insulation is applied between the primary conductor and the current transformers. Square D assumes no responsibility for damage of equipment or personal injury caused by transformers operated on circuits above their published ratings.



© 2012 Schneider Electric
All Rights Reserved


BCPM Solid Core CT Power Meter

## PowerLogic Branch Circuit Power Meter

The Branch Circuit Power Meter (BCPM) is ideal for data center customers who are focused on eliminating costly downtime, managing existing capacity efficiently, and reducing energy cost. The BCPM helps data center managers by providing alarms that signify potential issues within the power system and supplying power and energy data down to the circuit level. This data can indicate areas wither over-used or under-used within the facility. It can also be used to effectively control energy cost.

The BCPM can monitor up to 84 circuits and fits any Power Distribution Unit (PDU) or Remote Power Panel (RPP) with minimal space requirements. It has a wide monitoring range allowing customers to monitor circuit current from 0.25 A to 100 A with high accuracy (3% for current 0.25 A to 2 A and 2% for current 2 A to 100 A. It can also measure power and energy readings at the circuit level as well as the incoming main. This eliminates the need for two different meters. The BCPM also has a flexible numbering scheme which allows customers to match that of the PDU or RPP and field configuration adds ease to either a new or a retrofit installation.

### Key features:

- Full PDU monitoring
- Flexible configuration
- Split core version for retrofit installations
- Wide monitoring range
- Low current monitoring
- Advanced alarming
- Cost effective communications
- Easily integrates into a PowerLogic system or other existing networks using Modbus™ communications

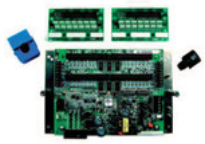

BCPM Split Core CT Power Meter

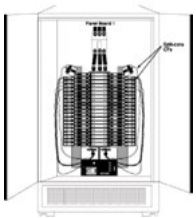
**Table 4.26:**

| Catalog No. | Description | $ Price |
|---|---|---|
| BCPMA042D | Solid Core CT, 42 circuit power and energy meter. Includes 2 CT strips, 21 CTs per strip, 3/4" CT spacing. | 3569.00 |
| BCPMB042D | Solid Core CT, 42 circuit meter, measures power and energy on the mains, current per circuit. Includes 2 CT strips, 21 CTs per strip, 3/4" CT spacing. | 2901.00 |
| BCPMC042D | Solid Core CT, 42 circuit current meter. Includes 2 CT strips, 21 CTs per strip, 3/4" CT spacing. | 2331.00 |
| BCPMA142D | Solid Core CT, 42 circuit power and energy meter. Includes 2 CT strips, 21 CTs per strip, 1" CT spacing. | 3569.00 |
| BCPMB142D | Solid Core CT, 42 circuit meter, measures power and energy on the mains, current per circuit. Includes 2 CT strips, 21 CTs per strip, 1" CT spacing. | 2901.00 |
| BCPMC142D | Solid Core CT, 42 circuit current meter. Includes 2 CT strips, 21 CTs per strip, 1" CT spacing. | 2331.00 |
| BCPMA084D | Solid Core CT, 84 circuit power and energy meter. Includes 4 CT strips, 21 CTs per strip, 3/4" CT spacing. | 5748.00 |
| BCPMB084D | Solid Core CT, 84 circuit meter, measures power and energy on the mains, current per circuit. Includes 4 CT strips, 21 CTs per strip, 3/4" CT spacing. | 4627.00 |
| BCPMC084D | Solid Core CT, 84 circuit current meter. Includes 4 CT strips, 21 CTs per strip, 3/4" CT spacing. | 3495.00 |
| BCPMA184D | Solid Core CT, 84 circuit power and energy meter. Includes 4 CT strips, 21 CTs per strip, 1" CT spacing. | 5748.00 |
| BCPMB184D | Solid Core CT, 84 circuit meter, measures power and energy on the mains, current per circuit. Includes 4 CT strips, 21 CTs per strip, 1" CT spacing. | 4627.00 |
| BCPMC184D | Solid Core CT, 84 circuit current meter. Includes 4 CT strips, 21 CTs per strip, 1" CT spacing. | 3495.00 |

**Table 4.27:**

| Catalog No. | Description | $ Price |
|---|---|---|
| BCPMSCA42D | Split Core BCPM, Advanced Feature Set, 2 adapter boards, 42 50 A CTs, 2 mounting kits | 4418.00 |
| BCPMSCA84D | Split Core BCPM, Advanced Feature Set, 4 adapter boards, 42 50 A CTs, 4 mounting kits | 6694.00 |
| BCPMSCB42D | Split Core BCPM, Intermediate Feature Set, 2 adapter boards, 42 50 A CTs, 2 mounting kits | 3592.00 |
| BCPMSCB84D | Split Core BCPM, Intermediate Feature Set, 4 adapter boards, 84 50 A CTs, 4 mounting kits | 5867.00 |
| BCPMSCC42D | Split Core BCPM, Basic Feature Set, 2 adapter boards, 42 50 A CTs, 2 mounting kits | 2887.00 |
| BCPMSCC84D | Split Core BCPM, Basic Feature Set, 4 adapter boards, 84 50 A CTs, 4 mounting kits | 5163.00 |
| BCPMSCADPBDD | Adapter board for use with Split Core BCPM | 897.00 |
| BCPMSCCT0 | Qty 6 x 50 A Split Core CTs for use with Split Core BCPM, 6 ft leads | 197.00 |
| BCPMSCCT0R20 | Qty 6 x 50 A Split Core CTs for use wtih Split Core BCPM, 20 ft leads | 240.00 |
| BCPMSCCT2 | Qty 6 x 100 A Split Core CTs for use with Split Core BCPM, 4 ft leads | 431.00 |
| BCPMSCA1D | Split Core BCPM meter, Advanced Feature Set plus 2 adapter boards | 3260.00 |
| BCPMSCA2D | Split Core BCPM meter, Advanced Feature Set plus 4 adapter boards | 4270.00 |
| BCPMSCB1D | Split Core BCPM meter, Intermediate Feature Set plus 2 adapter boards | 2392.00 |
| BCPMSCB2D | Split Core BCPM meter, Intermediate Feature Set plus 4 adapter boards | 3402.00 |
| BCPMSCC1D | Split Core BCPM meter, Basic Feature Set plus 2 adapter boards | 1652.00 |
| BCPMSCC2D | Split Core BCPM meter, Basic Feature Set plus 4 adapter boards | 2662.00 |
| BCPMCOVERD | Clear cover bor BCPM printed circuit board, compatible with Solid Core and Split Core versions | 100.00 |

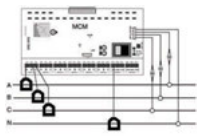
Note: CT hole size accommodates up to #6 THHN insulated conductor.


Typical BCPMSC panelboard installation

## PowerLogic Multi-Circuit Meter

Designed for OEM style placement in electrical distribution equipment the MCM8364 is configurable to meter 1 or 3 phases of up to eight individual loads, six loads if neutral monitoring is required. The MCM will monitor up to 10,000 amps per service using standard 5 Amp CTs. All of the metered circuits must share a common voltage source. The MCM8364 is a great solution for monitoring critical power distribution equipment and provides 24 different electrical metering quantities plus an additional nine Modbus register alarms.

With one RS-485 connection, the multi-circuit meter provides Modbus RTU communications output that communicates to each individual metered circuit. Up to 30 multi-circuit meters can be addressed on the same Modbus network. The multi-circuit meter can provide warnings to the central monitoring computer via its Modbus output using the MNode software provided or can be integrated into PowerLogic SMS software. The MCM also works with the submeter display as shown below.


3-phase, 4-wire (with neutral current wiring)

**Electrical Data:**
Energy Consumption (kWHr), Real Power (kW), Reactive Power (kVAR), Apparent Power (kVA), Power Factor Total, Voltage, L-L, avg. of 3 phases, Voltage, L-N, avg. of 3 phases, Current, average of 3 phases, Real Power (kW) phase A, B, & C, Power Factor, phase A, B,&C, Line to Line Voltage, phase A-B, B-C, A-C, Line to Neutral Voltage, phase A-N, B-N, C-N, Current, phase A, B, & C, Frequency (measured from phase A) (Hz).

**Modbus Alarms:**
Over Voltage, Under Voltage, Over Current, Under Current, Over kVA, Under kVA, Phase Loss A, Phase Loss B, Phase Loss C

**Table 4.28:**

| Catalog No. | Description | $ Price |
|---|---|---|
| MCM8364 | Multi-Circuit Meter 8364 | 1863.00 |

## PowerLogic Submeter Display

The PowerLogic Submeter Display (SMD) is a comprehensive electrical submetering display that provides a view of electrical parameters from multiple metering products with one networked LCD. In addition to viewing system data on the display itself, you can also view data on a remote PC via a network connection. Touch pad buttons provide a convenient way to view downstream devices on the power-monitoring network. The display is RS-485 Modbus RTU compatible. It has additional RS-485 and RS-232 Modbus ports for networking to additional displays or to a master PC. The submeter display is compatible with the following metering devices: BCM, MCM, & Enercept™ meters.


Submeter Display

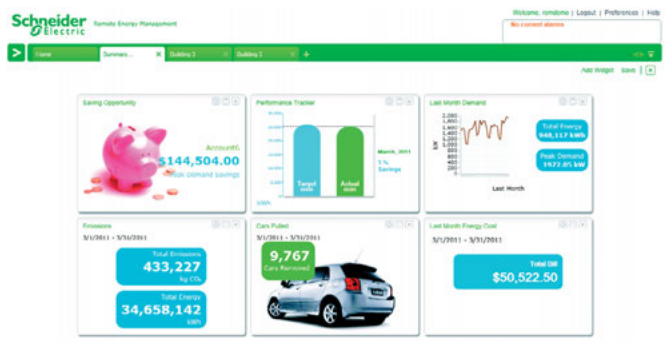
**Table 4.29:**

| Catalog No. | Description | $ Price |
|---|---|---|
| SMD | Submeter display mounted in enclosure | 725.00 |
| SMD OPN | Open style submeter display, no enclosure | 595.00 |

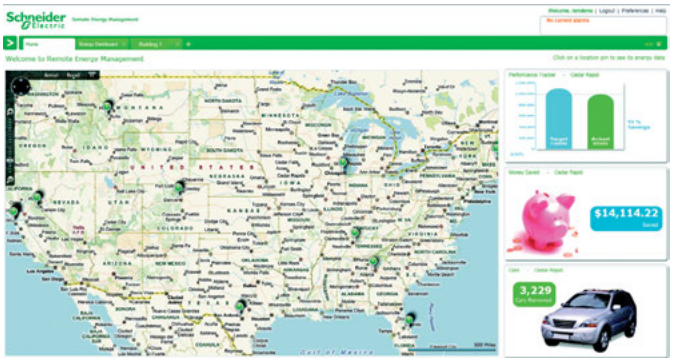




© 2012 Schneider Electric
All Rights Reserved




Easily view information that is most important to you through a customizable dashboard




View your environmental impact from a single screen to track emission reduction initiatives




Easily save reports and export them to a personal web-page for easy tracking and reporting

## Web Hosted Solutions

Schneider Electric Remote Energy Management solutions are web-hosted, subscription based Software-As-A-Service (SaaS) offers. This means that all of our data is hosted at a secure Schneider Electric data center facility available for you to view from any web-enabled device, 365 days per year, 24 hours per day, 7 days per week. No additional servers, PCs, software or IT personnel are needed when utilizing a remote hosted solution. All data is easily obtained through standard communications methods (Ethernet) from multiple device types and sources such as meters, existing systems, and building management systems (BMS).

A remote energy management solution allows you to easily:

### Identify energy waste

- View energy profiles to quickly identify energy waste in a single facility or across your enterprise
- Lower capital expenses with better utilization of current infrastructure (i.e. HVAC and Lighting)

### Reduce energy consumption

- Use historical comparisons to determine profiles of day-to-day, month-to-month, and year-to-year energy consumption
- Compare energy usage around similar facilities to establish benchmarks and identify poor performing facilities
- Normalize facility consumption against weather, production, hours of operation, square footage, and occupancy to measure the true energy content
- Measure the effectiveness of various energy efficiency and conservation efforts

### Save on utility bills

- Compare usage to utility bills to ensure the utility is billing correctly
- Optimize equipment run hours and setting to avoid setting new demand peaks
- Make accurate assessment of what utility costs would be on different utility rates

### Measure, report on and implement energy and emission reduction initiatives

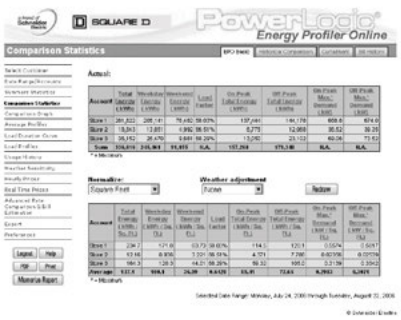
- Utilize emissions reporting to determine the CO2 baseline, establish targets, and monitor improvements to help manage your carbon footprint



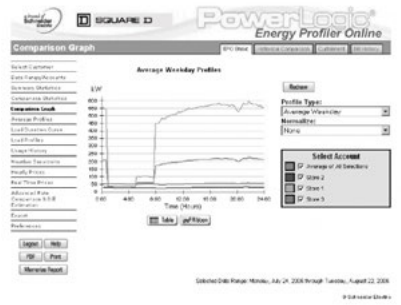
© 2012 Schneider Electric
All Rights Reserved




Bill estimates provide valuable information for budgeting and forecasting




Comparison statistics display




Typical comparison graph showing time of usage

## PowerLogic Energy Profiler Online

PowerLogic Energy Profiler Online (EPO) is a web-hosted service that is the industry's foremost load data visualization and analysis application. This flexible, easy to use system turns customer usage data into actionable information, freely accessible to all customers and internal users. For commercial and industrial energy customers, managing energy costs is the primary objective, but they can't control what they can't measure. EPO enables energy customers to take control of their costs by providing the information they need to understand how their organization uses energy. They can then take steps to reduce costs by implementing conservation measures, investing in more efficient equipment, or participating in new pricing or load curtailment programs.

For the utility, EPO provides an intuitive, easy-to-maintain tool for better understanding customer usage patterns and meeting customers' growing need for information. It also provides a convenient platform from which to administer real-time pricing (RTP) or load curtailment programs. EPO's instinctive online functionality gives first-time users an extremely short learning curve, while its powerful configuration options address the needs of more sophisticated users. The service is available to users at their convenience, 24/7, and regular updates ensure that customers get the most current information.

### Key features:

- Data access and analysis
- Automated reporting
- Estimated bills and rate comparisons
- Demand response and curtailment programs
- RTP programs
- Alarming
- Administration tool

### Applications:

- Energy load analysis
- Energy budgeting and bill forecasting
- Demand response and load curtailment program management
- Real-time pricing program management
- EPO's Real-Time Pricing module lets users see interval data for accounts with future pricing information, and multiply that data against a price stream.

For price & ordering information, contact your local PowerLogic Sales Specialist or PowerLogic Inside Sales at 615-287-3535.





© 2012 Schneider Electric
All Rights Reserved

## Communications for high-speed access to critical information

From a single building to a multi-site enterprise, PowerLogic Web-Enabled Network Components provide fast, reliable serial to Ethernet connectivity in the most demanding applications:

- Energy management
- Power distribution
- Building automation
- Factory automation

PowerLogic Ethernet Gateways are available in two models-EGX100 and provide direct connection to Ethernet-Modbus™/TCP networks to make energy and power monitoring information available over local and wide area networks.

- The EGX100 provides low-cost, reliable, Ethernet to serial-line connectivity in a compact, DIN-rail mounted package. Enabled by Power over Ethernet (PoE IEEE 802.3af), the EGX100 simplifies installation by eliminating the need for power supplies plus provides a Web-based interface for configuration and diagnostics.
- The EGX300 is an integrated gateway-server that is web based with 1 serial port and has the ability to connect to an additional 32 devices remotely through Ethernet, plus log/trend historical data allowing electrical distribution systems to be better managed by utilizing Ethernet and Internet technologies.



EGX100 Ethernet Gateway




EGX100 lets the Administrator assign access to setup pages by user groups

## Advantages

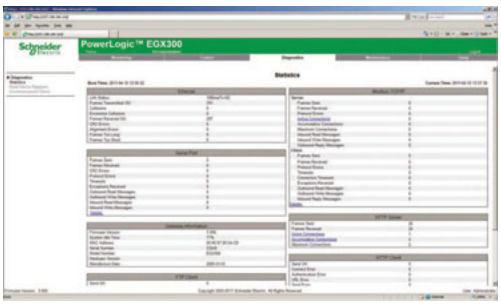
- Easy to install—easy DIN rail mounting solution.
- Easy to setup—No special software required. Configuration via Microsoft Internet Explorer or Hyperterminal.
- Easy to troubleshoot—Detailed diagnostics for communication ports through a Web interface.
- Easy to maintain—Field upgradable firmware lets you add new features while reducing costly downtime.
- Secure-Customizable, password-protected access to configuration.
- Cost-effective, high-speed communications—Use existing LAN infrastructure to reduce communications wiring and network management costs.
- Open platform provides broad connectivity—Modbus TCP/IP over Ethernet allows transparent access via intranet/internet. Each gateway supports up to 32 Modbus or PowerLogic protocol devices.
- Subnet initiated communications—The gateway supports a slave mode for connecting a serial-line based system to Ethernet. For example, a building management system with a Modbus serial interface can route to 16 remote Modbus TCP/IP interfaces supporting up to 128 serial-line devices.
- Extended temperature range— -25 to 70°C enables operation in harsh environments.



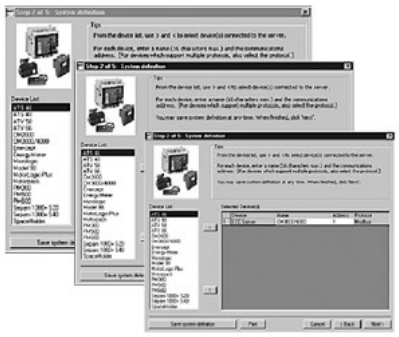
Built in tabs provide easy DIN rail mounting solution.

**Table 4.30:**

| Type | Part No. | EGX100 | EGX300 |
|---|---|---|---|
| | | $ Price | |
| | | 950.00 | 1895.00 |
| **Control Power** | | | |
| 24 Vdc / 7W DIN mount power supply (SOLD SEPARATE) | 3090PS24 | **157.00** | **157.00** |
| Power Over Ethernet Injector Kit (SOLD SEPARATE) | TCSEAV0100 | **185.00** | **185.00** |
| **Protocols** | | | |
| Ethernet: HTTP, FTP, Modbus TCP/IP, SMTP, SNMP (MIB2), SNTP, TCP, UDP, ICMP, ARP | | x | x |
| Serial: Modbus RTU, Modbus ASCII (EGX100 only), JBUS, PowerLogic (SY/MAX) | | x | x |
| **Ports** | | | |
| Serial: RS485 | | | 1 |
| Serial: RS232/485 configurable | | 1 | 1 |
| Ethernet UTP (10/100) | | 1 | 1 |
| Fiber (100 Mb) | | | 1 |
| **Integral web server** | | | |
| Web page generation tool | | | x |
| Maintenance/diagnostics | | x | x |
| Gateway administration setup | | x | x |
| Comprehensive meter reading | | | x |
| Interval logging/trends | | | 32 devices |
| User defined custom pages | | | x |
| **Historical Data Logging** | | | |
| Interval data | | | x |
| Transfer files on an interval and periodic scheduled basis | | | email |
| Export to Excel via web query | | | x |
| Export files by e-mail, FTP, or HTTP | | | x |




EGX300 Ethernet Gateway offers you a "window" into your power equipment

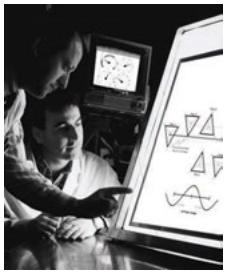


## PowerLogic WebPageGenerator

The PowerLogic WebPageGenerator (WPG) creates and downloads application specific web pages to PowerLogic Ethernet gateways (EGX300, ECC21, PM8ECC) with minimal user intervention. The user simply identifies the serial devices connected to the Ethernet gateway in this wizard-based software utility. The utility takes care of the rest. This utility is available for download from www.powerlogic.com.



© 2012 Schneider Electric
All Rights Reserved



## Consulting & Analysis

### Power System Engineering

The Square D Power System Engineering team offers a wide range of engineering services to improve the safety, efficiency and reliability of your power distribution system. The team is comprised of registered professional engineers, safety trained and equipped, to perform a variety of engineering functions.

### Power System Studies

The Square D Power System Engineering Team provides expertise for a variety of electrical power system studies. Some of the more common system studies include…

- Short-circuit analysis
- Time-current coordination
- Motor starting/voltage drop
- Motor starting/torque-speed
- Safe motor re-energization
- Harmonic analysis
- Transient analysis
- Power factor correction analysis
- Other system specific analysis



### Arc Flash Analysis

Square D offers on-site services to perform arc flash analysis for a facility, complex, office, or campus. An Arc flash analysis is used to determine …

- Flash Protection Boundary
- Incident Energy Value
- Hazard/Risk Category
- Appropriate Personal Protective Equipment (PPE)
- Low cost arc flash reduction methods

Features of Square D arc flash analysis include…

- Time current coordination analysis showing both existing and recommended over/current device settings
- Short-circuit study to ensure adequacy of equipment
- Onsite verification and documentation of equipment
- Arc flash labels (populated with the results of the arc flash analysis)
- Arc flash label affixation
- NFPA 70E—Safe Workplace Practices Training provided by OSHA authorized outreach instructors
- Recommendations and solutions to reduce potential arc flash hazards

### Power Quality Studies

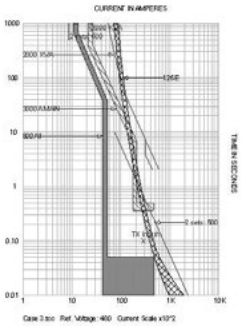
Square D offers onsite power quality engineering studies and solutions to eliminate process disruptions, power system shutdowns, and equipment damage due to electrical power system disturbances. A power quality study is used to...

- Determine compliance with the IEEE 519-Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems guidelines
- Identify most cost-effective solution to power quality problems
- Solve process disruptions due to power disturbances
- Reduce economic effects of poor power quality
- Identify disturbances originating on electric utility system and improvements to reduce the number and severity

### Power System Assessment

Square D offers engineering services to meet a variety of power system needs …

- Basic codes and standards compliance
- Protective coordination assessment
- Maintenance program review
- Recommendations for power system optimization
- Power quality troubleshooting and analysis
- Power factor and harmonics analysis
- Electrical safety hazards
- Short-circuit withstand overview
- Single-line documentation of power system
- Power monitoring recommendations
- Loading measurements




### Power System Improvement Projects

Square D offers engineering services for …

- New equipment installation
- Existing equipment modification
- Ground Fault Schemes for multiple source distribution systems
- High Resistance Grounding (HRG) Conversion
- Automatic Transfer Control Schemes & Generator Operations

Square D professional engineers - safety trained and equipped - will listen to your concerns and goals, define the problem or enhancement, and engineer the solution that best satisfies your needs.

For additional information on power system engineering services and pricing, contact your nearest Square D/Schneider Electric office.

### Industrial Energy Efficiency

Schneider Electric Certified Energy Managers (CEM's) work on-site with knowledgeable plant personnel to develop a long-term, comprehensive, "Energy Action Plan", that serves as the blueprint for energy savings. Unlike performance contracts or one-time energy audits, the Total Energy Control$^{SM}$ program offers a strategic partnership for energy-intensive industrials who want to improve energy efficiency.

- Total Energy Control – Comprehensive integration of all three areas affecting energy efficiency
  - — Procurement (electricity and gas)
  - — Demand management
  - — Optimization of process and plant utilities
- Program deliverables:
  - — Long-term Energy Action Plan
  - — Energy efficiency projects
  - — Ongoing accountability for results





© 2012 Schneider Electric
All Rights Reserved



## Engineered Solutions

Schneider Electric provides an engineered solution approach to your specific power system applications. Our total solutions for power monitoring and power system controls allow greater safety, reliability, and energy efficiency of your power systems. As a long standing industry leader in Power Monitoring and Control Systems, we understand your power system requirements and needs.

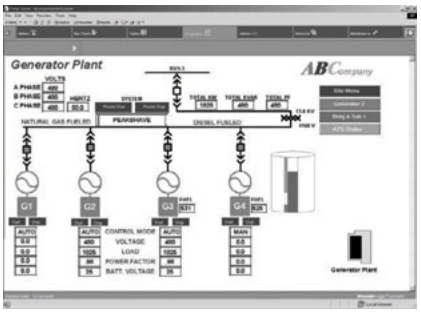
All of our Engineered Solutions are tailored to your specific system requirements. Schneider Electric is your total Solution provider.

## Power Monitoring Applications

### Increased Reliability and Energy Efficiency

Increased Reliability and Energy Efficiency are key results produced from our Power Monitoring Applications. Schneider Electric power monitoring applications provide detailed reporting, testing and analysis capabilities for your systems and related components.

- ***EPSS Emergency Power Supply Systems*** – The PowerLogic EPSS Test Report provides information regarding the health and status of the emergency power supply system, including automatic transfer switches and generators.
- ***SER Sequence of Events Recording*** – The PowerLogic Sequence of Events Recorder (SER) Module is a root-cause analysis tool for rapid response for problem resolution that is ideal for pinpointing the cause of a service disruption in very large complex power systems.
- ***WAGES Water, Air Gas, Electric, Steam*** – PowerLogic energy and power management systems can provide instantaneous readings, alarm notifications, and graphical diagrams for monitoring electrical and piped utilities (Water, Air, Gas, Electric, Steam).
- ***APM Active Pager Module*** – The PowerLogic Active Pager Module allows automatic paging to alphanumeric pagers, cell phones and PCs.




PowerLogic Engineers provide graphic solutions for realtime monitoring of power systems.

## Power System Control Applications

### Automated solutions for increased Reliability and Energy Efficiency

Schneider Electric engineers provide Power System Control Applications with automated solutions for addressing your system reliability and efficiency control needs. Our offer covers Automatic Throwover Schemes, Load Shedding/Peak Shaving, and Load Preservation.

- ***Automatic Throwover Systems*** – Automatic selection of available utility or generator sources to maintain service continuity to connected loads.
- ***Load Shedding/Peak Shaving*** – Control peak demand levels or ensure service continuity to critical load or operate breakers in accordance with user specified sequences and time delays such as bringing large motors online across several billing kw demand periods to avoid demand penalties.
- ***Load Preservation*** – Fast acting sophisticated control systems designed to stabilize critical power systems to the greatest extend possible by monitoring frequency and power sources from utility plus generator capacity versus total circuit load.



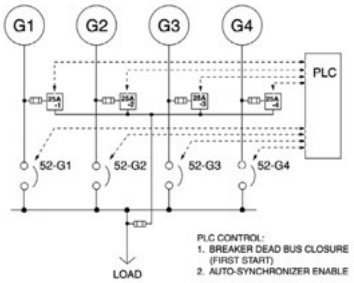

PowerLogic Engineers specialize in the design and setup of Emergency Power Supply Systems (EPSS).

## System Integration

### System Design and Engineering

Our Square D Engineering Services solution specialists can work with you to design or upgrade your existing system to best achieve your energy and power management objectives and informational needs. With expertise in electrical systems, communications, and automatic control systems, we can integrate, install, and commission your system for optimal performance.

- System Design and Bill of Material Recommendations
- Power Monitoring and Control
- WAGES (Water, Air, Gas, Electric, Steam)
- Enterprise web-based monitoring
- Specification development, drawings, documentation
- Enclosure panel design and build
- Metering Connection Verification/Testing
- Power distribution automation
- On-Site Installation Assistance, Component Configuration & Startup
- Turn-key project management
- Third Party Device and communication interfaces
- Configured Workstations, User Software Interfaces
- Interactive Graphic Design to mimic facility layout, one-lines, equipment status
- Custom Software, Reports & Applications – Billing and Paging




PowerLogic Engineers design power control systems that meet your operational requirements.

For additional information, contact your nearest Square D / Schneider Electric office.



© 2012 Schneider Electric
All Rights Reserved




## Factory Assembled Equipment

Square D™ PowerLogic™ Factory Assembled Equipment offers a wide range of designs for metering, communications, and control applications to simplify retrofit installations. Our equipment is designed to order as a free-standing or wallmounted system. With PowerLogic™ Factory Assembled Equipment, you'll receive professionally crafted, factory tested, pre-wired equipment that will greatly improve the speed of your system startup. All backed by the Square D™ quality standard of excellence.

- Assemblies include meters & devices wired to terminal blocks, disconnects, and shorting blocks or test switches
- Tailored to any system voltage :
  - 208/120 V, 480/277 V & 600/347 V Wye
  - 240 V, 480 V & 600 V Delta
  - Utilization of PT's required for higher voltage levels
- Wall mountable and easy to install using concealed holes in the back of the enclosure.
- Complete with necessary documentation and mounting hardware for quick and easy installation
- Carbon steel construction, with industry standard ANSI 61 gray powder coat finish
- Equipped with concealed hinged door, and universal pad-lockable latch.
- Custom engraved nameplates available for all units.

**Table 4.31: Industrial Enclosure Types 1*, 12, & 4, UL & CUL 508A Listed**

| Available Meter Types | Digital Inputs | Digital Outputs | Analog Inputs | Analog Outputs |
|---|---|---|---|---|
| PM 810, 820, 850 & 870<br>CM 4250 & 4000T<br>ION 6200 | Up to 11 / Meter<br>Up to 8 / Meter<br>N/A | Up to 7 / Meter<br>Up to 7 / Meter<br>Up to 2 / Meter | Up to 2 / Meter<br>Up to 1 / Meter<br>N/A | Up to 2 / Meter<br>Up to 1 / Meter<br>N/A |
| ION 7300, 7330 & 7350<br>ION 7550 & 7650* | Up to 4 / Meter<br>Up to 16 / Meter | Up to 4 / Meter<br>Up to 7 / Meter | Up to 4 / Meter<br>Up to 4 / Meter | Up to 4 / Meter<br>Up to 4 / Meter |



- Supports Single or Multiple Voltage Sources for Indoor (Typse 1 and 12) & Outdoor (Type 4) applications
- Available with 1–4 meters per panel. Serial & Ethernet Communications are options for all units
- EGX & ION RTU Communication Enclosures with 1–4 devices per panel also available

## Light Industrial Enclosure Type 1, UL & CUL 508A Listed

- Available for the following meter types: PM820 (with ethernet), and ION6200
- Supports Single Voltage Source only for Indoor (Type 1) applications.
- Available with 1–12 meters per panel. Serial Communications are standard for all units.
- No Digital or Analog I/O is available for this option.

## Service Entrance/Utility Socket Enclosure Type 3R, UL & CUL 508A Listed

- Available for ION8600 only, with up to 3 Digital Inputs and 4 Digital Outputs and ION5600 2 Digital Inputs and 2 Digital Outputs.
- Supports Single Voltage Source only for Indoor & Outdoor (Type 3R) applications.
- Units are Ring Type with removable cover.
- Available with 1 meter per panel. Serial & Ethernet Communications options available.
- Supports Form 9S, 35S, 36S, 39S and 76S configurations for ION8600 and forms 9S and 36S for ION5600.
- Options available for remote mounted CTs
- Options available for integrated, bar type CTs
- Optional Test Switch.



## Additional engineered to order products are available for a wide variety of design solutions.

- Switchgear Transfer Control Panels
- Generator Control Panels
- Load Shed Control Panels
- Sequence of Events Recording (SER) Panels
- Control System Mimic Panels
- Lighting Control Interface Panels
- Programmable Logic Controller (PLC) Control Panels (Hot Standby, Relay Control, Data Concentration etc. ...)
- Emergency Power Supply Systems (EPSS) Control Panels
- Water, Air, Gas, Electrical, and Steam (WAGES) Monitoring Panels
- Input Status Monitoring & Alarming Panels
- Remote Annunciator Control Panels
- Remote Operator Control Panels
- Serial, Ethernet, and Cellular Wireless Systems
- Server Rack and Network Equipment (Servers, Switches, UPS's) for Energy Management Systems.
- Industrialized PC's, Touch Screens (Magelis), and Human Machine Interfaces (HMI's) with Custom System Graphics.
- Designed to fit any environment – Indoor (Type 1 & 12) & Outdoor (Type 3R & 4) applications

**For additional information and pricing please contact your local PowerLogic sales specialist or PowerLogic Inside Sales Support at 615-287-3535. Equipment pricing and literature available for download on our website at www.powerlogic.com/products/enclosures.**

**To better serve you please have the following information on hand when calling.**

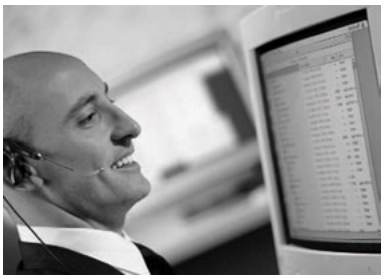
- Enclosure type (Indoor or Outdoor) and Environment details (Corrosive or Non-Corrosive)
- Power System Voltage Level and Type (Direct Current (DC) or Alternating Current (AC))
- Digital & Analog Input and Output requirements
- Device Type and Quantity per enclosure
- Ethernet and Serial Communication Requirements
- For Drawout Retrofits, need existing cradle type (i.e. GE, Westinghouse, etc.)





© 2012 Schneider Electric
All Rights Reserved

## Technical Support



There are several ways to receive top quality support on PowerLogic products:

### Priority Support: Excellent Service, Free Software Upgrades, Training Discounts & More!

- Latest PowerLogic SMS and ION software upgrades to ensure up-to-date systems
- Direct access to expertise for quick issue resolution
- More efficient PowerLogic SMS and ION system utilization
- Higher reliability
- Improved productivity and personal efficiency on the job

### Priority Support: Tenant Metering

Now the great support provided to SMS and ION systems is now available for Tenant Metering systems. Support includes ...

- Direct email (4-hr response time) and toll-free 800 number support for prompt response to urgent or non-urgent requests from highly trained support engineers.
- Hours of service 7:30am to 7pm US Central time
- PowerLogic™ Tenant Metering software upgrades at no charge
- Proactive notification of software service packs and fixes
- Remote diagnostics support engineer can troubleshoot any issues of the TMS system remotely without the customer's help.

### Premium Support: Priority + Proactive System Checks + Sr. Technician Assigned to your site

Choose Premium Support when you need to . . .

- Enhance your PowerLogic SMS and ION system's operation with single-sourced pro-active problem identification, solutions recommendations and change management skills
- Partner with technical experts who help coordinate support, provide hands-on assistance, and share knowledge and know-how with you
- Obtain personalized services tailored to your business environment and objectives
- Take advantage of remote software upgrade capabilities
- Anticipate and communicate necessary change

### Additional Support Options:

#### 7x24 Support Option

- PowerLogic 7x24 support provides 1-hour phone response by senior support engineer during off-hours.
- Additionally, 4-hour response (max) for remote connection to customer system for advanced troubleshooting.

### On-Site Maintenance Option

On site maintenance includes pre-scheduled visits by PowerLogic system engineers who perform software upgrades, updates to custom graphic screens, device firmware upgrades, and system performance analysis and correction. Scope of work is determined by customer request.

### Remote eServices

Let expert Square D technicians ensure high-quality performance in your PowerLogic SMS and ION system by performing remote, online services through our secure WEB EX Portal. Services include …

- Installations, upgrades, & software patches
- System device setup & configuration along with alarming & historical trending
- Graphical Screen Development
- Remote, Online System Maintenance
  - — Software Updates - Patches & Upgrades
  - — PC Checks - Hard Disk Space, Network & DB Configurations, Viruses, etc.
  - — PowerLogic or ION Software Checks - Communications, Data Logging, & Task Execution
  - — E-mailing system scorecard & maintenance recommendations
- One-on-one training on system software features
- Power Quality (PQ) & Energy Usage Analysis

### Power Management University

Our training centers offer a variety of training courses designed to improve your total energy management skills. Our instructor led courses are 70% hands-on, with each student having their own lab workstation. We have two main training centers located in Nashville, TN and Victoria, BC and offer training at a variety of Square D sites across the US and Canada.

**Table 4.32:**

| Course Description | New Course No. | US $ Tuition |
|---|---|---|
| **Webinars and Online** | | |
| Webinar Training (for any webinar) | 3000PLUCWEB | **500.00** |
| OnDemand Training (12 month access) | 3000PMUDEMAND12 | **1500.00** |
| OnDemand Training (6 month access) | 3000PMUDEMAND6 | **1000.00** |
| **PowerLogic SMS Systems (Factory and Regional Courses)** | | |
| PowerLogic SMS Fundamentals Bundle (includes 3000PMUDEMAND12) | 3000PLUC205 | **2750.00** |
| PowerLogic System I&T | 3000PLUC100 | **2150.00** |
| PowerLogic SMS Administrator | 3000PLUC300 | **2150.00** |
| Regional SMS Overview | 3000PLUC190 | **1800.00** |
| Regional SMS Overview Bundle (includes 3000PMUDEMAND12) | 3000PLUC195 | **2400.00** |
| Power Monitoring with SMS | 3000PLUC191 | **1200.00** |
| Power Monitoring with SMS Bundle (includes 3000PMUDEMAND12) | 3000PLUC192 | **1800.00** |
| **PowerLogic ION Systems (Factory and Regional Courses)** | | |
| PowerLogic ION Enterprise Fundamentals Bundle (includes 3000PMUDEMAND12) | 3000PMUFUNDCR | **2750.00** |
| PowerLogic ION Enterprise Programmer | 3000PMUPROG | **2150.00** |
| PowerLogic ION Enterprise Administrator | 3000PMUADMIN | **2150.00** |
| Regional ION Overview 3 Day | 3000PMUCION | **1800.00** |
| Regional ION Overview Bundle (includes 3000PMUDEMAND12) | 3000PMUCIONCR | **2400.00** |
| PowerLogic ION Designer Intro | 3000PMUCPROG | **1200.00** |
| Regional ION Utility Meter Programmer | 3000PMUMTRPRG | **1200.00** |
| Regional ION Administrator Overview | 3000PMUCADMIN | **1200.00** |
| **Custom Onsite Training** | | |
| Customer Onsite Training | 3000PMUSITE | **by Quote** |

All classes bundled wtih the 3000PMUDEMAND12 can be ordered without the bundle at a discounted price. Please call 615-287-3304 for more info.



© 2012 Schneider Electric
All Rights Reserved




## Series 20, 40, 60 and 80

The Sepam family of protective relays, Series 20, 40 and 80, are the newest generation of Sepam relay, a time tested product with a 29-year worldwide history. Modular relay design allows quick and easy future upgrades to communications, digital I/O, analog output or temperature acquisition. The 64x128 bit, graphic LCD display and keypad permit relay setting of Series 20 and 40 without a PC. Comprehensive self-testing provides assurance of readiness to protect. The Sepam family also has exceptional withstand to environmental electromagnetic disturbances. An optional 128x240 LCD display for the Series 80 relay can show an animated one-line with front panel control. The Sepam Relays and remote modules come with a 10 year warranty and conformal coating for harsh environment as standard.

## Sepam Series 60 and 80 Relay Features

- Standard footprint for enhanced protection of Mains/Feeders, Transformer, Motor, Generator, Capacitor, Bus Applications
- Differential protection of transformer or machine transformer units
- Differential protection of motors and generators
- Protection for mains and ties and important feeders including pre-programmed or customized ATS/ATO Schemes
- 42 programmable logic inputs and 23 relay outputs
- Increased accuracy metering capabilities, I, V, E, P, PF, THD, vector diagram
- Expanded logic equation capabilities (an option for Logipam PLC ladder logic)
- Setting Software (SF2841) with graphical assistance, optional mimic-based display
- Battery backup for historical and fault waveform data retention, 24–250 Vdc control power
- 2 independent RS485 (2 or 4 wire) communication ports: connection of each to port 1 or 2 S-LAN and/or E-LAN networks ModBus™ , ModBus TCP/IP, IEC60870-5-103, DNP3 and IEC61850 communication protocol with GOOSE messaging.
- Software tools: Sepam parameter and protection setting and control function customization programming of specific functions (Logipam-Series 80) recovery and display of disturbance recording data local or remote operation via an E-LAN
- Synch-check option
- Includes all Series 20 and Series 40 features

## Sepam Series 40 Relay Features

- Compact standard footprint (< 4” deep) for enhanced protection of Mains/Feeders, Transformer, Motor, General Applications
- Directional overcurrent protection for dual mains and ties and closed loop feeders
- 10 programmable logic inputs and 8 relay outputs
- Current and voltage inputs I, V, E, P, PF
- Setting software with Boolean logic equation assistance for customized protections and ATS/ATO schemes
- CT/VT and Trip Circuit supervision
- Sixteen seconds of fault recording, last 5 trip reports, and last 200 time-tagged alarms
- Rear communication port connection to 1 or 2 S-LAN and/or E-LAN networks ModBus™, Modbus TCP/IP, IEC60870-5-103, DNP3 and IEC 61850 communication protocols TCP/IP redundancy RS 485 (2 or 4 wire) or fiber optic network
- Temperature data from 16 RTD’s, Pt100, Ni100, or Ni120
- Includes all Series 20 features

## Sepam Series 20 Relay Features

- Backlit LCD graphic bitmap display
- Compact standard footprint (< 4” deep) for basic protection of Mains/Feeders, Transformer, Motor, Bus (Voltage) Applications
- Current or voltage inputs I, or V
- 10 programmable logic inputs and 8 relay outputs
- 16 inverse time overcurrent characteristic curves and customized protection curves (Series 80)
- Two 86 cycle records of fault recording, last trip fault values, and last 64 time-tagged alarms retained
- Provides trip diagnostic information for analysis of faults
- Self-test diagnostic ensures correct operation of relay and integrity of protection
- Wide range of control power inputs
- Application specific design for Main/Feeder, Transformer, Motor, Bus (Voltage) zones
- Zone selective interlocking (ZSI) improved protection coordination as a cost effective alternate to Buss Differential (87B) application
- Rear communication port connection to 1 or 2 S-LAN and/or E-LAN networks ModBus, ModBus TCP/IP, IEC60870-5-103, DNP3 and IEC 61850 communication protocols TCP/IP redundancy RS 485 (2 or 4 wire) or fiber optic network.
- Temperature data from 8 RTD’s, Pt100, Ni100 or Ni120.
- 1 programmable analog output, 0–1, 0–10 mA, 4–20 mA or 0–20 mA
- Modular architecture
- Breaker maintenance diagnostics
- Two groups of current protection settings (logic input selectable) with built in breaker failure (50BF) to allow reduced arc-flash hazard and PPE rating during maintenance operation





© 2012 Schneider Electric
All Rights Reserved

Three relay series with increasing protection capabilities for six types of applications to provide all possible protection configurations

**Table 4.33: Protection Configurations**

| | Series 20 | | | | Series 40 | | | | Series 60 | | | | Series 80 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Applications** | | | | | | | | | | | | | | | | | |
| Substations<br>Transformers<br>Motors<br>Generators<br>Busbars<br>Capacitors | Current | Voltage | Frequency | Temperature | Current | Voltage | Frequency | Temperature | Current | Voltage | Frequency | Temperature | Current | Voltage | Frequency | Temperature | Rotation Speed |
| | | | | | + directional protection | | | | + directional protection | | | | + directional protection | | | | |
| **Protection Functions** | | | | | | | | | | | | | | | | | |
| | 26/63, 27/27S, 27D, 27R, 30, 37, 38/49T, 46, 48, 49RMS, 50/51, 50BF, 50G/51G, 50N/51N, 51LR, 59, 59N, 66, 68, 79, 81H, 81L, 81R, 86, 94/69, CPLU 50/51, CPLU 50N/51N | | | | 25, 26/63, 27/27S, 27D, 27R, 30, 32R, 32Q/40, 37, 38/49T, 46, 47, 48, 49RMS, 50/51, 50BF, 50G/51G, 50N/51N, 50V/51V, 51LR, 59, 59N, 60/60FL, 66, 67, 67N/67NC, 68, 79, 81H, 81L, 81R, 86, 94/69, 21FL, 46BC, CPLU 50/51, CPLU 50N/51N | | | | 25, 26/63, 27/27S, 27D, 27R, 30, 32P, 32Q/40, 37, 38/49T, 46, 47, 48, 49RMS, 50/51, 50BF, 50G/51G, 50N/51N, 50V/51V, 51LR, 59, 59N, 60/60FL, 66, 67, 67N/67NC, 68, 79, 81H, 81L, 81R, 86, 94/69 | | | | 12, 14, 21B, 24, 25, 26/63, 27/27S, 27D, 27R, 30, 32P, 32Q/40, 37, 37P, 38/49T, 40, 46, 47, 48, 49RMS, 50/27, 50/51, 50BF, 50G/51G, 50N/51N, 50V/51V, 51C, 51LR, 59, 59N, 60/60FL, 64G, 64REF, a 66, 67, 67N/67NC, 68, 74, 78PS, 79, 81H, 81L, 81R, 86, 87M, 87T, 94/96 | | | | |
| **Characteristics** | | | | | | | | | | | | | | | | | |
| Logic input/outputs | Inputs 0–10 | | | | Inputs 0–10 | | | | Inputs 0–28 | | | | Inputs 0–42 | | | | |
| | Outputs 4–8 | | | | Outputs 4–8 | | | | Outputs 4–16 | | | | Outputs 5–23 | | | | |
| Temperature sensors | 0–8 | | | | 0–16 | | | | 0–16 | | | | 0–16 | | | | |
| Channels | Current 3I + Io | | | | Current 3I + Io | | | | Current 3I + Io | | | | Current 2x 3I + 2x Io | | | | |
| | Voltage 3 V + Vo | | | | Voltage 3 V + Vo | | | | Voltage 3 V + Vo | | | | Voltage 2x 3 V + Vo | | | | |
| | LPCT▲ | | | | LPCT▲ | | | | LPCT▲ | | | | LPCT▲ | | | | |
| Communication Ports | 1–2 | | | | 1–2 | | | | 1–2 | | | | 2–4 | | | | |
| | ModBus, IEC 103, DNP3, IEC 61850 | | | | ModBus, IEC 103, DNP3, IEC 61850 | | | | ModBus, IEC 103, DNP3, IEC 61850 | | | | ModBus, IEC 103, DNP3, IEC 61850 | | | | |
| | | | | | Redundancy | | | | Redundancy | | | | Redundancy | | | | |
| | | | | | | | | | Goose Message | | | | Goose Message | | | | |
| Control | Matrix■ | | | | Matrix■ | | | | Matrix■ | | | | Matrix■ | | | | |
| | | | | | Logic equation editor | | | | Logic equation editor | | | | Logic equation editor | | | | |
| | | | | | | | | | | | | | Logipam♦ | | | | |
| Other | | | | | | | | | Front memory cartridge with settings | | | | Front memory cartridge with settings | | | | |
| | | | | | Backup 48 hours (capacitor) | | | | Backup lithium battery★ | | | | Backup lithium battery★ | | | | |

▲ LPCT: low-power current transducer complying with standard IEC 60044-8.
■ Control matrix for simple assignment of information from th eprotection, control and monitoring functions.
♦ Logipam ladder language (PC programming environment) to make full use of Sepam Series 80 functions.
★ Standard lithium battery 1/2 AA format 3,6 V front face exchangeable.

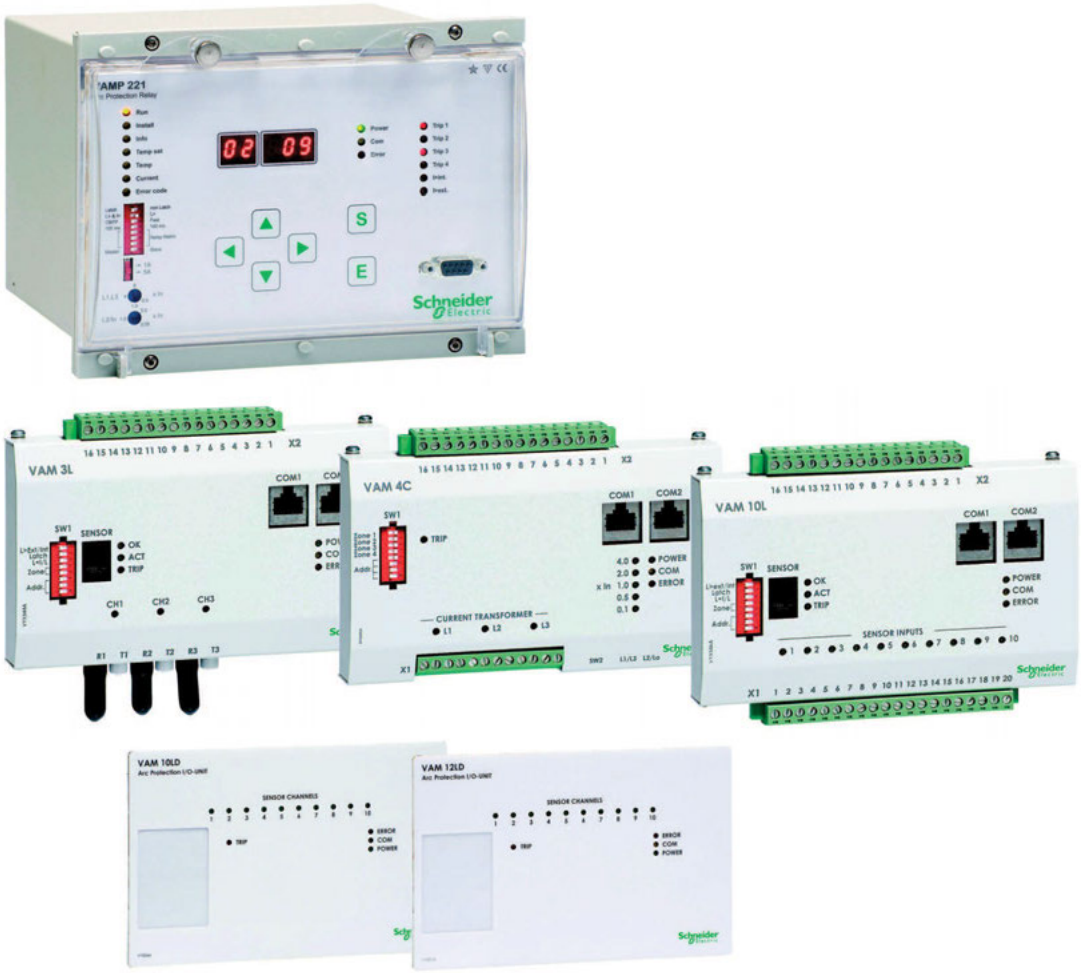
**Table 4.34: ANSI Codes**

| Code | Definition | Code | Definition |
|---|---|---|---|
| 12 | Overspeed (2 set points) | 50N/51N | Ground fault |
| 14 | Underspeed (2 set points) | 50V/51V | Voltage restrained overcurrent |
| 21B | Underimpedance | 51C | Capacitor bank unbalance |
| 21FL | Fault Locator | 51LR | Locked rotor |
| 24 | Overfluxing (V/Hz) | 59 | Overvoltage (L-L or L-N) |
| 25 | Synch-check | 59 | Overvoltage (L-L) |
| 26/63 | Thermostat / Buchholz | 59N | Neutral voltage displacement |
| 27/27S | Undervoltage (L-L/L-N) | 60/60FL | CT/VT supervision |
| 27D | Positive-sequence undervoltage | 64G | 100% stator earth fault |
| 27R | Remanent undervoltage | 64REF | Restricted earth fault |
| 30 | Annunciation | 66 | Starts per hour |
| 32P | Directional real overpower | 67 | Directional phase overcurrent |
| 32Q/40 | Directional reactive overpower | 67N/67NC | Directonal ground fault |
| 37 | Phase undercurrent | 68 | Logic discrimination / zone selective interlocking |
| 37P | Directional active underpower | 74 | Circuit connnection supervision |
| 38/49T | Temperature mounting | 78PS | Pole slip |
| 40 | Field loss (underimpedance) | 79 | Recloser (4 cycles) |
| 46 | Unbalance/negative sequence | 81H | Overfrequency |
| 46BC | Broken conductor detection | 81L | Underfrequency |
| 47 | Negative sequence overvoltage | 81R | Rate of change of frequency (df/dt) |
| 48 | Excessive starting time | 86 | Latching / acknowledgement |
| 49RMS | Thermal overload | 87M | Machine differential |
| 50/27 | Inadvertent energization | 87T | Two-winding transformer differential |
| 50/51 | Phase overcurrent | 94/69 | Circuit breaker / contactor control |
| 50BF | Breaker failure | CLPU 50/51 | Cold load pick-up with phase overcurrent protection |
| 50G/51G | Ground sensitive | CLPU 50N/51N | Cold load pick-up with earth fault protection |



© 2012 Schneider Electric
All Rights Reserved

New!




## VAMP 221 System Highlights

- VAMP 221 is a flexible and easily adaptable arc flash protection system for the protection of electrical distribution systems.
- VAMP 221 significantly reduces damage to electrical power equipment in the event of an arc fault and through this the risk of potential personal injury, and production losses.
- VAMP 221 is a modular system consisting of central units, I/O untis, arc sensors and contact multiplying relays. The system can be easily used from the simplest to the most complicated applications.
- The VAMP 221 arc flash protection system is suitable for both low and medium voltages in any metal enclosed, metal clad or arc resistant switchgear. It is applicable in any new or existing switchgear where an arch flash hazard exists and reduction of fault level is seen as beneficial.

## System Features

- Current light tripping criteria (optional of tripping by light only)
- Operating time 7 ms or less (electromechanical contact)
- Accurate location of arc fault utilizing point sensors
- Four selective protection zones per central unit
- Can be used as an alternative to bus differential and ZSI schemes
- Self supervision of the entire system
- Easy interconnect utilizing prefabricated (CAT6) cables
- Phase current measuring
- Ground fault current measuring
- Personal protector option
- Panel or rail mount I/O units
- Circuit breaker fail protection (50BF)





© 2012 Schneider Electric
All Rights Reserved

New!



VA1EH-x

### Point sensor VA1EH-x (pipe)

Installed typically in the tube or next to the comartment windo.



VA1DA-x

### Point sensor VA1DA-x (surface)

Compartment wall or mounting plate installation.



Arc SLm-x

### Arc SLm-x

Used when a large number of compartments are to be monitored.



VA1DP

### Point sensor VA1DP

The snap-in connection to the VAMP arc flash protection system improves work safety.

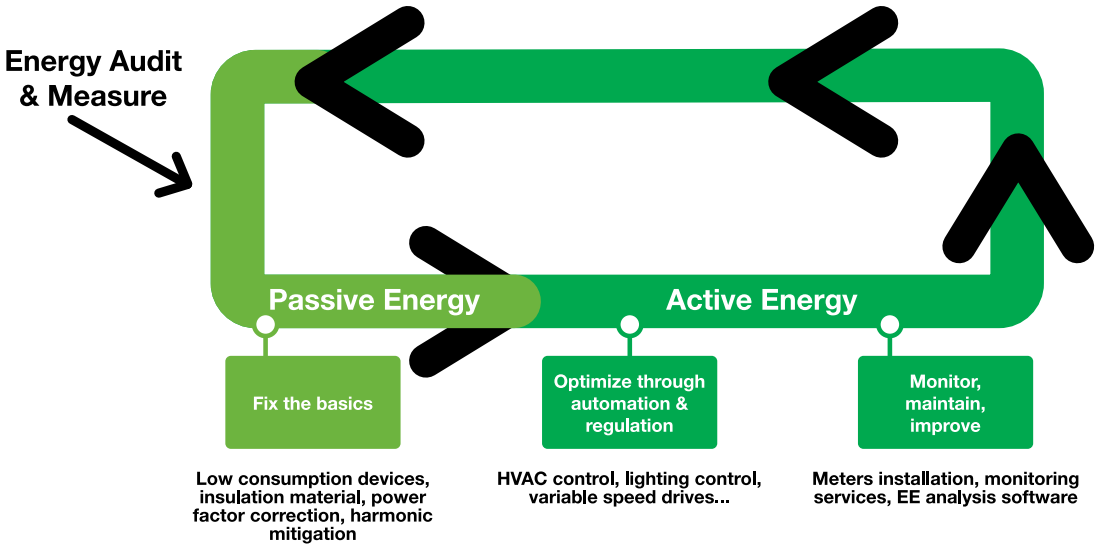
### Device Track Record

- Schneider Electric's VAMP Range specializes in arc flash protection and mitigation relays for power system.
- Schneider Electric VAMP's arc flash fault protection functionality enhances the safety of both people and property and has made Schneider Electric VAMP a pioneer in the field of arc flash protection with more than 10,000 arc flash systems and units with over 150,000 arc detecting sensors inservice worldwide.
- All Schneider Electric VAMP products meet the latest international standards and regulations.
- Our success is based on competitive standard products, constant development by our designers possessing experience from arc flash relay generations.



© 2012 Schneider Electric
All Rights Reserved

**How can reactive power compensation and harmonic mitigation solutions be part of your energy efficiency programs?**




Power factor is a measure of how efficiently you are using electricity. In an electric power system, a load with low power factor draws more current than a load with a high power factor for the same amount of real power transferred. Utility customers with a low power factor could realize an increase or penalty in their electric bill. Over time, these penalties may reach into thousands of dollars, depending upon the utility's rate structure.

Harmonics may disrupt normal operation of other devices and increase operating costs. Symptoms of problematic harmonic levels include overheating of transformers, motors and cables, thermal tripping of protective devices, logic faults of digital devices and drives.

Harmonics can cause vibrations and noise in electrical machines (motors, transformers, reactors).

The life span of many devices can be reduced by elevated operating temperature.

**Schneider Electric provides different solutions to meet different application requirements.**

**Table 4.35:**

| Product Description | LV | MV | Application | Product Features |
|---|---|---|---|---|
| ReactiVar Fixed Power Factor Capacitors | X | X | Power Factor correction | Suited for applications where the load does not change or where the capacitor is switched with the load, such as on the load side of a motor contactor. |
| ReactiVar Standard Automatic Power Factor Capacitor Banks (AV5000/MV5000) | X | X | Power Factor correction | Suited for centralized power factor correction in applications where plant loading is constantly changing, resulting in the need for varying amounts of reactive power. Designed for electrical networks with little or no harmonic content. |
| ReactiVar Anti-Resonant Automatic Power Factor Capacitor Banks (AV6000/MV6000) | X | X | Power Factor Correction and Harmonics Filtering | Suited for centralized power factor correction in applications containing harmonic energies that would otherwise damage standard fixed or automatic capacitor banks. |
| ReactiVar Harmonic Filtering Automatic Power Factor Capacitor Banks (AV7000/MV7000) | X | X | Power Factor Correction and Harmonics Filtering | Provides power factor correction as well as harmonic filtering with specific harmonic order (5th) in industrial networks. |
| ReactiVar Transient Free Reactive Compensation Systems (AT6000/AT7000) | X | | Power Factor Correction and Harmonics Filtering | Enhanced technology utilizing solid state switching elements that replace standard electromechanical contactors. Provides quicker response to load fluctuations with transient free capacitor switching. |
| AccuSine™ (PCS) Active Harmonic Filter | X | X▲ | Active Harmonic Filtering | Monitors a distorted electrical signal and determines the frequency and magnitude of harmonics in the signal. Cancels the harmonic content with the dynamic injection of opposing phase current in the distribution system or individual load. |
| ReactiVar Hybrid VAR Compensator (HVC) | X | X▲ | Reactive Power Compensation (Real-time) | Provides real-time reactive power compensation, and voltage support in networks with highly cyclical load profiles. |

▲ With transformer.





© 2012 Schneider Electric
All Rights Reserved

## Low Voltage Fixed Capacitors

ReacatiVar low voltage fixed capacitors are ideally suited for power factor correction applications where the load does not change or where the capacitor is switched with the load, such as on the load side of a motor starter. ReactiVar fixed capacitors are best suited for applications where there are no harmonic currents or voltages present.

### Features:

- Heavy edge, slope metallizations and wave-cut profile to ensure high inrush current capabilities.
- Special resistivity and profile metallization for better self-healing and enhanced life (up to 130,000 hours).
- Unique safety feature which disconnects the capacitors at the end of their useful life electrically.
- Less than 0.5w/kVAR losses, including discharage resistors.
- Constructed with a dry type metalized polypropylene capacitor element with no liquid dielectrics.
- Can be easily mounted inside panels or in a stand alone configuration.

**Table 4.36: Unfused 208 V 3 phase/ 60Hz unit**

| kVAR rating | Regular duty Indoor NEMA 1 unit | | Rated Current (A) | Recommended copper wire size▲ | Recommended circuit protection device rating■ | |
|---|---|---|---|---|---|---|
| @ 208 V | Catalog Number | $ Price | @ 208 V | AWG | Fuse | Circuit breaker |
| 2 | PFCD1002 | **959.00** | 6.3 | 14 | 15 | 15 |
| 5 | PFCD1005 | **1187.00** | 13.6 | 10 | 30 | 20 |
| 6 | PFCD1006 | **1364.00** | 17.7 | 10 | 40 | 25 |
| 7.5 | PFCD1007 | **1538.00** | 20.9 | 8 | 45 | 30 |
| 10 | PFCD1010 | **1924.00** | 27.1 | 8 | 60 | 40 |
| 13 | PFCD1013 | **2376.00** | 35.4 | 6 | 75 | 50 |
| 15 | PFCD1015 | **2633.00** | 41.7 | 4 | 90 | 60 |
| 17 | PFCD1017 | **2957.00** | 48 | 4 | 100 | 70 |
| 21 | PFCD1021 | **3101.00** | 59.4 | 3 | 125 | 90 |
| 25 | PFCD1025 | **5330.00** | 68.8 | 2 | 150 | 100 |
| 27 | PFCD1027 | **5430.00** | 75.1 | 2 | 150 | 110 |
| 30 | PFCD1030 | **6243.00** | 83.4 | 1 | 175 | 125 |
| 34 | PFCD1033 | **7608.00** | 93.8 | 1/0 | 200 | 150 |
| 37.5 | PFCD1037 | **9251.00** | 104.3 | 2/0 | 225 | 150 |
| 41 | PFCD1040 | **9618.00** | 114.7 | 2/0 | 250 | 175 |
| 45 | PFCD1045 | **9984.00** | 125.1 | 3/0 | 250 | 175 |
| 49 | PFCD1048 | **10245.00** | 135.5 | 4/0 | 300 | 200 |
| 53 | PFCD1053 | **10505.00** | 147 | 4/0 | 300 | 225 |
| 60 | PFCD1060 | **11026.00** | 168.9 | 300 kcmil | 350 | 250 |
| 70 | PFCD1070 | **11786.00** | 198.1 | 350 kcmil | 450 | 300 |
| 80 | PFCD1080 | **12437.00** | 222 | 500 kcmil | 450 | 350 |

▲ Conductor should be copper and rated 90 °C min. Refer to local electrical codes for proper wire size
■ Consult local electrical codes for proper sizing of molded case circuit breaker frame or disconnect switch rating
Note: For fused unit, add suffix "F" to the existing part number. Consult Schneider Electric sales office for pricing.

**Table 4.37: Unfused 240 V 3 phase/ 60Hz unit**

| kVAR rating | Regular duty Indoor NEMA 1 unit | | Rated Current (A) | Recommended copper wire size▲ | Recommended circuit protection device rating■ | |
|---|---|---|---|---|---|---|
| @ 240 V | Catalog Number | $ Price | @ 240 V | AWG | Fuse | Circuit breaker |
| 3 | PFCD2003 | **959** | 7.2 | 14 | 15 | 15 |
| 6 | PFCD2006 | **1187.00** | 15.6 | 10 | 35 | 25 |
| 8 | PFCD2008 | **1364.00** | 20.5 | 8 | 45 | 30 |
| 10 | PFCD2010 | **1538.00** | 24.1 | 8 | 50 | 35 |
| 13 | PFCD2013 | **1924.00** | 31.3 | 6 | 70 | 45 |
| 15 | PFCD2015 | **2117.00** | 36.1 | 6 | 75 | 50 |
| 17.5 | PFCD2017 | **2376.00** | 40.9 | 6 | 90 | 60 |
| 20 | PFCD2020 | **2633.00** | 48.1 | 4 | 100 | 70 |
| 22.5 | PFCD2023 | **2957.00** | 55.3 | 3 | 125 | 80 |
| 25 | PFCD2025 | **3101.00** | 61.4 | 3 | 125 | 90 |
| 27.5 | PFCD2028 | **4181.00** | 68.6 | 2 | 150 | 100 |
| 30 | PFCD2030 | **5045.00** | 72.2 | 2 | 150 | 100 |
| 32.5 | PFCD2033 | **5330.00** | 79.4 | 1 | 175 | 110 |
| 37.5 | PFCD2036 | **5430.00** | 86.6 | 1 | 175 | 125 |
| 40 | PFCD2040 | **6243.00** | 96.2 | 1/0 | 200 | 150 |
| 45 | PFCD2045 | **7608.00** | 108.3 | 2/0 | 225 | 150 |
| 50 | PFCD2050 | **9251.00** | 120.3 | 2/0 | 250 | 175 |
| 60 | PFCD2060 | **9984.00** | 144.4 | 4/0 | 300 | 200 |
| 70 | PFCD2070 | **10499.00** | 169.6 | 300 kcmil | 350 | 250 |
| 80 | PFCD2080 | **11026.00** | 194.9 | 350 kcmil | 400 | 300 |
| 90 | PFCD2090 | **11557.00** | 218.9 | 400 kcmil | 450 | 300 |
| 100 | PFCD2100 | **12072.00** | 239.4 | 500 kcmil | 500 | 350 |

▲ Conductor should be copper and rated 90 °C min. Refer to local electrical codes for proper wire size
■ Consult local electrical codes for proper sizing of molded case circuit breaker frame or disconnect switch rating
Note: For fused unit, add suffix "F" to the existing part number. Consult Schneider Electric sales office for pricing.



© 2012 Schneider Electric
All Rights Reserved

## Low Voltage Fixed Capacitors

### Table 4.38: Unfused 480V 3 phase/ 60Hz unit

| kVAR rating | Regular duty Indoor NEMA 1 unit | | Rated Current (A) | Recommended copper wire size▲ | Recommended circuit protection device rating■ | |
|---|---|---|---|---|---|---|
| @ 480 V | Catalog Number | $ Price | @ 480 V | AWG | Fuse | Circuit breaker |
| 6 | PFCD4006 | **929.00** | 7.2 | 14 | 15 | 15 |
| 8 | PFCD4008 | **1022.00** | 10.2 | 12 | 20 | 15 |
| 10 | PFCD4010 | **1077.00** | 12 | 12 | 25 | 20 |
| 12.5 | PFCD4012 | **1215.00** | 15 | 10 | 30 | 25 |
| 15 | PFCD4015 | **1329.00** | 18 | 10 | 40 | 30 |
| 17 | PFCD4017 | **1374.00** | 19.8 | 8 | 40 | 30 |
| 20 | PFCD4020 | **1479.00** | 24 | 8 | 50 | 35 |
| 25 | PFCD4025 | **1655.00** | 30 | 6 | 60 | 45 |
| 27.5 | PFCD4027 | **1754.00** | 33 | 6 | 70 | 50 |
| 30 | PFCD4030 | **1851.00** | 36 | 6 | 75 | 50 |
| 33 | PFCD4033 | **1953.00** | 39.6 | 6 | 80 | 60 |
| 35 | PFCD4035 | **2102.00** | 42 | 4 | 90 | 60 |
| 40 | PFCD4040 | **2358.00** | 48 | 4 | 100 | 70 |
| 45 | PFCD4045 | **2519.00** | 54 | 4 | 110 | 75 |
| 50 | PFCD4050 | **2676.00** | 60 | 3 | 125 | 90 |
| 60 | PFCD4060 | **3975.00** | 72 | 2 | 150 | 100 |
| 65 | PFCD4065 | **4200.00** | 78 | 1 | 175 | 110 |
| 70 | PFCD4070 | **4280.00** | 84 | 1 | 175 | 125 |
| 75 | PFCD4075 | **4434.00** | 90 | 1/0 | 200 | 125 |
| 80 | PFCD4080 | **4695.00** | 96 | 1/0 | 200 | 150 |
| 90 | PFCD4090 | **5217.00** | 108 | 2/0 | 225 | 150 |
| 100 | PFCD4100 | **5738.00** | 120 | 2/0 | 250 | 175 |
| 125 | PFCD4125 | **7148.00** | 150 | 250 | 300 | 225 |
| 150 | PFCD4150 | **8556.00** | 180 | 300 | 400 | 250 |
| 175 | PFCD4175 | **9561.00** | 210 | 400 | 450 | 300 |
| 200 | PFCD4200 | **10565.00** | 240 | 500 | 500 | 350 |

▲ Conductor should be copper and rated 90 °C min. Refer to local electrical codes for proper wire size
■ Consult local electrical codes for proper sizing of molded case circuit breaker frame or disconnect switch rating
Note: For fused unit, add suffix "F" to the existing part number. Consult Schneider Electric sales office for pricing.

### Table 4.39: Unfused 600V 3 phase/ 60Hz unit

| kVAR rating | Regular duty Indoor NEMA 1 unit | | Rated Current (A) | Recommended copper wire size▲ | Recommended circuit protection device rating■ | |
|---|---|---|---|---|---|---|
| 600 V | Catalog Number | $ Price | @ 600 V | AWG | Fuse | Circuit Breaker |
| 10 | PFCD6010 | **1077.00** | 9.6 | 12 | 20 | 15 |
| 15 | PFCD6015 | **1329.00** | 14.4 | 10 | 30 | 20 |
| 20 | PFCD6020 | **1479.00** | 19.2 | 10 | 40 | 30 |
| 23 | PFCD6022 | **1550.00** | 22.1 | 8 | 50 | 35 |
| 25 | PFCD6025 | **1655.00** | 24 | 8 | 50 | 35 |
| 27 | PFCD6027 | **1754.00** | 26 | 8 | 50 | 40 |
| 30 | PFCD6030 | **1851.00** | 28.8 | 8 | 60 | 45 |
| 35 | PFCD6035 | **2102.00** | 33.6 | 6 | 70 | 50 |
| 40 | PFCD6040 | **2358.00** | 38.4 | 6 | 80 | 60 |
| 45 | PFCD6045 | **2519.00** | 43.2 | 4 | 90 | 60 |
| 50 | PFCD6050 | **2676.00** | 48 | 4 | 100 | 70 |
| 60 | PFCD6060 | **3975.00** | 57.6 | 3 | 125 | 80 |
| 70 | PFCD6070 | **4280.00** | 67.2 | 3 | 150 | 100 |
| 75 | PFCD6075 | **4434.00** | 72 | 2 | 150 | 100 |
| 80 | PFCD6080 | **4695.00** | 76.8 | 1 | 150 | 110 |
| 90 | PFCD6090 | **5217.00** | 86.4 | 1 | 175 | 125 |
| 100 | PFCD6100 | **5738.00** | 96 | 1/0 | 200 | 150 |
| 125 | PFCD6125 | **7148.00** | 120 | 3/0 | 250 | 175 |
| 150 | PFCD6150 | **8556.00** | 144 | 4/0 | 300 | 200 |
| 175 | PFCD6175 | **9561.00** | 168 | 300 kcmil | 350 | 250 |

▲ Conductor should be copper and rated 90 °C min. Refer to local electrical codes for proper wire size
■ Consult local electrical codes for proper sizing of molded case circuit breaker frame or disconnect switch rating
Note: For fused unit, add suffix "F" to the existing part number. Consult Schneider Electric sales office for pricing.

**Application Note:** Capacitors are low impedance path for the harmonic currents produced by variable frequency drives, motor soft starters, welders, computers, PLCs, robotics and other electronic equipment. These harmonic currents can cause the capacitor to overheat, and shorten its life. Furthermore, the resonant circuit formed by shunt capacitors coupled with system inductances (motors and transformers) can amplify harmonic currents and voltages in the electrical network. This amplification can cause nuisance fuse operation and/or damage to electrical equipment including capacitors and other electronic devices. If power factor correction is required in the network where harmonic is present, please contact your nearest Square D/Schneider Electric sales office for assistance.




© 2012 Schneider Electric
All Rights Reserved



The AV5000 is suitable for use where harmonic generating loads are less than 15% of the total connected load (AV5000 shown here).

## Low Voltage Standard Automatic Capacitor Banks

The AV5000 standard automatic power factor correction banks are designed for centralized power factor correction to supply varying amounts of reactive power required to compensate for changing load conditions. The AV5000 banks are ideally suited for facility electrical distribution systems with TDD (total harmonic current distortion) < = 5% and THD(V) (total harmonic voltage distortion) < = 5%. An advanced power factor controller measures plant power factor via a single remote CT. Plus, it switches capacitor modules in and out of service to maintain a user selected target power factor.

### Main Features:

- Modular construction; free standing QED switchboard enclosures (30wx36dx90h) and allow for easy future expansion
- Rugged design — units are constructed with removable steel panels over heavy gauge steel frame
- Standard offering available up to 400 kVAR at 208 Vac, 1000 kVAR at 480 or 600 Vac
- Main lugs or main breaker section at your choice
- Dry capacitor element design eliminates risk of fluid leakage, environmental hazard and drip pans
- Capacitor rated contactors are designed specifically for the switching of capacitive currents and feature a patented capacitor precharge circuit that exceeds air-core reactor transient dampening
- Different power factor controller options provide a choice in functionality and control sophistication
- Backlit display on controller displays actual power factor (PF), alarms, number of steps energized and much more
- Available in NEMA 1 and NEMA 3R enclosures

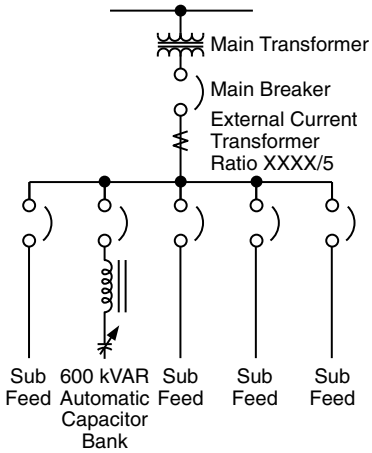


AV6000 Capacitor Bank

## Low Voltage Anti-Resonant and Filtering Automatic Capacitor Banks

ReactiVar AV6000 anti-resonant and AV7000 harmonic filtering automatic switched capacitor banks are specifically designed for networks containing harmonic energies which would otherwise damage standard fixed or automatic capacitor banks.

**The problem:** Harmonics are caused by non-linear loads such as variable frequency drives, motor soft starters, welders, uninterruptable power supplies, robotics, PLCs and other electronic devices. Harmonics are higher-than-60 Hz current and voltage components in the electrical distribution system. Capacitors are a low impedance path for these higher frequency components and thus will absorb these harmonic energies. Combinations of capacitors and system inductances (motors and transformers) can form series and parallel tuned circuits which can resonate at certain frequencies. The harmonics caused by non-linear loads can excite a standard capacitor bank into resonance. The resonance can magnify currents and voltages, causing system wide damage and equipment failure. This problem is growing in prevalence in today's distribution systems.




Single Line (Typical)
Diagram 1

## The Solution:

### Anti-Resonant Automatic Capacitor Banks

The AV6000 anti-resonance capacitor bank's primary function is power factor correction. Iron core reactors are added in series with the capacitor modules. The 3 phase reactors are custom designed and manufactured under tight tolerance specifically for the AV6000. The reactors tune the bank below the first dominant harmonic (usually the 5th, or 300 Hz). Below the tuning point, the system appears capacitive and thus corrects power factor. Above the tuning point, the system appears Inductive and thus resonance is minimized. The AV6000 design has the added advantage of removing up to 50% of the 5th harmonic to reduce overall voltage distortion.

### Harmonic Filtering Automatic Capacitor Banks

Although the AV7000 looks identical to the AV6000, its primary function is harmonic mitigation, with power factor correction being a secondary benefit. The distinction between an AV6000 and an AV7000 is the tuning point. By definition, if the tuning point of the capacitor/reactor combination is within ±10% of the target harmonic it is intended to absorb, it is referred to as a filter. If the tuning point is outside the ±10% limit, it is referred to as an anti-resonant system. Schneider Electric power quality solution experts should be consulted prior to recommending AV7000 to customers.

### Main Features:

- Standard offering available up to 480 kVAR at 208 V, 1200 kVAR at 480 or 600 Vac
- Capacitor modules are designed with higher than standard voltage and current ratings to provide long life on systems with high harmonic energies. Reactors are designed to operate at 115 °C rise over a maximum 40 °C ambient temperature.
- In addition to the standard features provided in the AV5000 systems, the reactors in the AV6000 and AV7000 have an embedded thermistor temperature detector. The stage will shut down and annunciate if the reactor is overheated, usually a result of excessive harmonic energies

### Application Assistance:

Schneider Electric power quality experts can provide engineering assistance for the application of capacitors in harmonic rich environments. Specialists can assess the likelihood of application problems and arrange for more detailed study if required. Solutions can include computer modeling and system simulation. Our application engineers can arrange for systems studies, provide custom engineering proposal, perform installation and commissioning, as required by the application. Please contact Schneider Electric power quality experts or email us at pqc@squared.com.

## CT Selection Table

The current transformer is located on a phase A bus or cable at the main service entrance as illustrated in Diagram 1.

**CT catalog number: TRAI••••SC♦ ♦** where •••• is current rate code of bus/cable and ♦ ♦ is window size code. Codes are listed in table 4.42.

**e.g.** TRAI1000SC07 is a CT for 1000 A bus with 7"x4" window.

**Table 4.40:**

| Current Rating of Bus/Cable | | Window Size | |
|---|---|---|---|
| Amperes | Rating Code •••• | 7" x 4" Size Code ♦ ♦ | 11" x 4" Size Code ♦ ♦ |
| 300 | 0300 | 07 | 11 |
| 400 | 0400 | 07 | 11 |
| 500 | 0500 | 07 | 11 |
| 600 | 0600 | 07 | 11 |
| 750 | 0750 | 07 | 11 |
| 800 | 0800 | 07 | 11 |
| 1000 | 1000 | 07 | 11 |
| 1200 | 1200 | 07 | 11 |
| 1500 | 1500 | 07 | 11 |
| 1600 | 1600 | 07 | 11 |
| 2000 | 2000 | 07 | 11 |
| 2500 | 2500 | 07 | 11 |
| 3000 | 3000 | 07 | 11 |
| 3500 | 3500 | 07 | 11 |
| 4000 | 4000 | 07 | 11 |
| 5000 | 5000 | N/A | 11 |
| 6000 | 6000 | N/A | 11 |



© 2012 Schneider Electric
All Rights Reserved




AT6000 Transient Free Capacitor Bank

## Low Voltage Transient Free Reactive Compensation Capacitor Banks

Square D™ ReactiVar Transient Free Reactive Compensation (TFRC) anti-resonant (AT/BT6000) systems and filtering system (AT/BT7000) are ideally suited for use on electrical systems where connected equipment is extremely sensitive to variations in the supply voltage.

**The problem:** Capacitor systems featuring electromechanical contactors could generate voltage transients on the electrical network when they switch capacitor stages on/off, even when current limiting or tuning reactors are employed. Transients can impair the operation of sensitive equipment, including programmable logic controllers, variable speed drives, computers and UPS systems. In sensitive networks such as hospitals, data processing centers, airports and many manufacturing environments, any transient, however slight, may not be acceptable.

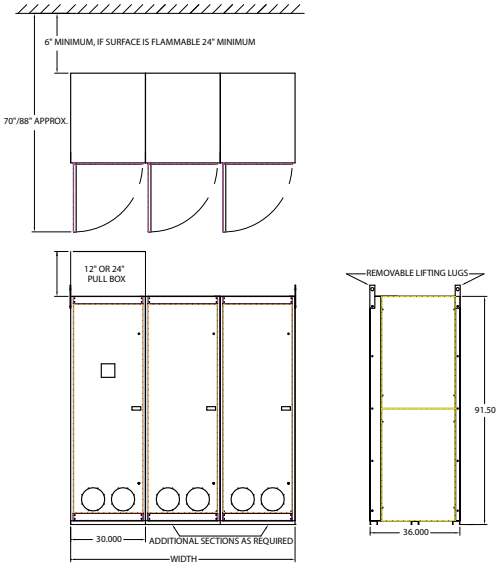
**The solution:** TFRC systems feature an advanced controller to precisely activate electronic switching elements to connect capacitor stages and avoid the creation of transients. Transient free switching also reduces wear on capacitors due to switching and will result in longer life for the overall capacitor system. With a response time of less than ten seconds to load changes, TFRC systems can reduce the kVAR or kVA demand quickly.

## Main Features:

- Standard offering up to 1350 kVAR at 480 Vac
- Transient free switching of capacitor steps
- Electronic switching elements yield an unlimited number of switching operations
- Different power factor controller options provide a choice in functionality and control sophistication
- Backlit display on controller displays actual PF, alarms, number of steps energized and much more
- Heavy duty dry capacitor element design provides no risk of fluid leakage, no environmental pollution and no need for drip pans
- The reactors have an embedded thermistor temperature detector. The stage will shut down and annunciate if the reactor is overheated which is usually a result of excessive harmonic energies
- Units are constructed with removable heavy duty steel panels over heavy gauge steel frame.
- Available in NEMA 1 and NEMA 3R enclosures.

## Low Voltage Capacitor Bank General Specification:

| | |
|---|---|
| Voltage: | 208, 240, 480, 600 Vac standard, other voltages available |
| Ambient temperature: | -5 °C to 40 °C |
| Average temperature limit: | <=40 °C within 24 hours, <35 °C over 1 year |
| Elevation: | <=1800 meter (6000 feet) |
| Humidity: | 0–95% non-condensing |
| Overvoltage limit: | 110% maximum (continuously) |
| Dielectric withstand test level: | 2.15 times rated voltage or 1000 V, whichever is higher for 10s |
| Overcurrent limit: | 135% maximum (continuously) |
| Incoming: | Top (standard), bottom. |
| Main lug: | Copper mechanical standard, compression optional |
| Main breaker (BT): | PowerPact™ with Micrologic™ trip unit. LI standard, LSI available |
| Enclosure rating: | NEMA 1 standard, N3R available |
| Color: | ANSI 49 standard, ANSI 61, ANSI 70 optional |
| Standards: | CSA C22.2 No. 190, UL810 |




Typical low voltage capacitor bank dimension
(reference only, subject to change without notice)







© 2012 Schneider Electric
All Rights Reserved



MVC systems are suitable for power factor correction of steady and harmonic-free motor loads.

## ReactiVar Medium Voltage Fixed Capacitors

The ReactiVar MVC fixed capacitors are ideally suited for power factor correction in applications where the load does not change or where the capacitor is switched with the load, such as the load side of a motor contactor. ReactiVar capacitor sizes are available up to 300 kVAR as individual units, and up to 900 kVAR in banks.

### Main Features:

- Standard rating up to 900 kVAR, 4800 V (for specials, consult factory)
- Extra low dielectric loss (<0.15w/kVAR), including discharge resistors
- Internally mounted discharge resistors
- Internally delta connected capacitor elements
- Built to applicable NEMA, IEEE, and IEC standards
- Available in indoor (Type 1/12) and outdoor (Type 3R) enclosures
- Painted ASA 70 gray

### Application Note:

Capacitors are low impedance path for the harmonic currents produced by variable frequency drives, motor soft starters, welders, computers, PLCs, robotics and other electronic equipment. These harmonic currents can cause the capacitor to overheat, and shorten its life. Furthermore, the resonant circuit formed by shunt capacitors coupled with system inductances (motors and transformers) can amplify harmonic currents and voltages in the electrical network. This amplification can cause nuisance fuse operation and/or damage to electrical equipment including capacitors and other electronic devices. If power factor correction is required in the network where harmonic is present, please contact your nearest Square D/Schneider Electric sales office for assistance.



MV5000 systems are suitable for use where harmonic generating loads are less than 15% of the total connected load.

MV6000 systems are suitable for use where harmonic generating loads are less than 50% of the total connected load.

MV7000 systems are suitable for use where harmonic generating loads exceed 50% of the total connected load.

MVHVC High-Speed compensation systems are designed for reactive power compensation of rapidly fluctuating loads

## Medium Voltage Metal Enclosed Capacitor Systems

The medium voltage capacitor systems are ideally suited for centralized power factor correction and/or harmonic filtering in applications. Various equipment topologies are available, from fixed stage to fully automatic—to cover project specific application, load characteristic and installation needs. ReactiVar brand covers metal enclosed systems built in North America (5/15 kV class). Global =S= Brand can be used for expanded voltage range.

### Main Features:

- Designed and built per applicable ANSI/NEMA/IEEE and/or IEC standards
- Standard metal enclosures available up to 20 mVAR, up to 34.5 kV, 50/60 Hz
- Steel or Aluminum based enclosure bays
- Externally or internally fused capacitors with excellent life due to high temperature withstand, small temperature rise, chemical stability, overvoltage and overcurrent withstand.
- Current limiting capacitor fuses with blown fuse pop-up indicators
- Inrush current limiting reactors or tuned (anti-resonant or filtered) iron core reactors
- Key interlocking system forces sequential operation of the controls,
- Fully rated three- or four-pole grounding switches
- Schneider Electric NRC12 Power factor controller provides user with friendly interface, superior performance, simplified installation and set-up procedure, and real time monitoring and protection features for the capacitor system.
- Available in Type 1 indoor and 3R outdoor enclosure types

## High Voltage Reactive Power Compensation Systems

The high voltage reactive power compensation systems are ideally suited for installation at utility distribution and transmission grids. Various equipment topologies are available to cover project specific utility application, and installation needs. Typically these compensation systems are open style, rack mounted, installed in utility substation areas.

### Main Features:

- Custom designed and built per requested applicable standards
- Systems rated up to 230 kV, 50/60 Hz
- Internally fused capacitors with excellent life due to high temperature withstand, small temperature rise, chemical stability, overvoltage and overcurrent withstand.
- Double wye ungrounded configuration with neutral CT protection
- Inrush current limiting or tuned (anti-resonant or filtered) air core, open style reactors



© 2012 Schneider Electric
All Rights Reserved




AccuSine (PCS) Active Harmonic Filter (AHF) injects harmonic current to cancel harmonic current in the electrical distribution system. This reduced harmonic level results in improved electrical network reliability and reduced operating cost. AccuSine PCS is simple to size, install, set up and operate. In addition, AccuSine PCS eliminates the complex harmonic compliance limit calculations and removes nuisance harmonics from the electrical network.

## The problem:

Power electronic devices that have rapid and frequent load variations have become abundant today due to their many process control related and energy saving benefits. However, they also bring a few major drawbacks to electrical distribution systems; harmonics and rapid change of reactive power requirement. Harmonics may disrupt normal operation of other devices and increase operating costs. Symptoms of problematic harmonic levels include overheating of transformers, motors, drives, cables, thermal tripping of protective devices and logic faults of digital devices. In addition, the life span of many devices can be reduced by elevated operating temperature.

## The solution:

The AccuSine PCS AHF provides the simplest and most effective means to mitigate harmonics, to reduce process related voltage fluctuations. The AccuSine PCS AHF actively injects opposite harmonics current on the source side of the load and it:

- Decreases harmonic related overheating of cables, switchgear and transformers
- Reduces downtime caused by nuisance thermal tripping of protective devices
- Increases electrical network reliability and reduces operating costs
- Corrects to the 50th harmonic, reduce harmonics level to meet IEEE 519, IEC 61000 3-4, and UK G5/4-1 standards.
- Compensates entire network or specific loads depending on installation point

## Standard features

- Real-time dynamic current injection for harmonic cancellation and VAR compensation (lead or lag power factor)
- Independent phase compensation
- Load balancing capability
- Parallel connection (up to 99 units) allows for easy retrofit and installation of multiple units for large networks
- Response to load fluctuations within 2 cycles
- Full color touch screen HMI (Human Machine Interface)
- NEMA 1, NEMA 12, IP30 AND IP54 enclosure
- Seismic rated per ICC IBC and ASCE 7
- UL, CE, ABS, and CSA certified

## Accusine PCS Sizing

For proper sizing of AccuSine units, contact the Schneider Electric sales office or e-mail pqc@squared.com. To expedite the product selection process, please have a single line diagram and/or details of the application including sizes of transformers, non-linear and linear loads, and any existing filters and capacitors.

**Table 4.41: AccuSine PCS 208–480 V, 50/60 Hz**

| Rated Current | Max Reactive Power output (kVAR) | | | Catalog Number | List Price (US$) | Enclosure Information | | Exterior Dimensions | | | | | | Weight lbs (kg) | Watts Losses (watts) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Rating | Style/Cable Entry | H | | W | | D | | | | |
| A(ms) | 208 V | 400 V | 480 V | | | | | In | mm | In | mm | In | mm | | 208/240 V | 480 V |
| 50 | 18 | 34.6 | 41.6 | PCS050D5N1 | **34904.00** | NEMA 1 | Wall Mount▲■/Bottom | 48 | 1219 | 20.7 | 526 | 18.5 | 470 | 250 (114) | 900 | 1800 |
| | N/A | | | PCS050D5N12 | **53738.00** | NEMA 12 | Floor Standing/Top or Bottom | 75 | 1905 | 31.5 | 800 | 23.8 | 605 | 661 (300) | | 2250 |
| | | | | PCS050D5CE30♦ | **59516.00** | IP30 (CE Certified) | | | | | | | | 705 (320) | | 2250 |
| | | | | PCS050D5CE54♦ | **62770.00** | IP54 (CE Certified) | | | | | | | | | | 2250 |
| | | | | PCS050D5IP30 | **54299.00** | IP30 | | | | | | | | 661 (300) | | 2250 |
| | | | | PCS050D5IP54 | **57553.00** | IP54 | | | | | | | | | | 2250 |
| 100 | 36 | 69.2 | 83.1 | PCS100D5N1 | **55131.00** | NEMA 1 | Wall Mount▲■/Bottom | 64.9 | 1648 | 20.7 | 526 | 18.5 | 470 | 350 (159) | 1500 | 3000 |
| | N/A | | | PCS100D5N12 | **66777.00** | NEMA 12 | Floor Standing/Top or Bottom | 75 | 1905 | 31.5 | 800 | 23.8 | 605 | 771 (350) | | 3750 |
| | | | | PCS100D5CE30♦ | **74449.00** | IP30 (CE Certified) | | | | | | | | 849 (386) | | 3750 |
| | | | | PCS100D5CE54♦ | **78679.00** | IP54 (CE Certified) | | | | | | | | | | 3750 |
| | | | | PCS100D5IP30 | **67479.00** | IP30 | | | | | | | | 771 (350) | | 3750 |
| | | | | PCS100D5IP54 | **71585.00** | IP54 | | | | | | | | | | 3750 |
| 300 | 108 | 207.8 | 249.4 | PCS300D5N1 | **110301.00** | NEMA 1 | Floor Standing/Top or Bottom | 75 | 1905 | 31.5 | 800 | 19.6 | 497 | 775 (352) | 4500 | 9000 |
| | N/A | | | PCS300D5N12 | **132341.00** | NEMA 12 | | | | 39.4 | 1000 | 31.7 | 806 | 1212 (550) | | 10000 |
| | | | | PCS300D5CE30♦ | **144502.00** | IP30 (CE Certified) | | | | | | | | 1390 (632) | | 10000 |
| | | | | PCS300D5CE54♦ | **161035.00** | IP54 (CE Certified) | | | | | | | | | | 10000 |
| | | | | PCS300D5IP30 | **133670.00** | IP30 | | | | | | | | 1212 (550) | | 10000 |
| | | | | PCS300D5IP54 | **142628.00** | IP54 | | | | | | | | | | 10000 |

▲ Floor stand available. order Catalog Number — FSPCS100D5N1
■ Wall mounted units do not include a power disconnect.
♦ CE Certified units meet EMC Directive 89/336 EEC.





© 2012 Schneider Electric
All Rights Reserved

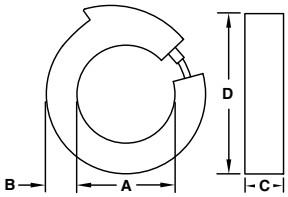


**Table 4.42: AccuSine PCS 600 V■, 50/60 Hz**

| Rated Current | Max Reactive Power output (kVAR) | Catalog Number | List Price (US$) | Enclosure Information | | Exterior Dimensions | | | | | | Weight lbs (kg) | Watts Losses (watts) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Rating | Style/Cable Entry | H | | W | | D | | | |
| | | | | | | In | mm | In | mm | In | mm | | |
| A(ms) | 600 V | | | | | | | | | | | | 600 V |
| 39 | 41 | PCS039D6N1 | **94423.00** | NEMA 1 | Floor Standing/Top or Bottom | 77.7 | 1972 | 55.1 | 1400 | 23.6 | 600 | 1322 (600) | 2850 |
| | | PCS039D6N12 | **100088.00** | NEMA 12 | | | | | | | | 1366 (621) | |
| | | PCS039D6CE30 | **111199.00** | IP30 (CE Certified)▲ | | | | | | | | | |
| | | PCS039D6CE54 | **117805.00** | IP54 (CE Certified)▲ | | | | | | | | | |
| | | PCS039D6IP30 | **101090.00** | IP30 | | | | | | | | 1322 (600) | |
| | | PCS039D6IP54 | **107096.00** | IP54 | | | | | | | | | |
| 78 | 81 | PCS078D6N1 | **115031.00** | NEMA 1 | Floor Standing/Top or Bottom | | | | | | | 1542 (700) | 4610 |
| | | PCS078D6N12 | **121933.00** | NEMA 12 | | | | | | | | | |
| | | PCS078D6CE30 | **135469.00** | IP30 (CE Certified)▲ | | | | | | | | 1620 (736) | |
| | | PCS078D6CE54 | **143517.00** | IP54 (CE Certified)▲ | | | | | | | | | |
| | | PCS078D6IP30 | **123154.00** | IP30 | | | | | | | | | |
| | | PCS078D6IP54 | **130470.00** | IP54 | | | | | | | | 1542 (700) | |
| 235 | 244 | PCS235D6N1 | **202406.00** | NEMA 1 | Floor Standing/Top or Bottom | | | 70.9 | 1800 | 31.5 | 800 | 2424 (1102) | 12750 |
| | | PCS235D6N12 | **214550.00** | NEMA 12 | | | | | | | | | |
| | | PCS235D6CE30 | **238365.00** | IP30 (CE Certified)▲ | | | | | | | | 2602 (1183) | |
| | | PCS235D6CE54 | **252525.00** | IP54 (CE Certified)▲ | | | | | | | | | |
| | | PCS235D6IP30 | **216696.00** | IP30 | | | | | | | | | |
| | | PCS235D6IP54 | **229569.00** | IP54 | | | | | | | | 2424 (1102) | |

▲ CE Certified units meet EMC Directive 89/336 EEC.
■ Contact Schneider Electric sales office for other voltage models.





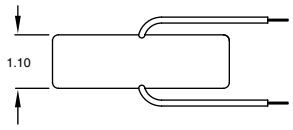

## Round Split-Core Current Transformer (CT) Selection:

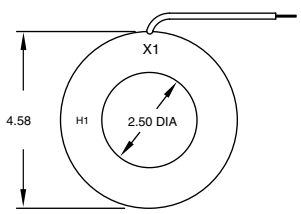
Two remote current transformers (CT) are required for three phase loads. Three CT's are required for networks with line to neutral loads.

**Table 4.43: Round Split-Core CT—UL Recognized**

| Ampacity | Catalog Number | Dimensions | | | | | | | | Weight | | Accuracy Class | Burden Capacity (VA) | Secondary Current |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | | | | | |
| | | in | mm | in | mm | in | mm | in | mm | lbs | kg | | | |
| 1000 | CT1000SC | 4 | 101 | 1.25 | 32 | 1.5 | 38 | 6.5 | 165 | 3.5 | 1.75 | 1 | 10 | 5 |
| 3000 | CT3000SC | 6 | 152 | 1.25 | 32 | 1.5 | 38 | 8.5 | 216 | 4.25 | 1.90 | 1 | 45 | 5 |
| 5000 | CTFCL500058 | 8 | 203 | 1.25 | 32 | 1.5 | 38 | 10.5 | 267 | 5.5 | 2.50 | 1 | 45 | 5 |






## Round Solid-Core Current Transformer (AUX CT) Selection:

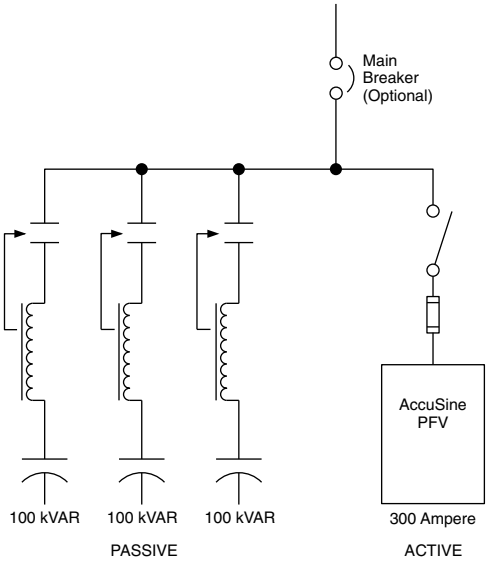
For installations requiring parallel connection of multiple AccuSine units for increased capacity, additional auxiliary CT's may be required. Please contact Schneider Electric sales office for the correct AUX CT part number to use.

**Table 4.44: Round Solid-Core Auxiliary CT—UL Recognized**

| Ampacity | Catalog Number | Dimensions | | | | Weight (lb) | | Accuracy Class | Burden Capacity (VA) | Secondary Current |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ID | | OD | | | | | | |
| | | in | mm | in | mm | lbs | kg | | | |
| 600 | CT7RL6011 | 2.5 | 63 | 4.58 | 116 | 1.5 | 0.68 | 1 | 30 | 1 |
| 1000 | CT7RL1021 | 2.5 | 63 | 4.58 | 116 | 1.5 | 0.68 | 1 | 35 | 1 |



© 2012 Schneider Electric
All Rights Reserved




**HVC Topology (Typical)**

The Hybrid VAR Compensator (HVC) is ideally suited for industrial facilities with power quality or production problems caused by rapidly changing reactive power demands typically associating with highly cyclical loads such as welders, mining conveyors and heavy stamping machines.

## The problem:

Rapid reactive power changes demand timely reactive power (VAR) compensation. Lack of timely and adequate VAR compensation can lead to voltage fluctuations in the electrical distribution system, impacting equipment operation, as well as product quality.

Traditional capacitor systems have a minimum response time of five to thirty seconds for load fluctuations. As a result of this limitation, uncompensated reactive power demand by cyclical loads can produce voltage instability, cause flicker, increase losses, and result poor power factor which reduces the electric supply capacity. Problems can include:

- Poor weld quality or reduced weld line productivity (due to restrikes or interlock weld controls)
- Failure to start motor loads (due to voltage sag on startup)
- Undervoltage tripping of sensitive loads (Robots, PLCs, VFDs)
- Lighting flicker and/or HID lighting shutdown
- Overloaded distribution equipment (cyclical current pulses may exceed the rated current of the distribution equipment)
- Poor power factor and associated utility demand charges

## The Solution:

The Hybrid VAR Compensator is ideally suited for ultra fast reactive power compensation in many low and medium voltage distribution networks containing highly transient loads where conventional systems are not suitable.

The HVC employs a fixed or automatic capacitor bank to provide reactive power at all times, while AccuSine PFV adjusts the output to meet system reactive power requirement in timely manner. AccuSine PFV features a 100 microsecond response time to provide dynamic VAR injection to meet reactive power requirement within 1 cycle, reduce voltage sags created by inductive load switching, welding operation, etc.

## Main Features:

- Real-time reactive power compensation for transient or cyclical loads
- Infinite VAR resolution
- Independently compensates each phase
- Transient free compensation
- Improves voltage stability, reduces flicker
- Constructed with 12 gauge steel frame

HVC systems can alleviate most of the problems created by cyclical loads that require large amount of reactive power for short duration. HVC system can be applied in the low voltage and medium voltage system from 480 V up to 33 kV.

## Unique, cost-effective construction:

The ReactiVar HVC is a custom engineered product designed for specific reactive power compensation requirements. It consists of both passive and active components. The passive component may consist of capacitors only or include tuned reactors. Depending on the application, the passive portion may include contactor or solid state switching device to permit some adjustment of the passive elements. The active component is provided by Schneider Electric's AccuSine PFV unit. HVC systems also can prevent resonance by including custom designed iron core reactors in series with each three phase capacitor module when required. The series reactor/capacitor combinations prevent resonance by turning the network below the first dominant harmonic (usually the 5th and 300 Hz). In doing so, HVC can also reduce harmonic voltage distortion, which further improves overall network conditions.

The HVC employs a fixed capacitor bank to inject leading reactive current (leading kVAR) into the network at all times, and an AccuSine PFV unit to precisely adjust the total output of the HVC according to the load reactive power demand profile. When load reactive demand is zero, the AccuSine PFV injects lagging reactive current to cancel the leading reactive current of the fixed capacitor bank such that the total output of the HVC is minimized. As the load kVAR demand increases, the AccuSine PVF adjusts its output such that the total output of the HVC precisely matches the load demand. If load demand increases above the fixed capacitor bank capability, then the AccuSine PFV injects leading reactive current. This continues until the full leading kVAR capacity of the AccuSine PFV is met. Thus, the HVC total output provides leading kVAR compensation to match load demand.

To optimize system design, Schneider Electric expert will normally need to take real-time measurements on the network site. Please contact Schneider Electric power quality experts or email us at pqc@squared.com.





© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 5
## Lighting Controls





C-Bus Controls, page 5-4



Dual Tech Ceiling Mount, page 5-21



Powerlink Lighting Control Panelboards, page 5-24



Relay Panel Family, page 5-28


### Lighting Control Product Overview

One Line Overview 5-2, 5-3

### C-Bus™ Keypads, Touch Screens and Accessories

Neo Keypads 5-4
Saturn Keypads 5-5
DLT Keypads 5-5
Decorator Keypads 5-6
Touch Screens 5-7
Multi Room Audio 5-9
Hand Held Remote Controls 5-11
Thermostats 5-11
Sensors 5-12
Input Units 5-12
Relays 5-13
Dimmers 5-14
System Units 5-15
Enclosures 5-17
Area Lighting Panels 5-18
Software 5-19

### Occupancy Sensors

Wall Switch Occupancy Sensors 5-20
Ceiling Mount Occupancy Sensors 5-21
Wall Mount Occupancy Sensors 5-21
Fixture Mounted Sensors and Controls 5-22

### Powerlink Integrated Control Systems

Overview 5-23
Components 5-24
Device Power Supply 5-25
Device Router 5-25
Factory Assembled Panels 5-26

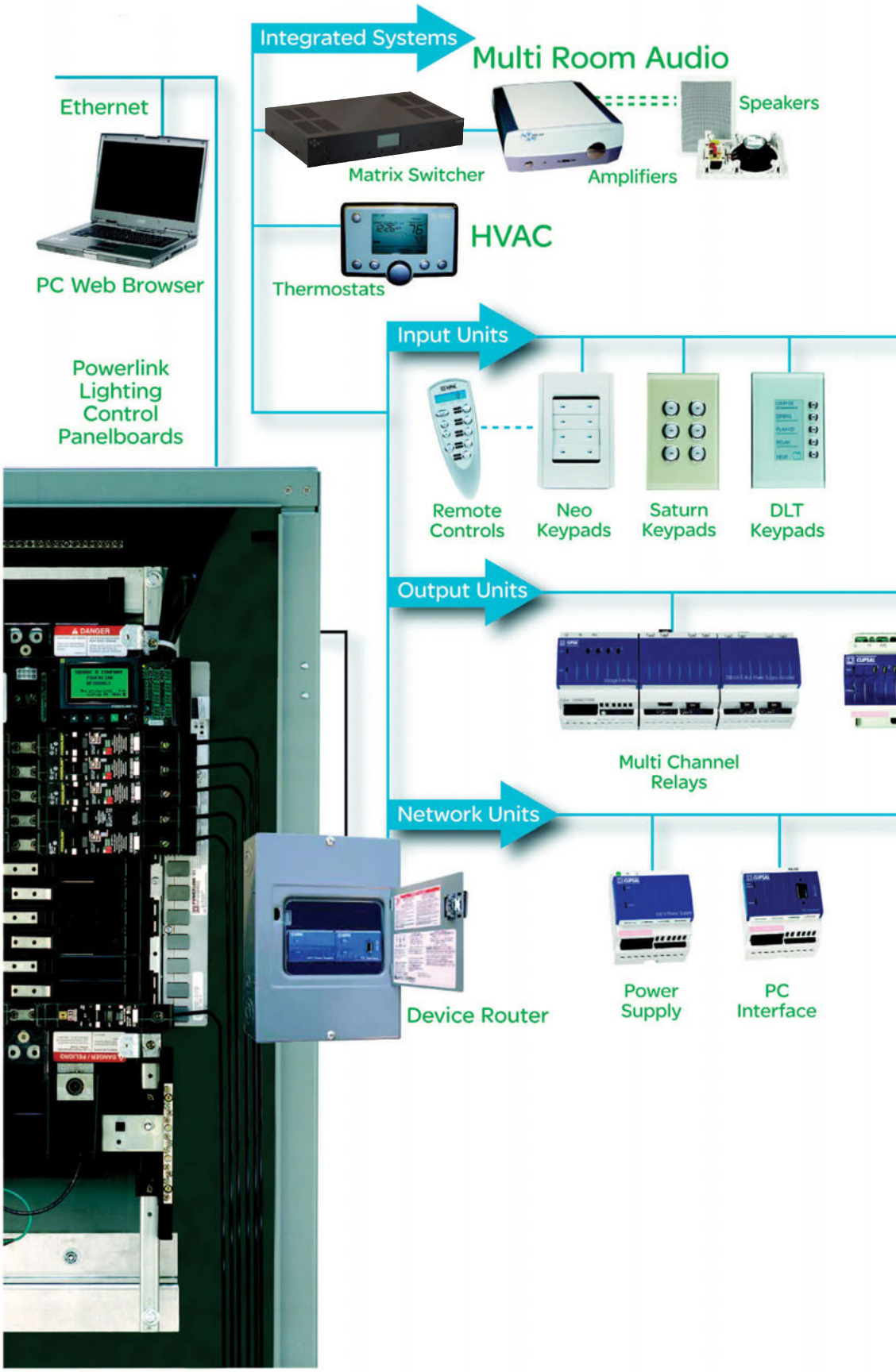
### Powerlink Energy Management 5-27

### Relay Panels 5-28

### Cassia Energy Management System 5-30


© 2012 Schneider Electric
All Rights Reserved

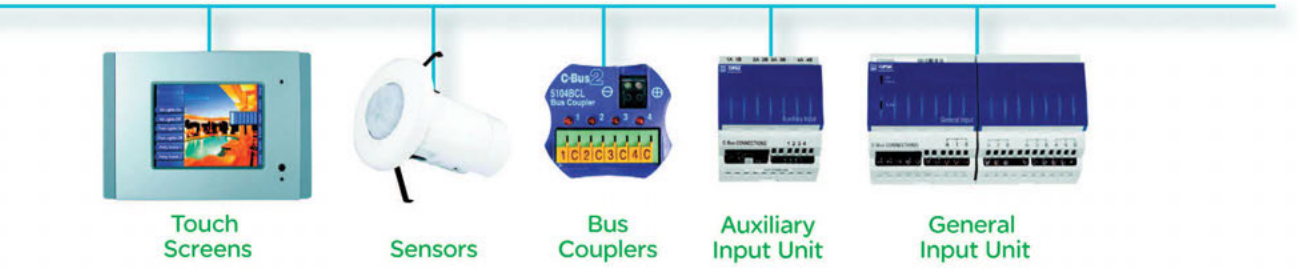
Schneider Electric Occupancy Sensors, Powerlink and C-Bus™ control systems can be used independently or combined to provide the optimal lighting control solution for your home or business

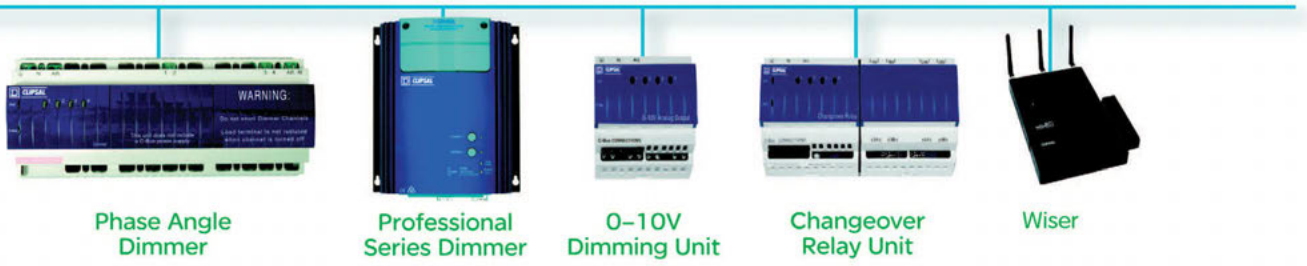





© 2012 Schneider Electric
All Rights Reserved







© 2012 Schneider Electric
All Rights Reserved

## Neo™ Keypads

Neo Keypads offer localized finger-tip control of lighting and other electrical devices. With over 1,000 custom color combinations available, these elegant keypads compliment any decor. Requires plaster mud ring or single gang box with minimum internal width of 2.05".

- Button configurations include multi-point switching and dimming, master ON/OFF switching, and scene settings
- Scene control includes up to forty group addresses per keypad. Larger scenes are possible by sharing memory among multiple keypads
- Independent timers available for each button
- Standard built-in infrared receiver permits keypad control at a distance with an optional infrared handheld remote
- Dual-color LED windows on each button can glow in cool blue, orange, or combinations of both, indicating when a controlled device is ON or OFF
- Auto "fallback" can dim button LEDs at a set time after the last key press
- Locator LEDs can illuminate the top and bottom of the button area in cool blue, helping a user find the keypad in dim light or help the installer find the correct keypad when commissioning
- Clean-lined low-profile keypads are wall mounted without external fittings
- Optional button covers have ID windows, enabling quick identification of lighting scenes or controlled devices
- Distinctively designed multi-layer cover plate consists of button covers, an outer surround, and an inner surround
- Color schemes are easily customized and modified to suit personal taste or the décor

## Standard Neo Keypads

**Includes keypad, button covers, inner and outer surrounds.**

White: SLC505( )NLWE
Cream: SLC505( )NLCM
Brushed Aluminum w/Slate: SLC505( )NLGB

*( ) designates space for button configuration*

**Table 5.1: Standard Neo Keypad Assemblies**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5052NLGB | Neo, 2 button key input brushed aluminum | 460.00 |
| SLC5052NLWE | Neo, 2 button key input solid white | 460.00 |
| SLC5052NLCM | Neo, 2 button key input solid cream | 460.00 |
| SLC5054NLGB | Neo, 4 button key input brushed aluminum | 500.00 |
| SLC5054NLWE | Neo, 4 button key input solid white | 500.00 |
| SLC5054NLCM | Neo, 4 button key input solid cream | 500.00 |
| SLC5058NLGB | Neo, 8 button key input brushed aluminum | 560.00 |
| SLC5058NLWE | Neo, 8 button key input solid white | 560.00 |
| SLC5058NLCM | Neo, 8 button key input solid cream | 560.00 |



2 Button Keypad
Brushed Aluminum w/Slate: SLC505(2)NLGB



4 Button Keypad
Cream: SLC505(4)NLCM



8 Button Keypad
White: SLC505(8)NLWE

## Custom Neo Keypad Assemblies

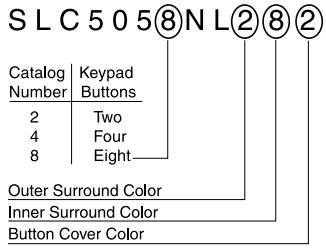
To order custom Neo Keypad assemblies indicate the number of buttons desired on the keypad and the color of each customizable component (inner surround, outer surround, and botton cover).

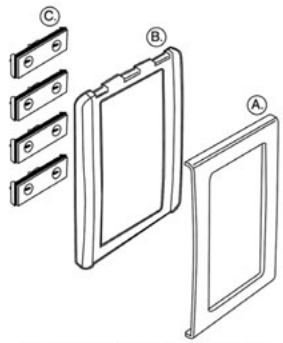
For example, in the diagram below, SLC505(8)NL(2)(8)(2) represents a Neo Keypad with eight buttons, a white (#2) outer surround, a brushed aluminum (#8) inner surround, and white (#2) button covers.

**Table 5.2: Color Chart**

| Name | Color Number |
|---|---|
| Slate | 1 |
| White | 2 |
| Cream | 3 |
| Soft Gray | 4 |
| Desert Sand | 5 |
| Black | 6 |
| Brown | 7 |
| Brushed Aluminum▲ | 8 |
| Gold▲ | 9 |

▲ Only the inner surround is available in Brushed Aluminum and Gold.




*Components of the Neo Keypad cover plate:*
*A. Inner Surround, B. Outer Surround,*
*C. Button Covers*

**Table 5.3: Neo Keypad Accessories**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5050IS( ) | Neo, inner surround, (5pk) | 152.00 |
| SLC5050OS( ) | Neo, outer surround, (5pk) | 46.00 |
| SLC5052NRP( ) | Neo, button covers, 5052L, (5pk) | 60.00 |
| SLC5054NRP( ) | Neo, button covers, 5054L, (5pk) | 60.00 |
| SLC5058NRP( ) | Neo, button covers, 5058L, (5pk) | 60.00 |
| SLC5052NRI( ) | Neo, button covers, with ID window, (10pk) | 82.00 |

Note: Accessories have unique catalog numbers. To specify colors for them, (see Table 5.1) add the color number to the end of the catalog number (Table 5.3). For example, SLC5052NR2 is the catalog number for a white button cover.




Neo button cover with ID window



© 2012 Schneider Electric
All Rights Reserved


Saturn 2 Button Keypad


Saturn 4 Button Keypad


Saturn 6 Button Keypad



Saturn Style Keypad



Neo Style Keypad

## Saturn™ Keypads

Saturn Keypads incorporate a unique glass cover plate that creates a distinctive appearance. By virtue of the variety of button configurations available, one compact Saturn keypad can take the place of many single operation switches, ON/OFF toggles, dimmers, and timers. Available in two-, four-, or six-button keypads, Saturn's modern style is complemented by orange and blue LEDs that can instantly show the status of controlled devices. Requires plaster mud ring or single gang box with minimum internal width of 2.05".

- Button configurations include multi-point switching and dimming, master ON/OFF switching, and scene settings
- Scene control includes up to forty group addresses per keypad. Larger scenes are possible by sharing memory among multiple keypads
- Independent timers available for each button
- Dual-color LED windows on each button can glow in cool blue, orange, or combinations of both, indicating when a controlled device is ON or OFF
- Auto "fallback" can dim button LEDs at a set time after the last button press
- Locator LED can illuminate the keypad, helping a user find it in dim light
- Clean-lined keypads are wall mounted without external fittings
- Low-profile design extends only 0.5 in. out from the wall
- Optional button covers with labels, enabling quick identification of lighting scenes or controlled devices

## Saturn Keypads

**Table 5.4: Complete Saturn Keypads**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5082NL( ) | Saturn Full Plate, 2 button | **634.00** |
| SLC5084NL( ) | Saturn Full Plate, 4 button | **668.00** |
| SLC5086NL( ) | Saturn Full Plate, 6 button | **700.00** |

Note: Color codes are: White (WE), Black (BK), Mocha (BR), Cream (CM). The catalog number for a two-button keypad in mocha would be SLC5082NLBR

**Table 5.5: Saturn Keypad Accessories**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5080LC8 | Saturn Button Labels | **74.00** |
| SLC5082NLFSS | Saturn Cover Plate Stainless Steel, 2 button | **96.00** |
| SLC5084NLFSS | Saturn Cover Plate Stainless Steel, 4 button | **112.00** |
| SLC5086NLFSS | Saturn Cover Plate Stainless Steel, 6 button | **128.00** |
| SLC5082FGF | Saturn Cover Plate White, 2 button | **96.00** |
| SLC5084FGF | Saturn Cover Plate White, 4 button | **112.00** |
| SLC5086FGF | Saturn Cover Plate White, 6 button | **128.00** |
| SLC5082F30 | Saturn Cover Plate Cream, 2 button | **96.00** |
| SLC5084F30 | Saturn Cover Plate Cream, 4 button | **112.00** |
| SLC5086F30 | Saturn Cover Plate Cream, 6 button | **128.00** |
| SLC5082F60 | Saturn Cover Plate Black, 2 button | **96.00** |
| SLC5084F60 | Saturn Cover Plate Black, 4 button | **112.00** |
| SLC5086F60 | Saturn Cover Plate Black, 6 button | **128.00** |
| SLC5082F70 | Saturn Cover Plate Brown, 2 button | **96.00** |
| SLC5084F70 | Saturn Cover Plate Brown, 4 button | **112.00** |
| SLC5086F70 | Saturn Cover Plate Brown, 6 button | **128.00** |

Note: Color options for faceplates: Pure White (PW).

## DLT Keypads

Saturn™ Dynamic Labeling Technology™ (DLT) Keypads combine a programmable keypad button, and easily customized labels on a backlit LCD screen that eliminates the need for custom labels. By virtue of the variety of button configurations available, one compact DLT keypad can take the place of many single-operation switches, ON/OFF toggles, dimmers, and timers. The five keypad buttons incorporate blue LEDs which complements the keypad's sleek lines while showing the status of controlled devices.

- Button configurations include multi-point switching and dimming, master ON/OFF switching, and scene settings
- Keypads have five physical buttons—four control buttons, and one scroll/page button—combined with two screens of labels, for a total of eight control buttons and two scroll/page buttons
- Scene control includes up to forty addresses per keypad. Larger scenes are possible by sharing memory among multiple keypads.
- Independent timers available for each button
- Button LEDs can be used as locator lights in the dark
- 64 x 128 pixel LCD screen with a white backlight
- Editable LCD labels, available for each button or control group, can display text, symbols, and graphics.
- Dynamic graphic displays, such as bar graphs, can be enabled or disabled
- Bitmaps can be downloaded for each group address or scene
- Low-profile design, wall mounted without external fittings

© 2012 Schneider Electric
All Rights Reserved

**Table 5.6: Saturn and Neo Style DLT Keypads**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5085DLWE | Saturn DLT White | 966.00 |
| SLC5085DLBK | Saturn DLT Black | 966.00 |
| SLC5085DLCM | Saturn DLT Cream | 966.00 |
| SLC5085DLBR | Saturn DLT Mocha | 966.00 |
| SLC5055DLGB | Neo DLT Brushed Aluminum | 898.00 |
| SLC5055DLWE | Neo DLT White | 898.00 |
| SLC5055DLBK | Neo DLT Black | 898.00 |
| SLC5055DLSG | Neo DLT Soft Grey | 898.00 |
| SLC5055DLCM | Neo DLT Cream | 898.00 |
| SLC5055DLDS | Neo DLT Desert Sand | 898.00 |

**Table 5.7: DLT Keypad Accessories**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5085DLFSS | Saturn DLT cover plate, Stainless Steel | 110.00 |
| SLC5085DLFCM | Saturn DLT cover plate, Cream | 110.00 |
| SLC5085DLFBK | Saturn DLT cover plate, Black | 110.00 |
| SLC5085DLFBR | Saturn DLT cover plate, Mocha | 110.00 |
| SLC5085DLFWE | Saturn DLT cover plate, White | 110.00 |
| SLC5055DLFGB | Neo DLT cover plate, Brushed Aluminum and Slate | 12.00 |
| SLC5055DLFBR | Neo DLT cover plate, Brown | 12.00 |
| SLC5055DLFCM | Neo DLT cover plate, Cream | 12.00 |
| SLC5055DLFBK | Neo DLT cover plate, Black | 12.00 |
| SLC5055DLFSG | Neo DLT cover plate, Soft Gray | 12.00 |
| SLC5055DLFDS | Neo DLT cover plate, Desert Sand | 12.00 |
| SLC5055DLFWE | Neo DLT cover plate, White | 12.00 |

Note: Color options for faceplates: Pure White (PW).

## Neo™ Decorator Keypads



Neo Decorator Keypad

Neo Style Decorator Keypads provide the same features of a standard C-Bus keypad in a format designed to conserve horizontal wall space.

- Button configurations include multi-point switching, dimming, and scene control
- LED indicator reflects status of each button
- Built-in infrared receiver to allow operation from C-Bus handheld remote control
- Distinctive Neo styling designed to match standard Neo keypads and touchscreens
- Custom color combinations available on request
- Meets NEMA Standards WD-1, WD-6

**Table 5.8: Neo Decorator Keypad Assembly (order face plates separately)**

| Catalog No. | Description | $ Price |
|---|---|---|
| **Neo Decorator 1 button keypad (XX) Designates Color. (order cover plate separately)** | | |
| SLC5051NLM(XX) | 1 button decorator keypad | 386.00 |
| **Neo Decorator 2 button keypad (order cover plate separately)** | | |
| SLC5052NLM(XX) | 2 button decorator keypad brushed aluminum | 408.00 |
| **Neo Decorator 3 button keypad (order cover plate separately)** | | |
| SLC5053NLM(XX) | 3 button decorator keypad brushed aluminum | 430.00 |
| **Neo Decorator 4 button keypad (order cover plate separately)** | | |
| SLC5054NLM(XX) | 4 button decorator keypad brushed aluminum | 452.00 |
| **Neo Decorator Blanking Plate (order cover plate separately)** | | |
| SLC5850BP(XX) | Neo blanking plate | 14.00 |

Note: Designate colors (XX), when placing order for Neo style decorator keypads.
GB – Brushed, WE – White, CM – Cream, SG – Soft Grey, DS – Desert Sand, BK – Black, BR – Brown, LA – Light Almond, VY – Ivory.

## Saturn™ Decorator Keypads



Saturn Decorator Keypad

Saturn Style Decorator Keypads provide the same features of a standard C-Bus keypad in a format designed to conserve horizontal wall space.

- Button configurations include multi-point switching, dimming, and scene control
- LED indicator reflect status of each button
- Built-in infrared receiver to allow operation from C-Bus remote controllers
- Distinctive Saturn styling designed to match standard Saturn keypads and touchscreens
- Meets NEMA Standards WD-1, WD-6

**Table 5.9: Saturn Decorator Keypad Assembly (order face plates separately)**

| Catalog No. | Description | $ Price |
|---|---|---|
| **Saturn Decorator 1 button keypad (XX) Designates Color. (order cover plate separately)** | | |
| SLC5081NLM(XX) | 1 button deco Saturn keypad, White | 526.00 |
| **Saturn Decorator 2 button keypad (XX) Designates Color. (order cover plate separately)** | | |
| SLC5082NLM(XX) | 2 button deco Saturn keypad, White | 538.00 |
| **Saturn Decorator 3 button keypad (XX) Designates Color. (order cover plate separately)** | | |
| SLC5083NLM(XX) | 3 button deco Saturn keypad, White | 548.00 |
| **Saturn Decorator 4 button keypad (XX) Designates Color. (order cover plate separately)** | | |
| SLC5084NLM(XX) | 4 button deco Saturn keypad, White | 556.00 |
| **Blanking Plates** | | |
| SLC5880BPPG(XX) | Saturn Blanking Plate | 24.00 |

Note: Designate colors (XX), when placing order for Saturn style decorator keypads.
WE – White, PW – Pure White, CM – Cream, BK – Black, BR – Brown.



© 2012 Schneider Electric
All Rights Reserved



Neo Decorator Style Cover Plate

## Neo and Saturn Style Decorator Face Plates

C-Bus decorator style wall plates add a touch of flair to any décor. Available in either Neo or Saturn styling.

- Sleek, smooth contemporary architectural styling enhances fine decor
- Screwless design for easy placement
- Two piece kit allows easy retrofit
- Meets NEMA Standards WD-1, WD-6

**Table 5.10: Neo Decorator Style Cover Plates (order keypad assemblies separately)**

| Catalog No. | Description | $ Price |
|---|---|---|
| **Neo Decorator Cover Plate 1 gang▲** | | |
| SLC5051GA(XX) | 1 gang wallplate | **14.00** |
| **Neo Decorator Cover Plate 2 gang▲** | | |
| SLC5052GA(XX) | 2 gang wallplate | **18.00** |
| **Neo Decorator Cover Plate 3 gang▲** | | |
| SLC5053GA(XX) | 3 gang wallplate | **22.00** |
| **Neo Decorator Cover Plate 4 gang▲** | | |
| SLC5054GA(XX) | 4 gang wallplate | **26.00** |

▲ Cover plate assembly includes inner and outer surrounds. Wall plate ordering (Order keypads separately). Order numbers for the Neo decorator style wall plates indicate the gang number desired on the wall plate and the color of the wall plate itself. Color codes are: Slate (1), White (2), Cream (3), Soft gray (4), Desert sand (5), Black (6), Brown (7), Brushed aluminum (8), and Gold (9). For example, SLC505(1)GA(51) represents an order fo a Neo decorator style wall plate in one gang configuration, with a Desert sand outer surround and a slate inner surround.



2 Gang Saturn Decorator Style Cover Plate

**Table 5.11: Saturn Decorator Style Cover Plates (order keypad assemblies separately)**

| Catalog No. | Description | $ Price |
|---|---|---|
| **Saturn Decorator Cover Plate 1 gang■** | | |
| SLC5081GAPG(XX) | 1 gang wallplate | **24.00** |
| **Saturn Decorator Cover Plate 2 gang■** | | |
| SLC5082GAPG(XX) | 2 gang wallplate | **28.00** |
| **Saturn Decorator Cover Plate 3 gang■** | | |
| SLC5083GAPG(XX) | 3 gang wallplate | **38.00** |
| **Saturn Decorator Cover Plate 4 gang■** | | |
| SLC5084GAPG(XX) | 4 gang wallplate | **45.00** |

■ To specify color, add corresponding alpha codes. Black = BK, White = WE, Cream = CM, Mocha = BR. Example SLC5081GAPG(WE) = Saturn Decorator 1 gang, White




Mark II Black and White and Spectrum Color touch screen with Cream Saturn style cover plate

## Touch screens

C-Bus Touch screens are unified wall-mounted panels for controlling lighting systems and accessories with the touch of a finger. They come in both monochromatic (Mark II) and color screen versions. Compact yet powerful, touch screens offer an attractive alternative to multiple single operation switches, ON/OFF toggles, dimmers, and timers which can clutter up even the nicest wall.

## Mark II Black and White and Spectrum Color touch screen

- Control screens support multi-point switching and dimming, master ON/OFF switching, scheduling, and scenes with multiple loads.
- Preset scenes and functions automate the task of adjusting lighting levels to different lamps and fixtures.
- RS-232 port for third party device integration through the built in Logic Engine
- Standard real-time and astronomical clock permits time scheduling of lighting and other tasks
- Variable dimming fade rates can be configured according to load or lighting zone
- Locator option can be configured to help users find the screen in dim light
- Clean-lined low-profile touch screen can be wall-mounted without external fittings
- Infrared receiver for remote control
- Stores up to 250 scenes with 100 group addresses each. Scenes can be triggered directly from the touch screen or any other device on C-Bus




Mark II Black and White and Spectrum Color touch screen desktop model

## Mark II Black and White and Spectrum Color touch screen (desktop model)

- Screen swivels and pivots for optimal viewing
- Control screens support multi-point switching and dimming, master ON/OFF switching, scheduling, and scenes wtih multiple loads.
- Preset screens and functions automate the task of adjusting lighting levels to different lamps and fixtures.
- Standard real-time and astronomical clock permits time scheduling of lighting and other tasks
- Variable dimming fade rates can be configured according to load or lighting zone
- Locator option can be configured to help users find the screen in dim light
- Infrared receiver for remote control

© 2012 Schneider Electric
All Rights Reserved

**Table 5.12:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| **Mark II B/W Touch Screen** | | |
| SLC5050CTL2xx | Mark II w/Neo Style Cover Plate | 2439.00 |
| SLC5080CTL2xx | Mark II w/Saturn Style Cover Plate | 2499.00 |
| SLC5000CTL2SS | Mark II w/Stainless Steel Cover Plate | 2499.00 |
| **Mark II Touch Screen Desktop Model** | | |
| SLC5000CTD2xx | Mark II Desktop Touch Screen | 1920.00 |
| xx = color code / WE–White, BK–Black | | |
| **Spectrum Touch Screen** | | |
| SLC5000CTCL2 | Spectrum Base Unit Only | 2106.47 |
| SLC5000CTCL2xx | Spectrum w/non-stylized plastic Cover Plate | 2374.45 |
| SLC5050CTCL2xx | Spectrum w/Neo Style Cover Plate | 2341.17 |
| SLC5080CTCL2xx | Spectrum w/Saturn Style Cover Plate | 2386.69 |
| SLCBS5000CTCL2 | Spectrum w/Stainless Steel Cover Plate | 2232.47 |
| SLCBB5000CTCL2 | Spectrum w/Brass Cover Plate | 2265.22 |
| xx = color code / GB – Brushed Aluminum and Slate▲, WE – White, BK – Black, CM – Cream, BR – Mocha■, PW – Pure White■. | | |
| **Spectrum Desktop Model** | | |
| SLC5000CTCD2xx | Spectrum Desktop Touch Screen | 2365.61 |
| xx = color code / WE–White, BK–Black | | |
| **Accessories** | | |
| **Mark II / Spectrum Accessories** | | |
| SLC5000CT2WB | Wall box for Mark II / Spectrum Touch Screen | 68.00 |
| SLC5080CT2Fxx | Replacement Cover Plate, Saturn style | 280.22 |
| SLC5000CT2FSS | Replacement Cover Plate, Stainless Steel | 126.00 |
| SLC5050CT2Fxx | Replacement Cover Plate, Neo style | 187.76 |
| xx = color code / GB – Brushed Aluminum and Slate▲, WE – White, BK – Black, CM – Cream, BR – Mocha■, PW – Pure White■. | | |

▲ Neo only.
■ Saturn only.



Color touchscreen in Neo style Brushed Aluminum and Slate

## Color touch screen

- Built-in RJ-45 Ethernet and C-Bus network, RS-232, and USB terminals
- Touch sensitive 6.4 inch (640 x 480) color LCD panel
- Control screens support multi-point switching
- Standard real-time and astronomical clock permits time scheduling of lighting and other tasks
- Variable dimming fade rates can be configured according to load or lighting zone
- Locator option can be configured to help users find the screen in dim light
- Clean-lined low-profile touch screen can be wall-mounted without external fittings
- Infrared receiver for remote control

**Table 5.13:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| **Color Touch Screen** | | |
| SLC5050CTCxx | Color touch screen w/Neo style Cover Plate | 8480.00 |
| SLC5080CTC2xx | Color Touch Screen w/Saturn style Cover Plate | 8480.00 |
| **Color Touch Screen Accessories** | | |
| SLC5000CTCRM | Plasterboard Bracket for Color Touch Screen | 90.00 |
| SLC5000CTCNA | Nail Bracket for Color Touch Screen | 60.00 |
| SLC5000CTCWB | Wall box for Color Touch Screen | 68.00 |
| SLC5000CTCPS | Power supply for Color Touch Screen | 263.00 |
| SLC5080CTCFxx | Replacement Cover Plate, Saturn style | 356.00 |
| SLC5050CTCFxx | Replacement Cover Plate, Neo style | 29.00 |
| xx = color code / GB – Brushed Aluminum and Slate▲, WE – White, BK – Black, CM – Cream, BR – Mocha■. | | |

▲ Neo only.
■ Saturn only.



Wiser Home Controller

## Wiser™ Home Controller

The Wiser Home Controller is the missing piece of the smart home puzzle, enhancing the capabilities and connectivity of the C-Bus network. Its easy-to-use graphical user interface (GUI) provides access to the home C-Bus network and all of your electrical, multimedia, and telecommunication needs. This same GUI can be installed across multiple control devices, such as mobile phones, TVs with Microsoft® Windows® Media® Center, personal computers, and web tablets, in addition to the C-Bus range of touch screens and keypads. No matter where you are, the Wiser Home Controller allows you to monitor and control your home environment locally or remotely over the internet.

## Features

- Ethernet and Wi-Fi based controller for your C-Bus system
- Built-in Ethernet router and Wi-Fi access point
- Support for lighting, air-conditioning, multi-room audio, alarms, cameras, and other equipment
- Built-in scene, scheduling, and logic programming modules
- Allows remote reprogramming from outside the home/building by installers
- Common, intuitive interface for all devices
- Mobile phone and web-enabled device control

**Table 5.14: Order Information**

| Description | Catalog Number | $ Price |
|---|---|---|
| Wiser Home Controller | WHC-5918 | 1505.00 |



© 2012 Schneider Electric
All Rights Reserved

## C-Bus Multi Room Audio

Extend the capabilities of a C-Bus system by incorporating award winning multi-room audio into your next project. Multi-room audio augments a C-Bus lighting control system, providing high quality sound throughout a home or business.

C-Bus multi-room audio readily integrates with other C-Bus controls, providing a single source for audio and lighting from a single keypad or touch screen. Sound is distributed throughout the home through the Matrix Switcher and routed to local amplifiers.

A typical C-Bus Multi Room Audio system distributes up to four analog audio inputs, five if an Audio Distribution Unit is used, and one optical input. These inputs are distributed up to 8 zones, each consisting of one or more amplifier. Additionally, each amplifier is capable of accepting a local analog audio input, providing up to six stereo audio channels for each amplifier.





Matrix Switcher


Low Power Amplifier

## Matrix Switcher

The C-Bus™ Audio Matrix Switcher provides a revolutionary means for distributing audio throughout a home. This Matrix Switcher provides up to eight zones of audio output from four source inputs. The C-Bus Matrix Switcher allows you to send streaming audio programs to the audio zones from a variety of sources, including a local area network (LAN), or a USB memory stick (Model: SLC5608842E). In addition, it will also allow connection of a portable music player directly to the Matrix Switcher's front audio panel. Audio sources can be selected from the front panel or by any C-Bus™ input device such as touch screens or keypads. The Matrix Switcher is ideally suited for multi-room audio and structured wiring systems. Keypads and other C-Bus™ devices connect to the Matrix Switcher via CAT-5 modular jacks. Outputs to remote and desktop amplifiers are made with low voltage wiring. In addition to the six source inputs, two mono broadcast annunciation inputs are provided for connection to intercoms or other systems. Broadcast annunciation input can be given priority over other source inputs and features fully adjustment volume and over-stepping mute features.

- Suitable for 19" Rack Mount with rack mount ears provided.
- Each Matrix Switcher can distribute digital audio to up to 8 MRA amplifiers. You can install up to 3 Matrix Switchers on a C-Bus network.
- The Matrix Switcher can provide power for the attached amplifiers via the Digital Audio cables. You can connect an external power supply to an amplifier to increase its audio power output.
- The choice of the audio program for an amplifier can be made at the Matrix Switcher or in the audio zone. You can use C-Bus input devices to choose the source and to adjust volume, tone and muting.
- The Dual AM/FM tuners inside the Matrix Switcher can distribute preset station choices to any of the audio zones.
- Distributes streaming audio from several sources using the C-Bus Ripple software application running on a networked PC.
- You can connect up to 4 stereo analogue line-level inputs to the Matrix Switcher. If you need to add another source input, you can install an MRA Distribution Unit and power supply.
- Compatible with C-Bus devices.

© 2012 Schneider Electric
All Rights Reserved



Desktop Amplifier

## Remote Amplifiers

C-Bus Multi Room Amplifiers provide efficient, high fidelity audio to individual rooms. Available in either desktop or remote mount versions, these amplifiers are specifically designed to operate on the C-Bus network as an extension of a lighting control system, without third party gateways or custom integration. This means the ability to control amplifiers with the same keypad or touch screen used to control lighting levels.

When combined with the C-Bus Matrix Switcher, these amplifiers deliver excellent stereo sound. Connections are provided for up to two sets of 8 ohm speakers. Both desktop and remote amplifiers provide a local input connection for attaching to CD or mp3 players, etc. In addition, the desktop amplifier will accept remote commands via its infrared receiver. Infrared remote included.

- 10 Watt digital efficient stereo amplifier, 25 Watts when connected to local power supply (optional)
- Super quiet design
- On board 8 ohm loudspeaker connections
- Local source input — RCA jack
- C-Bus connection (connects with CAT-5 cable)
- Volume control (desktop model)
- On-board IR receiver (desktop model)
- Stereo headphone connection (desktop model)
- Infrared remote included (desktop model only)




Audio Distribution Unit

## Audio Distribution Unit

The C-Bus Audio Distribution Unit is an optional device that can be used in conjunction with the C-Bus Multi Room Audio System to further enhance C-Bus enabled audio product family.

The C-Bus Audio Distribution Unit distributes a single digitized stereo audio input source to multiple locations via amplifiers wired in a parallel format. Functions such as Volume, Bass, Treble and Balance can be adjusted from a C-Bus input device at any of the audio output locations. The C-Bus Audio Distribution Unit converts a single analog stereo audio input to a digital audio output. That output can then be connected to the Matrix Switcher as an additional input or to the C-Bus Desktop or Remote Amplifier as a stand-alone configuration.

- Distributes a single stereo audio source to C-Bus Audio Amplifiers via a digitized signal over Cat-5 cable
- Does not require any C-Bus programming (hardware only)
- One stereo analog audio source input (2 X RCA)
- One digital audio output
- Output can be looped between C-Bus Audio Amplifiers
- IR emitter port

**Table 5.15: C-Bus Multi Room Audio Components**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC560110R | Low Power Amplifier, rack mountable | TBD |
| SLC5608842 | Matrix Switcher w/4 stereo analog inputs, 2 internal AM/FM tuners, IR input and target connections. Up to 8 MRA Zones. | 4599.00 |
| SLC5608842E | Matrix Switcher w/4 stereo analog inputs, 2 internal AM/FM tuners, IR input and target connections. Audio streaming using a LAN or USB source. Up to 8 MRA Zones. | 4274.10 |
| SLC560125D | Desktop Amplifier | 1908.15 |
| SLC560125R | Remote Amplifier | 1609.79 |
| SLC560011 | Audio Distribution Unit | 790.41 |
| SLC5600P24500S | Amp External Power Supply (only needed if Audio distribution unit is used to provide an additional digital input for the Matrix Switcher) | 53.22 |
| **Accessories** | | |
| SLC5600P241250 | Low Power Amplifier Power Supply | TBD |
| SLC560110E | Low Power Amplifier Enclosure (used for linking up to 4 amplifiers/enclosures together for mounting in a 19" rack) | TBD |
| SLC560110MB | Low Power Amplifier Wall Mounting Bracket | TBD |
| SLC5600P243750T | Audio Amplifier Power Supply | 445.93 |
| SLC560125MB | Remote Amplifier Mounting Bracket | 42.24 |



Indoor Ceiling Mount Speakers



Indoor Wall Mount Speakers

## Audio Speakers

C-Bus Audio Speakers are available as indoor or outdoor models and are designed to be used with home theater, multi-room, and outdoor audio applications.

The indoor speakers come in wall or ceiling mount versions that are installed with the front of the speaker flush with the mounting surface.

The indoor/outdoor speakers are available in black or white and can be placed on a shelf or hung on a surface by using the included bracket.

- Flush-mount, shelf-mount, and surface-mount models
- Indoor and outdoor models
- High-impact plastic components and powder coated metal grills produce a long-lasting unit suitable for indoor and outdoor use
- 8 ohm impedance
- Available with Kevlar™ (indoor units only) or polypropylene drivers (indoor and outdoor units) for high-quality sound in all applications
- All models are off the floor, saving floor space
- Indoor/Outdoor Speakers have a pre-installed, removable mounting bracket
- Indoor/Outdoor Speakers can be placed on a shelf or hung from a surface by their bracket (included)
- Tracing/painting template included



Indoor/Outdoor Speakers

**Table 5.16: Multi-Room Audio Speakers**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5600IWP | In-Wall Polypropylene speakers | 429.58 |
| SLC5600IWK | In-Wall Kevlar speakers | 560.00 |
| SLC5600ICP | In-Ceiling Polypropylene speakers | 408.53 |
| SLC5600ICK | In-Ceiling Kevlar speakers | 521.09 |
| SLC5600ODPBK | Outdoor Black speakers | 468.30 |
| SLC5600ODPWE | Outdoor White speakers | 468.30 |



© 2012 Schneider Electric
All Rights Reserved



8 button
remote control



Universal
remote control

## Hand Held Remote Controls

C-Bus remote controls are designed for use with C-Bus keypads, multi-sensors, and touch screens. available in both four and eight button versions, these remotes have a range up to 50 feet (line of sight).

The universal remote control unit allows a single remote control unit to replace various other remotes including VCRs, CD players, DVRs, and TVs. Up to sixteen remote control codes are supported.

**Table 5.17: Handheld Remote Controls**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5084TX | Handheld infrared remote 4 button | 200.00 |
| SLC5088TX | Handheld infrared remote 8 button | 400.00 |
| SLC5030URC | Handheld universal remote control | 440.00 |




4 Zone Thermostat

## Single and 4 Zone Network Thermostats

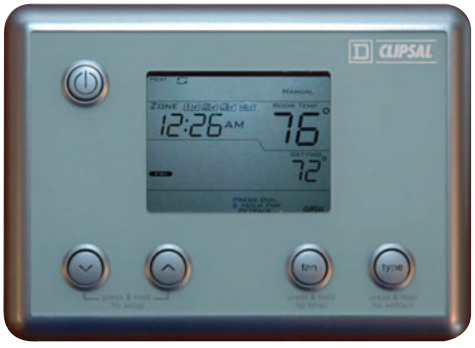
C-Bus Thermostats are used to regulate the air temperature of zones by controlling heating-ventilation-air conditioning (HVAC) equipment. The air temperature is monitored by the unit's temperature sensor or optionally via an external C-Bus temperature sensor.

C-Bus single and programmable 4 Zone Thermostats may operate as stand alone devices, or be controlled via other C-Bus devices such as wall switches or touch screens.

Programmable 4 Zone Thermostats can schedule up to four set points during a day, and unique schedules can be programmed for each day of the week.

Both models include setback mode, (saves power by using a wider acceptable temperature range within which heating or cooling is not performed) and temperature guard, (ensures the temperature is maintained within a specified temperature range).

- Easy to read, large LCD display
- Control by keypads and other devices on the C-Bus network
- Available in black, white and stainless steel fascias
- Setback mode
- Temperature guard mode
- Internal Timer
- Daily schedule set points (4 Zone model)
- Display temperature in Celsius or Fahrenheit
- RWG interface (relay models only)
- Easily configured by using the Clipsal Toolkit software program




Single Zone Thermostat

**Table 5.18: Single and 4 Zone Network Thermostats**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5070THBWE | Single Zone, White, no relay | 649.00 |
| SLC5070THPWE | 4 Zone, White, no relay | 799.00 |
| SLC5070THBBK | Single Zone, Black, no relay | 649.00 |
| SLC5070THPBK | 4 Zone, Black, no relay | 799.00 |
| SLC5070THBSS | Single Zone, Stainless, no relay | 649.00 |
| SLC5070THPSS | 4 Zone, Stainless, no relay | 799.00 |
| SLC5070THBRWE | Single Zone w/relay, White | 724.00 |
| SLC5070THPRWE | 4 Zone w/relay, White | 899.00 |
| SLC5070THBRBK | Single Zone w/relay, Black | 724.00 |
| SLC5070THPRBK | 4 Zone w/relay, Black | 899.00 |
| SLC5070THBRSS | Single Zone w/relay, Stainless | 724.00 |
| SLC5070THPRSS | 4 Zone w/relay, Stainless | 899.00 |
| SLC5031RDTSL | Remote Temperature Sensor | 298.00 |

© 2012 Schneider Electric
All Rights Reserved



Light Level Sensor



360° Indoor PIR Sensor

## Light Level Sensor

The C-Bus Light-Level Sensor measures ambient light levels and automatically issues ON, OFF, or ramp commands over a C-Bus network. The light-level sensor can control relays, dimmers, or remotely operated circuit breakers, changing their status according to pre-set ambient lighting targets. The C-Bus light-level sensor has a dynamic range between 5-150 foot candles, and compensates for noise and rapid light intensity fluctuations.

## Outdoor Light Level Sensor

C-Bus Outdoor Light-Level Sensor measures ambient light levels and automatically issues ON/OFF or ramp commands over a C-Bus network to maintain outdoor lighting levels. Primarily designed for outdoor use, this light-level sensor is also suitable for indoor setting in which a water resistant casing is desirable.

The light-level sensor can control up to two C-Bus group addresses: one address controls ON/OFF switching of a lamp circuit according to a pre-determined ambient light level, while the other is used to continuously regulate the light-level output of any number of lampsl

The target light level, the margin, and other sensor options are easily configured by using the C-Bus Toolkit software.

- Outdoor use, wall- and ceiling-mounted low-profile unit
- Can maintain a constant illumination level of 5-150 footcandles
- Adjustable lumin setpoint
- Control of up two C-Bus group addresses
- Sensors receive data and power over a single C-Bus twisted-pair cable, so they do not require power packs or line-voltage connections
- 180° field of view

**Table 5.19: C-Bus Light Level Sensor**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5031PE | Light level sensor, 0–150 Foot-candles, Indoor | 208.00 |
| SLC5031PEWP | Light Level Sensor, 5–150 Foot-candles, Outdoor | 278.00 |



Outdoor PIR Sensor



90° Indoor PIR Sensor



360° PIR Multi Sensor

## Occupancy Sensors

C-Bus occupancy sensors are available for both indoor and outdoor applications. All C-Bus sensors incorporate reliable passive infrared detection (PIR) circuits for occupancy detection along with integral light level sensors to prevent switching of lights if sufficient ambient light is present. Sensors feature programmable adjustments for sensitivity and time delay, walk test LED for commissioning and optical bandpass filtering with dual element detectors to minimize false triggering.

- 90° Indoor sensors are intended for wall or ceiling mounting. These sensors have a continuous detection field of 400 square feet and a 90° field of view.
- 360° Indoor sensors are intended for flush mounting in drop ceilings. They have a minor motion detection field of 800 square feet making them ideal for use in offices, copier rooms, closets, and restrooms where it can be mounted in the center of the detection area.
- 360° Multi-Sensors combine a passive infrared receiver (PIR) for occupancy sensing, a light-level sensor, and an infrared remote receiver into a small, highly versatile unit. The multi-sensor's 2.8 inch face diameter makes it unobtrusive and ideally suited for flush mounting on the ceiling with effective IR coverage up to 800 square feet. The built-in IR receiver accepts commands from an optional handheld remote controller, making the sensor ideal for classrooms and conference room areas.
- Outdoor PIR Motion Sensor combines reliable thermal-radiation-based control of lighting with rugged construction suitable for outdoor requirements. The unit's advanced circuits and flat multi-segmented lens provide coverage of up to 3000 square feet in a 110° field of view.

**Table 5.20: C-Bus Occupancy Sensors**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5750WPL | Occupancy sensor, multi, outdoor, 110 deg | 283.00 |
| SLC5751L | Occupancy sensor, PIR, indoor, 90 deg | 227.00 |
| SLC5753L | Occupancy sensor, PIR, indoor, 360 deg | 213.00 |
| SLC5753PEIRL | Occupancy sensor, multi, indoor, 360 deg | 268.00 |




Four-Channel Auxiliary Input unit

## Auxiliary Input Unit

C-Bus Four-Channel Auxiliary Input Units increase the versatility of the C-Bus network by facilitating remote access with any dry-contact switch mechanism. DIN-rail mounted for quick installation, the auxiliary unit can be configured with standard C-Bus control functions such as remote scene triggering, ON/OFF, toggle, dimmer, or timer.

- Provides four isolated inputs for external voltage-free mechanical switches
- Control options include remote scene triggering, ON/OFF, toggle, dimmer, or timer operations
- LEDs indicate operational status of each channel
- Standard built-in C-Bus network connectors: (2) RJ-45
- Non-volatile memory stores operating status for recovery from a power outage
- DIN style construction 4M wide: 3.4"(L) x 2.8"(W) x 2.6"(H)
- Compatible with all Clipsal devices and the Square D Powerlink™ NF3000G3C controller



© 2012 Schneider Electric
All Rights Reserved

## General Input Unit




General Input unit

Four-Channel General Input Units measure TTL digital and real-world analog quantities and generate messages about the measurements to the C-Bus network. By acting as an interface with various external sensors, the general input unit enables integration of the C-Bus network with a variety of system types, such as those for HVAC and for power monitoring. Configuration options include selectable input types, eight adjustable decision thresholds per channel, definable actions, selectable filtering, broadcast rates, and a separate hysteresis value per channel.

- Measures TTL digital quantities including voltage, current, or resistance from external sensors such as light level, pressure, and temperature
- Four channels of input, each with an adjustable hysteresis value, eight decision thresholds, and a software-selectable input value transformation in the form y =ax +b
- Input channels are compatible with a range of third-party sensors
- Control functions include load switching, dimming, trigger applications, enable control applications, and measurement applications
- Includes 120 V/24 Vdc power pack
- Dimensions: 5.67 in. (144mm) wide x 2.60 in. (66mm) deep x 3.35 in. (85mm) tall
- Compatible with all Clipsal devices and the Square D Powerlink NF3000G3C controller

## Bus Couplers




Four-Channel Bus Coupler

Bus Couplers provide an interface between dry-contact mechanical switches and the C-Bus network. Available in two-and four-channel models, the bus coupler is small enough to be used in restricted spaces such as wall boxes with existing switches. Configuration options include standard control functions such as ON/OFF, toggle, dimmers, and timers.

- Provides two or four non-isolated inputs for external voltage-free mechanical switches. Two-channel units feature independent remote LED outputs
- Two-way removable terminal block for the C-Bus connection
- Receives data and power over a network, so it does not require power packs or line voltage connections
- Scene capabilities
- 2.2”(L) x 1.9”(W) x 0.7”(H)
- Compatible with all Clipsal devices and the Square D Powerlink NF3000G3C controller

**Table 5.21: Input Units**

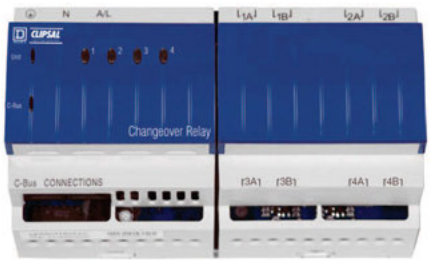
| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLCLE5504AUX | 4 Channel auxiliary input unit | **544.00** |
| SLCE5504TGI | 4 Channel general input unit | **1194.00** |
| SLC5102BCLEDL | 2 Channel bus coupler | **212.00** |
| SLC5104BCL | 4 Channel bus coupler | **243.00** |

## Relays

C-Bus Relay Units are intended for switching resistive, inductive, fluorescent and incandescent low-voltage loads. Relay units are designed to be mounted in suitable DIN style enclosures. Relay units feature:

- Local toggle buttons to allow individual channels to be toggled
- Remote ON and OFF facilities permitting all channels to be turned ON or OFF without C-Bus Network communications
- Two (2) Convenient built-in C-Bus network connectors (RJ-45)
- LED Indicators to show the status of the network and the unit
- Units available both with and without a 200ma power supply on-board.
- Compatible with all Clipsal devices and the Square D Powerlink™ NF3000G3C controller

## Changeover Relay




Changeover Relay

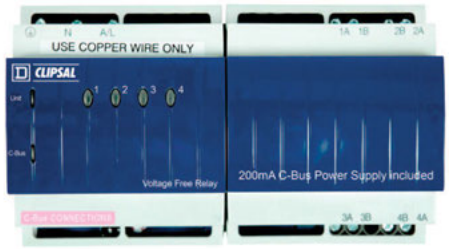
C-Bus 2A Changeover Relays are designed to operate three-speed motors and two-way motor control devices. Some of their most common applications include operating motorized blinds, shutters, curtains and skylights (open/closed) where they provide a much simpler alternative to traditional and obtrusive relay interlocking systems.

- Four (4) isolated independently operating relay channels
- 120 Vac and 277 Vac units
- 2A motor rating
- Dimensions: 5.67 in. (144mm) wide x 2.60 in. (66mm) deep x 3.35 in. (85mm) tall

**Table 5.22: Changeover Relays**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5504TRVFC | 4 Channel Changeover Relay, 125 V, with power supply | **1100.00** |
| SLC5504TRVFCP | 4 Channel Changeover Relay, 125 V, without power supply | **1010.00** |
| SLC5504HRVFC | 4 Channel Changeover Relay, 277 V, with power supply | **1100.00** |
| SLC5504HRVFCP | 4 Channel Changeover Relay, 277 V, without power supply | **1010.00** |

© 2012 Schneider Electric
All Rights Reserved




4-Channel 10 A Relay

## 10 Amp Relay

C-Bus 10A Relays feature a zero crossing magnetically latching relay designed for switching the harsh electrical loads associated with today's high efficiency lighting systems.

- Four (4) or twelve (12) independently operating voltage free relay contacts
- 120 Vac and 277 Vac units
- 10 A rating
- Dimensions: 5.67 in. (144 mm) wide x 2.60 in. (66 mm) deep x 3.35 in. (85 mm) tall

**Table 5.23: 10 Amp Relay**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5512TRVF | 12 Channel Relay, 120 V, 10 A with power supply | **2168.00** |
| SLC5512TRVFP | 12 Channel Relay, 120 V, 10 A without power supply | **1973.00** |
| SLC5504TRVF | 4 Channel Relay, 120 V,10 A with power supply | **1043.00** |
| SLC5504TRVFP | 4 Channel Relay, 120 V, 10 A without power supply | **843.00** |
| SLC5512HRVF | 12 Channel Relay, 277 V, 10 A with power supply | **2168.00** |
| SLC5512HRVFP | 12 Channel Relay, 277 V, 10 A without power supply | **1973.00** |
| SLC5504HRVF | 4 Channel Relay, 277 V,10 A with power supply | **1043.00** |
| SLC5504HRVFP | 4 Channel Relay, 277 V, 10 A without power supply | **843.00** |




4-Channel 20 A Relay

## 20 Amp Relay

C-Bus 20 A Relays feature a zero crossing magnetically latching relay designed for switching the harsh electrical loads associated with today's high efficiency lighting systems.

- Four (4) independently operating voltage free relay contacts
- 120 Vac and 277 Vac units
- 20 A rating
- Dimensions: 8.46 in. (215 mm) wide x 2.60 in. (66 mm) deep x 3.35 in. (85 mm) tall

**Table 5.24: 20 Amp Relay**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5504TRVF20 | 4 Channel Relay, 120 V, 20 A with power supply | **1320.00** |
| SLC5504TRVF20P | 4 Channel Relay, 120 V, 20 A without power supply | **1142.00** |
| SLC5504HRVF20 | 4 Channel Relay, 277 V, 20 A with power supply | **1320.00** |
| SLC5504HRVF20P | 4 Channel Relay, 277 V, 20 A without power supply | **1142.00** |




8-Channel Low Voltage Relay

## 8-Channel Low Voltage Relay

The C-Bus 8-Channel Low Voltage Relay is a C-Bus output device that controls up to eight low voltage relay channels. The unit is powered from C-Bus and requires no other power source. The 8-Channel Low Voltage Relay can be used in many low voltage applications including controlling irrigation solenoids and low voltage damper solenoids for HVAC control. The unit can also be used in integrating 3rd party equipment through pulse signal controls.

- 8 channels of 2 A switched loads @ 30 Vac/dc
- 8 channels are all isolated change over relays
- Control of 3rd party products

**Table 5.25: 8-Channel Low Voltage Relay**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5108RELVP | 8-Channel Low Voltage Relay | **298.00** |




Phase Angle Dimmer
with Power Supply

## Phase Angle Dimmers

C-Bus Phase Angle Dimmers are intended for controlling incandescent and compatible low-voltage and florescent lighting. Each of the unit's channels can independently control loads to create dynamic lighting scenes. These dimmer units automatically compensate for voltage and frequency fluctuations and employ advanced phase-control techniques to reduce flicker and increase lamp life.

- Four (4) independent channels supporting up to 4 A continuous load per channel, eight (8) independent channels supporting up to 2 A continuous load per channel
- Units available both with and without a 200 mA power supply on-board.
- 120 Vac
- Dimensions: 8.46 in. (215 mm) wide x 2.60 in. (66 mm) deep x 3.35 in. (85 mm) tall



© 2012 Schneider Electric
All Rights Reserved



Professional Dimmer

## Professional Dimmer

C-Bus Professional Dimmers can control incandescent and compatible low-voltage and florescent lighting. These dimmers are ideal for larger heavily loaded circuits. Each channel provides independent dimming and incorporates thermal overload and over-current protection. These dimmer units automatically compensate for voltage and frequency fluctuations and employ advanced phase-control techniques to reduce flicker and increase lamp life.

An optional terminal box is available for conduit connections. Configuration options include network monitoring of the channel load and network voltages, adjustable delays for dimming levels, and master override.

- Specialized dimming modes—soft turn on/off and linear brightness control
- Built-in power supply sources 60 mA to the C-Bus network
- Individual channels can be turned On/Off at the unit or via C-Bus commands
- LEDs indicate the status of the network at the unit and the status of the unit's load and power
- Optional terminal box for connecting conduit
- 120 Vac
- Dimensions: 7.5 in. (190 mm) wide x 3.0 in. (75 mm) deep x 7.7 in. (195 mm) tall

**Table 5.26: C-Bus Dimmers**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5504TD4A | 4 x 4 A dimmer, incan/mag,125 V, 4 A, with power supply | **1024.00** |
| SLC5504TD4AP | 4 x 4 A dimmer, incan/mag,125 V, 4 A, without power supply | **800.00** |
| SLC5508TD2A | 8 x 2 A dimmer, incan/mag,125 V, 2 A, with power supply | **1024.00** |
| SLC5508TD2AP | 8 x 2 A dimmer, incan/mag,125 V, 2 A, without power supply | **800.00** |
| SLC5104TD5 | 4 x 5 A dimmer, incan/mag,125 V, with power supply | **1926.00** |
| SLC5102TD10 | 2 x 10 A dimmer, incan/mag,125 V, with power supply | **1926.00** |
| SLC5101TD20 | 1 x 20 A dimmer, incan/mag,125 V, with power supply | **1926.00** |
| SLCU5100TB | Termination box for SLCLU510X Series dimmer units | **78.00** |



4 Channel
0–10 V Dimmer Unit

## 0–10 V Dimming Unit

The C-Bus Analog Output Unit provides four channels of analog 0–10 Vdc for controlling electronically dimmable fluorescent lighting ballasts.

- Produces four independently controllable channels of 0–10 Vdc for controlling dimmable flourescent lighting ballasts, or other 0–10 V controllable loads
- Individual channels can be turned ON/OFF at unit, via C-Bus commands, and through a remote override option
- 120 V or 277 Vac models available
- DIN style construction 4M wide: 3.4"(L) x 2.8"(W) x 2.6"(H)

**Table 5.27:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLCLE5504TAMP | 4 Channel 0–10 V Output, 120 V | **624.00** |
| SLCLE5504HAMP | 4 Channel 0–10 V Output, 277 V | **624.00** |



DALI Gateway

## DALI Gateway

The C-Bus Digital Addressable Lighting Interface (DALI) Gateway provides an isolated two-way communications path between a C-Bus network and two DALI networks, making it possible to use C-Bus devices to control DALI ballasts.

- Provides two-way communications between C-Bus and DALI networks, routing selected messages from one to the other
- Unit is transparent and invisible to DALI ballasts
- Receives data and power over the network, so the unit does not require power packs or line-voltage connections
- DIN style construction 4M wide: 3.4"(L) x 2.8"(W) x 2.6"(H)

**Table 5.28:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5502DAL | 2 Channel DALI Gateway | **1014.00** |

## DMX Gateway

The C-Bus DMX Gateway is a DIN rail mounted unit that maps C-Bus Group Addresses and levels to a DMX-512 A interface.

The C-Bus DMX Gateway is a one way device. It permits C-Bus input devices such as keypads, DLTs and PIRs to control lighting devices with DMX interface capabilities. These include many manufacturers of LED fixtures and theatrical lighting equipment.

- Includes DMX interface (bootlace connnectors to 5-pin female XLR)
- DMX Master device
- Receives data and power over the C-Bus network, so the unit does not require a line voltage connection
- DIN style construction 4M wide: 3.4" (L) x 2.8" (W) x 2.6" (H)

**Table 5.29:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5500DMX | C-Bus to DMX Gateway | **936.00** |



Network Bridge

## Network Bridge

The C-Bus Network Bridge provides a communication channel between C-Bus units on separate networks, expanding the total number of units that can be configured, controlled, and monitored.

- Increases transmission distances by acting as a repeater station for data transmission
- Expands the total number of C-Bus devices that can operate on the system by isolating devices to individual networks
- Indicates each network's status level
- Uses built-in connectors to connect to a C-Bus network
- Compatible with Powerlink G3 3000C controller and all C-Bus components, including keypads, sensors, and dimmers
- DIN style construction 4M wide: 3.4"(L) x 2.8"(W) x 2.6"(H)

© 2012 Schneider Electric
All Rights Reserved



Power Supply

## Power Supply

The C-Bus Power Supply is specifically designed to operate with the C-Bus network as a power source for passive C-Bus devices. Up to five power supplies can be connected to a single C-Bus network.

- Available in 120 and 277 Vac models
- Regulating power supply compensates for line voltage and frequency variations, so there is constant output
- Sources up to 350 mA to the C-Bus network
- UL listed to operate in parallel with other Clipsal power supplies, up to five on a single C-Bus network
- Incorporates short circuit and reverse polarity protection
- DIN style construction 4M wide: 3.4”(L) x 2.8”(W) x 2.6”(H)



PC Interface

## PC Interface

The C-Bus PC Interface (PCI) expands options for configuring, controlling, and monitoring C-Bus networks by providing an interface between the network and a personal computer (PC). The C-Bus PCI module easily mounts to a DIN rail and connects to the C-Bus network. Power to the unit is provided through the C-Bus network.

### Serial

- Unit/Comms LED shows the status of the unit’s power and of any data transmissions
- Three RS-232 serial connectors for connecting to a PC or to external devices: (1) 9-pin D-type serial connector (female) and (2) 8-pin RJ-45 connectors
- Two C-Bus network connector ports: RJ-45 sockets
- Data cable for connecting PCI and personal computer, including DB9 connectors

### USB

- Unit/Comms LED shows the status of the unit’s power and of any data transmissions
- Two C-Bus network connector ports: RJ-45 sockets
- USB PC connection
- Data cable for connecting PCI and personal computer

## Pascal Automation Controller

C-Bus Pascal Automation Controller (PAC) provides extended conditional and real-time event programming to C-Bus systems. The PAC supports a full range of programming commands including conditional logic, flow control variables and scheduling.

Systems integrators will appreciate the built-in scheduling tools, scene tools, and wizards for creating basic logic programs. Full programming capabilities can be achieved utilizing the free-form script editor based off the pascal programming language.

- Connects directly to C-Bus network
- Powered from the C-Bus network
- USB port for connection to personal computer
- (2) RS232 ports for third party device control
- Real time, astronomical and C-Bus system clock included with 24 hour internal capacitor backup and external 12 Vdc battery terminals

Programming capabilities including: i.e. Conditional logic (if, then, and, or, not, etc.), Flow Control (for, repeat, while), Variables (integer, real, Boolean, character, string), Control and monitoring of group addresses, Control and monitoring of scenes.



Ethernet Network Interface

## Ethernet Network Interface

The C-Bus Ethernet Network Interface unit is a C-Bus system device designed to provide an isolated communications path between an Ethernet 10Base-T Network and a C-Bus Network. This allows high-speed control and monitoring of a C-Bus installation via the TCP/IP protocols used in computer networks and by the Internet. System integrators and installers will also benefit from having remote access to the system. With the C-Bus Ethernet Network Interface unit, access to a single or multiple networks can be as close as the nearest Ethernet connection.

- Remote access to Clipsal systems
- Bridge multiple C-Bus networks together over LAN or WAN
- Fully supports all Clipsal commands
- Small size, mounts in standard DIN enclosure (4M wide)
- Includes 12 Vdc power supply


Telephone Interface Unit

## Telephone Interface Unit

C-Bus Telephone Interface Unit offers a dial-in and dial-out capability for control of a C-Bus system. Remote location override, monitoring, diagnostics and configuration of a C-Bus system is possible with this unit. The C-Bus Telephone Interface Unit is programmed using a connection to a PC running TICA (Telephone Interface Commissioning Application) configuration software. The interface can also act as a C-Bus PC Interface. The Telephone Interface Unit can be installed in a C-Bus 36 or 60M enclosure or as a wall mountable stand-alone item with connection to C-Bus.

- Remote location override
- Voice prompts and confirmation
- Password protected
- 32 supported devices
- Automatic dial out on present conditions
- Local or remote site access to C-Bus system
- Audio Out



© 2012 Schneider Electric
All Rights Reserved

## Bar Code Reader

The C-Bus Bar Code Reader allows installers and integrators to quickly scan C-Bus devices with serial numbers and import them into C-Bus Toolkit software. Using a USB connection to a PC, users can easily identify and track C-Bus Unit locations on a floorplan/network.

## Network Analyzer

The C-Bus Analyzer is a C-Bus device designed to help an installer quickly analyze, detect, and troubleshoot potential problems on a C-Bus network. The device analyzes the network parameters and prompts the user for appropriate actions via its front LED (Light Emitting Diode) indicators.

**Table 5.30: System Units**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLC5500NB | Network bridge | **663.00** |
| SLC5500TPS | 120 V Power supply, 350 mA | **500.00** |
| SLC5500HPS | 277 V Power supply, 350 mA | **500.00** |
| SLC5500PC | RS-232 PC Interface | **488.00** |
| SLC5500PCU | USB PC Interface | **488.00** |
| SLC5500PACA | Pascal Automation Controller | **586.00** |
| SLC5500CN | Ethernet Network Interface | **664.00** |
| SLC5100TUS | Telephone Interface Unit | **898.00** |
| **Accessories** | | |
| SLC5100BCS | Bar Code Reader | **604.00** |
| SLC5100NA | C-Bus Network Analyzer | **328.00** |


8M Enclosure

## 8M Enclosure

The 8M enclosure is specifically designed for distributed applications. Suitable for surface mounting, the 8M enclosure consists of a box with a cover and a DIN rail for mounting one 8M or two 4M C-Bus units. The enclosure also has provisions for mounting neutral and ground bars.

- Surface-mount NEMA 1 enclosure
- Welded sheet steel with knockouts
- Gray baked enamel, electrodeposited over cleaned, phosphatized steel
- Triple-lead cover screws for fast installation of cover
- DIN rail, suitable for mounting one 8M or two 4M C-Bus DIN modules



12M Enclosure

## 12M Enclosure

The 12M enclosure is specifically designed for distributed applications that require physical proximity between DIN units and keypads, sensors or controlled loads. Suitable for surface mounting, the 12M enclosure consists of a box with a cover and a DIN rail for mounting three 4M C-Bus units, one 8M unit plus one 4M unit or one 12M unit. The enclosure also has factory mounted neutral and ground bars.

- Surface-mount NEMA 1 enclosure
- Welded sheet steel with knockouts
- Gray baked enamel, electrodeposited over cleaned, phosphatized steel
- Triple-lead cover screws for fast installation of cover
- DIN rail, suitable for mounting one 12M or three 4M C-Bus DIN modules



24M Enclosure

## 24M Enclosure

The 24M enclosure is specifically designed for distributed applications that require physical proximity between DIN units and keypads, sensors or controlled loads. Suitable for surface mounting, the 24M enclosure consists of a box with a cover and two rows for mounting C-Bus DIN-mounted C-Bus units. Each row can hold one 12M unit, one 8M unit plus one 4M unit, or three 4M untis. The enclosure also has provisions for additional neutral and ground bars.

- Surface-mount NEMA 1 enclosure
- Welded sheet steel with knockouts
- Gray baked enamel, electrodeposited over cleaned, phosphatized steel
- Triple-lead cover screws for fast installation of cover
- DIN rail, suitable for mounting Clipsal DIN-mounted C-Bus units. Each row can hold one 12M unit, one 8M unit plus one 4M unit, or three 4M units


36M Enclosure

## 36M and 36MS Enclosure

The 36M and 36MS enclosures provide a multi-purpose means for housing various C-Bus DIN-mounted devices. Suitable for flush or surface mounting, the enclosure consists of a mounting pan assembly, and a cover assembly. The box is to be ordered separately, allowing for its installation with the rough-in of field wiring. Enclosures feature:

- NEMA 1 enclosure suitable for flush or surface mounting
- Welded sheet steel with knockouts
- Gray baked enamel paint, electrodeposited over cleaned, phosphatized steel
- Triple-lead cover screws for fast installation of cover
- 3 DIN mounting rails, each accommodating up to one 12M unit, one 8M unit with one 4M unit, or three 4M units
- Complete with barriers for separation of Class 2 circuits from line voltage (36M only)
- The 36MS offers a reduced footprint than the 36M

© 2012 Schneider Electric
All Rights Reserved

## 60M Enclosure

The 60M enclosure provides a means for housing DIN style relays and dimmers. Suitable for flush or surface mounting, the enclosure consists of a mounting pan assembly, and a cover assembly. The box is to be ordered separately, allowing for its installation with the rough-in of field wiring. Enclosures feature:

- NEMA 1 enclosure suitable for flush or surface mounting
- Welded sheet steel with knockouts
- Gray baked enamel paint, electrodeposited over cleaned, phosphatized steel
- Triple-lead cover screws for fast installation of cover
- 5 DIN mounting rails, each accommodating up to one 12M unit, one 8M unit with one 4M unit, or three 4M units
- Complete with barriers for separation of Class 2 circuits from line voltage

**Table 5.31: Enclosures and Accessories**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| **8M Enclosure** | | |
| SLC8M | C-Bus single row enclosure, surface mount | **110.00** |
| **12M Enclosure** | | |
| SLC12MSG | C-Bus single row enclosure, surface mount | **120.00** |
| **24M Enclosure** | | |
| SLC24MSG | C-Bus dual row enclosure, surface mount | **240.00** |
| **36MS Enclosure** | | |
| SLC36SC | C-Bus box for small three row interior | **120.00** |
| SLC36MSFG | C-Bus small three row interior with flush gray cover | **690.00** |
| SLC36MSFW | C-Bus small three row interior with flush white cover | **690.00** |
| SLC36MSSG | C-Bus small three row interior surface mount gray cover | **690.00** |
| **36M Enclosure** | | |
| SLC36C | C-Bus box for three and five row interiors | **136.00** |
| SLC36MFG | C-Bus three row interior with gray cover, flush mount | **740.00** |
| SLC36MFW | C-Bus three row interior with white cover, flush mount | **740.00** |
| SLC36MSG | C-Bus three row interior surface gray | **740.00** |
| **60M Enclosure** | | |
| SLC36C | C-Bus box for three and five row interiors | **136.00** |
| SLC60MFG | C-Bus five row interior with gray cover, flush mount | **1233.00** |
| SLC60MFW | C-Bus five row interior with white cover, flush mount | **1233.00** |
| SLC60MSG | C-Bus five row interior surface gray | **1233.00** |
| **Accessories** | | |
| PK7GTA | Ground/Neutral Bar | **7.80** |
| PKGTAB | Neutral Insulator Kit | **29.20** |
| SLC4CSF8 | Filler Plate, 4M | **18.00** |



Area Lighting Panel

## Area Lighting Panels

C-Bus Area lighting Panels are ideally suited to meet lighting control energy code requirements in classrooms, offices and other small spaces. Area Lighting Panels are designed to be used with C-Bus input units, including: keypads, sensors (occupancy and light level detection) and touch screens. A simple CAT-5 cable is all that is required for connecting of these devices.

C-Bus Area Lighting Panels provide on/off switching, stepped dimming or continuous dimming. All relays feature rugged 20 A rated contacts for switching electronic ballast loads. Models with continuous dimming capabilities are available with phase angle or 0–10 V control. C-Bus Area Lighting Panels can operate independently or as part of an entire facility wide lighting control system. Enclosures can easily be mounted in electrical closets or in ceiling spaces. They include all necessary connections and are UL® Listed. Area Lighting Panels can also be used in conjunction with Powerlink™ panels.

- Relay models: Four (4) or Eight (8) channel relay outputs, rated 20 A
- Phase Angle Dimmer Model: Four (4) channels of 4 A outputs for incandescent lighting loads.
- 0–10 V outputs available for control of compatible 0–10 V dimmable fluorescent ballasts, or LED drivers
- Integral neutral and ground bar terminal strips
- Meets NEC 300.22 requirements to be installed above ceilings and other spaces that handle environmental air
- Bypass mode to facilitate quick start up
- Meets NEC Article 409
- UL Listed 508 A

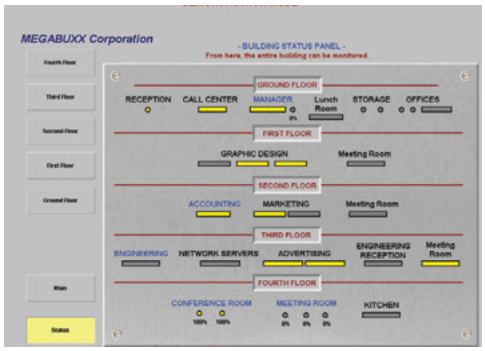
**Table 5.32: C-Bus Area Lighting Panels**

| Catalog No. | Description | $ Price |
|---|---|---|
| **4 Channel 20 A Relay Models** | | |
| SLCZ042000T | 4 Channel 20 A Relay @ 120 V with power supply▲ | **1769.00** |
| SLCZ042000H | 4 Channel 20 A Relay @ 277 V with power supply▲ | **1769.00** |
| SLCZ042000TP | 4 Channel 20 A Relay @ 120 V without power supply | **1675.00** |
| SLCZ042000HP | 4 Channel 20 A Relay @ 277 V without power supply | **1675.00** |
| **8 Channel 20 A Relay Models** | | |
| SLCZ082000T | 8 Channel 20 A Relay @ 120 V with power supply▲ | **2646.00** |
| SLCZ082000H | 8 Channel 20 A Relay @ 277 V with power supply▲ | **2646.00** |
| SLCZ082000TP | 8 Channel 20 A Relay @ 120 V without power supply | **2462.00** |
| SLCZ082000HP | 8 Channel 20 A Relay @ 277 V without power supply | **2462.00** |
| **4 Channel 20 A Relay Models with 0-10 V Output Units** | | |
| SLCZ04204AT | 4 Channel 20 A Relay @ 120 V with power supply and 4 Channel 0–10 V Output Unit▲ | **2492.00** |
| SLCZ04204AH | 4 Channel 20 A Relay @ 277 V with power supply and 4 Channel 0–10 V Output Unit▲ | **2492.00** |
| SLCZ04204ATP | 4 Channel 20 A Relay @ 120 V without power supply and 4 Channel 0–10 V Output Unit | **2308.00** |
| SLCZ04204AHP | 4 Channel 20 A Relay @ 277 V without power supply and 4 Channel 0–10 V Output Unit | **2308.00** |
| **4 Channel 20 A Phase Angle Dimmer Models** | | |
| SLCZ00004DT | 4 Channel 20 A Phase Angle Dimmer @ 120 V with C-Bus power supply▲ | **1144.00** |
| SLCZ00004DTP | 4 Channel 20 A Phase Angle Dimmer @ 120 V without C-Bus power supply | **920.00** |
| **4 Channel 20 A Relay Models with Phase Angle Dimmer Units** | | |
| SLCZ04204DT | 4 Channel 20 A Relay @ 120 V with C-Bus power supply and 4 Ch. Phase Angle Dimmer Unit▲ | **2630.00** |
| SLCZ04204DTP | 4 Channel 20 A Relay @ 120 V without C-Bus power supply and 4 Ch. Phase Angle Dimmer Unit | **2182.00** |

▲ For stand-alone applications order unit with power supply.



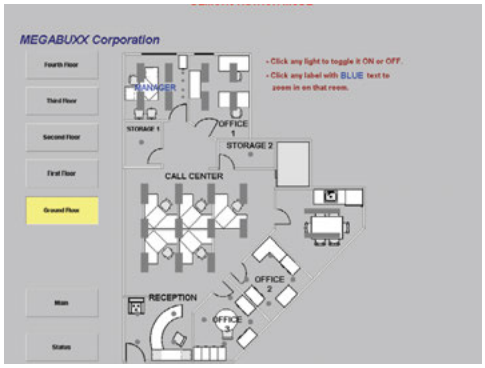
© 2012 Schneider Electric
All Rights Reserved




## C-Bus Toolkit Software

The C-Bus Toolkit Software includes the C-Bus Installation and programming Software, Project Manager, and C-Bus Calculator. The software works under Windows™ 98, ME, 2000 and XP and supports a unique barcode scanning feature. This allows the installer to scan the C-Bus packaging of each new unit to add the unit to the database. The software prints adhesive labels that can be affixed to building plans. These labels include the Unit Address and the physical location that the unit is to be installed. Labels are duplicated so that one label can be affixed to the unit and one to the electrical plan for the installation. The labels have barcodes on them so that units can be easily re-identified if required.

***NOTE:*** *C-Bus Toolkit Software is a free download from http://www.schneider-electric.us/solutions/lighting-and-whole-home-control/*




Schedule Plus Software Screen Captures

## Schedule Plus Software V.4

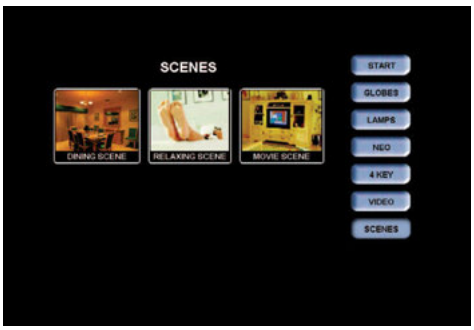
C-Bus Schedule Plus Version 4 includes a number of major features, including enhanced scheduling features, support for monitoring load run times, load power and energy consumed, support for fully customizable multilevel, password protected, access level control, support for sunrise and sunset times, support for daylight saving times, support for 128 bit encrypted secure Internet connectivity allowing control and monitoring via any Web Browser. The software also includes a graphic display as well as a fully featured programmable logic engine. The USB Code Key works under Windows XP Home, XP Professional, Server 2003, Vista Ultimate, Vista Business and Vista Enterprise.

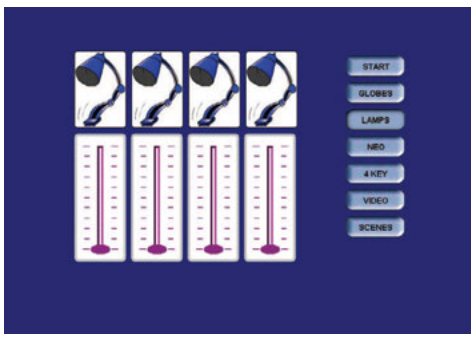
***NOTE:*** *An evaluation version of Schedule Plus is available for download by going to http://www.schneider-electric.us/solutions/lighting-and-whole-home-control/ and clicking Software Downloads in the far-left column.*

## HomeGate Software V.4

Residential application PC control of a C-Bus Control System. C-Bus HomeGate Version 4 includes a number of major features, including support for 128 bit encrypted secure Internet connectivity allowing control and monitoring via any Web Browser, irrigation system control feature, enhanced scheduling features, support for sunrise and sunset times, support for daylight saving times. The software also includes a fully featured programmable logic engine. The C-Bus USB Key works under Windows XP Home, XP Professional, Server 2003, Vista Ultimate, Vista Business and Vista Enterprise.

***NOTE:*** *An evaluation version of HomeGate is available for download by going to http://www.schneider-electric.us/solutions/lighting-and-whole-home-control/ and clicking Software Downloads in the far-left column.*




HomeGate Software Screen Captures

## Installer License Key

The C-Bus Software Installer License Key is a valuable tool for installers to create/commission projects using C-Bus Version 4 Schedule Plus & HomeGate software. This code key is time restricted and allows the software to operate in 'normal' mode for anywhere between 48 to 72 hours per use (the software then returns to evaluation/demo mode).

***NOTE:*** *The installer code key will also be compatible with future software releases.*

**Table 5.33:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| **Schedule PlusV. 4** | | |
| SLC5000SDSP24 | License Key for 2 Networks | **792.00** |
| SLC5000SDSP104 | License Key for 10 Networks | **1680.00** |
| SLC5000SDSPU4 | License Key for Unlimited Networks | **2665.00** |
| **HomeGate V. 4** | | |
| SLC5000SDHG24 | License Key for 2 Networks | **352.00** |
| SLC5000SDHG104 | License Key for 10 Networks | **680.00** |
| SLC5000SDSP24 | Installer key for Schedule Plus or Homegate (unlimited networks) | **389.00** |

© 2012 Schneider Electric
All Rights Reserved


Wall Switch Occupancy Sensor

## Basic Wall Switch Occupancy Sensors

Wall Switch Occupancy Sensors are ideally used in commercial buildings to save energy that would otherwise be wasted to light unoccupied rooms or spaces. These Wall Switch Occupancy Sensors employ the latest in passive infrared (PIR) sensing technology to accurately sense when a room or space is occupied, then turn lights on. When the room is unoccupied, the sensor turns lights off after a time delay of up to 30 minutes as determined by the user. Auto-ON and Manual-ON models available with decorator wall plate in White, Ivory or Light Almond. Simply mount the sensor in place of existing single gang switch — no neutral connection required. Special multi-segmented lens creates a coverage pattern that accurately detects major motion in rooms up to 1000 sq. ft.

- Input: 120/277 Vac 60 Hz
- Output: 1000W Max. Load @ 120 V (1000 VA@120 V 1800 VA@277 V)
- 1/4 HP Max. Motor Load
- UL and cUL Listed
- For use with electronic and magnetic ballasts
- CEC Title 24 Certified


Commercial Grade Wall Switch

## Commercial Grade Wall Switch Occupancy Sensors

Maximum energy savings in a format that will complement any decor. Low profile sensors are available in white, ivory, gray, light almond and black with color-matched segmented lens.

**Light Level Sensor Mode:** Each sensor includes an adjusatble light level sensor to hold off artificial lighting when adequate natural light is present.

**Walk-Through Mode:** To maximize energy savings, the sensor detects when areas are briefly occupied as a result of a person walking through and turns off lighting based on a shorter time delay. Walk-Through Mode is available on single and dual circuit units.

**Lamp Saver Mode:** When the lamp saver feature is enabled, the sensor automatically alternates which load responds to motion. The result is more predictable lamp life and reduced maintenance. (Dual circuit only)

**Adaptive Technology:** Commercial Grade dual technology and ultrasonic wall switch occupancy sensors feature a patented adaptive technology that significantly reduces the learning period typically associated with adaptive sensors. Adaptive Sensors from Schneider Electric reduce the occurrence of nuisance on and nuisance off while at the same time extending lamp life and reducing maintenance.

- Available in white, ivory, gray, light almond and black with matching cover plate (included)
- Color matching multi-segmented lens
- Audible alert
- Selectable auto-on and manual-on modes
- Red LED motion indicator
- For use with electronic and magnetic ballasts
- 1000 VA@120 V, 1800 VA@277 V
- User adjustable light level, time delay, and sensitivity
- 30 second grace period in the manual-on mode


Blank Cover Plate with decorator style opening


Toggle Cover Plate with decorator style opening

## Residential Wall Switch Vacancy Sensors

The Residential Vacancy Sensor directly replaces standard light switches in bathrooms, garages, laundry rooms and utility rooms in accordance with Title 24 2005 requirements for residential lighting (Sections 119(d) and 150 (k)). Vacancy Sensors from Schneider Electric operate just like a standard light switch, requiring a button press to turn lights on. Lights may be turned off with a button press or the sensor will turn off lighting automatically when the area is unoccupied.

- No user time delay and sensitivity adjustments necessary
- Available in White, Ivory or Light Almond
- Furnished with cover plate
- Manual On/Manual Off or Automatic Off operation
- No neutral or minimum load required
- Rated for both 120 V incandescent and fluorescent lighting
- Title 24 2005 Residential Lighting requirements, Sec. 150(k)
- No override on
- Manual-on only (no auto-on mode)
- 30 minute time delay

**Table 5.34:**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| **Basic Wall Switch Occupancy Sensors** | | |
| **Auto-ON/Auto-OFF** | | |
| SLSPWS1277AL | Light Almond Wall Switch Occupancy Sensor | 81.00 |
| SLSPWS1277AW | White Wall Switch Occupancy Sensor | 81.00 |
| SLSPWS1277AI | Ivory Wall Switch Occupancy Sensor | 81.00 |
| **Manual-ON/Auto-OFF** | | |
| SLSPWS1277ML | Light Almond Wall Switch Occupancy Sensor | 62.00 |
| SLSPWS1277MW | White Wall Switch Occupancy Sensor | 62.00 |
| SLSPWS1277MI | Ivory Wall Switch Occupancy Sensor | 62.00 |
| **Residential Vacancy Sensor** | | |
| SLSPWS120VL | Wall switch vacancy sensor, light almond | 42.00 |
| SLSPWS120VI | Wall switch vacancy sensor, ivory | 42.00 |
| SLSPWS120VW | Wall switch vacancy sensor, white | 42.00 |
| **Commercial Grade Wall Switch Occupancy Sensors** | | |
| **Single Circuit PIR** | | |
| SLSPWS1277UW | White | 90.00 |
| SLSPWS1277UI | Ivory | 90.00 |
| SLSPWS1277UG | Gray | 90.00 |
| SLSPWS1277UL | Light Almond | 90.00 |
| SLSPWS1277UB | Black | 90.00 |
| **Dual Circuit PIR** | | |
| SLSPWD1277UW | White | 117.00 |
| SLSPWD1277UI | Ivory | 117.00 |
| SLSPWD1277UG | Gray | 117.00 |
| SLSPWD1277UL | Light Almond | 117.00 |
| SLSPWD1277UB | Black | 117.00 |
| **Single Circuit Ultrasonic** | | |
| SLSUWS1277UW | White | 142.00 |
| SLSUWS1277UI | Ivory | 142.00 |
| SLSUWS1277UG | Gray | 142.00 |
| SLSUWS1277UL | Light Almond | 142.00 |
| SLSUWS1277UB | Black | 142.00 |
| **Dual Circuit Ultrasonic** | | |
| SLSUWD1277UW | White | 165.00 |
| SLSUWD1277UI | Ivory | 165.00 |
| SLSUWD1277UG | Gray | 165.00 |
| SLSUWD1277UL | Light Almond | 165.00 |
| SLSUWD1277UB | Black | 165.00 |
| **Single Circuit Dual Technology** | | |
| SLSDWS1277UW | White | 187.00 |
| SLSDWS1277UI | Ivory | 187.00 |
| SLSDWS1277UG | Gray | 187.00 |
| SLSDWS1277UL | Light Almond | 187.00 |
| SLSDWS1277UB | Black | 187.00 |
| **Dual Circuit Dual Technology** | | |
| SLSDWD1277UW | White | 210.00 |
| SLSDWD1277UI | Ivory | 210.00 |
| SLSDWD1277UG | Gray | 210.00 |
| SLSDWD1277UL | Light Almond | 210.00 |
| SLSDWD1277UB | Black | 210.00 |
| **Blank Cover Plates** | | |
| SLSWP2DBW | White | 7.50 |
| SLSWP2DBI | Ivory | 7.50 |
| SLSWP2DBG | Gray | 7.50 |
| SLSWP2DBL | Light Almond | 7.50 |
| SLSWP2DBB | Black | 7.50 |
| **Toggle Cover Plates** | | |
| SLSWP2DTW | White | 7.50 |
| SLSWP2DTI | Ivory | 7.50 |
| SLSWP2DTG | Gray | 7.50 |
| SLSWP2DTL | Light Almond | 7.50 |
| SLSWP2DTB | Black | 7.50 |
| **Buttonless Cover Plates** | | |
| SLSBCW | Buttonless Adjustment Access Covers, White | 15.00 |
| SLSBCI | Buttonless Adjustment Access Covers, Ivory | 15.00 |
| SLSBCG | Buttonless Adjustment Access Covers, Gray | 15.00 |
| SLSBCL | Buttonless Adjustment Access Covers, Light Almond | 15.00 |
| SLSBCB | Buttonless Adjustment Access Covers, Black | 15.00 |



© 2012 Schneider Electric
All Rights Reserved



Dual Technology Wall Mount

## Wall Mount Occupancy Sensors

Wall Mount Occupancy Sensors from Schneider Electric accurately detect occupancy and automatically switch lighting on and off as needed. These sensors are wall or ceiling mounted for superior motion detection. Sensors employ Passive Infrared (PIR) and Ultrasonic technology. Dual Technology model features combined PIR and Ultrasonic detection for the ultimate performance. The PIR Occupancy Sensor has 3 interchangeable lenses for custom coverage patterns. Wide Angle, Long Range and High Bay. Wall mount sensors also incorporate an integral light level sensor, and features an isolated relay for use with building automation, security and HVAC systems.

- Adjustable Sensitivity
- Adjustable time delay
- UL and cUL Listed
- CEC Title 24 Certified
- FCC Part 15, Class B
- ASHRAE/IES 90.1

**Table 5.35: Wall Mount Occupancy Sensors**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSWPS1500 | PIR occupancy sensor | 161.00 |
| SLSWUS1500 | Ultrasonic occupancy sensor | 191.00 |
| SLSWDS1500 | Dual Technology occupancy sensor | 221.00 |



Dual Technology Ceiling Mount

## Ceiling Mount Occupancy Sensors

Ceiling Mount Occupancy Sensors are ideal for offices, conference rooms, class rooms and other shared areas to automatically turn lights on and off based on occupancy. Sensors employ Passive Infrared (PIR) and Ultrasonic technology. Dual Technology model features combined PIR and Ultrasonic detection for the ultimate performance. Requires power pack. Set of normally closed and normally opened auxiliary contacts for use with building automation and security systems.

- Input: 24 Vdc
- Output: +24 Vdc
- Adjustable Sensitivity
- Low Profile Housing
- Adjustable Light Level Sensor
- UL and cUL Listed
- CEC Title 24 Certified
- FCC Part 15, Class B
- ASHRAE/IES 90.1

**Table 5.36: Ceiling Mount Occupancy Sensors**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSCPS1000 | PIR occupancy sensor | 134.00 |
| SLSCUS2000 | Ultrasonic occupancy sensor | 197.00 |
| SLSCDS2000 | Dual Technology occupancy sensor | 231.00 |
| SLSCUS800 | 180 Degree Ultrasonic sensor | 129.54 |
| SLSCDS800 | 180 Degree Dual Technology Sensor (PIR and Ultrasonic Sensors combined) | 141.76 |



Power Pack

## Power Pack

For use with wall and ceiling mount sensors to supply power to sensor and switch the load when the sensor detects occupancy. May supply power to multiple sensors and auxiliary relays up to 100 mA nominal load.

- Input: 120/277 Vac 50/60 Hz
- Output: 24 Vdc/100 mA Nom.
- Relay rating: 20 A Max. Ballast Load at 120 Vac (20 A Max. at 277 V)
- UL cUL Listed

In Canada:

- Input: 347 Vac60 Hz
- Output: 24 Vdc/150 mA Nominal
- Relay rating: 15 A Max. Ballast Load at 347 Vac (15 A Max. at 5200 watts)
- UL cUL Listed

## Auxiliary Relay

For use with wall and ceiling mount sensors to turn lights on when an area is occupied or off when it is not. Requires power pack to supply input power to operate relay.

- Input: 24 Vdc/36 mA Nom.
- Relay rating: 20 A Max. Ballast Load at 120 Vac (20 A Max. at 277 V)
- UL cUL Listed

In Canada:

- Input: 24 Vdc/2 mA Nominal
- Relay rating: 15 A Max. Ballast Load at 347 Vac

**Table 5.37: Power Pack and Auxiliary Relay**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSPP1277 | 120–277 Vac Power Pack | 46.50 |
| SLSSP24 | 120–277 Vac Auxiliary Relay | 36.00 |
| SLSPP1347 | 347 Vac Power Pack | 47.50 |
| SLSSP24347 | 347 Vac Auxiliary Relay | 36.00 |

© 2012 Schneider Electric
All Rights Reserved



Indoor Occupancy Sensor

## Fixture Mounted Sensors and Controls

Schneider Electric extends its occupancy-sensing capability with a range of line voltage sensors based on passive infrared (PIR) technology. These sensors feature rugged housings that resist moisture and dust typical of manufacturing and shipping dock areas. Sensors incorporate universal power supply, relay and PIR element in a single housing ready for direct attachment to popular high-bay and low-bay luminaires.

Sensors are available either as stand alone sensor-per-fixture devices or equipped with connectors for low-cost plastic optical fiber cable. Plastic optical fiber connectivity between sensors allows implementation of control zones within aisles and work areas without back-pulling signaling wire in conduit. Each sensor acts as a network repeater, allowing 200 foot spacing between sensors. Plastic fiber can be cut and terminated without special tools or installer training.

- All sensors feature oversized Fresnel lenses and premium, low-noise pyroelectric elements for reliable PIR sensing at mounting heights up to 45 feet.
- Both area- and aisle-sensing Fresnel lenses ship with each sensor. Color-coded snap-out lenses can be swapped in the field.
- Switch packs open and close based on fiber optic commands from fiber sensors
- Universal power supply design adapts to 120–480 Vac, 50/60 Hz without jumpers or taps.
- Single-pole/close-on-motion relays sized for switching dry contact, magnetic HID or electronic ballast loads.
- Mounts directly to reflector with included pinch bracket or to ballast housing with ” NPT threaded pipe nipple.
- Built-in manual override test switch and diagnostic LED to assist in installation. Diagnostic LED can be seen at distance to assist in walk test.
- Fifteen minute power ON warm-up timer assures rated lamp life even if the fiber network is broken.
- User adjustable sensitivity and delay time settings (0–15 minutes)

**Table 5.38: Table Line Voltage Occupancy Sensors**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSPIP210 | Occupancy sensor, indoor PIR, no fiber connectivity | 141.00 |
| SLSPIP210CT | Occupancy sensor, indoor PIR, no fiber, cold temperature | 174.00 |
| SLSPIP210EB | Occupancy sensor, indoor PIR, no fiber, electronic ballast | 141.00 |
| SLSPIP210EBCT | Occupancy sensor, indoor PIR, no fiber, electronic ballast cold temperature | 174.00 |
| SLSPIP211 | Occupancy sensor, indoor PIR, one fiber input, one fiber output | 166.00 |
| SLSPIP212 | Occupancy sensor, indoor PIR, two fiber inputs | 166.00 |
| SLSPSP101 | Fiber optic switch pack, indoor, one fiber in, one fiber output | 141.00 |
| SLSPSP102 | Fiber optic switch pack, indoor, two fiber inputs | 141.00 |
| SLSPCW001 | Fixture-mounted counterweight for HID | 13.00 |
| SLSPIPBRACKET | Bracket for off-fixture mounting | 11.00 |

New!



Fluorescent High Bay Sensor

## Fluorescent High Bay Sensors

The SLSFPS1347 and SLSFPS1480 Occupancy Sensors are Class 1, fixture mounted, 360° high bay occupancy sensors. They are designed to operate directly with T5 and T8 fluorescent fixtures that use single or multiple electronic ballasts. Motion is detected using passive infrared technology (PIR). The operation voltage range for the SLSFPS1347 Sensor is 120–347 V. The SLSFPS1480 Sensor operates at 480 V.

### Features

- Includes a user-adjustable time dial to set the length of time the luminaires stay on from 15 seconds to 30 minutes.
- Includes a user-adjustable range dial to customize PIR sensitivity.
- Includes a user-adjustable time dial to set the length of time the luminaires stay on from 15 seconds to 30 minutes.
- Includes a user-adjustable range dial to customize PIR sensitivity.
- 90 degree rotating lens for a variety of aisle-way applications.
- High bay area, low bay area, and high bay aisle lenses provided.
- 18 minutes time-out preset for maximum energy to lamp life savings.

**Table 5.39: Specifications**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSFPS1347 | 120–347 Vac High bay Occupancy Sensor | 78.00 |
| SLSFPS1480 | 480 Vac High Bay Occupancy Sensor | 89.00 |

New!




UL 924 Emergency Control Device

## UL 924 Emergency Control Devices

Schneider Electric UL 924 Emergency Lighting Control Devices provide the ability to use and control standard fixtures for emergency and standard lighting. The use of UL 924 emergency lighting control device, under normal operating power the devices turn on and off emergency lighting along with standard lighting in an area. In the event of normal power loss the UL 924 emergency lighting control devices detect the power loss, and will automatically transfer emergency power to the fixtures. This provides emergency lighting through standard fixtures. Schneider Electric provides a wide selection of UL 924 emergency lighting control devices that work with occupancy and dimming based lighting control.

### Features

- Saves energy by controlling Emergency Lighting
- Multiple mounting methods
- Convenient test switch
- Works with occupancy or dimmer controls
- Visible Power LED
- Easy to install

**Table 5.40: Specificiations**

| Catalog No. | Catalog Description | $ Price |
|---|---|---|
| SLSEDC120 | UL 924 Emergency Lighting Dimmer Control 120 Vac | 700.00 |
| SLSEDC277 | UL 924 Emergency Lighting Dimmer Control 277 Vac | 700.00 |
| SLSEPMC120 | UL 924 Emergency Lighting Control Relay Panel Mount 120 Vac | 300.00 |
| SLSEPMC277 | UL 924 Emergency Lighting Control Relay Panel Mount 277 Vac | 300.00 |
| SLSERC1277 | UL 924 Emergency Lighting Control Relay 120/277 Vac | 300.00 |

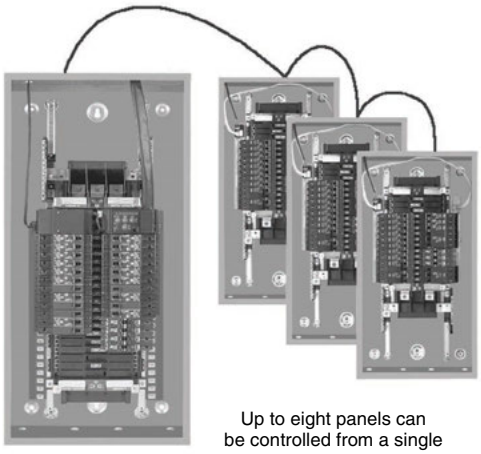


© 2012 Schneider Electric
All Rights Reserved





Powerlink available in column width design



Up to eight panels can be controlled from a single controller.

Powerlink G3 systems are ideally suited for controlling lighting and other loads in commercial, institutional, and industrial facilities. Such systems are typically used to lower utility cost by switching branch circuits OFF during non-occupied periods when lighting is unnecessary or during peak demand periods when a partial reduction in load can save significant money.

These systems utilize remotely operated circuit breakers to switch branch circuits ON and OFF via a time schedule or by an externally generated signal (typically a low voltage wall switch, photocell, access system, fire alarm or building management system). All Powerlink components mount inside a standard lighting panelboard to provide a compact, space saving installation.

Powerlink G3 systems feature a powerful microprocessor based controller that provides system intelligence for 168 remotely operated branch circuits. Master panelboards contain the control electronics, power supply, and control bus strips for up to 42 branch circuit breakers. Slave panels extend the capability of the system by allowing remotely operated branch circuit breakers to be operated from the master controller via a simple, 4-wire, sub-net connection.

All Powerlink G3 systems have the capability of being networked together and operated from a central workstation or via a remote modem connection. Powerlink software allows users to remotely configure the system, change time schedules, monitor circuit breaker or input status, and override zones and breakers.

## BACnet Capability

The Building Automation and Control network (BACnet) communication protocol is incorporated into the Powerlink™ G3 controller design. The addition of the BACnet protocol allows Powerlink panels to be easily integrated into a Building Automation System (BAS) employing this open communication standard without the need for communication bridges or gateways.

## Controller Models

The following Powerlink G3 controller models support 'native' BACnet communications:

- NF2000G3 — Ethernet communications, shared remote inputs, network time synchronization
- NF3000G3 — Email upon alarm, onboard web pages for status/control/configuration
- NF3000G3C — C-Bus communications (ability to interface with a Clipsal™ lighting control network)

## Factory Assembled System

The following factory engineered pricing procedure may be used to price either 240 V or 480Y/277 V Powerlink G3 systems:

- Select system type and interior size from Table 5.43 on 5-24. All Powerlink G3 panels are furnished with either 1 or 2 control bus strips.
- Select panelboard base price from Table 5.44. All Powerlink G3 panels use NF type panelboard interiors, boxes, and trims and are suitable for either 240 V or 480Y/277 V systems.
- Select branch circuit breaker requirements from Table 5.45. Powerlink G3 panels can accommodate both ECB-G3 remotely operated circuit breakers and EDB, EGB and EJB standard branch circuit breakers.
- Refer to panelboard section for additional panelboard accessories.
- For complete price, order by description.
- Apply appropriate discount schedule.

## 240 V Factory Assembled System Example:

500 level system with 225 A MLO panelboard rated for 208Y/120 V, 3Ø4W, 10kAIR, Type 1, surface mount with ground bar and (12) 20 A 1-pole bolt-on remote operated circuit breakers.

**Table 5.41:**

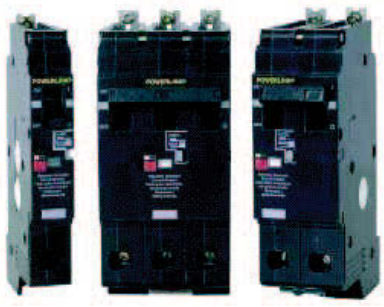
| Item | Page No. | $ Price |
|---|---|---|
| System Type: 500 controller with 12 ckt bus | 5-24 | **5074.00** |
| Panel type: 250 A MLO | 5-26 | **864.00** |
| Branch circuit breakers: (12) 20 A 1-pole | 5-26 | **2628.00** |
| Ground bar | 5-26 | **28.50** |
| **Total price** | | **8594.50** |

**Table 5.42:**

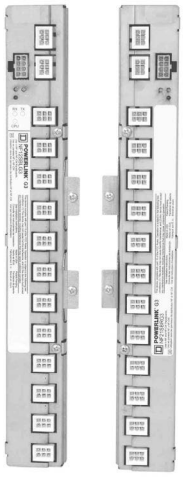
| Feature | System Level | | | |
|---|---|---|---|---|
| | 500 | 1000 | 2000 | 3000 |
| **Inputs** | | | | |
| 2 - wire | 8 | 16 | 16 | 16 |
| 2 - wire with status feedback | 8 | 8 | 8 | 8 |
| 3 - wire | 8 | 8 | 8 | 8 |
| **Time Scheduler** | | | | |
| 7 day, each configurable | — | 16 | 16 | 16 |
| Daily on/off periods | — | 24 | 24 | 24 |
| Holiday events | — | 32 | 32 | 32 |
| Automatic daylight savings | — | X | X | X |
| Sunrise/sunset tracking | — | X | X | X |
| **Networking** | | | | |
| Modbus™ ASCII/RTU | X | X | X | X |
| Modbus TCP | — | — | X | X |
| Johnson Controls N2 | — | X▲ | — | — |
| DMX | — | X | X | X |
| C-Bus | — | — | — | X■ |
| BACnet MSTP/IP | — | — | X | X |

▲ Specify N2 suffix
■ Specify C suffix

© 2012 Schneider Electric
All Rights Reserved



ECB-G3 Circuit Breaker



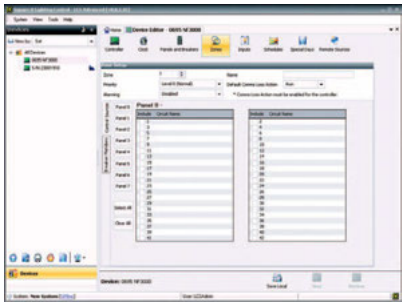
Control Bus



Power Supply



NF3000G3 Controller



Powerlink Software

### Table 5.43: ECB-G3 Circuit Breakers Bolt-On Remotely Operated

| Ampere Rating | One-Pole 27 7 Vac – 14,000 AIR 120 Vac – 65,000 AIR | | Two-Pole 480Y/277 Vac – 14,000 AIR 120/240 Vac – 65,000 AIR 240 Vac – 14,000 AIR Ground B Phase | | Three-Pole 480Y/277 Vac – 14,000 AIR 240 Vac – 42,000 AIR | |
|---|---|---|---|---|---|---|
| | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 15<br>20<br>30 | ECB14015G3♦<br>ECB14020G3♦<br>ECB14030G3 | **237.00** | ECB24015G3♦<br>ECB24020G3♦<br>ECB24030G3 | **558.00** | ECB34015G3♦<br>ECB34020G3♦<br>ECB32030G3★ | **890.00** |

### Table 5.44: ECB-G3 Circuit Breakers for Emergency Lighting (requires 2-pole spaces)

| Ampere Rating | One-Pole 480 Y/277 – 14,000 AIR 240 V – 65,000 AIR | |
|---|---|---|
| | Catalog No. | $ Price |
| 20 | ECB142020G3EL | **558.00** |

Note: All are listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers. UL listed as HID rated for use with high intensity discharge lighting systems. (1) #12–8 Al or (1) #10–8 Cu. Suitable for use with 75°C conductors.

♦ UL listed as SWD (switching duty) rated.
★ Rated for 240 Vac only – 42,000 AIR

### Table 5.45: Control Bus

| Max. No. of Control Circuits | Required Interior Size | Panel Orientation | Catalog No. | $ Price |
|---|---|---|---|---|
| 12<br>12 | 30<br>30 | Left<br>Right | NF12SBLG3<br>NF12SBRG3 | **851.00** |
| 18<br>18 | 42<br>42 | Left<br>Right | NF18SBLG3<br>NF18SBRG3 | **1065.00** |
| 21<br>21 | 54<br>54 | Left<br>Right | NF21SBLG3<br>NF21SBRG3 | **1163.00** |

### Table 5.46: Power Supply

| Voltage | Primary Source | Catalog No. | $ Price |
|---|---|---|---|
| 120 V<br>240 V<br>277 V | Panel Bus<br>Panel Bus<br>Panel Bus | NF120PSG3<br>NF240PSG3<br>NF277PSG3 | **791.00** |
| 120 V<br>240 V<br>277 V | External<br>External<br>External | NF120PSG3L<br>NF240PSG3L<br>NF277PSG3L | **899.00** |

### Table 5.47: Controller

| Description | Catalog No. | $ Price |
|---|---|---|
| 500 | NF500G3 | **1946.00** |
| 1000 | NF1000G3 | **3968.00** |
| 1000N2 (N2 protocol) | NF1000G3N2 | **8288.00** |
| 2000 | NF2000G3 | **7107.00** |
| 3000 | NF3000G3 | **9741.00** |
| 3000C (C-bus | NF3000G3C | **9741.00** |

### Table 5.48: Remote Source Controller (for additional inputs)—

Includes NEMA 1 enclosure, source controller and power supply

| Voltage | Catalog No. | $ Price |
|---|---|---|
| 120 V | RSC16G3120 | **3045.00** |
| 240 V | RSC16G3240 | **3045.00** |
| 277 V | RSC16G3277 | **3045.00** |

### Table 5.49: Cables & Accessories

| Description | Catalog No. | $ Price |
|---|---|---|
| **Control bus cables** | | |
| Harness standard panel | NF2HG3 | **89.00** |
| **Sub-net accessories & cables** | | |
| Slave address selector▼ | NFSELG3 | **173.00** |
| 6' sub-net cable | NFSN06 | **75.00** |
| 10' sub-net cable | NFSN10 | **105.00** |
| 25' sub-net cable | NFSN25 | **234.00** |
| 50' sub-net cable | NFSN50 | **405.00** |
| **Serial cables** | | |
| Controller front panel cable | NFFPCG3 | **102.00** |

▼ One slave address selector required for each slave panel.

### Table 5.50: Miscellaneous Hardware

| Description | Catalog No. | $ Price |
|---|---|---|
| Circuit Breaker Handle Padlock (Lock On or Off) | HPAFD△ | **25.50** |
| Fixed Barrier | NFASBKG3 | **177.00** |
| Remote Mounting Adapter | NFADAPTERG3 | **102.00** |

△ DE2 Discount

### Table 5.51: Software

| Description | Catalog No. | $ Price |
|---|---|---|
| LCSAdvanced Software | LCSADVANCED | **4000.00** |
| LCSBasic Software | LCSBasic | **1500.00** |
| Powerlink Controller Software□ | PCS101 | **1523.00** |

□ N2 supported controllers. All other controllers use LCSAdvanced or LCSBasic.



© 2012 Schneider Electric
All Rights Reserved



Remote Mount Controller



Device Power Supply



Powerlink Device Router

**Table 5.52: Remote Mount Controller (for externally mounted electronics Includes NEMA 1 enclosure, controller, and power supply**

| Voltage | Catalog No. | Controller Type | $ Price |
|---|---|---|---|
| 120 V | RMC500G3120 | NF500G3 | **4272.00** |
| 240 V | RMC500G3240 | NF500G3 | **4272.00** |
| 277 V | RMC500G3277 | NF500G3 | **4272.00** |
| 120 V | RMC1000N2G3120 | NF1000N2G3 | **10615.00** |
| 240 V | RMC1000N2G3240 | NF1000N2G3 | **10615.00** |
| 277 V | RMC1000N2G3277 | NF1000N2G3 | **10615.00** |
| 120 V | RMC1000G3120 | NF1000G3 | **6990.00** |
| 240 V | RMC1000G3240 | NF1000G3 | **6990.00** |
| 277 V | RMC1000G3277 | NF1000G3 | **6990.00** |
| 120 V | RMC2000G3120 | NF2000G3 | **9860.00** |
| 240 V | RMC2000G3240 | NF2000G3 | **9860.00** |
| 277 V | RMC2000G3277 | NF2000G3 | **9860.00** |
| 120 V | RMC3000G3120 | NF3000G3 | **12680.00** |
| 240 V | RMC3000G3240 | NF3000G3 | **12680.00** |
| 277 V | RMC3000G3277 | NF3000G3 | **12680.00** |
| 120 V | RMC3000G3C120 | NF3000G3C | **12680.00** |
| 240 V | RMC3000G3C240 | NF3000G3C | **12680.00** |
| 277 V | RMC3000G3C277 | NF3000G3C | **12680.00** |

## Device Power Supply

The Powerlink Device Power Supply is used to distribute power on a C-Bus™ network. Placed at critical points on the network, device power supplies will provide the current necessary for operating a variety of passive C-Bus devices. A Powerlink Device Power Supply consists of an 8M enclosure containing one or two 4M Power Supplies (120 or 277 Vac).

- Surface-mount NEMA 1 enclosure, with cover
- Unit and C-Bus LEDs indicate the status of the line voltage and the network
- Sources up to 700 mA (dual power supplies) to the C-Bus network
- 120 V or 277 Vac models available
- Dimensions: 8.9 in. (226mm) wide x 3.8 in. (97mm) deep x 12.57 (319mm) tall

## Device Router

The Powerlink Device Router allows the exchange of data between a Powerlink NF3000G3C controller and C-Bus devices. This device router receives data from C-Bus input devices such as keypads and touchscreens and sends data to the Powerlink system and isa versa. The device router consists of a C-Bus 8M enclosure containing a C-Bus PC Interface and a C-Bus Power Supply (120 Vac or 277 Vac). Communication between the device router and the NF3000G3C controller is made with the included 50-foot serial cable.

- Surface-mount NEMA 1 enclosure, with cover
- Unit, Unit/Comms, and C-Bus LEDs indicate the status of data transmission and power to the unit and the network
- System network clock for synchronizing communications data
- Network power source, supplying up to 350 mA
- 120 Vac or 277 Vac models available
- Dimensions: 8.9 in. (226mm) wide x 3.8 in. (97mm) deep x 12.57 in. (319mm) tall

**Table 5.53: Powerlink Device Routers▲**

| Description | Catalog No. | $ Price |
|---|---|---|
| 120 V Device Router | NFDR120G3C■ | **1632.00** |
| 277 V Device Router | NFDR277G3C■ | **1632.00** |

▲ Required for interface to Clipsal units.
■ DE-8 Discount.

**Table 5.54: Powerlink Device Power Supplies♦**

| Description | Catalog No. | $ Price |
|---|---|---|
| Single Supply 120 V | NFDP1120G3C★ | **900.00** |
| Dual Supply 120 V | NFDP2120G3C★ | **1650.00** |
| Single Supply 277 V | NFDP1277G3C★ | **900.00** |
| Dual Supply 277 V | NFDP2277G3C★ | **1650.00** |
| Filler Plate | SLC4CSF8 | **27.00** |

♦ Extends C-Bus power to Clipsal devices.
★ DE-8 Discount.

## Powerlink Network Accessories

**Table 5.55: Powerlink Network Accessories**

| Description | Catalog No. | $ Price |
|---|---|---|
| RS232/485 Converter | 6382RS485G3KIT | **526.50** |

**Table 5.56: Powerlink Remote Modem Support▼**

| Description | Catalog No. | $ Price |
|---|---|---|
| Modem Kit (for G3 Controllers) | 6382G3MODEM | **876.00** |

▼ Requires 2000 and 3000 controller and either Analog or Ethernet modem connection to each master panel.

© 2012 Schneider Electric
All Rights Reserved

# G3 NF Panelboards 240 V and 480 Y/277 V Factory Assembled Systems

## Maximum Voltage 480 Y/277 Vac

**Table 5.57: Powerlink G3 System Price**

| List System Type | 30 ckt Interior | | 42 ckt Interior | | 54 ckt Interior | |
|---|---|---|---|---|---|---|
| | 12 ckt bus | 24 ckt bus | 18 ckt bus | 36 ckt bus | 21 ckt bus | 42 ckt bus |
| Slave Panel | 1650.00 | 3450.00 | 2025.00 | 4200.00 | 2370.00 | 4890.00 |
| NF500G3 | 6753.00 | 8553.00 | 7128.00 | 9303.00 | 7473.00 | 10143.00 |
| NF1000G3★ | 10728.00 | 12528.00 | 11103.00 | 13278.00 | 11448.00 | 14118.00 |
| NF2000G3 | 17298.00 | 19098.00 | 17673.00 | 19848.00 | 18018.00 | 20688.00 |
| NF3000G3 | 21072.00 | 22872.00 | 21447.00 | 23622.00 | 21792.00 | 24462.00 |

***NOTE:*** *Powerlink EM option BCPM list price adder.*

**Table 5.58: Panelboard Base Price (including solid neutral)**

| Mains Rating | Main Lugs | | Main Circuit Breaker (Circuit Breaker Interrupting Rating—6-2 through 6-8)▲▼ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard IC | | | HIC | | | Extra HIC | | | I-Limiter™ | | |
| | 2-pole | 3-pole | Circuit Bkr. | 2-pole | 3-pole | Circuit Bkr. | 2-pole | 3-pole | Circuit Bkr. | 2-pole | 3-pole | Circuit Bkr. | 2-pole | 3-pole |
| 100 A | — | — | ED■ | 2454.00 | 2823.00 | EG■ | 3150.00 | 3624.00 | HJ | 4872.00 | 5397.00 | FI | 6375.00 | 7326.00 |
| 125 A | 1269.00 | 1458.00 | ED■ | 5058.00 | 5643.00 | EG■ | 6486.00 | 7464.00 | — | — | — | — | — | — |
| 150 A | — | — | HD | 4905.00 | 5430.00 | HG | 6072.00 | 6597.00 | HJ | 6105.00 | 6630.00 | — | — | — |
| 225 A | — | — | JD | 6180.00 | 6570.00 | JG | 7605.00 | 8100.00 | JJ | 9930.00 | 10995.00 | KI | 10899.00 | 12528.00 |
| 250 A | 1503.00 | 1728.00 | JD | 6750.00 | 7710.00 | JG | 8985.00 | 9270.00 | JJ | 10785.00 | 12675.00 | KI | 13731.00 | 15783.00 |
| 400 A | 1989.00 | 2286.00 | LA | 7995.00 | 9189.00 | LH | 11568.00 | 13296.00 | LC | 12759.00 | 14664.00 | LI | 14025.00 | 16119.00 |
| 600 A♦ | 3549.00 | 3933.00 | — | — | — | — | — | — | LC | 14331.00 | 16326.00 | LI | 20460.00 | 23517.00 |
| 800 A♦ | 5325.00 | 5850.00 | — | — | — | — | — | — | — | — | — | — | — | — |

▲ HL and JL frame circuit breakers are also available as main circuit breakers.
■ Backfed Main Circuit Breaker—54 circuit only.
♦ Copper Bus Only.
★ For N2 protocol, add **$3819.**
▼ Contact your nearest Square D/Schneider Electric sales office for MICROLOGIC™ trip main circuit breakers

**Table 5.59: Branch Circuit Breaker – Price Per Circuit Breaker**

| Powerlink G3—ECB Bolt-On 65 kA AIR@240 Vac, 14 kA AIR@480 Y/277 | | | | | Standard Breakers—EDB Bolt-On 18 kA AIR 1-pole, 25 kA AIR 2 & 3-pole @ 240 V, 18 kA AIR@480 Y/277 | | | | | Standard Breakers HIC—EGB Bolt-On 65 kA AIR@240 Vac, 35 kA AIR@480 Y/277 | | | | | Standard Breakers Extra HIC—EJB Bolt-On 100 kA AIR@240 Vac, 65 kA AIR@480 Y/277 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage | Ampere Rating | 1-pole | 2-pole | 3-pole | Voltage | Ampere Rating | 1-pole | 2-pole | 3-pole | Voltage | Ampere Rating | 1-pole | 2-pole | 3-pole | Voltage | Ampere Rating | 1-pole | 2-pole | 3-pole |
| 240 Vac | 15–20 | 438. | 1215. | 1929. | 480Y/277 Vac | 15–60 | 288. | 663. | 1122. | 480Y/277 Vac | 15–60 | 486. | 1119. | 1896. | 480Y/277 Vac | 15–60 | 777. | 1767. | 3036. |
| | 30 | 438. | 1215. | 1929. | | 70 | 513. | 1308. | 1569. | | 70 | 867. | 2211. | 2565. | | 70 | 1386. | 3540. | 4245. |
| 480Y/277 Vac | 15–20 | 438. | 1215. | 1929. | | 80–100 | — | 1308. | 1569. | | 80–100 | — | 2211. | 2655. | | 80–100 | — | 3540. | 4245. |
| | 30 | 438. | 1215. | — | | 110–125 | — | 3825. | 4845. | | 110–125 | — | 6171. | 7131. | | 110–125 | — | 7950. | 9450. |
| Space Only | | 63. | 126. | 189. | | Space Only | 63. | 126. | 189. | | Space Only | 63. | 126. | 189. | | Space Only | 63. | 126. | 189. |

Note: All EC, ED, EG and EJ branch circuit breakers are UL Listed as HACR type.

## Sub-Feed Circuit Breaker

- Available on 1Ø or 3Ø, 125–800 A main lugs or 125–600 A main circuit breaker interiors
- One sub-feed JD, JG, JJ or JL circuit breaker per 250 A panelboard
- Two sub-feed JD, JG, JJ or JL circuit breakers per 400 A panelboard△

△ LC and JJ may not be combined.

**Table 5.60: Sub-Feed Circuit Breaker (150–400 A)**

| No. of Poles | JD | JG | JJ□ | JL | LA | LH | LC□ | Space |
|---|---|---|---|---|---|---|---|---|
| 2 | 2265.00 | 3165.00 | 3844.50 | 4230.00 | 2985.00 | 4150.50 | 6475.50 | 619.50 |
| 3 | 2527.50 | 3825.00 | 4665.00 | 5296.50 | 3687.00 | 4882.50 | 7617.00 | 619.50 |

□ JJ and LC sub-feed circuit breakers cannot be used together.

**Table 5.61: Sub-Feed Breaker Cabinet Data**

| Max. No. of Branch Spaces (Does not include sub-feed breaker spaces) | Box Height (20" W x 5.75" D) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250 A | | 400 A LA/LH | | 600 A | | 800 A |
| | Main Lugs | Main Circuit Breaker | Main Lugs | Main Circuit Breaker | Main Lugs▽ | Main Circuit Breaker ☆ | Main Lugs◒ |
| 30 | 56 | 68 | 68 | 80 | 68 | 80◊ | 68 |
| 42 | 62 | 74 | 74 | 86 | 74 | 86◊ | 74 |
| 54 | 68 | 80 | 80 | 92 | 80 | 92◊ | 80 |

◊ Dimensions also for 400 A LC/LI main circuit breaker panels.
☆ 600 A main lug panelboards require an 8" deep, 26" wide box.
▽ 600 A main lug panelboards require an 8.75" deep box.
◒ 800 A main lug panelboards require an 8.75" deep, 26" wide box.

To obtain pricing for the following Special Features please refer to the Supplemental Digest.

- PowerLogic™ metering
- Customer equipment space
- Increased box depth
- Box extensions top, bottom and side
- Drip hoods
- Non-standard paint
- NEMA 1 gasketed
- NEMA 4 Stainless steel enclosure
- NEMA 4X Fiberglass enclosure (NQOD and NF)
- Stainless steel trim front (NQOD, NF and I-LINE)
- Padlockable hasp
- Special locks (Corbin, Yale, Best)
- Equal height boxes
- Common trip to cover two equal height boxes
- Panelboard skirthides conduits feeding a panelboard
- Panelboard wireway for terminating conduit in wireway endwall
- Panelboard interiors and special fronts to fit existing boxes



© 2012 Schneider Electric
All Rights Reserved



Powerlink Energy Management (EM) Lighting Control System

The Powerlink Energy Management (EM) Lighting Control System incorporates the same features found in the Powerlink G3 3000 level system, in addition to integral branch circuit and optional main metering for energy monitoring and verification of the lighting system. Integral metering is accomplished using the PowerLogic™ Branch Circuit Power Meter (BCPM), which is a highly accurate, full-featured multi-branch circuit power meter that provides unrivalled low-current monitoring.

The Powerlink G3 system reduces electrical energy consumption associated with lighting and other loads by automatically switching loads off during non-occupied periods. The Powerlink G3 system is often ideal for reducing th epeak demand by switching unnecessary lights off in response to an automated response signal or when high time-of-day energy tariffs occur.

## Features

- Integral individual and optional mains metering to provide utmost flexibility in assurng a sustainable metering and verification program
- Monitors current, voltage, energy consumption, demand, and power factor for complete energy profiling
- Accumulated metering information transmitted via Modbus communications interface
- Data updates occurring within seconds to provide timely preventative maintenance information
- Optional EGX web interface for storing and reporting data via standard web browser (suggested for applications without Energy Management System [EMS] software)
- Alarm indication when parameters approach user-configured thresholds
- 16 hard-wired inputs available for connection to devices with physical dry-contacts
- 64 communication inputs available for network connection
- 16 independent time schedules, each can be configured into 24 distinct periods
- 7-day repeating clock with changeable automatic daylight savings time
- Automatic sunrise/sunset tracking with offsets
- 32 special event periods
- 32 remote sources for sharing input status, time schedules, or zone status between controllers
- Full custom logic capabilities, including full Boolean functions and synchronization services
- RS232 and RS485
- Serial communications using Modbus ASCII/RTU, BACnet MS/TP and DMX512 protocols (metering Modbus only)
- Ethernet 10BaseT communications using Modbus TCP and BACnet/IP protocols

**Table 5.62:**

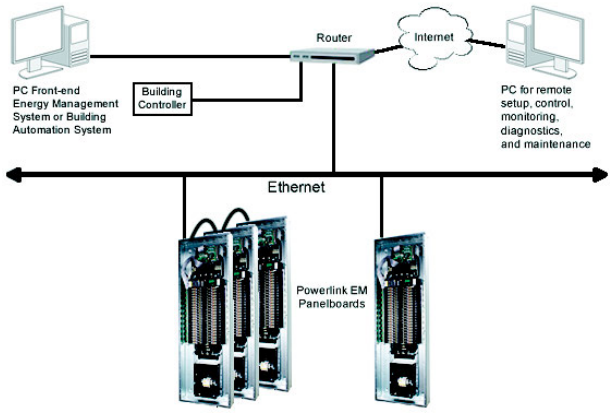
| **Characteristics** | |
|---|---|
| Operating Temperature | -5° to 40°C (23° to 104°F) (95%RH, non-condensing) |
| Storage Temperature | -20° to 85°C (-4° to 185°F) (<95%RH, non-condensing) |

**Regulatory/Standards Compliance**

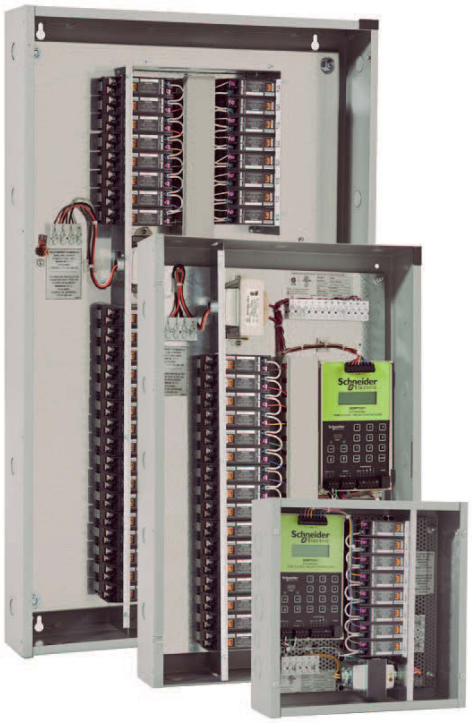
- UL Listed 916, Energy Management Equip
- FCC Part 15, Class A
- NEC Class 1 and Class 2 Control Circuits
- ESD Immunity: IEC 1000, level 4
- RF Susceptibility: IEC 1000, level 3
- Electrical Fast Transient Susceptibility: IEC 1000, level 3
- Electrical Surge Susceptibility: IEC 1000, level 4 (power line)
- Electrical Fast Transient Susceptibility: IEC 1000, level 3 (interconnection lines)

| **BCPM Specifications** | |
|---|---|
| **General** | |
| Control Power | 90–277 Vac |
| Frequency | 50/60 Hz |
| Sampling Frequency | 2560 Hz |
| Update Rate | 1.6 seconds per panelboard |
| Overload Capability | 10 kAIC |
| Ribbon Cable Support | Up to 20 ft. |
| Operating Temperature | 0° to 60°C (32°C to 122°F) (<95%RH, non-condensing) |
| Storage Temperature | -40° to 70°C (-40° to 158°F) |
| **Accurancy** | |
| Current Monitoring | 0.25 A to 100A: 3% of reading from 0.25 A to 2 A; 2% of reading from 2 A to 100 A |
| Auxiliary Inputs | 2% of reading from 1% to 10% of rated current; 1% of reading from 10% to 100% of rated current (0 to 0.333 Vac) |
| Voltage Input | 90–277 Vac; 1% of reading from 90–277 L-N (models BCPMA and BCPMB only) |
| Power | 4% of reading from 0.25 A to 2 A; 3% of reading 2 A to 100 A▲ (models BCPMA and BCPM only) |
| **Network Communications** | |
| Serial | Modbus™ RTU |
| Ethernet | TCP/IP |

▲ Recommended for application where EMS software monitoring is not provided.




© 2012 Schneider Electric
All Rights Reserved



Relay Panels Family

Schneider Electric LPS Lighting Control Relay Panels offer a practical design for meeting energy codes requirements in smaller commercial spaces. Panels are available pre-assembled with 8, 16, or 32 relays. They consist of relays, time scheduler, panel controller, power supply, and NEMA 1 cabinet and cover.

Schneider Electric LPS Lighting Control Relay Panels offer a practical design for meeting energy codes requirements in smaller commercial spaces. Panels are available pre-assembled with 8, 16, or 32 relays. They consist of relays, time scheduler, panel controller, power supply, and NEMA 1 cabinet and cover.

## LPS-Standalone Relay Panel

LPS reduces energy use by automatically shutting off lights in response to a scheduled time event from its built-in time controller or in response to an external control device, such as a keypad switch, occupancy sensor, or photocell. These panels are ideal for use in smaller commercial applications, such as small strip retail and office spaces, where a centralized building management system is not practical.

## Features

- Stand-alone lighting control system meets ASHRAE90.1 and CA Title 24
- Individual heavy duty, mechanically latching, 20A relays
- Built-in time controller supports 8 independent zones
- Time retained during power outages for up to 30 days; nonvolatile program memory
- Two universal switch inputs
- Individual relay overrides can directly control each relay
- Easy to program interface
- 2-wire relay used for monitoring and control
- Manual operation lever with ON/OFF indicator built-in for easy maintenance
- Screw terminals on load and control sides
- UL 916 listed
- Full 365-day, 7-day repeating clock with event priorities
- Multi-group relay assignment
- Inegral power supply (120 / 277 / 347 Vac)
- Standard sizes: (LPS) 8, 16, 32; (LPB/LPL) 8, 16, 32, 48, or 64

## LPB Additional Features

- Application controller with the BACnet protocol
- Heavy duty plug-in relays and electronic cards
- Movable protection plate between high and low voltage sections

## LPL Additional Features

- Application controller with the LonWorks protocol

**Available options include:**

- Multi-voltage separator (120/277/347 VAC)

**Software provides a graphic interface that is simple and intuitive, providing the following:**

- System configuration, programming, and operation: Scheduler and Data logger

## LPB-Bacnet Protocol

The Schneider Electric LPB Lighting Control Relay Panel with Native BACnet Protocol offers cost effective and code compliant lighting control. Panels are pre-packaged for ease of ordering and installation. Standard configurations are available with 8, 16, 32, 48, or 64 relays.

Relays come in a heavy duty, high intensity discharge (HID) version that carries up to 20A full load and are rated for over 120,000 mechanical operations. Heavy duty relays are recommended for high inrush loads or where higher short circuit current ratings are required.

LPBs are designed to operate on a BACnet network where control intelligence is provided through a BACnet building automation system. These panels are ideal for smaller commercial or retail spaces where a low cost way to achieve automatic shut-off is required. These simple to install and commission panels include full feature schedule control. Switch overrides and photocells are easily added for complete control.

## LPL-LonWorks Protocol

The Schneider Electric LPL Lighting Control Relay Panel with LonWorks® Protocol offers cost effective and code compliant lighting control. The LPL is pre-packaged for ease of ordering and installation. Standard configurations are available with 8, 16, 32, or 64 relays.

Whether from a stand-alone system, a soft-wired networked panels system, or a fully programmable network system, the LPL offers engineers and facilities managers all the flexibility they need to meet their lighting control requirements. LPL software scheduling and event programming capabilities easily support all common sequences encountered in lighting control.

The LPL was developed using open LonWorks technology from the Echelon® Corporation. By adopting LonTalk® communication protocols and incorporating Neuron® microprocessors, the LPL panel complies with LonMark(tm) Interoperability Guidelines and is ready to interoperate in highly functional, flexible, and open building systems.

The Schneider Electric Lighting Control Relay Switches provide manual ON/OFF operation of lighting in zones. The switches are equipped with a switch based device using reversible polarity pulse technology. The switches are fully compatible with Lighting Control Relay Panels by Schneider Electric.



© 2012 Schneider Electric
All Rights Reserved

## Key Switch (SERPKWS)

- Wall mountable to any standard wall box
- Key operated (ON—turn right; OFF—turn left)
- Operates up to 4 relays per switch
- 6 switches per relay
- 3 Amp, 24 Vdc, Reversible polarity Impulse

## Rocker Switch (SERPRWS)

- Wall mountable to any standard wall box (1-gang requires mounting bracket (SERPWSMB)
- LED ON/OFF indication
- Operates up to 8 relays per switch
- 6 LED switches per relay
- Optional filler plate (SERPWSFP)
- 3 Amp, 24 Vdc, Reversible polarity Impulse

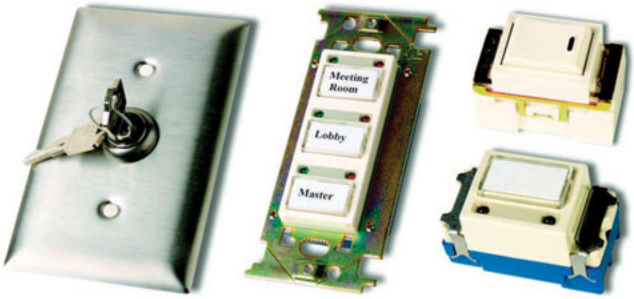
## Push Button Switch (SERPWS) (Individual switch)

- Wall mountable to any standard wall box (1-gang requires mounting bracket SERPWSMB; 3-gang comes ready to mount)
- Switch input from common terminal
- LED ON/OFF indication
- Clear plastic labeling cap
- Operates up to 4 relays per switch
- 6 LED switches per relay
- Optional filler plate (SERPWSFP) may be required
- 1.5 Amp, 24 Vdc, Reversible polarity Impulse

## Push Button Switch (SERPWS) (Assembled switch)

- Factory assembled
- Includes mounting bracket, switch(es), cover plate
- LED ON/OFF indication
- Clear plastic labeling cap
- Operates up to 4 relays per switch
- 6 LED switches per relay

***NOTE:*** *Refer to 1290HO1101 Relay Switches handout for cover plate dimension*




Relay Switches
SERPKWS, SERPWS, SERPRWS, SERPWS

**Table 5.63: Relay Panels, Switches and Plates**

| Cat. No. | Description | Price |
|---|---|---|
| SERP8NHS | SE SERIES RELAY PANEL 8 NON-HID RELAYS | 1556.13 |
| SERP16NHS | SE SERIES RELAY PANEL 16 NON-HID RELAYS | 3334.58 |
| SERP32NHS | SE SERIES RELAY PANEL 32 NON-HID RELAYS | 6545.67 |
| SERP8HS | SE SERIES RELAY PANEL 8 HID RELAYS | 2726.58 |
| SERP16HS | SE SERIES RELAY PANEL 16 HID RELAYS | 4829.59 |
| SERP32HS | SE SERIES RELAY PANEL 32 HID RELAYS | 8385.48 |
| SERPB8HS | SE SERIES BACnet RELAY PANEL 8 HID RELAYS | 4559.36 |
| SERPB16HS | SE SERIES BACnet RELAY PANEL 16 HID RELAYS | 5322.60 |
| SERPB32HS | SE SERIES BACnet RELAY PANEL 32 HID RELAYS | 9521.71 |
| SERPB48HS | SE SERIES BACnet RELAY PANEL 48 HID RELAYS | 13078.59 |
| SERPB64HS | SE SERIES BACnet RELAY PANEL 64 HID RELAYS | 16684.88 |
| SERPL8HS | SE SERIES LonWorks RELAY PANEL 8 HID RELAYS | 3555.23 |
| SERPL16HS | SE SERIES LonWorks RELAY PANEL 16 HID RELAYS | 4897.76 |
| SERPL32HS | SE SERIES LonWorks RELAY PANEL 32 HID RELAYS | 8785.62 |
| SERPL48HS | SE SERIES LonWorks RELAY PANEL 48 HID RELAYS | 11932.49 |
| SERPL64HS | SE SERIES LonWorks RELAY PANEL 64 HID RELAYS | 15800.60 |
| SERPFLC16 | SE SERIES FLUSH COVER FOR 16 RELAY PANELS | 239.00 |
| SERPFLC32 | SE SERIES FLUSH COVER FOR 32 RELAY PANELS | 325.00 |
| SERPFLC48 | SE SERIES FLUSH COVER FOR 48 AND 64 RELAY PANELS | 415.00 |
| SERPR1 | SE SERIES 1 POLE 20A HID RELAY 120–347 V | 255.95 |
| SERPR2 | SE SERIES 2 POLE 20A HID RELAY 208–480 V | 389.00 |
| SERPTC411 | SE SERIES RELAY PANEL TIME CLOCK CONTROLLER MODULE | 1037.42 |
| SERPRC401 | SE SERIES RELAY PANEL SEQUENCER MODULE | 1025.08 |
| SERPBC601 | SE SERIES RELAY PANEL BACnet Controller | 1051.16 |
| SERPTC811 | SE SERIES RELAY PANEL TIME CLOCK CONTROLLER LonWorks MODULE | 730.00 |
| SERPLIC | SE SERIES RELAY PANEL INPUT CONTROLLER LonWorks MODULE | 645.00 |
| SERPLOC | SE SERIES RELAY PANEL OUTPUT CONTROLLER LonWorks MODULE | 957.00 |
| SERPLUSB | SE SERIES FT—10 NETWORK INTERFACE USB | 950.00 |
| SERPLS | SE SERIES Lon SOFTWARE | 1050.00 |
| SERPPBWS | SE SERIES RELAY PANEL WALL SWITCH WITH BRACKET | 85.90 |
| SERPKWS | SE SERIES RELAY PANEL LOW VOLTAGE KEY OPERATED SWITCH | 85.57 |
| SERPRWS | SE SERIES RELAY PANEL LOW VOLTAGE ROCKER WALL SWITCH | 50.40 |
| SERPWSMB | SE SERIES RELAY PANEL WALL SWITCH MOUNTING BRACKET | 9.69 |
| SERPWS1G1B | SE SERIES RELAY PANEL WALL SWITCH 1 GANG 1 BUTTON | 95.57 |
| SERPWS1G2B | SE SERIES RELAY PANEL WALL SWITCH 1 GANG 2 BUTTON | 149.88 |
| SERPWS1G3B | SE SERIES RELAY PANEL WALL SWITCH 1 GANG 3 BUTTON | 194.29 |
| SERPWS2G4B | SE SERIES RELAY PANEL WALL SWITCH 2 GANG 4 BUTTON | 259.14 |
| SERPWS2G6B | SE SERIES RELAY PANEL WALL SWITCH 2 GANG 6 BUTTON | 367.97 |
| SERPWS3G9B | SE SERIES RELAY PANEL WALL SWITCH 3 GANG 9 BUTTON | 531.64 |
| SERPWS3G12B | SE SERIES RELAY PANEL WALL SWITCH 4 GANG 12 BUTTON | 695.31 |
| SERPWS5G15B | SE SERIES RELAY PANEL WALL SWITCH 5 GANG 15 BUTTON | 859.42 |
| SERPWS6G18B | SE SERIES RELAY PANEL WALL SWITCH 6 GANG 18 BUTTON | 1003.53 |
| SERPWSFP | SE SERIES RELAY PANEL WALL SWITCH FILER PLATE | 8.07 |
| SERPWP1G1B | SE SERIES RELAY PANEL WALL PLATE 1 GANG 1 BUTTON | 30.00 |
| SERPWP1G2B | SE SERIES RELAY PANEL WALL PLATE 1 GANG 2 BUTTON | 30.00 |
| SERPWP1G3B | SE SERIES RELAY PANEL WALL PLATE 1 GANG 3 BUTTON | 30.00 |
| SERPWP2G4B | SE SERIES RELAY PANEL WALL PLATE 2 GANG 4 BUTTON | 45.00 |
| SERPWP2G6B | SE SERIES RELAY PANEL WALL PLATE 2 GANG 6 BUTTON | 45.00 |
| SERPWP3G9B | SE SERIES RELAY PANEL WALL PLATE 3 GANG 9 BUTTON | 60.00 |
| SERPWP3G12B | SE SERIES RELAY PANEL WALL PLATE 4 GANG 12 BUTTON | 70.00 |
| SERPWP5G15B | SE SERIES RELAY PANEL WALL PLATE 5 GANG 15 BUTTON | 80.00 |
| SERPWP6G18B | SE SERIES RELAY PANEL WALL GANG 6 GANG 18 BUTTON | 90.00 |

© 2012 Schneider Electric
All Rights Reserved



Cassia System Components

The Cassia energy management system (EMS) from Schneider Electric is a revolutionary wireless in-room solution that can have a dramatic impact on all key aspects contributing to your bottom line, from delighting your guests and reducing your carbon footprint, to enjoying a rapid return on investment and helping to maximize energy savings.

## Thermostat

The Cassia thermostat controls heating and cooling equipment in guest rooms. Each thermostat uses two independent Zigbee radios for the local Room Area Network (RAN) within the room and the Hotel Area Network (HAN).

## Motion Sensor (PIR)

The Cassia wireless motion sensor uses a Passive Infrared (PIR) sensor to detect heat patterns in the room. Motion will be signaled to the thermostat if the heat pattern changes.

## Door Sensor

The Cassia wireless door sensor consists of a base and magnet. It sends a signal to the RAN indicating when the door is opened or closed.

## Lighting Control

The Cassia Lighting Control System, including switches (1000 W), dimmers (800 W), and plug modules (Leading Edge Dimmer and Relay types), uses ZigBee wireless technology that provides dimming and/or on/off functions.

Wall switches and dimmers are available in black, white, cream or light almond, with one and three button options.

## Plug Modules

Leading Edge Dimmer and Relay Plug Modules are designed to work as part of a Cassia EMS network installation and can be controlled by other devices on a Cassia EMS network. The modules may be placed into any standard 120 V wall outlet.

Plug modules are available in white.

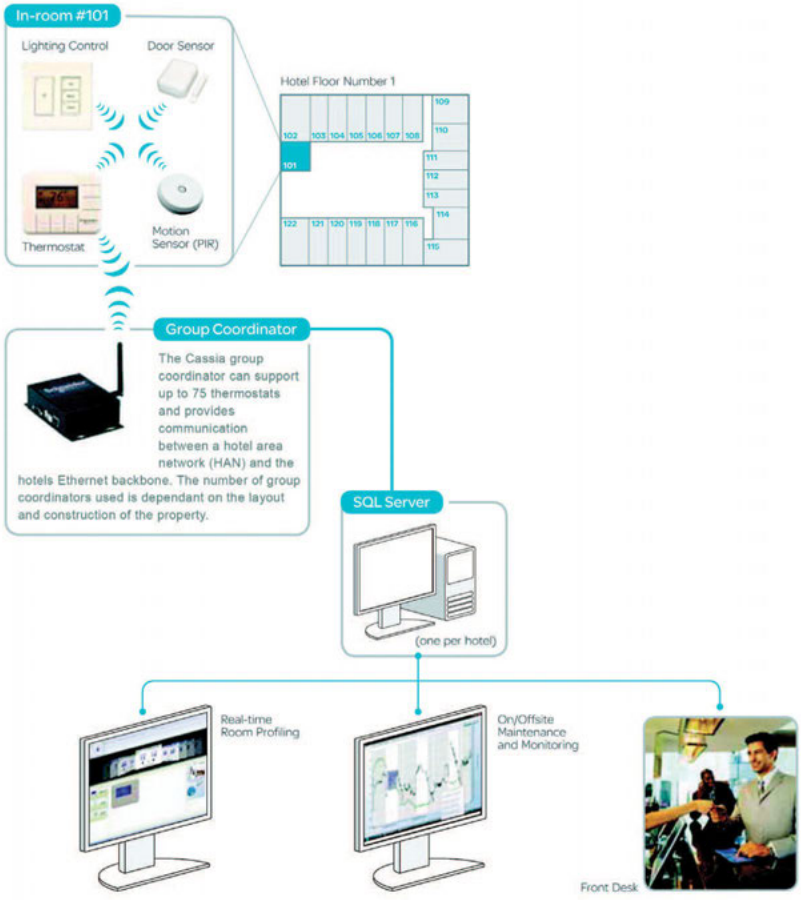
## Group Coordinator (GC)

The Cassia EMS Group Coordinator is a Zigbee® wireless gateway that can support up to 75 thermostats and provides communication between a Room Area Network (RAN) Hotel Area Network (HAN) as well as a Property Management System (PMS).

## Server

The EMS Server receives temperature, door events, motion events, and other data from the rooms. Data flows across the Ethernet network between the Thermostats, Group Coordinators and the EMS server.

**Contact your Schneider Electric representative for more information about the Cassia Energy Management System.**






© 2012 Schneider Electric
All Rights Reserved

# Section 6

## Surge Protective Devices

**Commercial Applications**



EMA/EBA SPDs,
pages 6-2, 6-3, & 6-4



Panelboards &
Switchboards, page 6-5



Retrofit,
page 6-5

**Residential & Light Commercial Applications**



Nipple Mounted SPDs,
pages 6-6, 6-7, and 6-8



Whole House SPDs,
page 6-8



QO/HOM SPDs,
page 6-8


### Externally Mounted Surge Protective Devices

External Modular SPDs—EMA SPDs **6-2**
External Modular L-L Enhanced SPDs **6-3**
External Brick Assembly SPDs—EBA SPDs **6-3**
Replacement Modules **6-4**

### Internally Mounted Surge Protective Devices—New Construction

Panelboards—Refer to **9-1**
Switchboards and Switchgear—Refer to **11-1**
Model 6 Motor Control Centers—Refer to **17-1**
IPaCS—Refer to **10-1**
Busway **12-1**

### Internally Mounted Surge Protective Devices—Retrofit

Internally Mounted SPD—Retrofit **6-5**
OEM/Assembler Kits **6-6**

### Nipple-Mounted Surge Protective Devices

New! SDSA3650 SPDs **6-6**
HWA SPDs **6-7**
New! SDSA1175 SPDs **6-7**
Mounting Brackets and Flush Mount Kits **6-7**
New! XR SPDs **6-8**

### Residential Surge Protective Devices

New! Whole House SPDs **6-8**
Whole House Accessories **6-8**
QO™, NQ, and Homeline™ Loadcenter SPDs **6-8**




SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

## Externally Mounted Surge Protective Devices

Surgelogic™ offers a full range of externally mounted SPDs. These units are designed to provide surge suppression from service entrance panels to point-of-use equipment.

US and Canadian UL® Listed to UL 1449 3rd Edition and UL 1283 5th Edition. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- EMI/RFI filtering
- Audible alarm with enable/disable switch, dry contacts, and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase
- UL 1449 Type 2 (or Type 1 with optional suffix in catalog number)

### External SPD Options:

- **Sine Wave Tracking Module**. Sine Wave Tracking (SWT) circuitry provides enhanced EMI/RFI filtering of -54 dB at 100 kHz and establishes the power surge clamping window relative to the sine wave voltage to increase performance at distribution and branch panel applications.
- **Type 1**. UL 1449 Type 1 SPDs can be located at any point in the electrical system, on the line or load side of the equipment overcurrent device.
- **Integral Switch**. The integral switch provides a mechanical means to electrically isolate the entire surge suppressor before opening the enclosure door to facilitate servicing of the unit's components.
- **Remote Monitor**. This option displays the alarm status of the surge protective device up to 1000 feet from the unit.
- **Flush Mount Kits**. Flush mounting kits can be used on 120–240 kA EMA and EBA series devices. Devices with integral switch require a 20 inch flush mounting collar.



## External Modular Assembly (EMA) SPDs

EMA SPD products feature a design based on individual phase modules for a flexible, cost effective way to achieve superior surge suppression at every level of the electrical distribution system. Modularity results in lower life cycle costs and fast, easy service or replacement.



External Modular SPD
with Integral Switch



External Modular SPD
with Sine Wave Tracking Module



External Modular
High-Resistance Ground SPD

**Table 6.1: EMA SPDs**

| | Service Voltage | Peak Surge Current Rating per Phase (kA) | NEMA 3R Cat. No. | $ Price | NEMA 4X Stainless Steel Cat. No. | $ Price |
|---|---|---|---|---|---|---|
| | 120/240 V, 1-phase, 3-wire + ground | 120 | TVS1EMA12A( ) | 4547.00 | TVS1EMA12S( ) | 5964.00 |
| | | 160 | TVS1EMA16A( ) | 4997.00 | TVS1EMA16S( ) | 6414.00 |
| | | 240 | TVS1EMA24A( ) | 7421.00 | TVS1EMA24S( ) | 8838.00 |
| | | 320 | TVS1EMA32A( ) | 9962.00 | TVS1EMA32S( ) | 11379.00 |
| | | 480 | TVS1EMA48A( ) | 14798.00 | TVS1EMA48S( ) | 16215.00 |
| | 208Y/120 V, 3-phase, 4-wire + ground ▲■ Wye | 120 | TVS2EMA12A( ) | 4760.00 | TVS2EMA12S( ) | 6177.00 |
| | | 160 | TVS2EMA16A( ) | 5231.00 | TVS2EMA16S( ) | 6648.00 |
| | | 240 | TVS2EMA24A( ) | 7782.00 | TVS2EMA24S( ) | 9200.00 |
| | | 320 | TVS2EMA32A( ) | 10431.00 | TVS2EMA32S( ) | 11849.00 |
| | | 480 | TVS2EMA48A( ) | 15522.00 | TVS2EMA48S( ) | 16940.00 |
| | 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120 | TVS3EMA12A( ) | 4760.00 | TVS3EMA12S( ) | 6177.00 |
| | | 160 | TVS3EMA16A( ) | 5231.00 | TVS3EMA16S( ) | 6648.00 |
| | | 240 | TVS3EMA24A( ) | 7782.00 | TVS3EMA24S( ) | 9200.00 |
| | | 320 | TVS3EMA32A( ) | 10431.00 | — | — |
| | | 480 | TVS3EMA48A( ) | 15522.00 | — | — |
| New! | 240 V, 3-phase, 3-wire + ground Delta | 120 | TVS6EMA12A( ) | 4760.00 | TVS6EMA12S( ) | 6177.00 |
| | | 160 | TVS6EMA16A( ) | 5231.00 | TVS6EMA16S( ) | 6648.00 |
| | | 240 | TVS6EMA24A( ) | 7782.00 | TVS6EMA24S( ) | 9200.00 |
| | | 320 | TVS6EMA32A( ) | 10431.00 | TVS6EMA32S( ) | 11849.00 |
| | | 480 | TVS6EMA48A( ) | 15522.00 | TVS6EMA48S( ) | 16940.00 |
| | 480Y/277 V, 3-phase, 4-wire + ground ■♦ Wye | 120 | TVS4EMA12A( ) | 4973.00 | TVS4EMA12S( ) | 6390.00 |
| | | 160 | TVS4EMA16A( ) | 5468.00 | TVS4EMA16S( ) | 6885.00 |
| | | 240 | TVS4EMA24A( ) | 8147.00 | TVS4EMA24S( ) | 9564.00 |
| | | 320 | TVS4EMA32A( ) | 10904.00 | TVS4EMA32S( ) | 12321.00 |
| | | 480 | TVS4EMA48A( ) | 16250.00 | TVS4EMA48S( ) | 17667.00 |
| New! | 480Y/277 V, 3-phase, 3-wire + ground High-Resistance Ground | 120 | TVS4HEMA12A( ) | 4973.00 | TVS4HEMA12S( ) | 6390.00 |
| | | 160 | TVS4HEMA16A( ) | 5468.00 | TVS4HEMA16S( ) | 6885.00 |
| | | 240 | TVS4HEMA24A( ) | 8147.00 | TVS4HEMA24S( ) | 9564.00 |
| | | 320 | TVS4HEMA32A( ) | 10904.00 | TVS4HEMA32S( ) | 12321.00 |
| | | 480 | TVS4HEMA48A( ) | 16250.00 | TVS4HEMA48S( ) | 17667.00 |
| New! | 480 V, 3-phase, 3-wire + ground, Delta | 120 | TVS5EMA12A( ) | 4973.00 | TVS5EMA12S( ) | 6390.00 |
| | | 160 | TVS5EMA16A( ) | 5468.00 | TVS5EMA16S( ) | 6885.00 |
| | | 240 | TVS5EMA24A( ) | 8147.00 | TVS5EMA24S( ) | 9564.00 |
| | | 320 | TVS5EMA32A( ) | 10904.00 | TVS5EMA32S( ) | 12321.00 |
| | | 480 | TVS5EMA48A( ) | 16250.00 | TVS5EMA48S( ) | 17667.00 |
| | 600Y/347 V, 3-phase, 4-wire + ground ■ Wye | 120 | TVS8EMA12A( ) | 5220.00 | TVS8EMA12S( ) | 6638.00 |
| | | 160 | TVS8EMA16A( ) | 5714.00 | TVS8EMA16S( ) | 7131.00 |
| | | 240 | TVS8EMA24A( ) | 8528.00 | TVS8EMA24S( ) | 9945.00 |
| | | 320 | TVS8EMA32A( ) | 11399.00 | TVS8EMA32S( ) | 12816.00 |
| | | 480 | TVS8EMA48A( ) | 17012.00 | TVS8EMA48S( ) | 18429.00 |
| New! | 600Y/347 V, 3-phase, 3-wire + ground High-Resistance Ground | 120 | TVS8HEMA12A( ) | 5220.00 | TVS8HEMA12S( ) | 6638.00 |
| | | 160 | TVS8HEMA16A( ) | 5714.00 | TVS8HEMA16S( ) | 7131.00 |
| | | 180 | TVS8HEMA18A( ) | 8528.00 | TVS8HEMA18S( ) | 9945.00 |
| | | 240 | TVS8HEMA24A( ) | 11399.00 | TVS8HEMA24S( ) | 12816.00 |
| | | 320 | TVS8HEMA32A( ) | 17012.00 | TVS8HEMA32S( ) | 18429.00 |
| New! | 600 V, 3-phase, 3-wire + ground, Delta | 120 | TVS9EMA12A( ) | 5220.00 | TVS9EMA12S( ) | 6638.00 |
| | | 160 | TVS9EMA16A( ) | 5714.00 | TVS9EMA16S( ) | 7131.00 |
| | | 180 | TVS9EMA18A( ) | 8528.00 | TVS9EMA18S( ) | 9945.00 |
| | | 240 | TVS9EMA24A( ) | 11399.00 | TVS9EMA24S( ) | 12816.00 |
| | | 320 | TVS9EMA32A( ) | 17012.00 | TVS9EMA32S( ) | 18429.00 |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ Can be used on 4-wire or 3-wire grounded neutral system.
♦ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

| New! | External Modular Options ( ) | $ Price |
|---|---|---|
| | (1) UL 1449 Type 1 | 0.00 |
| | (I) ★ Integral Switch | 738.00 |
| | (SWT) Sine Wave Tracking Module (not applicable for Delta or HRG) | 750.00 |
| | (I1) ★ UL 1449 Type 1 and Integral Switch | 738.00 |
| | (SWT1) UL 1449 Type 1 and Sine Wave Tracking Module (not applicable for Delta or HRG) | 750.00 |
| | (ISWT) ★ Integral Switch and Sine Wave Tracking Module (not applicable for Delta or HRG) | 1488.00 |
| | (ISWT1) ★ UL 1449 Type 1, Integral Switch and Sine Wave Tracking Module (not applicable for Delta or HRG) | 1488.00 |

| Accessory Description | Cat. No. | $ Price |
|---|---|---|
| Remote Monitor | TVS12RMU | 788.00 |
| 12-inch Flush Mount Kit | TVS12FMK | 945.00 |
| 20-inch Flush Mount Kit | TVS20FMK | 1103.00 |

★ Not available in stainless steel for 320 and 480 kA



© 2012 Schneider Electric
All Rights Reserved



External Modular L-L Enhanced SPD with Sine Wave Tracking Module

## External Modular L-L Enhanced SPDs

External modular Line-to-Line (L-L) Enhanced SPDs are parallel systems that provide 10 modes of protection and enhanced, discrete L-L suppression paths.

**Table 6.2: L-L Enhanced SPDs**

| Service Voltage | Peak Surge Current Rating per Phase (kA) | NEMA 3R Cat. No. | $ Price | NEMA 4X Stainless Steel Cat. No. | $ Price |
|---|---|---|---|---|---|
| 208Y/120 V, 3-phase, 4-wire + ground ▼ Wye | 120 | TVS2MEMA12A( ) | **8810.00** | TVS2MEMA12S( ) | **10010.00** |
| | 180 | TVS2MEMA18A( ) | **10790.00** | TVS2MEMA18S( ) | **12657.00** |
| | 270 | TVS2MEMA27A( ) | **13760.00** | TVS2MEMA27S( ) | **15627.00** |
| | 360 | TVS2MEMA36A( ) | **16730.00** | TVS2MEMA36S( ) | **18597.00** |
| 480Y/277 V, 3-phase, 4-wire + ground △ Wye | 120 | TVS4MEMA12A( ) | **9023.00** | TVS4MEMA12S( ) | **10890.00** |
| | 180 | TVS4MEMA18A( ) | **11003.00** | TVS4MEMA18S( ) | **12870.00** |
| | 270 | TVS4MEMA27A( ) | **13973.000** | TVS4MEMA27S( ) | **15840.00** |
| | 360 | TVS4MEMA36A( ) | **16943.00** | TVS4MEMA36S( ) | **18810.00** |

▼ 208Y/120 series also applies to the following voltage 220Y/127.
△ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

*New!*

| External Modular L-L Enhanced Options ( ) | $ Price |
|---|---|
| (1) UL 1449 Type 1 | **0.00** |
| (SWT) Sine Wave Tracking Module | **750.00** |
| (SWT1) UL 1449 Type 1 and Sine Wave Tracking Module | **750.00** |

| Accessory Description | Cat. No. | $ Price |
|---|---|---|
| Remote Monitor | TVS12RMU | **788.00** |
| 20-inch Flush Mount Kit | TVS20FMK | **1103.00** |



External Brick Assembly SPD with Integral Switch

## External Brick Assembly SPDs

External Brick Assembly (EBA) SPD products consist of a consolidation of phase modules into one solid brick casting and offered at a competitive price for those who want superior surge suppression on a limited budget.

**Table 6.3: EBA SPDs**

| Service Voltage | Peak Surge Current Rating per Phase (kA) | NEMA 3R Cat. No. | $ Price | NEMA 4X Stainless Steel Cat. No. | $ Price |
|---|---|---|---|---|---|
| 120/240 V,1-phase, 3-wire + ground Wye | 120 | TVS1EBA12A( ) | **3467.00** | TVS1EBA12S( ) | **4884.00** |
| | 160 | TVS1EBA16A( ) | **4208.00** | TVS1EBA16S( ) | **5625.00** |
| | 240 | TVS1EBA24A( ) | **6290.00** | TVS1EBA24S( ) | **7707.00** |
| 208Y/120 V, 3-phase, 4-wire + ground ▲■ Wye | 120 | TVS2EBA12A( ) | **3588.00** | TVS2EBA12S( ) | **5006.00** |
| | 160 | TVS2EBA16A( ) | **4388.00** | TVS2EBA16S( ) | **5805.00** |
| | 240 | TVS2EBA24A( ) | **6525.00** | TVS2EBA24S( ) | **7943.00** |
| 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120 | TVS3EBA12A( ) | **3588.00** | TVS3EBA12S( ) | **5006.00** |
| | 160 | TVS3EBA16A( ) | **4388.00** | TVS3EBA16S( ) | **5805.00** |
| | 240 | TVS3EBA24A( ) | **6525.00** | TVS3EBA24S( ) | **7943.00** |
| 480Y/277 V, 3-phase, 4-wire + ground ■♦ Wye | 120 | TVS4EBA12A( ) | **3743.00** | TVS4EBA12S( ) | **5160.00** |
| | 160 | TVS4EBA16A( ) | **4581.00** | TVS4EBA16S( ) | **5999.00** |
| | 240 | TVS4EBA24A( ) | **6827.00** | TVS4EBA24S( ) | **8244.00** |
| 600Y/347 V, 3-phase, 4-wire + ground ■ Wye | 120 | TVS8EBA12A( ) | **3905.00** | TVS8EBA12S( ) | **5322.00** |
| | 160 | TVS8EBA16A( ) | **4787.00** | TVS8EBA16S( ) | **6204.00** |
| | 240 | TVS8EBA24A( ) | **7143.00** | TVS8EBA24S( ) | **8561.00** |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ Can be used on 4-wire or 3-wire grounded neutral system.
♦ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

*New!*

| External Brick Assembly Options ( ) | $ Price |
|---|---|
| (1) UL 1449 Type 1 | **0.00** |
| (I) Integral Switch | **738.00** |
| (SWT) Sine Wave Tracking Module (not applicable for Delta) | **750.00** |
| (I1) UL 1449 Type 1 and Integral Switch | **738.00** |
| (SWT1) UL 1449 Type 1 and Sine Wave Tracking Module (not applicable for Delta) | **750.00** |
| (ISWT) Integral Switch and Sine Wave Tracking Module (not applicable for Delta) | **1,488.00** |
| (ISWT1) UL 1449 Type 1, Integral Switch and Sine Wave Tracking Module (not applicable for Delta) | **1,488.00** |

| Accessory Description | Cat. No. | $ Price |
|---|---|---|
| Remote Monitor | TVS12RMU | **788.00** |
| 12-inch Flush Mount Kit | TVS12FMK | **945.00** |
| 20-inch Flush Mount Kit | TVS20FMK | **1103.00** |



© 2012 Schneider Electric
All Rights Reserved

## Replacement Modules ★

All modules and brick assemblies are US and Canadian UL® Recognized to UL 1449 3rd Edition and UL 1283 5th Edition.

Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate.

★ For UL 1449 Type 1 Modules, add suffix (1).
Example: MA1IMA121



MA Replacement Module



HRG Replacement Module



Delta Replacement Module



EBA Replacement Module



MA Replacement Module



L-L Enhanced Replacement Module

### Table 6.4: EMA Replacement Modules

| System Voltage | Peak Surge Current Rating (kA) | Catalog Numbers | | | | | |
|---|---|---|---|---|---|---|---|
| | | Phase A | $ Price | Phase B | $ Price | Phase C | $ Price |
| 120/240 V, 1-phase, 3-wire + ground | 120 | MA1IMA12 | **906.00** | — | — | MA1IMA12 | **906.00** |
| | 160 | MA1IMA16 | **1064.00** | — | — | MA1IMA16 | **1064.00** |
| | 240 | MA1IMA24 | **1229.00** | — | — | MA1IMA24 | **1229.00** |
| 208Y/120 V, 3-phase, 4-wire + ground ▲ Wye | 120 | MA1IMA12 | **906.00** | MA1IMA12 | **906.00** | MA1IMA12 | **906.00** |
| | 160 | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** |
| | 240 | MA1IMA24 | **1229.00** | MA1IMA24 | **1229.00** | MA1IMA24 | **1229.00** |
| 120/240 V, 3-phase, 4-wire + ground ■ High-Leg Delta | 120 | MA1IMA12 | **906.00** | MA3IMA12 | **906.00** | MA1IMA12 | **906.00** |
| | 160 | MA1IMA16 | **1064.00** | MA3IMA16 | **1064.00** | MA1IMA16 | **1064.00** |
| | 240 | MA1IMA24 | **1229.00** | MA3IMA24 | **1229.00** | MA1IMA24 | **1229.00** |
| New! 240 V, 3-phase, 3-wire + ground Delta | 120 | MA6IMA12 | **906.00** | MA6IMA12 | **906.00** | MA6IMA12 | **906.00** |
| | 160 | MA6IMA16 | **1064.00** | MA6IMA16 | **1064.00** | MA6IMA16 | **1064.00** |
| | 240 | MA6IMA24 | **1229.00** | MA6IMA24 | **1229.00** | MA6IMA24 | **1229.00** |
| 480Y/277 V, 3-phase, 4-wire + ground ♦ Wye | 120 | MA4IMA12 | **906.00** | MA4IMA12 | **906.00** | MA4IMA12 | **906.00** |
| | 160 | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** |
| | 240 | MA4IMA24 | **1229.00** | MA4IMA24 | **1229.00** | MA4IMA24 | **1229.00** |
| New! 480Y/277 V, 3-phase, 3-wire + ground ♦ High-Resistance Ground | 120 | MA4IMA12H | **906.00** | MA4IMA12H | **906.00** | MA4IMA12H | **906.00** |
| | 160 | MA4IMA16H | **1064.00** | MA4IMA16H | **1064.00** | MA4IMA16H | **1064.00** |
| | 240 | MA4IMA24H | **1229.00** | MA4IMA24H | **1229.00** | MA4IMA24H | **1229.00** |
| New! 480 V, 3-phase, 3-wire + ground Delta | 120 | MA5IMA12 | **906.00** | MA5IMA12 | **906.00** | MA5IMA12 | **906.00** |
| | 160 | MA5IMA16 | **1064.00** | MA5IMA16 | **1064.00** | MA5IMA16 | **1064.00** |
| | 240 | MA5IMA24 | **1229.00** | MA5IMA24 | **1229.00** | MA5IMA24 | **1229.00** |
| 600Y/347 V, 3-phase, 4-wire + ground Wye | 120 | MA8IMA12 | **906.00** | MA8IMA12 | **906.00** | MA8IMA12 | **906.00** |
| | 160 | MA8IMA16 | **1064.00** | MA8IMA16 | **1064.00** | MA8IMA16 | **1064.00** |
| | 240 | MA8IMA24 | **1229.00** | MA8IMA24 | **1229.00** | MA8IMA24 | **1229.00** |
| New! 600Y/347 V, 3-phase, 3-wire + ground High-Resistance Ground | 120 | MA8IMA12H | **906.00** | MA8IMA12H | **906.00** | MA8IMA12H | **906.00** |
| | 160 | MA8IMA16H | **1064.00** | MA8IMA16H | **1064.00** | MA8IMA16H | **1064.00** |
| | 180 | MA8IMA18H | **1229.00** | MA8IMA18H | **1229.00** | MA8IMA18H | **1229.00** |
| New! 600 V, 3-phase, 3-wire + ground Delta | 120 | MA9IMA12 | **906.00** | MA9IMA12 | **906.00** | MA9IMA12 | **906.00** |
| | 160 | MA9IMA16 | **1064.00** | MA9IMA16 | **1064.00** | MA9IMA16 | **1064.00** |
| | 180 | MA9IMA18 | **1229.00** | MA9IMA18 | **1229.00** | MA9IMA18 | **1229.00** |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ High-leg delta (Phase B modules are different than Phase A and Phase C modules).
♦ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

### Table 6.5: EBA Replacement Modules

| System Voltage | Peak Surge Current Rating (kA) | Catalog Numbers | $ Price |
|---|---|---|---|
| 120/240 V, 1-phase, 3-wire + ground | 120 | MA1IBA12 | **2717.00** |
| | 160 | MA1IBA16 | **3189.00** |
| | 240 | MA1IBA24 | **3686.00** |
| 208Y/120 V, 3-phase, 4-wire + ground ▲ | 120 | MA2IBA12 | **2717.00** |
| | 160 | MA2IBA16 | **3189.00** |
| | 240 | MA2IBA24 | **3686.00** |
| 240/120 V, 3-phase, 4-wire + ground ■ High-leg Delta | 120 | MA3IBA12 | **2717.00** |
| | 160 | MA3IBA16 | **3189.00** |
| | 240 | MA3IBA24 | **3686.00** |
| 480Y/277 V, 3-phase, 4-wire + ground ♦ Wye | 120 | MA4IBA12 | **2717.00** |
| | 160 | MA4IBA16 | **3189.00** |
| | 240 | MA4IBA24 | **3686.00** |
| 600Y/347 V, 3-phase, 4-wire + ground Wye | 120 | MA8IBA12 | **2717.00** |
| | 160 | MA8IBA16 | **3189.00** |
| | 240 | MA8IBA24 | **3686.00** |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ High-leg delta (Phase B modules are different than Phase A and Phase C modules).
♦ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

### Table 6.6: L-L Enhanced MA (L-N, L-G) Replacement Modules

| System Voltage | Peak Surge Current Rating (kA) | Catalog Numbers | | | | | |
|---|---|---|---|---|---|---|---|
| | | Phase A | $ Price | Phase B | $ Price | Phase C | $ Price |
| 208Y/120 V, 3-phase, 4-wire + ground ▲ Wye | 120 | MA1IMA12 | **906.00** | MA1IMA12 | **906.00** | MA1IMA12 | **906.00** |
| | 180 | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** |
| | 270 | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** | MA1IMA16 | **1064.00** |
| | 360 | MA1IMA24 | **1229.00** | MA1IMA24 | **1229.00** | MA1IMA24 | **1229.00** |
| 480Y/277 V, 3-phase, 4-wire + ground ■ Wye | 120 | MA4IMA12 | **906.00** | MA4IMA12 | **906.00** | MA4IMA12 | **906.00** |
| | 180 | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** |
| | 270 | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** | MA4IMA16 | **1064.00** |
| | 360 | MA4IMA24 | **1229.00** | MA4IMA24 | **1229.00** | MA4IMA24 | **1229.00** |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

### Table 6.7: L-L Enhanced (L-L) Replacement Modules

| System Voltage | Peak Surge Current Rating (kA) | Catalog Numbers | | | | | |
|---|---|---|---|---|---|---|---|
| | | Phase A | $ Price | Phase B | $ Price | Phase C | $ Price |
| 208Y/120 V, 3-phase, 4-wire + ground ▲ Wye | 120 | MA2IMA40LL | **604.00** | MA2IMA40LL | **604.00** | MA2IMA40LL | **604.00** |
| | 180 | MA2IMA60LL | **709.00** | MA2IMA60LL | **709.00** | MA2IMA60LL | **709.00** |
| | 270 | MA2IMA90LL | **819.00** | MA2IMA90LL | **819.00** | MA2IMA90LL | **819.00** |
| | 360 | MA2IMA12LL | **946.00** | MA2IMA12LL | **946.00** | MA2IMA12LL | **946.00** |
| 480Y/277 V, 3-phase, 4-wire + ground ■ Wye | 120 | MA4IMA40LL | **604.00** | MA4IMA40LL | **604.00** | MA4IMA40LL | **604.00** |
| | 180 | MA4IMA60LL | **709.00** | MA4IMA60LL | **709.00** | MA4IMA60LL | **709.00** |
| | 270 | MA4IMA90LL | **819.00** | MA4IMA90LL | **819.00** | MA4IMA90LL | **819.00** |
| | 360 | MA4IMA12LL | **946.00** | MA4IMA12LL | **946.00** | MA4IMA12LL | **946.00** |

▲ 208Y/120 series also applies to the following voltage 220Y/127.
■ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.





© 2012 Schneider Electric
All Rights Reserved

## Internally Mounted Surge Protective Devices

Internally mounted surge protective devices are installed integrally to systems for service entrance and branch panel surge suppression. Internally mounted SPDs installed next to supply busses provide maximum performance inside Square D™ systems. Built-in performance is the best way to ensure cost effective power quality (especially important for critical power facilities).

US and Canadian UL® Recognized as a Type 2 (or 1 with optional suffix in catalog number) SPD Component Assembly to UL 1449 3rd Edition and UL 1283 5th Edition. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

### Internally Mounted—New Construction

Factory installed integral/internal Surgelogic™ SPD products make adding surge suppression to new construction projects easy. Refer to the sections listed below to identify the correct product for your application or contact Surgelogic™ TAG at 1-800-577-7353 for assistance.

Panelboards
**Refer to Section 9**


NF


NQ

Switchboards and Switchgear
**Refer to Section 11**


PZ4


QED

Motor Control Centers
**Refer to Section 17**


MCC

Integrated Power and Control Centers
**Refer to Section 10**


IPAC2

Busway—**Refer to Section 12**

### Internally Mounted—Retrofit

To ensure high-performance surge suppression at critical power locations, a variety of Surgelogic™ products have been designed specifically for retrofitting into commonly used Square D™ systems. The QMB fusible switch, 6 in. MCC bucket, I-Line and Busway plug-on units come with the SPD factory-installed. Retrofitting SPD units into I-Line, QMB, MCC, and Busway applications is simple.

- Audible alarm with enable/disable switch, dry contacts, and surge counter standard.
- 200 kA SCCR
- Indicator LEDs
- EMI/RFI filtering


I-Line™ Surgelogic™ SPD Unit


QMB Surgelogic™ SPD Unit


Busway Surgelogic™ SPD Unit


MCC Surgelogic™ SPD Unit

**Table 6.8: Internally Mounted—Retrofit**

| Voltage | Surge Current Rating | I-Line Branch Units ▲ | | | | QMB Branch Units ■ | | Busway Units | | Model 6 MCC Units ♦ | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price▼ | Cat. No. | $ Price★ |
| 120/240 V, 1-phase, 3-wire + ground | 120 kA | HL1IMA12C( ) | 9518.00 | FI1IMA12C( ) | 10185.00 | QMB1IMA12 | 6663.00 | — | — | — | — |
| | 160 kA | HL1IMA16C( ) | 10455.00 | FI1IMA16C( ) | 11199.00 | QMB1IMA16 | 7340.00 | — | — | — | — |
| | 240 kA | HL1IMA24C( ) | 14100.00 | FI1IMA24C( ) | 15525.00 | QMB1IMA24 | 10055.00 | — | — | — | — |
| 208Y/120 V, 3-phase, 4-wire + ground △□ Wye | 120 kA | HL2IMA12C( ) | 9893.00 | FI2IMA12C( ) | 10562.00 | QMB2IMA12 | 6899.00 | — | — | MCC2IMA12 | 6700.00 |
| | 160 kA | HL2IMA16C( ) | 10872.00 | FI2IMA16C( ) | 11616.00 | QMB2IMA16 | 7602.00 | PIU2IMA16 | 4472.00 | MCC2IMA16 | 8700.00 |
| | 240 kA | HL2IMA24C( ) | 15423.00 | FI2IMA24C( ) | 16170.00 | QMB2IMA24 | 10460.00 | PIU2IMA24 | 6407.00 | MCC2IMA24 | 12200.00 |
| 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120 kA | HL3IMA12C( ) | 9893.00 | FI3IMA12C( ) | 10562.00 | QMB3IMA12 | 6899.00 | — | — | MCC3IMA12 | 6700.00 |
| | 160 kA | HL3IMA16C( ) | 10872.00 | FI3IMA16C( ) | 11616.00 | QMB3IMA16 | 7602.00 | PIU3IMA16 | 4472.00 | MCC3IMA16 | 8700.00 |
| | 240 kA | HL3IMA24C( ) | 15423.00 | FI3IMA24C( ) | 16170.00 | QMB3IMA24 | 10460.00 | PIU3IMA24 | 6407.00 | MCC3IMA24 | 12200.00 |
| New! 240 V, 3-phase, 3-wire + ground, Delta | 120 kA | HL6IMA12C( ) | 9893.00 | FI6IMA12C( ) | 10562.00 | — | — | — | — | — | — |
| | 160 kA | HL6IMA16C( ) | 10872.00 | FI6IMA16C( ) | 11616.00 | — | — | — | — | — | — |
| | 240 kA | HL6IMA24C( ) | 15423.00 | FI6IMA24C( ) | 16170.00 | — | — | — | — | — | — |
| 480Y/277 V, 3-phase, 4-wire + ground △◊ Wye | 120 kA | HL4IMA12C( ) | 10271.00 | FI4IMA12C( ) | 10944.00 | QMB4IMA12 | 7137.00 | — | — | MCC4IMA12 | 7200.00 |
| | 160 kA | HL4IMA16C( ) | 11292.00 | FI4IMA16C( ) | 12039.00 | QMB4IMA16 | 7868.00 | PIU4IMA16 | 4740.00 | MCC4IMA16 | 9200.00 |
| | 240 kA | HL4IMA24C( ) | 16070.00 | FI4IMA24C( ) | 16818.00 | QMB4IMA24 | 10868.00 | PIU4IMA24 | 6792.00 | MCC4IMA24 | 13200.00 |
| New! 480Y/277 V, 3-phase, 3-wire + ground ◊ High-Resistance Ground | 120 kA | HL4HIMA12C( ) | 10271.00 | FI4HIMA12C( ) | 10944.00 | — | — | — | — | — | — |
| | 160 kA | HL4HIMA16C( ) | 11292.00 | FI4HIMA16C( ) | 12039.00 | — | — | — | — | — | — |
| | 240 kA | HL4HIMA24C( ) | 16070.00 | FI4HIMA24C( ) | 16818.00 | — | — | — | — | — | — |
| New! 480 V, 3-phase, 3-wire + ground, Delta | 120 kA | HL5IMA12C( ) | 10271.00 | FI5IMA12C( ) | 10944.00 | — | — | — | — | — | — |
| | 160 kA | HL5IMA16C( ) | 11292.00 | FI5IMA16C( ) | 12039.00 | — | — | — | — | — | — |
| | 240 kA | HL5IMA24C( ) | 16070.00 | FI5IMA24C( ) | 16818.00 | — | — | — | — | — | — |
| 600Y/347 V, 3-phase, 4-wire + ground △ Wye | 120 kA | — | — | FI8IMA12C( ) | 11342.00 | QMB8IMA12 | 7388.00 | — | — | MCC8IMA12 | 7700.00 |
| | 160 kA | — | — | FI8IMA16C( ) | 12482.00 | QMB8IMA16 | 8145.00 | PIU8IMA16 | 4919.00 | MCC8IMA16 | 9700.00 |
| | 240 kA | — | — | FI8IMA24C( ) | 16692.00 | QMB8IMA24 | 11295.00 | PIU8IMA24 | 7048.00 | MCC8IMA24 | 14200.00 |
| New! 600Y/347 V, 3-phase, 3-wire + ground, High-Resistance Ground | 120 kA | — | — | FI8HIMA12C( ) | 11342.00 | — | — | — | — | — | — |
| | 160 kA | — | — | FI8HIMA16C( ) | 12482.00 | — | — | — | — | — | — |
| | 180 kA | — | — | FI8HIMA18C( ) | 16692.00 | — | — | — | — | — | — |
| New! 600V, 3-phase, 3-wire + ground, Delta | 120 kA | — | — | FI9IMA12C( ) | 11342.00 | — | — | — | — | — | — |
| | 160 kA | — | — | FI9IMA16C( ) | 12482.00 | — | — | — | — | — | — |
| | 180 kA | — | — | FI9IMA18C( ) | 16692.00 | — | — | — | — | — | — |

▲ Requires 13.5-inch mounting height.
■ Requires 9-inch mounting height.
♦ Requires 6-inch mounting height.
★ PE4 Discount Schedule.
▼ PE7 Discount Schedule.
△ Can be used on 4-wire or 3-wire grounded neutral system.
□ 208Y/120 series also applies to the following voltage 220Y/127.
◊ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

( ) For a Type 1 SPD, add a "1" suffix to the catalog number. New!



© 2012 Schneider Electric
All Rights Reserved



OEM Kit

## OEM/Assembler Kits

Surgelogic™ OEM/assembler kits allow manufacturers to add industry-leading surge suppression directly to customized equipment. Manufacturers benefit from shorter wire lengths that optimize the clamping voltage of the SPD. Products come with a backplane-mounted SPD, mounting hardware and diagnostic display with 36-inch cables. Audible alarm, silence switch, remote monitoring contacts, and surge counter are standard. Available as UL 1449 Type 2 (or 1 with optional suffix in catalog number).

US and Canadian UL® Recognized to UL 1449 3rd Edition and UL 1283 5th Edition. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

**Table 6.9: OEM/Assembler Kits**

| | Service Voltage | Peak Surge Current Rating per Phase (kA) | Cat. No. ▲ | $ Price |
|---|---|---|---|---|
| | 120/240 V, 1-phase, 3-wire + ground | 120 | TVS1IMA12O( ) | 4137.00 |
| | | 160 | TVS1IMA16O( ) | 4547.00 |
| | | 240 | TVS1IMA24O( ) | 6753.00 |
| | 208Y/120 V, 3-phase, 4-wire + ground ■♦ Wye | 120 | TVS2IMA12O( ) | 4331.00 |
| | | 160 | TVS2IMA16O( ) | 4760.00 |
| | | 240 | TVS2IMA24O( ) | 7082.00 |
| | 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 120 | TVS3IMA12O( ) | 4331.00 |
| | | 160 | TVS3IMA16O( ) | 4760.00 |
| | | 240 | TVS3IMA24O( ) | 7082.00 |
| New! | 240 V, 3-phase, 3-wire + ground ■★ Delta | 120 | TVS6IMA12O( ) | 4331.00 |
| | | 160 | TVS6IMA16O( ) | 4760.00 |
| | | 240 | TVS6IMA24O( ) | 7082.00 |
| | 480Y/277 V, 3-phase, 4-wire + ground ■★ Wye | 120 | TVS4IMA12O( ) | 4526.00 |
| | | 160 | TVS4IMA16O( ) | 4976.00 |
| | | 240 | TVS4IMA24O( ) | 7413.00 |
| New! | 480Y/277 V, 3-phase, 3-wire + ground ■★ High-Resistance Ground | 120 | TVS4HIMA12O( ) | 4526.00 |
| | | 160 | TVS4HIMA16O( ) | 4976.00 |
| | | 240 | TVS4HIMA24O( ) | 7413.00 |
| New! | 480 V, 3-phase, 3-wire + ground Delta | 120 | TVS5IMA12O( ) | 4526.00 |
| | | 160 | TVS5IMA16O( ) | 4976.00 |
| | | 240 | TVS5IMA24O( ) | 7413.00 |
| | 600Y/347 V, 3-phase, 4-wire + ground ■ Wye | 120 | TVS8IMA12O( ) | 4751.00 |
| | | 160 | TVS8IMA16O( ) | 5199.00 |
| | | 240 | TVS8IMA24O( ) | 7760.00 |
| New! | 600Y/347 V, 3-phase, 3-wire + ground ■ High Resistance Ground | 120 | TVS8HIMA12O( ) | 4751.00 |
| | | 160 | TVS8HIMA16O( ) | 5199.00 |
| | | 180 | TVS8HIMA18O( ) | 7760.00 |
| New! | 600 V, 3-phase, 3-wire + ground Delta | 120 | TVS9IMA12O( ) | 4751.00 |
| | | 160 | TVS9IMA16O( ) | 5199.00 |
| | | 180 | TVS9IMA18O( ) | 7760.00 |

( ) For a Type 1 SPD, add a "1" suffix to the catalog number.
▲ Note the last character of the catalog number is the letter "O", not a zero.
■ Can be used on 4-wire or 3-wire grounded neutral system.
♦ 208Y/120 series also applies to the following voltage 220Y/127.
★ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

# Nipple-Mounted Surge Protective Devices



SDSA3650



SDSA3650D

## SDSA3650 Surge Protective Devices

SDSA3650 SPDs are designed and listed for indoor or outdoor installation and surge suppression for three-phase grounded electrical services up to 600 Vac, including delta services (SDSA3650D). The SDSA3650 series is used extensively in service entrance panels to provide an efficient and economical means of surge suppression.

US and Canadian UL® Listed as a Type 1 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- LEDs indicate operational status
- Short circuit current rating 200 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient back-nipple mounting

**Table 6.10: SDSA3650 Surge Protective Devices**

| | Description | Peak Surge Current Rating per Phase (kA) | Cat. No. | $ Price |
|---|---|---|---|---|
| | 600 Vac Maximum, 3-phase, 4-wire▼ | 40 | SDSA3650 △ | 248.00 |
| New! | 600 Vac Maximum, 3-phase, 3-wire Delta | 40 | SDSA3650D △ | 248.00 |

▼ Do not use on ungrounded systems. Systems must be solidly grounded.
△ See Table 6.13 for QOSAMK mounting kit for installation in QO™ load centers.





© 2012 Schneider Electric
All Rights Reserved




HWA Series

## HWA Surge Protective Devices

Surgelogic™ HWA surge protective devices are compact, nipple-mounted parallel-connected surge suppressors that come in a variety of voltage configurations, including Delta. A surge suppression path is provided for each mode, and the product is rated NEMA Type 4X. Internal diagnostics continuously monitor the device status.

US and Canadian UL® Listed as a Type 2 SPD to UL 1449 3rd Edition and UL 1283 5th Edition. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- LEDs indicate operational status
- Short circuit current rating 200 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient side-nipple mounting
- Compact design provides easy mounting inside or outside the equipment cabinets
- -54 dB EMI/RFI filtering
- Sine wave tracking
- Audible alarm indicates loss of suppression (does not contain alarm enable/disable switch)
- Dry contacts
- Optional flush-mount kit TVSHWAFMK

**Table 6.11: HWA Surge Protective Devices**

| Service Voltage | Peak Surge Current Rating per Phase (kA) | NEMA 4X Cat. No. | $ Price |
|---|---|---|---|
| 120/240 V, 1-phase, 3-wire + ground | 50 | TVS1HWA50X | 2385.00 |
| | 80 | TVS1HWA80X | 2660.00 |
| | 100 | TVS1HWA10X | 3401.00 |
| 208Y/120 V, 3-phase, 4-wire + ground ▲■ | 50 | TVS2HWA50X | 2544.00 |
| | 80 | TVS2HWA80X | 2810.00 |
| | 100 | TVS2HWA10X | 3611.00 |
| 240/120 V, 3-phase, 4-wire + ground High-leg Delta | 50 | TVS3HWA50X | 2544.00 |
| | 80 | TVS3HWA80X | 2810.00 |
| | 100 | TVS3HWA10X | 3611.00 |
| New! 240 V, 3-phase, 3-wire + ground Delta | 50 | TVS6HWA50X | 2583.00 |
| | 80 | TVS6HWA80X | 2924.00 |
| | 100 | TVS6HWA10X | 3606.00 |
| 480Y/277 V, 3-phase, 4-wire + ground ▲♦ | 50 | TVS4HWA50X | 2640.00 |
| | 80 | TVS4HWA80X | 2907.00 |
| | 100 | TVS4HWA10X | 3853.00 |
| New! 480 V, 3-phase, 3-wire + ground Delta | 50 | TVS5HWA50X | 3052.00 |
| | 80 | TVS5HWA80X | 3393.00 |
| | 100 | TVS5HWA10X | 4075.00 |
| 600Y/347 V, 3-phase, 4-wire + ground | 50 | TVS8HWA50X | 2915.00 |
| | 80 | TVS8HWA80X | 3171.00 |
| | 100 | TVS8HWA10X | 3853.00 |
| New! 600 V, 3-phase, 3-wire + ground Delta | 50 | TVS9HWA50X | 3052.00 |
| | 80 | TVS9HWA80X | 3393.00 |
| | 100 | TVS9HWA10X | 4075.00 |

▲ Can be used on 4-wire or 3-wire grounded neutral system.
■ 208Y/120 series also applies to the following voltage 220Y/127.
♦ 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.




SDSA1175

## SDSA1175 Surge Protective Devices

SDSA1175 SPDs are designed and listed for indoor or outdoor installation and surge suppression for single-phase three-wire 120/240 Vac or two-wire 120 Vac 60 Hz electrical services. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems. Two SDSA1175 surge protection devices can be installed to provide suppression for 208Y/120 Vac three-phase four-wire services.

US and Canadian UL® Listed as Type 1 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- LED indicates operational status
- Short circuit current rating 25 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient back-nipple mounting

**Table 6.12: SDSA1175 Surge Protective Devices**

| System Voltage | Peak Surge Current Rating per Phase (kA) | Cat. No. | $ Price |
|---|---|---|---|
| 120/240 V, 1-phase, 3-wire | 36 | SDSA1175 ▲ | 92.00 |
| New! 120 V, 1-phase, 2-wire | 36 | SDSA1175T ▲ | 92.00 |

▲ See Table 6.13 for QOSAMK mounting kit for installation in QO™ load centers.



QOSAMK

## Mounting Brackets and Flush Mount Kits

The nipple products shown in this catalog provide a convenient means of incorporating surge suppression within a new or existing cabinet. The mounting bracket and flush-mount kits are designed for easy mounting of nipple products.

**Table 6.13: Mounting Bracket for Enclosures**

| Description | Cat. No. | $ Price |
|---|---|---|
| Mounting bracket for QO™ and Homeline™ load centers and other enclosures | QOSAMK | 11.40 |
| New! Flush-mount kit for XR SPDs | TVSXRFMK | 58.00 |
| Flush-mount kif for HWA SPDs | TVSHWAFMK | 180.00 |



© 2012 Schneider Electric
All Rights Reserved



XR Series

## XR Surge Protective Devices

The XR SPD provides high-quality surge suppression in a compact and versatile package. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems.

US and Canadian UL® Listed as Type 1 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- LEDs indicate operational status
- Short circuit current rating 25 kA
- Convenient side nipple mounting
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Optional flush mount kit TVSXRFMK

**Table 6.14: XR Nipple-Mounted Surge Protective Devices**

| | System Voltage | Peak Surge Current Rating per Phase (kA) | Cat. No. | $ Price |
|---|---|---|---|---|
| New! | 120/240 V, 1-phase, 3-wire + ground | 50 | TVS120XR50S | **315.00** |
| | | 80 | TVS120XR80S | **515.00** |

# Residential Surge Protective Devices





SDSB1175C



SDSB1175R

## Whole House Surge Protective Devices

Whole House devices are designed to deliver surge suppression that addresses the entire home. AC modules are connected to the circuit breaker load center and provide suppression for all equipment connected to the power system. Whole House systems incorporate AC modules as well as modules for other metallic lines coming into the home including telephone/DSL and coaxial video/data.

US and Canadian UL® Listed as Type 2 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate. Telephone and coaxial video modules US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.

- 120/240 Vac, 80 kA/phase AC surge suppression
- LED status indicators for AC surge suppression
- Telephone surge suppression module supports four lines with tool-less Insulation Displacement Connectors (IDC)
- Coaxial surge suppression module supports one line of video/data

**Table 6.15: Whole House Surge Protective Devices**

| | Description | Included Modules | Cat. No. | $ Price |
|---|---|---|---|---|
| New! | Whole House NEMA 1 Basic | AC | SDSB1175CB | **439.00** |
| | Whole House NEMA 1 | AC, Telephone, Coax (1) | SDSB1175C | **630.00** |
| | Whole House NEMA 3R Basic | AC | SDSB1175RB | **546.00** |
| | Whole House NEMA 3R | AC, Telephone, Coax (1) | SDSB1175R | **737.00** |
| | Home Electronics Protective Device | AC | HEPD80 | **185.00** |




HEPD80

## Whole House Accessories

Add additional surge suppression or replace existing modules in Whole House products.

**Coaxial and telephone modules:** US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.

**AC Module:** US and Canadian UL® Listed as Type 1 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

**Table 6.16: Accessories**

| | Description | Cat. No. | $ Price |
|---|---|---|---|
| New! | 4-Line telephone surge suppressor with tool-less IDC terminations | SDSA4P | **101.00** |
| | Coaxial video surge suppressor | SDSA2V | **90.00** |
| | Whole House AC Module (HEPD80) replacement kit | HEPD80RK | **204.00** |



SDSA2V



SDSA4P




HEPD80RK

## QO™, NQ, and Homeline™ Load Center Surge Protective Devices

Square D™ load center surge protective devices are easy to install plug-in units that install as quickly as a standard circuit breaker. The surge suppressors use two pole spaces in a QO™ or Homeline™ load center, or NQ panelboard.

US and Canadian UL® Listed as Type 2 SPD to UL 1449 3rd Edition. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- QO2175SB for QO™ load centers, combination devices, and NQ panelboards
- HOM2175SB for Homeline™ load centers and combination devices
- Plug-on design requires two pole spaces
- LED indicates operational status
- 22.5 kA per phase

**Table 6.17: QO™, NQ, and Homeline™ Panelboard Surge Arresters**

| Description | Cat. No. | $ Price |
|---|---|---|
| QO™ Surgebreaker for QO and NQ | QO2175SB | **159.00** |
| Homeline™ Surgebreaker | HOM2175SB | **159.00** |




QO2175SB




HOM2175SB



© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 7

## Miniature and Molded Case Circuit Breakers



H-Frame



J-Frame



L-Frame



M-Frame



P-Frame



R-Frame


**Selection Information** 7-2

**QO™ and QOU Miniature Circuit Breakers** 7-10

- QO™ Miniature Circuit Breakers 7-10
- QO™ Circuit Breaker Accessories 7-12
- QO™ and Multi 9™ Mounting Bases 7-13
- QOU Miniature Circuit Breakers and QYU Supplementary Protectors 7-14
- QOU Accessories 7-15

**Multi 9™ Miniature Circuit Breakers** 7-16

**PowerPact™ Molded Case Circuit Breakers** 7-21

- PowerPact Family 7-21
- New! H- and J-Frame Circuit Breakers 7-22
- Q-Frame Circuit Breakers 7-24
- New! L-Frame Circuit Breakers 7-25
- M-Frame Circuit Breakers 7-26
- P-Frame Circuit Breakers 7-27
- R-Frame Circuit Breakers 7-28

**Motor Circuit Protectors** 7-29

- New! PowerPact™ H- and J-Frame Electronic Motor Circuit Protectors 7-29
- H-Frame and J-Frame MCP Selector 7-30
- New! Motor Circuit Protectors and Motor Protector Circuit Breakers 7-31
- H-, J-, and LA-Frame MCP Selection 7-32
- Motor Protection Selection Tables 7-33

**Automatic Switches** 7-34

**500 Vdc Circuit Breakers** 7-35

**Mission Critical Circuit Breakers** 7-37

**PowerPact™ Circuit Breaker Accessories** 7-39

**Micrologic™ Electronic Trip Units** 7-46

**Masterpact™ Universal Power Circuit Breakers** 7-50

**Ground-Fault Protection** 7-51

**Dimensions and Shipping Weights** 7-54

**Circuit Breaker Enclosures** 7-56

New! **Photovoltaic Circuit Breakers and Switches** 7-59




SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

| | | HOM Circuit Breakers | | | | | | | | | QO™ Circuit Breakers | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Circuit Breaker Type** | **Plug-on** | HOM | | HOM-CAFI | HOM-DF | HOM-GFI | | HOM-EPD | | HOMT | QO | | | QO-H | QO-VH | | | | | QH | | QOT | QO-CAFI | QO-VHCAFI | QO-DF | QOVH-DF | QO-GFI | | | QO-VHGFI | QO-EPD QO-EPE | | |
| | **Bolt-on** | — | — | — | — | — | — | — | — | — | QOB | | | QOB-H | — | — | — | QOB-VH | | QHB | | — | QOB-CAFI | QOB-VHCAFI | QOB-DF | QOB-VHDF | QOB-GFI | | | QOB-VHGFI | QOB-EPD QOB-EPE | | |
| | **Unit Mount** | — | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Number of Poles** | | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 3 | 2 | 1 | 2 | 3 | 1 | 2, 3 ▲ | 1,2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 2 | 3 |
| **Current Range** | | 15–50 | 15–200♦ | 15–20 | 15–20 | 15–20 | 15–50 | 15–20 | 15–50 | 15–50■ | 10–70 | 10–200♦ | 10–100 | 15–100 | 15–70 | 15–125 | 15–100 | 15–70 | 15–150 | 15–30 | 15–30 | 15–30 | 15–20 | 15–20 | 15–20 | 15–20 | 15–30 | 15–60 | 15–50 | 15–30 | 15–30 | 15–60 | 15–50 |
| **Interrupting Ratings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UL/CSA Rating (kA) (50/60 Hz) | 120 Vac | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 22 | 22 | 22 | 22 | 22 | 65 | 65 | 10 | 10 | 22 | 10 | 22 | 10 | 10 | — | 22 | 10 | 10 | — |
| | 120/240 Vac | 10 | 10 | — | — | — | 10 | — | 10 | 10 | 10 | 10 | 10 | 10 | 22 | 22 | 22 | 22 | 22 | 65 | 65 | 10 | — | — | — | — | — | 10 | — | — | — | 10 | — |
| | 208Y/120 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 10 | — | — | — | — |
| | 240 Vac ★ | — | — | — | — | — | — | — | — | — | — | — | 10 | 10 | — | — | 22 | — | 22▼ | — | 65 | — | — | — | — | — | — | — | — | — | — | — | 10 |
| | 277 Vac | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 480Y/277 Vac | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| DC Ratings | 48 Vdc | — | — | — | — | — | — | — | — | — | 5△ | 5 △ | 5 △ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 60 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 65 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 125 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 250 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| IEC 60947-2 (50/60 Hz)□ | IEC (Icu) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Special Ratings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCC | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | X | X | X | X | X | X | — | — | — | X | — | — | — | — | X | — | X | X | — | X | X | X | — | | — | X | — | |
| Other Standard | | HACR ◊ NOM | | HACR ◊ | | | | | | | HACR☆ NOM | | | HACR ☆ | | | | | | — | — | — | HACR ☆ | — | HACR ☆ | HACR ☆ | NOM | | | — | NOM | | |
| **Accessories and Modifications** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shunt Trip ▽ | | — | — | — | — | — | — | — | — | — | X | X | X | X | X | X | X | X | X ◒ | X | X | X | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Undervoltage Trip | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Auxiliary Switches ▽ | | — | — | — | — | — | — | — | — | — | X | X | X | X | X | X | X | X | X ◒ | X | X | X | — | X | — | — | X | X | X | X | X | X | X | X | X | X |
| Alarm Switch ▽ | | — | — | — | — | — | — | — | — | — | X | X | X | X | X | X | X | X | X ◒ | X | X | X | — | X | — | — | X | X | X | X | X | X | X | X | X | X |
| Handle Operators | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Handle Padlock Attachment | | X | X | X | X | — | — | — | — | X ✱ | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Trip System Type** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thermal-magnetic | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Molded Case Switch | | — | — | — | — | — | — | — | — | — | X | X | X | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Dimensions (1P Unit Mount)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions (1P Unit Mount) in. (mm) | Height | 3.13 (79) | | | | | | | | | 3.5 (89) ▲ | | | | | | | | | | | | 4.75 (121) | | 4.75 (121) | 4.75 (121) | 4.12 (103) | | | | | | | | |
| | Width | 1.00 (25) | | | | | | | | | 0.75 (19) ▲ | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Depth | 2.98 (76) | | | | | | | | | 2.92 (74) ▲ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pages | | Page 1-13 | | | | | | | | | Pages 7-10, 7-11 | | | | | | | | | | | | | | | | | | | | | | | | | |

▲ See page 7-54 for dimensions for: QOB2150VH, QOB3110VH, QOB3125VH and QOB3150VH.
■ HOMT tandem is 30 A maximum. HOMT quad tandem has 20 A maximum on outside poles, and 50 A maximum on the inside poles.
♦ AFI, EPD and GFI products are rated 60 Hz only.
★ See the Supplemental Digest Page 3-22 for 3Ø corner grounded systems.
▼ 22 kA @ 240 Vac for 3P only.
△ 1P and 2P, 10–70 A and 3P 10–60 A only.
□ See the Supplemental Digest Section 10 for circuit breakers with IEC ratings.
◊ HACR on HOM 1P 15–50 A and 2P 15–100 A
☆ HACR on QO, QOB 1P 10–70 A, 2P 15–100 A, 3P 10–100 A; QOB-VH 1P 15–70 A, 2P 15–125 A, 3P 15–100 A
▽ Factory-installed option only
◒ Factory-installed accessories are not available on QOB-VH 2P150 A and 3P 110–150 A
✱ Handle padlock attachment available for HOMT quad tandem only.
♦ 2P 150–200 A requires 4P width.





© 2012 Schneider Electric
All Rights Reserved

| | | QOU Circuit Breakers | | | | QOM1 and QOM2 Main Circuit Breakers | | Multi 9™ Circuit Breakers and Supplementary Protectors | | | | | | | | EDB Circuit Breakers | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | | | |  | |  | | |  | | |  | |  | | | | | |
| **Circuit Breaker Type** | **Plug-on** | — | | | — | — | — | — | | | — | | | | | — | | — | | — | |
| | **Bolt-on** | — | | | — | QOM1-VH | QOM2-VH | — | | | — | | | | | EDB | | EGB | | EJB | |
| | **Unit Mount** | QOU | | | QYU▲ | — | — | UL 489 C60 | | | UL1077 C60■ | | | C60H-DC | | — | | — | | — | |
| **Number of Poles** | | 1 | 2 | 3 | 1 | 2 | 2 | 1 | 2 | 3 | 1 | 2 | 3,4 | 1 | 2 | 1 | 2, 3 | 1 | 2, 3 | 1 | 2, 3 |
| **Current Range** | | 10–100 | 10–125 | 10–100 | 10–30 | 50–125 | 100–225 | 0.5–35 | 0.5–35 | 0.5–35 | 0.5–63 | 1–63 | 1–63 | 0.5–40 | 0.5–40 | 15–70 | 15–125 | 15–70 | 15–125 | 15–70 | 15–125 |
| **Interrupting Ratings** | | | | | | | | | | | | | | | | | | | | | |
| UL/CSA Rating (kA RMS) (50/60 Hz) | 120 Vac | 10 | 10 | 10 | — | 22 | 22 | 10 | — | — | 10 | 10 | 10 | — | — | 25 | 25 | 65 | 65 | 100 | 100 |
| | 120/240 Vac | 10 | 10 | 10 | — | 22 | 22 | 5 | 10 | 10 | 10 | 10 | 10 | — | — | 18 | 25 | 35 | 65 | 65 | 100 |
| | 240 Vac♦ | — | — | 10 | — | — | — | 5 | 10 | 10 | 10 | 10 | 10 | — | — | 18 | 25 | 35 | 65 | 65 | 100 |
| | 277 Vac | — | — | — | 5 | — | — | — | — | — | 5 | 5 | 5 | — | — | 18 | 18 | 35 | 35 | 65 | 65 |
| | 480Y/277 Vac | — | — | — | — | — | — | 10 | 10 | 10 | — | 5 | 5 | — | — | — | 18 | — | 35 | — | 65 |
| DC Ratings | 48 Vdc | 5★ | 5★ | 5★ | — | — | — | — | — | — | 10 | 10 | — | 5 | 5 | — | — | — | — | — | — |
| | 60 Vdc | 5▼ | 5▼ | 5▼ | — | — | — | 10 | 10 | — | — | — | — | 5 | 5 | — | — | — | — | — | — |
| | 65 Vdc | — | — | — | — | — | — | — | — | — | 10 | 10 | — | 5 | 5 | — | — | — | — | — | — |
| | 125 Vdc | — | — | — | — | — | — | — | 10 | — | — | 10 | — | 5 | 5 | — | — | — | — | — | — |
| | 250 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | 5 | 5 | — | — | — | — | — | — |
| | 500 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — | 5◒ | — | — | — | — | — | — |
| IEC 60947-2 (50/60 Hz) Icu | 240 Vac | — | — | — | — | — | — | 20 | 20 | 20 | 10 | 10 | 10 | 20 | 10 | 20 | — | — | — | — | — |
| | 415 Vac | — | — | — | — | — | — | — | 10 | 10 | — | 5 | 5 | — | — | 10 | — | — | — | — | — |
| **Special Ratings** | | | | | | | | | | | | | | | | | | | | | |
| CCC | | X✱ | X✱ | X✱ | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | X | X | X | X | X | — | — | — | — | — | X | X | X | X | X | X |
| Other Standard | | HACR △ | | | — | — | — | — | — | — | □ | — | — | — | — | HACR | | | | | |
| **Accessories and Modifications** | | | | | | | | | | | | | | | | | | | | | |
| Shunt Trip | | X◊ | X◊ | X◊ | X◊ | — | X ◊ | X | X | X | X | X | X | X | X | X ◊ | X ◊ | X ◊ | X ◊ | X ◊ | X ◊ |
| Undervoltage Trip | | — | — | — | — | — | — | X | X | X | X | X | X | X | X | — | — | — | — | — | — |
| Auxiliary Switches | | X◊ | X◊ | X◊ | X◊ | — | — | X | X | X | X | X | X | X | X | X◊ | X◊ | X◊ | X◊ | X◊ | X◊ |
| Alarm Switch | | X◊ | X◊ | X◊ | X◊ | — | — | X | X | X | X | X | X | X | X | X◊ | X◊ | X◊ | X◊ | X◊ | X◊ |
| Handle Operators | | — | — | — | — | — | — | X | X | X | X | X | X | X | X | — | — | — | — | — | — |
| Handle Padlock Attachment | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Trip System Type** | | | | | | | | | | | | | | | | | | | | | |
| Thermal-magnetic | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Molded Case Switch | | — | X | X | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Dimensions (1P Unit Mount)** | | | | | | | | | | | | | | | | | | | | | |
| Dimensions (1P Unit Mount) in. (mm) | Height | 4.05 (103) | | | | 5.09 (129)☆ | 5.60 (142)☆ | 4.21 (107)▽ | | | 3.19 (81) | | | 3.19 (81) | | 5.66 (144) | | | | | |
| | Width | 0.75 (19) | | | | 5.00 (127)☆ | 5.07 (129)☆ | 0.71 (18) | | | 0.71 (18) | | | 0.71 (18) | 1.42 (36) | 0.98 (25) | | | | | |
| | Depth | 2.92 (74) | | | | 3.47 (88)☆ | 3.60 (91)☆ | 2.76 (70) | | | 2.76 (70) | | | 2.56 (65) | | 4.05 (103) | | | | | |
| Pages | | Pages 7-14 | | | | Pages 1-2 | | Pages 7-16 through 7-19 | | | | | | | | Page 9-17 | | | | | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

- ▲ QYU is a UL 1077 supplementary protector.
- ■ C60 are recognized components per UL 1077.
- ♦ For information regarding 3Ø corner grounded systems see the Supplemental Digest. Page 3-22
- ★ 1P and 2P, 10–70 A and 3P 10–60 A only.
- ▼ QOU is UL Listed for 60 Vdc per pole 80–100 A, 1P; 80–125 A, 2P; and 70–100 A, 3P.
- △ HACR on QOU 1P and 3P 15–100 A, 2P 15–125 A;
- □ UL 489A for DC Telecom applications (1-pole only).
- ◊ Factory-installed option only
- ☆ QOM1 and QOM2 dimensions are for 2-pole unit.
- ▽ 480 V C60 height is 5.56 in. (141 mm).
- ◒ 2 poles must be wired in series for 500 Vdc.
- ✱ 15–70 A 1P and 2P, 15–60 A 3P



© 2012 Schneider Electric
All Rights Reserved

| | PowerPact™ 150 A H-Frame | | | | | PowerPact 250 A J-Frame | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | New! Electronic Trip Version  | | | | | New! Electronic Trip Version  | | | | |
| **Circuit Breaker Type** | HD | HG | HJ | HL | HR | JD | JG | JJ | JL | JR |
| **Number of Poles** | 2, 3 | 2, 3 | 2, 3▲ | 2, 3▲ | 3 | 2, 3▲ | 2, 3▲ | 2, 3▲ | 2, 3▲ | 3 |
| **Current Range** | 15–150 A | 15–150 A | 15–150 A | 15–150 A | 15–150 A | 70–250 A■ | 70–250 A■ | 70–250 A■ | 70–250 A■ | 70–250 A■ |
| **Interrupting Ratings** | | | | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) 240 Vac | 25 | 65 | 100 | 125 | 200 | 25 | 65 | 100 | 125 | 200 |
| 480Y/277 Vac | 18 | 35 | 65 | 100 | 200 | 18 | 35 | 65 | 100 | 200 |
| 480 Vac | 18 | 35 | 65 | 100 | 200 | 18 | 35 | 65 | 100 | 200 |
| 600Y/347 Vac | 14 | 18 | 25 | 50 | 100 | 14 | 18 | 25 | 50 | 100 |
| 600 Vac | 14 | 18 | 25 | 50 | 100 | 14 | 18 | 25 | 50 | 100 |
| DC Ratings 250 Vdc♦ | 20 | 20 | 20 | 20 | — | 20 | 20 | 20 | 20 | — |
| 500 Vdc♦ | — | — | — | — | — | — | 20 | — | — | — |
| IEC Rating (kA RMS) Icu/Ics★ 240 Vac | 25/25 | 65/65 | 100/100 | 125/125 | 125/125 | 25/25 | 65/65 | 100/100 | 125/125 | 125/125 |
| 415 Vac | 18/18 | 35/35 | 65/65 | 100/100 | 100/100 | 18/18 | 35/35 | 65/65 | 100/100 | 100/100 |
| IEC 50/60 Hz | | | | | | | | | | |
| **Special Ratings** | | | | | | | | | | |
| CCC | X | X | X | X | X | X | X | X | X | X |
| Fed. Specs W-C-375B/GEN | X | X | X | X | X | X | X | X | X | X |
| HACR (2P, 3P) | X | X | X | X | X | X | X | X | X | X |
| **Connections/Terminations** | | | | | | | | | | |
| Unit Mount | X | X | X | X | X | X | X | X | X | X |
| I-Line™ | X | X | X | X | X | X | X | X | X | X |
| Rear Connection | X▼ | X▼ | X | X | X | X | X | X | X | X |
| Drawout | X▼ | X▼ | X | X | X | X | X | X | X | X |
| Optional Lugs | X▼ | X▼ | X | X | X | X | X | X | X | X |
| **Accessories and Modifications** | | | | | | | | | | |
| Shunt Trip | X | X | X | X | X | X | X | X | X | X |
| Undervoltage Trip | X | X | X | X | X | X | X | X | X | X |
| Auxiliary Switches | X | X | X | X | X | X | X | X | X | X |
| Alarm Switch | X | X | X | X | X | X | X | X | X | X |
| Motor Operator | X▼ | X▼ | X | X | X | X | X | X | X | X |
| Handle Operators | X▼ | X▼ | X | X | X | X | X | X | X | X |
| Mechanical Interlocks (3P) | X | X | X | X | X | X | X | X | X | X |
| Handle Padlock Attachment | X▼ | X▼ | X | X | X | X | X | X | X | X |
| Cylinder Lock (3P) | — | — | — | — | — | — | — | — | — | — |
| Optional GF Protection | — | — | — | — | — | — | — | — | — | — |
| **Trip System Type** | | | | | | | | | | |
| Thermal-magnetic | X | X | X | X | — | X | X | X | X | X |
| Instantaneous-only (MCP) | — | — | X△ | X△ | X△ | — | X△ | X△ | X | X |
| Molded Case Switch (Automatic) | X | X | X | X | X | X | X | X | X | X |
| Electronic | X△ | X△ | X△ | X△ | X△ | X△ | X△ | X△ | X△ | X△ |
| **Enclosures (Pages 7-56–7-58)** | | | | | | | | | | |
| General Purpose (NEMA 1) | X | X | X | X | — | X | X | X | — | — |
| Raintight (NEMA 3R) | X | X | X | X | — | X | X | X | — | — |
| Dust-tight (NEMA 12) | X | X | X | X | — | X | X | X | — | — |
| Watertight (NEMA 4, 4X, 5) | X | X | X | X | — | X | X | X | — | — |
| Explosion Proof (NEMA 7, 9) | — | — | — | — | — | — | — | — | — | — |
| Dimensions (3P Unit Mount) in. (mm) Height | 6.4 (163) | | | | | 7.5 (191) | | | | |
| Width | 4.1 (104) | | | | | 4.1 (104) | | | | |
| Depth | 3.4 (86) | | | | | 3.4 (86) | | | | |
| Pages (Unit Mount)/(I-Line) | Pages 7-22, 7-23, 7-29, 7-34/9-25 | | | | | Pages 7-22, 7-23, 7-29, 7-34, 7-35/9-25 | | | | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.
▲ 2P in a 3P module.
■ 70–250 A with electronic trip system
♦ Not available with electronic trip units
★ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest. Section 10
▼ Not available in HD and HG 2P rating (2P module).
△ 3P only.





© 2012 Schneider Electric
All Rights Reserved

| | | PowerPact 250 A Q-Frame | | | | PowerPact 600 A L-Frame | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | |  | | | | New!  | | | | |
| **Circuit Breaker Type** | | QB | QD | QG | QJ | LD | LG | LJ | LL | LR |
| **Number of Poles** | | 2, 3 | 2, 3 | 2, 3 | 2, 3 | 3, 4 | 3, 4 | 3, 4 | 3, 4 | 3, 4 |
| **Current Range** | | 70–250■ | 70–250■ | 70–250■ | 70–250■ | 70–600 | 70–600 | 70–600 | 70–600 | 70–600 |
| **Interrupting Ratings** | | | | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) | 240 Vac | 10 | 25 | 65 | 100 | 25 | 65 | 100 | 125 | 200 |
| | 480Y/277 Vac | — | — | — | — | 18 | 35 | 65 | 100 | 200 |
| | 480 Vac | — | — | — | — | 18 | 35 | 65 | 100 | 200 |
| | 600Y/347 Vac | — | — | — | — | 14 | 18 | 25 | 50 | 100 |
| | 600 Vac | — | — | — | — | 14 | 18 | 25 | 50 | 100 |
| DC Ratings | 250 Vdc☆ | — | — | — | — | — | — | — | — | — |
| | 500 Vdc♦☆ | — | — | — | — | — | — | — | — | — |
| IEC Rating (kA RMS) Icu/Ics★ | 240 Vac | 10/5 | 10/5 | 10/5 | 10/5 | 25/25 | 65/65 | 100/100 | 125/125 | 125/125 |
| | 415 Vac | 10/5 | 10/5 | 10/5 | 10/5 | 18/18 | 35/35 | 65/65 | 100/100 | 100/100 |
| IEC 50/60 Hz | | | | | | | | | | |
| **Special Ratings** | | | | | | | | | | |
| CCC | | — | — | — | — | X | X | X | X | X |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | — | — | — | — | — |
| HACR (2P, 3P) | | X | X | X | — | X | X | X | X | X |
| **Connections/Terminations** | | | | | | | | | | |
| Unit Mount | | X | X | X | X | X | X | X | X | X |
| I-Line™ | | X | X | X | X | X | X | X | X | X |
| Rear Connection | | — | — | — | — | X | X | X | X | X |
| Drawout | | — | — | — | — | X | X | X | X | X |
| Optional Lugs | | — | — | — | — | X | X | X | X | X |
| **Accessories and Modifications** | | | | | | | | | | |
| Shunt Trip | | — | — | — | — | X | X | X | X | X |
| Undervoltage Trip | | — | — | — | — | X | X | X | X | X |
| Auxiliary Switches | | — | — | — | — | X | X | X | X | X |
| Alarm Switch | | — | — | — | — | X | X | X | X | X |
| Motor Operator | | — | — | — | — | X | X | X | X | X |
| Handle Operators | | — | — | — | — | X | X | X | X | X |
| Mechanical Interlocks (3P) | | X | X | X | X | X | X | X | X | X |
| Handle Padlock Attachment | | X | X | X | X | X | X | X | X | X |
| Cylinder Lock (3P△) | | — | — | — | — | — | — | — | — | — |
| Optional GF Protection▼ | | — | — | — | — | X | X | X | X | X |
| **Trip System Type** | | | | | | | | | | |
| Thermal-magnetic | | X | X | X | X | — | — | — | — | — |
| Instantaneous-only (MCP) | | — | — | — | — | X | X | X | X | X |
| Molded Case Switch (Automatic) | | X | — | — | — | — | X | — | X | X |
| Electronic | | — | — | — | — | X | X | X | X | X |
| **Enclosures (Pages 7-56–7-58)** | | | | | | | | | | |
| General Purpose (NEMA 1) | | X | X | X | X | — | — | — | — | — |
| Raintight (NEMA 3R) | | X | X | X | X | — | — | — | — | — |
| Dust-tight (NEMA 12) | | — | — | — | — | — | — | — | — | — |
| Watertight (NEMA 4, 4X, 5) | | — | — | — | — | — | — | — | — | — |
| Explosion Proof (NEMA 7, 9) | | — | — | — | — | — | — | — | — | — |
| Dimensions (3P Unit Mount) in. (mm) | Height | 6.47 (164) | | | | 13.38 (340) | | | | |
| | Width | 4.5 (114) | | | | 5.51 (140) | | | | |
| | Depth | 3.93 (100) | | | | 4.33 (110) | | | | |
| Pages (Unit Mount)/(I-Line) | | Pages 7-24/9-24 | | | | Pages 7-25/7-33 | | | | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ 2P in a 3P module
■ I-Line Q-frame circuit breakers are available 70–225 A only. 250 A Q-frame unit-mount circuit breakers are limited to Cu conductors only.
♦ Ungrounded UPS systems only. See page 7-35. Special DC J-Frame only.
★ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest, Section 10.
▼ Requires factory-installed "G" shunt trip and 3P module.
△ Factory-installed option only.
□ 3P only.
◊ 70–250 A with electronic trip system
☆ Not available with electronic trip units



© 2012 Schneider Electric
All Rights Reserved

| | | PowerPact 800 A M-Frame | | PowerPact 1200 A P-Frame | | | | PowerPact 3000 A R-Frame | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | |  | | | |  | | | |
| **Circuit Breaker Type** | | MG | MJ | PG | PJ | PK | PL | RG | RJ | RK | RL |
| **Number of Poles** | | 2, 3 | 2, 3 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 | 2, 3, 4 |
| **Current Range** | | 300–800 | 300–800 | 100–1200 | 100–1200 | 100–1200 | 100–1200 | 240–3000 | 240–3000 | 240–3000 | 240–3000 |
| **Interrupting Ratings** | | | | | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) | 240 Vac | 65 | 100 | 65 | 100 | 65 | 125 | 65 | 100 | 65 | 125 |
| | 480Y/277 Vac | 35 | 65 | 35 | 65 | 50 | 100 | 35 | 65 | 65 | 100 |
| | 480 Vac | 35 | 65 | 35 | 65 | 50 | 100 | 35 | 65 | 65 | 100 |
| | 600Y/347 Vac | 18 | 25 | 18 | 25 | 50 | 25 | 18 | 25 | 65 | 50 |
| | 600 Vac | 18 | 25 | 18 | 25 | 50 | 25 | 18 | 25 | 65 | 50 |
| DC Ratings | 250 Vdc | — | — | — | — | — | — | — | — | — | — |
| | 500 Vdc▲ | — | — | — | — | — | — | — | — | — | — |
| IEC (kA RMS) Icu/Ics■ | 240 Vac | 50/25 | 65/35 | 50/25 | 65/35 | 50/25 | 125/65 | 50/25 | 65/35 | 85/65 | 125/65 |
| | 415 Vac | 35/20 | 50/25 | 35/20 | 50/25 | 50/25 | 85/45 | 35/20 | 50/25 | 70/55 | 85/45 |
| IEC 50/60 Hz | | | | | | | | | | | |
| **Special Ratings** | | | | | | | | | | | |
| CCC | | X | X | X | X | X | X | X | X | X | X |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | X | X | X | X | X | X |
| HACR (2P, 3P) | | X | X | X | X | X | X | X | X | X | X |
| **Connections/Terminations** | | | | | | | | | | | |
| Unit Mount | | X | X | X | X | X | X | X | X | X | X |
| I-Line™ | | X | X | X | X | X | X | X▼ | X▼ | X▼ | X▼ |
| Rear Connection | | — | — | — | — | — | — | — | — | — | — |
| Drawout | | — | — | X★ | X★ | X★ | X★ | — | — | — | — |
| Optional Lugs | | X | X | X | X | X | X | X | X | X | X |
| **Accessories and Modifications** | | | | | | | | | | | |
| Shunt Trip | | X | X | X | X | X | X | X | X | X | X |
| Undervoltage Trip | | X | X | X | X | X | X | X | X | X | X |
| Auxiliary Switches | | X | X | X | X | X | X | X | X | X | X |
| Alarm Switch | | X | X | X | X | X | X | X | X | X | X |
| Motor Operator | | — | — | X★ | X★ | X★ | X★ | — | — | — | — |
| Handle Operators | | — | — | X★ | X★ | X★ | X★ | — | — | — | — |
| Mechanical Interlocks (3P) | | — | — | X | X | X | X | — | — | — | — |
| Handle Padlock Attachment | | X | X | X | X | X | X | X | X | X | X |
| Cylinder Lock (3P) | | — | — | — | — | — | — | — | — | — | — |
| Optional GF Protection | | — | — | X | X | X | X | X | X | X | X |
| **Trip System Type** | | | | | | | | | | | |
| Thermal-magnetic | | — | — | — | — | — | — | — | — | — | — |
| Instantaneous-only (MCP) | | — | — | — | X | X | — | — | — | — | — |
| Molded Case Switch (Automatic) | | — | — | X | X | X | X | X | X | X | X |
| Electronic | | X | X | X | X | X | X | X | X | X | X |
| **Enclosures (Pages 7-56–7-58)** | | | | | | | | | | | |
| General Purpose (NEMA 1) | | X | X | X | X | X | X | — | — | — | — |
| Raintight (NEMA 3R) | | X | X | X | X | X | X | — | — | — | — |
| Dust-tight (NEMA 12) | | X | X | X | X | X | X | — | — | — | — |
| Watertight (NEMA 4, 4X, 5) | | X | X | — | — | — | — | — | — | — | — |
| Explosion Proof (NEMA 7, 9) | | — | — | — | — | — | — | — | — | — | — |
| Dimensions (3P Unit Mount) | Height–in. (mm) | 12.80 (325) | | 16.20 (413) | | | | 15 (381) | | | |
| | Width—in. (mm) | 8.30 (210) | | 8.30 (210) | | | | 16.50 (420) | | | |
| | Depth—in. (mm) | 8.10 (205) | | 8.10 (205) | | | | 14.40 (366) | | | |
| Pages (Unit Mount)/(I-Line) | | Page 7-26/9-28 | | Page 7-27, 7-31, 7-34/9-29 | | | | Page 7-28, 7-34/9-30 | | | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-35.
■ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest, Section 10.
♦ Requires breaker with WB suffix
★ 65/50 kA Icu/Ics for 450–600 A ratings.
▼ 1000 A and 1200 A only..





© 2012 Schneider Electric
All Rights Reserved

| | | Masterpact 1200 A | | | | | Masterpact 6000 A | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | | | | |  | | | | | | | |
| **Circuit Breaker Type** | | NT-N | NT-H | NT-L1 | NT-L | NT-LF ▲ | NW-N | NW-H | NW-L | NW-LF ▲ | NW-H | NW-L | NW-H | NW-L |
| **Number of Poles** | | 3, 4 | 3, 4 | 3 | 3 | 3 | 3, 4 | 3, 4 | 3 | 3 | 3, 4 | 3 | 3, 4 | 3 |
| **Current Range** | | 100–1200 | 100–1200 | 100–1200 | 100–1200 | 100–1200 | 100–2000 | 100–2000 | 100–2000 | 100–2000 | 640–3000 | 640–3000 | 1200–6000 | 1200–6000 |
| **Interrupting Ratings** | | | | | | | | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) | 240 Vac | 50 | 65 | 100 | 200 | 200 | 65 | 100 | 200 | 200 | 100 | 200 | 100 | 200 |
| | 480Y/277 Vac | 50 | 50 | 65 | 100 | 100 | 65 | 100 | 150 | 150 | 100 | 150 | 100 | 150 |
| | 480 Vac | 50 | 50 | 65 | 100 | 100 | 65 | 100 | 150 | 150 | 100 | 150 | 100 | 150 |
| | 600Y/347 Vac | 35 | 50 | — | — | — | 50 | 85 | 100 | 100 | 85 | 100 | 85 | 100 |
| | 600 Vac | 35 | 50 | — | — | — | 50 | 85 | 100 | 100 | 85 | 100 | 85 | 100 |
| DC Ratings | 250 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 500 Vdc | — | — | — | — | — | — | — | — | — | — | — | — | — |
| IEC■ (kA RMS) Icu/Ics | 240 Vac | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 415 Vac | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Special Ratings** | | | | | | | | | | | | | | |
| CCC | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Fed. Specs W-C-375B/GEN | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| HACR (2P, 3P) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Connections/Terminations** | | | | | | | | | | | | | | |
| Unit Mount | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| I-Line™ | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Rear Connection | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Drawout | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Optional Lugs | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Accessories and Modifications** | | | | | | | | | | | | | | |
| Shunt Trip | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Undervoltage Trip | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Auxiliary Switches | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Alarm Switch | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Motor Operator | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Handle Operators | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mechanical Interlocks | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Padlock Attachment | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Cylinder Lock | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Optional GF Protection | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Trip System Type** | | | | | | | | | | | | | | |
| Thermal-magnetic | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Instantaneous-only (MCP) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Molded Case Switch (Automatic) | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Electronic | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Enclosures** | | | | | | | | | | | | | | |
| General Purpose (NEMA 1) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Raintight (NEMA 3R) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Dust-tight (NEMA 12) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Watertight (NEMA 4, 4X, 5) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Explosion Proof (NEMA 7, 9) | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Dimensions (3P Unit Mount) in. (mm) | Height | 12.67 (322) | | | | | 17.28 (439) | | | | 17.28 (439) | | 17.28 (439) | |
| | Width | 11.25 (286) | | | | | 17.74 (450) | | | | 17.74 (450) | | 30.94 (786) | |
| | Depth | 13.00 (331) | | | | | 18.38 (467) | | | | 18.38 (467) | | 18.38 (467) | |
| Pages | | Page 7-50 and Catalog 0613CT0001 | | | | | Page 7-50 and Catalog 0613CT0001 | | | | | | | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Tested to show arc flash hazard risk category as reference by NFPA70E.

■ See Catalog 0613CT0001 for additional ratings and other information.



© 2012 Schneider Electric
All Rights Reserved

| | | 100 A Frame | | | | | | 100 A F-Frame | |
|---|---|---|---|---|---|---|---|---|---|
| | |  | | | | | |  | |
| **Circuit Breaker Type** | | FA (240 V) | FA | | FH | FH■ | FH | FI | FY |
| **Number of Poles** | | 1, 2, 3 | 1 | 2, 3 | 1 | 1 | 2, 3 | 2, 3 | 1 |
| **Current Range** | | 15–100 | 15–100 | 15–100 | 15–30 | 35–100 | 15–100 | 20–100 | 15–30 |
| **Interrupting Ratings** | | | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) | 240 Vac | 10◒ | 25◒ | 25 | 65 | 25 | 65 | 200 | 14 |
| | 480Y/277 Vac | — | 18 | 18 | 65 | 25 | 25 | 200 | 14 |
| | 480 Vac | — | — | 18 | — | — | 25 | 200 | — |
| | 600Y/347 Vac | — | — | 14 | — | — | 18 | 100 | — |
| | 600 Vac | — | — | 14 | — | — | 18 | 100 | — |
| DC Ratings | 250 Vdc✱ | 5♦ | 10♦ | 10 | 10♦ | 10♦ | 50 | — | — |
| | 500 Vdc▲✱ | — | — | — | — | — | 20 | — | — |
| IEC Rating (kA RMS) Icu/Ics★ | 240 Vac | — | 18/9 | — | 18/9 | — | — | — | — |
| | 415 Vac | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 6/1.5 | — |
| IEC 50/60 Hz | | For additional IEC ratings, see the Supplemental Digest, Section 10. | | | | | | For additional IEC ratings, see the | |
| **Special Ratings** | | | | | | | | | |
| CCC | | — | — | — | — | — | — | — | — |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | X | X | X | — |
| HACR (2P, 3P) | | X | — | X | — | — | — | — | — |
| **Connections/Terminations** | | | | | | | | | |
| Unit Mount | | X | X | X | X | X | X | X | — |
| I-Line™ | | X | X | X | X | X | X | X | X |
| Rear Connection | | X | X | X | — | — | — | — | — |
| Drawout | | — | — | — | — | — | — | — | — |
| Optional Lugs | | X | X | X | X | X | X | X | — |
| **Accessories and Modifications** | | | | | | | | | |
| Shunt Trip | | X△▼ | — | X△ | — | — | X△ | X△ | — |
| Undervoltage Trip | | X△▼ | — | X△ | — | — | X△ | X△ | — |
| Auxiliary Switches | | X△▼ | — | X△ | — | — | X△ | X△ | — |
| Alarm Switch | | X△▼ | X △ | X△ | X△ | X△ | X△ | X△ | — |
| Motor Operator | | — | — | X | — | — | X | X | — |
| Handle Operators | | X | — | X | X | X | X | — | — |
| Mechanical Interlocks (3P) | | — | — | X | — | — | X | — | — |
| Handle Padlock Attachment | | X | X | X | X | X | X | X | X |
| Cylinder Lock (3P△) | | — | — | X | — | — | X | — | — |
| Optional GF Protection□ | | — | — | X | — | — | X | X | — |
| **Trip System Type** | | | | | | | | | |
| Thermal-magnetic | | X | X | X | X | X | X | X | X |
| Instantaneous-only (MCP) | | — | — | X | — | — | X | — | — |
| Molded Case Switch (Automatic) | | — | — | — | — | — | X | — | — |
| Electronic | | — | — | — | — | — | — | — | — |
| **Enclosures (Pages 7-56–7-58)** | | | | | | | | | |
| General Purpose (NEMA 1) | | X | X | X | X | X | X | X | — |
| Raintight (NEMA 3R) | | X | X | X | X | X | X | X | — |
| Dust-tight (NEMA 12) | | X | X | X | X | X | X | X | — |
| Watertight (NEMA 4, 4X, 5) | | X | X | X | X | X | X | X | — |
| Explosion Proof (NEMA 7, 9) | | X | X | X | X | X | X | — | — |
| Dimensions (3P Unit Mount) in. (mm) | Height | 6 (152) | 6 (152) | | | | | 8 (203) | |
| | Width | 4.5 (114) | 4.5 (114) | | | | | 4.5 (114) | |
| | Depth | 4.13 (105) | 4.13 (105) | | | | | 4.75 (121) | |
| Pages (Unit Mount)/(I-Line) | | Supplemental Digest Section 3 / Pages 9-23 | Supplemental Digest Section 3/Page 9-24 | | | | | Supplemental Digest Section 3/Pages 9-24 | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-35.
■ 65 kA @120 Vac
♦ 1Ø 125 Vdc rating only.
★ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest. Section 10
▼ Not available on 1P FA (240 V).
△ Factory-installed option only.
□ Requires factory-installed "G" Shunt trip and 3P module.
◊ Not available in HD and HG 2P rating (2P module).
☆ 2P in a 3P module.
▽ 3P only.
◒ 1P FA is 120 Vac.
✱ Not available with electronic trip units





© 2012 Schneider Electric
All Rights Reserved

| | | 250 A K-Frame | 400 A L-Frame | | | 600 A L-Frame | |
|---|---|---|---|---|---|---|---|
| | |  |  | | |  | |
| **Circuit Breaker Type** | | KI | Q4 | LA | LH | LI | LXI |
| **Number of Poles** | | 2, 3 | 2, 3 | 2, 3 | 2, 3 | 2, 3 | 3 |
| **Current Range** | | 110–250 | 250–400 | 125–400 | 125–400 | 300–600 | 100–600 |
| **Interrupting Ratings** | | | | | | | |
| UL/CSA/NOM Rating (kA RMS) (50/60 Hz) | 240 Vac | 200 | 25 | 42 | 65 | 200 | 200 |
| | 480Y/277 Vac | 200 | — | 30 | 35 | 200 | 200 |
| | 480 Vac | 200 | — | 30 | 35 | 200 | 200 |
| | 600Y/347 Vac | 100 | — | 22 | 25 | 100 | 100 |
| | 600 Vac | 100 | — | 22 | 25 | 100 | 100 |
| DC Ratings | 250 Vdc | — | — | 10 | 50 | — | — |
| | 500 Vdc▲ | — | — | — | 20 | — | — |
| IEC 60947-2 (kA RMS) Icu/Ics■ | 240 Vac | — | — | — | — | — | — |
| | 415 Vac | 130/65 | — | 20/5 | 20/5 | — | — |
| IEC 50/60 Hz | | For additional IEC ratings, see the Supplemental Digest Section 10. | | | | | |
| **Special Ratings** | | | | | | | |
| CCC | | — | — | — | — | — | — |
| Fed. Specs W-C-375B/GEN | | X | X | X | X | X | X |
| HACR (2P, 3P) | | — | — | X | X | — | — |
| **Connections/Terminations** | | | | | | | |
| Unit Mount | | X | X | X | X | X | X |
| I-Line™ | | X | X | X | X | X | X |
| Rear Connection | | — | X | X | X | — | — |
| Drawout | | — | — | — | — | — | — |
| Optional Lugs | | X | X | X | X | X | X |
| **Accessories and Modifications** | | | | | | | |
| Shunt Trip | | X♦ | X | X | X | X | |
| Undervoltage Trip | | X♦ | X | X | X | X | X |
| Auxiliary Switches | | X♦ | X | X | X | X | X |
| Alarm Switch | | X♦ | X | X | X | X | X |
| Motor Operator | | X | X | X | X | — | — |
| Handle Operators | | — | X | X | X | — | — |
| Mechanical Interlocks (3P) | | — | — | X★ | X★ | — | — |
| Handle Padlock Attachment | | X | X | X | X | X | X |
| Cylinder Lock (3P) | | — | X | X | X | — | — |
| Optional GF Protection | | X▼♦ | — | — | — | — | X★ |
| **Trip System Type** | | | | | | | |
| Thermal-magnetic | | X | X | X | X | X | |
| Instantaneous-only (MCP) | | — | — | X | X | — | — |
| Molded Case Switch (Automatic) | | — | — | — | X | — | — |
| Electronic | | — | — | — | — | — | X |
| **Enclosures (Pages 7-56–7-58)** | | | | | | | |
| General Purpose (NEMA 1) | | — | X | X | X | — | |
| Raintight (NEMA 3R) | | X | X | X | X | — | — |
| Dust-tight (NEMA 12) | | X | X | X | X | X | X |
| Watertight (NEMA 4, 4X, 5) | | X | X | X | X | — | — |
| Explosion Proof (NEMA 7, 9) | | — | — | — | — | — | — |
| Dimensions (3P Unit Mount) in. (mm) | Height | 8 (203) | 11 (279) | | | 11.86 (301) | |
| | Width | 4.5 (114) | 6 (152) | | | 7.5 (190) | |
| | Depth | 4.75 (121) | 5.84 (148) | | | 6.74 (171) | |
| Pages (Unit Mount)/(I-Line) | | Supplemental Digest Section 3 / Pages 9-26 | Supplemental Digest Section 3 / Pages 9-27 | | | Supplemental Digest Section 3 / Pages 9-27 | |

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-35.
■ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest, Section 10.
♦ Factory-installed option only.
★ Requires circuit breaker with WB suffix .
▼ Requires factory-installed "G" Shunt trip. Available only for 3P.
△ 65/50 kA Icu/Ics for 450 A–600 A ratings



© 2012 Schneider Electric
All Rights Reserved

QO™ miniature circuit breakers are plug-on products for use in QO load centers, NQOD panelboards, NQOD OEM interiors or Speed-D™ switchboard distribution panels. Bolt-on QOB circuit breakers are for use in NQOD panelboards or interiors.▲
The QO exclusive Qwik-Open™ mechanism, with a trip reaction within 1/60th of a second, is standard on all 1P 15 A and 20 A QO circuit breakers.


QO 1P
1 Space Required


QOT 1P Tandem
1 Space Required


QO 2P
2 Spaces Required


QO2200 2P 200 A
4 Spaces Required


QO 3P
3 Spaces Required

## Table 7.1: Plug-On Circuit Breakers

| Amperes Rating ■ | 1P—120/240 Vac | | 2P—120/240 Vac Common Trip | | 2P—240 Vac ♦ Common Trip | | 3P—240 Vac Common Trip | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **10 k AIR** | | | | | | | | |
| 10 A | QO110 | **29.10** | QO210 | **67.00** | — | — | QO310 | **248.00** |
| 15 A | QO115★▼ | **29.10** | QO215★ | **67.00** | QO215H | **200.00** | QO315★ | **248.00** |
| 20 A | QO120★▼ | **29.10** | QO220★ | **67.00** | QO220H | **200.00** | QO320★ | **248.00** |
| 25 A | QO125★ | **29.10** | QO225★ | **67.00** | QO225H | **200.00** | QO325★ | **248.00** |
| 30 A | QO130★ | **29.10** | QO230★ | **67.00** | QO230H | **200.00** | QO330★ | **248.00** |
| 35 A | QO135★ | **29.10** | QO235★ | **67.00** | — | — | QO335★ | **248.00** |
| 40 A | QO140★ | **29.10** | QO240★ | **67.00** | QO240H | **200.00** | QO340★ | **248.00** |
| 45 A | QO145★ | **29.10** | QO245★ | **67.00** | — | — | QO345★ | **248.00** |
| 50 A | QO150★ | **29.10** | QO250★ | **67.00** | QO250H | **200.00** | QO350★ | **248.00** |
| 60 A | QO160★ | **29.10** | QO260★ | **67.00** | QO260H | **200.00** | QO360★ | **248.00** |
| 70 A | QO170★ | **67.00** | QO270★ | **134.00** | QO270H | **224.00** | QO370★ | **315.00** |
| 80 A | — | — | QO280★ | **189.00** | QO280H | **315.00** | QO380★ | **366.00** |
| 90 A | — | — | QO290★ | **189.00** | QO290H | **315.00** | QO390★ | **366.00** |
| 100 A | — | — | QO2100★ | **189.00** | QO2100H | **315.00** | QO3100★ | **366.00** |
| 110 A | — | — | QO2110★ | **428.00** | — | — | — | — |
| 125 A | — | — | QO2125★ | **428.00** | — | — | — | — |
| 150 A | — | — | QO2150★△◒ | **491.00** | — | — | — | — |
| 175 A | — | — | QO2175★△◒ | **491.00** | — | — | — | — |
| 200 A | — | — | QO2200★△◒ | **491.00** | — | — | — | — |
| Molded Case Switch 60 A max.–240 Vac | | | — | — | QO200 | **70.00** | QO300 | **248.00** |
| Molded Case Switch 100 A max.–240 Vac | | | — | — | QO2000☆ | **200.00** | QO3000☆ | **366.00** |
| **22 k AIR★** | | | | | | | | |
| 15 A | QO115VH▼ | **63.00** | QO215VH□ | **146.00** | — | — | QO315VH□ | **371.00** |
| 20 A | QO120VH▼ | **63.00** | QO220VH□ | **146.00** | — | — | QO320VH□ | **371.00** |
| 25 A | QO125VH | **73.00** | QO225VH□ | **146.00** | — | — | QO325VH□ | **371.00** |
| 30 A | QO130VH | **73.00** | QO230VH□ | **146.00** | — | — | QO330VH□ | **371.00** |
| 40 A | QO140VH | **73.00** | QO240VH□ | **146.00** | — | — | QO340VH□ | **371.00** |
| 50 A | QO150VH | **73.00** | QO250VH□ | **146.00** | — | — | QO350VH□ | **371.00** |
| 60 A | QO160VH | **73.00** | QO260VH□ | **146.00** | — | — | QO360VH□ | **371.00** |
| 70 A | QO170VH | **112.00** | QO270VH□ | **224.00** | — | — | QO370VH□ | **477.00** |
| 80 A | — | — | QO280VH□ | **315.00** | — | — | QO380VH□ | **530.00** |
| 90 A | — | — | QO290VH□ | **315.00** | — | — | QO390VH□ | **530.00** |
| 100 A | — | — | QO2100VH□◊ | **315.00** | — | — | QO3100VH□ | **530.00** |
| 110 A | — | — | QO2110VH□◊ | **1034.00** | — | — | — | — |
| 125 A | — | — | QO2125VH□◊ | **1034.00** | — | — | — | — |
| 150 A | — | — | QO2150VH△□◒ | **1061.00** | — | — | — | — |
| 175 A | — | — | QO2175VH△□◒ | **1061.00** | — | — | — | — |
| 200 A | — | — | QO2200VH△□◒ | **1061.00** | — | — | — | — |
| **42 k AIR★** | | | | | | | | |
| 40 A | — | — | QOH240☆ | **317.00** | — | — | — | — |
| 45 A | — | — | QOH245☆ | **317.00** | — | — | — | — |
| 50 A | — | — | QOH250☆ | **317.00** | — | — | — | — |
| 60 A | — | — | QOH260☆ | **317.00** | — | — | — | — |
| 70 A | — | — | QOH270 | **528.00** | — | — | — | — |
| 80 A | — | — | QOH280 | **651.00** | — | — | — | — |
| 90 A | — | — | QOH290 | **651.00** | — | — | — | — |
| 100 A | — | — | QOH2100 | **651.00** | — | — | — | — |
| 110 A | — | — | QOH2110☆ | **1389.00** | — | — | — | — |
| 125 A | — | — | QOH2125 | **1389.00** | — | — | — | — |
| **65 k AIR★** | | | | | | | | |
| 15 A | QH115▼ | **117.00** | QH215 | **293.00** | — | — | QH315★ | **507.00** |
| 20 A | QH120▼ | **117.00** | QH220 | **293.00** | — | — | QH320 | **507.00** |
| 25 A | QH125☆ | **117.00** | QH225☆ | **293.00** | — | — | QH325☆ | **507.00** |
| 30 A | QH130 | **117.00** | QH230 | **293.00** | — | — | QH330 | **507.00** |

▲ See Digest Section 1 for load centers, and Section 9 for panelboards and interiors.
■ 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–125 A circuit breakers are suitable for use with 75°C conductors.
♦ UL Listed 5 k AIR on corner grounded Delta systems.
★ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
▼ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.
△ Requires four spaces (1 AWG–300 kcmil Al/Cu.) Suitable for switching 120 Vac fluorescent lighting loads.
□ UL Listed for use ahead of QO, QO-GFI, QO-EPD, QO-AFI, QOT,QOCAFI, and QO-PL 10 k AIR circuit breakers to permit their application at 22 kA fault level.
◊ 100 A maximum branch mounted opposite.
☆ Order only. Contact your local Field Office.
▽ Includes two circuit breakers (one QO2030 and one QO3020) and handle tie QOTHT.
◒ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.

Interrupting Ratings . . . . . Page 7-2
Accessories . . . . . Page 7-12
DimensionsPage 7-54

## Table 7.2: QO-QOB Ring Terminal (20% $ Price Adder)—Factory Installed Only

| Ampere Rating | Poles | Suffix |
|---|---|---|
| 10–30 A | 1, 2, 3 | 5237 |
| 35–60 A | 1,2 | 5238 |
| 35–50 A | 3 | |
| 70–110 A | 2 | 5273 |
| 60–100 A | 3 | |

## Table 7.3: Wire Sizes■

| Circuit Breaker Type | Ampere Rating | Wire Size (AWG/kcmil) |
|---|---|---|
| QO 1P | 10–30 A | 14–8 Al/Cu |
| | 10–30 A | (2) 14–10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| QO 2P | 10–30 A | 14–8 Al/Cu |
| | 10–30 A | (2) 14–10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| | 80–125 A | 4–2/0 Al/Cu |
| | 150–200 A | 4–300 Al/Cu |
| QO 3P | 10–30 A | 14–8 Al/Cu, (2) 14-10 Cu |
| | 35–70 A | 8–2 Al/Cu |
| | 80–125 A | 4–2/0 Al/Cu |
| QOB-VH | 110–150 A | 4–300 Al/Cu |
| QOT | 15–20 A | 12–8 Al 14–8 Cu |
| QO-AFI, QO-GFI & QO-EPD | 15–30 A | 12–8 Al 14–8 Cu |
| | 40, 50, 60 A | 12–4 Al 14–6 Cu |
| QO-PL | 10–60 A | 12–2 Al 14–2 Cu |

## Table 7.4: QOT Tandem Circuit Breakers

| Ampere Rating■ | Cat. No.★ | $ Price |
|---|---|---|
| **1P—120/240 Vac** | | |
| 15 A & 15 A | QOT1515 | **58.00** |
| 15 A & 20 A | QOT1520 | **58.00** |
| 20 A & 20 A | QOT2020 | **58.00** |
| **2P—120/240 Vac** | | |

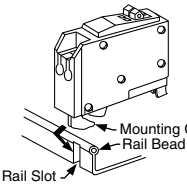
Order two QOT1515 or QOT2020 circuit breakers and handle tie QOTHT for common switching of center two poles.

## Table 7.5: Replacement Tandem Circuit Breakers

For Use in Old Style Non-Class CTL QO Load Centers—10 k AIR

| Ampere Rating■ | Cat. No.★ | $ Price |
|---|---|---|
| **1P—120/240 Vac—1 Space Required** | | |
| 15 &A 15 A | QO1515 | **73.00** |
| 15 A & 20 A | QO1520 | **73.00** |
| 20 A & 20 A | QO2020 | **73.00** |
| 20 A & 30 A | QO2030 | **73.00** |
| 30 A & 20 A | QO3020 | **73.00** |
| **Two 1P Individual Trip—120/240 Vac—2 Spaces Required** | | |
| 15 A & 15 A | Order Two QO1515 or QO2020 circuit breakers and handle tie QOTHT for common switching of center two poles. | |
| 15 A & 20 A | | |
| 20 A & 20 A | — | — |
| 20 A & 30 A | QO20303020▽ | **134.00** |
| 30 A & 20 A | — | — |

QOT Tandem




Circuit limiting QOT tandem circuit breakers have a mounting cam as shown. Installation into a QO load center can only be made in those positions having a mounting pan rail slot. Meets Paragraph 408.15 of the NEC®. UL Listed as Class CTL





© 2012 Schneider Electric
All Rights Reserved


1P
QO-CAFI


1P
QO-PCAFI


1P
QO-GFI


2P
QO-GFI


3P
QO-GFI


Two-wire
QO-SWN


Three-wire
QO-SWN


QO 1P
With Shunt Trip


QO-K Key
Operated

## New! QO™ Arc-Fault Circuit Breaker (Pigtail and Plug-On Neutral)

QO arc-fault circuit breakers provide protection for Series and Parallel Type Arcing as required by the NEC and local code adoption, and comply with UL1699.

**Table 7.6: QO Arc Fault Circuit Breakers▲**

| Circuit Breaker Type | Ampere Rating | 1P 120 Vac 10 k AIR 1 Space Required Cat. No. | $ Price | 1P 120 Vac 22 k AIR 1 Space Required Cat. No. | $ Price |
|---|---|---|---|---|---|
| Combination Arc-fault Interrupter (Pigtail Neutral) | 15 A | QO115CAFI | 282.00 | QO115VHCAFI | 534.00 |
| | 20 A | QO120CAFI | 282.00 | QO120VHCAFI | 534.00 |
| Plug-On Neutral Arc-fault Interrupter | 15 A | QO115PCAFI | 282.00 | QO115VHPCAFI | 534.00 |
| | 20 A | QO120PCAFI | 282.00 | QO120VHPCAFI | 534.00 |

***NOTE:*** *QO Dual Function (Combination Arc Fault and Ground Fault Circuit Interrupter) breakers are on page 7-63.*

### QO-GFI

Qwik-Gard™ circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 mA or more, for people protection. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

**Table 7.7: QO-GFI Circuit Breakers**

| Ampere Rating♦ (A) | Qwik-Gard Circuit Breakers With Ground Fault Circuit Interrupter | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1P 120 Vac | | | | 2P Common Trip 120/240 Vac | | 3P Common Trip 208Y/120 Vac | |
| | 10 k AIR | | 22 k AIR | | 10 k AIR | | 10 k AIR | |
| | 1 Space Required | | 1 Space Required | | 2 Spaces Required | | 3 Spaces Required | |
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 | QO115GFI | 233. | QO115VHGFI | 482. | QO215GFI | 413. | QO315GFI | 791. |
| 20 | QO120GFI | 233. | QO120VHGFI | 482. | QO220GFI | 413. | QO320GFI | 791. |
| 25 | QO125GFI | 233. | QO125VHGFI | 482. | QO225GFI | 413. | — | — |
| 30 | QO130GFI | 233. | QO130VHGFI | 482. | QO230GFI | 413. | QO330GFI | 791. |
| 40 | — | — | — | — | QO240GFI | 413. | QO340GFI | 791. |
| 50 | — | — | — | — | QO250GFI | 413. | QO350GFI | 791. |
| 60 | — | — | — | — | QO260GFI★ | 413. | — | — |

### QO-EPD/EPE

QO-EPD/EPE circuit breakers provide overload and short circuit protection combined with Class B ground fault protection. They are designed to provide ground fault protection of equipment at a 30 milliampere level (EPD) or 100 milliamp level (EPE). They are not designed to protect people from electrical shock.

**Table 7.8: QO-EPD Circuit Breakers**

| Ampere Rating♦ (A) | 1P 120 Vac 10 k AIR 1 Space Required | | 2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required | | 3P Common Trip 240 Vac 10 k AIR 3 Spaces Required | | | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 | QO115EPD | 410. | QO215EPD | 660. | QO315EPD▼ | 1077. | QO315EPE▼ | 1077. |
| 20 | QO120EPD | 410. | QO220EPD | 660. | QO320EPD▼ | 1077. | QO320EPE▼ | 1077. |
| 25 | QO125EPD | 410. | QO225EPD | 660. | — | — | — | — |
| 30 | QO130EPD | 410. | QO230EPD | 660. | QO330EPD▼ | 1077. | QO330EPE▼ | 1077. |
| 40 | — | — | QO240EPD | 660. | QO340EPD▼ | 1077. | QO340EPE▼ | 1077. |
| 50 | — | — | QO250EPD | 660. | QO350EPD▼ | 1077. | QO350EPE▼ | 1077. |
| 60 | — | — | QO260EPD★ | 660. | — | — | — | — |

### QO-SWN

Switch Neutral Common Trip 2008 NEC™ 514.11

**Table 7.9: QO-SWN Circuit Breakers**

| Ampere Rating♦ | 2 Wire 120 Vac 10 k AIR 2 Spaces Required | | 3 Wire 120/240 Vac 10 k AIR 3 Spaces Required | |
|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price |
| 10 A | QO210SWN | 95.00 | — | — |
| 15 A | QO215SWN | 95.00 | QO315SWN | 143.00 |
| 20 A | QO220SWN | 95.00 | QO320SWN | 143.00 |
| 25 A | QO225SWN | 95.00 | — | — |
| 30 A | QO230SWN | 95.00 | QO330SWN | 143.00 |
| 40 A | QO240SWN | 95.00 | QO340SWN | 143.00 |
| 50 A | QO250SWN | 95.00 | QO350SWN | 143.00 |

### QO-HID

HID circuit breakers are for use on circuits feeding fluorescent and high intensity discharge (HID) lighting systems such as mercury vapor, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QO circuit breakers.

**Table 7.10: QO-HID Circuit Breakers**

| Ampere Rating♦ | 1P 120/240 Vac 10 k AIR 1 Space Required | | 2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required | | 3P Common Trip 240 Vac 10 k AIR 3 Spaces Required | |
|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 A | QO115HID■ | 38.10 | QO215HID | 87.00 | QO315HID | 300.00 |
| 20 A | QO120HID■ | 38.10 | QO220HID | 87.00 | QO320HID | 300.00 |
| 25 A | QO125HID | 38.10 | QO225HID | 87.00 | QO325HID | 300.00 |
| 30 A | QO130HID | 38.10 | QO230HID | 87.00 | QO330HID | 300.00 |
| 40 A | QO140HID | 38.10 | QO240HID | 87.00 | — | — |
| 50 A | QO150HID | 38.10 | QO250HID | 87.00 | — | — |

### QO-K

Key operated QO circuit breakers are available in single-pole construction and can be mounted in any single-pole space which will accept a standard QO. These circuit breakers can be turned ON or OFF or to RESET with a special key (catalog number QOK10) included with the circuit breaker. These circuit breakers are UL Listed and available as shown in the table.

**Table 7.11: QO-K Circuit Breakers**

| 120 Vac—10 k AIR (1 Space Required) | | |
|---|---|---|
| Ampere Rating ♦ | Cat. No. | $ Price |
| 10 A | QO110K | 164.00 |
| 15 A | QO115K | 164.00 |
| 20 A | QO120K | 164.00 |
| 30 A | QO130K | 164.00 |

### QO-HM

High magnetic trip circuit breakers are recommended for applications where high initial inrush may occur and for individual dimmer applications.

**Table 7.12: QO-HM Circuit Breakers**

| Ampere Rating♦ | 1P | |
|---|---|---|
| | Cat. No | $ Price |
| 120 Vac—10 k AIR | | |
| 15 A | QO115HM▲■ | 30.60 |
| 20 A | QO120HM▲■ | 30.60 |

## Non-automatic (Standard) Miniature Switches

Miniature non-automatic switches have the same physical packaging as miniature circuit breakers, but open only when the handle is switched to the OFF position.

Non-automatic switches provide no overcurrent protection or short circuit protection. They must not be used on systems that have an available fault current greater than the values listed in the table.

Non-automatic switches are UL Listed per UL 1087 and are CSA certified.

**Table 7.13: QO Non-Automatic Miniature Switches, 240 Vac 10 kA**

| Ampere Rating | 2P | | 3P | |
|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price |
| 60 A | QO200 | 70.00 | QO300 | 248.00 |
| 100 A | QO2000 | 200.00 | QO3000 | 366.00 |

▲ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

■ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.

♦ 10–30 A circuit breakers are suitable for use with 60° C or 75° C conductors. 35–60 A circuit breakers are suitable for use with 75° C conductors.

★ Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.

▼ See note in Instruction Bulletin when using in an enclosure with a QO403 or QON prefix.

Interrupting Ratings . . . . . Page 7-2
Accessories . . . . . Page 7-12
Dimensions . . . . . Page 7-54

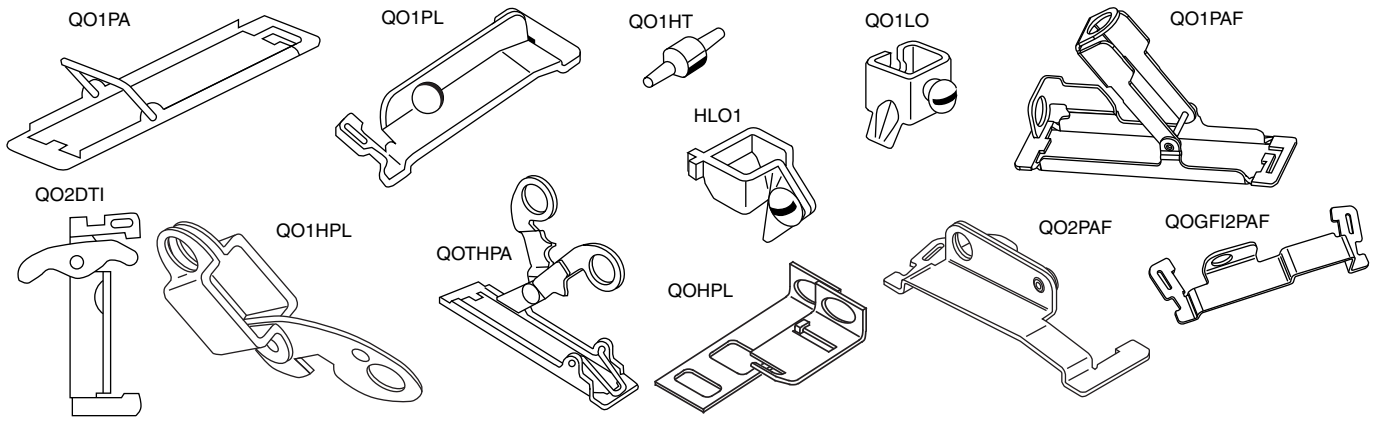


© 2012 Schneider Electric
All Rights Reserved

### Table 7.14: Accessories for Use with QO™ and QOB Miniature Circuit Breakers

| Handle Attachments | Description | Cat. No. | $ Price | Schedule |
|---|---|---|---|---|
| Handle Tie: | Converts any two adjacent 120/240 Vac 1P QO circuit breakers to independent trip 2P | QO1HT | 3.80 | DE2E |
| | Converts any two adjacent 120/240 Vac 1P side-by-side QOT circuit breakers to independent trip 2P | QOTHT | 3.80 | DE2E |
| | Handle tie and lock-off for three 1P QO, QOB circuit breakers | QO3HT | 13.40 | DE2E |
| Handle Clamp: | Clamp for holding QO 1P handle in ON or OFF position | QO1LO | 3.80 | DE2E |
| | Clamp for holding QO or Q1 1P, 2P or 3P circuit breaker handles in ON or OFF position | HLO1 | 9.90 | DE2E |
| Handle Padlock Attachment: for Padlocking in ON or OFF position | For padlocking 1P QO circuit breaker in ON or OFF position | | | |
| | Loose attachment | QOHPL | 9.50 | DE2E |
| | Fixed attachment | QO1PA | 10.70 | DE2E |
| | For padlocking 1P side-by-side QOT circuit breaker in ON or OFF position | QOTHPA | 11.10 | DE2E |
| | For padlocking 2P and 3P QO-GFI, QO-EPD, and QO-EPE in either ON or OFF position, fixed attachment. | GFI2PA | 9.20 | DE2A |
| | For 2P and 3P QO and Q1 standard circuit breakers which require padlocking in either ON or OFF position. | | | |
| | Loose attachment | QO1HPL | 10.70 | DE2E |
| | Fixed attachment | QO1PL | 10.70 | DE2E |
| Handle Padlock Attachment: for Padlocking in OFF position | For padlocking 1P QO circuit breaker in OFF position only, fixed attachment. | QO1PAF | 43.50 | DE2E |
| | For padlocking 2P and 3P QO circuit breakers in OFF position only, fixed attachment. | QO2PAF | 25.80 | DE2E |
| | For padlocking 1P QO-GFI, QO-AFI, QO-CAFI, QO-PCAFI, and QO-EPD circuit breakers in OFF position only, fixed attachment. | QOGFI1PAF | 51.00 | DE2E |
| | For padlocking 2P and 3P QO-GFI, QO-EPD, and QO-EPE circuit breakers in OFF position only, fixed attachment. | QOGFI2PAF | 38.40 | DE2E |
| Ring Terminal | Ring terminals are available as a factory-installed option. | See Page 7-10 | +20% Price Adder | DE2A |
| Sub-Feed Lugs | 60 A 2P plug-on – 2 spaces required (6–2 Al/Cu) | QO60SL | 47.10 | DE2A |
| | 125 A 2P plug-on – 2 spaces required (12–2/0 Al/Cu) | QO2125SL | 137.00 | DE2A |
| | 225 A 2P plug-on – 4 spaces required (4–300 Al/Cu) | QO2225SL▲ | 308.00 | DE2A |
| | 125 A 3P plug-on – 3 spaces required (12–2/0 Al/Cu) | QO3125SL | 137.00 | DE3 |
| Mechanical Interlock Attachment | For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time (Not QOU) | QO2DTI | 24.90 | DE2E |
| With Retaining Kit: | QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2Ps or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers. | QO2DTIM | 63.00 | DE2E |

▲ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.




## Factory-Installed Accessories for Use with QO and QOB Miniature Circuit Breakers

Factory-installed electrical accessories take up an additional pole space on QO™, QO-GFI, QO-EPD, QO-SWN and QOU circuit breakers. All AC electrical accessories shown below are rated for 50/60 Hz. Accessories are not available for QOB-VH (2P 150 A and 3P 110–150 A) circuit breakers or QO, QOU molded case switches. QO circuit breakers will accept only one accessory per circuit breaker. Undervoltage trip is not available on miniature circuit breakers. Factory-installed accessories are not available for QO-AFI, QO-CAFI or OQ-PCAFI Arc Fault Circuit Breakers or on QO2150, QO2175, or QO2200 circuit breakers.

### Table 7.15: Factory-Installed Accessories

| Accessory | Description | Rated Voltage | | Coil Burden | Cat. No. Suffix | $ Price Adder |
|---|---|---|---|---|---|---|
| Shunt Trip | Trips the circuit breaker from a remote location by means of a trip coil energized from a separate circuit. A 120 Vac shunt trip will operate at 55% or more of rated voltage. All other shunt trips will operate at 75% or more of rated voltage.<br>**Application**<br>• For use with momentary or maintained push button.<br>• Not available on QO-GFI, QO-EPD, QO-AFI, QO-CAFI, QO-PCAFI.<br>• Shunt trip terminals accept (2) 14–12 AWG Cu. | AC/DC | 12 | 60 VA | -1042 | 189.00 |
| | | | 24 | 168 VA | | |
| | | AC | 120 | 72 VA | -1021 | 189.00 |
| | | | 208 | 228 VA | | |
| | | | 240 | 288 VA | | |

| Accessory | Description | Contact Comb. | Max. Voltage | Max. Load | Cat. No. Suffix | $ Price Adder |
|---|---|---|---|---|---|---|
| Auxiliary Switches | Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED.<br>**Application**<br>• Auxiliary switch terminals accept (2) 14–12 AWG Cu leads. | 1A | AC 120 | 5 A | -1200 | 132.00 |
| | | 1B | AC 120 | 5 A | -1201 | 132.00 |
| Alarm Switches | Used with control circuits and is actuated only when the circuit breaker has tripped. Standard construction includes a normally-open contact.<br>**Application**<br>• Alarm switch terminals accept (2) 14–12 AWG Cu leads. | 1A | AC 120 | 5 A | -2100 | 132.00 |





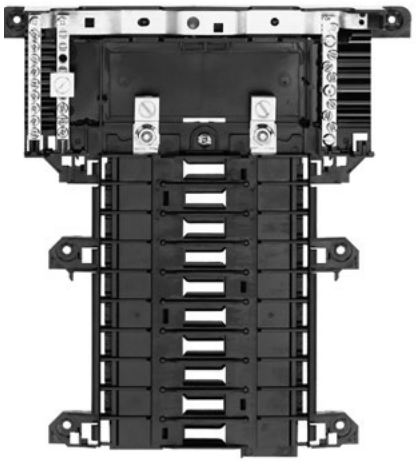
© 2012 Schneider Electric
All Rights Reserved



SN12125



QON2L40



QON120L125I

**Table 7.16: QO OEM Mounting Bases—UL Recognized Components**

| Voltage System | Main Lug Rating | 1P Spaces | Max. No. 1P | Mounting Bases Cat. No. | Mounting Bases $ Price | Main Wire Size AWG/kcmil |
|---|---|---|---|---|---|---|
| **QO Plug-On Mounting Bases—For unit mounting QO, QO-GFI, QO-AFI and QO-EPD circuit breakers** | | | | | | |
| 1Ø2W 240 Vac Max. 10 k AIC (Without Neutral Assembly) | 70 A | 2 | 2 | QON2L70 | **27.30** | 14–4 Cu, 12–3 Al |
| | 125 A | 4 | 4 | SK9948BW | **75.00** | 12–1/0 Cu/Al |
| | 125 A | 4 | 4 | SK9842 | **78.00** | 12–1/0 Cu/Al |
| | 125 A | 6 | 6 | SK9795 | **84.00** | 12–1/0 Cu/Al |
| | 125 A | 6 | 6 | SK9801 | **108.00** | 12–1/0 Cu/Al |
| | 150 A | 6 | 6 | SK9796BW | **131.00** | 8–3/0 Cu/Al |
| | 150 A | 8 | 8 | SK9797 | **140.00** | 8–3/0 Cu/Al |
| 1Ø3W 240 Vac Max. 10 k AIC | 40 A | 2 | 2 | QON2L40 | **35.00** | 14–6 Cu, 12–6 Al |
| | 70 A | 2 | 4 | QON24L70 | **50.00** | 14–4 Cu, 12–3 Al |
| | 100 A | 6 | 12 | QON612L100 | **70.00** | 8–1/0 Cu/Al |
| | 100 A | 8 | 16 | QON816L100 | **92.00** | 8–1/0 Cu/Al |
| | 100 A | 12 | 12 | QON12L100 | **113.00** | 12–2/0 Cu/Al |
| | 100 A | 12 | 12 | QON12L100SF■ | **161.00** | 6–2/0 Cu/Al |
| | 125 A | 12 | 12 | QON112L125I | **120.00** | 4–2/0 Cu/Al |
| | 125 A | 12 | 24 | QON11224L125I | **168.00** | 4–2/0 Cu/Al |
| | 125 A | 16 | 16 | QON116L125I | **131.00** | 4–2/0 Cu/Al |
| | 125 A | 16 | 24 | QON11624L125I | **191.00** | 4–2/0 Cu/Al |
| | 125 A | 20 | 20 | QON120L125I | **225.00** | 4–2/0 Cu/Al |
| | 125 A | 24 | 24 | QON124L125I | **263.00** | 6–2/0 Cu/Al |
| | 125 A | 32 | 32 | QON132L125I | **360.00** | 4–2/0 Cu/Al |
| | 125 A | 20 | 24 | QON12024L125I | **263.00** | 4–2/0 Cu/Al |
| | 150 A | 24 | 24 | QON124L150I | **263.00** | 4–250 Cu/Al |
| | 200 A | 12 | 12 | QON124L200I | **339.00** | 4–250 Cu/Al |
| | 200 A | 12 | 12 | QON12L200FTL♦ | **500.00** | 4–250 Cu/Al |
| | 200 A | 24 | 24 | QON124L200I | **339.00** | 4–250 Cu/Al |
| | 200 A | 24 | 24 | QON124L200DL★ | **500.00** | (2) 4–300 Cu/Al |
| | 200 A | 30 | 30 | QON130L200I | **417.00** | 4–250 Cu/Al |
| | 225 A | 42 | 42 | QON142L225I | **599.00** | 4–300 Cu/Al |
| 3Ø3W 240 Vac Max. 10 k AIC (Without Neutral Assy.) | 125 A | 12 | 12 | QON312L125 | **251.00** | 4–2/0 Cu/Al |
| | 125 A | 20 | 20 | QON320L125 | **380.00** | 4–2/0 Cu/Al |
| | 125 A | 24 | 24 | QON324L125 | **395.00** | 4–2/0 Cu/Al |
| | 200 A | 18 | 18 | QON318L200 | **327.00** | 4–300 Cu/Al |
| | 200 A | 24 | 24 | QON324L200 | **402.00** | 4–300 Cu/Al |
| | 200 A | 30 | 30 | QON330L200 | **477.00** | 4–300 Cu/Al |
| | 225 A | 42 | 42 | QON342L225 | **674.00** | 4–300 Cu/Al |
| 3Ø4W 240 Vac Max. 10 k AIC | 60 A | 3 | 3 | QON403L60N | **49.80** | 12–6 Cu/Al |
| | 125 A | 12 | 12 | QON312L125I | **281.00** | 4–2/0 Cu/Al |
| | 125 A | 20 | 20 | QON320L125I ▲ | **441.00** | 4–2/0 Cu/Al |
| | 125 A | 24 | 24 | QON324L125I | **461.00** | 4–2/0 Cu/Al |
| | 200 A | 18 | 18 | QON318L200I | **426.00** | 4–300 Cu/Al |
| | 200 A | 24 | 24 | QON324L200I | **468.00** | 4–300 Cu/Al |
| | 200 A | 30 | 30 | QON330L200I ▲ | **528.00** | 4–300 Cu/Al |
| | 225 A | 42 | 42 | QON342L225I | **716.00** | 4–300 Cu/Al |
| **QO Plug-On Mounting Bases—For unit mounting QO, QO-GFI and QO-EPD circuit breakers** | | | | | | |
| 1Ø2W 240 Vac Max. 10 k AIC (Without Neutral Assembly) | 70 A | 1 | 1 | QOMB1 | **29.60** | 14–4 Cu 12–2 Al |
| | 70 A | 2 | 2 | QOMB2 | **59.00** | 14–4 Cu 12–2 Al |
| | 70 A | 3 | 3 | QOMB3 | **87.00** | 14–4 Cu 12–2 Al |
| **QOB Bolt-On Mounting Bases—For unit mounting QOB, QOB-GFI, QOB-EPD circuit breakers** | | | | | | |
| 3Ø3W 240 Vac Max.10 k AIC (Without Neutral Assembly) | 100 A | 3 | 3 | QON3B | **56.00** | 12–1 Cu/Al |

▲ Also IEC rated and CE marked for IEC 60439-1. Use only Square D brand Type QOXC, QOXD, QOHX and QOE circuit breakers for 415Y/240 Vac max. systems.
■ Device comes with factory-installed sub-feed lugs.
♦ Device comes with factory-installed feed-thru lugs.
★ Device comes with factory-installed dual-line lugs.

**Table 7.17: Solid Neutral Assemblies**

| Main Lug Rating | Number of Branch Neutral Terminals | Cat. No. | $ Price | Main Neutral Lug Wire Size Cu/Al | Branch Neutral Terminal Wire Size Cu | Branch Neutral Terminal Wire Size Al |
|---|---|---|---|---|---|---|
| 125 A | 12 | SN12125 | **36.30** | 4–2/0 AWG | 14–4 AWG | 12–4 AWG |
| 125 A | 20 | SN20 | **39.50** | 4–2/0 AWG | 14–4 AWG | 12–4 AWG |
| 200 A | 12 | SN12200 | **40.70** | 4 AWG–300 kcmil | 14–4 AWG | 12–4 AWG |
| 200 A | 30 | SN30 | **54.00** | 4 AWG–300 kcmil | 14–4 AWG | 12–4 AWG |
| 225 A | 42 | SN42 | **63.00** | 4 AWG–300 kcmil | 14–4 AWG | 12–4 AWG |

**Table 7.18: Multi-9 Mounting Bases for UL489 C60, 240 Vac max.**

| Description | Poles | Amperes | Length in. | Length mm | Cat. No.▼ | $ Price |
|---|---|---|---|---|---|---|
| One-conductor Mounting Base | 12 | 200 A | 10.4 | 264 | US11220018 | **330.00** |
| | 24 | | 14.4 | 366 | US12420018 | **476.00** |
| | 36 | | 19 | 483 | US13620018 | **632.00** |
| | 48 | | 23 | 584 | US14820018 | **810.00** |
| | 60 | | 27.5 | 699 | US16020018 | **972.00** |
| Two-conductor Mounting Base | 12 | 150 A | 10.4 | 264 | US21215018 | **429.00** |
| | 24 | 200 A | 14.4 | 366 | US22420018 | **645.00** |
| | 36 | | 19 | 483 | US23620018 | **887.00** |
| | 48 | | 23 | 584 | US24820018 | **1140.00** |
| | 60 | | 27.5 | 699 | US26020018 | **1359.00** |
| Three-conductor Mounting Base | 12 | 100 A | 10.4 | 264 | US31210018 | **467.00** |
| | 24 | 200 A | 14.4 | 366 | US32420018 | **701.00** |
| | 36 | | 19 | 483 | US33620018 | **960.00** |
| | 48 | | 23 | 584 | US34820018 | **1245.00** |
| | 60 | | 27.5 | 699 | US36020018 | **1547.00** |



US Mounting Base for UL489 C60 (3 conductor shown)

**Table 7.19: Accessories for US Mounting Base for UL489 C60**

| Description | Cat. No.▼ | $ Price |
|---|---|---|
| Main lug kit for US mounting bases, 1 lug per kit, for 6 AWG to 300 kcmil cable | USMBLK | **24.00** |
| Terminal cover for US mounting base; provides IP20 ingress protection per IEC 60529; suitable for jumper bars or cable | USMBTC | **49.50** |

▼ DE2 Discount Schedule



© 2012 Schneider Electric
All Rights Reserved



Low Ampere QOU

## Low Ampere QOU Miniature Circuit Breakers

QOU unit mount miniature circuit breakers (cable-in/cable-out) are ideal for OEM applications. They have the Square D™ circuit breaker's unique Visi-Trip™ feature and can be DIN rail-mounted or surface- or flush-mounted using mounting feet.

### General Specifications Common to All Low Ampere QOU Circuit Breakers

- For convenient flush mount, surface mount or DIN mount (symmetrical rail 35 x 7.5 DIN/EN 50 022)
- Single handle with internal common trip
- Terminal lug wire size (1) 14–2 AWG Cu or Al
- Reversible line and load lugs
- Field-installable quick connectors
- UL Listed 48 Vdc (5 k AIR)
- UL Listed as HACR Type: 10–70 A
- High magnetic trip circuit breakers (QOU-HM) are recommended for applications where high initial inrush may occur and for individual dimmer applications.
- For DIN mounting rails, see IEC Starters and Relays, Section 18.

**Table 7.20: QOU Low Ampere Miniature Circuit Breakers**

| Ampere Rating | 1P 120/240 Vac | | 2P 120/240 Vac | | 2P 240 Vac | | 3P 240 Vac | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No.▲ | $ Price | Cat. No. | $ Price |
| **10 k AIR** | | | | | | | | |
| 10 A | QOU110 | | QOU210 | | — | | QOU310 | |
| 15 A | QOU115 | | QOU215 | | QOU215H | | QOU315 | |
| 20 A | QOU120 | | QOU220 | | QOU220H | **168.00** | QOU320 | |
| 25 A | QOU125 | | QOU225 | | QOU225H | | QOU325 | |
| 30 A | QOU130 | **40.20** | QOU230 | **87.00** | QOU230H | | QOU330 | **285.00** |
| 35 A | QOU135 | | QOU235 | | — | — | QOU335 | |
| 40 A | QOU140 | | QOU240 | | — | — | QOU340 | |
| 45 A | QOU145 | | QOU245 | | — | — | QOU345 | |
| 50 A | QOU150 | | QOU250 | | — | — | QOU350 | |
| 60 A | QOU160 | | QOU260 | | — | — | QOU360 | |
| 70 A | QOU170 | **78.00** | QOU270 | **171.00** | — | — | QOU370 | **363.00** |
| **22 k AIR** | | | | | | | | |
| 15 A | QOU115VH | | QOU215VH | | — | — | QOU315VH | |
| 20 A | QOU120VH | | QOU220VH | | — | — | QOU320VH | **426.00** |
| 25 A | QOU125VH | | QOU225VH | | — | — | QOU325VH | |
| 30 A | QOU130VH | | QOU230VH | | — | — | QOU330VH | |
| 35 A | QOU135VH | **101.00** | QOU235VH | **189.00** | — | — | — | — |
| 40 A | QOU140VH | | QOU240VH | | — | — | — | — |
| 45 A | QOU145VH | | QOU245VH | | — | — | — | — |
| 50 A | QOU150VH | | QOU250VH | | — | — | — | — |
| 60 A | QOU160VH | | QOU260VH | | — | — | — | — |

▲ QOU-H interrupting rating is 10 kA at 240 Vac.

**Table 7.21: QOU-HM Miniature Circuit Breakers (10 k AIR)**

| Ampere Rating | 1P 120/240 Vac | | 2P 120/240 Vac | | 2P 240 Vac | | 3P 240 Vac | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 15 A | QOU115HM | **40.20** | — | — | — | — | — | — |
| 20 A | QOU120HM | | — | — | — | — | — | — |



High Ampere QOU

**Table 7.22: QYU UL1077 Recognized Supplementary Protectors (5 k AIR)**

| Ampere Rating | 1P 277 Vac | | 2P 120/240 Vac | | 2P 240 Vac | | 3P 240 Vac | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 10 A | QYU110 | | — | — | — | — | — | — |
| 15 A | QYU115 | | — | — | — | — | — | — |
| 20 A | QYU120 | **122.00** | — | — | — | — | — | — |
| 25 A | QYU125 | | — | — | — | — | — | — |
| 30 A | QYU130 | | — | — | — | — | — | — |

## High Ampere QOU Circuit Breakers

### General Specifications Common to All High Ampere QOU Circuit Breakers

- Flush mount, surface mount, and DIN rail mount.
- Internal common trip.
- Non-reversible line and load lugs.
- Terminal lug wire size (1) 12– 2/0 AWG Cu or Al.
- UL Listed 60 Vdc per pole (5 k AIR). (**Note:** except switches)
- UL Listed as HACR type, 80–125 A.
- Non-automatic switches have the same physical packaging as miniature circuit breakers, but provide no overcurrent or short circuit protection. They are UL Listed per UL1087 and are CSA certified.

**Table 7.23: QOU High Ampere Miniature Circuit Breakers (10 k AIR)**

| Ampere Rating | 1P 120/240 Vac | | 2P 120/240 Vac | | 2P 240 Vac | | 3P 240 Vac | |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 80 A | QOU180 | | QOU280 | | — | — | QOU380 | |
| 90 A | QOU190 | **176.00** | QOU290 | **246.00** | — | — | QOU390 | **416.00** |
| 100 A | QOU1100 | | QOU2100 | | — | — | QOU3100 | |
| 125 A | — | — | QOU2125 | **452.00** | — | — | — | — |

**Table 7.24: QOU Non-Automatic Switches**

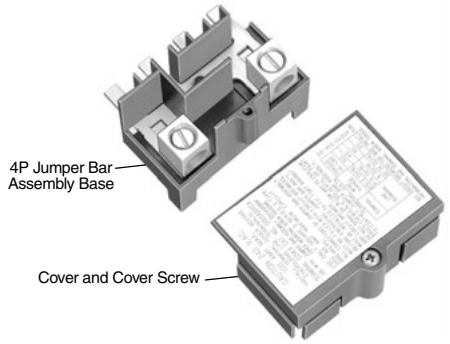
| Ampere Rating | 1P 120 Vac | $ Price | 2P 120/240 Vac | $ Price | 2P 240 Vac | $ Price | 3P 240 Vac | $ Price |
|---|---|---|---|---|---|---|---|---|
| | Cat. No. | | Cat. No. | | Cat. No. | | Cat. No. | |
| 60 A | — | — | — | — | QOU200 | **87.00** | QOU300 | **285.00** |
| 100 A | — | — | — | — | QOU2000 | **246.00** | QOU3000 | **416.00** |
| 125 A | — | — | — | — | QOU20001 | **452.00** | QOU30001 | **716.00** |

Interrupting Ratings . . . . . Page 7-3
Accessories . . . . . Page 7-12, 7-15
Dimensions. . . . . Page 7-54

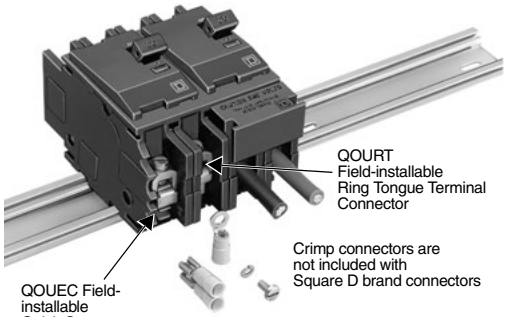




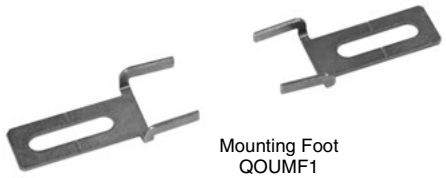
© 2012 Schneider Electric
All Rights Reserved



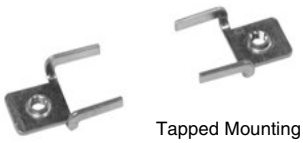

QOU14100JBAF




2P DIN Mounted QOU Circuit Breakers



Mounting Foot
QOUMF1



Tapped Mounting Foot
Suffix–3100

**Table 7.25: Accessories for QOU Low Ampere Circuit Breakers (Except as Noted)**

| Description | Order Qty. | Cat. No. | Unit $ Price |
|---|---|---|---|
| Factory-installed ring tongue terminal, 10–32 screw, for 1P, 2P, 3P QOU, 10–60 A | — | Suffix -5283 | **Add 20% to price** |
| Hex drive 5/32 in. wire binding screw for QOU | — | Suffix -5280 | **Add 20% to price** |
| For padlocking 1P low ampere QOU circuit breaker in OFF or ON position | — | QOU1PA | **10.10** |
| For padlocking 2P and 3P low ampere QOU circuit breaker in OFF or ON position | — | QOU1PL | **10.10** |
| For padlocking 1P low ampere QOU circuit breaker in OFF position only | — | QOU1PAFLA♦ | **43.50** |
| For padlocking 2P and 3P low ampere QOU circuit breaker in OFF position only | — | QOU2PAFLA♦ | **25.80** |
| For padlocking 2P and 3P high ampere QOU circuit breaker in OFF position only | — | Suffix -7100 | **Add 20% to price** |
| Handle lock-out, ON or OFF position | — | HLO1♦ | **9.90** |
| 4P 100 A Jumper bar assy. w/front wiring with base, cover and screw | 1 | QOU14100JBAF | **73.00** |
| 4P 100 A Jumper bar assy. w/right side wiring with base, cover and screw | 1 | QOU14100JBAR | **73.00** |
| 4P 100 A Jumper bar assy. w/left side wiring with base, cover and screw | 1 | QOU14100JBAL | **73.00** |
| 1Ø, 4P, 100 A Jumper bar base with front wiring | 40 | QOU14100BAFB | **53.00** |
| 1Ø, 4P, 100 A Jumper bar base with left side wiring | 40 | QOU14100BALB | **53.00** |
| 1Ø, 4P, 100 A Jumper bar base with right side wiring | 40 | QOU14100BARB | **53.00** |
| 4P Jumper bar cover | 40 | QOU14100CAB | **13.20** |
| Mounting screw for jumper bar cover | 40 | QOU1CMSB | **0.35** |
| 6P 150 A Jumper bar assy. w/front wiring with base, cover and screw | 1 | QOU16150JBAF | **99.00** |
| 1Ø, 6P, 150 A Jumper bar base with front wiring | 40 | QOU16150BAFB | **69.00** |
| 1Ø, 6P, 150 A Jumper bar base with left side wiring | 40 | QOU16150BALB | **69.00** |
| 1Ø, 6P, 150 A Jumper bar base with right side wiring | 40 | QOU16150BARB | **69.00** |
| 6P jumper bar cover | 40 | QOU16150CAB | **17.10** |
| Vertical rainproof cover 2P and 3P QO, QOU, FA and KA | 1<br>10 | BCV▲♦<br>BCVB▲♦ | **30.80**<br>**30.80** |
| Horizontal rainproof cover 2P QO, QOU, and 3P Q2, EH | 1<br>10 | BCH▲♦<br>BCHB▲♦ | **30.80**<br>**30.80** |
| 1P Fingersafe™ cover for high ampere QOU circuit breaker | 1<br>40 | QOUHFSC1<br>QOUHFSC1B | **2.60**<br>**2.10** |
| 1P Fingersafe cover for low ampere QOU circuit breaker | 1<br>40 | QOULFSC1<br>QOULFSC1B | **2.60**<br>**2.10** |
| Cover plate for one 2P QOU circuit breaker | 1<br>40 | QOUCP2<br>QOUCP2B | **8.30**<br>**6.60** |
| Cover plate for one 3P QOU circuit breaker | 1<br>40 | QOUCP3<br>QOUCP3B | **15.80**<br>**12.80** |
| Cover plate for two 2P QOU circuit breakers | 1<br>40 | QOUCP4<br>QOUCP4B | **9.90**<br>**7.90** |
| Cover plate for three 2P QOU circuit breakers | 1<br>40 | QOUCP6<br>QOUCP6B | **15.60**<br>**12.20** |
| Field-installable ring tongue terminal adaptor | 1<br>80 | QOURT<br>QOURTB | **5.70**<br>**4.40** |
| Quick connector end connection wiring | 1<br>40 | QOUEC<br>QOUECB | **5.70**<br>**4.40** |
| Quick connector forward or reverse wiring | 1<br>40 | QOUFR<br>QOUFRB | **5.70**<br>**4.40** |
| 1P QOU mounting foot | 1<br>80 | QOUMF1▲<br>QOUMF1B▲ | **0.71**<br>**0.54** |
| 2P QOU mounting foot | 1<br>40 | QOUMF2▲<br>QOUMF2B▲ | **1.40**<br>**1.10** |
| 3P QOU mounting foot | 1<br>24 | QOUMF3▲<br>QOUMF3B▲ | **2.30**<br>**1.70** |
| Tapped mounting foot for QOU, 1P and 2P 10–70 A, 3P 10–60 A | | | |
| Packaged with circuit breaker | | Suffix -3100 | **Add 20% to price** |
| Individually packaged | 1 | QOUMFS1 | **2.40** |
| Bulk packed | 80 | QOUMFS1B | **2.30** |
| Mechanical interlock attachment: Used to interlock two circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time. A 1P or 2P circuit breaker can be mounted on the left and interlocked with a 2P or 3P circuit breaker on the right. | 1 | QOU2DTILA ■ | **24.90** |

▲ For use on low and high ampere QOU.
■ 10–70 A 1P and 2P, 10–60 A 3P.
♦ DE2E Discount Schedule

## For QOUQ Low Ampere Circuit Breakers with Four-Point Quick-Connect Terminals

QOUQ low ampere circuit breakers with four-point quick-connect terminals are provided with permanent factory-installed terminals which are affixed to the Load or OFF end of the circuit breaker. This special terminal will accommodate up to four 1/4-inch insulated female quick connect wire terminations. Total ampacity of these connections must not exceed the rating of the circuit breaker.

**Table 7.26: QOUQ Four-Point Quick-Connect Terminals**

| | Poles | Order Qty. | Cat. No. | Unit $ Price Adder |
|---|---|---|---|---|
| Four-Point Quick-Connect Terminals | 1 | 1 | Change QOU to QOUQ | **8.90** |
| | 2 | 1 | | **17.70** |
| | 3 | 1 | | **26.40** |

Electrical Accessories for QOU . . . . . Page 7-12



© 2012 Schneider Electric
All Rights Reserved



1P C60

2P C60

## Multi 9 C60 UL 489 Listed 240 V Miniature Circuit Breakers

- UL 489 Listed and CSA 22.2 No. 5.1 for branch circuit protection
- Eliminates concerns and uncertainty of using a UL 1077 device where a UL 489 device is required
- Replaces fuses in low-ampere range; 17 ratings up to 35 A
- 10 k AIR (1P @ 120 Vac; 2P and 3P @ 240 Vac)
- 60 Vdc for 1P and 125 Vdc for 2P (on C-curve circuit breakers only, see table below)
- Increased installation flexibility with standard box lugs or optional ring terminals
- Allows easy front-mounting and rear wiring when using ring terminals
- A wide range of electrical and mechanical accessories
- Suitable for reverse feeding
- Trip-free mechanism
- Positive indication of contact disconnect

| Trip Curve | Use | Magnetic Release |
|---|---|---|
| C | For typical loads | 7–10 x ampere rating (7–14 for DC) |
| D | For high inrush | 10–14 x ampere rating |



3P C60



Box Lug C60



Ring Tongue C60



Box/Ring C60

### Table 7.27: UL 489 Circuit Breakers (120/240 V)

| Rating (A) | C Curve—7–10 Times Ampere Rating (7–14 DC) | | | | | | D Curve—10–14 Times Ampere Rating | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1P▲ | | 2P■ | | 3P | | 1P | | 2P | | 3P | |
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **Box Lug/Box Lug** | | | | | | | | | | | | |
| 0.5 | 60100 | **125.00** | 60134 | **269.00** | — | — | 60117 | **125.00** | 60151 | **269.00** | — | — |
| 1 | 60101 | **125.00** | 60135 | **269.00** | 60168 | **387.00** | 60118 | **125.00** | 60152 | **269.00** | 60184 | **387.00** |
| 1.5 | 60102 | **125.00** | 60136 | **269.00** | 60169 | **387.00** | 60119 | **125.00** | 60153 | **269.00** | 60185 | **387.00** |
| 2 | 60103 | **125.00** | 60137 | **269.00** | 60170 | **387.00** | 60120 | **125.00** | 60154 | **269.00** | 60186 | **387.00** |
| 3 | 60104 | **125.00** | 60138 | **269.00** | 60171 | **387.00** | 60121 | **125.00** | 60155 | **269.00** | 60187 | **387.00** |
| 4 | 60105 | **125.00** | 60139 | **269.00** | 60172 | **387.00** | 60122 | **125.00** | 60156 | **269.00** | 60188 | **387.00** |
| 5 | 60106 | **125.00** | 60140 | **269.00** | 60173 | **387.00** | 60123 | **125.00** | 60157 | **269.00** | 60189 | **387.00** |
| 6 | 60107 | **114.00** | 60141 | **246.00** | 60174 | **356.00** | 60124 | **114.00** | 60158 | **246.00** | 60190 | **356.00** |
| 7 | 60108 | **114.00** | 60142 | **246.00** | 60175 | **356.00** | 60125 | **114.00** | 60159 | **246.00** | 60191 | **356.00** |
| 8 | 60109 | **114.00** | 60143 | **246.00** | 60176 | **356.00** | 60126 | **114.00** | 60160 | **246.00** | 60192 | **356.00** |
| 10 | 60110 | **114.00** | 60144 | **246.00** | 60177 | **356.00** | 60127 | **114.00** | 60161 | **246.00** | 60193 | **356.00** |
| 13 | 60111 | **114.00** | 60145 | **246.00** | 60178 | **356.00** | 60128 | **114.00** | 60162 | **246.00** | 60194 | **356.00** |
| 15 | 60112 | **114.00** | 60146 | **246.00** | 60179 | **356.00** | 60129 | **114.00** | 60163 | **246.00** | 60195 | **356.00** |
| 20 | 60113 | **114.00** | 60147 | **246.00** | 60180 | **356.00** | 60130 | **114.00** | 60164 | **246.00** | 60196 | **356.00** |
| 25 | 60114 | **114.00** | 60148 | **246.00** | 60181 | **356.00** | 60131 | **114.00** | 60165 | **246.00** | 60197 | **356.00** |
| 30 | 60115 | **120.00** | 60149 | **257.00** | 60182 | **372.00** | 60132 | **120.00** | 60166 | **257.00** | 60198 | **372.00** |
| 35 | 60116 | **120.00** | 60150 | **257.00** | 60183 | **372.00** | 60133 | **120.00** | 60167 | **257.00** | 60199 | **372.00** |
| **Ring Tongue/Ring Tongue** | | | | | | | | | | | | |
| 0.5 | 60200 | **131.00** | 60234 | **282.00** | — | — | 60217 | **131.00** | 60251 | **282.00** | — | — |
| 1 | 60201 | **131.00** | 60235 | **282.00** | 60268 | **410.00** | 60218 | **131.00** | 60252 | **282.00** | 60284 | **410.00** |
| 1.5 | 60202 | **131.00** | 60236 | **282.00** | 60269 | **410.00** | 60219 | **131.00** | 60253 | **282.00** | 60285 | **410.00** |
| 2 | 60203 | **131.00** | 60237 | **282.00** | 60270 | **410.00** | 60220 | **131.00** | 60254 | **282.00** | 60286 | **410.00** |
| 3 | 60204 | **131.00** | 60238 | **282.00** | 60271 | **410.00** | 60221 | **131.00** | 60255 | **282.00** | 60287 | **410.00** |
| 4 | 60205 | **131.00** | 60239 | **282.00** | 60272 | **410.00** | 60222 | **131.00** | 60256 | **282.00** | 60288 | **410.00** |
| 5 | 60206 | **131.00** | 60240 | **282.00** | 60273 | **410.00** | 60223 | **131.00** | 60257 | **282.00** | 60289 | **410.00** |
| 6 | 60207 | **122.00** | 60241 | **261.00** | 60274 | **378.00** | 60224 | **122.00** | 60258 | **261.00** | 60290 | **378.00** |
| 7 | 60208 | **122.00** | 60242 | **261.00** | 60275 | **378.00** | 60225 | **122.00** | 60259 | **261.00** | 60291 | **378.00** |
| 8 | 60209 | **122.00** | 60243 | **261.00** | 60276 | **378.00** | 60226 | **122.00** | 60260 | **261.00** | 60292 | **378.00** |
| 10 | 60210 | **122.00** | 60244 | **261.00** | 60277 | **378.00** | 60227 | **122.00** | 60261 | **261.00** | 60293 | **378.00** |
| 13 | 60211 | **122.00** | 60245 | **261.00** | 60278 | **378.00** | 60228 | **122.00** | 60262 | **261.00** | 60294 | **378.00** |
| 15 | 60212 | **122.00** | 60246 | **261.00** | 60279 | **378.00** | 60229 | **122.00** | 60263 | **261.00** | 60295 | **378.00** |
| 20 | 60213 | **122.00** | 60247 | **261.00** | 60280 | **378.00** | 60230 | **122.00** | 60264 | **261.00** | 60296 | **378.00** |
| 25 | 60214 | **122.00** | 60248 | **261.00** | 60281 | **378.00** | 60231 | **122.00** | 60265 | **261.00** | 60297 | **378.00** |
| 30 | 60215 | **126.00** | 60249 | **273.00** | 60282 | **395.00** | 60232 | **126.00** | 60266 | **273.00** | 60298 | **395.00** |
| 35 | 60216 | **126.00** | 60250 | **273.00** | 60283 | **395.00** | 60233 | **126.00** | 60267 | **273.00** | 60299 | **395.00** |

▲ 1P dual rated 120 Vac/60 Vdc.
■ 2P dual rated 240 Vac/125 Vdc.

Interrupting ratings . . . . . Page 7-3
Accessories . . . . . Page 7-20
Dimensions. . . . . Page 7-54
Mounting Bases . . . . . Page 7-13
DIN Mounting Rail . . . . . Section 18





© 2012 Schneider Electric
All Rights Reserved

## Multi 9 C60 UL 489 Listed 480V Miniature Circuit Breakers

- UL 489 Listed, CSA C22.2 No. 5.1; Also IEC 60947-2; CE marked
- 480Y/277 Vac @ 10 kA (2P and 3P), 277 Vac @ 10 kA (1P)
- 0.5 A through 20 A
- 1P, 2P, 3P, 18 mm wide per pole



1P
UL489 C60

| Trip Curve | Use | Magnetic Release |
|---|---|---|
| C | For typical loads | 7–10 x ampere rating (7–14 for DC) |
| D | For high inrush | 10–14 x ampere rating |

- UL 486B Listed single-barrel lug: (2) 18–10 AWG (1-25 $mm^2$) cables, Cu only
- Optional ring tongue terminals
- A wide range of electrical and mechanical accessories
- Suitable for reverse feeding
- Trip-free mechanism
- Positive indication of contact disconnect



2P
UL489 C60



3P
UL489 C60

### Table 7.28: UL 489 Circuit Breakers (480Y/277 Vac)

| Rating (A) | C Curve—7–10 Times Ampere Rating (7–14 DC) | | | | | | D Curve—10–14 Times Ampere Rating | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1P | | 2P | | 3P | | 1P | | 2P | | 3P | |
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| **Single-Barrel Wire Lug** | | | | | | | | | | | | |
| 0.5 | MGN61300 | **168.00** | — | — | — | — | MGN61333 | **168.00** | — | — | — | — |
| 1 | MGN61301 | **168.00** | MGN61312 | **357.00** | MGN61323 | **519.00** | MGN61334 | **168.00** | MGN61345 | **357.00** | MGN61356 | **519.00** |
| 2 | MGN61302 | **168.00** | MGN61313 | **357.00** | MGN61324 | **519.00** | MGN61335 | **168.00** | MGN61346 | **357.00** | MGN61357 | **519.00** |
| 3 | MGN61303 | **168.00** | MGN61314 | **357.00** | MGN61325 | **519.00** | MGN61336 | **168.00** | MGN61347 | **357.00** | MGN61358 | **519.00** |
| 4 | MGN61304 | **168.00** | MGN61315 | **357.00** | MGN61326 | **519.00** | MGN61337 | **168.00** | MGN61348 | **357.00** | MGN61359 | **519.00** |
| 5 | MGN61305 | **168.00** | MGN61316 | **357.00** | MGN61327 | **519.00** | MGN61338 | **168.00** | MGN61349 | **357.00** | MGN61360 | **519.00** |
| 6 | MGN61306 | **168.00** | MGN61317 | **357.00** | MGN61328 | **519.00** | MGN61339 | **168.00** | MGN61350 | **357.00** | MGN61361 | **519.00** |
| 8 | MGN61307 | **168.00** | MGN61318 | **357.00** | MGN61329 | **519.00** | MGN61340 | **168.00** | MGN61351 | **357.00** | MGN61362 | **519.00** |
| 10 | MGN61308 | **168.00** | MGN61319 | **357.00** | MGN61330 | **519.00** | MGN61341 | **168.00** | MGN61352 | **357.00** | MGN61363 | **519.00** |
| 15 | MGN61309 | **168.00** | MGN61320 | **357.00** | MGN61331 | **519.00** | MGN61342 | **168.00** | MGN61353 | **357.00** | MGN61364 | **519.00** |
| 20 | MGN61310 | **168.00** | MGN61321 | **357.00** | MGN61332 | **519.00** | MGN61343 | **168.00** | MGN61354 | **357.00** | MGN61365 | **519.00** |
| **Ring Tongue Terminal** | | | | | | | | | | | | |
| 0.5 | MGN61366 | **168.00** | — | — | — | — | MGN61399 | **168.00** | — | — | — | — |
| 1 | MGN61367 | **168.00** | MGN61378 | **357.00** | MGN61389 | **519.00** | MGN61400 | **168.00** | MGN61411 | **357.00** | MGN61422 | **519.00** |
| 2 | MGN61368 | **168.00** | MGN61379 | **357.00** | MGN61390 | **519.00** | MGN61401 | **168.00** | MGN61412 | **357.00** | MGN61423 | **519.00** |
| 3 | MGN61369 | **168.00** | MGN61380 | **357.00** | MGN61391 | **519.00** | MGN61402 | **168.00** | MGN61413 | **357.00** | MGN61424 | **519.00** |
| 4 | MGN61370 | **168.00** | MGN61381 | **357.00** | MGN61392 | **519.00** | MGN61403 | **168.00** | MGN61414 | **357.00** | MGN61425 | **519.00** |
| 5 | MGN61371 | **168.00** | MGN61382 | **357.00** | MGN61393 | **519.00** | MGN61404 | **168.00** | MGN61415 | **357.00** | MGN61426 | **519.00** |
| 6 | MGN61372 | **168.00** | MGN61383 | **357.00** | MGN61394 | **519.00** | MGN61405 | **168.00** | MGN61416 | **357.00** | MGN61427 | **519.00** |
| 8 | MGN61373 | **168.00** | MGN61384 | **357.00** | MGN61395 | **519.00** | MGN61406 | **168.00** | MGN61417 | **357.00** | MGN61428 | **519.00** |
| 10 | MGN61374 | **168.00** | MGN61385 | **357.00** | MGN61396 | **519.00** | MGN61407 | **168.00** | MGN61418 | **357.00** | MGN61429 | **519.00** |
| 15 | MGN61375 | **168.00** | MGN61386 | **357.00** | MGN61397 | **519.00** | MGN61408 | **168.00** | MGN61419 | **357.00** | MGN61430 | **519.00** |
| 20 | MGN61376 | **168.00** | MGN61387 | **357.00** | MGN61398 | **519.00** | MGN61409 | **168.00** | MGN61420 | **357.00** | MGN61431 | **519.00** |

## Multi 9 C60 UL 489A Listed Miniature Circuit Breakers for DC Telecommunication Applications

A limited range of C60 products are UL Listed as UL 489A circuit breakers for protection of DC telecommunications circuits.

### Table 7.29: UL 489A Circuit Breakers for DC Telecommunications Applications (1P, 2 Modules, C curve)

| Rating (A) | Cat. No. | $ Price | Rating (A) | Cat. No. | $ Price |
|---|---|---|---|---|---|
| 0.5 | 60406 | **120.00** | 10 | 60414 | **101.00** |
| 1 | 60407 | **101.00** | 13 | 60415 | **101.00** |
| 2 | 60408 | **101.00** | 15 | 60416 | **101.00** |
| 3 | 60409 | **101.00** | 20 | 60417 | **101.00** |
| 4 | 60410 | **101.00** | 30 | 60418 | **101.00** |
| 5 | 60411 | **101.00** | 40 | 60419 | **111.00** |
| 6 | 60412 | **101.00** | 50 | 60420 | **117.00** |
| 8 | 60413 | **101.00** | 60 | 60421 | **123.00** |

Interrupting Rating. . . . . Page 7-3
Accessories . . . . . Page 7-20
Dimensions . . . . . Page 7-54



© 2012 Schneider Electric
All Rights Reserved



1P C60H-DC



2P C60H-DC

## Multi 9 C60H-DC UL 1077 Recognized Supplementary Protectors (250 and 500 Vdc)

The C60H-DC supplementary protectors are used in direct current circuits (industrial control and automation, transport, renewable energy, etc.). They provide overcurrent protection within appliances or electrical equipment.

- Range from 0.5–40 A
- 5 k AIR at 250 Vdc (1-pole) and 5 k AIR at 500 Vdc (2-pole, wired in series)
- Trip-free mechanism
- Positive indication of contact disconnect
- C-Curve: 7 to14 times ampere rating
- UL 1077, IEC 60947-2, EN 60947-2, GB 14048.2, CCC and CE mark

**Table 7.30: Multi 9 C60H-DC UL 1077 Recognized Supplementary Protectors**

| | 1-Pole 24–250 Vdc | | 2-Pole 24–500 Vdc | |
|---|---|---|---|---|
| Current (A)▲ | Cat. No. | $ Price | Cat. No. | $ Price |
| 0.5 | MGN61500 | **182.00** | MGN61520 | **392.00** |
| 1 | MGN61501 | **182.00** | MGN61521 | **392.00** |
| 2 | MGN61502 | **182.00** | MGN61522 | **392.00** |
| 3 | MGN61503 | **182.00** | MGN61523 | **392.00** |
| 4 | MGN61504 | **182.00** | MGN61524 | **392.00** |
| 5 | MGN61505 | **182.00** | MGN61525 | **392.00** |
| 6 | MGN61506 | **182.00** | MGN61526 | **392.00** |
| 10 | MGN61508 | **182.00** | MGN61528 | **392.00** |
| 13 | MGN61509 | **182.00** | MGN61529 | **392.00** |
| 15 | MGN61510 | **182.00** | MGN61530 | **392.00** |
| 16 | MGN61511 | **182.00** | MGN61531 | **392.00** |
| 20 | MGN61512 | **182.00** | MGN61532 | **392.00** |
| 25 | MGN61513 | **182.00** | MGN61533 | **392.00** |
| 30 | MGN61514 | **182.00** | MGN61534 | **392.00** |
| 32 | MGN61515 | **182.00** | MGN61535 | **392.00** |
| 40 | MGN61517 | **200.00** | MGN61537 | **412.00** |

▲ At 25°C/77°F, for other temperatures see temperature derating table in Multi 9 Catalog 0860CT0201R1/08



2P GFP



4P GFP (3- or 4-wire)

## Multi 9 UL1053 Listed GFP Ground Fault Protectors

- Provides ground fault protection for electrical circuits.
- Available in 2P (2-wire) and 4P (3- or 4-wire) versions
- Provides no thermal or magnetic protection. The circuit must be protected by an upstream device.
- Contains Si Technology to increase immunity to noise and to minimize the potential for nuisance tripping in noisy electrical environments.
- Tripped condition due to a ground fault is displayed on the front face by a red mechanical indicator.
- DIN rail mounting for easy installation.

**Table 7.31: Multi 9 UL 1053 Listed GFP Ground Fault Protectors**

| | | | | 2P | | | | 4P | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UL1053 120/240 Vac, 240 Vac, 60 Hz<br>IEC 61008 230 Vac, 240 Vac, 50 Hz | | UL1053 277 Vac, 480Y/277 Vac, 60 Hz<br>IEC 61008 230/400 Vac, 240/415 Vac, 50 Hz | | UL1053 240 Vac, 480Y/277 Vac, 60 Hz<br>IEC 61008 230/400 Vac, 240/415 Vac, 50 Hz | |
| Current (A) | Maximum Sensitivity (mA) | Tripping Range | Family | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 25 | 30 | 22.1 to 29.9 mA | GFP 30 | 60949 | **633.00** | 60969 | **696.00** | 60989 | **720.00** |
| | 100 | 73.1 to 98.9 mA | GFP 100 | 60950 | **570.00** | 60970 | **627.00** | 60990 | **648.00** |
| | 300 | 221 to 299 mA | GFP 300 | 60951 | **444.00** | 60971 | **488.00** | 60991 | **504.00** |
| 40 | 30 | 22.1 to 29.9 mA | GFP 30 | 60952 | **666.00** | 60972 | **734.00** | 60992 | **758.00** |
| | 100 | 73.1 to 98.9 mA | GFP 100 | 60953 | **600.00** | 60973 | **660.00** | 60993 | **683.00** |
| | 300 | 221 to 299 mA | GFP 300 | 60954 | **467.00** | 60974 | **513.00** | 60994 | **531.00** |
| 63 | 30 | 22.1 to 29.9 mA | GFP 30 | 60955 | **1001.00** | 60975 | **1100.00** | 60995 | **1136.00** |
| | 100 | 73.1 to 98.9 mA | GFP 100 | 60956 | **900.00** | 60976 | **990.00** | 60996 | **1023.00** |
| | 300 | 221 to 299 mA | GFP 300 | 60957 | **701.00** | 60977 | **770.00** | 60997 | **795.00** |
| 80 | 300 | 221 to 299 mA | GFP 300 | 60958 | **933.00** | 60978 | **1026.00** | 60998 | **1272.00** |
| 100 | 300 | 221 to 299 mA | GFP 300 | 60959 | **1097.00** | 60979 | **1206.00** | 60999 | **1496.00** |

Interrupting Ratings . . . . . Page 7-3
Accessories . . . . . Page 7-20
Dimensions. . . . . Page 7-54





© 2012 Schneider Electric
All Rights Reserved

# Multi 9™ Miniature Circuit Breakers





1P
UL 1077 C60



2P
UL 1077 C60



3P
UL 1077 C60



4P
UL 1077 C60

Intended for use within equipment where branch circuit protection is already provided or not needed

- Range from 0.5 to 63 A
- 10 k AIR @ 120/240 Vac; 5 k AIR at 480Y/277; 10 k AIR @ 60 Vdc (1P) and 125 Vdc (2P)
- Suitable for reverse feeding
- DIN mounting for easy installation
- Suitable for reverse feeding
- A wide range of electrical and mechanical accessories
- Trip-free mechanism
- Positive indication of contact disconnect

| Trip Curve | Use | Magnetic Release |
|---|---|---|
| B | For sensitive equipment | 3.2–4.8 x ampere rating |
| C | For typical loads | 7–10 x ampere rating (7–14 for DC) |
| D | For high inrush | 10–14 x ampere rating |

**Table 7.32: UL 1077 Supplementary Protectors**

| Rating (A) | 1P | $ Price | 2P | $ Price | 3P | $ Price | 4P | $ Price |
|---|---|---|---|---|---|---|---|---|
| **B Curve—Magnetic Setting Between 3.2 and 4.8 Times Ampere Rating** | | | | | | | | |
| 1 | MG24110 | **101.00** | MG24125 | **218.00** | MG24140 | **315.00** | MG24155 | **416.00** |
| 1.2 | MG17402 | **101.00** | MG17432 | **218.00** | — | — | — | — |
| 1.5 | MG17403 | **101.00** | MG17433 | **218.00** | — | — | — | — |
| 2 | MG24111 | **101.00** | MG24126 | **218.00** | MG24141 | **315.00** | MG24156 | **416.00** |
| 3 | MG24112 | **101.00** | MG24127 | **218.00** | MG24142 | **315.00** | MG24157 | **416.00** |
| 4 | MG24113 | **101.00** | MG24128 | **218.00** | MG24143 | **315.00** | MG24158 | **416.00** |
| 5 | MG17404 | **101.00** | MG17434 | **218.00** | — | — | — | — |
| 6 | MG24114 | **101.00** | MG24129 | **218.00** | MG24144 | **315.00** | MG24159 | **416.00** |
| 7 | MG17405 | **101.00** | MG17435 | **218.00** | — | — | — | — |
| 8 | MG24115 | **101.00** | MG24130 | **218.00** | MG24145 | **315.00** | MG24160 | **416.00** |
| 10 | MG24116 | **101.00** | MG24131 | **218.00** | MG24146 | **315.00** | MG24161 | **416.00** |
| 13 | MG24117 | **101.00** | MG24132 | **218.00** | MG24147 | **315.00** | MG24162 | **416.00** |
| 15 | MG17406 | **101.00** | MG17436 | **218.00** | MG17461 | **315.00** | — | — |
| 16 | MG24118 | **101.00** | MG24133 | **218.00** | MG24148 | **315.00** | MG24163 | **416.00** |
| 20 | MG24119 | **101.00** | MG24134 | **218.00** | MG24149 | **315.00** | MG24164 | **416.00** |
| 25 | MG24120 | **101.00** | MG24135 | **218.00** | MG24150 | **315.00** | MG24165 | **416.00** |
| 30 | MG17407 | **101.00** | MG17437 | **218.00** | MG17462 | **315.00** | — | — |
| 32 | MG24121 | **101.00** | MG24136 | **218.00** | MG24151 | **315.00** | MG24166 | **416.00** |
| 35 | MG17408 | **101.00** | MG17438 | **218.00** | MG17463 | **315.00** | — | — |
| 40 | MG24122 | **111.00** | MG24137 | **224.00** | MG24152 | **324.00** | MG24167 | **420.00** |
| 50 | MG24123 | **117.00** | MG24138 | **240.00** | MG24153 | **338.00** | MG24168 | **438.00** |
| 60 | MG17409 | **123.00** | MG17439 | **252.00** | MG17464 | **353.00** | — | — |
| 63 | MG24124 | **123.00** | MG24139 | **252.00** | MG24154 | **353.00** | MG24169 | **450.00** |
| **C Curve—Magnetic Setting Between 7 and 10 Times Ampere Rating** | | | | | | | | |
| 0.5 | MG17411 | **120.00** | — | — | — | — | — | — |
| 1 | MG24425 | **101.00** | MG24442 | **218.00** | MG24459 | **315.00** | MG24476 | **416.00** |
| 1.2 | MG17412 | **101.00** | MG17442 | **218.00** | — | — | — | — |
| 1.5 | MG17413 | **101.00** | MG17443 | **218.00** | — | — | — | — |
| 2 | MG24426 | **101.00** | MG24443 | **218.00** | MG24460 | **315.00** | MG24477 | **416.00** |
| 3 | MG24427 | **101.00** | MG24444 | **218.00** | MG24461 | **315.00** | MG24478 | **416.00** |
| 4 | MG24428 | **101.00** | MG24445 | **218.00** | MG24462 | **315.00** | MG24479 | **416.00** |
| 5 | MG17414 | **101.00** | MG17444 | **218.00** | — | — | — | — |
| 6 | MG24430 | **101.00** | MG24447 | **218.00** | MG24464 | **315.00** | MG24481 | **416.00** |
| 7 | MG17415 | **101.00** | MG17445 | **218.00** | — | — | — | — |
| 8 | MG24431 | **101.00** | MG24448 | **218.00** | MG24465 | **315.00** | MG24482 | **416.00** |
| 10 | MG24432 | **101.00** | MG24449 | **218.00** | MG24466 | **315.00** | MG24483 | **416.00** |
| 13 | MG24433 | **101.00** | MG24450 | **218.00** | MG24467 | **315.00** | MG24484 | **416.00** |
| 15 | MG17416 | **101.00** | MG17446 | **218.00** | MG17466 | **315.00** | — | — |
| 16 | MG24434 | **101.00** | MG24451 | **218.00** | MG24468 | **315.00** | MG24485 | **416.00** |
| 20 | MG24435 | **101.00** | MG24452 | **218.00** | MG24469 | **315.00** | MG24486 | **416.00** |
| 25 | MG24436 | **101.00** | MG24453 | **218.00** | MG24470 | **315.00** | MG24487 | **416.00** |
| 30 | MG17417 | **101.00** | MG17447 | **218.00** | MG17467 | **315.00** | — | — |
| 32 | MG24437 | **101.00** | MG24454 | **218.00** | MG24471 | **315.00** | MG24488 | **416.00** |
| 35 | MG17418 | **101.00** | MG17448 | **218.00** | MG17468 | **315.00** | — | — |
| 40 | MG24438 | **111.00** | MG24455 | **224.00** | MG24472 | **324.00** | MG24489 | **420.00** |
| 50 | MG24439 | **117.00** | MG24456 | **240.00** | MG24473 | **338.00** | MG24490 | **438.00** |
| 60 | MG17419 | **123.00** | MG17449 | **252.00** | MG17469 | **353.00** | — | — |
| 63 | MG24440 | **123.00** | MG24457 | **252.00** | MG24474 | **353.00** | MG24491 | **450.00** |
| **D Curve—Magnetic Setting Between 10 and 14 Times Ampere Rating** | | | | | | | | |
| 0.5 | MG17421 | **120.00** | — | — | — | — | — | — |
| 1 | MG24500 | **101.00** | MG24516 | **218.00** | MG24532 | **315.00** | MG24548 | **416.00** |
| 1.2 | MG17422 | **101.00** | MG17452 | **218.00** | — | — | — | — |
| 1.5 | MG17423 | **101.00** | MG17453 | **218.00** | — | — | — | — |
| 2 | MG24501 | **101.00** | MG24517 | **218.00** | MG24533 | **315.00** | MG24549 | **416.00** |
| 3 | MG24502 | **101.00** | MG24518 | **218.00** | MG24534 | **315.00** | MG24550 | **416.00** |
| 4 | MG24503 | **101.00** | MG24519 | **218.00** | MG24535 | **315.00** | MG24551 | **416.00** |
| 5 | MG17424 | **101.00** | MG17454 | **218.00** | — | — | — | — |
| 6 | MG24504 | **101.00** | MG24520 | **218.00** | MG24536 | **315.00** | MG24552 | **416.00** |
| 7 | MG17425 | **101.00** | MG17455 | **218.00** | — | — | — | — |
| 8 | MG24505 | **101.00** | MG24521 | **218.00** | MG24537 | **315.00** | MG24553 | **416.00** |
| 10 | MG24506 | **101.00** | MG24522 | **218.00** | MG24538 | **315.00** | MG24554 | **416.00** |
| 13 | MG24507 | **101.00** | MG24523 | **218.00** | MG24539 | **315.00** | MG24555 | **416.00** |
| 15 | MG17426 | **101.00** | MG17456 | **218.00** | MG17471 | **315.00** | — | — |
| 16 | MG24508 | **101.00** | MG24524 | **218.00** | MG24540 | **315.00** | MG24556 | **416.00** |
| 20 | MG24509 | **101.00** | MG24525 | **218.00** | MG24541 | **315.00** | MG24557 | **416.00** |
| 25 | MG24510 | **101.00** | MG24526 | **218.00** | MG24542 | **315.00** | MG24558 | **416.00** |
| 30 | MG17427 | **101.00** | MG17457 | **218.00** | MG17472 | **315.00** | — | — |
| 32 | MG24511 | **101.00** | MG24527 | **218.00** | MG24543 | **315.00** | MG24559 | **416.00** |
| 35 | MG17428 | **101.00** | MG17458 | **218.00** | MG17473 | **315.00** | — | — |
| 40 | MG24512 | **111.00** | MG24528 | **224.00** | MG24544 | **324.00** | MG24560 | **420.00** |
| 50 | MG24513 | **117.00** | MG24529 | **240.00** | MG24545 | **338.00** | MG24561 | **438.00** |
| 60 | MG17429 | **123.00** | MG17459 | **252.00** | MG17474 | **353.00** | — | — |
| 63 | MG24514 | **123.00** | MG24530 | **252.00** | MG24546 | **353.00** | MG24562 | **450.00** |

Interrupting Ratings. . . . . Page 7-3
Accessories. . . . . Page 7-20
Dimensions . . . . . Page 7-54



© 2012 Schneider Electric
All Rights Reserved

Electrical Accessories for C60 Circuit Breakers and Supplementary Protectors



Ring Tongue Terminal Kit



Spacer



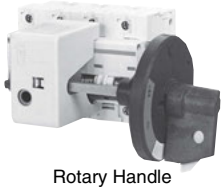
Terminal Screw Shield



C60 Padlock Attachment



Heavy-duty Padlock Attachment



Rotary Handle



Label Holders for 2, 3 or 4P C60



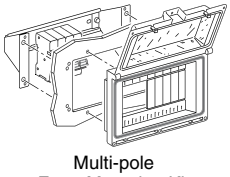
Front Mounting Kit for C60 1P, 2P, 3P, 4P (1 per circuit breaker)



MGN26380 Locking Device Left Side Mount



MGN26381 Locking Device Right Side Mount



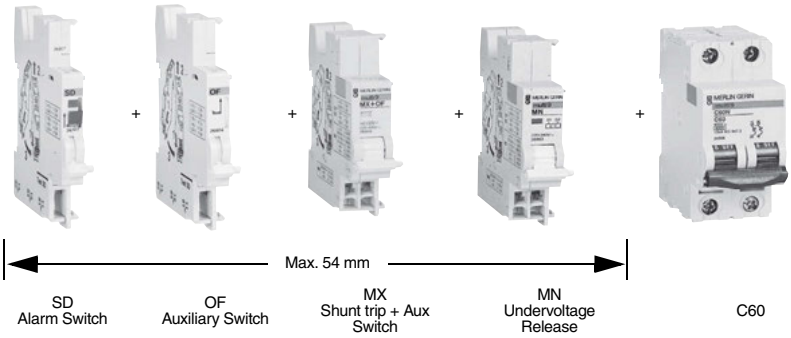
Multi-pole Front Mounting Kit



Comb Bus Bar

**Possible Combinations**

**Mounted to the left of the circuit breaker with a maximum width of 54 mm.**




## Table 7.33: Multi 9 C60 Electrical Accessories

| Descriptions | Control Voltage | | Width in 9 mm modules | C60 UL/IEC | |
|---|---|---|---|---|---|
| | Vac | Vdc | | Cat. No. | $ Price |
| OF Auxiliary Switch (1a1b) | 12–277 | 12–125 | 1 | MG26925 | **60.00** |
| SD Alarm Switch (1a1b) | 12–277 | 12–125 | 1 | MG26928 | **60.00** |
| MX Shunt Trip + OF Auxiliary Switch (1a1b) | 24 | 24 | 2 | 27118 | **140.00** |
| | 48 | 48 | 2 | 27110 | |
| | 110–240–277 | 125 | 2 | 27109 | |
| MN Undervoltage Release | 24 | 24 | 2 | 27108 | **201.00** |
| | 48 | 48 | 2 | 27106 | |
| | 120 | — | 2 | 27107 | |
| | 240 | — | 2 | 27105 | |
| Multi-9 GFP UL 1053 Listed Ground Fault Protectors | 120 to 480Y/277 Vac; 30, 100, and 300 mA; 2P and 4Ps. See page 7-18 Handout, **0860HO0602** or Catalog **0860CT0201** | | | | |

## Table 7.34: Multi 9 C60 Mechanical Accessories

| Descriptions | | C60 | |
|---|---|---|---|
| | | Cat. No. | $ Price |
| Ring tongue terminal kit for UL1077 C60 | For one pole | 17400 | **15.80** |
| Spacer for DIN rail, Not UL Recognized | 9 mm wide | MG27062 | **9.30** |
| Padlock Attachment (1 per for 1P, 2P, 3P or 4P) | 2 per pack | MG26970 | **33.20** |
| Heavy-duty Padlock Attachment for C60, Locks OFF only | 2 per pack | M9PAF | **60.00** |
| Padlocking Device Left Side Mount, Locks OFF only▲ | 1 per pack | MGN26380 | **37.50** |
| Padlocking Device Right Side Mount, Locks OFF only■ | | MGN26381 | **37.50** |
| Front Mounting Kit | 1P | MG26983 | **16.80** |
| | 2P | MG26984 | **16.80** |
| | 3P | MG26985 | **16.80** |
| | 4P | MG26989 | **16.80** |
| Label holders for 2, 3 or 4P C60 (Not UL Recognized) | Bag of 10 | MG27150 | **51.00** |
| Terminal Screw Shield (Not UL Recognized) | Bag of two 4P shields | MG26981 | **51.00** |
| Terminal cover (Not UL Recognized) | 1P | MG26975 | **26.10** |
| | 2P | MG26976 | **51.00** |
| | 3P | MG26975+MG26976 | |
| | 4P | MG26978 | **102.00** |
| Comb Bus Bar Kit for UL1077 C60, 12 poles, Fixed Length | 1Ø | MG10285 | **63.00** |
| | 2Ø | MG10286 | **69.00** |
| | 3 Ø | MG10287 | **80.00** |
| Tooth Caps for UL Comb Bus Bar, Bag of 20 | | 60488 | **37.80** |
| **Rotary Handle for C60 (Non UL Recognized)** | | | |
| Operating Subassembly | 2P/3P/4P | MG27046 | **129.00** |
| Door Interlock Handle | | MG27047 | **107.00** |
| Fixed Handle (Front or Lateral) | | MG27048 | **117.00** |
| **Multi-pole Front Mounting Kit** | | | |
| Rail Support (20 of 9 mm modules) | | 14211 | **54.00** |
| Hinged Transparent Cover | | 14210 | **158.00** |

▲ Left-side mounted padlocking device cannot be used in conjunction with accessories SD, OF, MX or MN. Use right-side mounted padlocking device when accessories are required.

■ Right-side mounted padlocking device cannot be used in conjunction with VIGI module. Use left-side mounted padlocking device when VIGI Module is required..





© 2012 Schneider Electric
All Rights Reserved

## The PowerPact Advantage

- **Proven Performance:** Industry-leading circuit breaker innovation and protection for heavy-duty commercial and industrial applications.
- **Smart**: Integrated metering options provide a cost-effective solution to reduce energy consumption, optimize energy costs, and improve energy availablility for your facilities.
- **Flexible:** Full range of thermal-magnetic and electronic trip molded case circuit breakers from 15 A to 3000 A, delivering the ratings, configurations, and operators for your unique applications.
- **Simple:** Common catalog numbers, standardized ratings, and a full range of field-installable accessories make product selection, installation and maintenance easier than ever.
- **Common Design Features:** Mounting holes, door trim, and handle accessories

| H-Frame 150 A | J-Frame 250 A | Q-Frame 250 A | L-Frame 600 A | M-Frame 800 A | P-Frame 1200 A | R-Frame 3000 A |
|---|---|---|---|---|---|---|

New! Electronic Trip Version



New! Electronic Trip Version





New!









### Table 7.35: PowerPact Interrupting Ratings

| Voltage | Interrupting Rating | | | | | | |
|---|---|---|---|---|---|---|---|
| | B | D | G | J | K | L | R |
| 240 Vac | 10 kA | 25 kA | 65 kA | 100 kA | 65 kA | 125 kA | 200 kA |
| 480 Vac | | 18 kA | 35 kA | 65 kA | 65 kA ▲ | 100 kA | 200 kA |
| 600 Vac | | 14 kA | 18 kA | 25 kA | 65 kA ▲ | 50 kA■ | 100 kA |

▲ P-frame K interrupting is 50 kA at 480 and 600 Vac.
■ P-frame L interrupting is 25 kA at 600 Vac.

### Table 7.36: Common Catalog Numbering System

| Frame | Rating | Termination | Poles | Voltage | Amperage ♦ | | | Suffix Code | | Suffix Code | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H | G | L | 3 | 6 | 1 | 5 | 0 | A | B | S | A |

110 Vac Shunt Trip
2A/2B Auxiliary Switch

| Frame Designation |
|---|
| H 150 A Frame |
| J 250 A Frame |
| Q 250 A Frame |
| L 600 A Frame |
| M 800 A Frame |
| P 1200 A Frame |
| R 3000 A Frame |

| Interrupting Rating | | | |
|---|---|---|---|
| | 240 Vac | 480 Vac | 600Vac |
| B | 10 kA | | |
| D | 25 kA | 18 kA | 14 kA |
| G | 65 kA | 35 kA | 18 kA |
| J | 100 kA | 65 kA | 25 kA |
| K | 65 kA | 65 kA | 65 kA |
| L | 125 kA | 100 kA | 50 kA |
| R | 200 kA | 200 kA | 100 kA |

| Terminations |
|---|
| A I-Line |
| L Lugs on Both Ends |
| F Bus Bar (No Lugs) |
| M Lugs Line Side Only |
| P Lugs Load End Only |
| N Plug-in |
| D Drawout |
| S Rear Connected Studs |

♦ For amperage of M-, P- or R-frame circuit breakers, add a zero to the three amperage digits; for example, 120 = 1200 A.

**Description . . . . . Page**
H- and J-Frame Circuit Breakers . . . . . 7-22
H- and J-Frame Circuit Breakers . . . . . 7-23
Q-Frame Circuit Breakers . . . . . 7-24
L-Frame Circuit Breakers . . . . . 7-25
P-Frame Circuit Breakers . . . . . 7-27
R-Frame Circuit Breakers . . . . . 7-28
PowerPact™ H- and J-Frame Electronic Motor Circuit Protectors . . . . . 7-29
Motor Circuit Protectors and Motor Protector Circuit Breakers . . . . . 7-31
Automatic Switches . . . . . 7-34
500 Vdc Circuit Breakers . . . . . 7-35
Mission Critical Circuit Breakers . . . . . 7-37
PowerPact™ Circuit Breaker Accessories . . . . . 7-39
Motor Operators and Rotary Handles . . . . . 7-40
Locks, Installation Accessories, and Rear Connections . . . . . 7-41
Mechanical Lugs . . . . . 7-41
Compression Lugs and Power Distribution Connectors (PDC) . . . . . 7-43
Terminal Nuts, Terminal Pads, Terminal Shields and Accessories . . . . . 7-44
Plug-In and Drawout Mountings . . . . . 7-45
Micrologic™ Electronic Trip Units . . . . . 7-46
Micrologic™ Trip Unit Accessories . . . . . 7-48



© 2012 Schneider Electric
All Rights Reserved



HD and HG 2P
Thermal-Magnetic Trip Unit
(2P HJ, HL in 3P module)



H-Frame
Thermal-Magnetic Trip Unit

New!

**Table 7.37: H-Frame 150 A Thermal-Magnetic UL Current-Limiting★ Circuit Breakers(600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection▲**

| Current Rating @ 40°C | Fixed AC Magnetic Trip | | Cat. No.■♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | D | | G | | J★ | | L★ | | |
| | | | | $ Price | | | | | | | | |
| | Hold | Trip | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | |
| **H-Frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | | | | | |
| 15 A | 350 A | 750 A | H( )L26015(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | AL150HD 14–3/0 AWG Al or Cu |
| 20 A | 350 A | 750 A | H( )L26020(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 25 A | 350 A | 750 A | H( )L26025(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 30 A | 350 A | 750 A | H( )L26030(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 35 A | 400 A | 850 A | H( )L26035(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 40 A | 400 A | 850 A | H( )L26040(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 45 A | 400 A | 850 A | H( )L26045(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 50 A | 400 A | 850 A | H( )L26050(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 60 A | 800 A | 1450 A | H( )L26060(C) | 870.00 | 1044.00 | 1269.00 | 1523.00 | 1559.00 | 1871.00 | 2364.00 | 2837.00 | |
| 70 A | 800 A | 1450 A | H( )L26070(C) | 1062.00 | 1274.00 | 1497.00 | 1797.00 | 1721.00 | 2066.00 | 2613.00 | 3137.00 | |
| 80 A | 800 A | 1450 A | H( )L26080(C) | 1062.00 | 1274.00 | 1497.00 | 1797.00 | 1721.00 | 2066.00 | 2613.00 | 3137.00 | |
| 90 A | 800 A | 1450 A | H( )L26090(C) | 1062.00 | 1274.00 | 1497.00 | 1797.00 | 1721.00 | 2066.00 | 2613.00 | 3137.00 | |
| 100 A | 800 A | 1700 A | H( )L26100(C) | 1062.00 | 1274.00 | 1497.00 | 1797.00 | 1721.00 | 2066.00 | 2613.00 | 3137.00 | |
| 110 A | 900 A | 1700 A | H( )L26110(C) | 2072.00 | 2486.00 | 3059.00 | 3671.00 | 4449.00 | 5339.00 | 5534.00 | 6641.00 | |
| 125 A | 900 A | 1700 A | H( )L26125(C) | 2072.00 | 2486.00 | 3059.00 | 3671.00 | 4449.00 | 5339.00 | 5534.00 | 6641.00 | |
| 150 A | 900 A | 1700 A | H( )L26150(C) | 2072.00 | 2486.00 | 3059.00 | 3671.00 | 4449.00 | 5339.00 | 5534.00 | 6641.00 | |
| **H-Frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | | | | | |
| 15 A | 350 A | 750 A | H( )L36015(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | AL150HD 14–3/0 AWG Al or Cu |
| 20 A | 350 A | 750 A | H( )L36020(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 25 A | 350 A | 750 A | H( )L36025(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 30 A | 350 A | 750 A | H( )L36030(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 35 A | 400 A | 850 A | H( )L36035(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 40 A | 400 A | 850 A | H( )L36040(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 45 A | 400 A | 850 A | H( )L36045(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 50 A | 400 A | 850 A | H( )L36050(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 60 A | 800 A | 1450 A | H( )L36060(C) | 1088.00 | 1305.00 | 1493.00 | 1791.00 | 1949.00 | 2339.00 | 2849.00 | 3419.00 | |
| 70 A | 800 A | 1450 A | H( )L36070(C) | 1328.00 | 1592.00 | 1701.00 | 2042.00 | 2099.00 | 2519.00 | 3149.00 | 3779.00 | |
| 80 A | 800 A | 1450 A | H( )L36080(C) | 1328.00 | 1592.00 | 1701.00 | 2042.00 | 2099.00 | 2519.00 | 3149.00 | 3779.00 | |
| 90 A | 800 A | 1450 A | H( )L36090(C) | 1328.00 | 1592.00 | 1701.00 | 2042.00 | 2099.00 | 2519.00 | 3149.00 | 3779.00 | |
| 100 A | 800 A | 1700 A | H( )L36100(C) | 1328.00 | 1592.00 | 1701.00 | 2042.00 | 2099.00 | 2519.00 | 3149.00 | 3779.00 | |
| 110 A | 900 A | 1700 A | H( )L36110(C) | 2600.00 | 3120.00 | 3599.00 | 4319.00 | 5174.00 | 6209.00 | 6749.00 | 8099.00 | |
| 125 A | 900 A | 1700 A | H( )L36125(C) | 2600.00 | 3120.00 | 3599.00 | 4319.00 | 5174.00 | 6209.00 | 6749.00 | 8099.00 | |
| 150 A | 900 A | 1700 A | H( )L36150(C) | 2600.00 | 3120.00 | 3599.00 | 4319.00 | 5174.00 | 6209.00 | 6749.00 | 8099.00 | |

New!

**Table 7.38: J-Frame 250 A Thermal-Magnetic UL Current-Limiting★ Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection▲**

| Current Rating @ 40°C | Adjustable AC Magnetic Trip | | Cat. No.■♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | D | | G | | J★ | | L★ | | R★ | | |
| | | | | $ Price | | | | | | | | | | |
| | Low | High | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | |
| **J-Frame 250A 2P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | | | | | | | |
| 150 A | 750 A | 1500 A | J( )L26150(C) | 2175.00 | 2610.00 | 3212.00 | 3854.00 | 4671.00 | 5606.00 | 5811.00 | 6972.00 | — | — | AL175JD 4–4/0 AWG Al or Cu |
| 175 A | 875 A | 1750 A | J( )L26175(C) | 2175.00 | 2610.00 | 3212.00 | 3854.00 | 4671.00 | 5606.00 | 5811.00 | 6972.00 | — | — | |
| 200 A | 1000 A | 2000 A | J( )L26200(C) | 2175.00 | 2610.00 | 3212.00 | 3854.00 | 4671.00 | 5606.00 | 5811.00 | 6972.00 | — | — | AL250JD 3/0 AWG–350 kcmil Al or Cu |
| 225 A | 1125 A | 2250 A | J( )L26225(C) | 2175.00 | 2610.00 | 3212.00 | 3854.00 | 4671.00 | 5606.00 | 5811.00 | 6972.00 | — | — | |
| 250 A | 1250 A | 2500 A | J( )L26250(C) | 2988.00 | 3585.00 | 4251.00 | 5102.00 | 6225.00 | 7469.00 | 7194.00 | 8633.00 | — | — | |
| **J-Frame 250A 3P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | | | | | | | |
| 150 A | 750 A | 1500 A | J( )L36150(C) | 2730.00 | 3276.00 | 3779.00 | 4535.00 | 5432.00 | 6519.00 | 7086.00 | 8504.00 | 9212.00 | 11055.00 | AL175JD 4–4/0 AWG Al or Cu |
| 175 A | 875 A | 1750 A | J( )L36175(C) | 2730.00 | 3276.00 | 3779.00 | 4535.00 | 5432.00 | 6519.00 | 7086.00 | 8504.00 | 9212.00 | 11055.00 | |
| 200 A | 1000 A | 2000 A | J( )L36200(C) | 2730.00 | 3276.00 | 3779.00 | 4535.00 | 5432.00 | 6519.00 | 7086.00 | 8504.00 | 9212.00 | 11055.00 | AL250JD 3/0 AWG–350 kcmil Al or Cu |
| 225 A | 1125 A | 2250 A | J( )L36225(C) | 2730.00 | 3276.00 | 3779.00 | 4535.00 | 5432.00 | 6519.00 | 7086.00 | 8504.00 | 9212.00 | 11055.00 | |
| 250 A | 1250 A | 2500 A | J( )L36250(C) | 3749.00 | 4499.00 | 5001.00 | 6002.00 | 7238.00 | 8685.00 | 8993.00 | 10791.00 | 11169.00 | 13402.00 | |

▲ See Supplemental Digest pages 3-2 and 3-3 for circuit breakers with field interchangeable trip units.
■ To complete catalog number, replace the blank with the appropriate rating (D, G, J, L).
♦ For 100% rated circuit breakers add a "C" in the 9th character place (for example, HDL26015**C** or JDL26150**C**).
100% rated H- and J-frame circuit breakers have copper lugs and can only be used with copper wire.
★ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting..

**Table 7.39: H- and J-Frame Termination Options**

| Termination Letter |
|---|
| A = I-Line (See Section 9) |
| F = No Lugs (includes terminal nut kit on both ends) |
| L = Lugs both ends |
| M = Lugs ON end Terminal Nut Kit OFF end |
| P = Lugs OFF end Terminal Nut Kit ON end |
| N = Plug-in ▼ |
| D = Drawout ▼ |
| S = Rear Connected ▼ |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H G L 3 6 1 0 0
└ Termination Letter



Plug-in



Drawout



Rear Connected

▼ For N and D pricing, add termination pricing on page 7-45 to price. For S pricing, add termination pricing on page 7-41 to price.

**Table 7.40: H- and J-Frame Interrupting Ratings**

| Voltage | Interrupting Rating | | | | |
|---|---|---|---|---|---|
| | D | G | J | L | R |
| 240 Vac | 25 kA | 65 kA | 100 kA | 125 kA | 200 kA |
| 480 Vac | 18 kA | 35 kA | 65 kA | 100 kA | 200 kA |
| 600 Vac | 14 kA | 18 kA | 25 kA | 50 kA | 100 kA |

Accessories ..... Page 7-39
Optional Lugs ..... Page 7-42
Dimensions ..... Page 7-55
Enclosures ..... Page 7-56





© 2012 Schneider Electric
All Rights Reserved

New! Electronic Trip Version

## Table 7.41: H-Frame 150 A and J-Frame 250 A Electronic Trip UL Current-Limiting▲ Circuit Breakers (600 Vac) With Factory Sealed Trip Unit■ Suitable for Reverse Connection □

| Electronic Trip Unit | | | Sensor Rating | Cat. No.♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | | | | | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D | | G | | J▲ | | L▲ | | R▲ | | |
| | | | | | $ Price | | | | | | | | | | |
| Type | Function | Trip Unit | | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | |
| **600 Vac, 50/60 Hz, 3P** | | | | | | | | | | | | | | | |
| Micrologic Standard | LI | 3.2△ | 60 A<br>100 A<br>150 A | H( )L36060(C)U31X<br>H( )L36100(C)U31X<br>H( )L36150(C)U31X | 1247.00<br>1487.00<br>2759.00 | 1455.00<br>1735.00<br>3220.00 | 1652.00<br>1860.00<br>3758.00 | 1928.00<br>2171.00<br>4386.00 | 2108.00<br>2258.00<br>5333.00 | 2460.00<br>2635.00<br>6224.00 | 3008.00<br>3308.00<br>6908.00 | 3510.00<br>3860.00<br>8062.00 | 3971.00<br>4367.00<br>9119.00 | 4633.00<br>5095.00<br>10642.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U31X | 2957.00 | 3451.00 | 4006.00 | 4675.00 | 5659.00 | 6604.00 | 7313.00 | 8534.00 | 9653.00 | 11265.00 | AL250JD▼ |
| Micrologic Standard | LSI | 3.2S△ | 60 A<br>100 A<br>150 A | H( )L36060(C)U33X<br>H( )L36100(C)U33X<br>H( )L36150(C)U33X | 1433.00<br>1673.00<br>2945.00 | 1641.00<br>1921.00<br>3405.00 | 1838.00<br>2046.00<br>3944.00 | 2113.00<br>2356.00<br>4571.00 | 2294.00<br>2444.00<br>5519.00 | 2646.00<br>2821.00<br>6409.00 | 3194.00<br>3494.00<br>7094.00 | 3696.00<br>4046.00<br>8247.00 | 4216.00<br>4612.00<br>9364.00 | 4879.00<br>5341.00<br>10886.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U33X | 3221.00 | 3715.00 | 4270.00 | 4939.00 | 5923.00 | 6868.00 | 7577.00 | 8798.00 | 10002.00 | 11613.00 | AL250JD▼ |
| Micrologic Ammeter | LSI | 5.2A | 60 A<br>100 A<br>150 A | H( )L36060(C)U43X<br>H( )L36100(C)U43X<br>H( )L36150(C)U43X | 2031.00<br>2271.00<br>3543.00 | 2240.00<br>2520.00<br>4004.00 | 2436.00<br>2644.00<br>4542.00 | 2712.00<br>2955.00<br>5170.00 | 2892.00<br>3042.00<br>6117.00 | 3244.00<br>3419.00<br>7008.00 | 3792.00<br>4092.00<br>7692.00 | 4295.00<br>4645.00<br>8846.00 | 5005.00<br>5401.00<br>10153.00 | 5669.00<br>6131.00<br>11677.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U43X | 4075.00 | 4569.00 | 5124.00 | 5793.00 | 6777.00 | 7722.00 | 8431.00 | 9653.00 | 11129.00 | 12742.00 | AL250JD▼ |
| Micrologic Energy | LSI | 5.2E | 60 A<br>100 A<br>150 A | H( )L36060(C)U53X<br>H( )L36100(C)U53X<br>H( )L36150(C)U53X | 2391.00<br>2631.00<br>3903.00 | 2599.00<br>2879.00<br>4363.00 | 2796.00<br>3004.00<br>4902.00 | 3072.00<br>3314.00<br>5529.00 | 3252.00<br>3402.00<br>6477.00 | 3604.00<br>3779.00<br>7367.00 | 4152.00<br>4452.00<br>8052.00 | 4654.00<br>5004.00<br>9205.00 | 5481.00<br>5877.00<br>10629.00 | 6143.00<br>6605.00<br>12151.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U53X | 4588.00 | 5082.00 | 5637.00 | 6306.00 | 7290.00 | 8235.00 | 8944.00 | 10165.00 | 11806.00 | 13418.00 | AL250JD▼ |
| Micrologic Ammeter | LSIG | 6.2A | 60 A<br>100 A<br>150 A | H( )L36060(C)U44X<br>H( )L36100(C)U44X<br>H( )L36150(C)U44X | 2751.00<br>2991.00<br>4263.00 | 2960.00<br>3240.00<br>4724.00 | 3156.00<br>3364.00<br>5262.00 | 3432.00<br>3675.00<br>5890.00 | 3612.00<br>3762.00<br>6837.00 | 3964.00<br>4139.00<br>7728.00 | 4512.00<br>4812.00<br>8412.00 | 5015.00<br>5365.00<br>9566.00 | 5956.00<br>6352.00<br>11104.00 | 6620.00<br>7082.00<br>12627.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U44X | 5100.00 | 5594.00 | 6149.00 | 6818.00 | 7802.00 | 8747.00 | 9456.00 | 10678.00 | 12482.00 | 14095.00 | AL250JD▼ |
| Micrologic Energy | LSIG | 6.2E | 60 A<br>100 A<br>150 A | H( )L36060(C)U54X<br>H( )L36100(C)U54X<br>H( )L36150(C)U54X | 3111.00<br>3351.00<br>4623.00 | 3319.00<br>3599.00<br>5083.00 | 3516.00<br>3724.00<br>5622.00 | 3792.00<br>4034.00<br>6249.00 | 3972.00<br>4122.00<br>7197.00 | 4324.00<br>4499.00<br>8087.00 | 4872.00<br>5172.00<br>8772.00 | 5374.00<br>5724.00<br>9925.00 | 6431.00<br>6827.00<br>11579.00 | 7094.00<br>7556.00<br>13101.00 | AL150HD★ |
| | | | 250 A | J( )L36250(C)U54X | 5613.00 | 6107.00 | 6662.00 | 7331.00 | 8315.00 | 9260.00 | 9969.00 | 11190.00 | 13159.00 | 14771.00 | AL250JD▼ |

▲ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
■ See Supplemental Digest page 3-2 for circuit breakers with field-interchangeable trip units
♦ For 100% rated circuit breakers, add a "C" in the 9th character place (for example, HGL36150CU31X, JGL36250CU43X)
100% rated H- and J-frame circuit breakers have copper lugs and can only be used with copper wire.
★ AL150HD wire range is 14–3/0 AWG Al or Cu.
▼ AL250JD wire range is 3/0 AWG–350 kcmil Al or Cu. For smaller wire range (4–4/0 AWG Al or Cu), replace the lug's wire binding screws with the larger binding screws provided.
△ 3P circuit breakers with this trip unit can be used for 2P applications.
□ For applications requiring communications see page 7-49.



H-Frame
Micrologic™ Trip Unit

## Table 7.42: H- and J-Frame Termination Options

| Termination Letter |
|---|
| A - I-Line (See Section 9) |
| F = No Lugs (includes terminal nut kit on both ends) |
| L = Lugs both ends |
| M = Lugs ON end Terminal Nut Kit OFF end |
| P = Lugs OFF end Terminal Nut Kit ON end |
| N = Plug-in ◊ |
| D = Drawout ◊ |
| S = Rear Connected ◊ |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H D L 3 6 0 1 5 T
└ Termination Letter

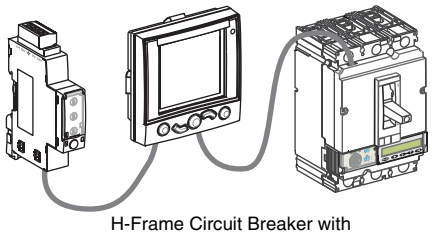
◊ For N and D pricing, add termination pricing on page 7-45 to price. For S pricing, add termination pricing on page 7-41 to price.



J-Frame
Micrologic™ Trip Unit

## Table 7.43: H- and J-Frame Interrupting Ratings

| Voltage | Interrupting Rating | | | | |
|---|---|---|---|---|---|
| | D | G | J | L | R |
| 240 Vac | 25 KA | 65 kA | 100 kA | 125 kA | 200 kA |
| 480 Vac | 18 kA | 35 kA | 65 kA | 100 kA | 200 kA |
| 600 Vac | 14 kA | 18 kA | 25 kA | 50 kA | 100 kA |



H-Frame Circuit Breaker with
Optional FDM and IFM Modules

Accessories . . . . . Page 7-39
Optional Lugs . . . . . Page 7-42
Dimensions . . . . . Page 7-55
Enclosures . . . . . Page 7-56



© 2012 Schneider Electric
All Rights Reserved



QBL 2P
70–250 A



QBL 3P
70–250 A

**Table 7.44: PowerPact Q-Frame▲250 A Thermal-Magnetic Circuit Breaker (240 Vac)**

| Ampere Rating | Fixed AC Magnetic Trip | | Interrupting Rating | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B | | D | | G | | J | | |
| | Hold | Trip | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | |
| **2P, 240 Vac** | | | | | | | | | | | |
| 70 A | 1000 A | 1800 A | QBL22070 | **474.00** | QDL22070 | **1143.00** | QGL22070 | **1521.00** | QJL22070 | **1890.00** | |
| 80 A | 1000 A | 1800 A | QBL22080 | **474.00** | QDL22080 | **1143.00** | QGL22080 | **1521.00** | QJL22080 | **1890.00** | |
| 90 A | 1000 A | 1800 A | QBL22090 | **474.00** | QDL22090 | **1143.00** | QGL22090 | **1521.00** | QJL22090 | **1890.00** | |
| 100 A | 1200 A | 2400 A | QBL22100 | **474.00** | QDL22100 | **1143.00** | QGL22100 | **1521.00** | QJL22100 | **1890.00** | |
| 110 A | 1200 A | 2400 A | QBL22110 | **474.00** | QDL22110 | **1143.00** | QGL22110 | **1521.00** | QJL22110 | **1890.00** | |
| 125 A | 1200 A | 2400 A | QBL22125 | **474.00** | QDL22125 | **1143.00** | QGL22125 | **1521.00** | QJL22125 | **1890.00** | #4 AWG - 300 kcmil Al/Cu |
| 150 A | 1200 A | 2400 A | QBL22150 | **474.00** | QDL22150 | **1143.00** | QGL22150 | **1521.00** | QJL22150 | **1890.00** | |
| 175 A | 1200 A | 2400 A | QBL22175 | **474.00** | QDL22175 | **1143.00** | QGL22175 | **1521.00** | QJL22175 | **1890.00** | |
| 200 A | 1200 A | 2400 A | QBL22200 | **474.00** | QDL22200 | **1143.00** | QGL22200 | **1521.00** | QJL22200 | **1890.00** | |
| 225 A | 1200 A | 2400 A | QBL22225 | **474.00** | QDL22225 | **1143.00** | QGL22225 | **1521.00** | QJL22225 | **1890.00** | |
| 250 A■ | 1200 A | 2400 A | QBL22250 | **693.00** | QDL22250 | **1544.00** | QGL22250 | **1970.00** | QJL22250 | **2348.00** | |
| **3P, 240 Vac** | | | | | | | | | | | |
| 70 A | 1000 A | 1800 A | QBL32070 | **1248.00** | QDL32070 | **1784.00** | QGL32070 | **2442.00** | QJL32070 | **2796.00** | |
| 80 A | 1000 A | 1800 A | QBL32080 | **1248.00** | QDL32080 | **1784.00** | QGL32080 | **2442.00** | QJL32080 | **2796.00** | |
| 90 A | 1000 A | 1800 A | QBL32090 | **1248.00** | QDL32090 | **1784.00** | QGL32090 | **2442.00** | QJL32090 | **2796.00** | |
| 100 A | 1200 A | 2400 A | QBL32100 | **1248.00** | QDL32100 | **1784.00** | QGL32100 | **2442.00** | QJL32100 | **2796.00** | |
| 110 A | 1200 A | 2400 A | QBL32110 | **1248.00** | QDL32110 | **1784.00** | QGL32110 | **2442.00** | QJL32110 | **2796.00** | |
| 125 A | 1200 A | 2400 A | QBL32125 | **1248.00** | QDL32125 | **1784.00** | QGL32125 | **2442.00** | QJL32125 | **2796.00** | #4 AWG - 300 kcmil Al/Cu |
| 150 A | 1200 A | 2400 A | QBL32150 | **1248.00** | QDL32150 | **1784.00** | QGL32150 | **2442.00** | QJL32150 | **2796.00** | |
| 175 A | 1200 A | 2400 A | QBL32175 | **1248.00** | QDL32175 | **1784.00** | QGL32175 | **2442.00** | QJL32175 | **2796.00** | |
| 200 A | 1200 A | 2400 A | QBL32200 | **1248.00** | QDL32200 | **1784.00** | QGL32200 | **2442.00** | QJL32200 | **2796.00** | |
| 225 A | 1200 A | 2400 A | QBL32225 | **1248.00** | QDL32225 | **1784.00** | QGL32225 | **2442.00** | QJL32225 | **2796.00** | |
| 250 A■ | 1200 A | 2400 A | QBL32250 | **1812.00** | QDL32250 | **2442.00** | QGL32250 | **3150.00** | QJL32250 | **3465.00** | |

▲ Replacement lugs and electrical accessories are not available for PowerPact Q-frame circuit breakers.
■ 250 A requires the use of copper cables only.

**Table 7.45: Q-Frame Termination Options**

| Termination Letter |
|---|
| A = I-Line (See Section 9) |
| E = Bolt-on I-Line (See Section 9) |
| F = No lugs |
| L = Lugs both ends |
| M = Lugs ON end, studs on OFF end |
| P = Lugs OFF end, studs on ON end |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

Q G L 3 2 2 0 0
└ Termination Letter

▼ Add TS suffix for studs on both ends without nuts and washers. See Catalog **0734CT0201** for additional information.

**Table 7.46: Q-Frame Interrupting Ratings**

| Voltage | Interrupting Rating | | | |
|---|---|---|---|---|
| | B | D | G | J |
| 240 Vac♦ | 10 kA | 25 kA | 65 kA | 100 kA★ |

♦ Q-frame circuit breakers are 240 Vac only.
★ 3P QJ circuit breakers are rated at 208Y/120 Vac only.

DimensionsPage 7-55
EnclosuresPage 7-56





© 2012 Schneider Electric
All Rights Reserved

New!

## Table 7.47: L-Frame 600 A Circuit Breakers with Lugs and Factory-Sealed Electronic Trip Units Suitable for Reverse Connection△✱

| Electronic Trip Unit | | | Sensor Rating | Cat. No.□ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | | | | | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D | | G | | J ◊ | | L ◊ | | R ◊ | | |
| Type | Function | Trip Unit | | | $ Price | | | | | | | | | | |
| | | | | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | |
| **600 Vac, 50/60 Hz, 3P** | | | | | | | | | | | | | | | |
| Micrologic Standard | LI | 3.3☆ | 250 A | L( )L36250(C)U31X | **4827.00** | **5648.00** | **5081.00** | **5945.00** | **8478.00** | **9919.00** | **9918.00** | **11604.00** | **11406.00** | **13345.00** | AL400L61K3▽ |
| | | | 400 A<br>600 A | L( )L36400(C)U31X<br>L( )L36600U31X | **4827.00**<br>**7109.00** | **5648.00**<br>— | **5081.00**<br>**7484.00** | **5945.00**<br>— | **8478.00**<br>**10541.00** | **9919.00**<br>— | **9918.00**<br>**11837.00** | **11604.00**<br>— | **11406.00**<br>**13613.00** | **13345.00**<br>— | AL600LS52K3◒ |
| Micrologic Standard | LSI | 3.3S☆ | 250 A | L( )L36250(C)U33X | **5391.00** | **6211.00** | **5674.00** | **6538.00** | **9071.00** | **10513.00** | **10511.00** | **12198.00** | **12088.00** | **14028.00** | AL400L61K3▽ |
| | | | 400 A<br>600 A | L( )L36400(C)U33X<br>L( )L36600U33X | **5391.00**<br>**7673.00** | **6211.00**<br>— | **5674.00**<br>**8077.00** | **6538.00**<br>— | **9071.00**<br>**11134.00** | **10513.00**<br>— | **10511.00**<br>**12430.00** | **12198.00**<br>— | **12088.00**<br>**14295.00** | **14028.00**<br>— | AL600LS52K3◒ |
| Micrologic Ammeter | LSI | 5.3A | 400 A<br>600 A | L( )L36400(C)U43X<br>L( )L36600U43X | **6253.00**<br>**8535.00** | **7073.00**<br>— | **6582.00**<br>**8984.00** | **7445.00**<br>— | **9979.00**<br>**12041.00** | **11420.00**<br>— | **11419.00**<br>**13337.00** | **13105.00**<br>— | **13132.00**<br>**15338.00** | **15071.00**<br>— | AL600LS52K3◒ |
| Micrologic Energy | LSI | 5.3E | 400 A<br>600 A | L( )L36400(C)U53X<br>L( )L36600U53X | **7200.00**<br>**9483.00** | **8021.00**<br>— | **7579.00**<br>**9982.00** | **8443.00**<br>— | **10976.00**<br>**13039.00** | **12418.00**<br>— | **12416.00**<br>**14335.00** | **14103.00**<br>— | **14278.00**<br>**16485.00** | **16218.00**<br>— | |
| Micrologic Ammeter | LSIG | 6.3A | 400 A<br>600 A | L( )L36400(C)U44X<br>L( )L36600U44X | **8149.00**<br>**10431.00** | **8969.00**<br>— | **8578.00**<br>**10980.00** | **9441.00**<br>— | **11975.00**<br>**14037.00** | **13416.00**<br>— | **13415.00**<br>**15333.00** | **15101.00**<br>— | **15427.00**<br>**17633.00** | **17366.00**<br>— | |
| Micrologic Energy | LSIG | 6.3E | 400 A<br>600 A | L( )L36400(C)U54X<br>L( )L36600U54X | **9097.00**<br>**11379.00** | **9917.00**<br>— | **9575.00**<br>**11978.00** | **10439.00**<br>— | **12972.00**<br>**15035.00** | **14414.00**<br>— | **14412.00**<br>**16331.00** | **16099.00**<br>— | **16574.00**<br>**18781.00** | **18514.00**<br>— | |
| **600 Vac, 50/60 Hz, 4P** | | | | | | | | | | | | | | | |
| Micrologic Standard | LI | 3.3 | 250 A | L( )L46250(C)U31X | **5327.00** | **6233.00** | **5581.00** | **6530.00** | **8978.00** | **10501.00** | **10418.00** | **12189.00** | **11981.00** | **14017.00** | AL400L61K4▽ |
| | | | 400 A<br>600 A | L( )L46400(C)U31X<br>L( )L46600U31X | **6227.00**<br>**8509.00** | **6233.00**<br>— | **6481.00**<br>**8884.00** | **7583.00**<br>— | **9878.00**<br>**11941.00** | **11557.00**<br>— | **11318.00**<br>**13237.00** | **13242.00**<br>— | **13016.00**<br>**15223.00** | **15228.00**<br>— | AL600LS52K4◒ |
| Micrologic Standard | LSI | 3.3S | 250 A | L( )L46250(C)U33X | **5891.00** | **6796.00** | **6174.00** | **7123.00** | **9571.00** | **11098.00** | **11011.00** | **12783.00** | **12663.00** | **14700.00** | AL400L61K4▽ |
| | | | 400 A<br>600 A | L( )L46400(C)U33X<br>L( )L46600U33X | **6791.00**<br>**9073.00** | **7849.00**<br>— | **7074.00**<br>**9477.00** | **8176.00**<br>— | **10471.00**<br>**12534.00** | **12151.00**<br>— | **11911.00**<br>**13830.00** | **13836.00**<br>— | **13698.00**<br>**15905.00** | **15911.00**<br>— | AL600LS52K4◒ |
| Micrologic Ammeter | LSI | 5.3A | 400 A<br>600 A | L( )L46400(C)U43X<br>L( )L46600U43X | **7653.00**<br>**9935.00** | **8711.00**<br>— | **7982.00**<br>**10384.00** | **9083.00**<br>— | **11379.00**<br>**13441.00** | **13058.00**<br>— | **12819.00**<br>**14737.00** | **14743.00**<br>— | **14742.00**<br>**16948.00** | **16954.00**<br>— | |
| Micrologic Energy | LSI | 5.3E | 400 A<br>600 A | L( )L46400(C)U53X<br>L( )L46600U53X | **8600.00**<br>**10883.00** | **9659.00**<br>— | **8979.00**<br>**11382.00** | **10081.00**<br>— | **12376.00**<br>**14439.00** | **14056.00**<br>— | **13816.00**<br>**15735.00** | **15741.00**<br>— | **15888.00**<br>**18095.00** | **18102.00**<br>— | |
| Micrologic Ammeter | LSIG | 6.3A | 400 A<br>600 A | L( )L46400(C)U44X<br>L( )L46600U44X | **9549.00**<br>**11831.00** | **10607.00**<br>— | **9978.00**<br>**12380.00** | **11079.00**<br>— | **13375.00**<br>**15437.00** | **15054.00**<br>— | **14815.00**<br>**16733.00** | **16739.00**<br>— | **17037.00**<br>**19243.00** | **19250.00**<br>— | AL600LS52K4◒ |
| Micrologic Energy | LSIG | 6.3E | 400 A<br>600 A | L( )L46400(C)U54X<br>L( )L46600U54X | **10497.00**<br>**12779.00** | **11555.00**<br>— | **10975.00**<br>**13378.00** | **12077.00**<br>— | **14372.00**<br>**16435.00** | **16052.00**<br>— | **15812.00**<br>**17731.00** | **17791.00**<br>— | **18184.00**<br>**20391.00** | **20460.00**<br>— | |

△ See Supplemental Digest page 3-4 for circuit breakers with field-interchangeable trip units
□ For 100% rated circuit breakers (250 A and 400 A only), add a "C" in the 9th character place (for example, LGL36400CU31X)
◊ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
☆ 3P circuit breakers with this trip unit can be used for 2P applications.
▽ AL400L61K3 terminal wire ranges are (1) 2 AWG–600 kcmil Cu or 1) 2 AWG–500 kcmil Al.
◒ AL600LS52K3 terminal wire range is (2) 2/0 AWG–500 kcmil Al/Cu.
✱ For applications requiring communicatins see page 7-49.



L-Frame Circuit Breaker

## Table 7.48: Termination Options

| Termination Letter | Termination Option |
|---|---|
| A | I-Line (See Section 9) |
| F | No lugs |
| L | Lugs both ends |
| M | Lugs ON end, terminal nut kit OFF end |
| P | Lugs OFF end, terminal nut kit ON end |
| N◆ | Plug In |
| D◆ | Drawout |
| S◆ | Rear Connected |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

L G L 3 6 6 0 0 U 4 4 X
└ Termination Letter

◆ For N and D pricing, add termination pricing on page 7-45 to price. For S pricing, add termination pricing on page 7-41 to price.

## Table 7.49: Interrupting Ratings

| Voltage | Interrupting Rating | | | | |
|---|---|---|---|---|---|
| | D | G | J | L | R |
| 240 Vac | 25 kA | 65 kA | 100 kA | 125 kA | 200 kA |
| 480 Vac | 18 kA | 35 kA | 65 kA | 100 kA | 200 kA |
| 600 Vac | 14 kA | 18 kA | 25 kA | 50 kA | 100 kA |

Accessories . . . . . page 7-39
Optional Lugs . . . . . page 7-42
Dimensions . . . . . page 7-55
Enclosures . . . . . page 7-56



© 2012 Schneider Electric
All Rights Reserved


M-Frame Circuit Breaker

**Table 7.50: M-Frame 800 A, Basic Electronic Trip System Type ET 1.0◑ Factory-Sealed Trip Unit**

| Electronic Trip Unit | | Sensor Rating | Interrupting Rating | | | | Terminal Wire Range (AWG/kcmil) |
|---|---|---|---|---|---|---|---|
| | | | G | | J | | |
| Type | Function | | Cat. No. | $ Price | Cat. No. | $ Price | |
| **2P, 600 Vac 50/60 Hz** | | | | | | | |
| Basic | Fixed Long-time, Adjustable Instantaneous Trip | 300 A | MGL26300 | **5960.00** | MJL26300 | **7829.00** | AL800M23K (3) 3/0–500 Al/Cu |
| | | 350 A | MGL26350 | **5960.00** | MJL26350 | **7829.00** | |
| | | 400 A | MGL26400 | **5960.00** | MJL26400 | **7829.00** | |
| | | 450 A | MGL26450 | **5960.00** | MJL26450 | **7829.00** | |
| | | 500 A | MGL26500 | **5960.00** | MJL26500 | **7829.00** | |
| | | 600 A | MGL26600 | **5960.00** | MJL26600 | **7829.00** | |
| | | 700 A | MGL26700 | **7719.00** | MJL26700 | **9657.00** | |
| | | 800 A | MGL26800 | **7719.00** | MJL26800 | **9657.00** | |
| **3P, 600 Vac 50/60 Hz** | | | | | | | |
| Basic | Fixed Long-time, Adjustable Instantaneous Trip | 300 A | MGL36300 | **7560.00** | MJL36300 | **9456.00** | AL800M23K (3) 3/0–500 Al/Cu |
| | | 350 A | MGL36350 | **7560.00** | MJL36350 | **9456.00** | |
| | | 400 A | MGL36400 | **7560.00** | MJL36400 | **9456.00** | |
| | | 450 A | MGL36450 | **7560.00** | MJL36450 | **9456.00** | |
| | | 500 A | MGL36500 | **7560.00** | MJL36500 | **9456.00** | |
| | | 600 A | MGL36600 | **7560.00** | MJL36600 | **9456.00** | |
| | | 700 A | MGL36700 | **9927.00** | MJL36700 | **11882.00** | |
| | | 800 A | MGL36800 | **9927.00** | MJL36800 | **11882.00** | |

◑ The ET 1.0 trip unit cannot be field replaced or have the long-time trip point setting adjusted. It is considered an electronic equivalent of a thermal-magnetic circuit breaker.

**Table 7.51: Termination Options**

| Termination Letter | Termination Option |
|---|---|
| A | I-Line (See Section 9) |
| F | No lugs |
| L | Lugs both ends |
| M | Lugs ON end, terminal nut kit OFF end |
| P | Lugs OFF end, terminal nut kit ON end |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

**M G L 3 6 4 0 0**
└ Termination Letter

**Table 7.52: Frame Interrupting Ratings**

| Voltage | Interrupting Rating | | | |
|---|---|---|---|---|
| | D | G | J | L |
| 240 Vac | 25 kA | 65 kA | 100 kA | 125 kA |
| 480 Vac | 18 kA | 35 kA | 65 kA | 100 kA |
| 600 Vac | 14 kA | 18 kA | 25 kA | 50 kA |

Accessories . . . . . page 7-39
Optional Lugs . . . . . page 7-42
Dimensions . . . . . page 7-55
Enclosures . . . . . page 7-56





© 2012 Schneider Electric
All Rights Reserved

## Table 7.53: P-Frame 1200 A (600 Vac, 50/60 Hz) 3P▲ Circuit Breaker with Electronic Trip Unit

| Electronic Trip Unit | | | Sensor Rating | Cat. No.■♦ | $ Price | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | G■ | | J■ | | K■ | | L■★ | | |
| Type | Function | Trip Unit | | | 80% Rated | 100% Rated♦ | 80% Rated | 100% Rated♦ | 80% Rated | 100% Rated ♦ | 80% Rated | 100% Rated♦ | |
| Basic Electronic Trip Unit (Not Interchangeable) | Fixed long-time, Adjustable Instantaneous | ET1.0I | 600 A | P( )L36060 | 13905.00 | — | 14783.00 | — | 14783.00 | — | 15660.00 | — | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 800 A | P( )L36080 | | — | | — | | — | | — | |
| | | | 1000 A | P( )L36100 | 19049.00 | — | 20250.00 | — | 20250.00 | — | 21452.00 | — | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120 | | — | | — | | — | | — | |
| Micrologic Interchangeable Standard Trip Unit | LI | 3.0 | 250 A | P( )L36025(C)U31A | 14693.00 | 21510.00 | 15570.00 | 22868.00 | 15570.00 | 22868.00 | 16448.00 | 24224.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U31A | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U31A | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U31A | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U31A | 19836.00 | 30239.00 | 21038.00 | 32147.00 | 21038.00 | 32147.00 | 22239.00 | 34052.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U31A | | | | | | | | | |
| | LSI | 5.0 | 250 A | P( )L36025(C)U33A | 15032.00 | 21812.00 | 15909.00 | 23187.00 | 15909.00 | 23187.00 | 16787.00 | 24564.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U33A | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U33A | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U33A | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U33A | 20177.00 | 30540.00 | 21378.00 | 32466.00 | 21378.00 | 32466.00 | 22580.00 | 34392.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U33A | | | | | | | | | |
| Micrologic Interchangeable Ammeter Trip Unit | LI | 3.0A | 250 A | P( )L36025(C)U41A | 15543.00 | 22266.00 | 16421.00 | 23670.00 | 16421.00 | 23670.00 | 17298.00 | 25076.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U41A | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U41A | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U41A | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U41A | 20688.00 | 30995.00 | 21890.00 | 32949.00 | 21890.00 | 32949.00 | 23091.00 | 34904.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U41A | | | | | | | | | |
| | LSI | 5.0A | 250 A | P( )L36025(C)U43A | 17043.00 | 23597.00 | 17921.00 | 25085.00 | 17921.00 | 25085.00 | 18798.00 | 26574.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U43A | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U43A | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U43A | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U43A | 22185.00 | 32324.00 | 23387.00 | 34364.00 | 23387.00 | 34364.00 | 24590.00 | 36402.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U43A | | | | | | | | | |
| | LSIG | 6.0A | 250 A | P( )L36025(C)U44A | 18909.00 | 25256.00 | 19787.00 | 26849.00 | 19787.00 | 26849.00 | 20664.00 | 28442.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U44A | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U44A | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U44A | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U44A | 24054.00 | 33983.00 | 25256.00 | 36128.00 | 25256.00 | 36128.00 | 26457.00 | 38270.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U44A | | | | | | | | | |
| Micrologic Interchangeable Power Trip Unit | LSI | 5.0P | 250 A | P( )L36025(C)U63AE1 | 21455.00 | 27516.00 | 22332.00 | 29252.00 | 22332.00 | 29252.00 | 23210.00 | 30986.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U63AE1 | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U63AE1 | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U63AE1 | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U63AE1 | 26597.00 | 36243.00 | 27800.00 | 38529.00 | 27800.00 | 38529.00 | 29001.00 | 40814.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U63AE1 | | | | | | | | | |
| | LSIG | 6.0P | 250 A | P( )L36025(C)U64AE1 | 22536.00 | 28476.00 | 23414.00 | 30272.00 | 23414.00 | 30272.00 | 24291.00 | 32067.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U64AE1 | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U64AE1 | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U64AE1 | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U64AE1 | 27680.00 | 37203.00 | 28881.00 | 39551.00 | 28881.00 | 39551.00 | 30083.00 | 41895.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U64AE1 | | | | | | | | | |
| Micrologic Interchangeable Harmonic Trip Unit | LSI | 5.0H | 250 A | P( )L36025(C)U73AE1 | 25538.00 | 31140.00 | 26415.00 | 33104.00 | 26415.00 | 33104.00 | 27291.00 | 35067.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U73AE1 | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U73AE1 | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U73AE1 | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U73AE1 | 30680.00 | 39867.00 | 31881.00 | 42381.00 | 31881.00 | 42381.00 | 33083.00 | 44895.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U73AE1 | | | | | | | | | |
| | LSIG | 6.0H | 250 A | P( )L36025(C)U74AE1 | 26619.00 | 32100.00 | 27497.00 | 34125.00 | 27497.00 | 34125.00 | 28374.00 | 36150.00 | AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu |
| | | | 400 A | P( )L36040(C)U74AE1 | | | | | | | | | |
| | | | 600 A | P( )L36060(C)U74AE1 | | | | | | | | | |
| | | | 800 A | P( )L36080(C)U74AE1 | | | | | | | | | |
| | | | 1000 A | P( )L36100(C)U74AE1 | 31761.00 | 40829.00 | 32963.00 | 43404.00 | 32963.00 | 43404.00 | 34166.00 | 45978.00 | AL1200P25K (4) 3/0 AWG–500 kcmil Al or Cu |
| | | | 1200 A | P( )L36120(C)U74AE1 | | | | | | | | | |

▲ For 2P and 4P information see Catalog 0612CT0101.
■ To complete the catalog number, replace the ( ) with the appropriate interrupting rating (G, J, K or L).
♦ For 100% rated circuit breakers add a "C" in the 9th character place. For example, the catalog number for a 100% trip unit with LI trip functions at 250A would be PGL36025**C**U31A.
★ For all L interrupting rating, change the 5th character (voltage rating) from a 6 (600V) to a 4 (480V); for example, PLL3**4**025U31A. The 480V AIR is standard 100 kA.

## Table 7.54: P-Frame Termination Options

| Termination Letter |
|---|
| F = No Lugs (Includes terminal nut kit on both ends) |
| L = Lugs both ends |
| M = Lugs ON end, terminal nut kit OFF end |
| P = Lugs OFF end, terminal nut kit ON end |
| D = Drawout▲ |
| A = I-Line (See Section 9) |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

P G L 3 6 0 4 0 U 4 1 A
└ Termination Letter

▲ For D pricing add termination pricing on page 7-45.

## Table 7.55: P-Frame and R-Frame Interrupting Ratings

| Voltage | P-Frame Interrupting Rating | | | | R-Frame Interrupting Rating | | | |
|---|---|---|---|---|---|---|---|---|
| | G | J | K | L | G | J | K | L |
| 240 Vac | 65 kA | 100 kA | 65 kA | 125 kA | 65 kA | 100 kA | 65 kA | 125 kA |
| 480 Vac | 35 kA | 65 kA | 50 kA | 100 kA | 35 kA | 65 kA | 65 kA | 100 kA |
| 600 Vac | 18 kA | 25 kA | 50 kA | 25 kA | 18 kA | 25 kA | 65 kA | 50 kA |

R-frame catalog numbers and pricing . . . . . Page 7-28
Dimensions . . . . . Page 7-55
Trip Unit Options . . . . . Page 7-47
Optional Lugs . . . . . Page 7-42
Alternate Rating Plugs . . . . . Page 7-48
Enclosure . . . . . Page 7-56
Accessories . . . . . Page 7-39



© 2012 Schneider Electric
All Rights Reserved

**Table 7.56: R-Frame 3000 A (600 Vac, 50/60 Hz) 3P▲ Circuit Breaker with Electronic Trip Unit**

| Electronic Trip Unit | | | Sensor Rating | Cat. No.■♦ | $ Price | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | G■★ | | J■★ | | K■★ | | L■★ | |
| Type | Function | Trip Unit | | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated |
| Basic Electronic Trip Unit (Not Interchangeable) | Fixed long-time, Adjustable Instantaneous | ET1.0I | 1200 A | R( )F36120 | 22373.00 | — | 23549.00 | — | 23549.00 | — | 24723.00 | — |
| | | | 1600 A | R( )F36160 | | — | | — | | — | | — |
| | | | 2000 A | R( )F36200 | | — | | — | | — | | — |
| | | | 2500 A | R( )F36250 | 35639.00 | — | 37512.00 | — | 37512.00 | — | 39383.00 | — |
| Micrologic Interchangeable Standard Trip Unit | LI | 3.0 | 600 A | R( )F36060(C)U31A | 23160.00 | 27759.00 | 24336.00 | 29301.00 | 24336.00 | 29301.00 | 25511.00 | 30843.00 |
| | | | 800 A | R( )F36080(C)U31A | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U31A | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U31A | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U31A | | 29775.00 | | 31430.00 | | 31430.00 | | 33083.00 |
| | | | 2000 A | R( )F36200(C)U31A | | 35042.00 | | 36989.00 | | 36989.00 | | 38936.00 |
| | | | 2500 A | R( )F36250(C)U31A | 36426.00 | 57075.00 | 38300.00 | 60248.00 | 38300.00 | 60248.00 | 40170.00 | 63417.00 |
| | | | 3000 A | R( )F36300(C)U31A | 54027.00 | 62451.00 | 57236.00 | 65738.00 | 57236.00 | 65738.00 | 60246.00 | 69024.00 |
| | LSI | 5.0 | 600 A | R( )F36060(C)U33A | 23501.00 | 28065.00 | 24675.00 | 29624.00 | 24675.00 | 29624.00 | 25851.00 | 31184.00 |
| | | | 800 A | R( )F36080(C)U33A | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U33A | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U33A | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U33A | | 30081.00 | | 31752.00 | | 31752.00 | | 33423.00 |
| | | | 2000 A | R( )F36200(C)U33A | | 35348.00 | | 37313.00 | | 37313.00 | | 39276.00 |
| | | | 2500 A | R( )F36250(C)U33A | 36767.00 | 57383.00 | 38640.00 | 60570.00 | 38640.00 | 60570.00 | 40511.00 | 63758.00 |
| | | | 3000 A | R( )F36300(C)U33A | 54513.00 | 62757.00 | 57542.00 | 66060.00 | 57542.00 | 66060.00 | 60570.00 | 69363.00 |
| Micrologic Interchangeable Ammeter Trip Unit | LI | 3.0A | 600 A | R( )F36060(C)U41A | 24012.00 | 28493.00 | 25188.00 | 30075.00 | 25188.00 | 30075.00 | 26363.00 | 31658.00 |
| | | | 800 A | R( )F36080(C)U41A | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U41A | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U41A | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U41A | | 30509.00 | | 32202.00 | | 32202.00 | | 33897.00 |
| | | | 2000 A | R( )F36200(C)U41A | | 35775.00 | | 37763.00 | | 37763.00 | | 39750.00 |
| | | | 2500 A | R( )F36250(C)U41A | 37278.00 | 57809.00 | 39152.00 | 61020.00 | 39152.00 | 61020.00 | 41022.00 | 64232.00 |
| | | | 3000 A | R( )F36300(C)U41A | 54918.00 | 63185.00 | 57969.00 | 66510.00 | 57969.00 | 66510.00 | 61020.00 | 69836.00 |
| | LSI | 5.0A | 600 A | R( )F36060(C)U43A | 25511.00 | 29874.00 | 26685.00 | 31533.00 | 26685.00 | 31533.00 | 27860.00 | 33194.00 |
| | | | 800 A | R( )F36080(C)U43A | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U43A | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U43A | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U43A | | 31889.00 | | 33662.00 | | 33662.00 | | 35433.00 |
| | | | 2000 A | R( )F36200(C)U43A | | 37158.00 | | 39221.00 | | 39221.00 | | 41286.00 |
| | | | 2500 A | R( )F36250(C)U43A | 38777.00 | 59190.00 | 40649.00 | 62478.00 | 40649.00 | 62478.00 | 42521.00 | 65768.00 |
| | | | 3000 A | R( )F36300(C)U43A | 56231.00 | 64569.00 | 59354.00 | 67968.00 | 59354.00 | 67968.00 | 62480.00 | 71367.00 |
| | LSIG | 6.0A | 600 A | R( )F36060(C)U44A | 27378.00 | 31556.00 | 28553.00 | 33308.00 | 28553.00 | 33308.00 | 29729.00 | 35061.00 |
| | | | 800 A | R( )F36080(C)U44A | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U44A | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U44A | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U44A | | 33570.00 | | 35436.00 | | 35436.00 | | 37301.00 |
| | | | 2000 A | R( )F36200(C)U44A | | 38838.00 | | 40995.00 | | 40995.00 | | 43154.00 |
| | | | 2500 A | R( )F36250(C)U44A | 40644.00 | 60870.00 | 43368.00 | 64253.00 | 43368.00 | 64253.00 | 44388.00 | 67635.00 |
| | | | 3000 A | R( )F36300(C)U44A | 57827.00 | 66255.00 | 60965.00 | 69743.00 | 60965.00 | 69743.00 | 64254.00 | 73230.00 |
| Micrologic Interchangeable Power Trip Unit | LSI | 5.0P | 600 A | R( )F36060(C)U63AE1 | 29922.00 | 33845.00 | 31097.00 | 35724.00 | 31097.00 | 35724.00 | 32273.00 | 37605.00 |
| | | | 800 A | R( )F36080(C)U63AE1 | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U63AE1 | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U63AE1 | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U63AE1 | | 35859.00 | | 37853.00 | | 37853.00 | | 39845.00 |
| | | | 2000 A | R( )F36200(C)U63AE1 | | 41129.00 | | 43413.00 | | 43413.00 | | 45698.00 |
| | | | 2500 A | R( )F36250(C)U63AE1 | 43188.00 | 63161.00 | 45062.00 | 66671.00 | 45062.00 | 66671.00 | 46932.00 | 70179.00 |
| | | | 3000 A | R( )F36300(C)U63AE1 | 60003.00 | 68553.00 | 63338.00 | 72161.00 | 63338.00 | 72161.00 | 66671.00 | 75858.00 |
| | LSIG | 6.0P | 600 A | R( )F36060(C)U64AE1 | 31004.00 | 34818.00 | 32180.00 | 36753.00 | 32180.00 | 36753.00 | 33354.00 | 38687.00 |
| | | | 800 A | R( )F36080(C)U64AE1 | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U64AE1 | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U64AE1 | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U64AE1 | | 36834.00 | | 38880.00 | | 38880.00 | | 40926.00 |
| | | | 2000 A | R( )F36200(C)U64AE1 | | 42102.00 | | 44441.00 | | 44441.00 | | 46779.00 |
| | | | 2500 A | R( )F36250(C)U64AE1 | 44270.00 | 64136.00 | 46143.00 | 67698.00 | 46143.00 | 67698.00 | 48014.00 | 71261.00 |
| | | | 3000 A | R( )F36300(C)U64AE1 | 60929.00 | 69528.00 | 64313.00 | 73188.00 | 64313.00 | 73188.00 | 67698.00 | 76848.00 |
| Micrologic Interchangeable Harmonic Trip Unit | LSI | 5.0H | 600 A | R( )F36060(C)U73AE1 | 34005.00 | 37518.00 | 35180.00 | 39603.00 | 35180.00 | 39603.00 | 36354.00 | 41687.00 |
| | | | 800 A | R( )F36080(C)U73AE1 | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U73AE1 | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U73AE1 | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U73AE1 | | 39534.00 | | 41730.00 | | 41730.00 | | 43928.00 |
| | | | 2000 A | R( )F36200(C)U73AE1 | | 44801.00 | | 47291.00 | | 47291.00 | | 49779.00 |
| | | | 2500 A | R( )F36250(C)U73AE1 | 47271.00 | 66836.00 | 49143.00 | 70548.00 | 49143.00 | 70548.00 | 51015.00 | 74262.00 |
| | | | 3000 A | R( )F36300(C)U73AE1 | 63494.00 | 72236.00 | 67020.00 | 76038.00 | 67020.00 | 76038.00 | 70550.00 | 79841.00 |
| | LSIG | 6.0H | 600 A | R( )F36060(C)U74AE1 | 35087.00 | 38493.00 | 36261.00 | 40631.00 | 36261.00 | 40631.00 | 37436.00 | 42770.00 |
| | | | 800 A | R( )F36080(C)U74AE1 | | | | | | | | |
| | | | 1000 A | R( )F36100(C)U74AE1 | | | | | | | | |
| | | | 1200 A | R( )F36120(C)U74AE1 | | | | | | | | |
| | | | 1600 A | R( )F36160(C)U74AE1 | | 40509.00 | | 42758.00 | | 42758.00 | | 45009.00 |
| | | | 2000 A | R( )F36200(C)U74AE1 | | 45776.00 | | 48320.00 | | 48320.00 | | 50862.00 |
| | | | 2500 A | R( )F36250(C)U74AE1 | 48353.00 | 67809.00 | 50225.00 | 71576.00 | 50225.00 | 71576.00 | 52097.00 | 75344.00 |
| | | | 3000 A | R( )F36300(C)U74AE1 | 64419.00 | 73212.00 | 67997.00 | 77066.00 | 67997.00 | 77066.00 | 71577.00 | 80919.00 |

Note: R-frame circuit breakers can be bus- or cable-connected. For cable connections, optional terminal pad kit RLTB or equivalent bus structure is required. Each RLTB kit contains terminal pads for one end of the circuit breaker only and has provisions for mounting a maximum of 8 lugs per phase (9 lugs for 3000 A). RLTB kits are included with 2500 A 100% rated circuit breakers. The RL3TB kits are included with the 3000 A, 80% and 100% rated circuit breakers. For other circuit breakers, order terminal pad kit (RLTB) and optional lugs separately. See pages 7-42–7-44.

▲ For 2P and 4P information see Catalog **0612CT0101**.

■ To complete the catalog number, replace the blank ( ) with the appropriate interrupting rating (G, J, K or L).

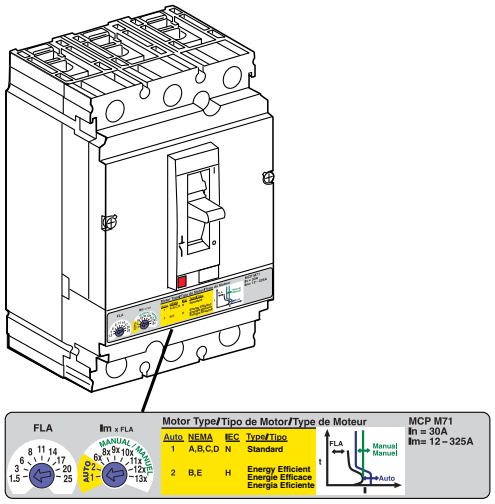
♦ Listed catalog numbers are for 80% rated circuit breakers. For 100% rated circuit breakers add a "C" in the 9th character place. For example, the catalog number for a 100% standard trip unit with LI trip functions at 2500A would be RGF36250**C**U31A.

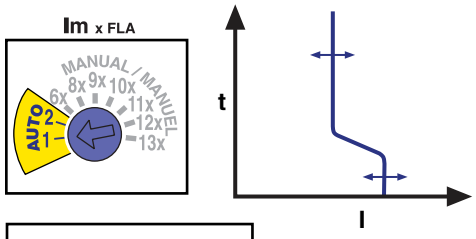
★ See page 7-27 for interrupting ratings table.

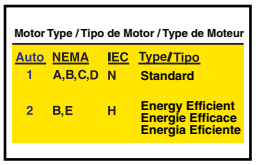




© 2012 Schneider Electric
All Rights Reserved




PowerPact H- and J-frame electronic Motor Circuit Protectors (MCP) are magnetic-only instantaneous-trip circuit breakers. They are designed to offer short circuit protection and are National Electrical Code (NEC) compliant when installed as part of a combination controller having motor overload protection. MCP circuit breakers accept the same accessories and terminals as the equivalent thermal-magnetic circuit breakers.

Determine the hp rating from the nameplate of the motor. Select a MCP with an ampere rating recommended for the hp and voltage involved. When using the automatic settings the MCP microprocessor automatically adjusts the trip settings for both current and time to align with the start-up characteristic for the motor type, whether it is a standard or energy-efficient motor. This includes a dampening means to accommodate a transient motor in-rush current without nuisance tripping of the circuit breaker.

**Table 7.57: H- and J-Frame Electronic Motor Circuit Protectors (MCP)**

| Frame | Sensor Rating | Full Load Amperes Range | Adjustable Instantaneous Trip Range | Suffix | Interrupting Rating | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | J (See SCCR Table Below) | | L (See SCCR Table Below) | |
| | | | | | Cat. No. | $ Price | Cat. No. | $ Price |
| H-Frame | 30 A | 1.5–25 A | 9–325 A | M71 | HJL36030M71 | **1089.00** | HLL36030M71 | **1223.00** |
| | 50 A | 14–42 A | 84–546 A | M72 | HJL36050M72 | **1385.00** | HLL36050M72 | **1553.00** |
| | 100 A | 30–80 A | 180–1040 A | M73 | HJL36100M73 | **1646.00** | HLL36100M73 | **1827.00** |
| | 150 A | 58–130 A | 348–1690 A | M74 | HJL36150M74 | **2069.00** | HLL36150M74 | **2306.00** |
| J-Frame | 250 A | 114–217 A | 684–2500 A | M75 | JJL36250M75 | **2393.00** | JLL36250M75 | **2673.00** |

**Table 7.58: Maximum Rating or Setting of Motor Protective Devices▲**

| Type of Motor | | Percentage of Full-load Current | |
|---|---|---|---|
| | | Setting | Not to Exceed■ |
| A, B, C, D | Standard | 800% | 1300% |
| B, E | Energy Efficient | 1100% | 1700% |

▲ Based on 2005 NEC Table 430.52.

■ See NEC Exception No. 1 to Table 430.52. The NEC 1300% maximum setting may be inadequate for instantaneous trip circuit breakers to withstand current surges typical of the magnetization current of autotransformer type reduced voltage starters, or open transition wye-delta starters during transfer from "start" to "run," constant hp multi-speed motors, and motors labeled "high efficiency."

**Table 7.59: MCP Selection by HP Ratings♦ of Induction-type Squirrel-Cage and Wound-rotor Motors★**

| 3Ø 60 Hz Voltages▼ | | | | Full-Load Amperes | Suffix |
|---|---|---|---|---|---|
| 200 Vac | 230 Vac | 460 Vac | 575 Vac | | |
| .5–5 | .5–7.5 | .75–15 | 1–20 | 1.5–25 | M71 |
| 5–10 | 5–15 | 10–30 | 15–40 | 14–42 | M72 |
| 10–25 | 15–30 | 25–60 | 30–75 | 30–80 | M73 |
| 20–40 | 25–50 | 50–100 | 60–125 | 58–130 | M74 |
| 40–60 | 50–75 | 100–150 | 125–200 | 114–217 | M75 |

♦ Based on 2005 NEC Table 430.250.

★ Per NEC 430.3, part-winding motors should select two circuit breakers, each at not more than one-half the allowable trip setting for the horsepower rating. The two circuit breakers should operate simultaneously as a disconnecting means per NEC 430.103.

▼ Listed voltages are rated motor voltages. Corresponding system voltages are 200 Vac, 220–240 Vac, 440–480 Vac and 550–600 Vac. Select wire and circuit breakers based on horsepower rather than nameplate full-load current per NEC 430.6 (A) for general motor applications.

## Short Circuit Current Rating (SCCR)

Tested to meet NEC and UL508A requirements for short circuit current ratings as part of an approved combination controller.

**Table 7.60: Short Circuit Current Ratings (SCCR)**

| Contactor/Starter | Interrupting Rating | | | | | |
|---|---|---|---|---|---|---|
| | J | | | L | | |
| | 200–240 Vac | 480 Vac | 600 Vac | 200–240 Vac | 480 Vac | 600 Vac |
| Tesys D-line and F-line | 100 kA | 65 kA | 25 kA | 125 kA | 100 kA | 50 kA |
| NEMA Type S | 100 kA | 65 kA | 25 kA | 125 kA | 100 kA | 50 kA |

See www.us.schneider-electric.us for specific ratings and combination ID numbers.

Accessories . . . . . Page 7-39
Optional Lugs . . . . . Page 7-42
Dimensions . . . . . Page 7-55
Enclosures. . . . . Page 7-56

**To select combination starters and motor controllers using MCP's meeting NEC Article 430, refer to pages 16-34—16-36.**



© 2012 Schneider Electric
All Rights Reserved

**Table 7.61: Application of PowerPact™ H-Frame and J-Frame Electronic Motor Circuit Protectors (MCP)**

| Horsepower Rating of Induction-type Squirrel-cage and Wound-rotor Motors 3Ø 60 Hz | | | | | NEC Full Load Amperes | PowerPact H-Frame and J-Frame Electronic MCP | |
|---|---|---|---|---|---|---|---|
| Starter Size | 200 Vac | 230 Vac | 480 Vac | 575 Vac | | | |
| | | | | 1/2 | 0.9 A | | |
| | | | 1/2 | | 1.1 A | | |
| | | | | 3/4 | 1.3 A | | |
| | | | 3/4 | 1 | 1.7 A | | |
| | | | 1 | | 2.1 A | | |
| | | 1/2 | | | 2.2 A | | |
| | | | | 1-1/2 | 2.4 A | | |
| | 1/2 | | | | 2.5 A | | |
| | | | | 2 | 2.7 A | | |
| | | | 1-1/2 | | 3 A | | |
| 00 | | 3/4 | | | 3.2 A | | |
| | | | 2 | | 3.4 A | | |
| | 3/4 | | | | 3.7 A | | |
| | | | | 3 | 3.9 A | | |
| | | 1 | | | 4.2 A | | |
| | 1 | | | | 4.8 A | HJL36030M71 and HLL36030M71 1/2–10 hp | |
| | | | 3 | | 4.8 A | | |
| | | 1-1/2 | | | 6 A | | |
| | | | | 5 | 6.1 A | | |
| | | 2 | | | 6.8 A | | |
| | 1-1/2 | | | | 6.9 A | | |
| | | | 5 | | 7.6 A | | |
| | 2 | | | | 7.8 A | | |
| 0 | | | | 7-1/2 | 9 A | | |
| | | 3 | | | 9.6 A | | |
| | 3 | | 7-1/2 | | 11 A | | |
| | | | 10 | 10 | 14 A | | |
| | | 5 | | | 15.2 A | | |
| | | | | 15 | 17 A | | |
| 1 | 5 | | | | 17.5 A | | |
| | | | 15 | | 21 A | | |
| | | 7-1/2 | | 20 | 22 A | | HJL36050M72 and HLL36050M72 10–25 hp |
| | 7-1/2 | | | | 25.3 A | | |
| | | | 20 | 25 | 27 A | | |
| 2 | | 10 | | | 28 A | | |
| | 10 | | | 30 | 32 A | HJL36100M73 and HLL36100M73 15–50 hp | |
| | | | 25 | | 32.2 A | | |
| | | | | | 34 A | | |
| | | | 30 | | 40 A | | |
| | | | | 40 | 41 A | | |
| | | 15 | | | 42 A | | |
| | 15 | | | | 48.3 A | | |
| 3 | | | 40 | 50 | 52 A | | |
| | | 20 | | | 54 A | | |
| | 20 | | | 60 | 62 A | | |
| | | | 50 | | 65 A | | |
| | | 25 | | | 68 A | | |
| | | | 60 | 75 | 77 A | | |
| | 25 | | | | 78.2 A | | |
| | | 30 | | | 80 A | | HJL36150M74 and HLL36150M74 30–100 hp |
| | 30 | | | | 92 A | | |
| 4 | | | 75 | | 96 A | | |
| | | | | 100 | 99 A | | |
| | | 40 | | | 104 A | | |
| | 40 | | | | 120 A | | |
| | | | 100 | | 124 A | | |
| | | | | 125 | 125 A | | |
| | | 50 | | | 130 A | | |
| | | | | 150 | 144 A | JJL36250M75 and JLL36250M75 50–150 hp | |
| | 50 | | | | 150 A | | |
| 5 | | 60 | | | 154 A | | |
| | | | 125 | | 156 A | | |
| | 60 | | | | 177.1 A | | |
| | | | 150 | | 180 A | | |
| | | 75 | | 200 | 192 A | | |
| | 75 | | | | 221 A | | |
| | | | 200 | | 240 A | | |
| | | 100 | | | 248 A | | |

**Shaded area is not covered by J-frame electronic motor circuit protector.**





© 2012 Schneider Electric
All Rights Reserved



Motor Circuit Protector



Motor Protector Circuit Breaker

## Motor Circuit Protectors

Mag-Gard™ Motor Circuit Protectors (MCP) are instantaneous-trip magnetic-only circuit breakers. They have a single adjustment which simultaneously sets the magnetic trip level of each individual pole. Mag-Gard™ circuit breakers comply with NEC requirements for providing motor circuit protection when installed as part of a UL Listed combination controller having motor overload protection. Interrupting ratings are established for these UL Recognized Components only when they are used in combination with motor starters with properly sized overload relays and contactors.

All Mag-Gard circuit breakers will accept the same lugs and accessories as equivalent circuit breakers. Mag-Gard circuit breakers are available with I-Line construction.☆ High-interruption (H) construction Mag-Gard circuit breakers (LHL) are also available.

**Table 7.62: Magnetic Only 3 Pole, 600 Vac, 50/60 Hz☆—Three Device Solutions□**

| Ampere Rating | | Trip Unit | Adjustable△ Trip Range (A) | 24 Vdc Multiplier | Cat. No. | $ Price |
|---|---|---|---|---|---|---|
| LAL | 400 | | 500–1000 A | High = 1.2<br>Low = 1.4 | LAL3640022M | 4619.00 |
| | | | 750–1600 A | | LAL3640028M | 4619.00 |
| | | | 1000–2000 A | | LAL3640030M | 4619.00 |
| | | | 1125–2250 A | | LAL3640031M | 4619.00 |
| | | | 1250–2500 A | | LAL3640032M | 4619.00 |
| | | | 1500–3000 A | | LAL3640033M | 4619.00 |
| | | | 1750–3500 A | | LAL3640035M | 4619.00 |
| | | | 2000–4000 A | | LAL3640036M | 4619.00 |

For PowerPact L- and P-Frames, an instantaneous-only version of the electronic trip circuti breaker is also available for motor circuit protection. These MCPs comply with NEC® requirements for providing short-circuit protection when installed as part of a Listed combination controller having motor overload protection.

**Table 7.63: Magnetic Only 3 Pole, 600 Vac, 50/60 Hz☆—Three Device Solutions□**

| Sensor Rating | | Trip Unit | Adjustable△ Trip Range (A) | Interrupting Rating | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | G | | J | | L | | R | |
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| PowerPact L-Frame☆ | 400 | 1.3 M | 500–1200% | LGL36400M37X | 4619.00 | LJL36400M37X | 4727.00 | LLL36400M37X | 5007.00 | LRL36400M37X | 5307.00 |
| | 600 | | 500–1200% | LGL36600M37X | 6790.00 | LJL36600M37X | 6949.00 | LLL36600M37X | 7360.00 | LRL36600M37X | 7802.00 |
| PowerPact PJL, PLL☆ | 600 | | 1200–10000 A | — | — | PJL36060M68 | 7560.00 | PLL34060M68 | 8006.00 | — | — |
| | 800 | | 1200–10000 A | — | — | PJL36080M68 | 9927.00 | PLL34080M68 | 10514.00 | — | — |
| | 1000 | | 1500–10000 A | — | — | PJL36100M69 | 12705.00 | PLL34100M69 | 13455.00 | — | — |
| | 1200 | | 1800–10000 A | — | — | PJL36120M70 | 16517.00 | PLL34120M70 | 17492.00 | — | — |

△ UL magnetic trip tolerances are -20%/+30% from the nominal values shown.
□ Three-device solutions are the traditional solutionss: motor circuit protector plus motor starter plus overload relay.
◊ 250 Vdc ratings are available. No UL component recognition
☆ These electronic magnetic only motor circuit protectors are available with I-Line constructions. Consult the factory.

## Motor Protector Circuit Breakers

New! Motor protection circuit breakers provide built-in thermal and magnetic protection. They are used in two-device motor feeder solutions to provide protection against short-circuits, overloads, and phase unbalance.

**Table 7.64: H-Frame (150 A), J-Frame (250 A) and L-Frame (600 A) Electronic Motor Protector Circuit Breakers (UL Ratings)—Two Device Solutions▽**

| Electronic Trip Unit Type | Frame | Sensor Rating | Trip Unit | Full Load Amperes Range (FLA) | Isd (x FLA) | Interrupting Rating | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | G | | J | | L | | R | |
| | | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| Standard◒ | H-Frame | 30 | 2.2 M | 14–25 | 5-13 x FLA | HGL36030M38X | 1608.00 | HJL36030M38X | 1658.00 | HLL36030M38X | 1812.00 | HRL36030M38X | 1993.00 |
| | | 50 | | 14–42 | 5-13 x FLA | HGL36050M38X | 1938.00 | HJL36050M38X | 1998.00 | HLL36050M38X | 2191.00 | HRL36050M38X | 2410.00 |
| | | 100 | | 30–80 | 5-13 x FLA | HGL36100M38X | 2229.00 | HJL36100M38X | 2298.00 | HLL36100M38X | 2506.00 | HRL36100M38X | 2757.00 |
| | | 150 | | 58–130 | 5-13 x FLA | HGL36150M38X | 2701.00 | HJL36150M38X | 2785.00 | HLL36150M38X | 3057.00 | HRL36150M38X | 3363.00 |
| | J-Frame | 250 | | 114–217 | 5-13 x FLA | JGL36250M38X | 3105.00 | JJL36250M38X | 3201.00 | JLL36250M38X | 3523.00 | JRL36250M38X | 3875.00 |
| | L-Frame | 400 | 2.3 M | 190–348 | 5-13 x FLA | LGL36400M38X | 6041.00 | LJL36400M38X | 6160.00 | LLL36400M38X | 6468.00 | LRL36400M38X | 7115.00 |
| | | 600 | | 312–520 | 5-13 x FLA | LGL36600M38X | 8429.00 | LJL36600M38X | 8604.00 | LLL36600M38X | 9156.00 | LRL36600M38X | 10072.00 |

▽ Two-device solutions (these electronic motor protector circuit breakers include short circuit and overload protection)
—1 electronic motor circuit protector with a Micrologic 2.2 M plus
—1 contactor
◒ The standard trip unit offers Class 5, 10 and 20 and phase unbalance or phase loss protection.

Accessories . . . . . .Page 7-39 and Supplemental Digest Pages 3-24–3-31
Optional Lugs . . . . . .Page 7-42 and Supplemental Digest Pages 3-29–3-30
Dimensions . . . . . .Pages 7-54 and 7-55
Enclosures. . . . . Page 7-56

**To select combination starters and motor controllers using MCP's meeting NEC Article 430, refer to pages 16-34—16-36.**



© 2012 Schneider Electric
All Rights Reserved



Adjustable instantaneous-trip circuit breakers are intended for use in combination with motor starters with overload relays for the protection of motor circuits from short circuits. Other specific applications include rectifiers and resistance welders. These circuit breakers contain a magnetic trip element in each pole with the trip point adjustable from the front. Interrupting ratings are determined by testing the instantaneous-trip circuit breakers in combination with a contactor and overload relay.

Select instantaneous-trip circuit breakers as follows:

This selection table is suitable for motors, other than NEMA Design E, with locked-rotor indicating code letters per NEC® Table 430.7 (b) as follows:

**Table 7.65: Locked-Rotor Indicating Codes**

| Horsepower | Motor Code letter |
|---|---|
| 1/2 or less | A–L |
| 3/4 to 1-1/2 | A–K |
| 2 to 3 | A–J |
| 5 to 25 | A–H |
| 30 to 125 | A–G |
| 150 or more | A–F |

1. For other motors order a special thermal-magnetic circuit breaker with magnetic trip settings for the specific motor—specify motor horsepower, voltage, frequency, full-load current and code letter or locked rotor current.
2. Determine motor hp rating from the motor nameplate.
3. Refer to the tables and select an instantaneous-trip circuit breaker with an ampere rating recommended for the hp and voltage involved.
4. Select an adjustable trip setting of at least 800%, not to exceed 1300%, of the motor full-load amperes (FLA) for other than Design E motors. For Design E motors, select an adjustable trip setting of at least 1100% not to exceed 1700% of FLA.
5. The NEC 1300% maximum setting may be inadequate for instantaneous-trip circuit breakers to withstand current surges typical of the magnetization current of autotransformer type reduced voltage starters, or open transition wye-delta starters during transfer from “start” to “run,” constant hp multi-speed motors, and motors labeled “high efficiency.” Select thermal-magnetic circuit breakers from page 7-33 for those applications.
6. Part-winding motors, per NEC 430.3, should have two circuit breakers selected from the above at not more than one half the allowable trip setting for the horsepower rating. The two circuit breakers should operate simultaneously as a disconnecting means per NEC 430.103.
7. Based on NEC 430.52 and NEC Table 430.150. See page 7-31 for available Adjustable Instantaneous-Trip Circuit Breakers.

**Table 7.66: PowerPact H-Frame and L-Frame Motor Protector Circuit Breaker**

| Hp Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors 3Ø 60 Hz | | | | Full Load Amperes▲ | PowerPact Family Motor Protector Circuit Breaker Cat. No.■ | Magnetic Trip Settings♦ | |
|---|---|---|---|---|---|---|---|
| 200 Vac | 230 Vac | 460 Vac | 575 Vac | | | MIN | MAX |
| | | 10 | | 14 | H( )L36030M38X | | |
| | 5 | | | 15..2 | H( )L36030M38X | | |
| | | | 15 | 17 | H( )L36030M38X | | |
| 5 | | | | 17.5 | H( )L36030M38X | | |
| | | 15 | | 21 | H( )L36030M38X | | |
| | 7-1/2 | | 20 | 22 | H( )L36030M38X | | |
| 7-1/2 | | | | 25.3 | H( )L36030M38X | | |
| | | 20 | 25 | 27 | H( )L36050M38X | | |
| | 10 | | | 28 | H( )L36050M38X | | |
| | | | 30 | 32 | H( )L36050M38X | | |
| 10 | | | | 32.2 | H( )L36050M38X | | |
| | | 25 | | 34 | H( )L36050M38X | | |
| | | 30 | | 40 | H( )L36050M38X | | |
| | | | 40 | 41 | H( )L36050M38X | | |
| | 15 | | | 42 | H( )L36050M38X | | |
| 15 | | | | 48.3 | H( )L36100M38X | | |
| | | 40 | 50 | 52 | H( )L36100M38X | | |
| | 20 | | | 54 | H( )L36100M38X | | |
| 20 | | | 60 | 62 | H( )L36100M38X | 500% | 1300% |
| | | 50 | | 65 | H( )L36100M38X | | |
| 75 | | | | 221 | L( )L36400M38X | | |
| | | 200 | | 240 | L( )L36400M38X | | |
| | | | 250 | 242 | L( )L36400M38X | | |
| | 100 | | | 248 | L( )L36400M38X | | |
| 100 | | | | 285 | L( )L36400M38X | | |
| | | | 300 | 289 | L( )L36400M38X | | |
| | | 250 | | 302 | L( )L36400M38X | | |
| | 125 | | | 312 | L( )L36400M38X | | |
| | | | 350 | 336 | L( )L36400M38X | | |
| 125 | | | | 359 | L( )L36600M38X | | |
| | 150 | | | 360 | L( )L36600M38X | | |
| | | 300 | | 361 | L( )L36600M38X | | |
| | | | 400 | 382 | L( )L36600M38X | | |
| 150 | | 350 | | 414 | L( )L36600M38X | | |
| | | | 500 | 472 | L( )L36600M38X | | |
| | | 400 | | 477 | L( )L36600M38X | | |
| | 200 | | | 480 | L( )L36600M38X | | |

**Table 7.67: LAL Adjustable Instantaneous-Trip Circuit Breakers for Single Motor Circuit Protection**

| Hp Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors 3Ø 60 Hz | | | | Full Load Amperes▲ | Mag-Gard Circuit Breaker Cat. No. | Magnetic Trip Settings♦ | |
|---|---|---|---|---|---|---|---|
| 200 Vac | 230 Vac | 460 Vac | 575 Vac | | | MIN | MAX |
| 75 | | | | 221 | LAL3640033M | 700% | 1400% |
| | | 200 | | 240 | LAL3640035M | 700% | 1500% |
| | | | 250 | 242 | LAL3640035M | 700% | 1400% |
| | 100 | | | 248 | LAL3640035M | 700% | 1400% |
| 100 | | | | 285 | LAL3640036M | 700% | 1400% |
| | | | 300 | 289 | LAL3640036M | 700% | 1400% |
| | | 250 | | 302 | LAL3640036M | 700% | 1300% |
| | 125 | | | 312 | LAL3640036M | 600% | 1300% |

▲ Motor full-load currents are taken from NEC Table 430.150. Select wire and circuit breakers on basis of horsepower rather than nameplate full-load current per NEC 430.6 (A) for general motor applications. Do not use these values to select overload relay thermal units. See Digest pages 14-129–14-152 for selection of thermal units when actual full load current is not known. The voltages listed are rated motor voltages. Corresponding nominal system voltages are 200–208, 220–240, 440–480 and 550–600 V.

■ To complete catalog number, replace the blank with the appropriate rating (G, J, or L). M38X is for standard trip units. For advanced trip units (LCD display, metering and communication, replace with M58X).

♦ Only MIN and MAX settings are shown, intermediate settings are available on all circuit breakers.

★ See NEC 430.52(A) for circuit breaker settings above 800%.

▼ If due to motor starting characteristics, trip settings at the 1300% maximum permitted level are needed, the next size Mag-Gard circuit breaker should be chosen.





© 2012 Schneider Electric
All Rights Reserved



## Table 7.68: Selection Tables for Conductors, Safety Switches and Thermal-Magnetic Circuit Breakers Based on 2005 NEC® Tables 430.147, 430.148 & 430.150

| Horsepower Ratings | | | | | | | | | Full Load Amperage△ | Amperage of Thermal-Magnetic◊▽ Inverse Time Circuit Breaker | | | QMB and Heavy Duty Switch with Time Delay Fuses□ | Minimum Size metallic Conduit 75° C, C Wire Field-Installed Sized for 125% FLA▼ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Squirrel-Cage and Wound-Rotor Motors with Norm. Torque Characteritics Operating at usual Speeds 3Ø 60 Hz | | | | 1Ø 10 Hz ac | | | Average Direct Current Motors Operating at Base Speed | | | For Motor Code Letter B to E | | For Motor Code Letter F to V☆ | | AWG kcmil | Conduit 3 W | |
| 200 Vac■ | 230 Vac | 460 Vac | 575 Vac | 115 Vac | 200 Vac■ | 230 Vac | 120 Vdc | 240 Vdc | | Ordinary Service♦ | Heavy Service and Energy Efficient★ | | | | THHN THWN XHHW | THW |
| 2 | | 5 | | 1/3 | 3/4 | 3/4 1 | 3.4 1 | 2 | 6.9 A 7.2 A 7.6 A 7.8 A 7.9 A 8.0 A 8.5 A 9.0 A 9.2 A 9.5 A | 15 A | 15 A 20 A | 20 A 25 A | 30 A | 14 | 1/2 in. | N/A |
| 3 | 3 | 7-1/2 10 | 10 | 1/2 3/4 | 1-1/2 2 | 1-1/2 2 | 1-1/2 | 3 | 9.6 A 9.8 A 10.0 A 11.0 A 11.5 A 12.0 A 12.2 A 13.2 A 13.8 A 14.0 A | 20 A 25 A | 25 A | 30 A 35 A | | | | |
| 5 | 5 7-1/2 | 15 | 15 | 1 1-1/2 2 | 3 | 3 | 2 3 | 5 | 15.2 A 16.0 A 17.0 A 17.5 A 19.6 A 20.0 A 21.0 A 22.0 A 24.0 A 25.0 A | 30 A 35 A 40 A 45 A | 35 A 40 A 45 A 50 A | 40 A 45 A 50 A 60 A | | 12 | 1/2 in. | N/A |
| 7-1/2 10 | 10 | 20 25 | 25 30 | 3 | 5 | 7-1/2 | 5 | 7-1/2 10 | 25.3 A 27.0 A 28.0 A 29.0 A 32.0 A 32.2 A 34.0 A 38.0 A 40.0 A 41.0 A | 50 A 60 A 80 A | 60 A 70 A 80 A | 70 A 90 A 100 A | 60 A | 10 | 1/2 in. | N/A |
| 15 | 15 20 | 40 | 50 | 5 | 7-1/2 10 | 10 | 7-1/2 | 15 | 42.0 A 46.0 A 48.3 A 50.0 A 52.0 A 54.0 A 55.0 A 56.0 A 57.5 A 58.0 A | 90 A | 110 A 125 A | 110 A 125 A 150 A | | 8 | 1/2 in.▲ | N/A |
| 20 25 30 | 25 30 | 50 60 | 60 75 | 7-1/2 | | | 10 | 20 25 | 62.0 A 62.1 A 65.0 A 68.0 A 72.0 A 76.0 A 77.0 A 78.2 A 80.0 A 89.0 A 92.0 A | 100 A 110 A 125 A 110 A 125 A | 150 A 175 A | 175 A 200 A 225 A | 100 A | 6 4 3 | 3/4 in. 1 in. 1 in. | 1 in. 1 in. 1-1/4 in. |
| 40 | 40 50 | 75 100 | 100 125 | 10 | | | | 30 40 | 96.0 A 99.0 A 100.0 A 104.0 A 106.0 A 120.0 A 124.0 A 125.0 A 130.0 A 140.0 A | 150 A 175 A 200 A | 200 A 225 A 250 A 300 A | 250 A 300 A 350 A | 200 A | 2 1 1/0 2/0 | 1 in. 1-1/4 in. 1-1/4 in. 1-1/2 in. | 1-1/4 in. 1-1/2 in. 1-1/2 in. 1-1/2 in. |
| 50 60 75 | 60 75 | 125 150 200 | 150 200 | | | | | 50 | 144.0 A 150.0 A 154.0 A 156.0 A 173.0 A 177.0 A 180.0 A 192.0 A 221.0 A 240.0 A | 225 A 250 A 300 A | 350 A 400 A 450 A | 400 A 500 A 600 A | 400 A | 3/0 4/0 250 300 | 1-1/2 in. 2 in. 2 in. 2 in. | 2 in. 2 in. 2 in. 2-1/2 in. |
| 100 125 | 100 125 150 | 250 300 | 250 300 350 | | | | | | 242.0 A 248.0 A 285.0 A 289.0 A 302.0 A 312.0 A 336.0 A 359.0 A 360.0 A 361.0 A | 350 A 400 A 450 A 500 A 600 A | 500 A 600 A 700 A 800 A | 700 A 800 A 900 A 1000 A | 600 A | 350 500 (2) 3/0 (2) 4/0 | 2-1/2 in. 3 in. (2) 2-1/2 in. (2) 2 in. | 2-1/2 in. 3 in. (2) 2 in. (2) 2 in. |
| 150 200 | 250 | 350 200 500 | 400 400 | 500 | | | | | 382.0 A 414.0 A 472.0 A 477.0 A 480.0 A 552.0 A 590.0 A 602.0 A | 600 A 800 A 900 A | 900 A 1000 A 1200 A | 1200 A 1600 A | — | (2)300 (2) 350 (3) 300 | (2) 2 in. (2) 2-1/2 in. (3) 2 in. | (2) 2-1/2 in. (2) 2-1/2 in. (3) 2-1/2 in. |

▲ 8 XHHW requires 3/4 in. conduit for 3W.

■ 200 V motors are commonly used on 208 V services.

♦ Ordinary service for normal starting duty only, acceleration time of 10 sec. or less.

★ Heavy service is jogging or plugging duty or cycling load with over 25 starts per hour or over 5 starts per minute. Energy efficient motors are polyphase motors defined in NEMA Standard MG1 and exhibit high starting current.

▼ NEC 430.22 for Single Motor, Smaller conductors may be permitted for light duty-cycle service per 430.22 (B) Exception No. 1. DC motors operating from rectified 1Ø power supply will require larger conductors per 430.22 (A) Exception No. 1. For motor-generator arc welders, see 630.11.

△ Motor full load currents thru 200 hp are taken from NEC Tables 430.147, 148 and 150. Above 200 hp from UL 98. Select wire size, circuit breakers, or fuses on basis of hp rather than nameplate full load current per NEC 430.6. **Do not use these values to select overload relay thermal units.** See Digest pages 16-129—16-152 for selection of thermal units when actual full load current is not known. Voltages listed are rated motor voltages. Corresponding nominal system voltages are 110–120 V, 200–208 V, 220–240 V, 440–480 V and 550–600 V.

□ Switch size only is shown in table. Selected fuses should not exceed maximum percent of full-load current as given in NEC Table 430.52. Above 50 hp dc switches are not hp rated by UL as Motor Circuit Switches, but as General Use Switches only and are not necessarily capable of interrupting the max. operating overload current of a motor. See NEC 100 for definition of General Use Switch. When protecting a 3Ø, Design E energy efficient motor, the switch is required by NEC 430.109 to have a hp rating of not less than 1.4 times that of a motor rated 3–100 hp, or not less than 1.3 times that of a motor rated over 100 hp. Switches shown in this table do not necessarily comply with that requirement.

◊ Thermal-magnetic circuit breaker ampere ratings recommended are approximate for average conditions, based on trip characteristics of Square D circuit breakers and NEC Table 430.52. Under some conditions, the next size larger switch or circuit breaker rating may be necessary to accommodate the motor starting current and is permitted by NEC 430.52(C)(1) Exception 2. High starting currents are anticipated with Design E and other energy efficient motors. For explanation of Code letter markings, see NEC 430.7(B). For Busway Plug-in units, see page 9-7.

☆ Thermal-magnetic breaker ampere ratings recommended are approximate for average conditions and based on trip characteristics of Square D circuit breakers and NEC Tables 430.7(B) and 430.52.

▽ Type LC, LI, LX, LXI, and LE circuit breakers are NOT recommended for use on single motor branch circuits.

**Contact your local Field Office for circuit breaker selection on constant horsepower multi-speed motors.**



© 2012 Schneider Electric
All Rights Reserved



J-Frame Switch L-Frame Switch

Automatic molded case switches open instantaneously at a factory preset magnetic trip point, calibrated to protect only the molded case switch itself, when it is subjected to high fault currents. The trip point is nonadjustable and provides no overload or low level fault protection.

Molded case switches open when the handle is switched to the OFF position or in response to an auxiliary tripping device such as a shunt trip.

All molded case switches will accept the same lugs and accessories as equivalent thermal-magnetic circuit breakers, with the exception of Q-frame switches which do not have electrical accessories available.

Automatic molded case switches are UL Listed per UL 489 and are CSA Certified.

**Table 7.69: H-Frame, J-Frame, and L-Frame PowerPact™ Automatic Molded Case Switches, 600 Vac**

| Circuit Breaker | Poles | Ampere Rating | G Withstand | | | L Withstand | | | R Withstand | | | Terminal | Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | | |
| New! H-Frame J-Frame | 2 | 150 A | HGL26000S15▲ | **1349.00** | 2250A | HLL26000S15 | **1590.00** | 2250 A | — | — | — | AL150HD | 14 AWG–3/0 AWG Al/Cu |
| | | 175 A | JGL26000S17 | **1827.00** | 3125 A | JLL26000S17 | **1980.00** | 3125 A | — | — | — | AL175JD | 4–4/0 AWG Al/Cu |
| | | 250 A | JGL26000S25 | **1827.00** | 3125 A | JLL26000S25 | **1980.00** | 3125 A | — | — | — | AL250JD | 3/0 AWG–350 kcmil Al/Cu |
| | 3 | 150 A | HGL36000S15 | **1799.00** | 2250 A | HLL36000S15 | **1988.00** | 2250 A | — | — | — | AL150HD | 14 AWG–3/0 AWG Al/Cu |
| | | 175 A | JGL36000S17 | **2286.00** | 3125 A | JLL36000S17 | **2475.00** | 3125 A | JRL36000S17 | **2673.00** | 3125 A | AL175JD | 4–4/0 AWG Al/Cu |
| | | 250 A | JGL36000S25 | **2286.00** | 3125 A | JLL36000S25 | **2475.00** | 3125 A | JRL36000S25 | **2673.00** | 3125 A | AL250JD | 3/0 AWG–350 kcmil Al/Cu |
| L-Frame | 3 | 400 A | LGL36000S40X | **4572.00** | 4800 A | LLL36000S40X | **4972.00** | 4800 A | LRL36000S40X | **5370.00** | 4800 A | AL150HD | AL600LS52K3 (2) 2/0 AWG–500 kcmil Al/Cu |
| | | 600 A | LGL36000S60X | **5065.00** | 6600A | LLL36000S60X | **5465.00** | 6600 A | LRL36000S60X | **5902.00** | 6600 A | AL250JD | |
| | 4 | 400 A | LGL46000S40X | **5972.00** | 4800 A | LLL46000S40X | **6372.00** | 4800 A | LRL46000S40X | **6882.00** | 4800 A | AL150HD | AL600LS52K4 (2) 2/0 AWG–500 kcmil Al/Cu |
| | | 600 A | LGL46000S60X | **6465.00** | 6600A | LLL46000S60X | **6865.00** | 6600 A | LRL46000S60X | **7414.00** | 6600 A | AL250JD | |

▲ True 2P device. Others are a 2P in a 3P module.

**Table 7.70: Q-Frame (240 Vac) PowerPact™ Automatic Molded Case Switches**

| Circuit Breaker | Poles | Ampere Rating | J Withstand | | | Wire Range |
|---|---|---|---|---|---|---|
| | | | Cat. No. | $ Price | Trip Point | |
| Q-Frame■ | 2 | 225 A | QBL22000S22♦ | **440.00** | 4500 A | 4 AWG–300 kcmil |
| | 3 | 225 A | QBL32000S22♦ | **1193.00** | 4500 A | |

■ Withstand rating of 10 kA at 240 Vac.
♦ DE2A discount schedule.

**Table 7.71: P-Frame and R-Frame PowerPact™ Automatic Molded Case Switches▼, 600 Vac**

| Frame | Poles | Ampere Rating | J Withstand | | | K Withstand | | | L Withstand | | | Terminal | Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | | |
| P | 2 | 600 A | PJL26000S60 | **5340.00** | 10 kA | PKL26000S60 | **5340.00** | 24 kA | PLL24000S60★ | **5715.00** | 10 kA | AL800M23K | (3) 3/0 AWG–500 kcmil Al or Cu |
| | | 800 A | PJL26000S80 | **5991.00** | 10 kA | PKL26000S80 | **5991.00** | 24 kA | PLL24000S80★ | **6414.00** | 10 kA | | |
| | | 1000 A | PJL26000S10 | **7469.00** | 10 kA | PKL26000S10 | **7469.00** | 24 kA | PLL24000S10★ | **7995.00** | 10 kA | AL1200P25K | (4) 3/0 AWG–500 kcmil Al or Cu |
| | | 1200 A | PJL26000S12 | **11744.00** | 10 kA | PKL26000S12 | **11744.00** | 24 kA | PLL24000S12★ | **10887.00** | 10 kA | | |
| | 3 | 600 A | PJL36000S60 | **6584.00** | 10 kA | PKL36000S60 | **6584.00** | 24 kA | PLL34000S60★ | **6974.00** | 10 kA | AL800M23K | (3) 3/0 AWG–500 kcmil Al or Cu |
| | | 800 A | PJL36000S80 | **7236.00** | 10 kA | PKL36000S80 | **7236.00** | 24 kA | PLL34000S80★ | **7667.00** | 10 kA | | |
| | | 1000 A | PJL36000S10 | **9287.00** | 10 kA | PKL36000S10 | **9287.00** | 24 kA | PLL34000S10★ | **9837.00** | 10 kA | AL1200P25K | (4) 3/0 AWG–500 kcmil Al or Cu |
| | | 1200 A | PJL36000S12 | **11867.00** | 10 kA | PKL36000S12 | **11867.00** | 24 kA | PLL34000S12★ | **12570.00** | 10 kA | | |
| R | 2 | 1200 A | — | — | — | RKF26000S12 | **12213.00** | 57 kA | RLF26000S12 | **12855.00** | 48 kA | R-frame circuit breakers can be bus-connected or cable-connected. For cable connections, RLTB kit or equivalent bus structure is required. Kit is included with 3000 A switches. For all others, see page 7-44. | |
| | | 1600 A | — | — | — | RKF26000S16 | **14685.00** | 57 kA | RLF26000S16 | **14825.00** | 48 kA | | |
| | | 2000 A | — | — | — | RKF26000S20 | **15687.00** | 57 kA | RLF26000S20 | **15837.00** | 48 kA | | |
| | | 2500 A | — | — | — | RKF26000S25 | **24948.00** | 57 kA | RLF26000S25 | **25185.00** | 48 kA | | |
| | 3 | 1200 A | — | — | — | RKF36000S12 | **13602.00** | 57 kA | RLF36000S12 | **14318.00** | 48 kA | | |
| | | 1600 A | — | — | — | RKF36000S16 | **15911.00** | 57 kA | RLF36000S16 | **16062.00** | 48 kA | | |
| | | 2000 A | — | — | — | RKF36000S20 | **19374.00** | 57 kA | RLF36000S20 | **19559.00** | 48 kA | | |
| | | 2500 A | — | — | — | RKF36000S25 | **30836.00** | 57 kA | RLF36000S25 | **31130.00** | 48 kA | | |
| | | 3000 A | — | — | — | RKF36000S30 | **41104.00** | 57 kA | RLF36000S30 | **41496.00** | 48 kA | | |

★ P-frame L-interrupting is available in 480 Vac only.
▼ UL magnetic trip tolerances are -20% / +30% from the nominal values shown.

**Table 7.72: H-, J-, L- P-, and R-Frame Withstand Ratings△**

| Voltage | Withstand | | | | |
|---|---|---|---|---|---|
| | G | J | K | L | R |
| 240 Vac | 65 kA | 100 kA | 65 kA | 125 kA | 200 kA |
| 480 Vac | 35 kA | 65 kA | 50 kA□ | 100 kA | 200 kA |
| 600 Vac | 18 kA | 25 kA | 50 kA□ | 50 kA | 100 kA |

△ The withstand rating is the fault current at rated voltage that the molded case switch will withstand without damage when protected by a circuit breaker with an equal continuous current rating.
□ R-frame withstand is 65 kA.

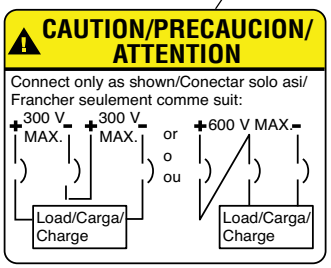
Accessories . . . . . Page 7-39 and Supplemental Digest Pages 3-24–3-31
Optional Lugs . . . . . Page 7-42 and Supplemental Digest Pages 3-29–3-30
Dimensions. . . . . Pages 7-54 and 7-55
Enclosures . . . . . Pages 7-56–7-58





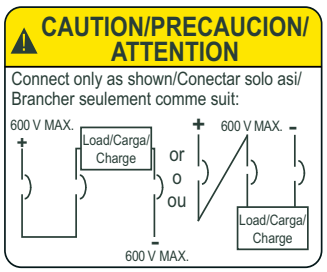
© 2012 Schneider Electric
All Rights Reserved




Source = 600 Vdc max. (floating)
500 Vdc max. (loaded)

**DC Circuit Breaker Label**




Source = 600 Vdc max. (floating)
500 Vdc max. (loaded)

**MHL–DCH Breaker Only**

The UL Listed thermal-magnetic molded case circuit breakers shown below are specifically designed for use on ungrounded dc systems having a maximum short-circuit voltage of 500 Vdc or a maximum floating (unloaded) voltage of 600 Vdc. The circuit breakers are suitable for use only with UPS (uninterruptable power supplies) and ungrounded systems.

This two-level voltage rating allows these circuit breakers to be applied to battery sources having a short-circuit availability of 20,000 amperes for LH, and MH circuit breakers and 25,000 amperes for PAF circuit breakers at 500 Vdc.

LH and MH circuit breakers are provided with an adjustable magnetic trip that is readily accessible by means of a single adjustment on the face of the circuit breaker. PAF circuit breakers have a fixed magnetic trip range.

These circuit breakers are UL Listed for the interrupting ratings shown only if applied with three poles connected in series (series connection is external to circuit breaker). See diagram below.

***NOTE:*** *Due to external series connection, I-Line™ circuit breakers are not available for this application.*

**Table 7.73: DC Molded Case Circuit Breakers**

| Ampere Rating | Circuit Breaker Cat. No. | Adjustable Magnetic Trip Range—DC Amperes▲ | | Interrupting Rating @ 500 Vdc | $ Price |
|---|---|---|---|---|---|
| | | Low | High | | |
| 100 A | JGL37100D81 | 400 | 600 | 20 k AIR | **3779.00** |
| 125 A | JGL37125D81 | 400 | 600 | | **3779.00** |
| 150 A | JGL37150D81 | 400 | 600 | | **3779.00** |
| 175 A | JGL37175D81 | 400 | 600 | | **3779.00** |
| 200 A | JGL37200D82 | 500 | 850 | 20 k AIR | **3779.00** |
| 225 A | JGL37225D82 | 500 | 850 | | **3779.00** |
| 250 A | JGL37250D82 | 500 | 850 | | **5001.00** |
| 250 A | LHL3625025DC | 625 | 1250 | 20 k AIR | **7598.00** |
| 300 A | LHL3630026DC | 750 | 1500 | | **7598.00** |
| 350 A | LHL3635029DC | 875 | 1750 | | **7598.00** |
| 400 A | LHL3640030DC | 1000 | 2000 | | **7598.00** |
| 450 A | MHL3645031DC | 1125 | 2250 | 20 k AIR | **9456.00** |
| 500 A | MHL3650032DC | 1250 | 2500 | | **9456.00** |
| 600 A | MHL3660033DC | 1500 | 3000 | | **9456.00** |
| 700 A | MHL3670035DC | 1750 | 3500 | | **11882.00** |
| 800 A | MHL3680036DC | 2000 | 4000 | | **11882.00** |
| 900 A | MHL3690039DC | 2500 | 5000 | | **14078.00** |
| 1000 A | MHL36100040DC | 2500 | 5000 | | **14078.00** |
| 1200 A | MHL36120040DC■ | 2500 | 5000 | 25 k AIR | **16758.00** |
| 450 A | MHL3645031DCH | 1125 | 2250 | 50 k AIR | **12506.00** |
| 500 A | MHL3650032DCH | 1250 | 2500 | | **12506.00** |
| 600 A | MHL3660033DCH | 1500 | 3000 | | **12506.00** |
| 700 A | MHL3670035DCH | 1750 | 3500 | | **14932.00** |
| 800 A | MHL3680036DCH | 2000 | 4000 | | **14932.00** |
| 900 A | MHL3690039DCH | 2500 | 5000 | | **17128.00** |
| 1000 A | MHL36100040DCH | 2500 | 5000 | | **17128.00** |
| 1200 A | MHL36120040DCH■ | 2500 | 5000 | 50 k AIR | **19808.00** |

▲ Magnetic trip tolerances are -20%/+30% from the nominal values shown.

■ Suitable for use only in a ventilated enclosure. Minimum enclosure dimensions are 38" h x 20" w x 7" d with a minimum of 300 square inches of ventilation near the top and bottom of the enclosure.

| Ampere Rating | Circuit Breaker Cat. No. | Fixed Magnetic Trip Range—DC Amperes▲ | | Interrupting Rating @ 500 Vdc | $ Price |
|---|---|---|---|---|---|
| | | Hold | Trip | | |
| 1200 A | PAF361200DC | 1200 | 1620 | 25 k AIR | **24726.00** |
| 1600 A | PAF361600DC | 1600 | 2160 | | **24726.00** |
| 2000 A | PAF362000DC | 2000 | 2700 | | **24726.00** |
| 2500 A | PCF362500DC | 2500 | 3375 | 25 k AIR | **39365.00** |

Accessories . . . . . Page 7-39 and Supplemental Digest Pages 3-24–3-31
Optional Lugs . . . . . Page 7-42 and Supplemental Digest Page 3-29
Dimensions . . . . . Page 7-55 and Supplemental Digest Page 3-33
Enclosures. . . . . Pages 7-56–7-58



© 2012 Schneider Electric
All Rights Reserved




**Masterpact NW DC Circuit Breaker**

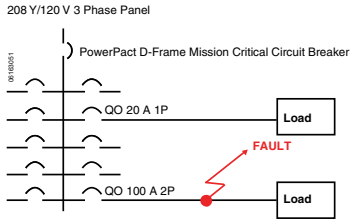
**Table 7.74: Masterpact NW DC Circuit Breakers**

| Ampere Rating | Circuit Breaker Cat. No. | Interrupting Rating 500 Vdc (max 600 Vdc unloaded) | $ Price Fixed Circuit Breaker | | $ Price Drawout Circuit Breaker | | $ Price Cradle | |
|---|---|---|---|---|---|---|---|---|
| | | | Version C | Version C1 | Version C | Version C1 | Version C | Version C1 |
| 800 A | NW08NDC | 35 kA | **42214.00** | **42746.00** | **39824.00** | **40888.00** | **11778.00** | **12842.00** |
| 1200 A | NW12NDC | 35 kA | **42214.00** | **42746.00** | **39824.00** | **40888.00** | **11778.00** | **12842.00** |
| 1600 A | NW16NDC | 35 kA | **42214.00** | **42746.00** | **39824.00** | **40888.00** | **11778.00** | **12842.00** |
| 2000A | NW20NDC | 35 kA | **42214.00** | **42746.00** | **39824.00** | **40888.00** | **11778.00** | **12842.00** |
| 2500 A | NW25NDC | 35 kA | **56158.00** | **56690.00** | **56662.00** | **57726.00** | **11778.00** | **12842.00** |
| 3000 A | NW30NDC | 35 kA | **70100.00** | **70632.00** | **73500.00** | **74564.00** | **11778.00** | **12842.00** |
| 4000 A | NW40NDC | 35 kA | **84044.00** | **84576.00** | **90338.00** | **90142.00** | **11778.00** | **12842.00** |
| 800 A | NW08HDC | 85 kA | **46858.00** | **47448.00** | **44205.00** | **45386.00** | **11778.00** | **12842.00** |
| 1200 A | NW12HDC | 85 kA | **46858.00** | **47448.00** | **44205.00** | **45386.00** | **11778.00** | **12842.00** |
| 1600 A | NW16HDC | 85 kA | **46858.00** | **47448.00** | **44205.00** | **45386.00** | **11778.00** | **12842.00** |
| 2000A | NW20HDC | 85 kA | **46858.00** | **47448.00** | **44205.00** | **45386.00** | **11778.00** | **12842.00** |
| 2500 A | NW25HDC | 85 kA | **62335.00** | **62926.00** | **64076.00** | **64076.00** | **11778.00** | **12842.00** |
| 3000 A | NW30HDC | 85 kA | **77811.00** | **78402.00** | **81585.00** | **82766.00** | **11778.00** | **12842.00** |
| 4000 A | NW40HDC | 85 kA | **93289.00** | **93879.00** | **100275.00** | **100058.00** | **11778.00** | **12842.00** |





© 2012 Schneider Electric
All Rights Reserved




Designed for selectively coordinated systems, mission critical circuit breakers maximize continuity of the electrical service by allowing the branch circuit breaker to clear the fault.

Mission critical circuit breakers are engineered with technology that optimizes current, time and energy selectivity so the fault is cleared by the circuit breaker immediately upstream of the occurrence. This technology (see figure below) allows the remaining areas of the electrical system to continue operation without disruption. In addition to unique design attributes, Square D mission critical circuit breakers have also undergone rigorous testing procedures to certify the coordination with downstream circuit breakers—combining innovative engineering with validated test results.

Apply Square D mission critical circuit breakers in emergency power distribution systems, data centers, hospitals or anywhere continuity of service is desired.

The PowerPact™ J- and L-Frame Mission Critical circuit breakers deliver high levels of selective coordination in a flexible design that can be easily configured for a variety of applications. Tested to be selectively coordinated with the QO™ family of miniature circuit breakers and the ED, EG, and EJ circuit breakers, this solution provides peace of mind when power availability is critical.

An electronic trip unit provides adjustable long-time settings in four sensor sizes, allowing coverage from 70 A through 600 A on a 120–240, 208Y/120, 240, 480Y/277, and 480 V systems.

### Table 7.75: PowerPact J- and L-Frame Mission Critical Circuit Breakers

| Ratings | Available Configurations |
|---|---|
| UL 489 Listed<br>CSA Certified<br>Voltage: 480 V | I-Line mounting<br>Main circuit breaker in NQ and NF panelboards<br>Unit mount for OEM users<br>Plug-in base for OEM users<br>Drawout base ofr OEM users |

### Table 7.76: J-Frame 250 A Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) with Factory Sealed Trip Units Suitable for Reverse Connection▲

| Electronic Trip Unit Type | Trip Function | Trip Unit | Continuous Current | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | |
| Standard | LI | 3.2 W | 250 | JDL34250WU31X | 3489. | JGL34250WU31X | 4727. | JJL34250WU31X | 6678. | JLL34250WU31X | 8629. | AL250JD■ |
| Standard | LSI | 3.2S-W | 250 | JDL34250WU33X | 3801. | JGL34250WU33X | 5039. | JJL34250WU33X | 6989. | JLL34250WU33X | 8941. | AL250JD■ |
| High Perf. Ammerter | LSI | 5.2A-W | 250 | JDL34250WU43X | 4809. | JGL34250WU43X | 6046. | JJL34250WU43X | 7997. | JLL34250WU43X | 9949. | AL250JD■ |
| High Perf. Energy | LSI | 5.2E-W | 250 | JDL34250WU53X | 5414. | JGL34250WU53X | 6652. | JJL34250WU53X | 8602. | JLL34250WU53X | 10554. | AL250JD■ |
| High Perf. Ammerter | LSIG | 6.2A-W | 250 | JDL34250WU44X | 6018. | JGL34250WU44X | 7256. | JJL34250WU44X | 9206. | JLL34250WU44X | 11158. | AL250JD■ |
| High Perf. Energy | LSIG | 6.2E-W | 250 | JDL34250WU54X | 6623. | JGL34250WU54X | 7861. | JJL34250WU54X | 9812. | JLL34250WU54X | 11763. | AL250JD■ |

▲ Standard rated (80%). Not available in 100% rated.
■ AL250JD terminal wire range is (1) 3/0 AWG–350 kcmil Al or Cu.

### Table 7.77: L-Frame 600 A Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) with Factory Sealed Trip Units Suitable for Reverse Connection▲

| Electronic Trip Unit Type | Trip Function | Trip Unit | Continuous Current | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | |
| **480/277 Vac, 50/60 Hz, 3P** | | | | | | | | | | | | |
| Standard | LI | 3.3 W | 250 | LDL34250WU31X | 5696. | LGL34250WU31X | 5996. | LJL34250WU31X | 10004. | LLL34250WU31X | 11703. | AL400L61K3■ |
| | | | 400<br>600 | LDL34400WU31X<br>LDL34600WU31X | 5696.<br>8389. | LGL34400WU31X<br>LGL34600WU31X | 5996.<br>8831. | LJL34400WU31X<br>LJL34600WU31X | 10004.<br>12438. | LLL34400WU31X<br>LLL34300WU31X | 11703.<br>13968. | AL600LS52K3♦ |
| Standard | LSI | 3.3S-W | 250 | LDL34250WU33X | 6361. | LGL34250WU33X | 6695. | LJL34250WU33X | 10704. | LLL34250WU33X | 12403. | AL400L61K3■ |
| | | | 400<br>600 | LDL34400WU33X<br>LDL34600WU33X | 6361.<br>9054. | LGL34400WU33X<br>LGL34600WU33X | 6695.<br>9531. | LJL34400WU33X<br>LJL34600WU33X | 10704.<br>13138. | LLL34400WU33X<br>LLL34300WU33X | 12403.<br>14667. | AL600LS52K3♦ |
| High Perf. Ammeter | LSI | 5.3A-W | 400<br>600 | LDL34400WU43X<br>LDL34600WU43X | 7379.<br>10071. | LGL34400WU43X<br>LGL34600WU43X | 7767.<br>10601. | LJL34400WU43X<br>LJL34600WU43X | 11775.<br>14208. | LLL34400WU43X<br>LLL34300WU43X | 13474.<br>15738. | AL600LS52K3♦ |
| High Perf. Energy | LSI | 5.3E-W | 400<br>600 | LDL34400WU53X<br>LDL34600WU53X | 8496.<br>11190. | LGL34400WU53X<br>LGL34600WU53X | 8943.<br>11779. | LJL34400WU53X<br>LJL34600WU53X | 12952.<br>15386. | LLL34400WU53X<br>LLL34300WU53X | 14651.<br>16915. | AL600LS52K3♦ |
| High Perf. Ammeter | LSIG | 6.3A-W | 400<br>600 | LDL34400WU44X<br>LDL34600WU44X | 9616.<br>12309. | LGL34400WU44X<br>LGL34600WU44X | 10122.<br>12956. | LJL34400WU44X<br>LJL34600WU44X | 14131.<br>16844. | LLL34400WU44X<br>LLL34300WU44X | 15830.<br>18093. | AL600LS52K3♦ |
| High Perf. Energy | LSIG | 6.3E-W | 400<br>600 | LDL34400WU54X<br>LDL34600WU54X | 10734.<br>13427. | LGL34400WU54X<br>LGL34600WU54X | 11299.<br>14134. | LJL34400WU54X<br>LJL34600WU54X | 15307.<br>17741. | LLL34400WU54X<br>LLL34300WU54X | 17006.<br>19271. | AL600LS52K3♦ |
| **480/277 Vac, 50/60 Hz, 4P** | | | | | | | | | | | | |
| Standard | LI | 3.3 W | 250 | LDL44250WU31X | 6196. | LGL44250WU31X | 6496. | LJL44250WU31X | 10504. | LLL44250WU31X | 12203. | AL400L61K4■ |
| | | | 400<br>600 | LDL44400WU31X<br>LDL44600WU31X | 7096.<br>9789. | LGL44400WU31X<br>LGL44600WU31X | 7396.<br>10231. | LJL44400WU31X<br>LJL44600WU31X | 11404.<br>13838. | LLL44400WU31X<br>LLL44300WU31X | 13103.<br>15368. | AL600LS52K4♦ |
| Standard | LSI | 3.3S-W | 250 | LDL44250WU33X | 6861. | LGL44250WU33X | 7195. | LJL44250WU33X | 11204. | LLL44250WU33X | 12903. | AL400L61K4■ |
| | | | 400<br>600 | LDL44400WU33X<br>LDL44600WU33X | 7761.<br>10454. | LGL44400WU33X<br>LGL44600WU33X | 8095.<br>10931. | LJL44400WU33X<br>LJL44600WU33X | 12104.<br>14538. | LLL44400WU33X<br>LLL44300WU33X | 13803.<br>16067. | AL600LS52K4♦ |
| High Perf. Ammeter | LSI | 5.3A-W | 400<br>600 | LDL44400WU43X<br>LDL44600WU43X | 8779.<br>11471. | LGL44400WU43X<br>LGL44600WU43X | 9167.<br>12001. | LJL44400WU43X<br>LJL44600WU43X | 13175.<br>15608. | LLL44400WU43X<br>LLL44300WU43X | 14874.<br>17138. | AL600LS52K4♦ |
| High Perf. Energy | LSI | 5.3E-W | 400<br>600 | LDL44400WU53X<br>LDL44600WU53X | 9896.<br>12590. | LGL44400WU53X<br>LGL44600WU53X | 10343.<br>13179. | LJL44400WU53X<br>LJL44600WU53X | 14352.<br>16786. | LLL44400WU53X<br>LLL44300WU53X | 16051.<br>18315. | AL600LS52K4♦ |
| High Perf. Ammeter | LSIG | 6.3A-W | 400<br>600 | LDL44400WU44X<br>LDL44600WU44X | 11016.<br>13709. | LGL44400WU44X<br>LGL44600WU44X | 11522.<br>14356. | LJL44400WU44X<br>LJL44600WU44X | 15531.<br>18244. | LLL44400WU44X<br>LLL44300WU44X | 17230.<br>19493. | AL600LS52K4♦ |
| High Perf. Energy | LSIG | 6.3E-W | 400<br>600 | LDL44400WU54X<br>LDL44600WU54X | 12134.<br>14827. | LGL44400WU54X<br>LGL44600WU54X | 12699.<br>15534. | LJL44400WU54X<br>LJL44600WU54X | 16707.<br>19141. | LLL44400WU54X<br>LLL44300WU54X | 18406.<br>20671. | AL600LS52K4♦ |

▲ Standard rated (80%). Not available in 100% rated.
■ AL400L61K3 terminal wire ranges are (1) #2 AWG–500 kcmil Al or (1) #2 AWG–600 kcmil Cu.
♦ AL600LS52K3 terminal wire ranges are (2) 2/0 AWG–500 kcmil Al or Cu.

### Table 7.78: J-Frame Termination Options

| Termination Letter |
|---|
| A = I-Line (See Section 9) |
| F = No Lugs (includes terminal nut kit on both ends)▲ |
| L = Lugs both ends |
| M = Lugs ON end Terminal Nut Kit OFF end |
| P = Lugs OFF end Terminal Nut Kit ON end |
| N = Plug-in ■ |
| D = Drawout ■ |
| S = Rear Connected ■ |

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H G L 3 6 1 0 0
└Termination Letter


Plug-in


Drawout


Rear Connected

▲ Add TS suffix for circuit breaker without terminal nut kit.
■ For N and D pricing, add termination pricing on page 7-45 to price. For S pricing, add termination pricing on page 7-41 to price.

### Table 7.79: H- and J-Frame Interrupting Ratings

| Voltage | Interrupting Rating | | | |
|---|---|---|---|---|
| | D | G | J | L |
| 240 Vac | 25 kA | 65 kA | 100 kA | 125 kA |
| 480 Vac | 18 kA | 35 kA | 65 kA | 100 kA |

Accessories ..... Page 7-39
Optional Lugs ..... Page 7-42
Dimensions ..... Page 7-55
Enclosures ..... Page 7-56



© 2012 Schneider Electric
All Rights Reserved

## LA Mission Critical Circuit Breakers

The LA High Magnetic Withstand MC Circuit Breakers are designed to trip at a higher magnetic trip level (18–20 times handle rating) than typical molded case circuit breakers (MCCBs) (which trip at 5–10 times the handle rating).

The high magnetic withstand value of these LA circuit breakers allow the downstream branch circuit breaker to clear the fault.

**Table 7.80: L-Frame—400 A, Thermal-Magnetic, High Magnetic Withstand Circuit Breakers For Mission Critical Loads**

| Ampere Rating | AC Magnetic Level Factory Set | | Standard Interrupting | | High Interrupting | | Terminal | |
|---|---|---|---|---|---|---|---|---|
| | Hold | Trip | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | Wire Range |
| **LA/LH MC Circuit Breaker, 3P, 480 Vac** | | | | | | | | |
| 200 A | 3400 A | 4000 A | LAL34200MC | **4962.00** | LHL34200MC | **7941.00** | AL250LAMC | (1) 250–350 kcmil Al<br>(1) 3/0 AWG–350 kcmil Cu |
| 225 A | 3825 A | 4500 A | LAL34225MC | **4962.00** | LHL34225MC | **7941.00** | | |
| 250 A | 4250 A | 5000 A | LAL34250MC | **5355.00** | LHL34250MC | **8336.00** | | |
| 400 A | 6000 A | 7200 A | LAL34400MC | **6615.00** | LHL34400MC | **9596.00** | AL400LA | (1) 1 AWG–600 kcmil Al or<br>(2) 1 AWG–250 kcmil Al |

**Table 7.81: L-Frame Interrupting Table**

| | LAL | LHL |
|---|---|---|
| 240 Vac | 42 kA | 65 kA |
| 480 Vac | 30 kA | 35 kA |

## PowerPact™ Circuit Breakers with Micrologic™ Electronic Trip Units

The advantages of being able to adjust the trip curve of a circuit breaker equipped with an electronic trip system are obvious. There are other advantages, such as being able to adjust or turn off the instantaneous trip function on some circuit beakers and models of trip units.

Accessories . . . . . Supplemental Digest Pages 3-29–3-30
Compression and PDC Lugs . . . . . Supplemental Digest Page 3-30
Dimensions . . . . . Page 7-54
Enclosures . . . . . Page 7-56





© 2012 Schneider Electric
All Rights Reserved

## Table 7.82: Electrical Accessories

New!

| Accessory | Description | | Rated Voltage | | H-, J-, and L-Frame: Factory-Installed Cat. Suffix | H- and J-Frame: Field-Installable Cat. No. | H- and J-Frame: $ Price | L-Frame: Field-Installable Cat. No. | L-Frame: $ Price | M-, P-, and R-Frame: Factory Installed Cat. Suffix | M-, P-, and R-Frame: Field-Installable Cat. No. | M-, P-, and R-Frame: $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Auxiliary and Alarm Switches (OF, SD, SDE)**  H-, J-, L-, M-, P, and R-Frame | Provides circuit breaker contact status. Note: The location of the accessory in the circuit breaker determines its function. | Standard Min Load = 10mA with 24V | 1 auxiliary switch (OF) 1a1b | | AA | S29450 | **297.00** | S29450 | **297.00** | AA | S29450 | **297.00** |
| | | | 2 auxiliary switch (OF) 2a2b | | AB | 2x S29450 | **594.00** | 2x S29450 | **594.00** | AB | 2x S29450 | **594.00** |
| | | | 3 auxiliary switch (OF) 3a3b | | AC | — | — | 3x S29450 | **891.00** | AC | 3x S29450 | **891.00** |
| | | | Alarm Switch (SD) 1a1b | | BC | S29450 | **297.00** | S29450 | **297.00** | BC | S29450 | **297.00** |
| | | | Overcurrent trip switch (SDE) 1a1b | | BD | — | **338.00** | S29450 | **297.00** | BD | S29450 | **297.00** |
| | | | Consisting of: | OF Switch | — | S29450 | **297.00** | — | — | — | — | — |
| | | | | SDE Adapter | — | S29451 | **40.00** | — | — | — | — | — |
| | | | Alarm switch and Overcurrent trip switch | | BE | — | **635.00** | 2x S29450 | **594.00** | BE | 2x S29450 | **594.00** |
| | | | Consisting of: | OF Switch | — | 2x S29450 | **594.00** | — | — | — | — | — |
| | | | | SDE Adapter | — | S29451 | **40.00** | — | — | — | — | — |
| | | | Auxiliary Switch/Alarm Switch/Adapter (OF/SD/SDE) Kit | | — | — | — | — | — | — | S33801♦ | **297.00** |
| | | Low Level Min Load = 1mA with 24V | One auxiliary switch (OF) 1a1b | | AE | S29452 | **372.00** | S29452 | **372.00** | AE | S29452 | **372.00** |
| | | | Two auxiliary switches (OF) 2a2b | | AF | 2x S29452 | **744.00** | 2x S29452 | **744.00** | AF | 2x S29452 | **744.00** |
| | | | 3 auxiliary switches (OF) 3a3b | | AG | — | — | 3x S29452 | **1116.00** | AG | 3x S29452 | **1116.00** |
| | | | Alarm Switch (SD) 1a1b | | BH | S29452 | **372.00** | S29452 | **372.00** | BH | S29452 | **372.00** |
| | | | Overcurrent trip switch (SDE) 1a1b | | BJ | — | **413.00** | S29452 | **372.00** | BJ ▼ | S29452 | **372.00** |
| | | | Consisting of: | OF Switch | — | S29452 | **372.00** | — | — | — | — | — |
| | | | | SDE Adapter | — | S29451 | **40.00** | — | — | — | — | — |
| | | | Alarm switch and Overcurrent trip switch | | BK | — | **785.00** | 2x S29452 | **744.00** | BK▼ | 2x S29452 | **744.00** |
| | | | Consisting of: | OF Switch | — | 2x S29452 | **744.00** | — | — | — | — | — |
| | | | | SDE Adapter★ | — | S29451 | **40.00** | — | — | — | — | — |
| **Shunt Trip (MX)**  H-, J-, and L-Frame | Trips the circuit breaker from a remote location by means of a trip coil energized from a separate supply voltage circuit. | | AC | 24 | SK | S29384 | | S29384 | | SK | S33659 | |
| | | | | 48 | SL | S29385 | | S29385 | | SL | S33660 | |
| | | | | 110–130 | SA | S29386 | | S29386 | | SA | S33661 | |
| | | | | 220–240 | — | — | **717.00** | — | **717.00** | SC | S33662 | **755.00** |
| | | | | 208–277 | SD | S29387 | | S29387 | | SD | S33663 | |
| | | | | 380–480 | SH | S29388 | | S29388 | | SH | S33664 | |
| | | | | 525–600 | SJ | S29389 | | S29389 | | — | — | |
| | | | DC | 12 | SN | S29382 | | S29382 | | SN | S33658 | |
| | | | | 24 | SO | S29390 | | S29390 | | SK | S33659 | |
| | | | | 30 | SU | S29391 | | S29391 | | SK | S33659 | |
| | | | | 48 | SP | S29392 | **717.00** | S29392 | **717.00** | SL | S33660 | **755.00** |
| | | | | 60 | SV | S29383 | | S29383 | | SL | S33660 | |
| | | | | 125 | SR | S29393 | | S29393 | | SA | S33661 | |
| | | | | 250 | SS | S29394 | | S29394 | | SC | S33662 | |
| **Undervoltage Trip (MN)**  H-, J-, and L-Frame | Instantaneously opens the circuit breaker when the under-voltage trip supply voltage drops to a value between 35% and 70% of its rated voltage. Closing is allowed when the supply voltage of the undervoltage trip reaches 85% of rated voltage. | | AC | 24 | UK | S29404 | | S29404 | | UK | S33668 | |
| | | | | 48 | UL | S29405 | | S29405 | | UL | S33669 | |
| | | | | 110–130 | UA | S29406 | | S29406 | | UA | S33670 | |
| | | | | 220–240 | — | — | **717.00** | — | **717.00** | UC | S33671 | **755.00** |
| | | | | 208–277 | UD | S29407 | | S29407 | | — | — | |
| | | | | 380–480 | UH | S29408 | | S29408 | | UH | S33673 | |
| | | | | 525–600 | UJ | S29409 | | S29409 | | — | — | |
| | | | DC | 12 | UN | S29402 | | S29402 | | — | — | |
| | | | | 24 | UO | S29410 | | S29410 | | UK | S33668 | |
| | | | | 30 | UU | S29411 | | S29411 | | UK | S33668 | |
| | | | | 48 | UP | S29412 | **717.00** | S29412 | **717.00** | UL | S33669 | **755.00** |
| | | | | 60 | UV | S29403 | | S29403 | | UL | S33669 | |
| | | | | 125 | UR | S29413 | | S29413 | | UA | S33670 | |
| | | | | 250 | US | S29414 | | S29414 | | UC | S33671 | |
| **Time Delay Unit**  | Undervoltage trip with externally mounted adjustable time delay unit for UVR of 0.5, 0.9, 1.5, 3.0 seconds before circuit breaker trips | | AC/DC | 48 | — | S33680 | | S33680 | | — | S33680▲■ | |
| | | | | 100–130 | — | S33681 | **1140.00** | S33681 | **1140.00** | — | S33681▲■ | |
| | | | | 220–250 | — | S33682 | | S33682 | | — | S33682▲■ | **1140.00** |
| | | | | 380–480 | — | — | — | — | — | — | S33683▲■ | |
| | Undervoltage trip with externally mounted non-adjustable time delay unit of 0.25 sec before circuit breaker trips. | | AC/DC | 48 | — | S29426 | **930.00** | S29426 | **930.00** | — | — | |
| | | | | 100–130 | — | — | — | — | — | — | S33684▲■ | **930.00** |
| | | | | 200–250 | — | — | — | — | — | — | S33685▲■ | |
| | | | | 220–240 | — | S29427 | **930.00** | S29427 | **930.00** | — | — | |

▲ Field-installable kit includes time delay module only. Order undervoltage trip separately.
■ Discount schedule DE2F.
♦ P-frame drawout circuit breaker only.
★ SDE Adapter used for H- and J-frame only.
▼ Not available on electrically operated P-frame.

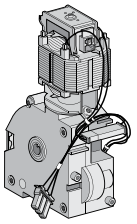


© 2012 Schneider Electric
All Rights Reserved

## Table 7.83: Motor Operators for H-, J-, and L-Frame Circuit Breakers

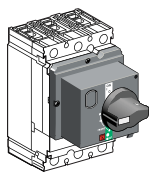
| Description | | Rated Voltage | | Factory Installed Cat. No. Suffix | Field--Installable Kit | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | H-Frame▲ | | J-Frame | | L-Frame 600 A | |
| | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
|  Motor Operator | Standard motor for electrically-operated circuit breakers★ | AC | 48–60 | ML | S29440 | | S31548 | | S432639 | New! |
| | | | 110–130 | MA | S29433 | | S31540 | | S432640 | |
| | | | 208–277 220–240 | MD | S29434 | 1161.00 | S31541 | 3123.00 | S432641 | 3395.00 |
| | | | 380–415 | MF | — | | — | | S432642 | |
| | | | 440–480 | MH | S29435 | | S31542 | | S432647 | |
| | | DC | 24–30 | MO | S29436 | | S31543 | | S432643 | |
| | | | 48–60 | MV | S29437 | | S31544 | | S432644 | |
| | | | 110–130 | MR | S29438 | 1161.00 | S31545 | 3123.00 | S432645 | 3545.00 |
| | | | 250 | MS | S29439 | | S31546 | | S432646 | |
| | Communicating motor for electrically-operated circuit breakers▼ | AC | 220–240 | NC | S429441 | 1509.00 | S431549 | 4060.00 | S432652 | 4414.00 |
| | Locking device | Mounting hardware | | — | — | — | — | — | S32649 | 59.00 |
| | | Ronis lock | | — | S41940 | 146.00 | S41940 | 146.00 | S41940 | 146.00 |
| | | Profalux lock | | — | S42888 | 146.00 | S42888 | 146.00 | S42888 | 146.00 |
| | | Mounting hardware plus Ronis lock | | — | S429449 | 155.00 | S429449 | 155.00 | — | — |
| | Operations counter | | | — | — | — | — | — | S32648 | 225.00 |
| | Adapter for I-Line circuit breaker | | | — | S37420 | 119.00 | S37420 | 119.00 | — | — |

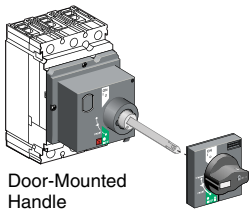
## Table 7.84: Spring-Charging Motors for Electrically-Operated P-Frame Circuit Breakers

| Description | | Rated Voltage | | Factory Installed | | P-Frame (For Field-replacement Only) | | Replacement Coils | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. Suffix | $ Price | Spring Charging Motor Cat. No. | $ Price ♦ | Opening/Closing Coil Cat. No. | $ Price |
|  Spring-charging Motor | Standard motor for electrically-operated circuit breakers. Factory-installed includes motor and opening/closing coils. | AC | 48 | ML | 5090.00 | S47391 | 3580.00 | S33660 | 755.00 |
| | | | 100–130 | MA | | S47395 | | S33661 | |
| | | | 220–240 | MC | | S47396 | | S33662 | |
| | | | 380–415 | MF | | S47398 | | S33664 | |
| | | DC | 24–30 | MO | 5090.00 | S47390 | 3580.00 | S33659 | 755.00 |
| | | | 48–60 | MV | | S47391 | | S33660 | |
| | | | 110–130 | MR | | S47392 | | S33661 | |
| | | | 200–250 | MS | | S47393 | | S33662 | |
| | Communicating motor mechanism for electrically operated circuit breakers. Factory-installed includes motor and opening/closing coils. | AC | 48 | NL | 5090.00 | S47391 | 3580.00 | S33034 | 755.00 |
| | | | 100–130 | NA | | S47395 | | S33035 | |
| | | | 220–240 | NC | | S47396 | | S33036 | |
| | | | 380–415 | NF | | S47398 | | S33038 | |
| | | DC | 24–30 | NO | 5090.00 | S47390 | 3580.00 | S33033 | 755.00 |
| | | | 48–60 | NV | | S47391 | | S33034 | |
| | | | 110–130 | NR | | S47392 | | S33035 | |
| | | | 200–250 | NS | | S47393 | | S33036 | |

## Table 7.85: Rotary Operated Handles

| Device | | Description | H- and J-Frame▲ | | | L-Frame | | | P-Frame | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Factory Installed Cat. No. Suffix | Field Installable Cat. No. | $ Price | Factory Installed Cat. No. Suffix | Field Installable Cat. No. | $ Price | Factory Installed Cat. No. Suffix | $ Price |
| Direct Mounted | Standard black handle | Handle only | RD10 | S29337 | 225.00 | RD10 | S32597 | 366.00 | RD10 | 539.00 |
| | Standard black handle with | Two early-break and two early make switches | — | — | — | — | — | — | RD16 | 822.00 |
| | | One early-break switch | RD12 | S29337 + S29345 | 345.00 | RD12 | S32597 + S32605 | 486.00 | — | — |
| | | Two early-make switches | RD13 | S29337 + S29346 | 404.00 | RD13 | S32597 + S29346 | 545.00 | — | — |
| | Red handle on yellow bezel | Handle only | RD20 | S29339 | 234.00 | RD20 | S32599 | 407.00 | — | — |
| | | One early-break switch | RD22 | S29339 + S29345 | 354.00 | RD22 | S32599 + S32605 | 527.00 | — | — |
| | | Two early-make switches | RD23 | S29339 + S29346 | 413.00 | RD23 | S32599 + S29346 | 586.00 | — | — |
| | MCC conversion accessory | | — | S429341 | 102.00 | — | S32606 | 102.00 | — | — |
| | CNOMO conversion accessory | | — | — | — | — | S32602 | 102.00 | — | — |
| Door Mounted | Standard black handle | Handle only | RE10 | S29338 | 383.00 | RE10 | S32598 | 557.00 | RE10 | 971.00 |
| | Standard black handle with: | Two early-break and two early make switches | — | — | — | — | — | — | RE16 | 1268.00 |
| | | Two early make switches | RE13 | S29338 + S29346 | 503.00 | RE13 | S32598 + S29346 | 736.00 | — | — |
| | Red handle on yellow bezel | Handle only | RE20 | S29340 | 399.00 | RE20 | S32600 | 597.00 | — | — |
| Rotary Handle Replacement Kit | | | — | — | — | — | — | — | S33875 | 795.00 |
| Telescoping | | | RT10 | S29343 | 492.00 | RT10 | S32603 | 617.00 | — | — |
| Accessories | Key lock adapter | | — | S429344 | 58.00 | — | S32604 | 58.00 | — | — |
| | Key locks | Ronis 1351.500 | — | S41940 | 146.00 | — | S41940 | 146.00 | — | — |
| | | Profalux KS5 B24 D4Z | — | S42888 | 146.00 | — | S42888 | 146.00 | — | — |
| | | 2 Ronis keylocks with 1 key | — | S41950 | 185.00 | — | S41950 | 185.00 | — | — |
| | | 2 Profalux keylocks with 1 key | — | S42878 | 185.00 | — | S42878 | 185.00 | — | — |
| | Indication Auxiliary Switch | One early-break switch | — | S29445 | 120.00 | — | S32605 | 120.00 | — | — |
| | | Two early-make switches | — | S29346 | 179.00 | — | S29346 | 179.00 | — | — |


Direct-Mounted handle


Door-Mounted Handle

▲ Not available in H-frame 2P modules.
■ CP1 discount schedule.
♦ DE2F discount schedule.
★ Factory and field-installed standard motor operators for H- and J-frame circuit breakers require the SDE switch and SDE adapter (both included).
Factory and field-installed standard motor operators for L-frame circuit breakers require the SDE switch (included).
▼ Installation requires BSCM with NSX Cord. SeeTable 7.118, page 7-49 for ordering information.

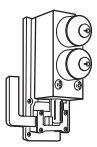




© 2012 Schneider Electric
All Rights Reserved

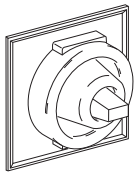
## Table 7.86: Locks, Interlocking *New!*

| Device | Description | | H- and J-Frame | | | Q-Frame | | L-Frame | | M- and P-Frame | | | R-Frame | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Factory Installed Cat. No. Suffix | Field-Installed Cat. No. | $ Price | Field-Installed Cat. No. | $ Price | Field-Installed Cat. No. | $ Price | Factory Installed Cat. No. Suffix | Field-Installed Cat. No. | $ Price | Factory Installed Cat. No. Suffix | Field-Installed Cat. No. | $ Price |
| Handle Padlocking Device | Removable (lock OFF only) | | — | S29370 | **50.00** | | | S29370 | **50.00** | — | S44936 | **50.00** | — | S33996 | **50.00** |
| | Fixed (lock OFF or ON) | | YP | S29371 | **77.00** | QBPA | **77.00** | S32631 | **122.00** | YP | S32631 | **122.00** | YP | S32631 | **122.00** |
| | Fixed (lock OFF only)▲ | | YQ | S37422 | **122.00** | QBPAF | **77.00** | NJPAF | **122.00** | YQ | MPRPAF | **122.00** | YQ | MPRPAF | **122.00** |
| | Fixed (lock OFF only)–2P | | YQ | H2PHLA | **122.00** | — | — | — | — | — | — | — | — | — | — |
| Interlocking (Not UL listed) | Mechanical for circuit breakers with rotary handles▲ | | — | S29369 | **494.00** | — | — | S32621 | **494.00** | — | S33890 | **1220.00** | — | — | — |
| | Mechanical for circuit breakers with toggles▲ | | — | S29354 | **494.00** | QBMIK | **90.00** | S32614 | **494.00** | — | — | — | — | — | — |
| Key Locking | Provision only, vertical mount, 1 or 2 locks | Kirk | — | — | — | — | — | — | — | JA | — | **323.00** | | — | |
| | Provisions only, vertical mounting one key interlock including padlock provision, open position only. | Kirk | — | — | — | — | — | — | — | JE■★ | — | **445.00** | JE★ | — | **445.00** |
| | Provision only, horizontal mount 1 lock, M- and P-frame 1 or 2 locks, R-frame | Kirk | — | — | — | — | — | — | — | JK | — | **323.00** | JK | — | **323.00** |
| | | Ronis | — | — | — | — | — | — | — | JB♦ | — | **323.00** | JB | — | **323.00** |
| | | Profalux | — | — | — | — | — | — | — | JD♦ | — | **323.00** | JD | — | **323.00** |
| | Provision and 1 lock, vertical mount | Kirk | — | — | — | — | — | — | — | JG | — | **1796.00** | — | — | — |
| | Provision and 1 lock, horizontal mount | Kirk | — | — | — | — | — | — | — | JL | — | **1796.00** | JL | — | **1796.00** |
| | | Ronis | — | — | — | — | — | — | — | JC♦ | — | **2285.00** | JC | — | **2285.00** |
| | | Profalux | — | — | — | — | — | — | — | JF♦ | — | **2285.00** | JF | — | **2285.00** |
| | Provision and 2 locks keyed alike | Kirk | — | — | — | — | — | — | — | JN | — | **2285.00** | JN | — | **2285.00** |
| | Provision and 2 locks keyed differently | Kirk | — | — | — | — | — | — | — | JP | — | **3269.00** | JP | — | **3269.00** |

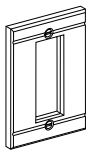


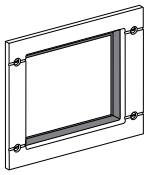
▲ Not available in M frame or HD and HG 2P modules.
■ Not available on M-frame.
♦ Not available for M, P or P frame drawout. Only available on P frame electronic.
★ Not available on I-Line.

*New!*

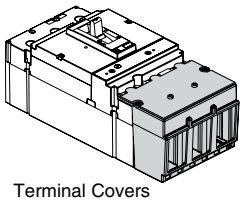


Handle Rubber Boot





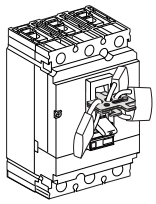
Door Escutcheon



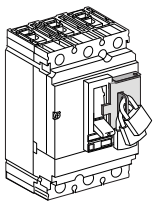
Terminal Covers



Rear Connection



Removable Padlock Attachment



Fixed Padlock Attachment

## Table 7.87: Installation Accessories fo H-, J-, and L-Frame Circuit Breakers

| Description | H- and J-Frame | | L-Frame | |
|---|---|---|---|---|
| | Field-Installed Cat. No. | $ Price | Field-Installed Cat. No. | $ Price |
| Front Panel Escutcheon for Toggle Breakers | S29315 | **48.00** | 32556 | **55.00** |
| Front Panel Escutcheon for Rotary Handle, Motor Operator, or extended escutcheon | S29317 | **63.00** | S32558 | **74.00** |
| Phase Barriers (set of 6) | S29329 | **53.00** | 32570 | **72.00** |
| Handle Rubber Boot▼ | S29319 | **135.00** | S32560 | **171.00** |
| Sealing Accessories (for front cover screws) | S29375 | **42.00** | S29375 | **42.00** |
| DIN rail mounting kit (requires 15 mm depth on a 35 mm DIN rail)▼ | S29305 | **188.00** | — | — |
| DIN rail adapter | — | — | — | — |
| Handle Extensions (set of 5) | S29313 | **140.00** | S432553 | **165.00** |

▼ Not available in HD and HG 2P modules.

## Table 7.88: Installation Accessories for M-, P-, and R-Frame Circuit Breakers

| Description | | Frame | Field-Installed Cat. No. | $ Price |
|---|---|---|---|---|
| Door Escutcheon | Accessory Cover | M-, P-Frame | S33718△ | **176.00** |
| | | R-Frame | S33929 | **176.00** |
| | Toggle Handle | M-, P-Frame | S33717 | **47.00** |
| | Drawout | P-Frame | S33857△ | **308.00** |
| Terminal Covers | Short lug cover 3P | P-Frame | S33932 | **165.00** |
| | Short lug cover 4P | | S33933 | **216.00** |
| | Long lug cover 3P | | S33934 | **216.00** |
| | Long lug cover 4P | | S33935 | **281.00** |
| Replacement Handle | Standard | R-Frame | S33997 | **111.00** |
| | Standard Short | M-, P-Frame | S46998 | **44.00** |
| | Long | M-, P-Frame | S46996 | **44.00** |

△ DE2F discount schedule.

*New!*

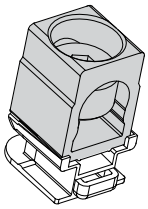
## Table 7.89: Rear Connections

| Device | Description | H-Frame | | | | J-Frame | | | | L-Frame | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Poles | Factory-Installed Termination No. | Field-Installable Cat. No. | $ Price | Poles | Factory-Installed Termination No. | Field-Installed Cat. No. | $ Price | Poles | Factory-Installed Termination No. | Field-Installed Cat. No. | $ Price |
| Mixed Rear Connection Kit□ | | 2 | S | — | — | 2 | S | — | — | 3 | S | S32477 | **1059.00** |
| | | 3 | S | S37432 | **381.00** | 3 | S | S37437 | **381.00** | 4 | S | S32478 | **1344.00** |
| Consisting of: | Short rear connections (set of 2) | 2 or 3 | — | 2x S37433◊ | **84.00** | 2 or 3 | — | 2x S37438◊ | **84.00** | 3 | — | 2x S432475◊ | **219.00** |
| | Long rear connections (set of 2) | | — | S37434 | **105.00** | | — | S37439☆ | **105.00** | | — | 2x S432476◊ | **261.00** |
| | Short terminal cover (3P) | 3 | — | S37436 | **119.00** | 3 | — | S37440 | **119.00** | 3 | — | 2x S32562◊ | **149.00** |
| | Short terminal cover (4P) | 4 | — | — | — | — | — | — | — | 4 | — | 2x S32563◊ | **161.00** |

□ Kit contains 4 short rear connections, 2 long rear connections (4 long rear connections for 4P), hardware, and 2 terminal covers..
◊ Price shown is for quantity one.
☆ For use with 3P circuit breakers only.



© 2012 Schneider Electric
All Rights Reserved



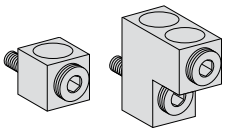
J-Frame Lug

### Table 7.90: Mechanical Lug Kits for H-Frame and J-Frame Circuit Breakers▲

| Description | Circuit Breaker Application | | | Ampere Rating | Number of Wires Per Lug and Wire Range | Kit Cat. No. | Qty Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|---|---|---|
| | Standard | Ampere Rating | Optional | | | | | |
| Al Lugs for Use with Al or Cu Wire | HD, HG, HJ, HL | 15–150 A | | | (1) 14–3/0 AWG Al or Cu | AL150HD | 3 | **75.00** |
| | JD, JG, JJ, JL | 150–175 A | | | (1) 4-4/0 AWG Al or Cu | AL175JD | 3 | **113.00** |
| | JD, JG, JJ, JL | 200–250 A | JD,JG,JJ,JL | 150–175 A | (1) 3/0–350 kcmil Al or Cu | AL250JD | 3 | **113.00** |
| Cu Lugs for Use with Cu Wire Only | | | HD,HG,HJ,HL | 15–150 A | (1) 14–2/0 AWG Cu | CU150HD | 3 | **156.00** |
| | | | JD,JG,JJ,JL | 150–250 A | (1) 1/0–300 kcmil Cu | CU250JD | 3 | **314.00** |
| Control Wire Terminal for H-frame lug kit | | | | | | S37423 | 2 | **53.00** |
| Control Wire Terminal for J-frame lug kit | | | | | | S37424 | 2 | **53.00** |

▲ See page 7-44 for terminal nuts/bus bar connections.

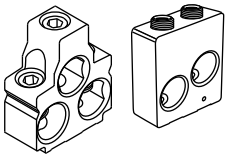
*New!*



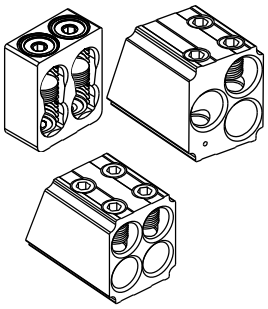
L-Frame Lugs

### Table 7.91: Mechanical Lug Kits for L-Frame Circuit Breakers

| Description | Circuit Breaker Application | | | | Number of Wires Per Lug and Wire Range | Kit Cat. No. | Qty Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|---|---|---|
| | Ampere Rating | Poles | Unit Mount | I-Line | | | | |
| Al Lugs for Use with Al or Cu Wire | 250 | 3 | X | X | (1) 2 AWG–500 kcmil Al (1) 2 AWG–600 kcmil Cu | AL400L61K3 | 3 | **143.00** |
| | | 4 | X | — | | AL400L61K4 | 4 | **176.00** |
| | 400/600 | 3 | X | — | (2) 2/0 AWG–500 kcmil Al or Cu | AL600LS52K3 | 3 | **341.00** |
| | | 4 | X | — | | AL600LS52K4 | 4 | **449.00** |
| | 400/600 | 3 | X | X | (2) 3/0 AWG–500 kcmil Al or Cu | AL600LF52K3 | 3 | **831.00** |
| Cu Lugs for Use with Cu Wire Only | 250/400 | 3 | X | X | (1) 2 AWG–600 kcmil Cu | CU400L61K3 | 3 | **755.00** |
| | | 4 | X | — | | CU400L61K4 | 4 | **983.00** |
| | 400/600 | 3 | X | — | (2) 2/0 AWG–500 kcmil Cu | CU600LS52K3 | 3 | **1832.00** |
| | | 4 | X | — | | CU600LS52K4 | 4 | **2385.00** |
| | 400/600 | 3 | X | X | (2) 3/0 AWG–500 kcmil Cu | CU600LF52K3 | 3 | **2395.00** |



M- and P-Frame Lugs (800 A and below)



P-Frame Lugs (Above 800 A)

### Table 7.92: Mechanical Lug Kits for M-Frame, P-Frame and R-Frame Circuit Breakers▼

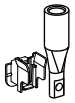
| Description | Circuit Breaker Application | | | | Wires per Lug and Wire Range | Cat. No. | Lugs Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|---|---|---|
| | Standard | Rating | Optional | Ampere Rating | | | | |
| Al Lugs for AL or Cu Wire | M-, P-Frame | 800 A | — | 800 A | (3) 3/0 AWG-500 kcmil | AL800M23K | 3 | **284.00** |
| | | | | | | AL800M23K4 | 4 | **378.00** |
| | | 1200 A | PG, PJ, PL, MG, MJ | 800 A | (4) 3/0 AWG-500 kcmil | AL1200P24K■ | 1 | **155.00** |
| | | — | PG, PJ, PL, MG, MJ | 800 A | (2) 3/0 AWG-600 kcmil | AL800P6K■ | 3 | **416.00** |
| | | | | | | AL800P6K4■ | 4 | **554.00** |
| | | — | PG, PJ, PL, MG, MJ | 800 A | (2) 3/0 AWG-750 kcmil 750 kcmil: compact AL only | AL800P7K■ | 3 | **464.00** |
| | | | | | | AL800P7K4■ | 4 | **602.00** |
| | P-Frame | 1200 A | PG ,PJ, PL | 800 A | (4) 3/0 AWG-500 kcmil | AL1200P25K♦ | 3 | **378.00** |
| | | | | | | AL1200P25K4♦ | 4 | **504.00** |
| | | — | PG, PJ,P L | 800–1200 A | (3) 350-600 kcmil | AL1200P6KU♦ | 3 | **786.00** |
| | | | | | | AL1200P6KU4♦ | 4 | **1038.00** |
| | PG,PJ,PL | — | PG, PJ, PL | 1200 A | (3) 3/0 AWG-750 kcmil 750 kcmil: compact AL only | AL1200P7KU♦ | 3 | **1233.00** |
| | | | | | | AL1200P7KU4♦ | 4 | **1635.00** |
| | R-Frame | 1200 A | I-Line | — | (4) 3/0 AWG-600 kcmil | AL1200R53K | 1 | **215.00** |
| | | 2500 A | Unit Mount | — | (1) 3/0 AWG-750 kcmil | AL2500RK★ | 2 | **132.00** |
| Cu Lugs for Cu Wire Only□ | M-, P-Frame | — | PJ | 100–150 A | (1) 1-1/0 AWG | CU250P1K△ | 3 | **990.00** |
| | | 800 A | MG, MJ, PG, PJ, PL | — | (3) 3/0 AWG-500 kcmil | CU800M23K | 3 | **1647.00** |
| | | | | | | CU800M23K4 | 4 | **2190.00** |
| | | 1200 A | MG, MJ, PG, PJ, PL | 800–1200 A | (4) 3/0 AWG-500 kcmil | CU1200P24K■ | 1 | **569.00** |
| | P-Frame | 1200 A | PG, PJ, PL | 800–1200 A | (4) 3/0 AWG-500 kcmil | CU1200P25K♦ | 3 | **4886.00** |
| | | | | | | CU1200P25K4 | 4 | **6503.00** |
| | R-Frame | 1200 A | I-Line | — | (4) 3/0 AWG-500 kcmil | CU1200R53K | 1 | **548.00** |

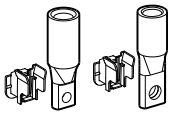
■ Does not fit onto ON end of unit-mount P-frame circuit breakers.
♦ For unit-mount circuit breaker only.
★ All unit-mount R-frame circuit breakers require terminal pads for mounting lugs of any type. See page 7-44.
▼ For lug with a tapped hole for control wire, add a "T" before the "K" in the catalog number (for example, AL800P6TK).
△ This lug can only be used on low amp PJ frame breakers where the Instantaneous setting must not be turned OFF. The cables must be laced with rope per lug instructions.
□ Not available with tapped hole for control wire.





© 2012 Schneider Electric
All Rights Reserved





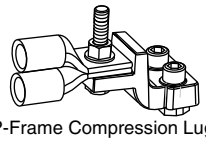
J-Frame Compression Lugs

### Table 7.93: Compression Lug Kits for PowerPact™ Circuit Breakers

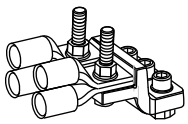
| Description | Circuit Breaker Type | Ampere Rating | System Range | Mounting Type | Dimension A (in) | Max. Lugs per Terminal | Cat. No. | Qty. Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|---|---|---|---|
| **Compression Lug Kits for H-Frame and J-Frame Circuit Breakers** | | | | | | | | | |
| Aluminum Compression Lug Kits | H-frame | 60 A | 6–2 AWG Al or Cu | Unit/I-line♦ | 1.2 | 1 | YA060HD | 3 | **194.00** |
| | | 150 A | 1/0–4/0 AWG Al or Cu | | 2.5 | 1 | YA150HD | 3 | **294.00** |
| | J-frame | 150 A | 1–3/0 AWG Al or Cu | | 1.2 | 1 | YA150JD | 3 | **237.00** |
| | | 250 A | 3/0–350 kcmil Al or Cu | | 2.5 | 1 | YA250J35 | 3 | **305.00** |
| Copper Compression Lug Kits | H-frame | 60 A | 6–1/0 AWG Cu | | 1.0 | 1 | CYA060HD | 3 | **194.00** |
| | | 150 A | 4–2/0 AWG Cu | | 1.2 | 1 | CYA150HD | 3 | **194.00** |
| | J-frame | 150 A | 6–1/0 AWG Cu | | 0.7 | 1 | CYA150JD | 3 | **194.00** |
| | | 250 A | 2/0–300 kcmil Cu | | 1.1 | 1 | CYA250J3 | 3 | **194.00** |
| **Compression Lug Kits for L-Frame Circuit Breakers** | | | | | | | | | |
| Aluminum Compression Lug Kits | L-frame | 250 A | 4-300 kcmil Al/Cu | Unit/I-line♦ | 1.2 | 1 | YA400L31K3 | 3 | **294.00** |
| | | 400 A | 4-300 kcmil Al/Cu | | 2.5 | 2 | YA600L32K3 | 6 | **540.00** |
| | | 250 A | 2/0-500 kcmil Al/Cu | | | 1 | YA400L51K3 | 3 | **361.00** |
| | | 600 A | 2/0-500 kcmil Al/Cu | | | 2 | YA600L52K3 | 6 | **718.00** |
| | | 400 A | 500-750 kcmil Al 500 kcmil Cu | | | 1 | YA400L71K3 | 3 | **425.00** |
| | | 250 A | 4-300 kcmil Al/Cu | | | 1 | YA400L31K4 | 4 | **383.00** |
| | | 400 A | 4-300 kcmil Al/Cu | | | 2 | YA600L32K4 | 8 | **709.00** |
| | | 250 A | 2/0-500 kcmil Al/Cu | | | 1 | YA400L51K4 | 4 | **474.00** |
| | | 600 A | 2/0-500 kcmil Al/Cu | | 1.2 | 2 | YA600L52K4 | 8 | **950.00** |
| | | 400 A | 500-750 kcmil Al 500 kcmil Cu | | 2.5 | 1 | YA400L71K4 | 4 | **560.00** |
| Copper Compression Lug Kits | L-frame | 250 A | 2/0-300 kcmil Cu | Unit/I-line♦ | 1.2 | 1 | CYA400L31K3 | 3 | **461.00** |
| | | 400 A | 2/0-300 kcmil Cu | | 2.5 | 2 | CYA600L32K3 | 6 | **873.00** |
| | | 250 A | 250-500 kcmil Cu | | | 1 | CYA400L51K3 | 3 | **384.00** |
| | | 600 A | 250-500 kcmil Cu | | | 2 | CYA600L52K3 | 6 | **764.00** |
| | | 250 A | 2/0-300 kcmil Cu | | | 1 | CYA400L31K4 | 4 | **606.00** |
| | | 400 A | 2/0-300 kcmil Cu | | | 2 | CYA600L32K4 | 8 | **1147.00** |
| | | 250 A | 250-500 kcmil Cu | | | 1 | CYA400L51K4 | 4 | **505.00** |
| | | 600 A | 250-500 kcmil Cu | | | 2 | CYA600L52K4 | 8 | **1011.00** |
| **Compression Lug Kits for M-Frame, P-Frame, and R-Frame Circuit Breakers** | | | | | | | | | |
| Aluminum Compression Lug Kits | M-, P-frame | 250 A | 2/0-300 kcmil | Unit/I-line♦ | 3.7 | 2 | YA250P3 | 1 | **663.00** |
| | | 300 A | 4/0-500 kcmil | | 3.9 | 2 | YA300P5 | 1 | **519.00** |
| | | 400 A | 2/0-300 kcmil | | 4.3 | 2 | YA400P3 | 2 | **542.00** |
| | | 400 A | 500-750 kcmil | | 3.7 | 2 | YA400P7 | 1 | **747.00** |
| | | 600 A | 4/0-500 kcmil | | 3.9 | 2 | YA600P5 | 2 | **788.00** |
| | | 800 A | 500-750 kcmil | | 4.3 | 2 | YA800P7 | 2 | **845.00** |
| | R-frame▲ | 1200 A | 2/0-300 kcmil | I-line♦ | 3.8 | 4 | YA1200R3 | 4 | **663.00** |
| | | 1200 A | 4/0-500 kcmil | | 4.0 | 4 | YA1200R5 | 4 | **707.00** |
| | | 1200 A | 500-750 kcmil | | 4.4 | 4 | YA1200R7 | 4 | **888.00** |
| | | 2000 A | 2/0-300 kcmil | Unit♦ | ▲ | 8 | YA2000R3 | 2 | **317.00** |
| | | 2000 A | 4/0-500 kcmil | | ▲ | 8 | YA2000R5 | 2 | **291.00** |
| | | 2500 A | 500-750 kcmil | | ▲ | 8■ | YA2500R7 | 2 | **350.00** |
| Copper Compression Lug Kits | M-, P-frame | 400 A | 4/0-500 kcmil | Unit♦ | 3.3 | 2 | CYA400P5 | 1 | **651.00** |
| | | 600 A | 4/0-500 kcmil | | 3.3 | 2 | CYA600P5 | 2 | **753.00** |
| | | 800 A | 500-750 kcmil | | 3.6 | 2 | CYA800P7 | 2 | **554.00** |
| | R-frame | 1200 A | 4/0-500 kcmil | I-Line♦ | 3.5 | 4 | CYA1200R5 | 4 | **987.00** |
| | | 1200 A | 500-750 kcmil | | 3.8 | 4 | CYA1200R7 | 4 | **920.00** |

▲ All unit-mount R-frame circuit breakers require terminal pads for mounting lugs of any type. See page 7-44.
■ 9 lugs for 3000 A circuit breakers
♦ Not for use on I-Line™ circuit breakers unless wire bending space is adequate.

*New!*



P-Frame Compression Lug Kit



R-Frame Compression Lug Kit



PDC6HD6



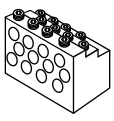
PDC6JD4



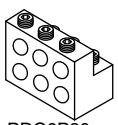
PDC3HD2



PDC3JD20

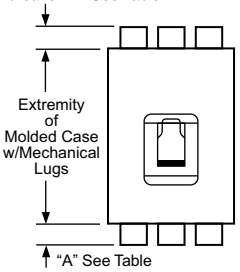


PDC12P4



PDC6P20

Crimp lug or PDC connectors extension past end or circuit breaker "A" See Table




### Table 7.94: Power Distribution Connectors for H-Frame, J-Frame and L-Frame Circuit Breakers

| Use with Circuit Breaker Type | Circuit Breaker Ampere Rating | Wires Per Terminal & Wire Range | Dimension A (in.) | Cat. No. | Qty. Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|---|
| HD, HG, HJ, HL★ | 15–150 | (6) 14–6 AWG Cu | 1.0 | PDC6HD6 | 3 | **443.00** |
| | 15–150 | (3) 14–2 AWG Cu | 1.2 | PDC3HD2 | 3 | **434.00** |
| JD, JG, JJ, JL★ | 150–250 | (6) 14–4 AWG Cu | 1.0 | PDC6JD4 | 3 | **305.00** |
| | 150–250 | (2) 14–1 AWG and (1) 3–2/0 AWG Cu | 1.5 | PDC3JD20 | 3 | **594.00** |
| LD, LG, LJ, LL | 150–600 | (3) 14–1 AWG and (2) 3–2/0 AWG | 1.28△ | PDC5DG20L3 | 3 | **387.00** |
| | 150–600 | (12) 14–4 AWG | 1.31△ | PDC12DG4L3 | 3 | **387.00** |

★ OFF end only when OFF end is the load end.

### Table 7.95: Power Distribution Connectors for M-Frame and P-Frame Circuit Breakers▼

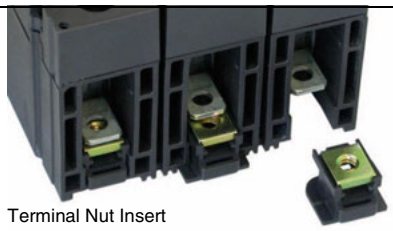
Use for multiple load connections on one circuit breaker in place of standard distribution block to save space and time.
- Use on load end of circuit breaker only
- Use in UL508 Industrial Control applications only.
- Use in UL1995/CSA C22.2 No. 236 heating and cooling equipment.
- For Cu wire only.

| Ampere Rating | (Wires Per Terminal) Wire Range | Cat. No. | Qty Per Kit | $ Price Per Kit |
|---|---|---|---|---|
| 250–1200 A | (6) 12–2/0 AWG Cu | PDC6P20 | 3 | **573.00** |
| | (6) 12–2/0 AWG Cu | PDC6P204 | 4 | **756.00** |
| 250–1200 A | (12) 10–4 AWG Cu | PDC12P4 | 3 | **866.00** |
| | | PDC12P44 | 4 | **929.00** |

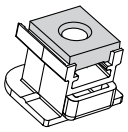
▼ Not for use with I-Line™ circuit breakers.
△ Kit includes long terminal shield and cover, which adds 1.65 inches to standard lug with short terminal shield.



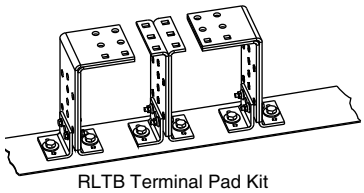
© 2012 Schneider Electric
All Rights Reserved



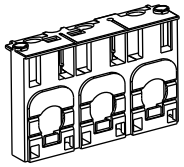
Terminal Nut Insert



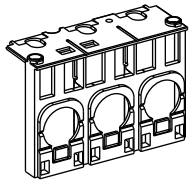
H-Frame Lug With Terminal Nut



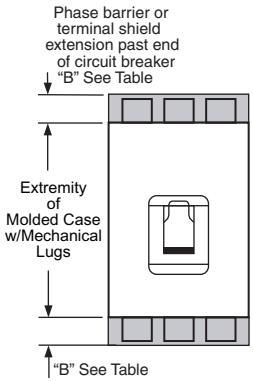
RLTB Terminal Pad Kit

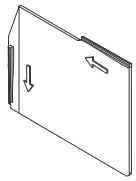


H-Frame Short Lug Shield



J-Frame Short Lug Shield



R-Frame Phase Barrier

### Table 7.96: Terminal Nuts for Bus Bar Connection of H-Frame and J-Frame Circuit Breakers

| Description | Frame | Tap | Cat. No. | Qty Per Kit | $ Price Per Kit |
|---|---|---|---|---|---|
| H-Frame Terminal Nut Insert–English | HD/HG/HJ/HL | 1/4-20 | S37425 | 2 | **53.00** |
| H-Frame Terminal Nut Insert–English | HD/HG/HJ/HL | 1/4-20 | S37444 | 3 | **75.00** |
| H-Frame Terminal Nut Insert–Metric | HD/HG/HJ/HL | M6 | S37426 | 2 | **53.00** |
| J-Frame Terminal Nut Insert–English | JD/JG/JJ/JL | 1/4-20 | S37427 | 2 | **75.00** |
| J-Frame Terminal Nut Insert–English | JD/JG/JJ/JL | 1/4-20 | S37445 | 3 | **113.00** |
| J-Frame Terminal Nut Insert–Metric | JD/JG/JJ/JL | M8 | S37428 | 2 | **75.00** |
| Control Wire Terminal for H-Frame Terminal Nut | HD/HG/HJ/HL | | S37429 | 2 | **53.00** |
| Control Wire Terminal for J-Frame Terminal Nut | JD/JG/JJ/JL | | S37430 | 2 | **53.00** |

### Table 7.97: Bus Bar Connections Hardware for L-Frame, M-Frame and P-Frame Circuit Breakers

New!

| Frame | Description | Term. No. | Poles | Cat. No. | $ Price |
|---|---|---|---|---|---|
| L-Frame | Set of 4 terminal screws and washers for one side | F | 4 | S36967 | **31.00** |
| M- and P-Frame | Bus Connector Kit for one pole, one end | | 1 | S33928 | **28.00** |

### Table 7.98: Terminal Pad Kits for R-Frame Circuit Breakers

| R-Frame Circuit Breaker | Terminal Pad Kit | | Field-Installable Kits | | | |
|---|---|---|---|---|---|---|
| | Usage | Lugs per Phase | 3P Kit (One End Only) | | 4P Kit (One End Only) | |
| | | | Cat. No. | $ Price. | Cat. No. | $ Price |
| 3000 A, 100% Rated | Required for cable or bus | 9 | RL3TB | **1440.00** | RL3TB4 | **2016.00** |
| 3000 A, Standard (80% Rated) | Required for cable or bus | 8 | RLTB | **914.00** | RLTB4 | **1280.00** |
| 2500 A, 100% Rated | Required for cable or bus | | | | | |
| 2500 A, Standard (80% Rated) | Required for cable, optional for bus | | | | | |
| All Other R-Frame CIrcuit Breakers | Required for cable, optional for bus | | | | | |

For cable connection to RLTB, use AL2500RK lug. See page 7-43.

### Table 7.99: Terminal Shields and Phase Barriers

| Used With | Description | | | | Dimension B (in.) | Cat. No. | Qty Per Kit | $ Price |
|---|---|---|---|---|---|---|---|---|
| H- and J-Frame Mechanical Lugs | Short Lug Shield▲ | Frame | Max. Wire Size | | | | | |
| | | H-Frame 60 A | 3 AWG | | 0.50 | S37446 | 1 | **149.00** |
| | | H-Frame 150 A | 3/0 AWG | | 0.50 | S37447 | 1 | **149.00** |
| | | J-Frame | 350 kcmil | | 0.24 | S37448 | 1 | **149.00** |
| H- and J-Frame Power Distribution Connectors and Compression Lugs | | Compatible with: | | | | | | |
| | | PDC | Compression Lugs | | | | | |
| | | | Aluminum | Copper | | | | |
| | H-Frame Long Lug Shield | PDC6HD6 | YA060HD | CYA060HD | 2.24 | S37449 | 1 | **209.00** |
| | | PDC3HD2 | YA150HD | CYA150HD | | | | |
| | J-Frame Long Lug Shield | PDC6JD4 | YA150JD | CYA150JD | 1.68 | S37450 | 1 | **209.00** |
| | | PDC3JD2 | ■ | CYA250J3 | | | | |
| M-, P-Frame | Phase Barriers | | | | | S33646 | 3 | **47.00** |
| R-Frame | | | | | | S33998 | | **47.00** |

New!

▲ Short lug shields provide IP20 protection for mechanical lugs and are compatible with control wire terminals.
■ J-frame terminal shield is not compatible with the YA250J35 compression terminal.

### Table 7.100: Miscellaneous H-, J-, and L-Frame Circuit Breaker Accessories

| Accessory | Description | Field-Installed Cat. No, | $ Price |
|---|---|---|---|
| Spare Parts | Bag of screws for accessory cover, L-frame | S432552 | **63.00** |
| | 1 spare toggle extension, L-frame | 32595 | **342.00** |
| | Set of 10 identification labels | LV429226 | **82.00** |

♦ DE5A Discount Schedule





© 2012 Schneider Electric
All Rights Reserved



H-Frame and J-Frame Plug-in Mounting



H-Frame and J-Frame Drawout Mounting

### Table 7.101: Plug-In and Drawout Mountings for H- and J-Frame Circuit Breakers (3P or 2P in a 3P module)

| Description | | | Factory Installed Cat. No. | Field-Installed Cat. No. | $ Price |
|---|---|---|---|---|---|
| Complete Factory-Assembled Circuit Breakers | Plug-in base shipped with circuit breaker | | N | | 638.00 |
| | Drawout cradle shipped with circuit breaker | | D | | 1419.00 |
| Special Order Options for Plug-In and Drawout Circuit Breakers | Plug-In Base | Circuit breaker Only | HJ00 | | 290.00 |
| | | Plug-in base kit | | S29278 | 348.00 |
| | Drawout Cradle | Circuit breaker only | HJ00 | | 485.00 |
| | | Plug-in base kit | | S29278 | 348.00 |
| | | Cradle side plates (fixed part of chassis) | | S29282 | 587.00 |
| | | Circuit breaker side plates (moving part of chassis) | | S29283 | 195.00 |
| Accessories for Plug-In and Drawout | H-Frame Shutter Kit (set of two) | | | S37442 | 48.00 |
| | J-Frame Shutter Kit (set of two) | | | S37443 | 48.00 |
| | Secondary Disconnect Blocks | Fixed part 9-wire connector (mounted on base) | | S29273 | 95.00 |
| | | Moving part 9-wire connector (mounted on circuit breaker) | | S29274 | 60.00 |
| | | Support for 2-moving connectors | | S29275 | 33.00 |
| | Extended escutcheon with extended toggle handle | | | S29284 | 77.00 |
| | Two position indicating switches (connected/disconnected) | | | S29287 | 207.00 |
| | H-Frame Short Terminal Cover (3P | | | S37436 | 119.00 |
| | J-Frame Short Terminal Cover (3P) | | | S37440 | 119.00 |



L-Frame Plug-In Mounting



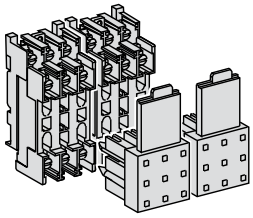
New!

L-Frame Drawout Mounting

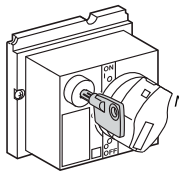
### Table 7.102: Plug-In and Drawout Mountings for L-Frame Circuit Breakers

| Description | | Poles | Plug-in Mounting | | | Drawout Mounting | | |
|---|---|---|---|---|---|---|---|---|
| | | | Factory Installed Cat. No. | Field-Installed Cat. No. | $ Price | Factory Installed Cat. No. | Field-Installed Cat. No. | $ Price |
| Kit (stationary and moving parts) | | 3 | N | | 1542.00 | D | | 2466.00 |
| | | 4 | N | | 2082.00 | D | | 3281.00 |
| Stationary Part | Plug-in base | 3 | | S32514 | 1065.00 | | S32514 | 1065.00 |
| | | 4 | | S32515 | 1439.00 | | S32515 | 1439.00 |
| | Fixed part of chassis | | | | | | S32532 | 693.00 |
| Moving Part | Circuit breaker only | | HJ00 | | 710.00 | HJ00 | | 710.00 |
| | Moving part of chassis | | | | | | S32533 | 231.00 |
| | Short terminal covers | 3 | | 2x S32562 | 149.00 | | 2x S32562 | 149.00 |
| | | 4 | | 2x S32563 | 161.00 | | 2x S32563 | 161.00 |

▲ Price shown is for quantity of 1.



L-Frame Disconnecting Blocks



New!

L-Frame Locking Device

### Table 7.103: Plug-In and Drawout Accessories for L-Frame Circuit Breakers

| Description | | | Field-Installed Cat. No. | $ Price |
|---|---|---|---|---|
| Secondary Disconnecting Blocks | Fixed Part | 9-wire connector | S29273 | 95.00 |
| | Moving Part | 9-wire connector | S32523 | 60.00 |
| | | Support for 3 moving connectors | S32525 | 43.00 |
| | Fixed + Moving | 9-wire manual auxiliary connector | S29272 | 480.00 |
| Shutters | Two shutters for plug-in base | | 32521 | 81.00 |
| Chassis Accessories | Extended escutcheon for toggle | | S32534 | 104.00 |
| | Locking device (key lock is not included) | | S29286 | 164.00 |
| | Two position indicating switches (connected/disconnected) | | 29287 | 207.00 |

### Table 7.104: Termination Options

| Termination Letter |
|---|
| N = Plug-in |
| D = Drawout |

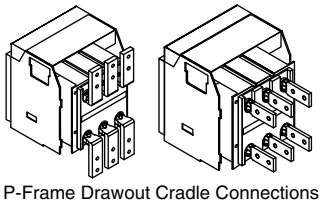
For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

LGL36400U31X
└Termination No.

### Table 7.105: Drawout Cradle and Accessories for P-Frame Circuit Breakers

| Description | | Cat. No. | $ Price |
|---|---|---|---|
| Drawout Cradle | | Product Selector | 6400.00 |
| Cradle Connectors | Front Connected Flat (FCF) | SFCF12■♦ | 716.00 |
| | Rear Connected T Horizontal/Vertical (RCTH/RCTV) | SRCTV12■♦ | 408.00 |
| Cradle Accessories | Modbus™ cradle communication module | S33852 | 2237.00 |
| | Safety shutters | S48933♦ | 342.00 |
| | Secondary disconnects terminal shield | S33763♦ | 220.00 |
| | Cradle position switch 1a/1b Form C— Connected/test/disconnected | S33170♦ | 148.00 |
| | Low level cradle position switch 1a/1b Form C—Connected/test/disconnected | S33171♦ | 216.00 |
| | Cell keying kit | S33767♦ | 97.00 |
| | Disconnected position key locking—provision for Kirk or Federal Pioneer Lock | S33772♦ | 908.00 |
| | Door interlock kit | S33786♦ | 330.00 |
| | Racking interior kit | S33788♦ | 358.00 |
| | Door escutcheon (for replacement only, included with circuit breaker) | S33857♦ | 308.00 |
| | Transparent cover | S33859♦ | 1290.00 |
| | Push-in terminal kit (3 wires) | S33098♦ | 120.00 |
| | Push-in terminal kit (6 wires) | S33099♦ | 240.00 |
| | Finger cluster | S33166♦ | 164.00 |
| | Cluster grease (12 oz. tube) | S48899♦ | 132.00 |

■ Needs 2 kits per cradle.
♦ Discount Schedule DE2F



P-Frame Drawout Cradle Connections



© 2012 Schneider Electric
All Rights Reserved

New!

**PowerPact™ H-, J-, and L-Frame Micrologic™ Trip Units**



Micrologic Standard Trip Unit



Micrologic Ammeter and Energy Trip Unit

PowerPact™ H-, J-, and L-frame molded case circuit breakers may be specified with any of the following Micrologic Electronic Trip Units.

## Micrologic Standard 3.2/3.3 Trip Units

- True RMS sensing
- LI, LSI trip configurations
- Field-interchangeable trip units
- LED long-time pickup and trip indication
- Test kits available
- Thermal imaging

## Micrologic Ammeter 5.2A/5.3A/6.2A/6.3A Trip Units

Includes all features listed for Micrologic standard trip unit, as well as:

- Advanced user interface
- Neutral protection
- Incremental fine tuning of settings
- Up to 12 alarms
- Digital ammeter—phase and neutral (4-pole only)
- Phase loading bar graph
- Maintenance indicators including contact wear, number of operations, operating hours, and load profiles
- Cause of trip information for troubleshooting assistance
- LCD Display
- Zone-selective interlocking (ZSI) (short-time & ground-fault)
- Optional Modbus™ communications—PowerLogic™ compatible

## Micrologic Energy 5.2E/5.3E/6.2E/6.3E Trip Units

Includes all features listed for Micrologic ammeter trip unit, as well as:

- Ground-fault trip with programmable ground fault alarm (available on 6.2E/6.3E only)
- Power and energy measurement
- Power quality measurements
- Current demand and power demand measurements

### Table 7.106: Micrologic Trip Units☆ for PowerPact H-, J-, and L-Frame Circuit breakers

x– Standard Feature  o – Available Option

| Features | Standard | | Ammeter | | Energy | |
|---|---|---|---|---|---|---|
| | 3.2/3/3 | 3.2S/3.3S | 5.2A/5.3A | 6.2A/6.3A | 5.2E/5.3E | 6.2E/6.3E |
| LI | x | | | | | |
| LSI★ | | x | x | | x | |
| LSIG / Ground-Fault Trip▼ | | | | x | | x |
| Ground-Fault Alarm/Trip▼ | | | | x | | x |
| Current Setting Directly in Amperes | x | x | x | x | x | x |
| True RMS Sensing | x | x | x | x | x | x |
| UL Listed | x | x | x | x | x | x |
| Thermal Imaging | x | x | x | x | x | x |
| LED for Long-time Pickup | x | x | x | x | x | x |
| LED for Trip Indication | x | x | x | x | x | x |
| LED for Green "Ready" | x | x | x | x | x | x |
| Up to 12 Alarms Used Together | | | x | x | x | x |
| Digital Ammeter | | | x | x | x | x |
| Zone-selective Interlocking△ | | | x | x | x | x |
| Communications | o | o | o | o | o | o |
| LCD Display | | | x | x | x | x |
| Front Display Module FDM121 | | | o | o | o | o |
| Advanced User Interface | | | x | x | x | x |
| Neutral Protection▼ | | | x | x | x | x |
| Contact Wear Indication□ | | | x | x | x | x |
| Incremental Fine Tuning of Settings | | | x | x | x | x |
| Load Profile□,◊ | | | x | x | x | x |
| Power Measurement | | | | | x | x |
| Power Quality Measurements | | | | | x | x |

★ The LSI with 3.2S/3.3S trip units have fixed short time and long time delays.
▼ Requires neutral current transformer on the three-phase four-wire loads
△ ZSI for H/J frames in only IN. for L-frame ZSI is In and OUT.
□ Indication available using the communication system only.
◊ % of hours in 4 current ranges: 0–49%, 50–79%, 80–89%, and >90% In.
☆ DC not available with electronic trip units.

### Table 7.107: Micrologic Trip Unit Settings for H- and J-Frame

| Model | Trip Function | Trip Unit | Ampere Setting |
|---|---|---|---|
| Standard | LI | 3.2 | 15-20-25-30-35-40-45-50-60<br>35-40-45-50-60-70-80-90-100<br>50-60-70-80-90-100-110-125-150<br>70-80-100-125-150-175-200-225-250 |
| | LSI | 3.2S | 15-20-25-30-35-40-45-50-60<br>35-40-45-50-60-70-80-90-100<br>50-60-70-80-90-100-110-125-150<br>70-80-100-125-150-175-200-225-250 |
| Ammeter | LSI | 5.2A | 15–60<br>35–100<br>50–150<br>70–250 |
| | LSIG | 6.2A | 15–60<br>35–100<br>50–150<br>70–250 |
| Energy | LSI | 5.2E | 15–60<br>35–100<br>50–150<br>70–250 |
| | LSIG | 6.2E | 15–60<br>35–100<br>50–150<br>70–250 |

### Table 7.108: Micrologic Trip Unit Settings for L-Frame

| Model | Trip Function | Trip Unit | Ampere Setting |
|---|---|---|---|
| Standard | LI | 3.3 | 70-80-100-125-150-175-200-225-250<br>125-150-175-200-225-250-300-350-400<br>200-225-250-300-350-400-450-500-600 |
| | LSI | 3.3S | 70-80-100-125-150-175-200-225-250<br>125-150-175-200-225-250-300-350-400<br>200-225-250-300-350-400-450-500-600 |
| Ammeter | LSI | 5.3A | 125–400<br>200–600 |
| | LSIG | 6.3A | 125–400<br>200–600 |
| Energy | LSI | 5.3E | 125–400<br>200–600 |
| | LSIG | 6.3E | 125–400<br>200–600 |





© 2012 Schneider Electric
All Rights Reserved

**PowerPact P- and R-Frame Micrologic Trip Units**



Standard Trip Unit | Ammeter Trip Unit | Power Trip Unit | Harmonic Trip Unit | Adjustable Rating Plug

PowerPact™ P- and R-frame molded case circuit breakers may be specified with any of the following Micrologic Electronic Trip Units.

## Micrologic (Standard) 3.0 and 5.0 Trip Units

- True RMS sensing
- LI, LSI trip configurations
- Field-interchangeable long-time rating plugs
- LED long-time pickup indication
- Test kits available
- Thermal imaging

## Micrologic (Ammeter) 3.0A, 5.0A and 6.0A Trip Units

Includes all features listed for Micrologic standard trip unit, as well as:

- LSIG trip configurations
- Digital ammeter—phase and neutral (4-pole only)
- Phase loading bar graph
- LED trip indication
- Zone-selective interlocking (ZSI) (short-time & ground-fault)
- Optional Modbus™ communications—PowerLogic™ compatible

## Micrologic (Power) 5.0P and 6.0P Trip Units

Power measurement and advanced protection features includes all features listed for Micrologic ammeter trip unit, as well as:

- LSI trip configuration with programmable ground fault alarm
- LSIG (Ground-fault trip) with programmable ground fault alarm
- Incremental “fine tuning” of L, S, I, and G pickup and delay settings
- LCD dot matrix display and LED trip indication
- Advanced user interface
- Advanced protection IDMTL—selectable long-time delay bands
- Neutral protection
- Power measurement
- Contact wear indication
- Modbus communications—PowerLogic compatible
- Local and remote settings

## Micrologic (Harmonic) 5.0H and 6.0H Trip Units

Power quality measurement and advanced protection features. Includes all features listed for the Micrologic power trip unit, as well as:

- Enhanced power measurements functions
- Power quality measurements

### Adjustable Rating Plugs for PowerPact™ P-Frame and R-Frame and Masterpact™ NT and NW Circuit Breakers—Selection

To provide maximum design flexibility, system protection, and field upgradeability, each Micrologic™ trip unit is equipped with an interchangeable long-time rating plug. Each trip unit requires an adjustable rating plug to determine the long-time pickup range of the circuit breaker. These plugs are factory installed on new trip units, or can be ordered separately for field-installable upgrades.

Adjustable rating plugs are offered in eight different ranges of long-time pickup adjustments. The following chart show the ranges of adjustments. Each adjustment times the sensor rating (Ir X In) of the circuit breaker sets the long-time pickup value of the circuit breaker.

### Table 7.109: Long-time Pickup Settings

| Rating Plug | Long-time Pickup Settings | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | .40 | .45 | .50 | .60 | .63 | .70 | .80 | .90 | 1.0 |
| B | .40 | .44 | .50 | .56 | .63 | .75 | .88 | .95 | 1.0 |
| C | .42 | .50 | .53 | .58 | .67 | .75 | .83 | .95 | 1.0 |
| D | .40 | .48 | .64 | .70 | .80 | .90 | .93 | .95 | 1.0 |
| E | .60 | .70 | .75 | .80 | .85 | .90 | .93 | .95 | 1.0 |
| F | .84 | .86 | .88 | .90 | .92 | .94 | .96 | .98 | 1.0 |
| G | .66 | .68 | .70 | .72 | .74 | .76 | .78 | .80 | .82 |
| H | .48 | .50 | .52 | .54 | .56 | .58 | .60 | .62 | .64 |

### Table 7.110: Micrologic Trip Units

x– Standard Feature  o – Available Option

| Features | Standard | | Ammeter | | | Power | | Harmonic | |
|---|---|---|---|---|---|---|---|---|---|
| | 3.0 | 5.0 | 3.0A | 5.0A | 6.0A | 5.0P | 6.0P | 5.0H | 6.0H |
| LI | x | | x | | | | | | |
| LSI (Instantaneous can be turned off) | | x | | x | x | x | x | x | x |
| LSIG / Ground-Fault Trip▲ | | | | | x | | x | | x |
| Ground-Fault Alarm (No Trip) ▲■ | | | | | | x | | x | |
| Ground-Fault Alarm and Trip ▲ | | | | | | | x | | x |
| Adjustable Rating Plugs | x | x | x | x | x | x | x | x | x |
| True RMS Sensing | x | x | x | x | x | x | x | x | x |
| UL Listed | x | x | x | x | x | x | x | x | x |
| Thermal Imaging | x | x | x | x | x | x | x | x | x |
| Phase Loading Bar Graph | | | x | x | x | x | x | x | x |
| LED for Long-time Pickup | x | x | x | x | x | x | x | x | x |
| LED for Trip Indication | | | x | x | x | x | x | x | x |
| Digital Ammeter | | | x | x | x | x | x | x | x |
| Zone-selective Interlocking | | | x | x | x | x | x | x | x |
| Communications | | | o | o | o | x | x | x | x |
| LCD Dot Matrix Display | | | | | | x | x | x | x |
| Advanced User Interface | | | | | | x | x | x | x |
| Protective Relay Functions | | | | | | x | x | x | x |
| Neutral Protection | | | | | | x | x | x | x |
| Contact Wear Indication | | | | | | x | x | x | x |
| Incremental Fine Tuning of Settings | | | | | | x | x | x | x |
| Selectable Long-time Delay Bands | | | | | | x | x | x | x |
| Power Measurement | | | | | | x | x | x | x |
| Power Quality Measurements | | | | | | | | x | x |
| Waveform Capture | | | | | | | | x | x |

▲ Requires neutral current transformer in 3Ø4W systems.
■ Requires M2C or M6C Programmable Contact Module.

### Table 7.111: Micrologic Trip Unit and Options

| Model | Protection | Additional Features | Field-Installable Cat. No.♦ | Kit $ Price / Circuit Breaker $ Price Adder |
|---|---|---|---|---|
| 2.0 (IEC only) | LSO | None | S132R | **2920.00** |
| 3.0 (UL/ANSI only) | LI | | S131A | **2920.00** |
| 5.0 | LSI | | S133A | **4176.00** |
| 2.0A (IEC only) | LSO | Ammeter | S142R★ | **4554.00** |
| 3.0A (UL/ANSI only) | LI | | S141A★ | **4554.00** |
| 5.0A | LSI | | S143A★ | **5812.00** |
| 6.0A | LSIG | | S144A★ | **7418.00** |
| 5.0P | LSI | Metering, Adv. Protection | S163A★▼ | **8720.00** |
| 6.0P | LSIG | | S164A★▼ | **10324.00** |
| 5.0H | LSI | Metering, Adv. Protection & Harmonic Analysis | S173A★▼ | **14770.00** |
| 6.0H | LSIG | | S174A★▼ | **16374.00** |

♦ The standard rating plug supplied with a trip unit will be the “A” rating plug. To specify an alternative adjustable rating plug, please add the letter designation to the end of the catalog number. Please refer to page 7-48 for a complete listing of adjustable settings available with each plug. (Example: S143B would specify a “B” rating plug instead of the standard "A" plug.) Use suffix “N” if no rating plug is required, deduct **$200.00** from the complete trip unit kit price.
★ When replacing a standard trip unit with Type A (Ammeter), P (Power metering) or H (Harmonic analysis) trip unit, order the 12-pin connector kit S33101 for the Masterpact NW and NT and the PowerPact P-frame drawout circuit breakers or kit S33100 for PowerPact P-frame and R-frame unit-mount and I-Line circuit breakers. See page 7-48.
▼ Requires Circuit Breaker Communications Module.
△ The LSI with 3.2S/3.3S trip units have fixed short time and long time delays.
□ Requires neutral current transformer on the three-phase four-wire loads
◊ ZSI for H/J frames in only IN. for L-frame ZSI is In and OUT.
☆ Indication available using the communication system only.
▽ % of hours in 4 current ranges: 0–49%, 50–79%, 80–89%, and >90% In.

### Table 7.112: Special Options

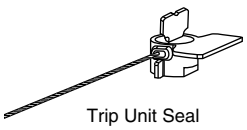
| Description | Factory-Installed Suffix | Field-Installable Cat. No. | $ Price |
|---|---|---|---|
| Ship circuit breaker in closed position | YK | N/A | **N/C** |
| CT Characterization (Calibrated trip system) | Q | N/A | **3308.00** |



© 2012 Schneider Electric
All Rights Reserved



Full Function Test Kit



Trip Unit Seal



Sensor Plug

Adjustable rating plug "A" is installed as standard on all Micrologic trip unit orders. However, an alternative selection may be specified from the "Assembled" table below, and factory installed with your trip unit order at no additional charge. To order, please attach the appropriate catalog suffix to the end of the trip unit Cat. No. (after specifying trip unit options). Adjustable rating plugs may also be purchased as field-installable components from the table below.

### Table 7.113: Rating Plugs

| Rating Plug▲ | Factory-Installed | | Field-Installable | |
|---|---|---|---|---|
| | Cat. Suffix | $ Price Adder | Cat. No.■ | $ Price |
| A | A (standard) | N/C | S48818 | 200.00 |
| B | B | N/C | S48819 | 200.00 |
| C | C | N/C | S48820 | 200.00 |
| D | D | N/C | S48836 | 200.00 |
| E | E | N/C | S48837 | 200.00 |
| F | F | N/C | S48838 | 200.00 |
| G | G | N/C | S48839 | 200.00 |
| H | H | N/C | S48840 | 200.00 |

▲ Long-time pickup amperes (Ir) = Sensor Rating (In) X Setting of rating plug. "Fine adjustment tuning" is included on Micrologic Power and Harmonic trip units, allowing for incremental settings of 1 A between the plug setting and.40 X Sensor Rating.
■ DE2F Discount Schedule

### Table 7.114: Neutral Current Transformers

| For Use with Circuit Breaker | Cat. No. | Sensor | $ Price |
|---|---|---|---|
| H-Frame | S429521 | 60–100 | 588.00 |
| | S430562 | 150 | 588.00 |
| J-Frame | S430563 | 250 | 588.00 |
| L-Frame | S432575 | 400–600 | 647.00 |
| P-Frame | S33575♦,★ | 250 | 1914.00 |
| | S33576♦,★ | 400–1600 | 1914.00 |
| R-Frame | S48916♦,★ | 250 | 2014.00 |
| | S34036♦,★ | 400–1600 | 2014.00 |
| | S48896♦,★ | 2000 | 2044.00 |
| | S48182♦,★ | 3000 | 2208.00 |
| All | NCTWIRING | All | 204.00 |

♦ DE2F Discount Schedule
★ Includes NCTWIRING kit.

### Table 7.115: Trip Unit Accessories

| Device | Frame | Cat. No.◊ | $ Price |
|---|---|---|---|
| Pocket Tester | H/J/L | S434206 | 1000.00 |
| UTA Tester | | STRV00910 | 16365.00 |
| Spare UTA Tester | | STRV00911 | 6000.00 |
| BLuetooth/Modbus for UTA Tester | | SVW3A8114 | 2800.00 |
| Spare Power Supply for UTA Tester 110–120 Vac | | TRV00915 | 771.00 |
| Micrologic Cord for UTA Tester | | TRV00917 | 1210.00 |
| Micrologic 5/6 Cover, Transparent | H/J | S429478 | 19.00 |
| Micrologic 2/3 Cover, Transparent | | S429481 | 41.00 |
| Micrologic 5/6 Cover, Transparent | L | S432459 | 36.00 |
| Micrologic 2/3 Cover, Transparent | | S432461 | 156.00 |
| LCD Display for Micrologic 5 | H/J/L | S429483 | 575.00 |
| LCD Display for Micrologic 6 | | S429484 | 575.00 |
| Hand-held Test Kit | P/R | S33594 | 5386.00 |
| Primary Injection Test Adaptor | | S33937 | 252.00 |
| Full-function Adapter Kit | | S48981 | 19699.00 |
| Full-function Test Kit | | S33595 | 33792.00 |
| Seven-pin Test Cable (for connection between test kit and trip unit)▼ | | S48907 | 1488.00 |
| Two-pin Test Cable (for connection between test kit and trip unit)△ | | S48908 | 784.00 |
| 230 Vac Filtered Power Cord□ | P/R | S48856 | 166.00 |
| 120 Vac Filtered Power Cord□ | | S48855 | 61.00 |
| Trip Unit Battery for Trip Indicator Lights | | S33593 | 438.00 |
| Power supply with: | H/J/L/P/R | | 1130.00 |
| 24–30 Vdc input | | 685823 | |
| 48/60 Vdc input | | 685824 | |
| 125 Vdc input | | 685825 | |
| 110–130 Vac input | | 685826 | |
| 200–240 Vac input | | 685827 | |
| 380–415 Vac input | | 685829 | |
| Micrologic A Trip Unit Cover, clear | P/R | S33592 | 16.00 |
| Micrologic P/H Trip Unit Cover, opaque gray | | S47067 | 16.00 |
| Trip Unit Seal (6 pieces) for compliance with NEC 240.6(c) | H/J/L/P/R | MICROTUSEAL | 60.00 |
| 12-pin Trip Unit Connector for NT/NW Masterpact Circuit Breakers | P/R | S33101 | 228.00 |
| 12-pin Trip Unit Connector for P- and R-Frame Circuit Breakers | | S33100☆ | 255.00 |
| Battery Back-up (12 Hours) | | 685831 | 3570.00 |

▼ Used for testing Micrologic trip units. Included in the price of the Hand-held/Full-function Test Kits. Kit for replacement only.
△ Used for testing STR trip units. Included in the price of the Hand-held/Full-function Test Kits. Kit for replacement only.
□ Included in the price of the Full-function Test Kit. Kit for replacement only.
◊ DE2F Discount Schedule.
☆ DE2 Discount Schedule.

### Table 7.116: Sensor Plugs for P- and R-Frame Circuit Breakers▽♦

| Circuit Breaker | Sensor Plug Range | Sensor Plug Catalog No. | Circuit Breaker Frames Accepting Sensor Plug | | | | | | | | | $ Price◒ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P-Frame Circuit Breaker | | | 250 A | 400 A | 600 A | 630 A✱ | 800 A | 1000 A | 1200 A | 1250 A✱ | 1600 A | |
| UL | 250 A | S47052 | X | | | | | | | | | 1040.00 |
| | 400 A | S47053 | | X | X | | X | | | | | 1040.00 |
| | 600 A | S48823 | | | X | | X | X | X | | | 1040.00 |
| | 800 A | S33092 | | | | | X | X | X | | | 1040.00 |
| | 1000 A | S33093 | | | | | | X | X | | | 1040.00 |
| | 1200 A | S48824 | | | | | | | X | | | 1040.00 |
| IEC | 630 A | S33091 | | | | X | X | X | | X | X | 1040.00 |
| | 800 A | S33092 | | | | | X | X | | X | X | 1040.00 |
| | 1000 A | S33093 | | | | | | X | | X | X | 1040.00 |
| | 1250 A | S33094 | | | | | | | | X | X | 1040.00 |
| | 1600 A | S33095 | | | | | | | | | X | 1040.00 |
| R-Frame Circuit Breaker | | | 600 A | 800 A | 1000 A | 1200 A | 1600 A | 2000 A | 2500 A | 3000 A | 3200 A | |
| UL | 600 A | S48823 | X | X | | | | | | | | 1040.00 |
| | 800 A | S33092 | | X | X | X | X | | | | | 1040.00 |
| | 1000 A | S33093 | | | X | X | X | X | | | | 1040.00 |
| | 1200 A | S48824 | | | | X | X | X | X | | | 1040.00 |
| | 1600 A | S33095 | | | | | X | X | X | X | | 1040.00 |
| | 2000 A | S33982 | | | | | | X | X | X | | 1040.00 |
| | 2500 A | S33983 | | | | | | | X | X | | 1040.00 |
| | 3000 A | S48825 | | | | | | | | X | | 1040.00 |
| IEC | 1600 A | S33095 | | | | | X | X | X | X | X | 1040.00 |
| | 2000 A | S33982 | | | | | | X | X | X | X | 1040.00 |
| | 2500 A | S33983 | | | | | | | X | X | X | 1040.00 |
| | 3200 A | S33984 | | | | | | | | | X | 1040.00 |

▽ For use only with circuit breakers with date codes later than 07011.
◒ DE2F Discount Schedule.
✱ IEC Only.
♦ See rating plug for long-time pickup range on page 7-47.



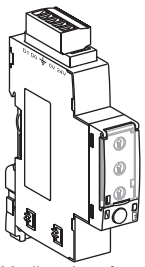


© 2012 Schneider Electric
All Rights Reserved

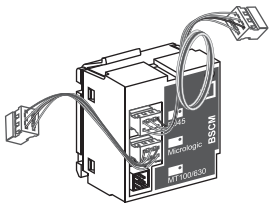
## Table 7.117: Trip Unit Field-Installable Accessories for P- and R-Frame Circuit Breakers

| Description | Factory-Installed | | Field-Installable Kit Cat. No. | | | | | | | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | P-Frame | | | | | R-Frame | | |
| | Cat. No. Suffix | $ Price Adder | Unit Mount | I-Line | Motor Operated | Drawout | With Rotary Handle | Unit Mount | I-Line | |
| Circuit Breaker Communication Module (BCM) (Modbus) | E1 | **1778.00** | S64205 | S64205 | S64207 | S64206 | S64205 | S64205 | S64205 | **2805.00** |
| Two Programmable Contacts Module (M2C) | V | **1248.00** | S64273 | S64273 | S64273 | S64273 | S64273 | S64273 | S64273 | **1248.00** |
| Six Programmable Contacts Module (M6C) | W | **1599.00** | S64204 | S64204 | S64204 | S64202 | S64204 | S64201 | S64201 | **1665.00** |
| External Voltage Sensing (EVS) | YV | **290.00** | S64203 | S64203 | S64210 | S64209 | S64210 | S64208 | S64208 | **330.00** |

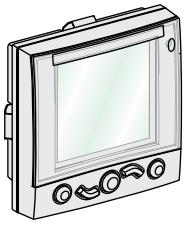
New!



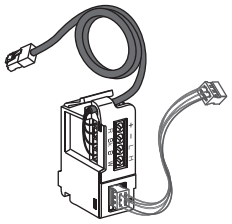
Modbus Interface Module (IFM)



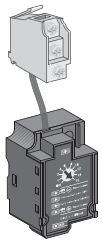

Breaker Status and Control Module (BSCM)



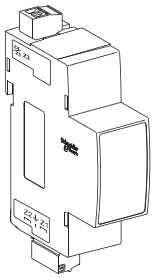
Front Display Module (FDM)



NSX Cord for Modbus Communications



SDTAM Module (Remote indication relay for motor applications)



ZSI Interface Module (Connects PowerPact H/J/L circuit breakers to PowerPact P/R and Masterpact NT/NW circuit breakers)

## Table 7.118: Trip Unit Field-Installable Accessories for H-, J-, and L-Frame Circuit Breakers▼

| Description | | Factory-Installed | | Field-Installable Kit Cat. No. | |
|---|---|---|---|---|---|
| | | Cat. No. Suffix | $ Price Adder | Cat. No. | $ Price |
| **External Accessories** | | | | | |
| Modbus Interface Module IFM▲ | | — | — | STRV00210 | **1000.00** |
| Stacking Connections for IFM (10) | | — | — | TRV00217 | **946.00** |
| Front Display Module FDM121▲ | | — | — | STRV00121 | **1500.00** |
| FDM Mounting Accessory (Dia. 22 mm) | | — | — | TRV00128 | **26.00** |
| Isolated Modbus Repeater Module | | — | — | STRV00211 | **1508.00** |
| ZSI Interface Module | | — | — | S434212 | **975.00** |
| **Internal Accessories** | | | | | |
| NSX Cord ■ (for Modbus Communication) | L = 1.3 m | EA | **576.00** | S434201 | **480.00** |
| | L = 3 m | EB | **600.00** | S434202 | **500.00** |
| BSCM (Breaker Status and Control Module) with NSX Cord■ | L = 1.3 m | EG△ | **1776.00** | S434201BS | **1480.00** |
| | L = 3 m | EH△ | **1800.00** | S434202BS | **1500.00** |
| Replacement BSCM | | — | — | S434205 | **1000.00** |
| NSX Cord for V > 480 Vac■ | L = 1.3 m | ED | **2880.00** | S434204 | **2400.00** |
| | L = 3 m | EE | **3000.00** | S434303 | **2500.00** |
| BSCM with NSX Cord for V > 480 Vac■ | L = 1.3 m | EK△ | **4080.00** | S434204BS | **3400.00** |
| | L = 3 m | EL△ | **4200.00** | S434303BS | **3500.00** |
| 24 Vdc Terminal Block | | EN | **480.00** | S434210 | **400.00** |
| SDTAM 24/415 Vac/dc Module♦ | | V | **1114.00** | S429424 | **928.00** |
| SDX Module 24/415 Vac/dc★ | | V | **1820.00** | S429532 | **1517.00** |

▲ Require NSX Cord
■ Installation requires IFM (STRV00210) for Modbus communication and/or FDM (STRV00121) for external display
♦ Remote indication relay for motor applications
★ Remote indication relay
▼ For proper selection, see catalog 0611CT1001.
△ If using with motor operator requires communicating motor operator (suffix NC).

## Table 7.119: Wire Harness□ and ULP Cords for H-, J-, and L-Frame Circuit Breakers

| Description | | Factory-Installed | | Field-Installable Kit Cat. No. | |
|---|---|---|---|---|---|
| | | Cat. No. Suffix | $ Price Adder◊ | Cat. No. | $ Price |
| ZSI Wire Harness, H/J Frame | | YH3 | **237.00** | S434300 | **197.00** |
| ZSI Wire Harness, L-Frame | | YH3 | **237.00** | S434301 | **197.00** |
| ENCT Wire Harness | | YH2 | **237.00** | S434302 | **197.00** |
| OF Wire Harness | | YH1 | **237.00** | S434500 | **197.00** |
| SD/SDE Wire Harness | | YH1 | **237.00** | S434501 | **197.00** |
| SDx/SDTAM Wire Harness | | YH1 | **237.00** | S434502 | **197.00** |
| MN Wire Harness | | YH1 | **237.00** | S434503 | **197.00** |
| MX Wire Harness | | YH1 | **237.00** | S434504 | **197.00** |
| 24 Vdc Terminal Block Wire Harness☆ | | YH1 | **237.00** | S434505 | **197.00** |
| Motor Operator Wire Harness | | YH1 | **237.00** | S434506 | **197.00** |
| Communicating Motor Operator Wire Harness | | YH1 | **237.00** | S434507 | **197.00** |
| NSX Wire Harness☆ | | YH1 | **237.00** | S434508 | **197.00** |
| ENCT and ZSI Wire Harness | | YH4 | **237.00** | — | — |
| 10 RJ45 Connectors female/female | | — | — | TRV00870 | **195.00** |
| 10 ULP Line Terminations | | — | — | TRV00880 | **130.00** |
| 10 RJ45/RJ45 Male Cords | L = 0.3 m | — | — | TRV00803 | **200.00** |
| | L = 0.6 m | — | — | TRV00806 | **320.00** |
| 5 RJ45/RJ45 Male Cords | L = 1 m | — | — | TRV00810 | **195.00** |
| | L = 2 m | — | — | TRV00820 | **300.00** |
| | L = 3m | — | — | TRV00830 | **500.00** |
| 1 RJ45/RJ45 Male Cord | L = 5 m | — | — | TRV00850 | **155.00** |

□ Wire harness is required for I-Line applications, optional for unit-mount applications
YH1 = all installed accessories but ZSI and ENCT
YH2 = ENCT and all installed accessories
YH3 = ZSI and all installed accessories
YH4 = ZSI, ENCT and all installed accessories
◊ Price adder is for each accessory ordered.
☆ I-Line wire harness is included for communication network accessories.
Optional wire harness for unit mount requires YH1 suffix.



© 2012 Schneider Electric
All Rights Reserved

# Masterpact™ NT/NW Circuit Breakers

Class **613** / Refer to Catalog **0613CT0001**





Masterpact NT



Masterpact NW

The Masterpact universal power circuit breaker offers a family of circuit protection products meeting the most common world standards, ANSI, UL and IEC. The basic design platform for each is common. The final result is UL, ANSI and IEC circuit breakers with the same basic external dimensions, features and accessories.

## Full-Featured Performance

- Complete product offering up to 200 k AIR without fuses
- Circuit breakers tested to show arc flash hazard risk category as referenced by NFPA70E
- 800 A to 6000 A frames, fixed and draw-out
- Rated for AC voltage systems through 600 V (635 V ANSI)
- Short-time withstand ratings up to 100 kA
- Cradle position indicator: connected, test and disconnected
- Simple, visual contact wear indicators
- Full complement of field-installable accessories common to all standards
- Four interchangeable Micrologic trip units to choose from
- Available PowerLogic™ based power metering and monitoring capabilities
- Available protective relay functions as defined by ANSI C37.2 and C37.90

The following charts show the Masterpact NW and NT ratings for ANSI and UL 489. See Pricing Guide **0613PL0001** and Catalog **0613CT0001**.

### Table 7.120: Masterpact NW Circuit Breaker Ratings

| Standard | | ANSI C37 Certified/UL 1066 Listed | | | | | | | | | | | | | | | | | | UL 489 Listed | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frame Rating | | 800–1600 A | | | | | | 2000 A | | | | | 3200/4000 A△ | | | | 4000/5000 A | | | 800/1200/1600/2000 A | | | | 2500/3000 A | | 4000/5000/6000 A | |
| Interrupting Code | | N1 | H1 | H2 | H3 | L1□ | L1F□ | H1 | H2 | H3 | L1□ | L1F□ | H1 | H2 | H3 | L1□ | H2 | H3 | L1□ | N | H | L□ | LF□ | H | L□ | H | L□ |
| Interrupting Current (kA RMS) 50/60 Hz | 240 Vac | 42 | 65 | 85 | 100 | 200 | 200 | 65 | 85 | 100 | 200 | 200 | 65 | 85 | 100 | 200 | 85 | 100 | 200 | 65 | 100 | 200 | 200 | 100 | 200 | 100 | 200 |
| | 480 Vac | 42 | 65 | 85 | 100 | 200 | 200 | 65 | 85 | 100 | 200 | 200 | 65 | 85 | 100 | 200 | 85 | 100 | 200 | 65 | 100 | 150 | 150 | 100 | 150 | 100 | 150 |
| | 600 Vac | 42 | 65 | 85 | 85 | 130 | 130 | 65 | 85 | 85 | 130 | 130 | 65 | 85 | 85 | 130 | 85 | 85 | 130 | 50 | 85 | 100 | 100 | 85 | 100 | 85 | 100 |
| Short-time Withstand Current (kA RMS) | | 42 | 65 | 85 | 85 | 30 | 22 | 65 | 85 | 85 | 30 | 22 | 65 | 85 | 85 | 100 | 85 | 85 | 100 | 42▲ | 65▲ | 30▲■ | 22 | 65 | 65 | 85 | 100 |
| Built-in Instantaneous Override (kA RMS ±10%) | | ♦ | ♦ | ♦ | 85 | 35♦ | 24 | — | — | 85 | 35 | 24 | — | — | 85 | 117 | — | — | 117 | 40 | 40 | 35▲■ | 24 | 65 | 65 | 75 | 75 |
| Close and latch rating (kA RMS) | | 42 | 65 | 40 | 40 | 25 | 22 | 65 | 40 | 40 | 25 | 22 | 65 | 40 | 40 | 40 | 85 | 75 | 40 | 40 | 40 | 25★ | 22 | 40 | 40 | 40 | 40 |
| Tested to show the arc flash hazard risk category as referenced by NFPA70E | | — | — | — | — | — | Yes | — | — | — | — | Yes | — | — | — | — | — | — | — | — | — | — | Yes | — | — | — | — |
| Breaking time | | 25–30 ms with no intentional delay (9 ms for L1, L1F, L and LF) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Closing time | | 70 ms | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sensor Rating | | 100–250 A<br>400–800 A<br>800–1600 A | | | | | | 1000–2000 A | | | | | 1600–3200 A | | | | 2000–4000 A<br>2500–5000 A | | | 100–250 A<br>400–800 A<br>600–1200 A<br>800–1600 A<br>1000–2000 A | | | | 1200–2500 A<br>1600–3000 A | | 2000–4000 A<br>2500–5000 A<br>3000–6000 A | |
| Endurance Rating (C/O Cycles) With No Maintenance | Mechanical | 12,500 | | | | | | 10,000 | | | | | 10,000 | | | 5k | 5,000 | | | 12,500▼ | | | | 10,000 | | 5,000 | |
| | Electrical | 2800 | | | | | | 1,000 | | | | | 1,000 | | | 1k | 1,000 | | | 2800▼ | | | | 1,000 | | 1,000 | |

▲ 24 kA RMS for 800 A circuit breaker frame with 100 A or 250 A sensor.
■ 65 kA RMS for 2000 A.
♦ None except 24 kA RMS for 800 A circuit breaker frame with 100 A or 250 A sensor.
★ 40 kA RMS for 2000 A.
▼ The endurance rating for 2000 A, N/H/L/LF is 10,000 for mechanical and 1000 for electrical.
△ 4000 A standard width circuit breaker is not available in L1 interrupting rating code or drawout construction (fixed mounting only).
□ Drawout mounted only.

### Table 7.121: Masterpact NT Circuit Breaker Ratings

| Standard | | ANSI C37 Certified/UL 1066 Listed | UL 489 Listed | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frame Rating | | 800 A | 800 A | | | | | 1200 A | | | | | 1600 A◊ | | | |
| Interrupting Code | | N1 | N | H | L1 | L | LF☆ | N | H | L1 | L | LF☆ | N | H | L1 | L |
| Interrupting Current (kA RMS) 50/60 Hz | 240 Vac | 42 | 50 | 65 | 100 | 200 | 200 | 50 | 65 | 100 | 200 | 200 | 50 | 65 | 100 | 200 |
| | 480 Vac | 42 | 50 | 50 | 65 | 100 | 100 | 50 | 50 | 65 | 100 | 100 | 50 | 50 | 65 | 100 |
| | 600 Vac | — | 35 | 50 | — | — | — | 35 | 50 | — | — | — | 35 | 50 | N/A | N/A |
| Short-time Withstand Current (kA RMS) | | 42 | 35 | 35 | 10 | 10 | 10 | 35 | 35 | 10 | 10 | 10 | 35 | 35 | 10 | 10 |
| Built-in Instantaneous Override (kA RMS ±10%) | | — | 40 | 40 | 10 | 10 | 10 | 40 | 40 | 10 | 10 | 10 | 40 | 40 | 10 | 10 |
| Close and latch rating (kA RMS) | | 40 | 25 | 25 | 10 | 10 | 10 | 25 | 25 | 10 | 10 | 10 | 25 | 25 | 10 | 10 |
| Tested to show the arc flash hazard risk category as referenced by NFPA70E | | — | — | — | — | — | Yes | — | — | — | — | Yes | — | — | — | — |
| Breaking time | | 25–30 ms with no intentional delay | 25–30 ms with no intentional delay (9 ms for L and LF) | | | | | | | | | | | | | |
| Closing time | | < 50 ms | | | | | | | | | | | | | | |
| Sensor Rating | | 100–250 A<br>400–800 A | 100–250 A<br>400–800 A | | | | | 600–1200 A<br>— | | | | | 800–1600 A | | | |
| Endurance Rating (C/O Cycles) With No Maintenance | Mechanical | 12,500 | 12,500 | | | | | 12,500 | | | | | 12,500 | | | |
| | Electrical | 2800 | 2800 | | | | | 2800 | | | | | 2800 | | | |

◊ Fixed-mounted only.
☆ Drawout mounted only.



NWMPRRT

### Table 7.122: Masterpact NW/NT Circuit Breaker Remote Racking

| Description | Cat. No. | $ Price |
|---|---|---|
| Masterpact NW/NT Remote Racking Devices▽ | NWNTMPRRT | **32000.00** |
| Masterpact NW Remote Racking Device▽ | NWMPRRT | **21500.00** |
| Masterpact NT Remote Rackign Device▽ | NTMPRRT | **21500.00** |
| Mounting Bracket Kit for NW Remote Racking (contains 10 mounting brackets)◒ | S47100 | **215.00** |
| Mounting Bracket Kit for NT Remove Racking (contains 10 mounting brackets)◒ | S47104 | **215.00** |
| Control Unit for NW Remote Racking◒ | S47101 | **3650.00** |
| 30 ft Control Cable for NW Remote Racking◒ | S47102 | **620.00** |
| Drive Shaft for NW Remote Racking◒ | S47103 | **290.00** |
| Drive Shaft for NT Remote Racking◒ | S47105 | **290.00** |

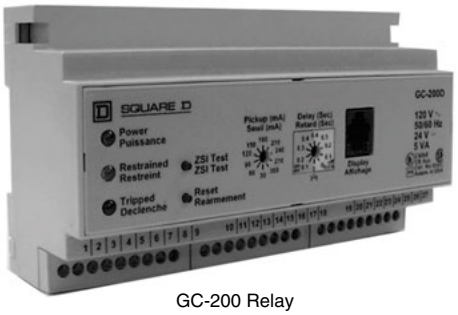
▽ Unit comes with 10 mounting brackets included.
◒ For replacement only.



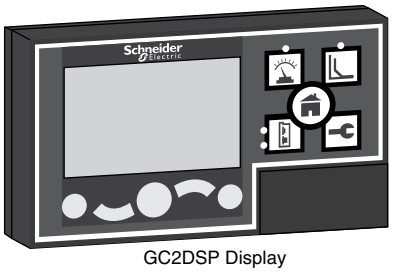




© 2012 Schneider Electric
All Rights Reserved



GC-200 Relay



GC2DSP Display


T3B Toroid Sensor


GT912 Rectangular Sensor

## GC-200 Ground-Fault Relay System

The GC-200 Ground-fault relay system protects a grounded distribution system from low-level arcing ground faults. The system includes the GC-200 relay, a sensor (current transformer), and optional GC DSP display and is used with a bolted pressure switch or circuit breaker to open a circuit upon detection of a ground fault. (Replaces GC-100 relay.)

### GC-200 Relay Features

- Five models with sensitivities suitable for main, feeder, or branch circuits
- Ten adjustable pickup settings for each model
- Small, non-metallic enclosure mounts on DIN rail
- 10 A and 5 A output contacts for trip and alarm
- Zone-selective interlocking (ZSI) to optimize coordinated systems
- $I^2t$ inverse time characteristics

### GC2DSP Display (Optional)

- Real-time display of ground-fault values
- Also recalls ground-fault at last trip or at maximum since reset
- Allows remote testing or resetting of the relay
- LCD back-lit display
- Surface mounts over panel meter cutout
- Fine adjust pickup settings (D and E versions only)

### Sensors

- Zero sequence sensing current transformers for all phases and neutral
- Several sizes of toroids and rectangular CTs
- Many are split-core or open frame for ease of installation

**Table 7.123: Ground-Fault Relay**

| Cat. No. | Description | Specifications | $ Price |
|---|---|---|---|
| GC200C | Ground-fault relay | 3.0 A–30.0 A | 2960.00 |
| GC200D | | 30.0 A–300 A | 2960.00 |
| GC200E | | 120 A–1200 A | 2960.00 |
| GC2DSP | Display module | | 948.00 |
| VW3A1104R10 | Display cable ■ | 1 m | 35.00 |
| VW3A1104R30 | | 3 m | 35.00 |
| VW3A1104R50 | | 5m | 35.00 |
| VW3A1104R100 | | 10 m | 45.00 |
| GC2ADAPTER | Adapter plate | To replace GSDSP with GC2DSP | 59.00 |

▲ One GC12 twelve foot cable is included with GCDSP display modules.
■ Discount schedule CP4C

**Table 7.124: GC-200 Relay Settings**

| Cat. No. | Adjustable Pickup Settings (in Amperes) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GC200C | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| GC200D | 30 | 90 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 |
| GC200E | 120 | 240 | 360 | 480 | 600 | 720 | 840 | 960 | 1080 | 1200 |

**Table 7.125: GC-200 Sensors**

| Relay Cat. No. | Sensor Cat. No. | Type | CT Ratio | Window Dimensions | | $ Price |
|---|---|---|---|---|---|---|
| | | | | in | mm | |
| GC200C GC200D | T2A | Toroid | 1000:1 | 1.875 dia. | 48 dia. | 704.00 |
| | T3A | Toroid | | 2.75 dia. | 70 dia. | 774.00 |
| | T6A | Toroid | | 5.75 dia. | 146 dia. | 774.00 |
| | T6AS | Toroid, split-core | | 5.75 dia. | 146 dia. | 1326.00 |
| | T9A | Toroid | | 8.75 dia. | 222 dia. | 1106.00 |
| | R713A | Rectangular | | 7.5 x 13.5 | 191 x 343 | 3063.00 |
| | R417A | | | 4.25 x 17.625 | 108 x 448 | 3650.00 |
| | R826A | | | 8 x 26.5 | 203 x 674 | 4446.00 |
| GC200E | All "A" type sensors above, plus: | | | | | |
| | RZ511 | Rectangular, Open Frame | 1000:1 | 4.5. x 11 | 114 x 280 | 1914.00 |
| | RZ521 | | 1000:1 | 4.5 x 21 | 114 x 534 | 2255.00 |
| | RZ531 | | 1000:1 | 4.5 x 31 | 114 x 788 | 2706.00 |
| | RZ535 | | 1000:1 | 4.5 x 35 | 114 x 890 | 2834.00 |
| | RZ1011 | Rectangular, Open Frame | 1000:1 | 10.5 x 11 | 267 x 280 | 2450.00 |
| | RZ1021 | | 1000:1 | 10.5 x 21 | 267 x 514 | 3075.00 |
| | RZ1031 | | 1000:1 | 10.5 x 31 | 114 x 788 | 4233.00 |
| | GT912 | Rectangular, Open Frame | 600:1 | 5.5 x 8.5 | 140 x 216 | 1769.00 |
| | GT918 | | 600:1 | 5.5 x 14.5 | 140 x 368 | 2058.00 |
| | GT930 | | 600:1 | 5.5 x 26.5 | 140 x 673 | 2766.00 |
| | GT1218 | Rectangular, Open Frame | 600:1 | 8.5 x 14.5 | 216 x 368 | 2645.00 |
| | GT1224 | | 600:1 | 8.5 x 20.5 | 216 x 521 | 2901.00 |
| | GT1230 | | 600:1 | 8.5 x 26.5 | 292 x 673 | 3246.00 |
| | GT1327 | Rectangular, Open Frame | 600:1 | 9.5 x 24 | 241 x 610 | 2844.00 |
| | GT1330 | | 600:1 | 9.5 x 27 | 241 x 686 | 3219.00 |
| | GT1530 | Rectangular, Open Frame | 600:1 | 11.5 x 26.5 | 292 x 673 | 3726.00 |



© 2012 Schneider Electric
All Rights Reserved



RH99M



RH99P



PA50



SA200

## Vigirex™ Ground-Fault Relay System

The Vigirex ground-fault relays, with associated sensors (current transformers), measure the residual current in an electrical installation to detect levels which may be damaging. When used for protection, they cause an associated circuit breaker or switch to interrupt the supply of power to the protected system. They may also be used for monitoring only, with output to an alarm. The product line includes fixed sensitivities from 30 mA to 1 A and adjustable sensitivities up to 30 A.
The Vigirex relays may be easily mounted on DIN rail or may be panel mounted in a meter cutout. Sensors for conductors range from a little more than an inch diameter toroids, to large rectangular sensors measuring 6 x 18 inches. The compact size of the relay and its sensor make it ideal for protection of OEM equipment as well as branch circuits.

**Table 7.126: Vigirex Ground-Fault Relays (UL 1053 Listed)**

| Model | Delay | Reset | Control Voltage | Sensitivity | Cat. No. | $ Price |
|---|---|---|---|---|---|---|
| **DIN Rail Mounted** | | | | | | |
| RH10M | Instantaneous | Manual | 12–24 Vac/12–48 Vdc | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 A | 56300<br>56302<br>56305<br>56306<br>56307 | **1988.00** |
| | | | 110–130 Vac | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 A | 56320<br>56322<br>56325<br>56326<br>56327 | **1988.00** |
| | | | 220–240 Vac | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 A | 56330<br>56332<br>56335<br>56336<br>56337 | **1988.00** |
| RH21M | Instantaneous or 60 msec (2 settings) | Manual | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | 30 mA▲ or 300 mA (2 settings) | 56360<br>56362<br>56363 | **2363.00** |
| RH99M | Adjustable (9 settings): 0, 0.06, 0.15, 0.23, 0.31, 0.5, 0.8, 1.0, 4.5 sec | Manual | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | Adjustable, (9 settings): 0.03▲, 0.1, 0.3, 0.5, 1, 3, 5, 10, 30 A | 56370TD<br>56372TD<br>56373TD | **2700.00** |
| | | Automatic | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | | 56390TD<br>56392TD<br>56393TD | **2700.00** |
| **Panel Mounted** | | | | | | |
| RH10P | Instantaneous | Manual | 12–24 Vac/12–48 Vdc | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 Amp | 56400<br>56402<br>56405<br>56406<br>56407 | **2063.00** |
| | | | 110–130 Vac | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 Amp | 56420<br>56422<br>56425<br>56426<br>56427 | **2063.00** |
| | | | 220–240 Vac | 30 mA<br>100 mA<br>300 mA<br>500 mA<br>1 A | 56430<br>56432<br>56435<br>56436<br>56437 | **2063.00** |
| RH21P | Instantaneous or 60 msec (2 settings) | Manual | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | 30 mA▲ or 300 mA (2 settings) | 56460<br>56462<br>56463 | **2438.00** |
| RH99P | Adjustable (9 settings): 0, 0.06, 0.15, 0.23, 0.31, 0.5, 0.8, 1.0, 4.5 sec | Manual | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | Adjustable (9 settings): 0.03▲, 0.1, 0.3, 0.5, 1, 3, 5, 10, 30 A | 56470TD<br>56472TD<br>56473TD | **2813.00** |
| | | Automatic | 12–24 Vac/12–48 Vdc<br>110–130 Vac<br>220–240 Vac | | 56490TD<br>56492TD<br>56493TD | **2813.00** |

▲ 30 mA is instantaneous only, except for RH99M and RH99P models. Their suffix TD indicates time delay at 30 mA. For models with no time delay (IEC compliant) consult catalog 0972CT0401.

**Table 7.127: Sensors for Vigirex Ground-Fault Relays**

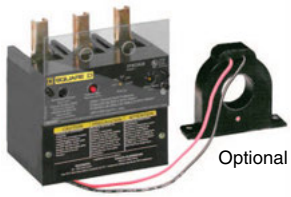
| Sensors | Type | Maximum Current♦ | Inside Diameter | | Cat. No. | $ Price |
|---|---|---|---|---|---|---|
| | | | in. | mm | | |
| Closed Toroids, Type A | TA30<br>PA50<br>IA80<br>MA120<br>SA200<br>GA300 | 65 A<br>85 A<br>160 A<br>250 A<br>400 A<br>630 A | 1.18<br>1.97<br>3.15<br>4.72<br>7.87<br>11.81 | 30<br>50<br>80<br>120<br>200<br>300 | 50437<br>50438<br>50439<br>50440<br>50441<br>50442 | **375.00**<br>**488.00**<br>**615.00**<br>**833.00**<br>**1253.00**<br>**2295.00** |
| Vigirex Sensor Iron Rings (Optional) | TA30<br>PA50<br>IA80<br>MA120 | 65 A<br>85 A<br>160 A<br>250 A | 0.79<br>1.58<br>2.76<br>4.33 | 20<br>40<br>70<br>110 | 56055<br>56056<br>56057<br>56058 | **56.00**<br>**59.00**<br>**62.00**<br>**83.00** |
| Split toroids, Type OA | POA■<br>GOA■ | 85 A<br>250 A | 1.81<br>4.33 | 46<br>110 | 50485<br>50486 | **1718.00**<br>**3015.00** |
| Rectangular Sensors | 280 x 115<br>470 x 160 | 1600 A<br>3200 A | 11.02 x 4.53<br>18.50 x 6.30 | 280 x 115<br>470 x 160 | 56053<br>56054 | **5333.00**<br>**7088.00** |

■ POA and GOA are not UL recognized
♦ Use as a guideline for sizing wire through sensor.





© 2012 Schneider Electric
All Rights Reserved



Optional GFM25CT

GFM250

## Micrologic™ Add-on Ground-Fault Module (GFM)

The Micrologic Ground-Fault Module (GFM) is a UL Listed/CSA Certified circuit breaker accessory which protects equipment from damage caused by ground faults. It is an add-on module which, when connected to a PowerPact H- or J-frame thermal-magnetic circuit breaker only, provides ground-fault sensing and ground-fault relay functions.

HD/JD ground-fault modules feature:

- Adjustable ground-fault pickup levels
- Adjustable ground-fault time delays
- Integral ground fault push-to-test feature
- Ground-fault indicator (mechanical for local, contacts for remote)
- All GFMs are supplied for I-Line™ mounting as standard, easily convertible to unit mount by removing the I-Line bracket
- Fault-powered (through the sensing current transformer) for electronics, shunt trip, and integral test feature. Meets NEC 230.95(C)
- A 12 Vdc shunt trip module (Catalog No. S29382) is required in the circuit breaker. This may be field installed or factory installed when the circuit breaker is ordered with an -SN suffix.
- UL 1053 — Ground-fault Sensing and Relaying Equipment

The GFM system requires the following:

- H-frame (15–150 A) or J-frame (150–250 A) molded case circuit breaker
- Shunt trip is required for the function of the GFM (may be factory-installed or field-installed)
- Bus bar connection (terminal nut inserts) for OFF end of circuit breaker
- Optional neutral current transformer, catalog number GFM25CT (must be ordered for 4-wire applications)

***NOTE:*** *Ground-fault modules cannot be used for alarming only.*

**Table 7.128: Module/Enclosure Selection Chart▲**

| Companion Circuit Breaker Prefix | Cat. No.■ | I-Line Switchboard | Ground-fault Pickup Adjustment Range | GFM $ Price |
|---|---|---|---|---|
| HD, HG, HJ, HL | GFM150HD | LA | 20–100 A | **4250.00** |
| JD, JG, JJ, JL | GFM250JD | LA | 40–200 A | **4250.00** |
| **Accessories** | | | | |
| H & J | GFM25CT | Optional Neutral Current Transformer (required for 4-wire loads) | | **375.00** |

▲ At 250 A, the GFM250JD can be used with 80% rated circuit breakers only.
■ See Supplemental Digest page 3-37 for additional GFMs.



**I-Line™ J-Frame with ELM installed**

## Earth Leakage Module (ELM) for PowerPact H- and J-Frame MCCBs

The Earth Leakage Module (ELM) is an add-on module which, when connected to a PowerPact H- or J-frame MCCB, provides low-level ground-fault sensing and ground-fault relay functions.

Because these ELMs are highly sensitive (30 mA to 3 A), they provide much greater protection than GFMs (20 Amps to 200 Amps sensitivity). The ELMs provide greater protection of control circuits and other sensitive equipment. The associated circuit breaker must have a 48 Vdc shunt trip, which may be field-installed (kit S29392) or factory-installed (suffix –SP) in the H- or J-Frame circuit breaker.

Add-on Earth Leakage Module (ELM) Features:

- Adjustable ground-fault pickup levels as low as 30 mA
- Adjustable ground-fault time delays from instantaneous to 500 msec (Time delay can be applied to the 30 mA setting)
- Integral ground fault push-to-test feature
- Ground-fault indicator (LED for local status; contacts for remote indication)
- All ELMs are supplied for I-Line™ mounting and are easily convertible to unit-mount by removing the I-Line brackets
- Three poles; 240 to 600 Vac maximum: 3-wire applications only (no neutral)
- Line-power obtained through internal bus to provide power for electronics, shunt trip, and integral test feature.
- A shunt trip is required in the circuit breaker; it may be field-installed or factory-installed in the PowerPact H and J circuit breakers.
- UL 1053 – Ground-fault Sensing and Relaying Equipment

**Table 7.129: ELM Selection Chart♦**

| Companion Circuit Breaker★ | | Enclosure Space Required I-Line Switchboard | Pick-Up Adjustment Range | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Prefix | Size | | | | |
| HD, HG, HJ, HL | 15–150 A | LA | 30 mA–3 A | ELM150HD | **4500.00** |
| JD, JG, JJ, JL | 150–250 A | LA | 30 mA–3 A | ELM250JD | **4650.00** |

♦ At 250 A, the ELM250JD can be used with 80% rated circuit breakers only.
★ For Factory Installation of ELM Module: For termination designation (3rd letter of catalog number) use ONLY "M". Add factory installed 48 Vdc shunt trip (suffix SP) to breaker plus suffix VL or VM.
SP – **$717.** adder.
Use VL for H frame – **$4736.** adder.
Use VM for J frame – **$4886.** adder.
Plus the List Price of the H or J breaker.



© 2012 Schneider Electric
All Rights Reserved

Figure 1

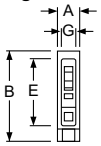



Figure 2

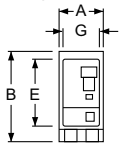
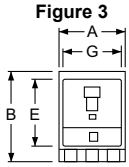



Figure 3




QO, QOB

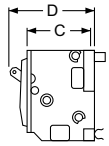



Figure 4

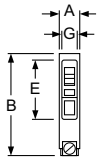
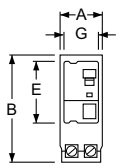



Figure 5




QO-GFI, QO-PL
QO-EPD

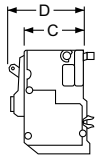



Figure 6

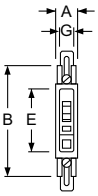



Figure 7

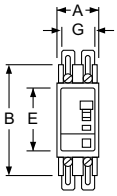
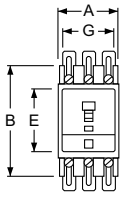



Figure 8




QOU, QYU
Low Ampere

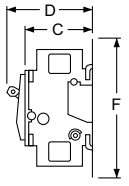



Figure 9
QO-PLPS

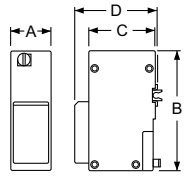



Figure 10

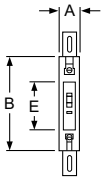



Figure 11

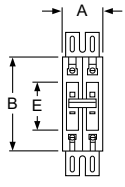
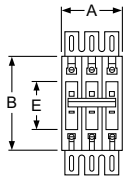



Figure 12




QOU
High Ampere

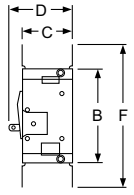



Figure 13

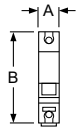



Figure 14

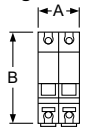



Figure 15

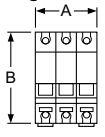
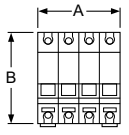



Figure 16




C60

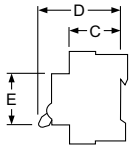



Figure 17

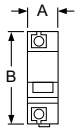



Figure 18

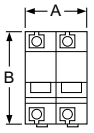



Figure 19

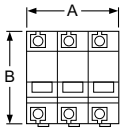
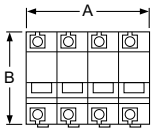



Figure 20




C120

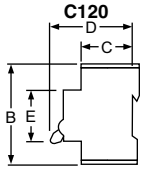



Figure 21

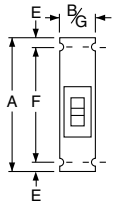



Figure 22

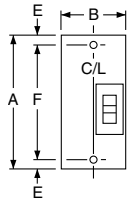



Figure 23

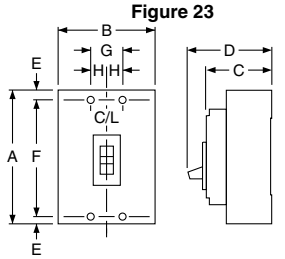
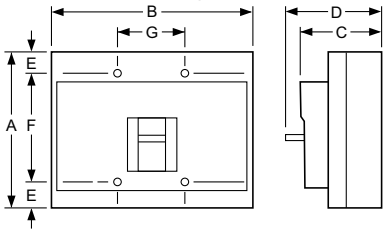



Figure 24




## Table 7.130: QO™, QOU, Multi 9™ Circuit Breakers

| Circuit Breaker Cat. No. Prefix | Poles | Fig. No. | Dimensions—Inches | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G |
| QO, QOB | 1 | 1 | 0.75 | 3.00▲ | 2.31 | 2.91 | 2.25 | — | 0.59 |
| | 2 | 2 | 1.50 | 3.00▲ | 2.31 | 2.91 | 2.25 | — | 1.34 |
| | 3 | 3 | 2.25 | 3.00▲ | 2.31 | 2.91 | 2.25 | — | 2.09 |
| QOB-VH 150 A<br>QOB-VH 110–150 A | 2 | 2 | 3.0 | 5.72 | 2.53 | 4.90 | 3.78 | — | 2.85 |
| | 3 | 3 | 4.50 | 5.72 | 2.53 | 4.90 | 3.78 | — | 4.35 |
| QO-PL<br>QO-GFI<br>QO-EPD | 1 | 4 | 0.75 | 4.12■ | 2.31 | 2.91 | 2.25 | — | 0.59 |
| | 2 | 5 | 1.50 | 4.12■ | 2.31 | 2.91 | 2.25 | — | 1.34 |
| | 3 | 5 | 2.25 | 4.12■ | 2.31 | 2.91 | 2.25 | — | 2.09 |
| QOU<br>QYU<br>Low Ampere | 1 | 6 | 0.75 | 4.05♦ | 2.38 | 2.98 | 2.25 | 5.00★ | 0.62 |
| | 2 | 7 | 1.50 | 4.05♦ | 2.38 | 2.98 | 2.25 | 5.00★ | 1.37 |
| | 3 | 8 | 2.25 | 4.05★ | 2.38 | 2.98 | 2.25 | 5.00△ | 2.12 |
| QOU<br>High Ampere | 1 | 10 | 0.75 | 4.45 | 2.37 | 2.96 | 2.25 | 6.78 | — |
| | 2 | 11 | 1.50 | 4.45 | 2.37 | 2.96 | 2.25 | 6.78 | — |
| | 3 | 12 | 2.25 | 4.45 | 2.37 | 2.96 | 2.25 | 6.78 | — |
| Multi 9™ C60 | 1 | 13 | 0.71 | 3.19 | 1.73 | 2.76 | 1.77 | — | — |
| | 2 | 14 | 1.42 | 3.19 | 1.73 | 2.76 | 1.77 | — | — |
| | 3 | 15 | 2.13 | 3.19 | 1.73 | 2.76 | 1.77 | — | — |
| | 4 | 16 | 2.84 | 3.19 | 1.73 | 2.76 | 1.77 | — | — |
| QO-PLPS Power Supply | 2 | 9 | 1.45 | 4.35 | 2.42 | 3.11 | — | — | — |

▲ 35–70 A is 3.12 in; 80–100 A 2P and 70–100 A 3P are 3.50 in.
■ QO-PL is 4.55 in.
♦ 80–100 A 1P and 80–125 A 2P are 4.45 in
★ 80–100 A 1P and 80–125 A 2P are 6.78 in.
▼ 70–100 A 4.45 in.
△ 70–100 A is 6.78 in.

## Table 7.131: QB, QD, QG, QJ, Q4, FA, FI, KI, LA, LI, LX, LXI Circuit Breakers

| Circuit Breaker Cat. No. Prefix | Poles | Fig. No. | Dimensions—Inches | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H |
| QB, QD,<br>QG, QJ | 2 | 22 | 6.47 | 3.00 | 3.02 | 3.93 | □ | 4.25 | — | — |
| | 3 | 23 | 6.47 | 4.50 | 3.02 | 3.93 | □ | 4.25 | 1.50 | 0.75 |
| FAL, FHL | 1 | 21 | 6.00 | 1.50 | 3.16 | 4.13 | 0.44 | 5.13 | 1.50 | — |
| | 2 | 22 | 6.00 | 3.00 | 3.16 | 4.13 | 0.44 | 5.13 | — | — |
| | 3 | 23 | 6.00 | 4.50 | 3.16 | 4.13 | 0.44 | 5.13 | 1.50 | 0.75 |
| FIL, KIL | 2 & 3 | 23 | 8.00 | 4.50 | 3.66 | 4.75 | 0.44 | 7.13 | 1.50 | 0.75 |
| Q4L, LAL, LHL | 2 & 3 | 23 | 11.00 | 6.00 | 4.06 | 5.84 | 0.88 | 9.25 | 2.00 | 1.00 |
| LIL, LXIL | 2 & 3 | 24 | 11.86 | 7.50 | 5.48 | 6.74 | 0.55 | 10.75 | 2.50 | |

□ Dimensions E are 1.59 in at ON end and 0.63 in at OFF end.

## Table 7.132: Shipping Weights◊

| Frame Size | Approx. Shipping Weight (Lbs.) | Frame Size | Approx. Shipping Weight (Lbs.) |
|---|---|---|---|
| FAL, FHL 1P | 2 | KIL | 9 |
| FAL, FHL 2P | 3 | LAL, LHL | 15 |
| FAL, FHL 3P | 5 | LIL LXIL | 25 |
| FIL | 8 | Q4L | 15 |
| QB, QD, QG, QJ | 4 | | |

◊ All weights are for 3P circuit breakers unless otherwise noted.





© 2012 Schneider Electric
All Rights Reserved

Figure 25

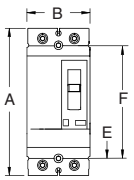



Figure 26

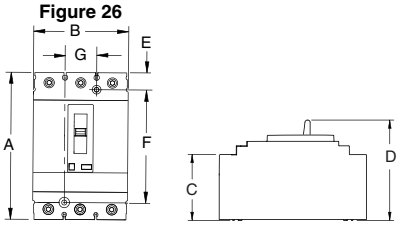



Figure 27

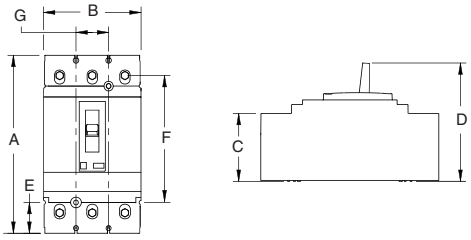



Figure 28

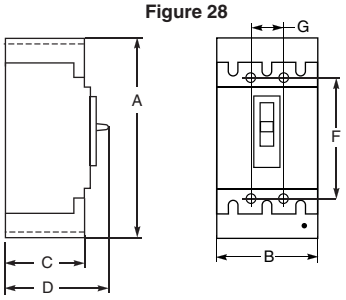



Figure 29

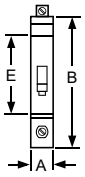



Figure 30

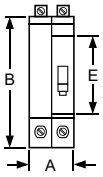
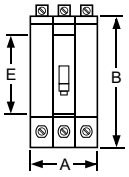



Figure 31



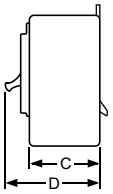




Figure 32

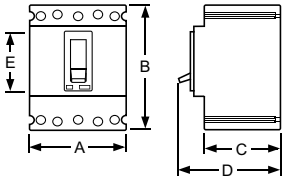



Figure 33

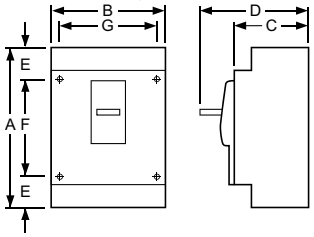
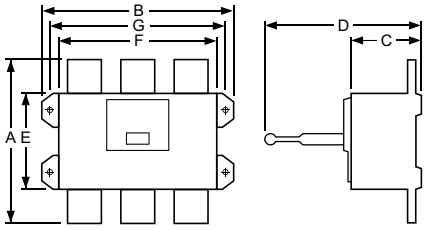



Figure 34




### Table 7.133: HD, HG, HJ, HL, HR, JD, JG, JJ, JL, JR, LG, LJ, LL, and LR Circuit Breakers

| Circuit Breaker Cat. No. Prefix | No. of Poles | Fig. No. | Dimensions — Inches | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G |
| HD, HG, HJ, HL, HR | 2▲ | 25 | 6.40 | 2.74 | 2.87 | 4.36 | 0.74 | 4.92 | — |
| | 3 | 26 | 6.40 | 4.12 | 2.87 | 4.36 | 0.74 | 4.92 | 1.38 |
| JD, JG, JJ, JL, JR | 3 | 27 | 7.52 | 4.12 | 2.87 | 5.00 | 1.30 | 4.92 | 1.38 |
| LG, LJ, LL, LR | 3 | 28 | 13.38 | 5.51 | 3.75 | 6.61 | 2.22 | 7.87 | 1.77 |

▲ Only HD and HG are in 2P module, HJ, HL and HR 2P are in 3P module.

### Table 7.134: ED, EG, and EJ Circuit Breakers

| Circuit Breaker Cat. No. Prefix | No. of Poles | Fig. No. | Dimensions — Inches | | | | |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E |
| ED, EG, EJ | 1 | 29 | 0.98 | 5.66 | 3.09 | 4.05 | 3.32 |
| ED, EG, EJ | 2 | 30 | 1.96 | 5.66 | 3.09 | 4.05 | 3.32 |
| ED, EG, EJ | 3 | 31 | 2.94 | 5.66 | 3.09 | 4.05 | 3.32 |
| GJ | 3 | 32 | 3.54 | 4.72 | 2.76 | 3.94 | 2.20 |

### Table 7.135: MG, MJ, PG, PJ, PL, RG, RJ and RL Circuit Breakers

| Circuit Breaker Cat. No. Prefix | No. of Poles | Fig. No. | Dimensions — Inches | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G |
| MG, MJ (800 A and below) | 2, 3 | 33 | 12.86 | 8.27 | 5.77 | 8.05 | 2.49 | 7.87 | 7.83 |
| PG, PJ, PK, PL (1000–1200 A) | 2, 3 | 33 | 16.16 | 8.27 | 5.77 | 8.05 | 4.19 | 7.87 | 7.83 |
| RG, RJ, RL | 2, 3 | 34 | 16.24 | 16.54 | 6.63 | 14.49 | 8.73 | 14.25 | 15.35 |

### Table 7.136: Shipping Weights▲

| Frame Size | Approx. Shipping Weight (Lbs.) | Frame Size | Approx. Shipping Weight (Lbs.) |
|---|---|---|---|
| HD, HG, HJ, HL 2P | 4 | JD, JG, JJ, JL, JR | 5 |
| HD, HG, HJ, HL, HR 3P | 5 | LD, LG, LJ, LL, LR | 14 |
| ED, EG, EJ 1P | 2 | MG, MJ | 29 |
| ED, EG, EJ 2P | 3 | PG, PJ, PK, PL | 32 |
| ED, EG, EJ 3P | 4 | RG, RJ, RK, RL (Without RLTB) | 52 |

▲ All weights are for 3P circuit breakers unless otherwise noted.



© 2012 Schneider Electric
All Rights Reserved


FA100S


FA100RB


FA100DS

- Circuit breaker enclosures are UL Listed, CSA Certified and are suitable for use as service equipment except as footnoted.
- The short circuit rating of an enclosed circuit breaker is equal to the rating of the circuit breaker installed, except as footnoted.
- Circuit breakers are ordered and shipped separately for field installation.
- For enclosure accessories and dimensions refer to page 7-58.
- See Supplemental Digest page 3-35 for NEMA 7 and 9 enclosures for FAL circuit breakers.

**Table 7.137: Circuit Breaker Enclosures**

| Circuit Breaker | | | Enclosure | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cat. No. Prefix | Rating | Poles | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| | | | NEMA 1 Flush | | NEMA 1 Surface | | NEMA 3R▲ | |
| FAL, FHL, FCL | 15–100 A | 1, 2, 3 | FA100F | 189.00 | FA100S | 189.00 | FA100RB | 500.00 |
| QBL, QDL, QGL, QJL | 100–200 A | 2 | — | — | Q22200NS■ | 176.00 | Q22200NRB■ | 380.00 |
| | 100–225 A | 2, 3 | Q23225NF■ | 218.00 | Q23225NS■ | 218.00 | Q23225NRB■ | 417.00 |
| HDL, HGL, HJL, HLL | 15–150 A | 2, 3 | J250F♦★▼ | 285.00 | J250S♦★▼ | 285.00 | J250R♦★▼ | 840.00 |
| JDL, JGL, JJL, JLL | 150–250 A | 2, 3 | | | | | | |
| HDL | 15–100 A | 3 | — | — | HD100S△□♦▼☆ | 285.00 | — | — |
| JDL | 150–250 A | 3 | — | — | JD250S☆□△♦▼ | 285.00 | — | — |
| LAL, LHL, Q4L | 125–400 A | 2, 3 | LA400F | 356.00 | LA400S | 356.00 | LA400R | 1655.00 |
| LAL | 125–400 A | 3 | — | — | LA400LS□☆w | 356.00 | — | — |
| MGL, MJL, PGL, PJL, PKL, PLL | 300–800 A | 2, 3 | — | — | M800S▽◒ | 783.00 | M800R▽◆ | 2159.00 |
| PGL, PJL, PKL, PLL | 250–1200 A | 2, 3 | — | — | P1200S◒ | 1260.00 | P1200R◆ | 2790.00 |
| | | | NEMA 4, 4X, 5, 3, 3R Stainless Steel (Hubs—See page 3-9) | | NEMA 12/3R, 12K (Hubs—See page 3-9) | | | |
| | | | | | With Knockouts (NEMA 12K) | | Without Knockouts◑ (NEMA 12/3R, 5) | |
| FAL, FHL, FCL | 15–100 A | 1, 2, 3 | FA100DS | 1431.00 | FA100A | 351.00 | FA100AWK | 335.00 |
| HDL, HGL, HJL, HLL | 15–150 A | 2, 3 | J250DS♦★▼ | 3405.00 | — | — | J250AWK♦★▼ | 582.00 |
| JDL, JGL, JJL, JLL | 150–250 A | 2, 3 | | | | | | |
| KIL◆, KCL | 110–250 A | 2, 3 | IK250DS | 5238.00 | — | — | IK250AWK | 878.00 |
| LAL, LHL, Q4L | 125–400 A | 2, 3 | LA400DS | 5673.00 | — | — | LA400AWK | 903.00 |
| LEL, LXL, LXIL | 100–600 A | 3 | — | — | — | — | LX600AWK | 3728.00 |
| LCL, LIL | 300–600 A | 2, 3 | — | — | — | — | LX600AWK | 3728.00 |
| MGL, MJL, PGL, PJL, PKL, PLL | 300–800 | 2, 3 | M800DS✪ | 10125.00 | — | — | M800AWK✪ | 2459.00 |
| PGL, PJL, PKL, PLL✱ | 600–1200 | 2, 3 | — | — | — | — | P1200AWK✪ | 5700.00 |
| | | | Nema 7‡ Cast Aluminum | | Nema 9u Cast Aluminum | | | |
| JDL, JGL† ●v | 150–250 A | 2, 3 | J225X | 4083.00 | J225Y | 2834.00 | | |

▲ Enclosures with NRB or RB suffix have provisions for 3/4 in. through 2-1/2 in. bolt-on hubs in top endwall. Enclosures with R suffix have blank endwalls and require field cut opening. For details and hub catalog numbers see page 3-9.
■ Not CSA Certified.
♦ Accepts standard rated 80% breakers. Not rated at 100%.
★ Maximum short circuit rating is 25 kAIR at 600 Vac, 65 kAIR at 480 Vac, 125 kAIR at 240 Vac.
▼ Earth Leakage Module and Ground Fault Module are not compatible with these enclosures.
△ Maximum short circuit rating is 25 kAIR, 240 Vac.
□ Order service ground kit PKOGTA2 if required.
◊ Maximum short circuit rating is 18 kAIR, 480 Vac and 240 Vac.
☆ Copper wire only.
▽ When using a CT in the M800S and R enclosure the unit will no longer accommodate a 200% neutral solution.
◒ CE certified per IEC60439-1, IP20D, PE type TN-C or TN-S
✱ Accepts MGL or MJL standard rated (80%) breakers. Accepts PGL, PJL or PLL circuit breakers rated 80% (1200 A maximum) or 100% rated breakers, (800A maximum).
◆ CE certified per IEC60439-1, IP24D, PE type TN-C or TN-S
◑ Suitable for rainproof NEMA 3R application by removing drain screw from bottom endwall.
✪ CE certified per IEC60439-1, IP56, PE type TN-C or TN-S
◪ LEL 100% rated circuit breaker except for 600 A sensor.
◗ Short circuit rating is 100 k AIR at 480 Vac maximum.
‡ NEMA 7—Indoor Hazardous Locations—Division 1 and 2, Class I, Groups C and D; Class II, Groups E, F,and G; Class III.
† 80% rated circuit breakers only; SCCR 65 kA @ 240 Vac, 25 kA @ 480 Vac, 18 kA @ 600 Vac.
● Not UL Listed due to wire bending space.
u NEMA 9—Indoor Hazardous Locations—Division 1 and 2, Class II, Groups E, F,and G; Class III.
v Has a tapped 2-1/2 in. conduit opening on top and bottom end wall
w Short circuit current rating is 30 k AIR at 480 Vac.

## 316 Grade Stainless Steel Circuit Breaker Enclosures—NEMA 3, 3R, 4X, 5 and 12

Type 316 stainless steel circuit breaker enclosures offer superior corrosion resistance to a wider range of chemicals than Type 304 stainless steel enclosures. Type 316 better resists chloride and is often used in marine, waste treatment and transportation applications. Use watertight hubs from Section 3 page 10 of Digest 176. For other accessories reference Table 7.142 and Table 7.143. For dimensional information, reference Table 7.144.

**Table 7.138: 316 Grade Stainless Steel CIrcuit Breaker Enclosures**

| Circuit Breakery | | | NEMA 3, 3R, 4X, 5 and 12 | |
|---|---|---|---|---|
| Cat. No. Prefix...Suffix | Ampere Rating | Poles | Enclosure Cat. No. | $ Price |
| HDL, HGL, HJL, HLL | 15–150 A | 2, 3 | J250SS | 4698.00 |
| JDL, JGL, JJL, JLL | 150–250 A | 2, 3 | | |
| MGL, MJL, PGL, PJL | 300–800 A | 2, 3 | M800SS | 13972.00 |
| PKL, PLL | | | | |

**Table 7.139: DC CIrcuit Breaker Enclosures for MA and MH DC-Rated Circuit Breakers**

| Circuit Breakery | | | NEMA 1 Surface Enclosurex | |
|---|---|---|---|---|
| Cat. No. Prefix...Suffix | Ampere Rating | Poles | Enclosure Cat. No. | $ Price |
| MAL, MHL | 125–1000 A | 2, 3 | MA1200S | 1355.00 |

x UL Listed Only
y Use 500 Vdc or 250 Vdc rated circuit breakers only.

Accessories . . . . . Page 7-58
Dimensions. . . . . Page 7-58





© 2012 Schneider Electric
All Rights Reserved

**Table 7.140: Enclosures for Walking Beam Manually Operated Mechanical Interlock Circuit Breakers (UL Listed)▲**

| Circuit Breaker | | | NEMA 1 Surface■ | | NEMA 3R ■♦ | |
|---|---|---|---|---|---|---|
| Cat. No. Prefix...Suffix | Ampere Rating | Poles | Enclosure Cat. No. | $ Price | Enclosure Cat. No. | $ Price |
| FAL...WB, FHL...WB | 15–250 A | 2, 3 | KA250SWB | **1040.00** | KA250RWB | **1827.00** |

▲ Catalog number in table is enclosure only. For complete installation, the following must be ordered separately: WB Circuit Breakers (qty. 2, Supplemental Digest page 3-27), Walking Beam Assembly (Supplemental Digest page 3-27), Mounting Pan (Supplemental Digest) page 3-27, Neutral (page 7-56) and Service Ground Kit (page 7-58).
■ Enclosure has blank top endwall.
♦ For applications above 200 A requiring a neutral, use copper wire only.

## Enclosed Motor-Operated Molded Case Circuit Breakers

For information on Enclosed Motor-Operated Molded Case Circuit Breakers see the Supplemental Digest page 3-35.

## Enclosed Molded Case Switches

For ordering information on molded case switches see page 7-34. For ordering information on enclosed molded case switches, see Supplemental Digest 175 Section 3-36.

## Enclosed Walking Beam Mechanical Interlock

***NOTE:*** *Contact local Field Office for catalog number prior to quoting or placing an order.*

Industrial molded case circuit breakers with walking beam mechanical interlocks are available in NEMA 1 and 3R construction as completely enclosed device. Walking beam mechanical interlock is available manually operated or electrically operated using (2) 120 Vac motor operators. Not UL Listed.

Enclosed walking beam mechanically interlocked circuit breaker.

- Specify circuit breaker catalog numbers
- Specify manually or electrically operated (electrically operated factory installed only)
- Specify enclosure type (NEMA 1 or 3R)
- Specify if neutrals are required. (Same price)

**Table 7.141: Enclosed Walking Beam Mechanical Interlock**

| Circuit Breaker Cat. No. Prefix (Standard Thermal-Magnetic Only) | $ Price▲ | | | |
|---|---|---|---|---|
| | Manually Operated | | Electrically Operated | |
| | NEMA 1 | NEMA 3R | NEMA 1 | NEMA 3R |
| FAL—240 V 100 A | — | — | **5783.00** | **3675.00** |
| FAL—480 V 100 A | — | — | **6311.00** | **6896.00** |
| FAL—600 V 100 A | — | — | **6879.00** | **7446.00** |
| FHL—600 V 100 A | — | — | **8691.00** | **9407.00** |

▲ Price includes (2) walking beam 3P circuit breakers, walking beam operator and mounting pan, (2) neutrals (if specified), and (2) motor operators (if specified) factory assembled in specified enclosure.
■ Not available factory assembled. Refer to page 7-56 for merchandise enclosure.

***NOTE:*** *Contact local Field Office for catalog number prior to quoting or placing an order.*



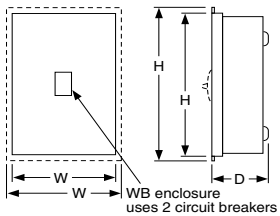
© 2012 Schneider Electric
All Rights Reserved

## Table 7.142: Insulated Groundable Neutral Assembly

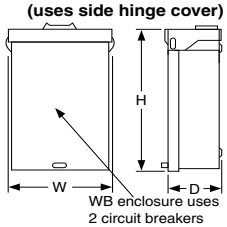
| Circuit Breaker | | Neutral Assembly For Use With | | | | | | Terminal Lug Data—Total Available (Line plus Load) AWG/kcmil |
|---|---|---|---|---|---|---|---|---|
| Cat. No. Prefix | Ampere Rating | NEMA 1 & 3R | | NEMA 4, 4X, 5, 12 & 12K | | NEMA 7 & 9 | | |
| | | Cat. No. | $ Price | Cat. No. | Price | Cat. No. | $ Price | |
| FAL, FHL, FCL | 100 | SN100FA | **72.00** | SN100FA | **72.00** | — | — | (4) 14–1/0 Cu or (4) 12–1/0 Al |
| FAL, FHL, FIL | 100 | — | — | — | — | 100SNA | **150.00** | FA060X/Y—(1) 14– 6 Cu, plus (1) 14–4 Cu<br>FA100X/Y—(1) 14– 3 Cu, plus (1) 14–4 Cu |
| HDL,HGL,HJL,HLL | 15–100 | SN100FA | **72.00** | SN100FA | **72.00** | — | — | (4) 14–1/0 Cu or (4) 12–1/0 Al |
| HDL,HGL,HJL,HLL | 125-150 | SN400LA | **251.00** | SN400LA | **251.00** | 225SNA | **198.00** | (2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu |
| JDL,JGL,JJL,JLL | 150–250 | SN400LA | **251.00** | SN400LA | **251.00** | — | — | (2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu |
| FAL...WB, FHL...WB | 200 | Requires (2) SN20A plus (1) SN20NI link | **(2) @$200.00 ea plus (1) @$27.60 ea** | — | — | — | — | (4) 6–250 Al/Cu, plus (2) 14–1/0 Al/Cu |
| LCL, LIL, LXL, LXIL | 400 | — | — | SN400LA | **251.00** | — | — | (2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu |
| LCL, LIL, LXL ■, LXIL ■ | 400 | — | — | SNC400LX♦ | **1152.00** | — | — | (2) 2–600 Cu, plus (2) 6–250 Cu |
| LCL, LXL<br>LIL, LXIL, LEL | 600 | — | — | SNC800LX♦ | **1506.00** | — | — | (4) 2–600 Cu, plus (1) 2–4/0 Cu |
| LCL, LXL■, LIL, LXIL■, LEL■ | 1000★ | AL800SN | **365.00** | — | — | — | — | (6) 3/0–500 Al/Cu, plus (2) 6–250 Al/Cu |
| | 1000★ | — | — | SN1000MA | **365.00** | — | — | (6) 3/0–500 Al/Cu, plus (1) 1–4/0 Al/Cu |
| MGL, MJL▼ | 300–800 A | AL800SN | **365.00** | AL800SN | **365.00** | — | — | (6) 3/0–500 Al/Cu, plus (2) 6–250 Al/Cu |
| PGL, PJL, PKL, PLL△ | 250–1200 A | SN1200 | **1034.00** | SN1200 | **1034.00** | — | — | (8) 3/0–500 Al/Cu, plus (2) 350 4–300 Al/Cu |

▲ For applications above 200 A requiring a neutral, use copper wire only.
■ When using LXL, LEL or LXIL circuit breaker with integral ground fault protection on a 3Ø4W system, neutral assembly SN1000MA or SNC800LX must be used for neutral CT. Order neutral CT separately.
♦ All Cu neutral assembly.
★ Rated maximum 900 A when used with Al wire.
▼ For NEMA 1 and 3R 200% neutral applications order Jumper kit SN800SNI and 2 of kit SN1200. (No 200% neutral is available for NEMA 4X or 12 devices.)
△ For applications with integral ground fault protection order Neutral Mounting Kit S33576MK and Neutral CT S33576 (400–1200 A only).

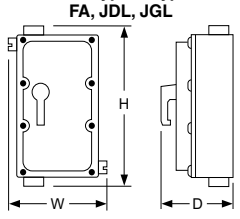
**NEMA Type 1**
**Q2, FA, J, SWB**
**LA, MG, PG**



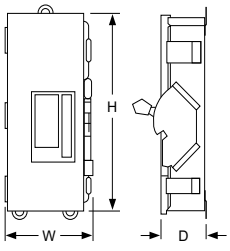

**NEMA Type 3R**
**Q2, FA, LA, MG, J, PG, RWB**
**(uses side hinge cover)**




**NEMA Type 7, Type 9**
**FA, JDL, JGL**




**NEMA Type 4, 4X, 5, 12, 12K**
**IK, FA, J, LA, LX, MG, PG**




## Table 7.143: Service Ground Kits

| Circuit Breaker Cat. No. Prefix | Ground Bar Cat. No. | Number of Terminals | Conductors Per Terminal | Wire Range AWG/kcmil | $ Price | |
|---|---|---|---|---|---|---|
| | | | | | Field-Installable | Factory-Installed |
| QBL, QDL, QGL, QJL<br>FAL, FHL, FCL, FIL, FAL...WB, FHL...WB<br>KCL, KIL, LAL, LHL, Q4L | PKOGTA2□ | 2 | 1 | 10–2/0 Cu or 6–2/0 Al | **56.00** | **191.00** |
| HDL,HGL,HJL,HLL,JDL,JGL,JJL,JLL | PKOGTJ250 | 2 | 1 | 6–300 Al/Cu | **75.00** | **195.00** |
| LCL, LEL, LIL, LXL, LXIL<br>MGL, MJL<br>PGL, PJL, PKL, PLL | PKOGTA4 | 4 | 1 | 6–250 Al or Cu | **213.00** | **263.00** |

□ Quantity (2) required if ground wires are run in parallel.

## Table 7.144: Dimensions

| Cat. No. | Series | Approximate Dimension | | | | | |
|---|---|---|---|---|---|---|---|
| | | H | | W | | D | |
| | | in. | mm | in. | mm | in. | mm |
| FA100A, AWK | E2 | 19.50 | 495 | 9.13 | 232 | 4.88 | 124 |
| FA100DS | E2 | 19.50 | 495 | 9.13 | 232 | 4.88 | 124 |
| FA100F | E2 | 19.50 | 495 | 9.88 | 251 | 4.13 | 105 |
| FA100RB | E2 | 18.00 | 457 | 8.88 | 226 | 4.88 | 124 |
| FA100S | E2 | 18.13 | 461 | 8.63 | 219 | 4.13 | 105 |
| IK250AWK | E2 | 42.25 | 1073 | 13.88 | 353 | 7.50 | 191 |
| IK250DS | E2 | 42.25 | 1073 | 13.88 | 353 | 7.50 | 191 |
| HD100S | A1 | 17.00 | 431.8 | 7.90 | 200.7 | 4.75 | 120.7 |
| J250F | A01 | 32.40 | 823 | 15.40 | 391 | 6.00 | 152 |
| J250S | A01 | 31.36 | 797 | 14.36 | 365 | 6.00 | 152 |
| J250R | A01 | 31.05 | 789 | 14.47 | 368 | 6.28 | 160 |
| J250DS | A01 | 32.26 | 819 | 9.72 | 247 | 7.94 | 202 |
| J250SS | A01 | 32.26 | 819 | 9.72 | 247 | 7.94 | 202 |
| J250AWK | A01 | 32.26 | 819 | 9.72 | 247 | 7.94 | 202 |
| JD250S | A1 | 26.40 | 670.6 | 8.90 | 226.1 | 5.50 | 139.7 |
| J225X | A1 | 22.70 | 577 | 10.93 | 278 | 7.70 | 196 |
| J225Y | A1 | 22.70 | 577 | 10.93 | 278 | 7.70 | 196 |
| KA250SWB | E2 | 20.00 | 508 | 19.00 | 483 | 5.63 | 143 |
| KA250RWB | E2 | 20.25 | 514 | 19.00 | 483 | 7.12 | 181 |

| Cat. No. | Series | Approximate Dimension | | | | | |
|---|---|---|---|---|---|---|---|
| | | H | | W | | D | |
| | | in. | mm | in. | mm | in. | mm |
| LA400AWK | E2 | 42.25 | 1073 | 13.75 | 349 | 7.25 | 184 |
| LA400DS | E2 | 42.25 | 1073 | 13.75 | 349 | 7.25 | 184 |
| LA400F | E2 | 45.63 | 1159 | 16.50 | 419 | 6.50 | 165 |
| LA400R | E2 | 44.00 | 1118 | 15.38 | 391 | 7.88 | 200 |
| LA400S | E2 | 44.50 | 1130 | 15.38 | 391 | 6.50 | 165 |
| LA400LS | A1 | 27.40 | 696.0 | 15.40 | 391.2 | 6.625 | 168.3 |
| M800S | A1 | 40-3/8 | 1025.52 | 21 | 533.4 | 9-3/4 | 247.65 |
| M800R | A1 | 40-3/8 | 1025.52 | 21 | 533.4 | 9-3/4 | 247.65 |
| M800DS | A1 | 40-7/8 | 1036.96 | 20-3/4 | 527.05 | 9-1/2 | 241.3 |
| M800SS | A1 | 40-7/8 | 1036.96 | 20-3/4 | 527.05 | 9-1/2 | 241.3 |
| M800AWK | A1 | 40-7/8 | 1036.96 | 20-3/4 | 527.05 | 9-1/2 | 241.3 |
| P1200S | A1 | 52-1/8 | 1323.98 | 21 | 533.4 | 9-3/4 | 247.65 |
| P1200R | A1 | 52-1/8 | 1323.98 | 21 | 533.4 | 9-3/4 | 247.65 |
| P1200AWK | A1 | 53 | 1346.20 | 20-3/4 | 527.05 | 9-1/2 | 241.3 |
| Q22200NRB | E3 | 23.38 | 594 | 7.63 | 194 | 4.75 | 121 |
| Q22200NS | E3 | 23.13 | 588 | 7.63 | 194 | 4.25 | 108 |
| Q23225NF | E3 | 26.25 | 667 | 9.88 | 251 | 4.75 | 121 |
| Q23225NRB | E3 | 26.25 | 667 | 9.88 | 251 | 5.50 | 140 |
| Q23225NS | E3 | 26.25 | 667 | 9.88 | 251 | 4.75 | 121 |

See Supplemental Digest 3-37 and 3-38 for:

- Special paint
- Stainlee steel fronts
- Pilot lights, push buttons
- Lock-on SPL0
- Key interlock systems
- Legend plates





© 2012 Schneider Electric
All Rights Reserved

# Photovoltaic Circuit Breakers and Switches

## 600 Vdc and 1000 Vdc PV Circuit Breakers and Switches

Class **611** / Refer to Catalog **0611CT1302**



The UL listed thermal-magnetic molded case circuit breakers and switches shown below are specifically designed for use in PV applications, rated at 50°C, offering grounded or ungrounded configurations.

The products are fully tested and calibrated under the PV UL489B standard.

The products come ready to install, including specially designed serial connectors for optimal thermal response, and adapted terminal covers for optimal isolation. Circuit Breakers come 100% rated for ease of use and selection.

These two new frames are fully compatible with the current line of PowerPact accessories, from aux contacts and shunt trips to motor operators and rotary handles.

### Table 7.145: PV Molded Case Circuit Breakers

| Ampere Rating | 600 Vdc (3 poles) | | | | 1000 Vdc (4 poles) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ungrounded | | Grounded | | Ungrounded | | Grounded | |
| | Part Number | $ Price | Part Number | $ Price | Part Number | $ Price | Part Number | $ Price |
| 50 | TGL36050L | **911.00** | TGL36050K | **984.00** | TBL41050L | **1212.00** | TBL41050K | **1309.00** |
| 60 | TGL36060L | **911.00** | TGL36060K | **984.00** | TBL41060L | **1212.00** | TBL41060K | **1309.00** |
| 70 | TGL36070L | **1013.00** | TGL36070K | **1094.00** | TBL41070L | **1212.00** | TBL41070K | **1309.00** |
| 80 | TGL36080L | **1013.00** | TGL36080K | **1094.00** | TBL41080L | **1212.00** | TBL41080K | **1309.00** |
| 100 | TGL36100L | **1125.00** | TGL36100K | **1215.00** | TBL41100L | **1347.00** | TBL41100K | **1455.00** |
| 125 | TGL36125L | **1250.00** | TGL36125K | **1350.00** | TBL41125L | **1496.00** | TBL41125K | **1616.00** |
| 150 | TGL36150L | **1250.00** | TGL36150K | **1350.00** | TBL41150L | **1496.00** | TBL41150K | **1616.00** |
| 175 | TGL36175L | **1438.00** | TGL36175K | **1553.00** | TBL41175L | **1721.00** | TBL41175K | **1859.00** |
| 200 | TGL36200L | **1438.00** | TGL36200K | **1553.00** | TBL41200L | **1721.00** | TBL41200K | **1859.00** |
| 225 | UGL36225L | **1703.00** | UGL36225K | **1839.00** | UCL41225L | **2044.00** | UCL41225K | **2207.00** |
| 250 | UGL36250L | **1892.00** | UGL36250K | **2043.00** | UCL41250L | **2271.00** | UCL41250K | **2453.00** |
| 300 | UGL36300L | **2270.00** | UGL36300K | **2451.00** | UCL41300L | **2611.00** | UCL41300K | **2820.00** |
| 350 | UGL36350L | **2270.00** | UGL36350K | **2451.00** | UCL41350L | **2611.00** | UCL41350K | **2820.00** |
| 400 | UGL36400L | **2306.00** | UGL36400K | **2490.00** | UCL41400L | **2765.00** | UCL41400K | **2986.00** |
| 450 | UGL36450L | **2536.00** | UGL36450K | **2739.00** | UCL41450L | **3041.00** | UCL41450K | **3284.00** |
| 500▲ | N/A | . . . | UGL36500G | **2739.00** | UCL41500J | **3041.00** | UCL41500G | **3284.00** |

▲ 500 A 80% rated.

### Table 7.146: PV Circuit Breaker Max. Interrupting Ratings

| Frame | 600 Vdc | 1000 Vdc |
|---|---|---|
| T-Frame | 10 kA | 3 kA |
| U-Frame | 10 kA | 5 kA |

### Table 7.147: Circuit Breaker Numbering

| Brand | Frame | Rating | Termination | Poles | Voltage | Amperage | | | Grounding | Suffix Code | | Suffix Code | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T | G | L | 3 | 6 | 0 | 5 | 0 | G | A | B | S | A |

**Brand**
Blank: Schneider Electric

**Frame**
T: T-Frame
U: U-Frame

**Ratings**
B: 3 kA
C: 5 kA
G: 10 kA

**Terminations**
L: Lugs Line/Load Side
F: Bus Bar
S: Rear Connected

**Poles**
3: 3P
4: 4P

**Voltage**
6: 600 Vdc
1: 1000 Vdc

**Amperage**
050: 50 A
060: 60 A
070: 70 A
080: 80 A
100: 100 A
125: 125 A
150: 150 A
175: 175 A
200: 200 A
225: 225 A
250: 250 A
300: 300 A
350: 350 A
400: 400 A
450: 450 A
500: 500 A

**Grounding**
G: Grounded, 80% rated (500 A Only)
J: Ungrounded, 80% rated (500 A Only)
K: Grounded, 100% rated
L: Ungrounded, 100% rated

**Accessory Suffix Cells (See Table 7.151 to Table 7.155)**

**Accessory Suffix Cells (See Table 7.151 to Table 7.155)**

### Table 7.148: PV Molded Case Non-Automatic Switches

| Ampere Rating | 600 Vdc (3 poles) | | | | 1000 Vdc (4 poles) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ungrounded | | Grounded | | Ungrounded | | Grounded | |
| | Part Number | $ Price | Part Number | $ Price | Part Number | $ Price | Part Number | $ Price |
| 100 | TBL36000JZ10 | **872.00** | TBL36000GZ10 | **934.00** | TBL41000JZ10 | **1048.00** | TBL41000GZ10 | **1122.00** |
| 150 | TBL36000JZ15 | **960.00** | TBL36000GZ15 | **1028.00** | TBL41000JZ15 | **1156.00** | TBL41000GZ15 | **1237.00** |
| 200 | TBL36000JZ20 | **1104.00** | TBL36000GZ20 | **1182.00** | TBL41000JZ20 | **1332.00** | TBL41000GZ20 | **1426.00** |
| 250 | UDL36000JZ25 | **1455.00** | UDL36000GZ25 | **1557.00** | UDL41000JZ25 | **1748.00** | UDL41000GZ25 | **1870.00** |
| 300 | UDL36000JZ30 | **1676.00** | UDL36000GZ30 | **1794.00** | UDL41000JZ30 | **2012.00** | UDL41000GZ30 | **2153.00** |
| 400 | UDL36000JZ40 | **1876.00** | UDL36000GZ40 | **2007.00** | UDL41000JZ40 | **2254.00** | UDL41000GZ40 | **2412.00** |
| 500 | UDL36000JZ50 | **2401.00** | UDL36000GZ50 | **2569.00** | UDL41000JZ50 | **2711.00** | UDL41000GZ50 | **2901.00** |

### Table 7.149: PV Switches Withstand Ratings

| Frame | 600/1000 Vdc |
|---|---|
| T-Frame | 3 kA |
| U-Frame | 7.5 kA |

### Table 7.150: Switch Numbering

| Brand | Frame | Rating | Termination | Poles | Voltage | Amperage | | | Grounding | Trip System | | | Suffix Code | | Suffix Code | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T | D | L | 3 | 6 | 0 | 0 | 0 | G | Z | 1 | 0 | A | B | S | A |

**Brand**
Blank: Schneider Electric only

**Frame**
T: T-Frame
U: U-Frame

**Ratings**
B: 3 kA
D: 7.5 kA

**Terminations**
L: Lugs Line/Load Side
F: Bus Bar
S: Rear Connected

**Poles**
3: 3P
4: 4P

**Voltage**
6: 600 Vdc
1: 1000 Vdc

**Amperage**
000: Switch

**Trip System—##**
(Z: Non-Automatic Switch)
(##: Amerage Rating)
Z10: 100 A
Z15: 150 A
Z20: 200 A
Z25: 250 A
Z30: 300 A
Z40: 400 A
Z50: 500 A

**Grounding**
G: Grounded, 80% rated
J: Ungrounded, 80% rated

**Accessory Suffix Cells (See Table 7.151 to Table 7.155)**

**Accessory Suffix Cells (See Table 7.151 to Table 7.155)**



© 2012 Schneider Electric
All Rights Reserved

### Table 7.151: Auxiliary Switches

| Contacts | Factory-Installed Suffix | Field-Installable Kit No. | Kit Qty. | $ Price |
|---|---|---|---|---|
| 1A/1B Standard | AA | S29450 | 1 | 297.00 |
| 2A/2B Standard | AB | S29450 | 2 | 594.00 |
| 3A/3B Standard▲ | AC | S29450 | 3 | 891.00 |
| 1A/1B Low-Level (Gold) | AE | S29452 | 1 | 372.00 |
| 2A/2B Low-Level (Gold) | AF | S29452 | 2 | 744.00 |
| 3A/3B Low-Level (Gold)▲ | AG | S29452 | 3 | 1116.00 |

▲ U-Frame only.

### Table 7.152: Alarm/Overcurrent Trip Switches

| Suffix | Switch | Kit No. | Kit Qty. | $ Price |
|---|---|---|---|---|
| **PowerPact T-Frame** | | | | |
| BC | Alarm Switch | S29450 | 1 | 297.00 |
| BH | Alarm Switch, Low-Level | S29452 | 1 | 372.00 |
| BD | Overcurrent Trip Switch, Standard | S29450 | 1 | 338.00 |
| | SDE Actuator | S29451 | 1 | |
| BJ | Overcurrent Trip Switch, Low-Level | S29452 | 1 | 413.00 |
| | SDE Actuator | S29451 | 1 | |
| BE | Alarm Switch and Overcurrent Trip Switch, Standard | S29450 | 2 | 635.00 |
| | SDE Actuators | S29451 | 2 | |
| BK | Alarm Switch and Overcurrent Trip Switch, Low-Level | S29452 | 2 | 785.00 |
| | SDE Actuators | S29451 | 2 | |
| **PowerPact U-Frame** | | | | |
| BC | Alarm Switch | S29450 | 1 | 297.00 |
| BH | Alarm Switch, Low-Level | S29452 | 1 | 372.00 |
| BD | Overcurrent Trip Switch, Standard | S29450 | 1 | 297.00 |
| BJ | Overcurrent Trip Switch, Low-Level | S29452 | 1 | 372.00 |
| BE | Alarm Switch and Overcurrent Trip Switch, Standard | S29450 | 2 | 594.00 |
| BK | Alarm Switch and Overcurrent Trip Switch, Low-Level | S29452 | 2 | 744.00 |

### Table 7.153: Shunt Trips

| Voltage | Shunt Trip (MX) | | |
|---|---|---|---|
| | Factory-Installed Suffix | Field-Installable Kit No. | $ Price |
| 120 Vac | SA | S29386 | 717.00 |
| 24 Vdc | SO | S29390 | 717.00 |
| 48 Vdc | SP | S29392 | 717.00 |
| 125 Vdc | SR | S29393 | 717.00 |

### Table 7.154: Rotary Operated Handles

| Device | | Description | Factory Installed Suffix | T-Frame | | U-Frame | |
|---|---|---|---|---|---|---|---|
| | | | | Field Installable Kit No. | $ Price | Field Installable Kit No. | $ Price |
| Direct Mounted | Standard Handle Black | Handle Only | RD10 | S29337 | 255.00 | S32597 | 366.00 |
| Door Mounted | Standard Black Handle | Handle Only | RE10 | S29338 | 383.00 | S32598 | 557.00 |

### Table 7.155: Locks

| Device | Description | Factory Installed Suffix | T-Frame | | U-Frame | |
|---|---|---|---|---|---|---|
| | | | Field Installable Kit No. | $ Price | Field Installable Kit No. | $ Price |
| Handle Padlocking Device | Handle Padlock, ON or OFF | YP | S29371 | 77.00 | S32631 | 122.00 |

***NOTE:*** *For a complete list of Field installable accessories and details, including also motor operator (electrical only) and locks, refer to accessories information for the PowerPact, J-Frame (compatible with T-Frame) and L-Frame (Compatible with U-Frame). Or consult Photovoltaic offer catalog 0611CT1302.*

### Table 7.156: PV Unit Mount Terminal Covers

Choose termination "L" for having the termination kit factory installed with the breaker (Lugs, Term Covers, Serial Connectors)

| Frame | Description▲ | Poles | Configuration | | | | Field Installable Catalog No. | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | Ungrounded | | Grounded | | | |
| | | | Top | Bottom | Top | Bottom | | |
| T-Frame | Long Terminal Cover (3P) | 3 | X | | | | S35175 | 145.00 |
| | Long Terminal Cover (3P/1SC) | 3 | | X | X | X | S35176 | 145.00 |
| | Long Terminal Cover (4P) | 4 | | X | | | S35177 | 162.00 |
| | Long Terminal Cover (4P/2SC) | 4 | X | | X | | S35178 | 162.00 |
| | Long Terminal Cover (4P/1SC) | 4 | | | | X | S35179 | 162.00 |
| U-Frame | Long Terminal Cover (3P) | 3 | X | | | | S32593 | 185.00 |
| | Extended Term Cover (3P/1SC) | 3 | | X | X | X | S38291 | 205.00 |
| | Long Terminal Cover (4P) | 4 | | X | | | S32594 | 198.00 |
| | Extended Term Cover (4P/2SC) | 4 | X | | X | | S38293 | 215.00 |
| | Extended Term Cover (4P/1SC) | 4 | | | | X | S38294 | 215.00 |

▲ P: Poles, SC: Serial connector.

### Table 7.157: PV Rear Connection Terminal Covers and Connectors

Choose termination "S" for having the termination kit included with the breaker (Rear Connectors, Term Covers, Serial Connectors)

| Frame | Description♦ | Poles | Configuration | | | | Field Installable Catalog No. | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | Ungrounded | | Grounded | | | |
| | | | Top | Bottom | Top | Bottom | | |
| T-Frame | Short Terminal Cover (3P) | 3 | X | | | | S29515 | 121.00 |
| | Long Terminal Cover (3P/1SC) | 3 | | X | X | X | S35169 | 145.00 |
| | Short Terminal Cover (4P) | 4 | | X | | | S29516 | 141.00 |
| | Long Terminal Cover (4P/1SC) | 4 | | | | X | S35170 | 162.00 |
| | Long Terminal Cover (4P/2SC) | 4 | X | | X | | S35178 | 162.00 |
| | Short Rear Connector (set of 2)▲ | 3, 4 | X | | X | | S29235 | 162.00 |
| | Long Rear Connector (set of 2)▲ | 3, 4 | X | | | | S29236 | 206.00 |
| U-Frame | Short Terminal Cover (3P) | 3 | X | | | | S32562 | 149.00 |
| | Extended Terminal Cover (3P/1SC) | 3 | | X | X | X | S35171 | 205.00 |
| | Short Terminal Cover (4P) | 4 | | X | | | S32563 | 161.00 |
| | Extended Term Cover (4P/1SC) | 4 | | | | X | S35172 | 215.00 |
| | Extended Term Cover (4P/2SC) | 4 | X | | X | | S38293 | 215.00 |
| | Short Rear Connector (set of 2)▲■ | 3, 4 | X | | X | | S432475 | 219.00 |
| | Long Rear Connector (set of 2)▲■ | 3, 4 | X | | | | S432476 | 261.00 |

▲ The ungrounded configurations (3P or 4P) need 2 short and 2 long rear connectors. The grounded configurations only use 2 short rear connectors.
■ Parts only, no hardware is included. See Table 7.159 U-Frame, below.
♦ P: Poles, SC: Serial connector.

### Table 7.158: PV T-Frame Bus Bar and Rear Connections Hardware

Choose termination "F" for having the termination kit included with the breaker (Terminal Nuts, Term Covers, Serial Connectors)

| Description | Cat. No. | $ Price |
|---|---|---|
| T-Frame Term Nut Insert-Metric/M8 (12) | S30554 | 150.00 |

### Table 7.159: PV U-Frame Bus Bar and Rear Connections Hardware

Choose termination "F" for having the termination kit included with the breaker (Screws and Washers, Term Covers, Serial Connectors)

| Description | Cat. No. | $ Price |
|---|---|---|
| Set of 4 M10 x 25 terminal screws and washers for one side | S36967 | 31.00 |

### Table 7.160: Mechancal Lug Kits for T- and U-Frame Circuit Breakers and Switches

| Frame | Description | Conductor | | | Current | Cat. No. | Qty. Per Kit | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | Type | No. Per Lug | Size | | | | |
| T-Frame | Lug(2) T-Frame, 12–4 AWG, Al/Cu | Al | 1 | #12–#4 AWG (4–25 $mm^2$) | 50–60 A | S35167 | 2 | 86.00 |
| | | Cu | 1 | #14–#4 AWG (2.5–25 $mm^2$) | | | | |
| | Lugs(2) T-Frame, 4–4/0 AWG, Al/Cu | Al/Cu | 1 | #4–#4/0 AWG (25–95 $mm^2$) | 70–150 A | S29255 | 2 | 86.00 |
| | Lug(2) T-Frame, 250–350 kcmil, Al/Cu | Al | 1 | #250–350 AWG (120–185 $mm^2$) | 175–200 A | S35168 | 2 | 86.00 |
| | | Cu | 1 | #2/0–350 AWG (70–185 $mm^2$) | | | | |
| U-Frame | Lug(2) U-Frame, 2/0 AWG–500 kcmil, Al/Cu | Al | 2 | 2/0 AWG–500 kcmil (70–240 $mm^2$) | 225–500 A | S35180 | 2 | 225.00 |
| | | Cu | 2 | 2/0 AWG–500 kcmil (70–240 $mm^2$) | | | | |

***NOTE:*** *For availability dates of field installable accessories in Tables 7.156. 7.157, 7.158 and 7.160 contact Schneider Electric.*

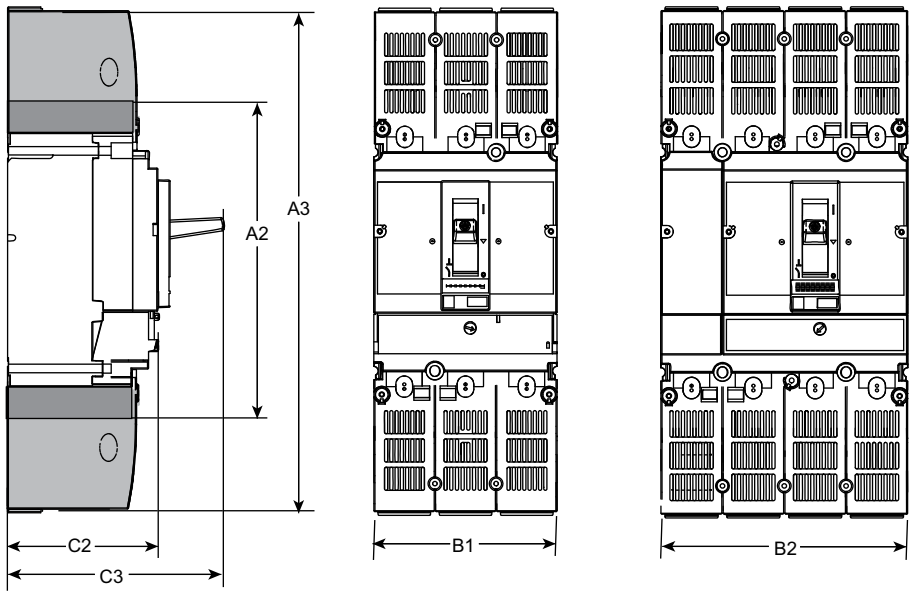




© 2012 Schneider Electric
All Rights Reserved

**Table 7.161: PV T-Frame Circuit Breaker and Switches Dimensions**

| | A2 | A3 | B1 | B2 | C2 | C3 |
|---|---|---|---|---|---|---|
| in | 7.40 | 11.42 | 4.13 | 5.51 | 3.39 | 4.96 |
| mm | 188 | 290 | 105 | 140 | 86 | 126 |




A2: Short
A3: Long

**Table 7.162: Terminal Cover Configuration According to Wiring Configuration**

| Wiring Configuration | Connection Type | | Terminal Cover Configuration | |
|---|---|---|---|---|
| | Unit Mount/Bus | Rear Connected | Top | Bottom |
| 3P Ungrounded | X | | Long | Long |
| | | X | Short | Long |
| 3P Grounded | X | X | Long | Long |
| 4P Ungrounded | X | | Long | Long |
| | | X | Long | Short |
| 4P Grounded | X | X | Long | Long |

**Table 7.163: Approximate Weights**

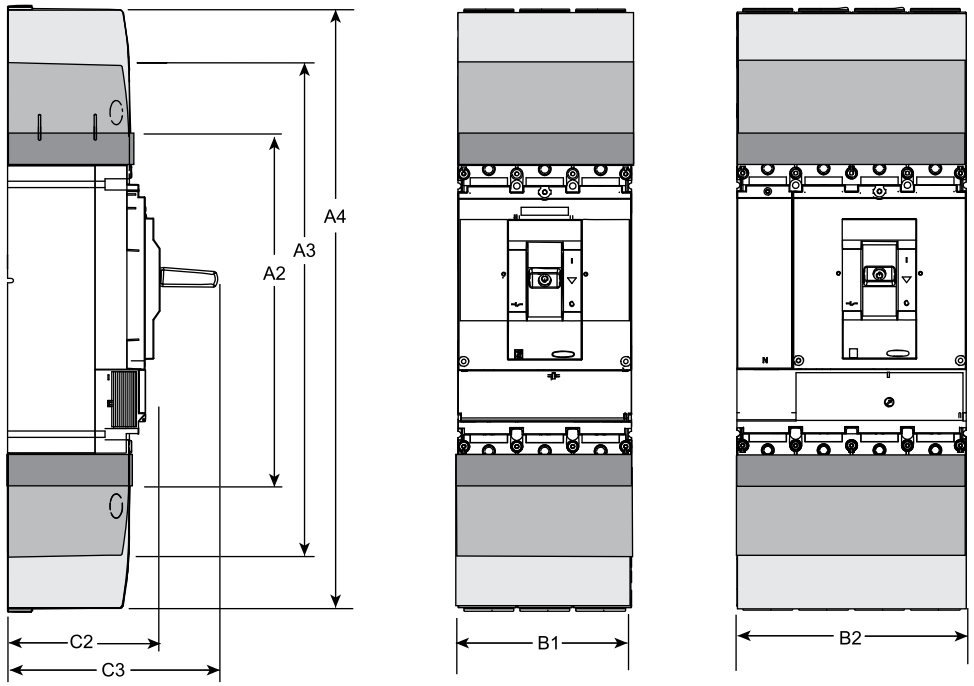
| T-Frames | Product Weight (lbs) | Shipping Weights (lbs) |
|---|---|---|
| 3P Ungrounded | 5 | 8 |
| 3P Grounded | 5.5 | 8.5 |
| 4P Ungrounded | 6.3 | 9.3 |
| 4P Grounded | 6.7 | 9.7 |



© 2012 Schneider Electric
All Rights Reserved

**Table 7.164: PV U-Frame Circuit Breaker and Switches Dimensions**

| | A2 | A3 | A4 | B1 | B2 | C2 | C3 |
|---|---|---|---|---|---|---|---|
| in | 11.2 | 15.7 | 19.1 | 5.5 | 7.2 | 4.3 | 6.6 |
| mm | 285 | 400 | 484 | 140 | 183 | 110 | 168 |




A2: Short
A3: Long
A4: Extended

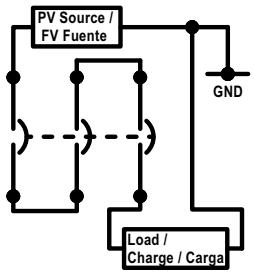
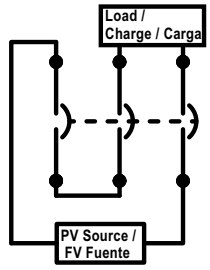
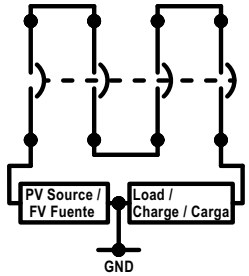
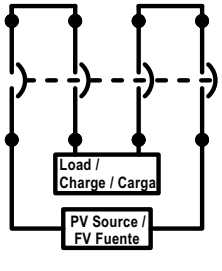
**Table 7.165: Terminal Cover Configuration According to Wiring Configuration**

| Wiring Configuration | Connection Type | | Terminal Cover Configuration | |
|---|---|---|---|---|
| | Unit Mount/Bus | Rear Connected | Top | Bottom |
| 3P Ungrounded | X | | Long | Extended |
| | | X | Short | |
| 3P Grounded | X | X | Extended | |
| 4P Ungrounded | X | | | Long |
| | | X | | Short |
| 4P Grounded | X | X | | Extended |

**Table 7.166: Approximate Weights**

| U-Frames | Product Weight (lbs) | Shipping Weights (lbs) |
|---|---|---|
| 3P Ungrounded | 15 | 19.5 |
| 3P Grounded | 17 | 21.5 |
| 4P Ungrounded | 21 | 25.5 |
| 4P Grounded | 23 | 27.5 |

**Table 7.167: PV T- and U-Frame Circuit Breakers and Switches Wiring Configurations**

| 600 Vdc (3 Poles) | | 1000 Vdc (3 Poles) | |
|---|---|---|---|
| Grounded | Ungrounded | Grounded | Ungrounded |
|  |  |  |  |







© 2012 Schneider Electric
All Rights Reserved


1P
QO-DF


1P
QO-PDF

## QO™ and QOU Miniature Circuit Breakers



### *New!* QO™ Dual Function Circuit Breaker

QO Combination Arc Fault and Ground Fault Circuit Interrupters (Dual Function) provide overload and short circuit protection, plus arc fault and ground fault protection in a single device in accordance with the NEC, UL1699 and UL943.

**Table 7.168: QO Dual Function Circuit Breakers**

| Circuit Breaker Type | Ampere Rating | 1P 120 Vac 10 k AIR 1 Space Required | | 1P 120 Vac 22 k AIR 1 Space Required | |
|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price |
| Combination Arc-fault and Ground Fault Circuit Interrupter with Pigtail Neutral | 15 A | QO115DF | **326.00** | QO115VHDF | **578.00** |
| | 20 A | QO120DF | **326.00** | QO120VHDF | **578.00** |
| Plug-On Neutral Combination Arc-fault and Ground Fault Circuit Interrupter | 15 A | QO115PDF | **326.00** | QO115VHPDF | **578.00** |
| | 20 A | QO120PDF | **326.00** | QO120VHPDF | **578.00** |



© 2012 Schneider Electric
All Rights Reserved

© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 8

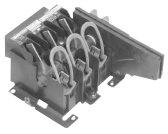
# Operating Mechanisms and Disconnect Switches



**UL508 Motor Disconnect Switch** (p. 8-7)



**UL98 Fusible Switch** (p. 8-9)



**UL98 Style Flange Handle Disconnect Switch** (p. 8-15)



**9421 Type L Circuit Breaker Mechanism** (p. 8-19)



**9422 Type R Circuit Breaker Mechanism** (p. 8-23)



**9422 Type C Circuit Breaker Cable Operator** (p. 8-21)



**9423 Door Closing Mechanisms** (p. 8-25)


## Operating Mechanisms and Disconnect Switches

Selection Guide **8-2**

## UL508 Motor Disconnect Switches

Mini-Vario and Vario™ Assembled and Enclosed Switches **8-3**
Mini-Vario and Vario Switches **8-4**
Mini-Vario and Vario Accessories **8-6**
MD Motor Disconnect Switches **8-7**

## UL98 IEC Style Disconnect Switches

LK4 Nonfusible and GS2 Fusible Disconnect Switches **8-8**
Accessories, LK4 Nonfusible and GS2 Fusible **8-10**
Dimensions, LK4 Nonfusible and GS2 Fusible **8-11**

## Flange-Mounted and Cable-Operated Disconnect Switches

Disconnect Switches **8-15**
Accessories, Disconnect Switches **8-16**
Dimensions, Disconnect Switches **8-17**

## Operating Mechanisms for Circuit Breakers

Door Mounted **8-19**
Flexible Cable Mechanisms **8-21**
Dimensions, Flange Mounted and Variable Depth **8-23**

## Operating Mechanisms, Accessories

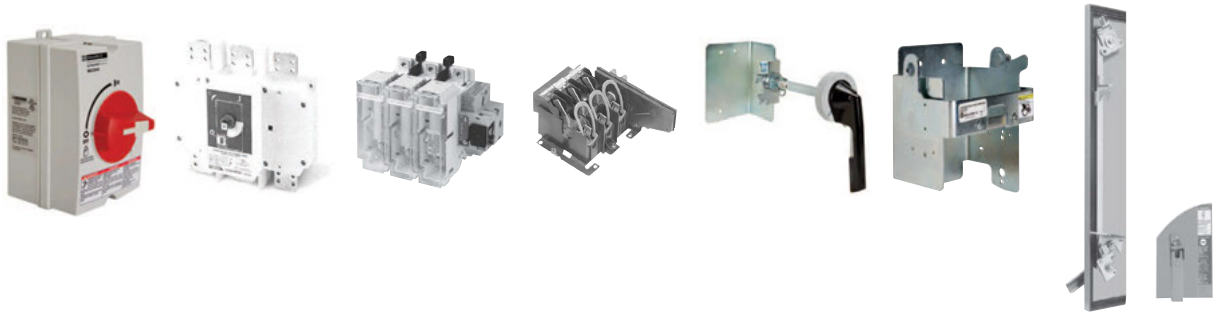
Disconnect Switches and Circuit Breakers **8-24**

## Door Closing Mechanisms

Introduction **8-25**
Types M5, M6, M1, and M8 **8-26**
Single and Multi-Door Enclosures **8-27**
Types M5, M6, M1, and M8 **8-28**




© 2012 Schneider Electric
All Rights Reserved



| Class | Vario | LK4 | GS2 | 9422 | 9421 | 9422 | 9423 |
|---|---|---|---|---|---|---|---|
| **Type** | Manual motor control switches | Nonfusible IEC style disconnect switches | Fusible IEC style disconnect switches | NEMA style fused or nonfusible disconnect switches | Circuit breaker operating mechanisms | Circuit breaker operating mechanisms | Door closing mechanisms |
| **UL Rating** | UL508 | UL98 | UL98 | UL98 | — | — | — |
| **Handle Type** | Rotary | Rotary | Rotary | Flange<br>Adjustable rod or cable mechanism | Rotary | Flange<br>Adjustable rod or cable mechanism | Rotary, works in conjunction with 9422 handle mechanisms |
| **Mounting** | Door or panel | — | Flange with cable mechanism panel | Panel or bracket mount | Panel | Panel | — |
| **Load Voltage (maximum)** | 600 Vac | 600 Vac | 600 Vac | 600 Vac | 600 Vac | 600 Vac | — |
| **Current Ratings** | 10–115 | 30–1200 | 30–800 | 30–400 | Circuit breaker frame sizes 100–1200 | Circuit breaker frame sizes 100–1200 | — |
| **Horsepower Ratings (maximum)** | 2–60 | 7.5–500 | 7.5–500 | 7.5–350 | — | — | — |
| **Enclosure Type** | Metallic:<br>NEMA Type 1, 12, 4, 4X<br>Plastic:<br>IP55, NEMA Type 4X | Handle ratings:<br>NEMA Type 1, 3R, 4, 4X, 12 | Handle ratings:<br>NEMA Type 1, 3R, 4, 4X, 12 | Handle ratings:<br>NEMA Type 1, 3R, 4, 4X, 12 | Handle ratings:<br>NEMA Type 1, 3R, 4, 4X, 12 | Handle ratings:<br>NEMA Type 1, 3R, 4, 4X, 12 | Handle ratings:<br>NEMA Type 4 and 12 sheet steel or stainless |
| **Accessories** | Power poles and auxiliary contacts | Auxiliary contacts and power lugs | Auxiliary contacts and power lugs | Auxiliary contacts | Auxiliary contacts | Auxiliary contacts | Right or left-hand operation |
| **Approvals** | UL File E164864 NLRV<br>CSA File LR 81630<br>Class 3211 05 | UL File E191098 WP2X / WP2X7<br>CSA 703149<br>Class 4652 04 | UL File E191098 WP2X / WP2X7<br>CSA 703149<br>Class 4652 04 | UL File E52639 WHTY2<br>CSA LR44199<br>Class 4652-04 | UL File E62922 DIHS2<br>CSA LR44199<br>Class 3211 07 | UL File E62922 DIHS2<br>CSA LR44199<br>Class 3211 07 | — |
| **Page** | 8-3 | 8-8 | 8-9 | 8-15 | 8-19 | 8-21 | 8-25 |





© 2012 Schneider Electric
All Rights Reserved

The Mini-Vario and Vario motor disconnect switch catalog numbers can be identified as described in Table 8.1.



VCFN12GE



VN12



VN12/KCC1YZ



VBDN12



VCDN12

### Table 8.1: Identification System

| | V | CF | N12 | GE |
|---|---|---|---|---|
| **Model (V-Vario, K-Operator)** | | | | |
| **Operator Type/ Accessory Designation** | | | | |
| **Switch Type▲** | | | | |
| **Enclosure Type (if applicable)** | | | | |

**Operator Type/ Accessory Designation**

| | | | |
|---|---|---|---|
| **CD** | Single hole Red & Yellow | **BD** | Single hole Black and Gray |
| **CF** | Four hole Red & Yellow | **BF** | Four hole Black and Gray |
| **CCD** | Single hole Red & Yellow w/extension shaft | **VE** | Switch with Red handle installed on unit (one padlock only) |
| **CCF** | Four hole Red & Yellow w/ extension shaft | **VD** | Switch with Black handle installed on unit (no padlock provision) |
| **Blank** | No operator or accessory | **Z** | Accessory, power pole, neutral or ground |

**Switch Type▲**

| | | | |
|---|---|---|---|
| **Blank** | | **1** | Vario 20/32 A |
| **N12** | Mini-Vario 10/12 A | **2** | Vario 25/40 A |
| **N20** | Mini-Vario 16/20 A | **3** | Vario 45/63 A |
| **02** | Vario 10/12 A | **4** | Vario 63/80 A |
| **01** | Vario 16/20 A | **5** | Vario 100/125 A |
| **0** | Vario 20/25 A | **6** | Vario 115/175 A |

**Enclosure Type (if applicable)**

| | | | |
|---|---|---|---|
| **Blank** | No Enclosure | **G30, A30, W30** | Type 1/12/4/4X Metallic (Class 9421) |
| **GE** | Mini-Vario IP55 Non-Metallic | **GU** | Vario IP55 Non-Metallic |

▲ Switches/contacts are dual rated (UL/IEC).

## Mini-Vario

### Table 8.2: Assembled Switches—Degree of Protection IP65, Type 1 and 12

| Rating (A) | | Complete Switches for Door Mounting (3-Padlock) | | | | Complete Switches for Rear Mounting, Includes Extension Shaft (3-Padlock) | |
|---|---|---|---|---|---|---|---|
| | | Red/Yellow (Single Hole) | | Black/Gray (Single Hole) | | Red/Yellow (Single Hole) | |
| UL | IEC | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 10 | 12 | VCDN12 | **90.00** | VBDN12 | **90.00** | VCCDN12 | **134.00** |
| 16 | 20 | VCDN20 | **135.00** | VBDN20 | **135.00** | VCCDN20 | **161.00** |

### Table 8.3: Enclosed Switches

| Complete Switches Mounted in IP55 Non-Metallic Enclosure | |
|---|---|
| Red/Yellow Mounted In Sealable Enclosure, Non-UL Listed, Non-NEMA Rated | |
| Catalog Number | $ Price |
| VCFN12GE | **179.00** |
| VCFN20GE | **189.00** |

### Table 8.4: Component Parts

| Catalog Number | Description | $ Price |
|---|---|---|
| VN12▲ | 10/12 A switch only | **52.00** |
| VN20▲ | 16/20 A switch only | **63.00** |
| VZN12▲ | Add on power pole for 10/12 A switch | **26.00** |
| VZN20▲ | Add on power pole for 16/20 A switch | **31.50** |
| VZN11 | Neutral Pole with early make, late break for VN12 or VN20 switch | **29.30** |
| VZN14 | Grounding module for VN12 or VN20 | **29.30** |
| VZN05 | N.O. late make auxiliary contact■ | **27.00** |
| VZN06 | N.C. early break auxiliary contact■ | **27.00** |
| VZN26 | Single-pole shroud for auxiliary contacts | **5.90** |
| VZN08 | Three-pole shroud for VN12 or VN20 | **7.70** |

▲ Switches/contacts are dual rated (UL/IEC).
■ Auxiliary contacts are dual rated (UL/IEC 10/12 A).

### Table 8.5: Operators and Accessories

| Catalog Number | Description | $ Price |
|---|---|---|
| KCC1YZ | 45 x 45 mm Red & Yellow operator | **39.20** |
| KCD1PZ | 60 x 60 mm Red & Yellow operator | **39.20** |
| KAD1PZ | 60 x 60 mm Black & Gray operator | **39.20** |
| VZN17 | 300–340 mm shaft extension | **22.50** |
| VZN30 | 400–430 mm shaft extension | **27.00** |
| KZ32 | Door interlocking plate for 45 or 60 mm operator | **20.30** |
| KZ83 | Door mounting plate for 45 or 60 mm operator | **20.30** |



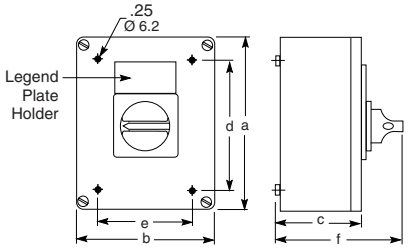
VCCDN20



© 2012 Schneider Electric
All Rights Reserved





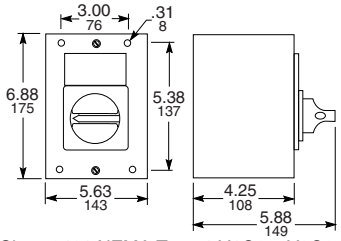



Non-Metallic Enclosure

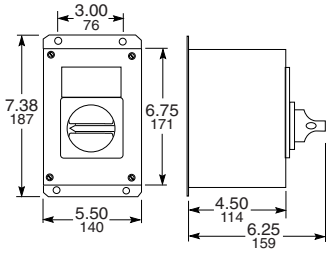


Metallic Enclosure

Metallic Enclosed Switch Dimensions




Class 9421 NEMA Type 1 V1G30, V2G30




Class 9421 NEMA Type 4, 4X, 12
V1W30, V2W30, V1A30, V2A30

## Vario

### Table 8.6: NEMA Type 1 and 12 Assembled Switches for Door Mounting

| Rating (A) | | Complete Switches (Switch and Handle) for Door Mounting (3-padlock) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Red/Yellow (Four Hole) | | Black/Gray (Four Hole) | | Red/Yellow (Single Hole) | | Black/Gray (Single Hole) | |
| UL | IEC | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 10 | 12 | VCF02 | **125.00** | VBF02 | **125.00** | VCD02 | **134.00** | VBD02 | **134.00** |
| 16 | 20 | VCF01 | **147.00** | VBF01 | **147.00** | VCD01 | **161.00** | VBD01 | **161.00** |
| 20 | 25 | VCF0 | **174.00** | VBF0 | **174.00** | VCD0 | **206.00** | VBD0 | **206.00** |
| 20 | 32 | VCF1 | **185.00** | VBF1 | **185.00** | VCD1 | **219.00** | VBD1 | **219.00** |
| 25 | 40 | VCF2 | **237.00** | VBF2 | **237.00** | VCD2 | **252.00** | VBD2 | **252.00** |
| 45 | 63 | VCF3 | **282.00** | VBF3 | **282.00** | — | — | — | — |
| 63 | 80 | VCF4 | **329.00** | VBF4 | **329.00** | — | — | — | — |
| 100 | 125 | VCF5 | **401.00** | VBF5 | **401.00** | — | — | — | — |
| 115 | 175 | VCF6 | **612.00** | VBF6 | **612.00** | — | — | — | — |

### Table 8.7: NEMA Type 1 and 12 Assembled Switches for Rear Mounting

| Rating (A) | | Complete Switches for Rear Mounting with Extension Shaft (3-Padlock)▲ | | | | Switches with Handles Installed on Unit, DIN Rail Mount Only | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Red/Yellow (Four Hole) | | Red/Yellow (Single Hole) | | Red/Yellow (1-Padlock) | | Black/Gray (No-Padlock) | |
| UL | IEC | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 10 | 12 | VCCF02 | **162.00** | VCCD02 | **162.00** | — | — | — | — |
| 16 | 20 | VCCF01 | **185.00** | VCCD01 | **185.00** | — | — | — | — |
| 20 | 25 | VCCF0 | **197.00** | VCCD0 | **197.00** | VVE0 | **149.00** | VVD0 | **149.00** |
| 20 | 32 | VCCF1 | **206.00** | VCCD1 | **206.00** | VVE1 | **156.00** | VVD1 | **156.00** |
| 25 | 40 | VCCF2 | **252.00** | VCCD2 | **252.00** | VVE2 | **180.00** | VVD2 | **180.00** |
| 45 | 63 | VCCF3 | **320.00** | — | — | VVE3 | **212.00** | VVD3 | **212.00** |
| 63 | 80 | VCCF4 | **356.00** | — | — | VVE4 | **300.00** | VVD4 | **300.00** |
| 100 | 125 | VCCF5 | **464.00** | — | — | — | — | — | — |
| 115 | 175 | VCCF6 | **606.00** | — | — | — | — | — | — |

▲ Complete switch includes handle operator, shaft, door interlock plate, and line terminal shroud.

## Non-Metallic Enclosed Switches

The Vario Motor Disconnect Switch is also offered as an enclosed switch. The 3-pole version makes the Vario switch ideal for manual motor control applications. They are compact, easy to wire and connect, and come undrilled to allow aable cable entry positions.

***NOTE:*** *VCGUN enclosures are UL approved.*

### Table 8.8: Non-Metallic Enclosed Switch▲■

| Ampere Size UL/IEC | IP55-PVC 3-Pole, NEMA Type 1 & 12 | |
|---|---|---|
| | Catalog No. | $ Price |
| 20/32 | VC1GUN | **239.00** |
| 25/40 | VC2GUN | **287.00** |
| 45/63 | VC3GUN | **345.00** |
| 63/80 | VC4GUN | **381.00** |
| 100/125 | VC5GUN | **548.00** |
| 115/175 | VC6GUN | **845.00** |

▲ Assembled, includes switches mounted in enclosure with handle.
■ Refer to Table 8.11 and Table 8.12 for horsepower ratings.

### Table 8.9: Dimensions

| Type | No. of Poles | a | b | c | d | e | f |
|---|---|---|---|---|---|---|---|
| VC1GUN | 3 | 6.5 (164) | 4.8 (121) | 3.4 (87) | 5.6 (141) | 3.9 (98) | 5.2 (132) |
| VC2GUN | | | | | | | |
| VC3GUN | 3 | 7.6 (193) | 6.5 (164) | 3.4 (87) | 6.7 (170) | 5.6 (141) | 5.2 (132) |
| VC4GUN | | | | | | | |
| VC5GUN | 3 | 11.5 (291) | 9.5 (241) | 5.0 (128) | 10.6 (269) | 8.6 (219) | 7.5 (191) |
| VC6GUN | | | | | | | |

The V1 and V2 come in metallic enclosures (NEMA Type 1, 4, 4X, and 12). The NEMA Type 1 comes with conduit knockouts top and bottom. To factory install a VZ7 auxiliary contact in these metallic enclosures, add Form X11 to the end of the catalog number (for example, 9421V1G30X11). To factory install a VZ20 auxiliary contact in these enclosures, add Form X20 to the end of the catalog number (for example, 9421V1W30X20). Price adder: **$42.00**

### Table 8.10: Metallic Enclosed Switches ▲ ■

| Rating (A) | | Horsepower Ratings | | | NEMA Type 1 | | NEMA Type 12 | | NEMA Type 4/4X■ | |
|---|---|---|---|---|---|---|---|---|---|---|
| UL | IEC | 240 V | 480 V | 600 V | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 20 | 32 | 5 | 10 | 10 | 9421V1G30 | **333.00** | 9421V1A30 | **548.00** | 9421V1W30 | **783.00** |
| 25 | 40 | 5 | 10 | 15 | 9421V2G30 | **381.00** | 9421V2A30 | **594.00** | 9421V2W30 | **831.00** |

▲ Assembled, includes switches mounted in enclosure with handle.
■ For indoor use only. The NEMA Type 4/4X enclosure is made of #304 stainless steel with 3/4 in. T&B stainless steel hubs on the top and bottom.

### Table 8.11: Vario Manual Motor Control Switches, IEC

| Rating (A) IEC | kW Rating | | | | 3-Pole Switch Body | |
|---|---|---|---|---|---|---|
| | 230 V | 240 V | 400 V | 415 V | 500 V | 690 V |
| 12 | 3 | 3 | 4 | 4 | 5.5 | 7.5 |
| 20 | 4 | 4 | 5.5 | 5.5 | 7.5 | 11 |
| 25 | 5.5 | 5.5 | 7.5 | 7.5 | 11 | 15 |
| 32 | 5.5 | 5.5 | 11 | 11 | 11 | 15 |
| 40 | 7.5 | 7.5 | 15 | 15 | 18.5 | 15 |
| 63 | 15 | 15 | 22 | 22 | 30 | 22 |
| 80 | 18.5 | 18.5 | 30 | 30 | 37 | 30 |
| 125 | 22 | 22 | 37 | 37 | 45 | 37 |
| 175 | 30 | 30 | 45 | 45 | 55 | 45 |





© 2012 Schneider Electric
All Rights Reserved

## Vario Manual Motor Control Switches

Vario switches meet UL508 requirements as open manual motor controllers. They are also marked "Suitable as Motor Disconnect" allowing installation on the load side of the motor branch circuit short-circuit and ground-fault protection. If motor branch circuit short-circuit and ground-fault protection is needed, use a GS1 or 9422 fusible switch or circuit breaker meeting NEC 430.52 requirements.



Manual Motor Control Switch

### Table 8.12: Vario Manual Motor Control Switches

| Rating (A) | Horsepower Rating | | | Shaft Size | 3-Pole Switch Body |
|---|---|---|---|---|---|
| UL | 240 V | 480 V | 600 V | mm | Type |
| 10 | 2 | 5 | 5 | 6 | V02 |
| 16 | 3 | 7.5 | 7.5 | 6 | V01 |
| 20 | 5 | 10 | 10 | 6 | V0 |
| 20 | 5 | 10 | 10 | 6 | V1 |
| 25 | 5 | 10 | 15 | 6 | V2 |
| 45 | 10 | 20 | 30 | 8 | V3 |
| 63 | 15 | 30 | 40 | 8 | V4 |
| 100 | 25 | 50 | 50 | 8 | V5 |
| 115 | 30 | 50 | 60 | 8 | V6 |

### Table 8.13: Switch Body▲

| Rating (A) | | Shaft Size mm | 3-Pole Switch Body | |
|---|---|---|---|---|
| UL | IEC | | Type | $ Price |
| 10 | 12 | 6 | V02 | **62.00** |
| 16 | 20 | 6 | V01 | **74.00** |
| 20 | 25 | 6 | V0 | **84.00** |
| 20 | 32 | 6 | V1 | **95.00** |
| 25 | 40 | 6 | V2 | **143.00** |
| 45 | 63 | 8 | V3 | **179.00** |
| 63 | 80 | 8 | V4 | **215.00** |
| 100 | 125 | 8 | V5 | **287.00** |
| 115 | 175 | 8 | V6 | **428.00** |

▲ Refer to Table 8.10 and Table 8.12 for horsepower ratings.



Single-Hole Operator

### Table 8.14: NEMA Type 1 and 12 Handle Operators: V02–V2 (6 mm Shaft), V3–V6 (8 mm Shaft) ▲

| Operator Type | | Red/Yellow Single Hole 45 x 45 mm | | Red/Yellow Four Hole 45 x 45 mm | | Black/Gray Single Hole 45 x 45 mm | | Black/Gray Four Hole 45 x 45 mm | |
|---|---|---|---|---|---|---|---|---|---|
| Switches | No. of Padlocks | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| V02–V2 | 0 | KCC1LZ | **39.20** | KCE1LZ | **39.20** | KAC1BZ | **39.20** | KAE1BZ | **39.20** |
| V02–V2 | 1 | KCC1YZ | **39.20** | KCE1YZ | **39.20** | — | — | — | — |
| **Operator Type** | | **Red/Yellow Single Hole 60 x 60 mm** | | **Red/Yellow Four Hole 60 x 60 mm** | | **Black/Gray Single Hole 60 x 60 mm** | | **Black/Gray Four Hole 60 x 60 mm** | |
| V02–V2 | 0 | KDD1PZ | **39.20** | KDF1PZ | **39.20** | KBD1PZ | **39.20** | KBF1PZ | **39.20** |
| V3–V4 | 0 | — | — | KDF2PZ | **39.20** | — | — | KBF2PZ | **39.20** |
| V02–V2 | 3 | KCD1PZ | **39.20** | KCF1PZ | **39.20** | KAD1PZ | **39.20** | KAF1PZ | **39.20** |
| V3–V4 | 3 | — | — | KCF2PZ | **39.20** | — | — | KAF2PZ | **39.20** |
| **Operator Type** | | **Red/Yellow Four Hole 90 x 90 mm** | | **Black/Gray Four Hole 90 x 90 mm** | | | | | |
| V5–V6 | 0 | KDF3PZ | **107.00** | KBF3PZ | **107.00** | | | | |
| V5–V6 | 3 | KCF3PZ | **107.00** | KAF3PZ | **107.00** | | | | |

▲ When using these handles for replacements on the non-metallic enclosed switches, the handle shaft that comes with the enclosure must be reused. See Section 17 of the Supplemental Digest.

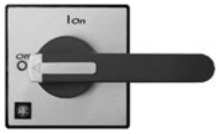


Four-Hole Operator (All except KDF3PZ and KBF3PZ)

### Table 8.15: Low Profile Handle Operators▲

| Operator Type | | Red/Yellow Single Hole 60 x 60 mm | | Red/Yellow Four Hole 60 x 60 mm | | Black/Gray Single Hole 60 x 60 | | Black/Gray Four Hole 60 x 60 mm | |
|---|---|---|---|---|---|---|---|---|---|
| Switches | No. of Padlocks | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| V02–V2 | 3 | KCD1YZ | **39.20** | KCF1YZ | **39.20** | KADIXZ | **39.20** | KAF1XZ | **39.20** |
| V3–V4 | 3 | — | — | KCF2YZ | **39.20** | — | — | KAF2XZ | **39.20** |
| **Operator Type** | | **Red/Yellow Four Hole 90 x 90 mm** | | **Black/Gray Four Hole 90 x 90 mm** | | | | | |
| V5–V6 | 3 | KCG2YZ | **72.00** | KAG2XZ | **72.00** | | | | |

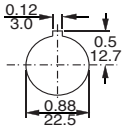
▲ When using these handles for replacements on the non-metallic enclosed switches, the handle shaft that comes with the enclosure must be reused. See Section 17 of the Supplemental Digest.



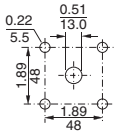
Four-Hole Operator KDF3PZ and KBF3PZ

### Table 8.16: Gasket Kits

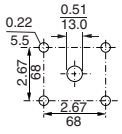
| Catalog No. | Description | $ Price Each |
|---|---|---|
| KZ65 | 45 x 45 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5)—IP65 | **5.90** |
| KZ66 | 60 x 60 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5) | **12.00** |
| KZ62 | 60 x 60 mm gasket for V3-V4 for 4-hole type handles (order in quantities of 5) | **12.00** |
| KZ67 | 90 x 90 mm gasket for V5-V6 for 4-hole type handles (order in quantities of 5)—IP65 | **15.60** |




**Single-Hole Mounting Dimensions**




**Four-Hole 60 x 60 Mounting Dimensions ▲**




**Four-Hole 90 x 90 Mounting Dimensions ▲**

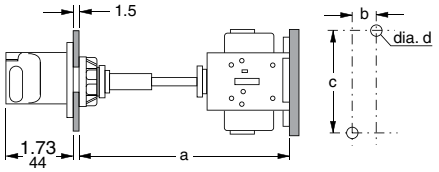
▲ The door interlock plate included with VCC Kits has the same drilling as the handle operators.



Low-Profile Handle KCD1YZ

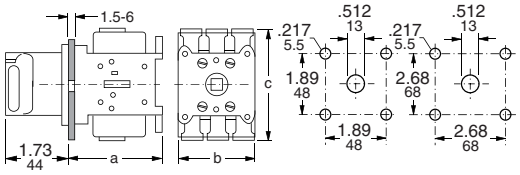
### Table 8.17: Rear/Panel Mounting Switch Body Dimensions

| Type | Shaft Extension | Dimensions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | a | | b | | c | | d | |
| | | in. | mm | in. | mm | in. | mm | in. | mm |
| V02 to V2 | VZ17<br>VZ30 | 5.5–13.0<br>5.5–16.9 | 140–330<br>140–430 | 0.60 | 15 | 2.4 | 60 | 0.17 | 4.2 |
| V3 to V4 | VZ18<br>VZ31 | 5.5–12.6<br>5.5–16.5 | 140–320<br>140–420 | 0.79 | 20 | 2.4 | 60 | 0.20 | 5.2 |
| V5 to V6 | VZ18<br>VZ31 | 6.5–13.8<br>6.5–17.7 | 165–350<br>165–450 | 1.20 | 30 | 3.9 | 100 | 0.28 | 7.0 |






© 2012 Schneider Electric
All Rights Reserved



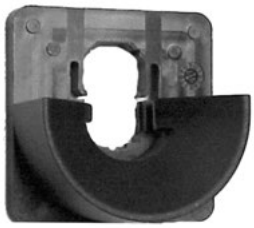

## Table 8.18: Door Mounting Switch Body Dimensions

| Switch Type | Dimensions | | | | | | Weight Approx. lbs. |
|---|---|---|---|---|---|---|---|
| | a | | b | | c | | |
| | in. | mm | in. | mm | in. | mm | |
| V02 to V2▲ | 2.83 | 72 | 2.17 | 55 | 2.91 | 74 | 0.44 |
| V02 to V2 | 2.36 | 60 | 2.17 | 55 | 2.91 | 74 | 0.44 |
| V3 to V4 | 2.56 | 65 | 2.36 | 60 | 3.27 | 83 | 1.10 |
| V5 to V6 | 3.54 | 90 | 3.54 | 90 | 4.92 | 125 | 2.00 |

▲ Dimensions for single-hole mounting.



Shaft Extension Kit



Door Interlock Plate
KZ32

## Table 8.19: Shaft Extension and Door Interlock

| Switch Type | Maximum Panel Depth | | Shaft Extension Kit | $ Price | Door Interlock Plate | $ Price | Door Mounting Plate | $ Price |
|---|---|---|---|---|---|---|---|---|
| | in. | mm | | | | | | |
| V02 to V2 | 13.0 | 330 | VZ17 | **28.70** | KZ32 | **20.30** | KZ83 | **20.30** |
| V3, V4 | 12.6 | 320 | VZ18 | **35.60** | KZ74 | **39.20** | KZ81 | **39.20** |
| V5, V6 | 13.8 | 351 | VZ18 | **35.60** | KZ74 | **39.20** | KZ81 | **39.20** |
| V02 to V2 | 16.9 | 429 | VZ30 | **35.60** | KZ32 | **20.30** | KZ83 | **20.30** |
| V3, V4 | 16.5 | 419 | VZ31 | **42.80** | KZ74 | **39.20** | KZ81 | **39.20** |
| V5, V6 | 17.7 | 450 | VZ31 | **42.80** | KZ74 | **39.20** | KZ81 | **39.20** |

## Table 8.20: Accessories

| Switch Type | Line Side Terminal Shroud For Main Switch | $ Price | Terminal Shroud for Add-on Power Pole | $ Price | Terminal Shroud for Auxiliary Contact | $ Price |
|---|---|---|---|---|---|---|
| V02 to V2 | VZ8 | **8.40** | VZ26 | **5.90** | VZ29 | **5.90** |
| V3, V4 | VZ9 | **8.40** | VZ27 | **5.90** | VZ29 | **5.90** |
| V5, V6 | VZ10 | **12.00** | VZ28 | **9.50** | VZ29 | **5.90** |

## Table 8.21: Add-On Contact Modules

| Switch Type | Main Pole Module | Main Pole | Ampere Rating UL/IEC | $ Price | Auxiliary Contacts | | $ Price |
|---|---|---|---|---|---|---|---|
| | | | | | 1 N.O. & 1 N.C. ▲ | 2 N.O. | |
| V02 | VZ02 | VZ02 | 10/12 | **31.50** | | | |
| V01 | VZ01 | VZ01 | 16/20 | **32.90** | | | |
| V0 | VZ0 | VZ0 | 20/25 | **34.20** | | | |
| V1 | VZ1 | VZ1 | 20/32 | **35.60** | | | |
| V2 | VZ2 | VZ2 | 25/40 | **55.00** | VZ7■ | VZ20■ | **42.80** |
| V3 | VZ3 | VZ3 | 45/63 | **66.00** | | | |
| V4 | VZ4 | VZ4 | 63/80 | **82.00** | | | |
| V5 | — | — | — | — | | | |
| V6 | — | — | — | — | | | |

▲ Early Break, Late Make.
■ Auxiliary contacts are rated UL/IEC 10/12 A.



Add-On Contact Modules

## Table 8.22: Add-On Contact Modules

| Switch Type | Neutral Modules Early Make/Late Break | | Grounding Module | | Auxiliary Contacts | | |
|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | Description | $ Price |
| V02–V2 | VZ11 | **42.80** | VZ14 | **42.80** | VZ7 | 1 Late Make N.O. & 1 Early Break N.C. | **42.80** |
| V3–V4 | VZ12 | **54.00** | VZ15 | **54.00** | VZ20 | 2 N.O. Contacts | **42.80** |
| V5–V6 | VZ13 | **70.00** | VZ16 | **70.00** | — | — | — |

## Table 8.23: Labeling Accessories

| Nameplate Holder with Nameplate | | | Nameplate Holder Only | | Nameplate Only | | |
|---|---|---|---|---|---|---|---|
| Size | Catalog No. | $ Price | Catalog No. | $ Price | Use With | Catalog No. | $ Price |
| 45 x 45 mm | KZ13 | **4.80** | KZ14 | **4.40** | KZ14 | KZ76 | **3.50** |
| 60 x 60 mm | KZ15 | **4.80** | KZ16 | **4.40** | KZ16 | KZ77 | **3.50** |
| 90 x 90 mm | KZ103 | **7.80** | KZ101 | **6.80** | KZ1010 | KZ100 | **3.50** |



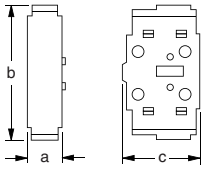
Terminal Shroud for
Main Switch
VZ8



Terminal Shroud
for Auxiliary Contact
VZ29

## Table 8.24: Shrouds

| Switch Type | 3-Pole Shroud | | Single-Pole Shroud | | |
|---|---|---|---|---|---|
| | Catalog No. | $ Price | For Add-On Power Pole | Catalog No. | $ Price |
| V02–V2 | VZ8 | **8.40** | VZ02-VZ2, VZ11 & VZ14 | VZ26 | **5.90** |
| V3–V4 | VZ9 | **8.40** | VZ23, VZ4, VZ12 & VZ15 | VZ27 | **6.90** |
| V5–V6 | VZ10 | **12.00** | VZ13 & VZ16 | VZ28 | **9.50** |
| — | — | — | For 2-Pole Aux. Contact | VZ29 | **5.90** |




Main Pole Module

## Table 8.25: Main Pole Module Dimensions

| Switch Type | Dimensions | | | | | | Weight Approx. lbs. |
|---|---|---|---|---|---|---|---|
| | a | | b | | c | | |
| | in. | mm | in. | mm | in. | mm | |
| V02 to VZ2 | 0.63 | 16 | 2.9 | 74 | 1.38 | 35 | 0.10 |
| VZ3 to VZ4 | 0.79 | 20 | 3.3 | 83 | 1.80 | 46 | 0.22 |





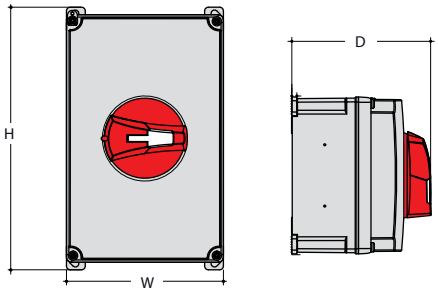
© 2012 Schneider Electric
All Rights Reserved

# MD Motor Disconnect Switches

New!

Class **3110 /** Refer to Catalog **3100CT0901**






MD Motor Disconnect Switches

The MD motor disconnect switch is listed UL508 Suitable for Motor Control (UL File E164864) and conforms to IEC standard 60947-3. It is in a compact NEMA Type 4X enclosure suitable for use in NEMA Type 1, 3, 3R, 4, 4X, and 12 applications. The MD's key benefits are an extremely small footprint, a more economically efficient NEMA Type 4X solution and a handle interlock preventing cover removal when the switch is in the ON position.

**Table 8.26: MD Motor Disconnect Switch—Non-Metallic NEMA Type 1, 3, 3R, 4, 4X, and 12 Enclosure▲■♦**

| Amperes | Cat. No. | Maximum Horsepower Ratings Three Phase Vac | | | $ Price | Height (in.) | Width (in.) | Depth (in.) |
|---|---|---|---|---|---|---|---|---|
| | | 220–240 | 440–480 | 600 | | | | |
| 30 | MD3304X | 7.5 | 20 | 25 | **121.00** | 6.38 | 3.9 | 4.37 |
| 60 | MD3604X | 20 | 40 | 40 | **161.00** | 8.27 | 4.94 | 4.37 |

▲ See Table 8.20 for accessories.
■ Complies with OSHA lockout/tagout requirements—accepts up to three 8 mm padlocks.
♦ Suitable for NEMA Type 1, 3R, 4, 4X, and 12 enclosure applications.

**Table 8.27: MD Motor Disconnect Accessories**

| Cat. No. | Description | $ Price |
|---|---|---|
| MDSAN20 | 2 N.O. auxiliary contact module | **57.00** |
| MDSAN11 | 1 N.O. and 1 N.C. auxiliary contact module | **27.00** |
| MDS30P | 30 A add on power pole | **35.00** |



© 2012 Schneider Electric
All Rights Reserved

## Example of the parts to order to build a complete GS or LK switch:

**Choose a Switch** + **Shaft** + **Handle Assembly** + **Lugs if needed**



600 A, LK4SU3N



Shaft 320 mm, GS2AE6



Black Handle, GS2AH150



Lugs Kit, GS1AW503

**Example:**
**LK4SU3N** (600 A nonfusible switch, use 15x12 shaft) + **GS2AE6** (320 mm Type S shaft) + **GS2AH150** (black/ black, lockable)

**To add auxiliary contacts:**
For front-mounted contacts order **LK4AD30N** (front-mounted auxiliary contact holder) + **GS2AM110**.

New!



30–100 A Compact

New!



100–400 A



GS2AH130



GS2AH150



GS2AH170

### Table 8.28: LK Nonfusible IEC Style Disconnect Switches

| Pole | Rating (A) | Catalog Number | $ Price | Maximum Horsepower Rating | | | | Short Circuit Current Rating 600 Vac | | Shaft Sty;e |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 240 V | 480 V | 600 V | 250 Vdc | Fuse | SCCR kA | |
| 3 | 30 | LK4DU3CN | **218.00** | 10 | 20 | 30 | — | J | 100 | AL |
| 3 | 60 | LK4GU3CN | **263.00** | 20 | 40 | 50 | — | J | 100 | AL |
| 3 | 100 | LK4JU3CN | **458.00** | 20 | 50 | 50 | N/A | J | 100 | AL |
| 3 | 100 | LK4JU3N | **458.00** | 30 | 75 | 100 | 15 | J | 200 | B |
| 3 | 200 | LK4MU3N | **1010.00** | 75 | 150 | 200 | 15 | J | 200 | B |
| 3 | 400 | LK4QU3N | **1910.00** | 125 | 250 | 350 | 50 | J | 200 | B |
| 3 | 600 | LK4SU3N | **2873.00** | 200 | 400 | 350 | 50 | J | 200 | D |
| 3 | 800 | LK4TU3N | **4301.00** | 200 | 500 | 500 | — | L | 100 | D |
| 3 | 1000 | LK4UU3N | **5372.00** | 200 | 500 | 500 | — | L | 100 | D |
| 3 | 1200 | LK4WU3N | **6450.00** | 200 | 500 | 500 | — | L | 100 | D |

### Table 8.29: Handles and Shafts for LK Switches

| Rating (A) | Handle | | | | Shaft: 12.6/320 in./mm | | Shaft: 15.7/400 in./mm | | Shaft Guide▲ | | Shaft Style |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Catalog No. | Type | Color | $ Price | Catalog No. | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | |
| 30–100 | LK4AH110CN■ | 1, 3R, 12 | Black | **62.00** | LK4AE12CN | **18.60** | — | — | LK4AEAH12CN | **15.50** | AL |
| 30–100 | LK4AH120CN■ | 1, 3R, 12 | Red/Yellow | **62.00** | | | | | | | |
| 30–100 | LK4AH410CN■ | 4, 4X | Black | **70.00** | | | | | | | |
| 30–100 | LK4AH420CN■ | 4, 4X | Red/Yellow | **70.00** | | | | | | | |
| 100–400 | GS2AH130 | 1, 3R, 12 | Black | **70.00** | GS2AE2 | **20.30** | GS2AE21 | **25.00** | — | — | B |
| 100–400 | GS2AH140 | 1, 3R, 12 | Red/Yellow | **70.00** | | | | | | | |
| 100–400 | GS2AH430 | 4, 4X | Black | **78.00** | | | | | | | |
| 100–400 | GS2AH440 | 4, 4X | Red/Yellow | **78.00** | | | | | | | |
| 600 | GS2AH150 | 4, 4X | Black | **263.00** | GS2AE6 | **32.60** | GS2AE61 | **40.40** | — | — | D |
| 600 | GS2AH160 | 4, 4X | Red/Yellow | **263.00** | | | | | | | |
| 800–1200 | GS2AH170 | 4, 4X | Black | **296.00** | | | | | | | |
| 800–1200 | GS2AH180 | 4, 4X | Red/Yellow | **296.00** | | | | | | | |

▲ Optional on shafts for LK4DU3CN, LK4GU3CN and LK4JU3CN.
■ For use on switches ending with CN only.

### Table 8.30: Auxiliary Contacts for LK Switches

| Switch Amperes | Catalog Number | Description | $ Price |
|---|---|---|---|
| 30–60 | MDSAN11 | Aux Contact 1 N.O. and 1 N.C. | **14.70** |
| 30–60 | MDSAN20 | Aux Contact 2 N.O. and 2 N.C. | **27.50** |
| 100–400 | LK4AD10N | Aux Contact 1 N.O. and 1 N.C. | **14.70** |
| 100–400 | LK4AD20N | Aux Contact 2 N.O. and 2 N.C. | **14.70** |
| 600–1200 | LK4AD30N | Aux Contact Holder | **14.70** |
| 600–1200 | GS2AM110 | Aux Contact 1 N.O. | **14.70** |
| 600–1200 | GS2AM101 | Aux Contact 1 N.C. | **14.70** |

### Table 8.31: Terminal Shrouds for LK Switches

| Switch Amperes | Catalog Number | Description | $ Price |
|---|---|---|---|
| 30–60 | LK4AP3CN | Shroud Top and Bottom, 3-Pole | **79.00** |
| 100–200 | LK4AP33TN | Shroud Top LK4, 3-Pole, 100/200 A | **101.00** |
| 100–200 | LK4AP33BN | Shroud Bottom LK4, 3-Pole, 100/200 A | **101.00** |
| 400 | LK4AP53TN | Shroud Top LK4, 3-Pole, 400 A | **140.00** |
| 400 | LK4AP53BN | Shroud Bottom LK4, 3-Pole, 400 A | **140.00** |
| 600▲ | LK4AP63N | Shroud Bottom LK4, 3-Pole, 600 A | **280.00** |
| 800–1200▲ | LK4AP83N | Shroud Bottom LK4, 3-Pole, 800–1200 A | **280.00** |

▲ 600–1200 A standard with top shroud.





© 2012 Schneider Electric
All Rights Reserved

New!



GS2GU3N



GS2AH110
Suggested for
30–60 A



GS2AH150



GS2AH130
100–400 A
Optional
30–60 A

### Table 8.32: GS Fusible IEC Style Disconnect Switches

| Pole | Rating (A) | Catalog Number | $ Price | Maximum Horsepower Rating | | | | Short Circuit Current Rating 600 Vac | | Shaft Style |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 240 V | 480 V | 600 V | 250 Vdc | Fuse | SCCR kA | |
| 3 | 30 | GS1DDU3 | **237.00** | 7.5 | 15 | 20 | 5 | CC | 100 | AG |
| 3 | 30 | GS1DU3 | **260.00** | 7.5 | 15 | 20 | 5 | J | 100 | AG |
| 3 | 30 | GS2EEU3 | **237.00** | 7.5 | 15 | 20 | 5 | CC | 100 | B |
| 3 | 30 | GS2EU3N | **260.00** | 7.5 | 15 | 20 | 5 | J | 100 | B |
| 3 | 60 | GS2GU3N | **336.00** | 15 | 30 | 50 | 10 | J | 100 | B |
| 3 | 100 | GS2JU3N | **536.00** | 30 | 60 | 75 | 20 | J | 200 | B |
| 3 | 200 | GS2MU3N | **1181.00** | 60 | 125 | 150 | 40 | J | 200 | B |
| 3 | 400 | GS2QU3N | **2252.00** | 125 | 250 | 350 | 50 | J | 200 | B |
| 3 | 600 | GS2SU3 | **3378.00** | 200 | 500 | 500 | — | J | 200 | C |
| 3 | 800 | GS2TU3 | **5061.00** | 200 | 500 | 500 | — | J | 200 | C |

### Table 8.33: Handles and Shafts for GS Switches▲

| Rating (A) | Handle | | | | Shaft: 12.6 in. (320 mm) | | Shaft: 15.7 in. (400 mm) | | Shaft Guide | | Shaft Style |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Catalog No. | Type | Color | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | |
| 30–60 | GS2AH110 | 1, 3R, 12 | Black | **62.00** | GS2AE8 | **18.60** | GS2AE81 | **22.30** | LKN4AEAH12C | **15.50** | AG |
| 30–60 | GS2AH120 | 1, 3R, 12 | Red/Yellow | **62.00** | | | | | | | |
| 30–60 | GS2AH410 | 4, 4X | Black | **70.00** | | | | | | | |
| 30–60 | GS2AH420 | 4, 4X | Red/Yellow | **70.00** | | | | | | | |
| 30–400 | GS2AH130 | 1, 3R, 12 | Black | **70.00** | GS2AE2 | **20.30** | GS2AE21 | **25.00** | — | — | B |
| 30–400 | GS2AH140 | 1, 3R, 12 | Red/Yellow | **70.00** | | | | | | | |
| 30–400 | GS2AH430 | 4, 4X | Black | **78.00** | | | | | | | |
| 30–400 | GS2AH440 | 4, 4X | Red/Yellow | **78.00** | | | | | | | |
| 600–800 | GS2AH150 | 4, 4X | Black | **263.00** | GS2AE5 | **32.60** | GS2AE51 | **40.40** | — | — | C |
| 600–800 | GS2AH160 | 4, 4X | Red/Yellow | **263.00** | | | | | | | |

▲ GS2AH100TO200–GS1 to GS2 Handle Adapter if using GS1 holes.

***NOTE:*** *Hole adapter kit for GS1 to GS2 Handles: GS2AH100TO200* ***$17.43****.*

### Table 8.34: Auxiliary Contacts for GS Switches▲

| Switch Amperes | Catalog Number | Description | $ Price |
|---|---|---|---|
| 30–800 | GS1AM110 | Aux Contact 1 N.O. | **14.70** |
| 30–800 | GS1AM101 | Aux Contact 1 N.C. | **14.70** |
| 30 | GS1AD10 | Aux Contact Holder | **46.70** |

▲ GS1DU3 and GS1DDU3 switches allow up to 4 auxiliary contacts without adding contact holder GS1AD10. For more than 4 contacts, GS1AD10 is required.



Auxiliary Contacts
GS1AD10 + GS2AM110

### Table 8.35: Shorting Links

| For use on | Shorting Links per Kit | Catalog No. | $ Price |
|---|---|---|---|
| GS2, 60 A | 3 | GS1AU203 | **29.60** |
| GS2, 100 A | 3 | GS1AU303 | **41.90** |
| GS2, 200 A | 3 | GS1AU403 | **62.10** |
| GS2, 400 A | 3 | GS1AU503 | **93.00** |
| GS2, 600–800 A | 3 | GS1AU803 | **156.00** |



Flange Handle
Cable Operator Kit

### Table 8.36: Terminal Shrouds for GS Switches, Line or Load▲

| Switch Amperes | Catalog Number | Description | $ Price |
|---|---|---|---|
| 30–100 | — | Standard on product | — |
| 200 | GS2AP43 | GS2, 3-Pole, 200 A | **101.00** |
| 400 | GS2AP53 | GS2, 3-Pole, 400 A | **101.00** |
| 600–800 | GS2AP73 | GS2, 3-Pole, 600–800 A | **140.00** |

▲ Order one terminal shroud per side. For example, order one terminal shroud for *either* the line side *or* load side; order two terminal shrouds for *both* the line side *and* load side.



Shorting Links

### Table 8.37: Flange Handle Cable Operator Kits for GS2 Switches▲

| Catalog Number | Description | $ Price |
|---|---|---|
| GS2AH36F | Flange Handle and 36 in. Cable Operator Kit | **417.00** |
| GS2AH60F | Flange Handle and 60 in. Cable Operator Kit | **432.00** |
| GS2AH120F | Flange Handle and 120 in. Cable Operator Kit | **476.00** |

▲ Compatible with 30 through 200 Amp switches (Not GS100430, GS1063).



© 2012 Schneider Electric
All Rights Reserved

## Accessories



Terminal Lugs

### Table 8.38: Terminal Lugs

| For Use On | Rating | No. of Wires per Lug | No. of Lugs per Terminal | Lug Size (AWG) | Wire Type | Lugs per Kit | Lug Kit Catalog Number |
|---|---|---|---|---|---|---|---|
| LK4DU3CN | 30 | 1 | 1 | #12–2/0 | Cu | — | Standard |
| LK4GU3CN | 60 | 1 | 1 | #12–2/0 | Cu | — | Standard |
| LK4JU3N | 100 | 1 | 1 | 6–300 kcmil | Cu/Al | 6 | GS1AW403 |
| LK4MU3N | 200 | 1 | 1 | 6–300 kcmil | Cu/Al | 6 | GS1AW403 |
| LK4QU3N | 400 | 2 | 1 | 350 MCM—6 | Cu/Al | 6 | GS1AW603 |
| | | 1 | 1 | 600 MCM—4 | Cu/Al | 6 | GS1AW606 |
| | | 2 | | 250 MCM—1/0 | | | |
| LK4SU3N | 600 | 2 | 1 | 2 x 2–600 kcmil | Cu/Al | 6 | GS1AW503 |
| LK4TU3N | 800 | 2 | 2 | 2 x 2–600 kcmil | Cu/Al | 12 | GS1AW903 |
| LK4UU3N | 1000 | 2 | 2 | 2 x 2–600 kcmil | Cu/Al | 12 | GS1AW903 |
| LK4WU3N | 1200 | 2 | 2 | 2 x 2–600 kcmil | Cu/Al | 12 | GS1AW903 |
| GS1DDU3 | 30 | 1 | 1 | #14–#10 | Cu | — | Standard |
| GS1DU3 | 30 | 1 | 1 | #14–#10 | Cu | — | Standard |
| GS2EEU3 | 30 | 1 | 1 | #14–#10 | Cu | — | Standard |
| GS2EU3N | 30 | 1 | 1 | #14–#6 | Cu | — | Standard |
| GS2GU3N | 60 | 1 | 1 | #10–#6 | Cu | — | Standard |
| GS2JU3N | 100 | 1 | 1 | #12–#1 | Cu | — | Standard |
| GS2MU3N | 200 | 1 | 1 | 6–300 kcmil | Cu/Al | 6 | GS1AW403 |
| GS2QU3N | 400 | 2 | 1 | 350 MCM—6 | Cu/Al | 6 | GS1AW603 |
| | | 1 | 1 | 600 MCM—4 | Cu/Al | 6 | GS1AW606 |
| | | 2 | | 250 MCM—1/0 | | | |
| GS2SU3 | 600 | 2 | 1 | 2 x 2–600 kcmil | Cu/Al | 6 | GS1AW503 |
| GS2TU3 | 800 | 2 | 1 | 2 x 2–600 kcmil | Cu/Al | 6 | GS1AW503 |

### Table 8.39: Power Distribution Lugs GS1 or GS2 Only

| For Use On | Rating | No. of Wires per Lug | Lug Size (AWG) | Wire Type | Lugs per Kit | Lug Kit Catalog Number |
|---|---|---|---|---|---|---|
| GS1JU3 | 100 | 6 | #14–#6 | Cu | 3 | GS1AW306▲ |
| GS2MU3N<br>GS2QU3N | 200<br>400 | 12 | #14–#4 | Cu | 3 | GS1AW406 |
| GS2MU3N<br>GS2QU3N | 200<br>400 | 6 | #12–2/0 | Cu | 3 | GS1AW506 |

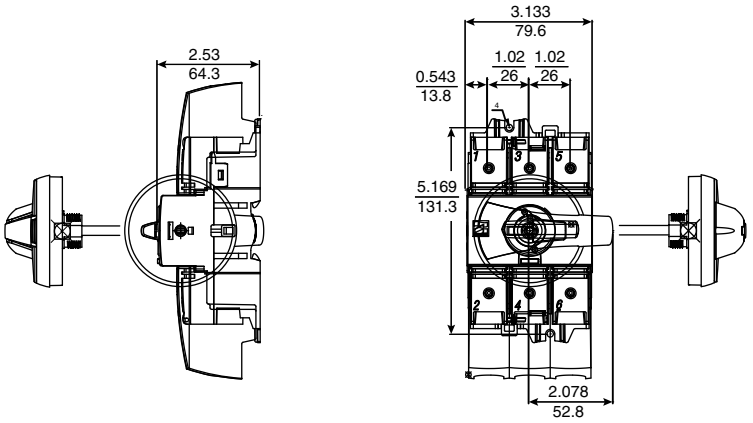
▲ Cannot be used on GS2JU3N.





© 2012 Schneider Electric
All Rights Reserved

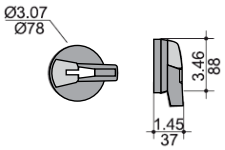
## LK4DU3CN and LK4GU3CN, 30–100 A Compact Nonfusible Disconnect Switches



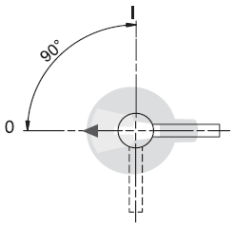

## Handle for 30–100 A Compact Nonfusible Disconnect Switches

Handle Part No.

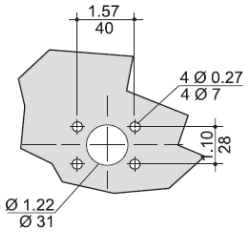
LK4AH110CN
LK4AH120CN
LK4AH410CN
LK4AH420CN



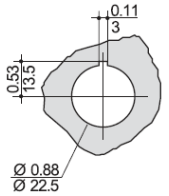

Right-side or front operation



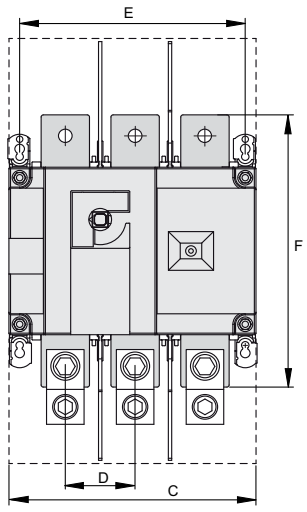

Door drilling with 4 fixing screws

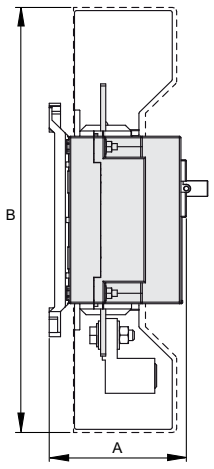


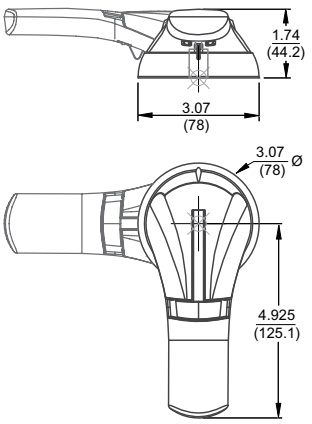

Door drilling with fixing nut




## LK4JU3N / LK4MU3N / LK4QU3N, 100–400 A Nonfusible Disconnect Switches—Dimensions

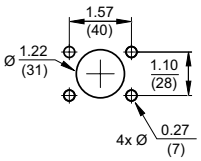



Handle Part No.

GS2AH130
GS2AH140
GS2AH430
GS2AH440



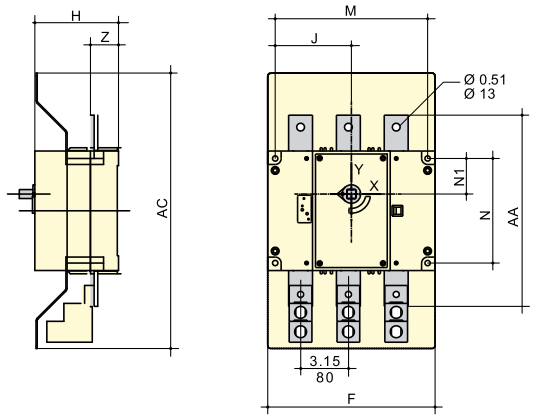

| Rating (A) | Dimensions = in. (mm) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| 100–200 | 3.72 (94.6) | 10.1 (256) | 7.09 (1.80) | 1.97 (50) | 6.3 (160) | 6.3 (160) |
| 400 | 4.92 (128) | 16 (406) | 9.05 (230) | 2.56 (65) | 8.26 (210) | 10.2 (260) |

Dimensions: in. / mm



© 2012 Schneider Electric
All Rights Reserved

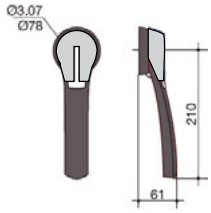
## LK4SU3N, 600 A Nonfusible Disconnect Switches—Dimensions




| Rating (A) | Dimensions = in. (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | AC | F | H | J | M | N | N1 | AA | Z |
| 600 | 18.12 (460) | 11 (280) | 5.5 (140) | 5.0 (127.5) | 10.03 (255) | 6.88 (175) | 2.34 (59.5) | 12.6 (320) | 1.85 (47) |

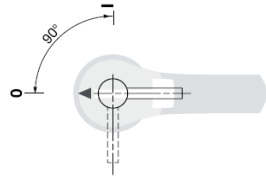
## Handle for 600 A and 800 A Fusible Disconnect Switches

Handle Part No.
GS2AH150
GS2AH160

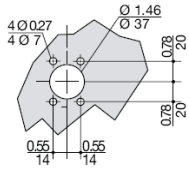



Front operation

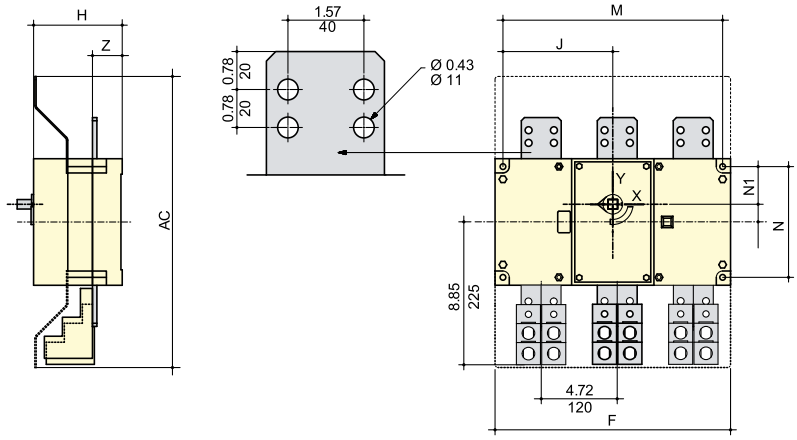
Direction of operation




Door drilling template




## LK4TU3N / LK4UU3N / LK4WU3N, 800–1200 A Nonfusible Disconnect Switches—Dimensions




| Rating (A) | Dimensions = in. (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | AC | F | H | J | M | N | N1 | Z |
| 800–1200 | 18.12 (460) | 14.64 (372) | 5.5 (140) | 6.83 (173.5) | 13.66 (347) | 6.88 (175) | 2.34 (59.5) | 1.85 (47) |

## Handle for 800–1200 A Fusible Disconnect Switches

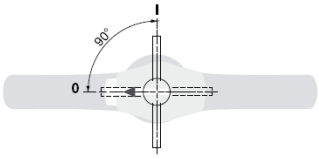
Handle Part No.
GS2AH170
GS2AH180

Dimensions: in. / mm

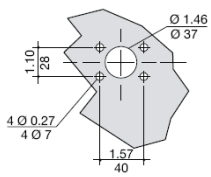



Front operation

Direction of operation




Door drilling template

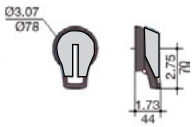




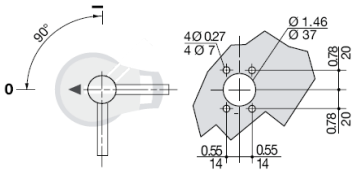



© 2012 Schneider Electric
All Rights Reserved

## Handle for 30 A and 60 A Fusible Disconnect Switches

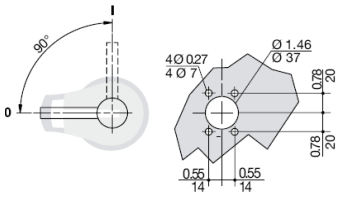



Handle Part No.
GS2AH110
GS2AH120
GS2AH410
GS2AH420




Front operation

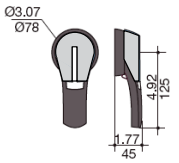
Direction of operation | Door drilling template



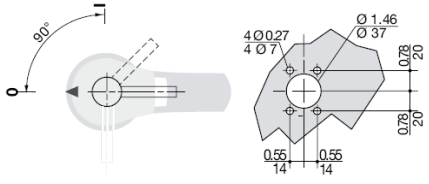

Side operation

Direction of operation | Door drilling template

## Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches

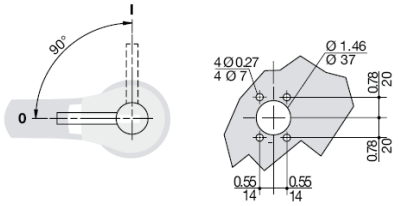



Handle Part No.
GS2AH130
GS2AH140
GS2AH430
GS2AH440




Front operation

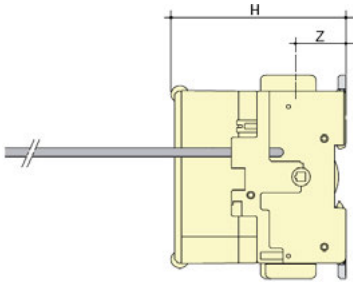
Direction of operation | Door drilling template

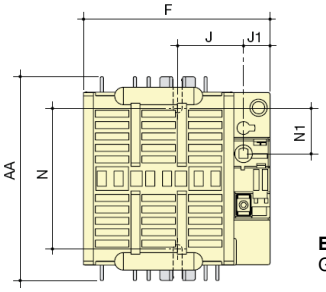



Side operation

Direction of operation | Door drilling template

## GS1DDU3, 30 A Fusible Disconnect Switches, Class CC Fuses and GS1DU3, 30 A Fusible Disconnect Switches, Class J Fuses—Dimensions

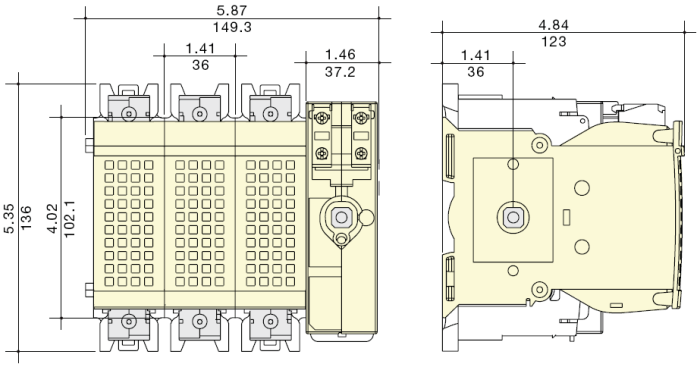


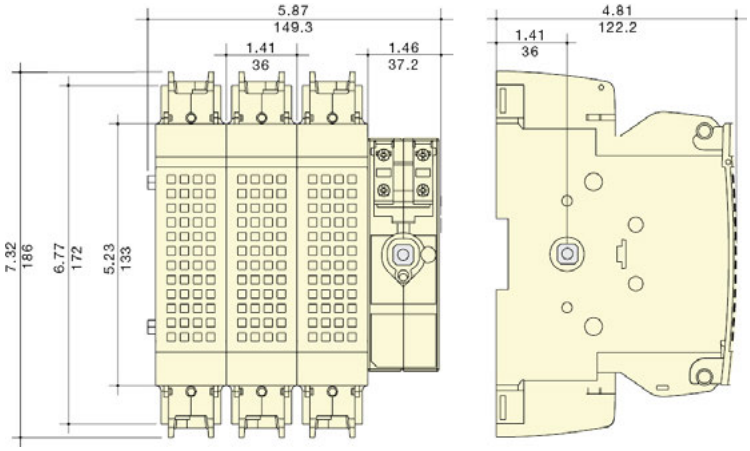

**Example:**
GS1DU3

| Rating (A) | Dimensions = in. (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | F | H | J | J1 | N | N1 | AA | Z |
| 30 / CC | 3.78 (96) | 3.28 (83.5) | 1.47 (37.5) | 0.59 (15) | 3.13 (79.5) | 1 (25.5) | 4.56 (116) | 1.12 (28.5) |
| 30 / J | 4.13 (105) | 3.89 (99) | 1.47 (37.5) | 0.59 (15) | 3.13 (79.5) | 1 (25.5) | 4.56 (116) | 1.12 (28.5) |

## GS2GU3N, 60 A Fusible Disconnect Switches, Class J Fuses




## GS2JU3N, 100 A Fusible Disconnect Switches, Class J Fuses

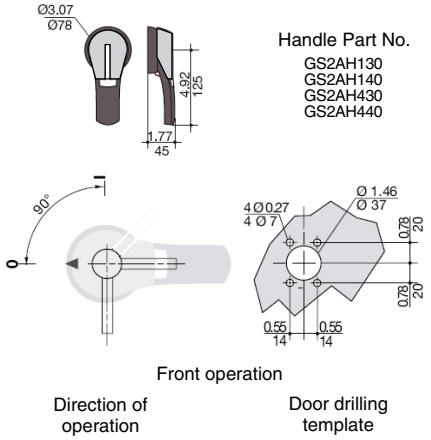



Dimensions: in. / mm



© 2012 Schneider Electric
All Rights Reserved

## Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches

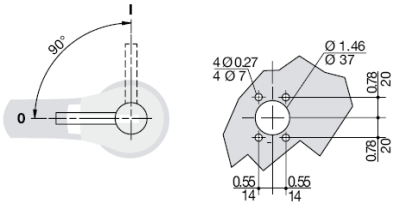



Handle Part No.
GS2AH130
GS2AH140
GS2AH430
GS2AH440

Front operation

Direction of operation

Door drilling template

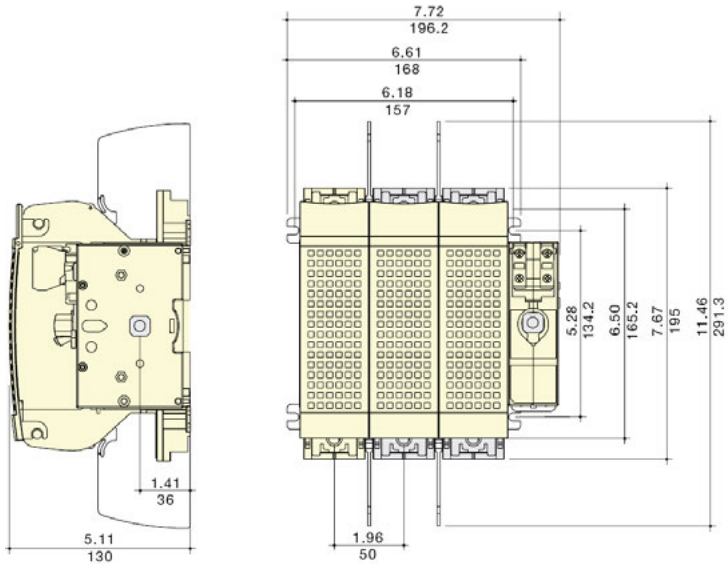



Side operation

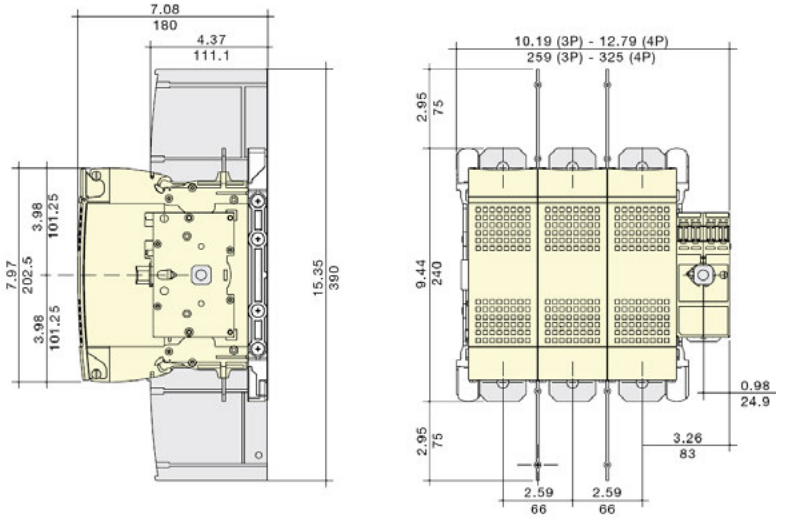
Direction of operation

Door drilling template

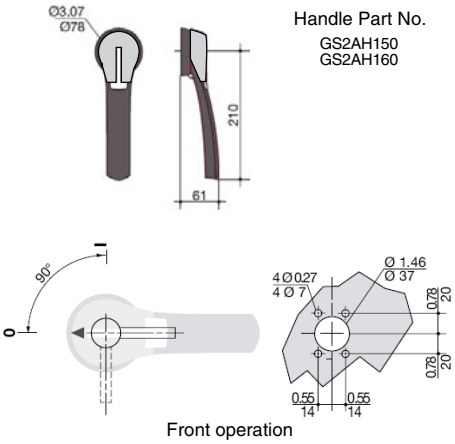
## GS2MU3N, 200 A Fusible Disconnect Switches, Class J Fuses




## GS2QU3N, 400 A Fusible Disconnect Switches, Class J Fuses




## Handle for 600 A and 800 A Fusible Disconnect Switches



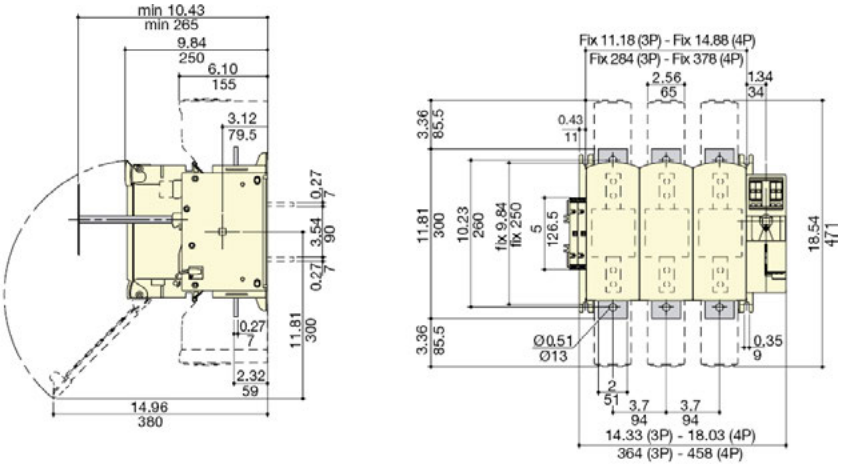

Handle Part No.
GS2AH150
GS2AH160

Front operation

Direction of operation

Door drilling template

## GS2SU3, 600 A Fusible Disconnect Switches, Class J Fuses
## GS2TU3, 800 A Fusible Disconnect Switches, Class J Fuses




Dimensions: in. / mm



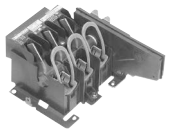
© 2012 Schneider Electric
All Rights Reserved

The 9422 disconnect switches are the ideal selections for the PV string combiner box's internal disconnect switch and control panel applications. These switches are designed for variable depth, flange mounting, traditional side mounting and bracket mounting applications providing complete flexibility in the PV string combiner box designs. The switches are compatible with 9422A handle operators and 9423 door mechanisms and are UL98 recognized (E52369 Vol. 1, Sec. 18) and CSA certified. See pages 8-16, 8-17, and 8-18 for dimensional information.

**Table 8.40: 9422 Disconnect Switches, Flange Mounted and Variable Depth**

| Disconnect Switch Size | Variable Depth Min.–Max. (in.) | Maximum Horsepower Ratings: AC Systems Volts (Motor Volts) 208 (200) | 240 (230) | 480 (460) | 600 (575) | Vdc 250 | 600 | Fuse Type | Fuse Clip Rating (Amperes) Non-Interchangeable Type For Class H, J, K or R Fuses: 250 V | 600 V | Switch and Operating Mechanism Only— Does Not Include Handle Mechanism: Cat. No.♦ | $ Price | Switch for Use With Cable Operators ONLY— Does Not Include Handle Mechanism or Cable Operator☆: Cat. No.♦ | $ Price | Switch and Operating Mechanism and Handle Mechanism—Overpacked◊: Includes Type A1 Handle Mechanism: Cat. No.♦ | $ Price | Includes Type A2 Handle Mechanism: Cat. No.♦ | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 A | 6.625–18 | 7.5 | 7.5 | 15 | 20 | 5 | 15 | None | — | — | TCN30 | **329.00** | TCN30C | **315.00** | ATCN301 | **471.00** | ATCN302 | **585.00** |
| | | | | | | | | H, J, K, R | 30 | — | TCF30 | **372.00** | TCF30C | **359.00** | ATCF301 | **513.00** | ATCF302 | **629.00** |
| | | | | | | | | | 60 | 30 | TCF33 | **399.00** | TCF33C | **386.00** | ATCF331 | **543.00** | ATCF332 | **660.00** |
| 60 A | 6.625–18 | — | 15 | 30 | 50 | 10 | 30 | None | — | — | TDN60 | **386.00** | TDN60C | **372.00** | ATDN601 | **527.00** | ATDN602 | **642.00** |
| | | | | | | | | H, J, K, R | 60 | 30 | TDF60 | **458.00** | TDF60C | **444.00** | ATDF601 | **599.00** | ATDF602 | **714.00** |
| | | | | | | | | | — | 60 | TDF63 | **485.00** | TDF63C | **471.00** | ATDF631 | **629.00** | ATDF632 | **741.00** |
| 100 A | 6.625–18 | 25 | 30 | 60 | 75 | 20 | 50 | None | — | — | TEN10 | **570.00** | TEN10C | **557.00** | ATEN101 | **714.00** | ATEN102 | **827.00** |
| | | | | | | | | H, J, K, R | 100 | 100 | TEF10 | **783.00** | TEF10C | **770.00** | ATEF101 | **926.00** | ATEF102 | **1040.00** |
| 200 A | 9.12–19.25▲ | 40 | 60 | 125 | 150 | 40 | 50 | None | — | — | TF1 | **1247.00** | — | — | ATF11 | **1389.00** | ATF21 | **1503.00** |
| | | | | | | | | H, J, K, R | 200 | 200 | TF2 | **1389.00** | — | — | ATF12 | **1530.00** | ATF22 | **1646.00** |
| | | | | | | | | | — | 400 | TF3★ | **2052.00** | — | — | ATF13★ | **2195.00** | ATF23★ | **2307.00** |
| 400 A Fixed Depth■ | 11.38 (A5 or A6 Handle) | 75 | 125 | 250 | 350 | 50 | 50 | None | — | — | TG1△□ | **2672.00** | — | — | For handle selection, see Table 8.42. | | | |
| 400 A Variable Depth■ | 15.87–19 (A7 or A8 Handle)▼ | | | | | | | H, J, K, R | 400 | 400 | TG2△□ | **3027.00** | — | — | | | | |

▲ 9422 R2 will extend maximum mounting depth 7 inches, see page 8-17 for information.
■ Switches are fixed-depth or adjustable depending on handle selection.
♦ For ordering use the suffix 9422, e.g., order TCN30 using catalog number 9422TCN30.
★ Accommodates Class J fuses only.
▼ Variable in increments of 0.63 inches.
△ Commercially available enclosures may not accept 9422TG1 and 2 operating mechanisms. Contact enclosure manufacturer for availability of enclosures for use with these switches.
□ Right hand flange mounting only and requires a special enclosure.
◊ Variable depth only — no cable operator.
☆ See Table 8.46 for ordering information for the cable operator.



9422 TCN30



Bracket Mounted Disconnect Switch

The 9422 Bracket Mount Disconnect Switch is designed for combiner boxes and control panel applications. The Bracket Mount Disconnect Switch is shipped with the switch and external handle assembled to a bracket, ready for quick installation. A protective trim plate is provided to prevent any mounting screws from being accessible from the front. The trim plate also provides an attractive installation feature. The switches are fully compatible with the 9423 closing mechanisms.

**Table 8.41: 9422 Bracket Mounted Disconnect Switches**

| Disconnect Switch Size | Maximum Horsepower Rating: AC Systems Volts (Motor Volts) 208 (200) | 240 (230) | 480 (460) | 600 (575) | Vdc 250 | 600 | Fuse Type | Fuse Clip Rating (Amperes) Non-Interchangeable Type For Class H, J, K or R Fuses: 250 V | 600 V | Switch and Operating Mechanism Only — Does Not Include Handle Mechanism: Catalog No.■ | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 A | 7.5 | 7.5 | 15 | 20 | 5 | 15 | None | — | — | BTCN30 | **471.00** |
| | | | | | | | H, J, K, R | 30 | — | BTCF30 | **543.00** |
| | | | | | | | | 60 | 30 | BTCF33 | **543.00** |
| | | | | | | | J▲ | 60 | 30 | BTCF32 | **543.00** |
| 60 A | 15 | 15 | 30 | 50 | 10 | 30 | None | — | — | BTDN60 | **527.00** |
| | | | | | | | H, J, K, R | 60 | 30 | BTDF60 | **585.00** |
| | | | | | | | | — | 60 | BTDF63 | **629.00** |
| | | | | | | | J▲ | — | 60 | BTDF62 | **629.00** |
| 100 A | 25 | 30 | 60 | 75 | 20 | 50 | None | — | — | BTEN10 | **714.00** |
| | | | | | | | H, J, K, R | 100 | 100 | BTEF10 | **926.00** |
| | | | | | | | J▲ | 100 | 100 | BTEF11 | **926.00** |
| 200 A | 40 | 60 | 125 | 150 | 40 | 50 | None | — | — | TFB1 | **1488.00** |
| | | | | | | | H, J, K, R | 200 | 200 | TFB2 | **1610.00** |
| | | | | | | | J▲ | — | 400 | TFB3 | **2264.00** |

▲ Space saving design—Type J fuses mounted on the non-fused bracket.
■ For ordering use the suffix 9422, e.g., order BTCN30 using catalog number 9422BTCN30.

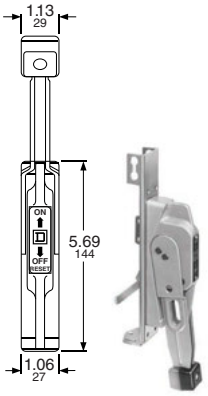
## Handle Information

**Table 8.42: 9422 Disconnect Switch and Circuit Breaker Handle Mechanisms**

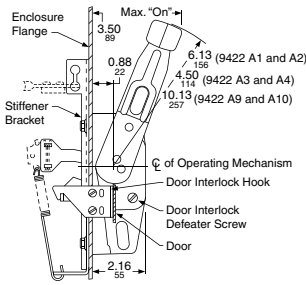
The Handle Mechanism kit contains all parts needed to mount the handle to the flange of the enclosure. Two flange mounting methods are offered. For right or left hand flange mounting use Types A1–A4 and Types A9–A10 kits. For right-hand mounting only, use Type A5–A8 handles. The type AP1 and AP2 handles are used exclusively on the PowerPact™ M and P operating mechanisms, 9422 RM1 and 9422 CMP. The dimensions are identical to 9422 A1.

| Handle Depth (in.) | NEMA Type 1, 3, 3R, 4, 12 Enclosures: Cat. No.♦ | $ Price | NEMA Type 4, 4X Stainless Steel Enclosures: Cat. No.♦ | $ Price |
|---|---|---|---|---|
| 4▲ | A3 | **143.00** | A4 | **257.00** |
| 6▲ | A1 | **143.00** | A2 | **257.00** |
| 6▲★ | AP1 | **188.00** | AP2 | **338.00** |
| 10■ | A9 | **158.00** | A10 | **270.00** |
| 12▼△ | A7 | **300.00** | A8 | **372.00** |

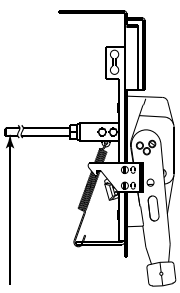
▲ Use with 30–200 A 9422 switches and all circuit breaker mechanisms.
■ Use with Type D2 remote or dual adapter kit listed on page 8-24.
♦ For ordering use the suffix 9422, e.g., order A2 using catalog number 9422A2.
★ Use only with 9422 RM1, 9422 CMP and PowerPact M and P operating mechanisms.
▼ Use only with 400 A 9422TG1 and 9422TG2 disconnect switch.
△ Adjustable depth.




Type A1




9422 A1, A2, A3, A4, A9, and A10 Handles



Rod used only on the variable-depth mechanism.



© 2012 Schneider Electric
All Rights Reserved

## Accessories

### Class R Fuse Kits

When installed, this kit rejects all fuses except Class R. The kits are available for field installation. With rejection kit and Class R fuses installed, the switch is UL component recognized for use on systems with fault current up to 200,000 RMS symmetrical amperes.

**Table 8.43: Class R Fuse Kits**

| Disconnect Switch Type | Switch Type | Fuse Clip Rating | | Class R Kit | |
|---|---|---|---|---|---|
| | | 250 V▲ | 600 V | Cat No. | $ Price |
| 30 A | TCF30 | 30 | — | RFK03▲ | **24.50** |
| | TCF33 | 60 | 30 | RFK06▲ | **25.50** |
| 60 A | TDF60 | 60 | 30 | RFK06▲ | **25.50** |
| | TDF63 | — | 60 | RFK06H▲ | **25.50** |
| 100 A | TEF10 | 100 | 100 | RFK10▲ | **47.70** |
| 200 A | TF2 | 200 | 200 | 9999SR4 | **47.60** |
| | TF3 | 200 | 200 | 9999SR4 | **47.60** |
| 400 A | TG2 | 400 | 400 | 9999SR5 | **104.00** |

▲ Use Discount Schedule DE1 for price, not CP1.

**Table 8.44: Electrical Interlocks**

| Disconnect Switch Size | Switch Type | Electrical Interlocks | |
|---|---|---|---|
| | | Cat No.♦ | $ Price |
| 30 A<br>60 A<br>100 A | TCF, TCN, TDF, TDN, TEF, TEN | TC10▲ | **120.00** |
| | | TC20■ | **239.00** |
| | BTCF, BTCN, BTDF, BTDN, BTEF, BTEN | TC11▲ | **120.00** |
| | | TC21■ | **239.00** |
| 200 A | TF, ATF | R8▲ | **83.00** |
| | TF, ATF | R9■ | **243.00** |
| 400 A | TG | R35▲ | **275.00** |
| | TG | R36■ | **521.00** |

▲ 1 N.C. or N.O. Contact depending on wiring.
■ 2 N.C. or N.O. or 1 N.O. or 1 N.C. Contact depending on wiring.
♦ For ordering use the suffix 9999, e.g., order TC10 using catalog number 9999TC10.



### Internal Barrier Kits

Provides an additional barrier that helps prevent accidental contact with live parts. Field-installed transparent barriers do not restrict visual inspection of the switch. Barriers provide IEC529 IP2X "finger safe" protection when door of enclosed disconnect switch is open. A convenient door allows use of test probes without accessing fuses and replacement of fuses without removing barrier. Barrier must be used with the skirt kit to enclose a panel mounted 9422 disconnect.

**Table 8.45: Internal Barrier Kits**

| Disconnect Switch Size | Barrier | | Skirt | |
|---|---|---|---|---|
| | Cat. No. | $ Price▲ | Cat No. | $ Price▲ |
| 30 A | SS06 | **165.00** | SS0306SK | **225.00** |
| 60 A | SS06 | **165.00** | SS0306SK | **225.00** |
| 100 A | SS10 | **195.00** | SS10SK | **255.00** |

▲ Use Discount Schedule DE1 for price, not CP1.

**Table 8.46: Cable Operators for 9422 Disconnect Switches**

| Switch Type | Cable Mechanisms▲ | | | Cable Mechanisms with A1 Handle for NEMA Type 1, 3, 3R, 4, and 12 Enclosures | |
|---|---|---|---|---|---|
| | Cable Length (inches) | Cat. No. | $ Price | Cat. No. | $ Price |
| TCN30C, TCF30C, TCF33C, TDN60C, TDF60C, TDF63C, TEN10C, TEF10C | 36 | 9422CFT30 | **273.00** | 9422CFT31 | **417.00** |
| | 48 | 9422CFT40 | **291.00** | — | — |
| | 60 | 9422CFT50 | **291.00** | 9422CFT51 | **432.00** |
| | 120 | 9422CFT10 | **333.00** | 9422CFT11 | **476.00** |

▲ Purchase handle mechanism separately (9422A1, A2, A3, or A4).

**Table 8.47: Class 9422 Replacement/Refrofit Fuse Clip Kits**

| Disconnect Switch Size | Switch Type | Fuse Type | Fuse Clip Rating (Amperes) | | Line and Load Fuse Clip Kit (includes load base and fuse pullers) | |
|---|---|---|---|---|---|---|
| | | | 250 V | 600 V | Type | $ Price |
| 30 A | TCF30<br>TCN30<br>TCF33 | H, K, J, R | 30 | — | TC30 | **42.80** |
| | | | 60 | 30 | TC33 | **71.00** |
| 60 A | TDN60 | H, K, J, R | 60 | 30 | TC33 | **71.00** |
| | | | — | 60 | TD63 | **99.00** |

**Table 8.48: Lug Data**

| Disconnect Switch Size | Wire Size (Min-Max) | | Lug Kits Copper | | Lug Kits Al | |
|---|---|---|---|---|---|---|
| | Cu | Al | Cat No. | $ Price | Cat No. | $ Price |
| 30–60 A | #14–#2 | #10–#2 | CL0306F | **69.00** | AL0306F | **36.90** |
| 100 A | #10–#0 | #6–#0 | CL10F | **159.00** | AL10F | **77.00** |
| 200 A | #6–600 kcmil | #6–#600 kcmil | — | — | — | — |
| 400 A | #4–500 kcmil | — | — | — | — | — |

**Table 8.49: Dimensions 30 A, 60 A, and 100 A Class 9422 Disconnect Switches**

| Switch Type | Maximum Voltage | Fuse Type | Dimension A | Dimension B |
|---|---|---|---|---|
| 30 A<br>60 A | 30 A, 250 V | H, K, R | 1.625 | — |
| | 30 A, 600 V | H, K, R | 4.25 | |
| | 30 A, 600 V | J | 1.625 | |
| | 60 A, 250 V | H, K, R | 2.25 | |
| | 60 A, 600 V | H, K, R | 4.75 | |
| | 60 A, 600 V | J | 1.625 | |
| 100 A | 100 A, 250 V | H, K, R | — | 3.25 |
| | 100 A, 600 V | H, K, R | | 5.25 |
| | 100 A, 600 V | J | | 3.25 |

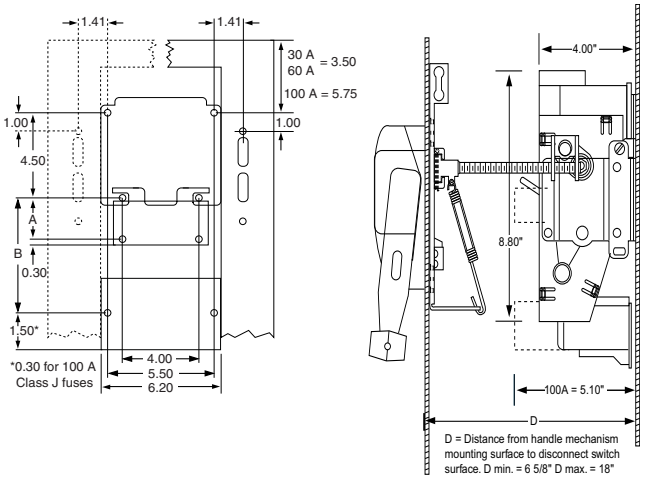
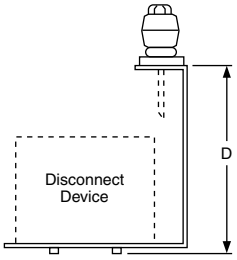
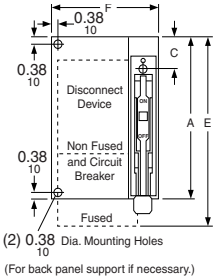



**Table 8.50: Dimensions**




| Type | A in. (mm) | C in. (mm) | D in. (mm) | Min. Enclosure Depth▲ in. (mm) | Fusible Device E in. (mm) | F in. (mm) |
|---|---|---|---|---|---|---|
| BTCN, BTDN, BTEN | — | — | 6.56 (167) | 8.00 (203) | — | — |
| BTCF, BTDF, BTEF | 9.50 (241) | 1.88 (48) | 8.56 (217) | 10.00 (254) | 11.88 (302) | 6.38 (162) |
| TFB1 | 11.50 (292) | 3.88 (99) | 9.50 (241) | 12.00 (305) | — | 13.19 (335) |
| TFB2, TFB3 | 20.00 (508) | | | | 20.00■ (508) | |

▲ The minimum enclosure depth is greater than Dimension D since additional space is needed when mounting the mechanism.
■ Fuses and fuse base assembly do not extend beyond bracket.
Note: Back panel support is recommended for Types TFB1, 2, & 3. Other devices may also require support if the flange is not sufficiently rigid.







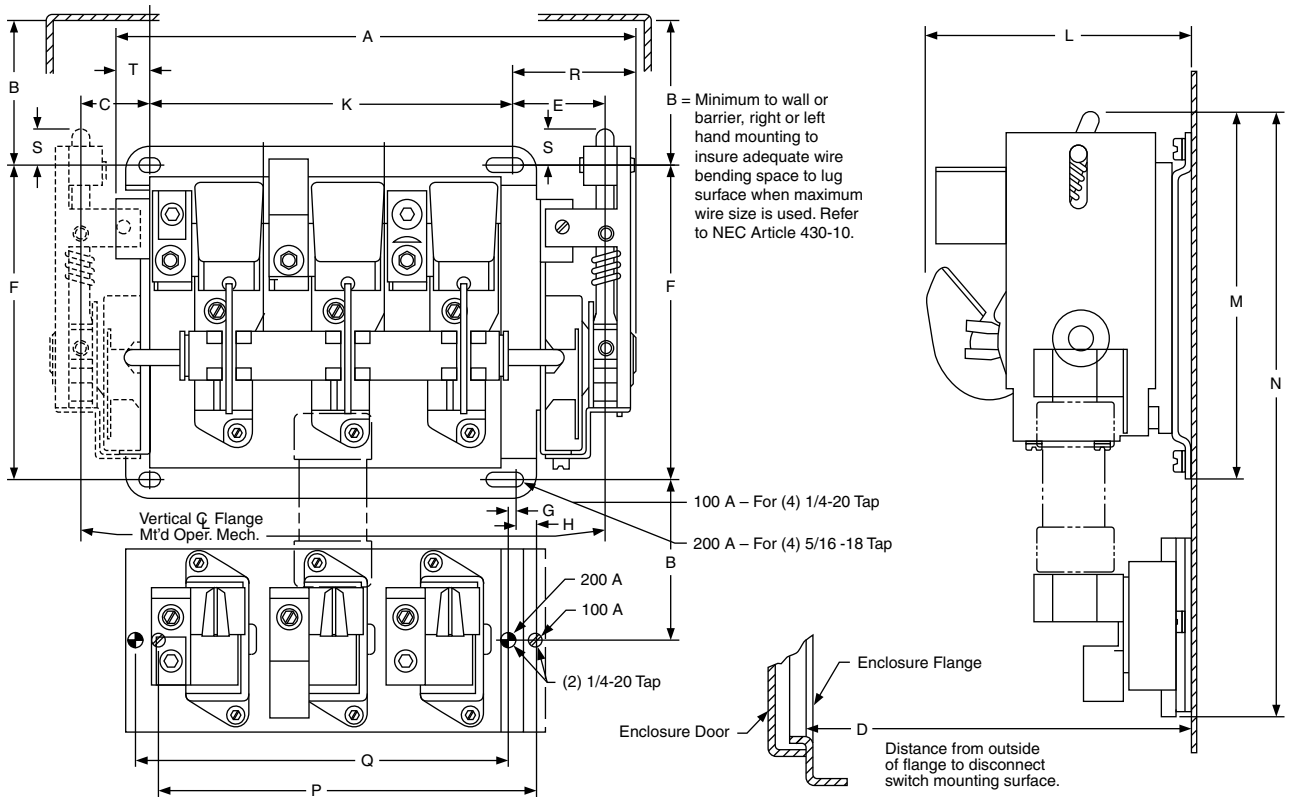

© 2012 Schneider Electric
All Rights Reserved

## Dimensions

**Table 8.51: Dimensions (in. / mm) for 200 A Type TF Disconnect Switches**

| Type | Switch Size | | A | B | C | D▲ | E | F | G | H | J | K | L | M | N | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (A) | Fuse Clips | | | | Min.–Max. | | | | | | | | | | | | | | |
| TF1 | 200 | None | **13.33** 339 | **9.38** 238 | **1.64** 42 | **9.12–19.25** 232 489 | **2.33** 59 | **8.00** 203 | — | — | — | **9.44** 240 | **6.50** 165 | **9.53** 242 | — | — | — | **3.14** 80 | **1.03** 26 | **0.75** 19 |
| TF2 | 200 | Class J 200 A 600 V | **13.33** 339 | **9.38** 238 | **1.64** 42 | **9.12–19.25** 232 489 | **2.33** 59 | **8.00** 203 | **0.09** 3 | — | **2.77** 70 | **9.44** 240 | **6.50** 165 | — | **14.11** 358 | — | **9.63** 245 | **3.14** 80 | **1.03** 26 | **0.75** 19 |
| TF2 | 200 | Class H, K, R 200 A 250 V | **13.33** 339 | **9.38** 238 | **1.64** 42 | **9.12–19.25** 232 489 | **2.33** 59 | **8.00** 203 | **0.09** 3 | — | **4.14** 105 | **9.44** 240 | **6.50** 165 | — | **15.48** 393 | — | **9.63** 245 | **3.14** 80 | **1.03** 26 | **0.75** 19 |
| TF2 | 200 | Class H, K, R 200 A 600 V | **13.33** 339 | **9.38** 238 | **1.64** 42 | **9.12–19.25** 232 489 | **2.33** 59 | **8.00** 203 | **0.09** 3 | — | **6.64** 169 | **9.44** 240 | **6.50** 165 | — | **17.98** 457 | — | **9.63** 245 | **3.14** 80 | **1.03** 26 | **0.75** 19 |
| TF3 | 200 | Class J 400 A 600 V | **13.33** 339 | **9.38** 238 | **1.64** 42 | **9.12–19.25** 232 489 | **2.33** 59 | **8.00** 203 | **0.09** 3 | — | **2.77** 70 | **9.44** 240 | **6.50** 165 | **9.53** 242 | **18.53** 471 | — | **9.63** 245 | **3.14** 80 | **1.03** 26 | **0.75** 19 |

▲ The dimensions shown may be extended 7 in. by using 9422R2 (two required per switch).






© 2012 Schneider Electric
All Rights Reserved

## Disconnect Switches—400 A Type TG

Outline Dimensions and General Location
400 A Disconnect Switches Nonfusible and Non-Interchangeable Fuse Clip Type Fusible Switches

### Table 8.52: Handle Mechanism—Type A7 and A8

***NOTE:*** *Commercially available enclosures may not accept type TG operating mechanisms. Contact the enclosure manufacturer for availability of enclosures for use with these switches.*

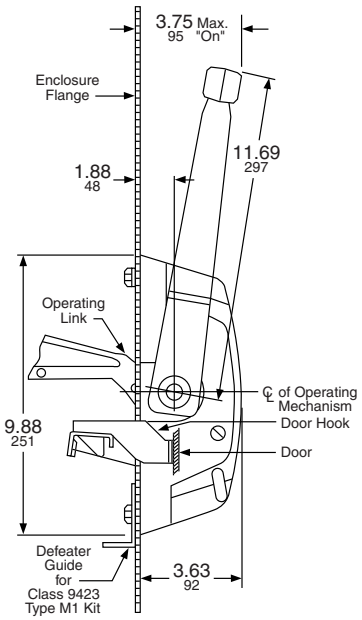



Figure 1

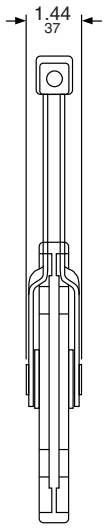



Figure 2

| Switch Type | B | X |
|---|---|---|
| TG1, 2 | **11.28** 286 | **16.06** 408 |

Note: B and X = Minimum to wall or barrier to ensure adequate wire bending space to lug surface when maximum wire size is used.
Refer to NEC Article 430.10.

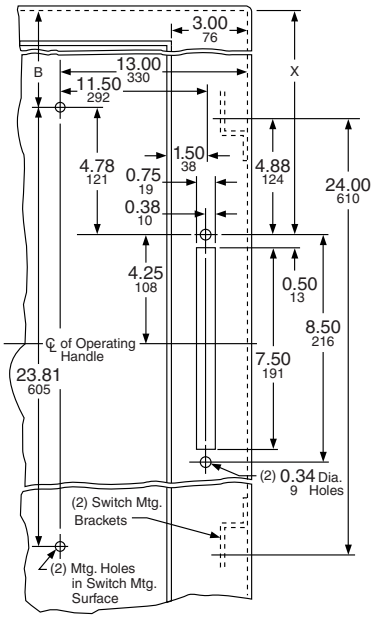



Figure 3

### Table 8.53: Nonfusible and Fusible Switches

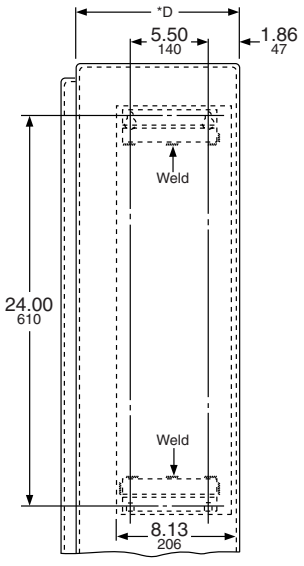



Figure 4

| Dimension D = Distance from outside of flange to disconnect switch mounting surface. | | | | |
|---|---|---|---|---|
| **For Type TG1 or TG2 with:** | | | | |
| Type A7 or A8 adjustable depth handle mechanism | D = | **15.87** 403 | to | **19** 483 |
| In steps of | | **0.63** 16 | | |

Note: Copper lugs are standard on all Type TG disconnect switches.

* D = Mounting depth measured from the switch mounting surface to the surface of flange.

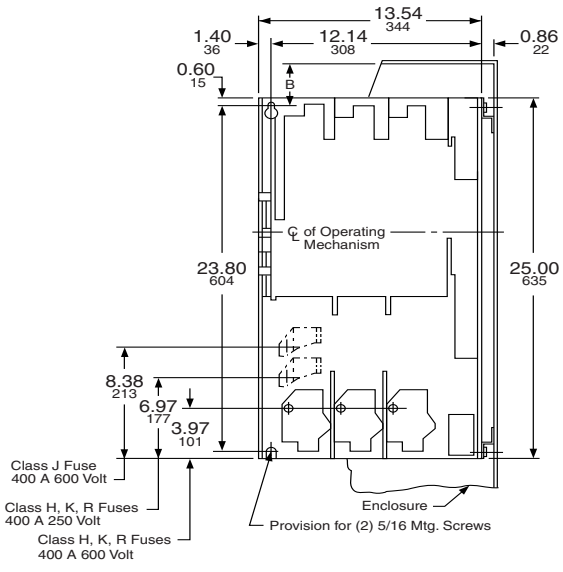



Figure 5

Dim. = in. / mm





© 2012 Schneider Electric
All Rights Reserved



9421 Type L Circuit Breaker Mechanism

## Type L Circuit Breaker Mechanisms

Type L door-mounted, variable depth operating mechanisms feature heavy duty, all metal construction with trip indication. All mechanisms can be padlocked in the "OFF" position when the enclosure door is open. Further, the handle assemblies can be locked "OFF" with up to three padlocks, which also locks the enclosure when the door is closed. (The 3" handle accepts one padlock.) Complete kits are rated for NEMA Type 1, 3R, and 12 enclosures. They include a handle assembly, operating mechanism, and shaft assembly.

### Table 8.54: Complete Kits

| Complete Kit Does Not Include Circuit Breaker | | | Includes: Operating Mechanism Standard 6 in. Handle Standard Shaft Kit | | | Includes: Operating Mechanism Standard 6 in. Handle Long Shaft Kit | | | Includes: Operating Mechanism Short 3 in. Handle Long Shaft Kit | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Use With | | | | | | | | | | | |
| Circuit Breaker or Interrupter Type | No. of Poles | Frame Size (A) | Type | $ Price | Mounting Depth ▲ Min. – Max. | Type | $ Price | Mounting Depth ▲ Min. – Max. | Type | $ Price | Mounting Depth ▲ Min. – Max. |
| NSF, PowerPact™ H and J | 2–3 | 250 | LJ1 | **171.00** | 5-1/2–10-3/4 | LJ4 | **189.00** | 5-1/2–21-3/8 | LJ3 | **230.00** | 5-1/2–21-3/8 |
| PowerPact D and L | 2–3 | 600 | LD1 | **242.00** | 7-1/4–12-1/16 | LD4 | **255.00** | 7-1/4–22-5/8 | 3 in. handles are not recommended for use with these circuit breakers. | | |
| PowerPact M and P♦ | 3 | 1200 | LW1■ | **242.00** | 9.00–12.50 | LW4■ | **255.00** | 9.00–23.50 | | | |

▲ Mounting depth measured in inches from circuit breaker mounting surface (control panel) to outside of enclosure door.
■ Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.
♦ These circuit breaker operating mechanisms must use the 9421LHP** or LCP** handles only.

### Table 8.55: Component Parts

| Use With | | | 3 in. Handle Assemblies Type 1, 3R, 12 | | Standard Handle Assemblies Type 1, 3R, 12 | | Operating Mechanism Includes Lockout | | Standard Shaft (Support Bracket Not Required) | | | Long Shaft (Support Bracket Included) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Circuit Breaker or Interrupter Type | No. of Poles | Frame Size (A) | Type | $ Price | Type | $ Price | Type | $ Price | Mounting Depth ▲ Min. – Max. | Type | $ Price | Mounting Depth ▲ Min. – Max. | Type | $ Price |
| NSF, PowerPact H & J | 2–3 | 250 | LH3▼ | **90.00** | LH6▼ | **50.00** | LJ7 | **105.00** | 5-1/2–10-1/4 | LS8 | **21.50** | 5-1/2–21-3/8 | LS13 | **35.60** |
| PowerPact D & L | 2–3 | 600 | ★ | — | LH6▼ | **50.00** | LD7 | **170.00** | 7-1/4–12-1/16 | LS8 | **21.50** | 7-1/4–22-5/8 | LS13 | **35.60** |
| PowerPact M & P♦ | 3 | 1200 | ★ | — | LHP8▼ | **50.00** | LW7 | **170.00** | 7-3/16–11-5/8 | LS8 | **21.50** | 7-3/16–22-1/4 | LS10 | **35.60** |

▲ Mounting depth measured in inches from circuit breaker mounting surface (control panel) to outside of enclosure door.
■ Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.
♦ These circuit breaker operating mechanisms must use the 9421LHP** or LCP** handles only.
★ 3 in. handles are not recommended for use with these circuit breakers.
▼ For a red handle and yellow bezel, add suffix RY to catalog number, e.g., 9421LH6RY.

New!



3 in. Handle Assembly

### Table 8.56: NEMA Type 4 and 4X Handle Assemblies

| Use With | | | Standard Handle Assemblies | | | | Special 3 in. Version | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Circuit Breaker or Interrupter Type | No. of Poles | Frame Size (A) | NEMA Type 1, 3R, 4, 12 (Painted) | | NEMA Type 1, 3R, 4, 4X, 12 (Chrome Plated) | | NEMA Type 1, 3R, 4, 12 (Painted) | | NEMA Type 1, 3R, 4, 4X, 12 (Chrome Plated) | |
| | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| NSF, PowerPact H and J | 2–3 | 250 | LH46 | **90.00** | LC46 | **149.00** | LH43 | **165.00** | LC43 | **233.00** |
| PowerPact D and L | 2–3 | 600 | LH46 | **90.00** | LC46 | **149.00** | 3 in. handles are not recommended for use with these circuit breakers. | | | |
| PowerPact M and P | 3 | 1200 | LHP48 | **90.00** | LCP48 | **149.00** | | | | |



Standard Handle Assembly

### Table 8.57: Auxiliary and Alarm Switches for PowerPact™ Circuit Breakers ▲

| Description | H- and J-Frame | $ Price | D- and L-Frame | $ Price | D- and L-Frame | $ Price |
|---|---|---|---|---|---|---|
| 1 Auxiliary Switch 1a 1b | S29450 | **297.00** | S29450 | **297.00** | S29450 | **297.00** |
| 2 Auxiliary Switch 2a 2b | 2 x S29450 | **594.00** | 2 x S29450 | **594.00** | 2 x S29450 | **594.00** |
| 3 Auxiliary Switch 3a 3b | — | — | 3 x S29450 | **891.00** | 3 x S29450 | **891.00** |

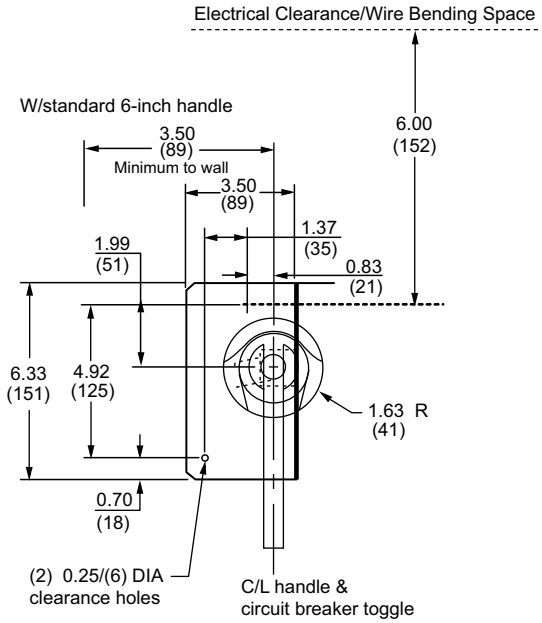
▲ Discount Schedule: DE2

***NOTE:*** *The location of the accessory in the circuit breaker determines its function.*

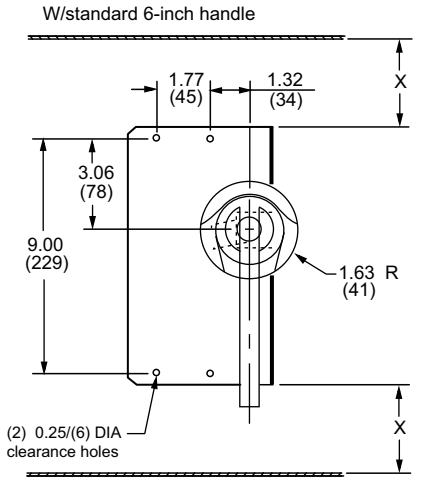


© 2012 Schneider Electric
All Rights Reserved

**Panel Drilling for PowerPact™ H and J Circuit Breaker Operating Mechanisms: 9421LJ1, 9421LJ4, and 9421LJ7**



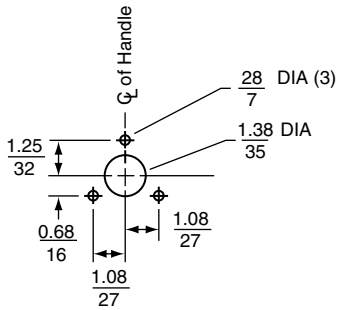

**Panel Drilling for PowerPact D and L Circuit Breaker Operating Mechanisms: 9421LD1, 9421LD4, and 9421LD7**



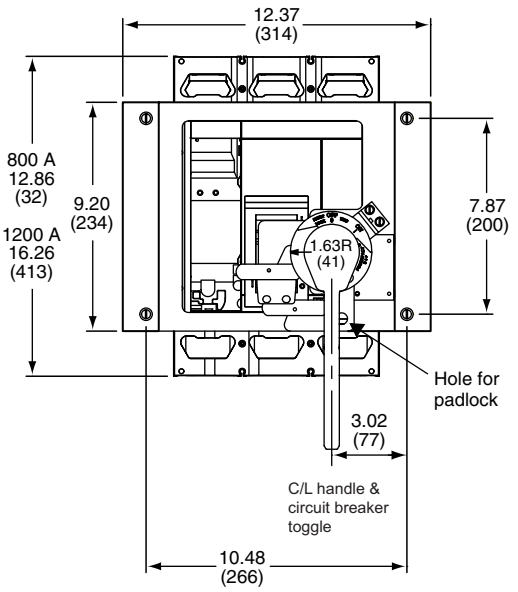

X: Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used. Refer to NEC 430-10.

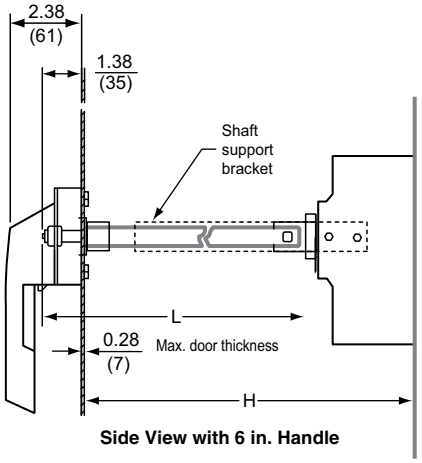
Dimensions: in. / mm

**Panel Drilling for PowerPact M and P Circuit Breaker Operating Mechanisms: 9421LW1, 9421LW4, and 9421LW7**




**Door Drilling Dimensions**




**Side View with 6 in. Handle**

**Table 8.58: Shaft Cutting Dimensions**

| Class | Type | Shaft Length Formula | H = Standard Shaft | | H = Long Shaft | |
|---|---|---|---|---|---|---|
| | | | Min. | Max. | Min. | Max. |
| 9421 | LJ1, LJ4, LJ7 | L = H – 3.00 / 76 | 5.5 / 138 | 10.75 / 273 | 5.5 / 138 | 21.63 / 543 |
| 9421 | LD1, LD4, LD7 | L = H – 4.25 / 108 | 7.25 / 184 | 12.06 / 306 | 7.25 / 184 | 22.63 / 575 |
| 9421 | LW1, LW4, LW7 | L = H – 4.89 / 124 | 7.19 / 183 | 11.63 / 295 | 7.19 / 183 | 22.25 / 565 |





© 2012 Schneider Electric
All Rights Reserved



**Flexible Cable Mechanism 9422CSJ30**

**Table 8.59: Flexible Cable Mechanisms for Use with Schneider Electric™ (formerly Merlin Gerin™) Circuit Breakers and PowerPact™ 3-Pole Circuit Breakers**

For use with Class 9422 A handle operators especially designed for tall, deep enclosures where placement flexibility is required.

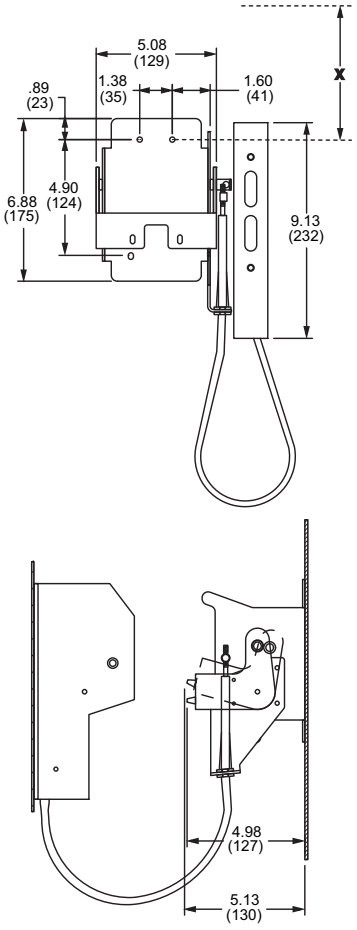
| Circuit Breaker Type | No. of Poles | Frame Size A | Cable Mechanism | | |
|---|---|---|---|---|---|
| | | | Length | Type | $ Price |
| **MG-NSF PowerPact H- and J-Frame** | 2 - 3 | 250 | 36 in. | CSF30 | **288.00** |
| | | | 60 in. | CSF50 | **305.00** |
| | | | 84 in. | CSF70 | **323.00** |
| | | | 120 in. | CSF10 | **347.00** |
| **MG-NSF** | 4 | 250 | 36 in. | CSF304 | **297.00** |
| | | | 60 in. | CSF504 | **314.00** |
| | | | 120 in. | CSF104 | **356.00** |
| **MG-NSJ PowerPact D and L** | 3 | 600 | 36 in. | CSJ30 | **486.00** |
| | | | 60 in. | CSJ50 | **504.00** |
| | | | 120 in. | CSJ10 | **548.00** |
| **MG-NSJ PowerPact D and L** | 4 | 600 | 36 in. | CSJ304 | **500.00** |
| | | | 60 in. | CSJ504 | **516.00** |
| | | | 120 in. | CSJ104 | **558.00** |
| **PowerPact M- and P-Frame▲** | 3 | 1200 | 48 in. | CMP40 | **759.00** |
| | | | 50 in. | CMP50 | **785.00** |
| | | | 120 in. | CMP10 | **857.00** |

▲ Must use 9422AP1 or 9422AP2 Handle with this operating mechanism.

***NOTE:*** *Refer to NEC Article 430-10 for minimum dimension X from circuit breaker top mounting hole to wall or barrier to ensure adequate wire bending space.*

***NOTE:*** *Bend radius in cable must never be less than 6 inches. Electrical clearances must be maintained between cable and live electrical parts.*

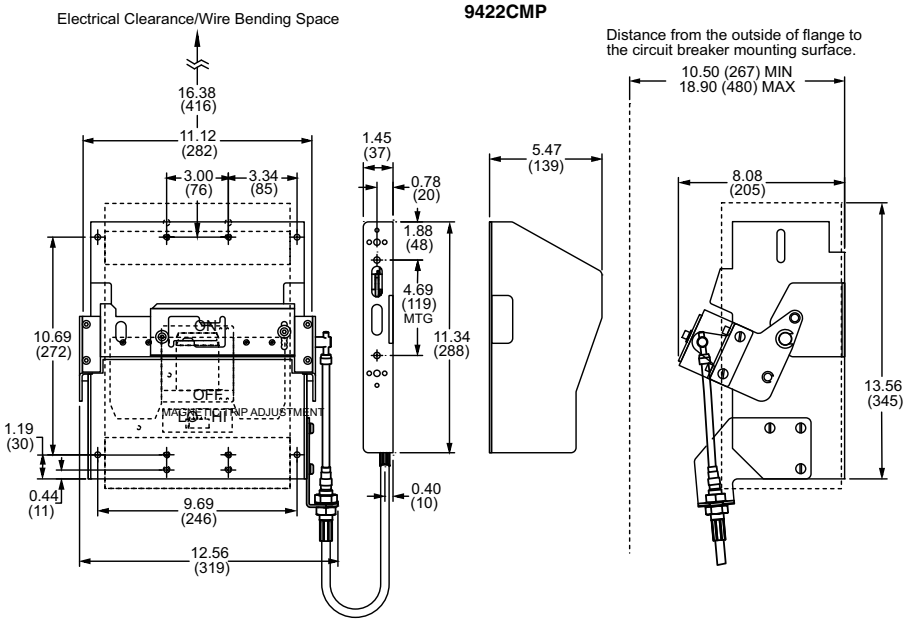
**9422CSF 3-Pole**



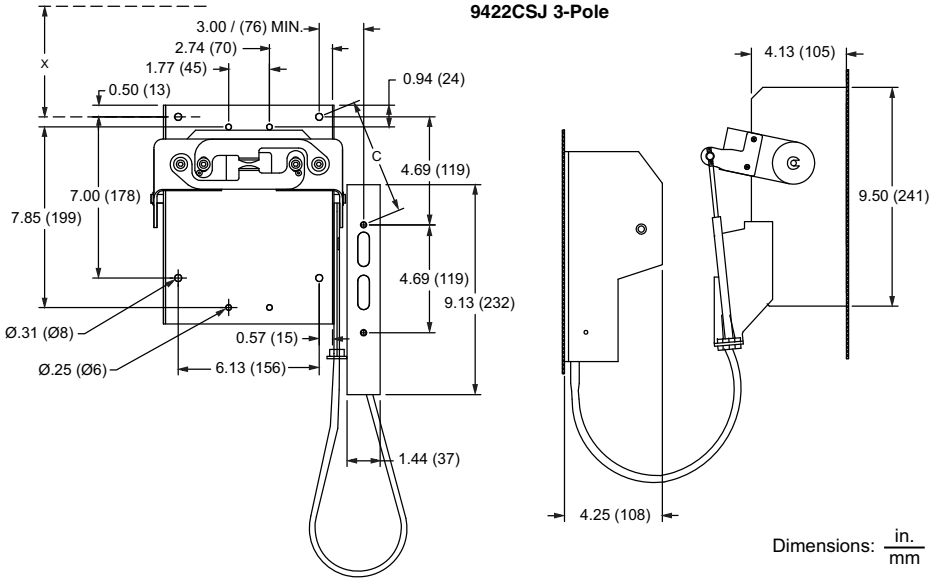

Electrical Clearance/Wire Bending Space

**9422CMP**

Distance from the outside of flange to the circuit breaker mounting surface.




**9422CSJ 3-Pole**



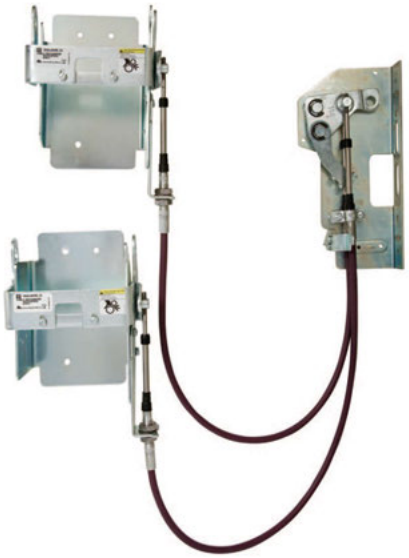

Dimensions: in. / mm



© 2012 Schneider Electric
All Rights Reserved

## Dual Cable Operating Mechanisms for Square D™ Circuit Breakers

Dual Cable Operating Mechanisms are designed for use with Square D brand PowerPact™ D, H, J, and L circuit breakers through 600 A frame sizes. The cable mechanisms allow for a single handle operator, Class 9422Ax, to operate both circuit breakers. The cable mechanism is designed especially for tall, deep enclosures where placement flexibility is required. There are numerous cable arrangements to choose from to accommodate many applications.



**9422CSFD33**

### Features

- Separate cables for each circuit breaker
- Rugged metal flange handle operator
- Maximized flexibility of circuit breaker placement for existing and new applications
- Control panel can be fed from two separate supply voltages (if required)
- Dual mechanism allows both separate supply voltages to be controlled by a single handle to improve security features

**Table 8.60: Dual Cable Operating Mechanisms Selection**

| Circuit Breaker Type | Cable Length in. / mm (quantity) | Catalog Number | Frame Size (max.) | $ Price |
|---|---|---|---|---|
| PowerPact H & J MG NSF | 120 in. / 3048 mm (2) | 9422CSFD1 | 250 A | 693.00 |
| | 36 in. / 914 mm (1)<br>60 in. / 1524 mm (1) | 9422CSFD35 | | 648.00 |
| | 60 in. / 1524 mm (1-CSF 3 pole)<br>60 in. / 1524 mm (1-CSF 4 pole) | 9422CSFD345 | | 672.00 |
| | 36 in. / 914 mm (1)<br>120 in. / 3048 mm (1) | 9422CSFD31 | | 680.00 |
| | 36 in. / 914 mm (2) | 9422CSFD33 | | 640.00 |
| | 60 in. / 1524 mm (1)<br>120 in. / 3048 mm (1) | 9422CSFD51 | | 687.00 |
| | 60 in. / 1524 mm (2) | 9422CSFD55 | | 656.00 |
| PowerPact D & L MG NSJ *New!* | 60 in. / 1524 mm (2-CSJ) | 9422CSJD50▲ | 600 A | 1008.00 |
| | 120 in. / 3048 mm (2-CSJ) | 9422CSJD10▲ | | 1096.00 |
| | 60 in. / 1524 mm and<br>120 in. / 3048 mm (2-CSJ) | 9422CSJD51▲ | | 1052.00 |
| | 120 in. / 3048 mm (1-CSF) and<br>120 in. / 3048 mm (1-CSJ) | 9422CSFJD10 | 250 A and 600 A | 894.00 |
| | 60 in. / 1524 mm (1-CSF)<br>60 in. / 1524 mm (1-CSJ) | 9422CSFJD50 | | 809.00 |

▲ Must use the 9422AP1 or 9422AP2 operating handle with this operating mechanism.

## Handle Mechanisms

These handle mechanism kits are used with the circuit breaker variable depth and cable operating mechanisms. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. Types A1/AP1 to A4 are suitable for right or left-hand flange mounting.



**9422Ax** **9422APx**

Handle Mechanisms

**Table 8.61: Handle Mechanisms**

| Type of Handle | NEMA Type Enclosure | Type | $ Price |
|---|---|---|---|
| 6 in. | 1, 3, 3R, 4 (sheet steel), 12 | A1 | 143.00 |
| | 4, 4X (stainless)▲ | A2 | 257.00 |
| 6 in.■ | 1, 3, 3R, 4 (sheet steel), 12 | AP1 | 188.00 |
| | 4, 4X (stainless)▲ | AP2 | 338.00 |
| 4 in. | 1, 3, 3R, 4 (sheet steel), 12 | A3 | 143.00 |
| | 4, 4X (stainless)▲ | A4 | 257.00 |

▲ All external metal parts are either stainless steel or a chrome-plated non-ferrous die casting.
■ Must be used with 9422 RM1, 9422CMP, and 9422CSJD (dual cable mechanism) only.

***NOTE:*** *See page 8-14 for dimensional information.*

## Flange-Mounted, Variable-Depth Operating Mechanisms

Designed for installation in custom built control enclosures where main or branch circuit protective devices are required. All circuit breaker operating mechanisms are suitable for either right- or left-hand flange mounting, convertible on the job. Selection of a 9422Ax handle is required to complete the operating mechanism.



**9422 Type R**
Circuit Breaker Mechanism

**Table 8.62: Variable-Depth Operating Mechanisms for Use with Schneider Electric™ (formerly Merlin Gerin™) Circuit Breakers**

| Use with | | | | Operating Mechanism | |
|---|---|---|---|---|---|
| Circuit Breaker Frame Size | No. of Poles | Frame Size A | Variable Depth Mtg. Range Min.-Max. (Inches)▲ | Operating Mechanism Only—Does Not Include Handle Mechanism | |
| | | | | Type | $ Price |
| **Schneider Electric (formerly Merlin Gerin) Circuit Breakers and PowerPact™ Frame 3-Pole Circuit Breakers** | | | | | |
| MG-NSF PowerPact H- and J-Frame | 2–3 | 250 | 5.88–17.75 | RQ1 | 185.00 |
| MG-NSJ PowerPact D and L | 3 | 600 | 9.00–17.75 | RS1 | 383.00 |
| PowerPact M- and P-Frame■ | 3 | 1200 | 10.50–18.38 | RM1 | 513.00 |

▲ Class 9422 Type R2 will extend mounting depth 7 inches—not recommended for use with the 9422RM1 operating mechanism (see page 8-15).
■ These circuit breaker operating mechanisms must use the 9422APx handles.

**Table 8.63: Electrical Interlocks—Class 9999**

| Description | Class | Type | $ Price |
|---|---|---|---|
| Single Pole, Double Throw | 9999 | R26 | 131.00 |
| Double Pole, Double Throw | 9999 | R27 | 243.00 |



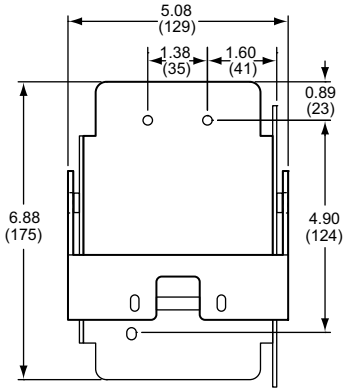


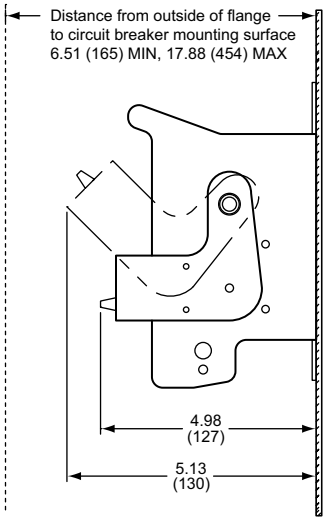
© 2012 Schneider Electric
All Rights Reserved

Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used with standard lugs. Refer to NEC 430-10.

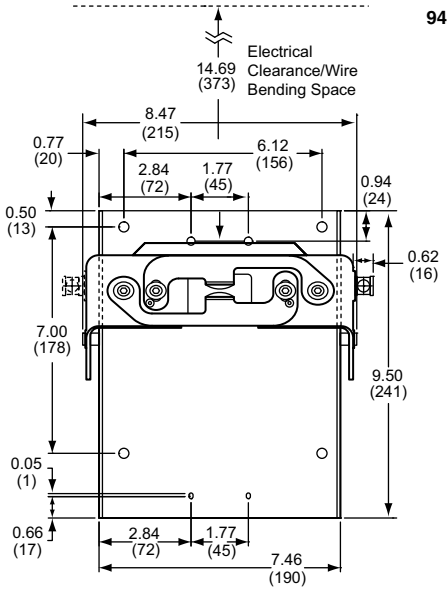
Dimensions: in. / mm

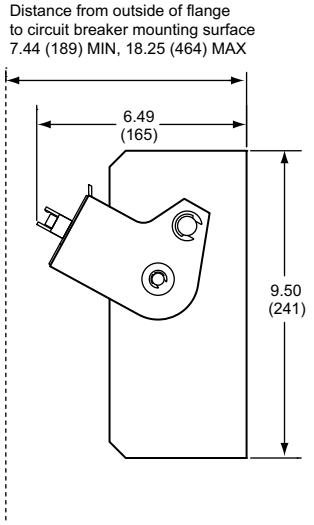
**9422RQ1**



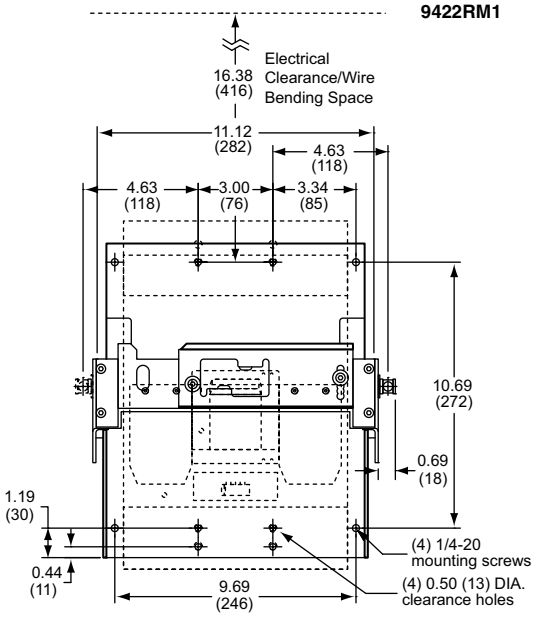



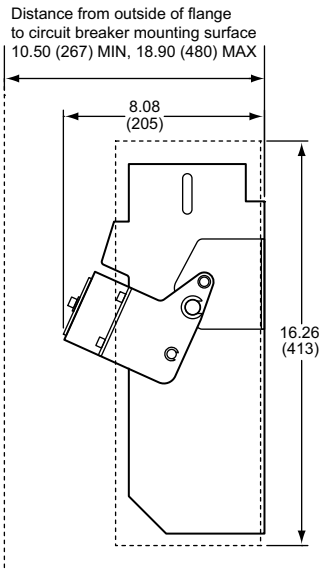

**9422RS1**




**9422RM1**






© 2012 Schneider Electric
All Rights Reserved

Switch or Breaker



Remote operation shown (handle mechanism not included in kit)

## Remote or Dual Adapter Kit

For the remote or dual operation of 30, 60, 100, and 200 A disconnect switches.

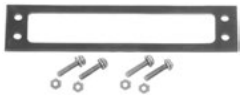
**Remote Operation**—permits mounting the Class 9422 Type A9 or A10 handle mechanism at a lower level than the disconnect device it controls. This arrangement is often required where the disconnect device is mounted too high for personnel to easily reach a conventional operator.

**Dual Operation**—permits controlling two disconnect devices, one in line with and one remote from a single Class 9422 Type A9 or A10 handle mechanism.

***NOTE:*** *A Class 9422 Type A9 or A10 handle (page 8-15) and the preferred mounting method* ***must*** *be used.*

### Table 8.64: Disconnect Device

| Disconnect Device | Enclosure Mounting Depth | | Type | $ Price |
|---|---|---|---|---|
| | Min. | Max. | | |
| **Disconnect Switch** | | | | |
| 30 A Type TCF/TCN | 10.63 | 19.50 | D2 | **251.00** |
| 60 A Type TDF/TDN | 10.63 | 19.50 | | |
| 100 A Type TEF/TEN | 12.13 | 20.25 | | |
| 200 A Type TF | 13.13 | 20.81 | | |



Alternate Mounting Kit



Channel/Flange Support Kit



Auxiliary Lock Plate

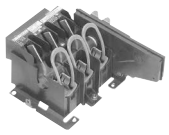
### Table 8.65: Other Accessories

| Accessory | Description | Class | Type | $ Price |
|---|---|---|---|---|
| Alternate Mounting Kit | Permits mounting Class 9422 Type A1 or A2 handle mechanisms in enclosures with flange thickness of 16 gauge to 0.5 in. | 9422 | AM2 | **14.30** |
| Channel/Flange Support Kit | Auxiliary kit recommended for use with 30 and 60 A disconnect switches and PowerPact™, NSF, and NSJ circuit breaker mechanisms when these devices are to be mounted on the center channel of a multi-door enclosure or when extra rigidity for the flange is required. Supplied as standard with 100 and 200 A disconnect switches. | 9422 | C1 | **42.80** |
| Auxiliary Lock Plate | Auxiliary kit recommended for use with the Class 9422 Type A-1 flange handle to facilitate padlocking the handle in the "OFF" position. Primarily used when the handle is mounted on the center channel of a multi-door enclosure. Also in any case where the enclosure doors interfere with the normal padlock slot in the flange handle. Meets both the Automotive and NFPA 79 specifications. | 9422 | L1 | **36.00** |
| Special Lugs for Disconnect Switches | Copper Lugs only—Specify Form Y157 | — | — | **No Charge** |
| | Tin Plated Aluminum Lugs for 400 A Type TG Switch—Specify Form Y1572 (000–750 kcmil Cu/Al wire) | — | — | **No Charge** |
| | Anderson Type VCEL Compression Lugs—Specify Form Y1574 **Exceptions:** None of the 30 A or 60 A disconnect switches are available with compression lugs. | — | — | **No Charge** |
| Operating Rods | Standard operating rod for use with Class 9422 variable depth mechanisms. Included as standard in each kit. | 9422 | R1 | **28.70** |
| | Extra long operating rod for use with Class 9422 variable depth mechanisms. Can be used as a substitute for the standard rod included in each kit to increase the maximum mounting depth 7 in. (Two are required for Types ARR, RR, ART, RT, ATE, TE, ATF, TF). | 9422 | R2 | **50.00** |





© 2012 Schneider Electric
All Rights Reserved



9422 TCN30

Class 9423 door closing mechanisms cover a range of enclosures with door openings up to a maximum of 91 in. high. The door closing mechanisms are designed to be used on control enclosures and interlocked with a Class 9422 disconnect device, although they all can be used independently. Three different systems are available, and their use is as recommended below. A complete system is available for interlocking all the doors of a multi-door enclosure with the master door when using the 6 in. or 8 in. vault handle mechanism.

Note that the "Master Door" is defined to be the door of a single or multi-door enclosure which is interlocked directly with the disconnect device. The master door can be hinged on either the right or left hand side. It can be located in any position on a multi-door enclosure. An "Auxiliary Door" is defined to be any remaining doors of a multi-door enclosure which are interlocked with the master door by means of the overhead interlocking system as illustrated on pages 8-26 and 8-27.

## Selection Procedure

**Step 1.**
Determine enclosure construction (number of doors, door height, hinge location, etc.).

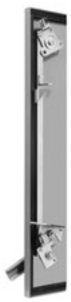
**Step 2.**
Determine Class 9422 disconnect device to be used—either a disconnect switch or a circuit breaker mechanism.

**Step 3.**
Determine the location of the disconnect device and handle mechanism (right- or left-hand flange or center channel).

**Step 4.**
Select the door closing mechanism required.

**Step 5.**
Select the auxiliary door closing mechanisms and multi-door interlocking hardware, if required. (A complete system for interlocking all auxiliary doors of a multi-door enclosure with center channel is available for the medium and large enclosures.)

**Table 8.66: Door Closing Mechanism**

| 60 in. Maximum Door Opening (Recommended) | 46–60 in. Door Opening (Recommended) | 61–91 in. Door Opening (Recommended) |
|---|---|---|
|  • 2 Point Locking is Standard<br>• A Third Roller Latch Kit is Available for 3 Point Locking<br>• For 3/4 in. Door Depths |  • For use on Single or Multi-Door Enclosures<br>• For use with Doors Hinged on Right or Left Side<br>• Referred to as the 6 in. Vault Handle Mechanism<br>• For 3/4 in. Door Depths |  • For use on Single or Multi-Door Enclosures<br>• For use with Doors Hinged on Right or Left Side<br>• Referred to as the 8 in. Vault Handle Mechanism<br>• For 1-1/8 in. Door Depths |



**Type M4**
Latch bar not included, but most prepunched enclosures that accept Square D™ operating mechanisms supply a predrilled latch bar.

The door closing mechanisms listed below are for use on small to medium size single door control enclosures. They are designed to be used in conjunction with Class 9422 flange-mounted disconnect switches and circuit breaker operating mechanisms; however, they can be used independently as well. When used on properly designed and gasketed NEMA Type 12 enclosures, they meet NFPA 79 standards.

**Table 8.67: Single Door Enclosures—NEMA Type 4 or 12 with 60 in. High Maximum Opening**

| Description | For Use On (Enclosure Type) | Use In Conjunction With | Door Latch Handle Length | Suggested Maximum Door Opening | Door Depth | Type | $ Price |
|---|---|---|---|---|---|---|---|
| Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the **left** hand side. | NEMA Type 4 and 12 Sheet Steel | Class 9422 Types A1, A3, A9 | 4 in. | Less than 39 in. | 3/4 | M4 | **228.00** |
| | | | 4 in. | Less than 39 in. | ▲ | M10 | **314.00** |
| | | | 6 in. | 60 in. | 3/4 | M9 | **243.00** |
| | NEMA Type 4 and 12 Stainless Steel | Class 9422 Types A2, A4, A10 | 4 in. | Less than 39 in. | 3/4 | M24 | **300.00** |
| Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the **right** hand side. | NEMA Type 4 and 12 Sheet Steel | Class 9422 Types A1, A3, A9 | 4 in. | Less than 39 in. | 3/4 | M4L | **228.00** |
| | | | 4 in. | Less than 39 in. | ▲ | M10L | **314.00** |
| | | | 6 in. | 60 in. | 3/4 | M9L | **243.00** |
| | NEMA Type 4 and 12 Stainless Steel | Class 9422 Types A2, A4, A10 | 4 in. | Less than 39 in. | 3/4 | M24L | **300.00** |
| Third roller latch kit for 3 point locking; for use where 3 point locking is desired or where the door opening is 39 in. or more. | NEMA Type 4 and 12 Sheet Steel | Class 9423 Types M4, M9, M4L, M9L | — | — | 3/4 | M3 | **50.00** |
| | NEMA Type 4 and 12 Stainless Steel | Class 9423 Types M24, M24L | — | — | 3/4 | M23 | **57.00** |

▲ Suitable for door depths of 1-1/8 in., 1-1/4 in., 1-3/8 in. and 1-1/2 in.



Circuit Breaker Operating Mechanism



© 2012 Schneider Electric
All Rights Reserved

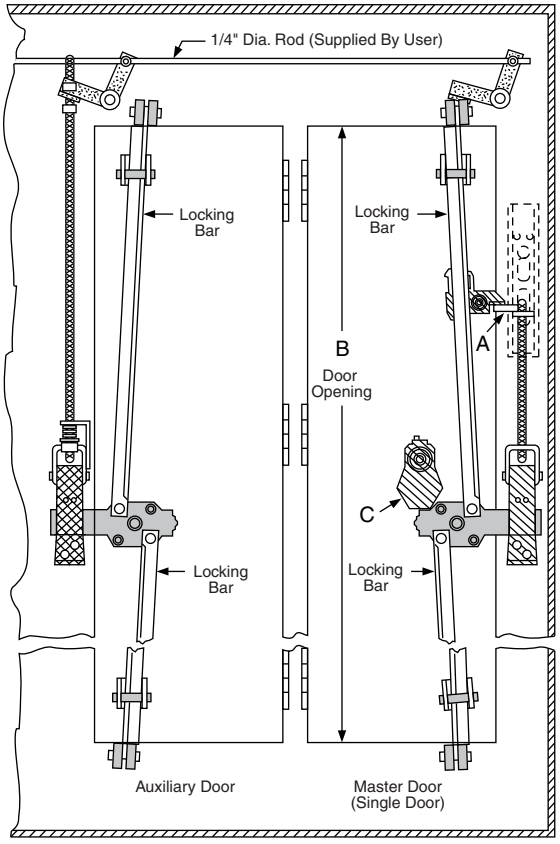
## Vault Type for Single and Multi-Door Enclosures

Table 8.68 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

**Table 8.68: Single or Multi-Door Enclosures—NEMA Type 12 with 40 in. to 60 in. Door Opening**

| Single-Door Enclosure | | Multi-Door Enclosure | | |
|---|---|---|---|---|
| **Without Interlocking** | **With Interlocking** | **Without Interlocking** | **With Interlocking** | |
| 1—M6 door closing mechanism<br>1—Type M660 locking bar kit | 1—M6 door closing mechanism<br>1—Type M660 locking bar kit<br>1—Type M5 (use with 9422A handles) | For *each* door:<br>1—M6 door closing mechanism<br>1—Type M660 locking bar kit | For *Master* door:<br>1—M6 door closing mechanism<br>1—Type M660 locking bar kit<br>1—Type M5 (for use with 9422A handles) | For each *Auxiliary* door:<br>1—M6 door closing mechanism<br>1—Type M660 locking bar kit<br>Necessary quantities of Types M2 and M7 for each door (see below) |

## View from Inside the Enclosure




Note: A - Interlocking lever extension of the flange-mounted handle mechanism.

Note: B - Actual enclosure opening—not door height.

Note: C - Screwdriver interlock assembly can be ordered separately. Class 9423 Type **CEQ2493**. **$45.00**

***NOTE:*** *All mechanisms listed on this page are suitable for either left or right hand mounting.*

**Table 8.69: Door Interlocks**

| Type M6 Door Closing Mechanism | $ Price |
|---|---|
| The Class 9423 Type M6 door closing mechanism is designed to close and seal 0.75 in. deep doors of single or multi-door NEMA Type 12 enclosures. The Type M6 can be used on doors hinged on either the left or right hand side. Recommended door openings are from 40–60 in. Vault type handle length is 6 in. | **257.00** |
| **Type M660 Locking Bar Kits** | |
| The lock bar kit for the Type M6 door closing mechanism contains two lock bars and is available from stock. The bars can be cut to fit door openings through 60 in. One lock bar kit is required for each Type M6 ordered. | **86.00** |
| **Type M5** | |
| The Class 9423 Type M5 mechanical interlock kit is designed to interlock a Class 9422 handle mechanism with the Type M6 door closing mechanism. This kit prevents the opening of the master door (or single door) with the disconnect handle in the "ON" position, making it mandatory to use a screwdriver to gain entry to the enclosure at any time, regardless of the disconnect handle position. | **215.00** |

**Table 8.70: Required Accessories for Auxiliary Doors**

| Type M2 | $ Price |
|---|---|
| One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door. | **257.00** |
| **Type M7** | |
| The first auxiliary door requires 2 Type M7 kits. Additional auxiliary doors require only 1 Type M7 kit. The 0.25 in. diameter rod used to interconnect the M7 kits is furnished by the user. If the distance between any two Type M7 kits exceeds 36 in., an additional Type M7 kit should be installed to prevent the rod from buckling. | **71.00** |





© 2012 Schneider Electric
All Rights Reserved

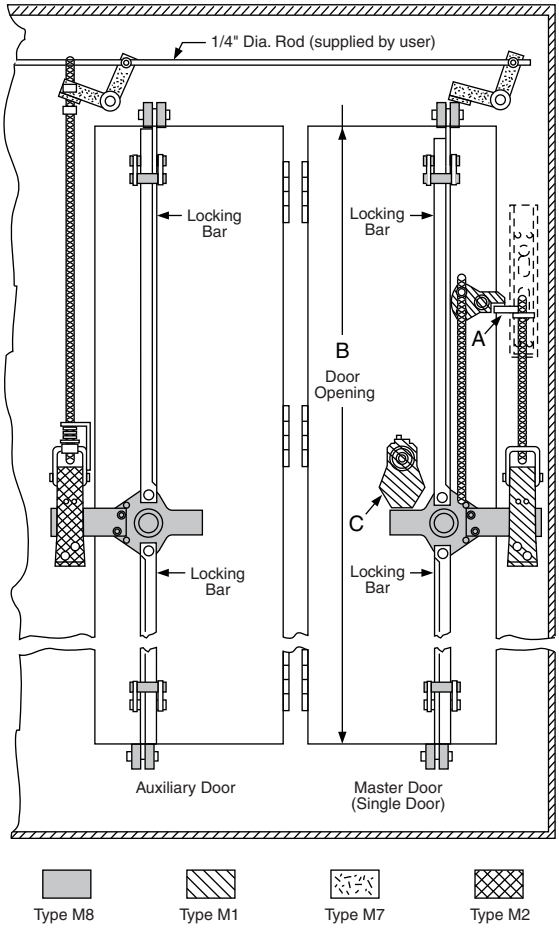
## Vault Type for Single and Multi-Door Enclosures

Table 8.71 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

**Table 8.71: Single Or Multi-Door Enclosures—NEMA Type 12 with 61 in. to 91 in. Door Openings**

| Single-Door Enclosure | | Multi-Door Enclosure | | |
|---|---|---|---|---|
| **Without Interlocking** | **With Interlocking** | **Without Interlocking** | **With Interlocking** | |
| 1—M8 door closing mechanism<br>1—Type M891 locking bar kit | 1—M8 door closing mechanism<br>1—Type M891 locking bar kit<br>1—Type M1 (for use with 9422A handles) | For *each* door:<br>1—M8 door closing mechanism<br>1—Type M891 locking bar kit | For *Master* door:<br>1—M8 door closing mechanism<br>1—Type M891 locking bar kit<br>1—Type M1 (for use with 9422A handles) | For each *Auxiliary* door:<br>1—M8 door closing mechanism<br>1—Type M891 locking bar kit<br>Necessary quantities of Types M2 and M7 for each door (see below) |

## View from Inside the Enclosure




Note: A - Interlocking lever extension of the flange-mounted handle mechanism.

Note: B - Actual enclosure opening—not door height.

Note: C - Screwdriver interlock assembly can be ordered separately. Class 9423 Type CEQ2493. **$45.00**

***NOTE:*** *All mechanisms listed on this page are suitable for either left or right hand mounting.*

**Table 8.72: Door Interlocks**

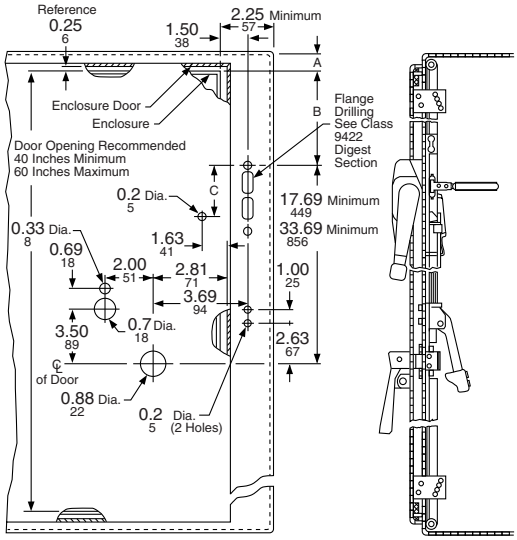
| Type M8 Door Closing Mechanism | $ Price |
|---|---|
| The Class 9423 Type M8 door closing mechanism is designed to close and seal 1.125 in. deep doors of single or multi-door NEMA Type 12 enclosures. The Type M8 can be used on doors hinged on either the left or right hand side. Recommended door openings are from 61–91 in. Vault type handle length is 8 in. | **500.00** |
| **Type M891 Locking Bar Kits** | |
| The lock bar kit for the Type M8 door closing mechanism contains two lock bars and is available from stock. The bars can be cut to fit door openings through 91 in.. One lock bar kit is required for each Type M8 ordered. | **86.00** |
| **Type M1** | |
| The Class 9423 Type M1 mechanical interlock kit is designed to interlock a Class 9422 handle mechanism with the Type M8 door closing mechanism. This kit prevents the opening of the master door (or single door) with the disconnect handle in the "ON" position, making it mandatory to use a screwdriver to gain entry to the enclosure at any time, regardless of the disconnect handle position. | **428.00** |

**Table 8.73: Required Accessories for Auxiliary Doors**

| Type M2 | $ Price |
|---|---|
| One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door. | **257.00** |
| **Type M7** | |
| The first auxiliary door requires 2 Type M7 kits. Additional auxiliary doors require only 1 Type M7 kit. The 0.25 in. diameter rod used to interconnect the M7 kits is furnished by the user. If the distance between any two Type M7 kits exceeds 36 in., an additional Type M7 kit should be installed to prevent the rod from buckling. | **71.00** |



© 2012 Schneider Electric
All Rights Reserved




## Enclosure Construction and General Location Information For Types M5 and M6

Drilling and location information below is complete for a single door enclosure with door hinged on left side, incorporating a Type M6, M5, and Class 9422 handle mechanism. Transpose all horizontal dimensions for doors hinged on right side.

### Dimension A

Note: Single door enclosures: A minimum = 1 in.

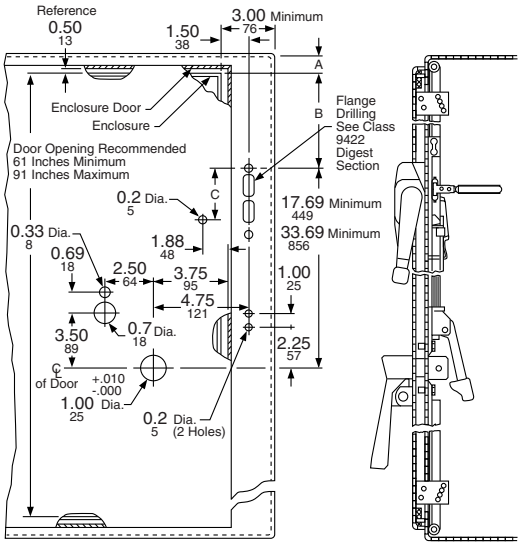
Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1 in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4½ in.

Note: Overhead interlocking system consists of the required number of Class 9423 Type M2 and M7 kits for interlocking the auxiliary doors with the master door. See page 8-26.

**Table 8.74: Dimension B (Minimums)**

| Type | Disconnect Device | If A = 1 Minimum B = | If A = 4½ Minimum B = | C |
|---|---|---|---|---|
| TCF, TCN, TDF, TDN, TD | 60 A Disconnect Switch | 3-/16 | 2-1/2 | 3-3/16 |
| TE, TEF, TEN | 100 A Disconnect Switch | 5-1/4 | 2-1/2 | 3-3/16 |
| TF | 200 A Disconnect Switch | 11-5/8 | 8-1/8 | 3-3/16 |
| TG | 400 A Disconnect Switch | 15-1/16 | 11-9/16 | 6-3/4 |
| RN1 | FAL, FHL, Circuit Breaker | 4-27/32 | 2-1/2 | 3-3/16 |
| RP1 | KAL, KHL Circuit Breaker | 11-5/32 | 7-21/32 | 3-3/16 |
| RR2 | ILL Circuit Breaker | 17-31/32 | 14-15/32 | 3-3/16 |
| RT1 | MAL, MHL, MEL, MXL Circuit Breaker | 18-5/8 | 15-1/8 | 3-3/16 |




## Enclosure Construction and General Location Information For Types M1 and M8

Drilling and location information below is complete for a single door enclosure with the door hinged on the left side, incorporating a Type M8, M1, and Class 9422 handle mechanism. Transpose all horizontal dimensions for doors hinged on the right side.

### Dimension A

Note: Single door enclosures: A minimum = 1½ in.

Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1½ in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4½ in.

Note: Overhead interlocking system consists of the required number of Class 9423 Type M2 and M7 kits for interlocking the auxiliary doors with the master door. See page 8-26.

**Table 8.75: Dimension B (Minimums)**

| Type | Disconnect Device | If A = 1½ Minimum B = | If A = 4½ Minimum B = | C |
|---|---|---|---|---|
| TCF, TCN, TDF, TDN, TD | 60 A Disconnect Switch | 2-15/16 | 2-1/2 | 3-3/16 |
| TE, TEF, TEN | 100 A Disconnect Switch | 4-3/4 | 2-1/2 | 3-3/16 |
| TF | 200 A Disconnect Switch | 11-1/8 | 8-1/8 | 3-3/16 |
| TG | 400 A Disconnect Switch | 14-9/16 | 11-9/16 | 5-7/8 |
| RN1 | FAL, FHL Circuit Breaker | 4-11/32 | 2-1/2 | 3-3/16 |
| RP1 | KAL, KHL Circuit Breaker | 10-21/32 | 7-21/32 | 3-3/16 |
| RR2 | ILL Circuit Breaker | 17-15/32 | 14-15/32 | 3-3/16 |
| RT1 | MAL, MHL, MEL, MXL Circuit Breaker | 18-1/8 | 15-1/8 | 3-3/16 |





© 2012 Schneider Electric
All Rights Reserved

# Section 9
# Panelboards





NQ Panelboards
Page 9-5



NF Panelboards
Page 9-13



I-Line Panelboards
Page 9-20



QMB Panelboards
Page 9-35

## Series Rated / Fully Rated Tables


| | | |
|---|---|---|
| NQ | | 9-2, 9-42 |
| NF | | 9-3 |
| I-Line™ | | 9-3 |


## Lighting and Appliance Panelboards


| | | |
|---|---|---|
| NQ/NF | Pricing Procedure | 9-5 |
| NQ | Merchandised Main Lug Panelboards | 9-6 |
| | Merchandised Main Circuit Breaker Panelboards | 9-7 |
| | New! Merchandised 14-inch-wide Panelboards | 9-8 |
| | Merchandised Accessories | 9-9 |
| | QOB Branch Circuit Breakers | 9-10 |
| | Factory Assembled Panelboards and Circuit Breakers | 9-11 |
| | Factory Assembled Common Features | 9-12 |
| NF | Merchandised Main Lugs Panelboards | 9-13 |
| | Merchandised Main Circuit Breaker Panelboards | 9-13 |
| | Merchandised Main Lug and Main Circuit Breaker Panelboards with | 9-13 |
| | Merchandised Accessories | 9-14 |
| | EDB, EGB, EJB Branch Circuit Breakers | 9-15 |
| | Factory Assembled Panelboards | 9-16 |
| | Factory Assembled Common Features | 9-17 |
| NQ/NF | Merchandised Single Row (Column Width) Panelboards | 9-18 |
| Column Width | Factory Assembled Single Row (Column Width) Panelboards | 9-19 |


## Power Distribution Panelboards—Circuit Breaker Type


| | | |
|---|---|---|
| I-Line/QMB | Pricing Procedure | 9-20 |
| I-Line | Merchandised Panelboards (HCN, HCM, HCP-SU) | 9-21 |
| | Merchandised Panelboards (HCP, HCR-U) | 9-22 |
| | Merchandised Accessories | 9-23 |
| | Circuit Breakers | 9-24 |
| | F-frame Circuit Breakers | 9-24 |
| | Q-frame Circuit Breakers | 9-25 |
| | H-frame and J-frame Circuit Breakers | 9-26 |
| | K-frame Circuit Breakers | 9-27 |
| | L-frame Circuit Breakers | 9-28 |
| | M-frame Circuit Breakers | 9-29 |
| | P-frame and R-frame Circuit Breakers | 9-30 |
| | Factory Assembled Pricing | 9-31 |
| | Factory Assembled Branch Circuit Breakers | 9-32 |
| | Factory Assembled Common Features | 9-34 |


## Power Distribution Panelboards—Fusible Type


| | | |
|---|---|---|
| QMB | Replacement Switches | 9-35 |
| | Factory Assembled Pricing | 9-36 |
| | Factory Assembled SPD Units | 9-37 |


## Panelboard Special Features


| | | |
|---|---|---|
| | Factory Assembled Modifications | 9-38 |
| | Terminal Data | 9-39 |


SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

**Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲■ | Maximum Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges ♦★▼△ | | | |
|---|---|---|---|---|---|---|
| | | | Type | 1 Pole | 2 Pole | 3 Pole |

***NOTE:*** *Table 9.1 NQ Series Connected Circuit Breaker Ratings table has moved to page 9-42 and page 9-43.*



© 2012 Schneider Electric
All Rights Reserved

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

**Table 9.2: NF Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage, AC ▲ | Max. Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges |
|---|---|---|---|
| 120<br>120/240<br>240 | 65,000 | EG, FH, FG, KH, LH, MH, MX, HG, JG, DG<br>LG<br>EG | EDB, EDB-EPD<br>EDB<br>ECB-G3 |
| | 100,000 | EJ, FC, FJ, KC, LC, HJ, JJ<br>DJ, LJ<br>EJ, FC, KC, HJ, JJ | EDB, EDB-EPD, EGB<br>EDB, EGB<br>ECB-G3 |
| | 125,000 | HL, JL | EDB, EDB-EPD, EGB, ECB-G3 |
| | 200,000 | FI, KI, LI, LXI, HR, JR, LR<br>FI, KI, HR, JR<br>Class J or T (600 V) 200 A Max Fuses | EDB, EDB-EPD, EGB, EJB<br>ECB-G3<br>ECB-G3 |
| 277<br>480Y/277 | 35,000 | EG, FG, KH, LH, HG, JG, DG, LG<br>EG, HG, JG | EDB, EDB-EPD<br>ECB-G3 |
| | 65,000 | EJ, FC, FJ, KC, LC, LX, HJ, JJ, DJ<br>EJ, FC, KC, HJ, JJ | EDB, EDB-EPD, EGB<br>ECB-G3 |
| | | LJ | EDB, EDB-EPD, EGB,<br>EGB-EPD |
| | | LL | EDB-EPD, EGB-EPD |
| | 100,000 | HL, JL<br>DL, LL<br>400 A Max Fuses | EDB, EDB-EPD, EGB, EJB<br>EDB, EGB, EJB<br>EDB, EDB-EPD, EGB, EJB |
| | 200,000 | FI, KI, LI, LXI, HR, JR, LR<br>FI, KI, HR, JR | EDB, EDB-EPD, EGB, EJB<br>ECB-G3 |
| | | 200 A Max Fuses | EDB, EDB-EPD, EGB, EJB, ECB-G3 |
| 600Y/347 | 18,000 | HG, JG, MG,<br>LG | EDB<br>EDB (15–110 A) |
| | 25,000 | EJ, FI, KH, KI, LC, LE, LX, LI, LXI, HJ, JJ | EDB, EGB |
| | | LJ | EDB (15–110 A),<br>EGB (15–110 A) |
| | | LH | (15–70 A) EDB, EGB |
| | 35,000 | LC, LE, LX | EDB, EGB, EJB |
| | 50,000 | HL, JL, | EDB, EGB, EJB |
| | | LL | EDB (15–110 A), EGB<br>(15–110 A),EJB (15–110 A) |
| | 65,000 | FI, KI, HR, JR<br>LI, LXI, LR | EDB, EGB, EJB<br>EJB |
| | 200,000 | Class J or T (600 V) 200 A Max Fuses | EDB, EGB, EJB |

**Table 9.3: I-Line Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲ | Max. Short Circuit Current Rating (RMS Symm.) | Integral or Remote 2- or 3-pole Main Circuit Breaker | Square D™ Brand Branch Circuit Breakers | |
|---|---|---|---|---|
| | | | Designation | Poles |
| 120 | 42k | MG | FY | 1 |
| | 65k | QG, LH | FA, FD■ | |
| | 100k | FJ■, QJ<br>QJ, LC<br>LJ | FD■<br>FA<br>FH | |
| | 200k | LR | FH, FY | |
| 208Y/120 | 100k | QJ<br>QJ, PH, PJ, RJ | FA, FD■<br>QD, QG | 2, 3 |
| 240 | 35k | MG | FA | 1 |
| | 42k | KA<br>LA, MA | FD■<br>HD, JD, QD | 1, 2, 3<br>2, 3 |
| | 50k | MG<br>MG | FA<br>FA (25 A Max.) | 1 |
| | 65k | HG, JG<br>JG<br>QG<br>LH, MH, PA, PG, RG | FA, HD<br>JD, QD<br>FA, FD■, QD<br>HD, JD, QD | 2, 3 |
| | | FG■, FH, MH, MX, PJ<br>FC, KC, KH, LC, LH<br>LH | FD■<br>FD■, FG■<br>FA | 1, 2, 3 |
| | | LH<br>MG<br>LG<br>DG | LA<br>HD, JD, KA<br>HD, JD, KA, LA, LD, MA<br>FH, HD, JD, KA, LA, MA | 2, 3 |
| | 85k | RL | FH, KH | |
| | 100k | FC, KC, LC, LX | FD■, FG■, FJ | 1 |
| | | PH, PJ, RJ | QD, QG | 2, 3 |
| | | QJ | FD■ | 2 |
| | | FJ■<br>FC, KC<br>LC, LX<br>KC, LC, LX<br>KC, LC<br>LC | FD■<br>FA, FH, FD■, FG■, FJ■<br>FH, FD■, FG■, FJ■<br>KA<br>KH<br>LA, LH, MG | 2, 3 |
| | | LC | FA | 1, 2, 3 |
| | | HJ, JJ<br>JJ<br>LC, LX, MJ, PJ, RJ<br>MJ<br>LJ<br>DJ<br>RL<br>HL, JL | FA, FH, HD, HG<br>JD, JG<br>HD, HG, JD, JG<br>LA, LH<br>FH, HD, HG, JD, JG, KA, LA, LD, LG, MA, MG<br>FH, HD, HG, JD, JG, KA, LA, MA, MG<br>RG<br>HD, HG, HJ, FA, H | 2, 3 |
| 240 | 125k | JL<br>PC, PH, PL, RL<br>PC, PL, RL<br>FI, KI, LI, LXI<br>KI, LI, LXI | JD, JG, JJ<br>HD, HG, JD, JG<br>HH, JJ<br>HD, HG, HJ<br>JD, JG, JJ | 2, 3 |

**Table 9.3: I-Line Series Connected Circuit Breaker Ratings (RMS Symmetrical)** *(continued)*

| Maximum System Voltage AC ▲ | Max. Short Circuit Current Rating (RMS Symm.) | Integral or Remote 2- or 3-pole Main Circuit Breaker | Square D™ Brand Branch Circuit Breakers | |
|---|---|---|---|---|
| | | | Designation | Poles |
| | | FI, KI, LI, LXI | FD■, FG■, FJ | 1 |
| 240 | 200k | FI, KI<br>LI, LXI<br>LI<br>KI, LI, LXI<br>LI<br>LR | FA, FH, FC, FD■, FG■, FJ■<br>FH, FD■, FG■, FJ■<br>FC<br>KA, QD, QG, QJ<br>KC<br>FH, HJ, HL, JJ, JL, LA, LH, QD, QG, QJ | 2, 3 |
| 277 | 18k | LD | FY | 1 |
| | 25k | FH, KA | FD■ | |
| | 35k | FG■, KH, LH<br>DG<br>LG | FD■<br>FH, FY<br>FH, FY | |
| | 65k | FJ■<br>FC, KC<br>LC, LX (400 A Max.)<br>LC, LX (600 A Max.)<br>LJ<br>DJ<br>LL | FD■<br>FA, FH, FY, FD■, FG■<br>FH<br>FY, FD■, FG■<br>FH, FY<br>FH, FY<br>FY | |
| | 100k | DL<br>LL | FH, FJ■<br>FH, FJ■ | |
| | 200k | FI, KI<br>HR<br>JR<br>LI, LXI (400 A Max.)<br>LI, LXI (600 A Max.)<br>LR | FA, FH, FY, FD■, FG■, FJ■<br>FA, FJ■, FY<br>FA, FJ■, FY<br>FH<br>FY, FD■, FG■, FJ■<br>FH, FY | |
| 480 | 22k | MG | FA | 2, 3 |
| | 30k | KH, LA, MA, MX, PA, PC, PX, PJ | FH | |
| | | LA, MA, PA, PC, PX<br>LA, MA, PA<br>MG | KA<br>HD, JD<br>FA (25 A Max.), FH, KA | |
| | 35k | MH, MX, PA<br>HG, JG<br>JG<br>LH, MG, PG, RG<br>LG<br>DG | HD, JD<br>FA, HD<br>JD<br>HD, JD<br>FH, HD, JD, KA, LA, LD, MA<br>FH, HD, JD, KA, LA, MA | |
| | 42k | MJ<br>RL | FH (25 A Max.)<br>RG | |
| | 50k | MJ | KA, KH | |
| | 65k | FC, KC<br>HJ, JJ<br>JJ<br>LC, LI, LX, LXI<br>LC, LX (400 A Max.)<br>KC, LC, LX<br>LC, LX<br>LJ<br>DJ | FA, FH<br>FA, FH, HD, HG<br>JD, JG<br>HD, HG, JD, JG<br>FH<br>KA<br>LA<br>FH, HD, HG, JD, JG, KA, LA, LD, LG, MA<br>FH, HD, HG, JD, JG, KA, LA, MA | |
| | 100k | HL, JL<br>JL<br>JR<br>LI, LXI (600 A Max.) | FA, FH, HD, HG, HJ<br>JD, JG, JJ<br>FA<br>KA | |
| | | LL | FH, HD, HG, HJ, JD, JG, JJ, KA, LA, LD, LG, LJ, MA | |
| | | DL<br>PC, PH, PL, RL<br>RL | FH, HD, HG, HJ, JD, JG, JJ, KA, LA, MA<br>HJ, JJ<br>RG | |
| | 200k | FI, KI<br>HR<br>JR<br>KI<br>LI<br>LR<br>LXI | FA, FH, FC, HD, HG, HJ<br>FA, HD, HG, HJ, HL<br>HD, HG, HJ, HL, JD, JG, JJ, JL<br>JD, JG, JJ, KA<br>FC, KA, KC, LA, HJ, HL, JJ, JL<br>FH, HJ, HL, JJ, JL, LA, LH<br>KA, HJ, HL, JJ, JL | |
| 480Y/277 | 25k | FH, KA | FD■ | |
| | 35k | FG■, KH, LH | FD■ | |
| | 65k | FJ■<br>FC, KC<br>LC, LX (600 A Max.) | FD■<br>FD■, FG■<br>FD■, FG■ | |
| | 200k | FI, KI<br>LI, LXI (600 A Max.) | FD■, FG■, FJ■<br>FD■, FG■, FJ■ | |
| 600 | 18k | HG, JG<br>JG<br>LG<br>MG, PG, RG<br>MG | FA, HD<br>JD<br>HD, JD, LD<br>HD, JD<br>FA | 2, 3 |
| | 25k | HJ, JJ<br>JJ<br>LJ<br>PJ, RJ | FA, HD, HG<br>JD<br>HD, HG, JD, JG, LD, LG, MA<br>MG | |
| | 35k | LC | FH, HD, HG, HJ, JD, JG, JJ, LA | |
| | 50k | HL, JL<br>JL<br>LL<br>PK | FA, HD, HG, HJ<br>JD, JG, JJ<br>HD, HG, HJ, JD, JG, JJ, LD, LG, LJ, MA<br>HJ, JJ, MJ | |
| | 100k | FI, KI<br>HR<br>JR<br>KI<br>KI, LI<br>LI | HD, HG, HJ<br>FA, HD, HG, HJ, HL<br>FA, HD, HG, HJ, HL, JD, JG, JJ, JL<br>JD, JG, JJ<br>FH<br>LA | |
| 600Y/347 | 18k<br>25k<br>50k | MG<br>MJ<br>HL, JL | FA (25 A max.)<br>FA (30 A max.)<br>FJ | 1 |

▲ Short circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.

■ Obsolete. Contact your local Schneider Electric representative or distributor for the replacement circuit breaker.

***NOTE:*** *LD, LG, LH, and LL breakers are only available in 3 pole configurations.*

© 2012 Schneider Electric
All Rights Reserved

**Table 9.4: Fuse/I-Line Circuit Breaker Series Connected Ratings**

| Maximum System Voltage AC | Max. Short Circuit Current Rating (RMS Symm.) | Remote Main Fuse | | Square D™ Brand Branch Circuit Breakers |
|---|---|---|---|---|
| | | Maximum Amperage | Fuse Class | Designation ▲ |
| 120/240 1Ø 208Y/120 | 100,000 | 1200 A | L, T (300 V) | QD, QG |
| | | 800 A | T (600 V) | QD, QG |
| | | 600 A | J, RK5 | QD, QG |
| 240 | 65,000 | 1200 A | L, T (300 V) | QD |
| | | 800 A | T (600 V) | QD |
| | | 600 A | J, RK5 | QD |
| 240 | 100,000 | 1200 A | L, T (300 V) | QD, QG (2-pole) |
| | | 800 A | T (600 V) | QD, QG (2-pole) |
| | | 600 A | J, RK5 | QD, QG (2-pole) |
| | | | L, T (600 V) | FA, FH, KA, KH, KC, LA, LH, MA, MH, MX, PG |
| | | | RK5 | FH, KA, KH, LA, LH, MA, MH, MX, PG, HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | | J | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 800 A | T (600 V) | FH, KA, KH, LA, LH, MA, MH, MX, PG |
| | | | T (300 V) | PG |
| | | | L | FH,KA,KH,LA,LH,MA,MH,MX,PG |
| | | 1200 A | L | FH, KH, LA, LH, MA, MH, MX, PG |
| | | | T (600 V) | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 1600/2000 A | L | KH, MA, MH, MX, PG |
| | | 4000 A | L | HD, HG, HJ, HL, JD, JG, JJ, JL |
| 240 | 200,000 | 600 A | J, T (600 V) | FA( 3-pole only), FH, FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | | RK5 | FH, FC, HD, HG, HJ, HL, JD, JG, JJ, JL KH, KC, LA, LH, LC, MA, MH, MX, NC, NX, PG, PJ, PL |
| | | | J | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 800 A | T (600 V) | FH, FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | | T (300 V) | PG, PJ, PL |
| | | | L | FH,FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | 1200 A | L | FC, KH, KC, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | | T (600 V) | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 1600/2000 A | L | NA, NC, NX, PJ, PL |
| | | 4000 A | L | HD, HG, HJ, HL, JD, JG, JJ, JL |
| 480 | 100,000 | 400 A | J, T (600 V) | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 600 A | J, RK5 | HJ, HL, JJ, JL |
| | | | J, T (600 V) | FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ |
| | | | RK5 | FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ |
| | | 800 A | L, T (600 V) | FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ |
| | | 1200 A | L | FC, KH, KC, LA, LH, LC, MA, MH, MX, NA, PG, PJ |
| | | | T (600 V) | HJ, HL, JJ, JL |
| | | 1600 A | L | KC, LC, MA, MH, MX, NA, PG, PJ |
| | | 2000 A | L | KC, LC, MH,MG, MJ, MX, NA, PG, PJ |
| | | 4000 A | L | HJ, HL, JJ, JL |
| 480 | 200,000 | 200 A | RK5 | HJ, HL |
| | | 400 A | J | FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | | T(600V) | FA, FH, FC, HJ, HL, JJ, JL, KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX |
| | | 600 A | J | FC, KA, KH, KC, LA, LH, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL |
| | | | T (600V) | KA, KH, KC, LA, LH, MA, MH, MX, NA, NC, NX |
| | | | RK5 | KC, LA, LH, LC, MA, MH, MX, MG, MJ, NC, NX, PG, PJ, |
| | | 800 A | T (300 V) | PG, PJ, PL |
| | | | T (600 V) | KA, KH, KC, LA, LH, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL |
| | | | L | KC, LA, LH, LC, MA, MH, MX, NA, NC, NX, PG, PJ, PL |
| | | 1200 A | L | KC, LC, MA, MH, MX, MG, MJ, NA, NC, NX, PG, PJ, PL |
| | | 1600/2000 A | L | NA, NC, NX |
| 600 | 100,000 | 30 A | CC | HG, JG ( molded case switches ) |
| | | 200 A | J | HD, HG, HJ, HL, JD, JG, JJ, JL |
| | | 400 A | J, T (600 V) | HJ, HL, JJ, JL |
| | | 600 A | R | MG, MJ |
| | | 1200 A | L | MG, MJ |
| 600 | 200,000 | 600 A | J | MG, MJ |
| | | 800 A | T (600 V) | MG, MJ |

▲ Series rating valid for 2-pole or 3-pole circuit breakers.

Note:

- The fuse used in this UL test is an envelope (umbrella) fuse. This fuse is designed as a “worst case” fuse. Thus, no matter what manufacturer’s fuse is used, the Square D™ brand circuit breaker is protected.
- The line side fused switch may be in a separate enclosure or in the same enclosure as the loadside circuit breaker. A line side fused switch may be a submain, integral main, or remote main. A load side circuit breaker may be a branch, submain, or an integral main used on the load side of a remote main. This series combination short circuit current rating shall not exceed that of the line side fused switch. The charts apply to Square D™ brand load side circuit breakers only. However, the line side fuse ratings are independent of the fuse manufacturer.
- Not applicable to Corner Grounded Systems.
- Limiters used in Square D™ brand DSL and DSL II fused power circuit breakers are not class L fuses and do not have series ratings.



© 2012 Schneider Electric
All Rights Reserved

## NQ and NF Merchandised Pricing Procedure

1. List circuit breakers required, either plug-on or bolt-on. See the appropriate Digest pages for catalog numbers.
2. Determine equivalent number of pole spaces required.
3. Select proper main lug interior (from page 9-6) or main lug interior and main circuit breaker adapter kit (from page 9-7) based on equivalent number of poles and ampere rating. Interiors include solid neutral and are field convertible to top-feed.
4. Select enclosure from appropriate page.
   Type 1—Select box and front catalog number corresponding to interior catalog number.
   Type 3R, 5, 12—Select enclosure. Interior trim kit for Type 3R, 5, 12 is included with the enclosure.
5. For complete price, add the component prices. Include panelboard accessories.
6. Apply appropriate discount schedule.

## NQ and NF Factory Assembled Pricing Procedure

1. Select **Base Price** for main lugs or main circuit breaker from the **Base Price Table**. Include equipment ground bar when required.
2. List **Branch Circuit Breakers** (either plug-on or bolt-on) and determine total spaces required. Select price from the **Branch Circuit Breakers Table**. Include space-only charge for future requirements.
3. If total spaces required exceeds the maximum listed, price as two or more panelboards and add price for sub-feed or feed-through lugs so installer can cable between sections.
4. Add price for special features from appropriate page. Contact your local Schneider Electric representative or distributor for additional special features.
5. For complete price, add all prices. Order by description.

***NOTE:*** *Additional special price adders can be found in the Supplemental and Obsolescence Digest, Section 4.*

6. Apply appropriate discount schedule.

## NQ Merchandised Pricing Example

**Table 9.5: 208Y/120 Vac, 3Ø4W, 10 kA SCCR, 225 A, MLO, Type-1, surface-mount, bolt-on, branch circuit breakers, main sub-feed lugs**

| Branches | Page No. | Catalog Number | Spaces | $ Price |
|---|---|---|---|---|
| (20) 20/1 | 9-10 | (20) **QOB120** | 20 | **795.** |
| two 40/2 | 9-10 | two **QOB240** | 4 | **177.** |
| two 30/3 | 9-10 | two **QOB330** | 6 | **585.** |
| | | | Total 30 | |
| 225 A MLO Interior | 9-6 | NQ430L2 | – | **1215.** |
| Box | 9-6 | MH32 | – | **113.** |
| Cover | 9-6 | NC32S | – | **527.** |
| Sub-feed Lugs | 9-6 | NQSFL2 | – | **203.** |
| | | | **Total Price** | **3615.** |

## NQ Factory Assembled Pricing Example

**Table 9.7: 208Y/120 Vac, 3Ø4W, 10 kA SCCR, 225 A, MLO, Type-1, surface-mount, bolt-on, branch circuit breakers, main sub-feed lugs**

| Item | Page No. | $ Price |
|---|---|---|
| 225 A MLO Base Price | 9-11 | **928.** |
| (20) 20/1 Bolt-on | 9-11 | **1360.** |
| two 40/2 Bolt-on | 9-11 | **268.** |
| two 30/3 Bolt-on | 9-11 | **704.** |
| Sub-feed Lugs | 9-12 | **128.** |
| **Total Price** | | **3388.** |

## NF Merchandised Pricing Example

**Table 9.6: 480Y/277 Vac, 3Ø4W, 25 kA SCCR, fully rated, copper bus, 100 A, main circuit breaker, Type 1, flush-mount, bolt-on, branch circuit breakers**

| Branches | Page No. | Catalog No. | Spaces | $ Price |
|---|---|---|---|---|
| (13) 20/1 | 9-15 | EGB14020 | 13 | **3315.** |
| one 40/2 | 9-15 | EGB24040 | 2 | **776.** |
| one 50/3 | 9-15 | EGB34050 | 3 | **1131.** |
| | | | Total 18 | |
| Main circuit breaker adapter kit (less circuit breaker) | 9-13 | N150MH | – | **780.** |
| Main circuit breaker | 7-28 | HGL36100 | – | **1701.** |
| 125 A MLO Cu Bus Int. | 9-13 | NF418L1C | – | **1838.** |
| Box | 9-13 | MH38 | – | **113.** |
| Cover | 9-13 | NC38F | – | **549.** |
| | | | **Total Price** | **10203.** |

## NF Factory Assembled Pricing Example

**Table 9.8: 480Y/277 Vac, 3Ø4W, 25 kA SCCR, fully rated, copper bus, 250 A, main circuit breaker, Type 1, flush-mount, bolt-on, branch circuit breakers**

| Item | Page No. | $ Price |
|---|---|---|
| 250 A Main Circuit Breaker Base Price | 9-16 | **6180.** |
| Copper bus adder | 9-17 | **458.** |
| (13) 20/1 | 9-16 | **4212.** |
| one 40/2 | 9-16 | **746.** |
| one 50/3 | 9-16 | **1264.** |
| **Total Price** | | **12860.** |

© 2012 Schneider Electric
All Rights Reserved

**Table 9.9: Main Lug Interiors—Accepts plug-on and bolt-on circuit breakers**

| Pole Spaces | Mains Rating | Total Price Interior Front and Enclosure | | Interior Only (Order Branch Circuit Breakers Separately) | | Type 1 Enclosure | | | | | | Type 3R, 5, 12 Enclosure △ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Box 20 in. W x 5.75 in. D ■ | | Mono-Flat™ Front ♦ | | Hinged Front | | Enclosure 20 in. W x 6.5 in. D | | Height (In.) |
| | | Type 1 | Type 3R, 5,12 | Catalog No. ▲ | $Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | |
| **20-inch-wide Cabinet □—Single Phase 3-Wire** | | | | | | | | | | | | | | |
| 18 | 100 | **1395.** | **2977.** | NQ18L1 | **785.** | MH26 | **113.** | NC26 ( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **1474.** | **3056.** | NQ18L1C | **864.** | | | | | | | | | |
| 30 | | **1585.** | **3149.** | NQ30L1 | **945.** | MH32 | | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1675.** | **3239.** | NQ30L1C | **1035.** | | | | | | | | | |
| 30 | 225 | **1744.** | **3308.** | NQ30L2 | **1104.** | MH32 | **113.** | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1819.** | **3383.** | NQ30L2C | **1179.** | | | | | | | | | |
| 42 | | **2002.** | **3556.** | NQ42L2 | **1340.** | MH38 | | NC38 ( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **2080.** | **3634.** | NQ42L2C | **1418.** | | | | | | | | | |
| 72★ | | **3073.** | **4900.** | NQ72L2 | **2297.** | MH44 | | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **3206.** | **5033.** | NQ72L2C | **2430.** | | | | | | | | | |
| 84★ | | **3521** | **5288.** | NQ84L2 | **2679.** | MH50 | | NC50 ( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **3677.** | **5444.** | NQ84L2C | **2835.** | | | | | | | | | |
| 30 | 400 | **2462.** | **4229.** | NQ30L4 | **1620.** | MH50 | **113.** | NC50V ( ) | **729.** | NC50V( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **2579.** | **4346.** | NQ30L4C | **1737.** | | | | | | | | | |
| 42 | | **2620.** | **4387.** | NQ42L4 | **1778.** | | | | | | | | | |
| | | **2738.** | **4505.** | NQ42L4C | **1896.** | | | | | | | | | |
| 84★ | | **4853.** | **6534.** | NQ84L4C | **3792.** | MH68 | | NC68V ( ) | **948.** | NC68V( )HR | **1185.** | MH68WP | **2742.** | 68 |
| 30 | 600 | **2705.** | **4548.** | NQ30L6C | **1863.** | MH50 | **113.** | NC50V ( ) | **729.** | NC50V( )HR | **912.** | MH62WP▼ | **2685.** | 50/62 |
| 42 | | **2861.** | **4704.** | NQ42L6C | **2019.** | | | | | | | | | |
| 84★ | | **5099.** | **6873.** | NQ84L6C | **4038.** | MH68 | | NC68V ( ) | **948.** | NC68V( )HR | **1185.** | MH80WP▼ | **2835.** | 68/80 |
| **20-inch-wide Cabinet □ —Three Phase 4-Wire** | | | | | | | | | | | | | | |
| 18 | 100 | **1486.** | **3068.** | NQ418L1 | **876.** | MH26 | **113.** | NC26 ( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **1561.** | **3143.** | NQ418L1C | **951.** | | | | | | | | | |
| 30 | | **1752.** | **3316.** | NQ430L1 | **1112.** | MH32 | | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1831.** | **3395.** | NQ430L1C | **1191.** | | | | | | | | | |
| 30 | 225 | **1855.** | **3419.** | NQ430L2 | **1215.** | MH32 | **113.** | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1932.** | **3496.** | NQ430L2C | **1292.** | | | | | | | | | |
| 42 | | **2138.** | **3692.** | NQ442L2 | **1476.** | MH38 | | NC38 ( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **2213.** | **3767.** | NQ442L2C | **1551.** | | | | | | | | | |
| 54 | | **2559.** | **4113.** | NQ454L2 | **1898.** | | | | | | | | | |
| | | **2655.** | **4209.** | NQ454L2C | **1994.** | | | | | | | | | |
| 72★ | | **3307.** | **5134.** | NQ472L2 | **2531.** | MH44 | | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **3436.** | **5263.** | NQ472L2C | **2660.** | | | | | | | | | |
| 84★ | | **3794.** | **5561.** | NQ484L2 | **2952.** | MH50 | | NC50 ( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **3944.** | **5711.** | NQ484L2C | **3102.** | | | | | | | | | |
| 30 | 400 | **2704.** | **4471.** | NQ430L4 | **1862.** | MH50 | **113.** | NC50V ( ) | **729.** | NC50V( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **2822.** | **4589.** | NQ430L4C | **1980.** | | | | | | | | | |
| 42 | | **2854.** | **4621.** | NQ442L4 | **2012.** | | | | | | | | | |
| | | **2975.** | **4742.** | NQ442L4C | **2133.** | | | | | | | | | |
| 72★ | | **4449.** | **6134.** | NQ472L4 | **3449.** | MH62 | | NC62V ( ) | **887.** | NC62V( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **4657.** | **6342.** | NQ472L4C | **3657.** | | | | | | | | | |
| 84★ | | **5327.** | **7008.** | NQ484L4C | **4266.** | MH68 | | NC68V ( ) | **948.** | NC68V( )HR | **1185** | MH68WP | **2742.** | 68 |
| 30 | 600 | **2983.** | **4826.** | NQ430L6C | **2141.** | MH50 | **113.** | NC50V ( ) | **729.** | NC50V( )HR | **912.** | MH62WP▼ | **2685.** | 50/62 |
| 42 | | **3116.** | **4959.** | NQ442L6C | **2274.** | | | | | | | | | |
| 84★ | | **5609.** | **7383.** | NQ484L6C | **4548.** | MH68 | | NC68V ( ) | **948.** | NC68V( )HR | **1185.** | MH80WP▼ | **2835.** | 68/80 |

▲ "C" suffix indicates copper bussing.
■ Embossed mounting holes add a 0.25-inch standoff to back of MH box.
♦ Add "F" for flush mount, "S" for surface mount.
★ Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NEC, which allows single panelboard interiors greater than 42 circuits.
▼ When NEMA 3R, 5, or 12 enclosures are selected, an NQ12RDE kit should also be selected. See Table 9.19.
△ Enclosure includes trim kit.
□ For the NQ14-inch-wide panelboard offer, See Digest page 9-8.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.10: Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers**

| Pole Spaces | Mains Rating | Total $ Price Interior, Front, Box and Adapter Kit △ | | Interior Only (Order Branch Circuit Breakers Separately) | | Main Circuit Breaker Adapter Kit (Less Circuit Breaker) △ | | | Type 1 Enclosure | | | | | | Type 3R, 5, 12 Enclosure ▼ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Box 20 in. W x 5.75 in. D ■ | | Mono-Flat™ Front | | Hinged Front | | Enclosure 20 in. W x 6.5in. D | | Height (In.) |
| | | Type 1 | Type 3R, 5, 12 | Catalog No. ▲ | $ Price | Catalog No. | $ Price | Circuit Breaker Frame Size □ | Catalog No. | $ Price | Catalog No. ♦ | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | |
| **20-inch-wide Cabinet ◊—Single Phase 3-Wire** | | | | | | | | | | | | | | | | | |
| 16◒ | 100 back-fed | **1395.** | **2977.** | NQ18L1 | **785.** | — | — | Select QOB 2-pole or QOB-VH☆ | MH26 | **113.** | NC26 ( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **1474.** | **3056.** | NQ18L1C | **864.** | — | — | | | | | | | | | | |
| 28◒ | | **1585.** | **3149.** | NQ30L1 | **945.** | — | — | | MH32 | **113.** | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1675.** | **3239.** | NQ30L1C | **1035.** | — | — | | | | | | | | | | |
| 18 | 100 | **2227.** | **3781.** | NQ18L1 | **785.** | NQMB2HJ | **780.** | HD, HG, HJ, HL✱ 100A maximum | MH38 | **113.** | NC38 ( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **2306.** | **3860.** | NQ18L1C | **864.** | | | | | | | | | | | | |
| 30 | 100 | **2501.** | **4328.** | NQ30L1 | **945.** | NQMB2HJ | **780.** | | MH44 | **113.** | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **2591.** | **4418.** | NQ30L1C | **1035.** | | | | | | | | | | | | |
| 30 | 225 | **2660.** | **4487.** | NQ30L2 | **1104.** | NQMB2HJ NQMB2Q NQMB2KI | **780.** | HD, HG, HJ, HL✱ or JD, JG, JJ, JL QB,QD,QG,QJ KI | MH44 | **113.** | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **2735.** | **4562.** | NQ30L2C | **1179.** | | | | | | | | | | | | |
| 42 | 225 | **2962.** | **4729.** | NQ42L2 | **1340.** | | **780.** | | MH50 | **113.** | NC50 ( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **3040.** | **4807.** | NQ42L2C | **1418.** | | | | | | | | | | | | |
| 72★ | 225 | **3976.** | **5729.** | NQ72L2 | **2297.** | | **780.** | | MH56 | **113.** | NC56 ( ) | **786.** | NC56( )HR | **983.** | MH56WP | **2652.** | 56 |
| | | **4109.** | **5862.** | NQ72L2C | **2430.** | | | | | | | | | | | | |
| 84★ | 225 | **4459.** | **6144.** | NQ84L2 | **2679.** | | **780.** | | MH62 | **113.** | NC62 ( ) | **887.** | NC62( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **4615.** | **6300.** | NQ84L2C | **2835.** | | | | | | | | | | | | |
| 30 | 400 | **3400.** | **5085.** | NQ30L4 | **1620.** | NQMB4LA | **780.** | LA/LH♦ | MH62 | **113.** | NC62V ( ) | **887.** | NC62V( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **3517.** | **5202.** | NQ30L4C | **1737.** | | | | | | | | | | | | |
| 42 | 400 | **3558.** | **5243.** | NQ42L4 | **1778.** | NQMB4LA | **780.** | LA/LH♦ | MH62 | **113.** | NC62V ( ) | **887.** | NC62V( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **3676.** | **5361.** | NQ42L4C | **1896.** | | | | | | | | | | | | |
| 84★ | 400 | **5686.** | **7407.** | NQ84L4C | **3792.** | NQMB4LA | **780.** | LA/LH♦ | MH80 | **113.** | NC80V ( ) | **1001.** | NC80V( )HR | **1245.** | MH80WP | **2835.** | 80 |
| **20-inch-wide Cabinet ◊—Three Phase 4-Wire** | | | | | | | | | | | | | | | | | |
| 15◒ | 100 back-fed | **1395.** | **2977.** | NQ418L1 | **785.** | — | — | Select QOB 3-pole or QOB-VH▽ | MH26 | **113.** | NC26 ( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **1474.** | **3056.** | NQ418L1C | **864.** | — | — | | | | | | | | | | |
| 27◒ | | **1585.** | **3149.** | NQ430L1 | **945.** | — | — | | MH32 | **113.** | NC32 ( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **1675.** | **3239.** | NQ430L1C | **1035.** | — | — | | | | | | | | | | |
| 18 | 100 | **2318.** | **3872.** | NQ418L1 | **876.** | NQMB2HJ | **780.** | HD, HG, HJ, HL 100A maximum | MH38 | **113.** | NC38 ( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **2393.** | **3947.** | NQ418L1C | **951.** | | | | | | | | | | | | |
| 30 | | **2668.** | **4495.** | NQ430L1 | **1112.** | | | | MH44 | **113.** | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **2747.** | **4574.** | NQ430L1C | **1191.** | | | | | | | | | | | | |
| 30 | 225 | **2771.** | **4598.** | NQ430L2 | **1215.** | NQMB2HJ NQMB2Q NQMB2KI | **780.** | HD, HG, HJ, HL or JD, JG, JJ, JL QB,QD,QG,QJ KI | MH44 | **113.** | NC44 ( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **2848.** | **4675.** | NQ430L2C | **1292.** | | | | | | | | | | | | |
| 42 | | **3098.** | **4865.** | NQ442L2 | **1476.** | | **780.** | | MH50 | **113.** | NC50 ( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **3173.** | **4940.** | NQ442L2C | **1551.** | | | | | | | | | | | | |
| 54 | | **3519.** | **5286.** | NQ454L2 | **1898.** | | | | | | | | | | | | |
| | | **3615.** | **5382.** | NQ454L2C | **1994.** | | | | | | | | | | | | |
| 72★ | | **4210.** | **5963.** | NQ472L2 | **2531.** | | **780.** | | MH56 | **113.** | NC56 ( ) | **786.** | NC56( )HR | **983.** | MH56WP | **2652.** | 56 |
| | | **4339.** | **6092.** | NQ472L2C | **2660.** | | | | | | | | | | | | |
| 84★ | | **4732.** | **6417.** | NQ484L2 | **2952.** | | **780.** | | MH62 | **113.** | NC62 ( ) | **887.** | NC62( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **4882.** | **6567.** | NQ484L2C | **3102.** | | | | | | | | | | | | |
| 30 | 400 | **3642.** | **5327.** | NQ430L4 | **1862.** | NQMB4LA | **780.** | LA/LH♦ | MH62 | **113.** | NC62V ( ) | **887.** | NC62V( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **3760.** | **5445.** | NQ430L4C | **1980.** | | | | | | | | | | | | |
| 42 | | **3792.** | **5477.** | NQ442L4 | **2012.** | | | | | | | | | | | | |
| | | **3913.** | **5598.** | NQ442L4C | **2133.** | | | | | | | | | | | | |
| 72★ | | **5314.** | **6986.** | NQ472L4 | **3449.** | NQMB4LA | **780.** | LA/LH♦ | MH74 | **113.** | NC74V ( ) | **972.** | NC74V( )HR | **1215.** | MH74WP | **2757.** | 74 |
| | | **5522.** | **7194.** | NQ472L4C | **3657.** | | | | | | | | | | | | |
| 84★ | | **6160.** | **7881.** | NQ484L4C | **4266.** | NQMB4LA | **780.** | LA/LH♦ | MH80 | **113.** | NC80V ( ) | **1001.** | NC80V( )HR | **1245.** | MH80WP | **2835.** | 80 |

▲ "C" suffix indicates copper bussing.
■ Embossed mounting holes add a 0.25 inch standoff to back of MH box.
♦ Add "F" for flush mount, "S" for surface mount.
★ Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NEC, which allows single panelboard interiors greater than 42 circuits.
▼ Enclosure includes trim kit.
△ Select the appropriate main circuit breaker from the tables starting on Digest page 7-22 and add the circuit breaker price to the total price of the panelboard.
□ Circuit breaker interrupt ratings, See the tables starting on Digest page 7-22.
◊ For the NQ14-inch-wide panelboard offer, See Digest page 9-8.
☆ QOB2150VH takes four pole spaces; all other QOB two pole circuit breakers take two pole spaces.
▽ QOB3110VH to QOB3150VH take six pole spaces; all other QOB three pole circuit breakers take three pole spaces.
◒ Pole spaces shown are available for branch circuits, with spaces deducted for the back fed main breaker.
✱ For single phase applications, order a 3-pole breaker. Example: HDL36100.
♦ For 400A applications, order short handle circuit breaker (LAL36400MB).

© 2012 Schneider Electric
All Rights Reserved

New!

## NQ 14-inch-wide—240 Vac, 48 Vdc

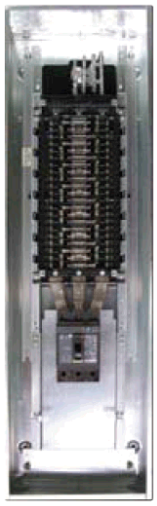
14-inch-wide NQ panelboards are now available for those customers whose equipment space is limited. Developed with customer input, Square D™ brand NQ panelboards are built to last, featuring innovations for ease of installation and durability.

### Features

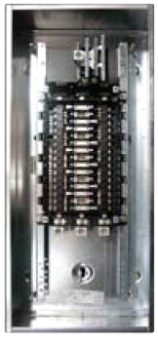
- 240 Vac, 48 Vdc maximum
- 225 A maximum main circuit breaker or main lugs
- 60 A maximum branch circuit breakers
- Visi-Trip™ indication on branch circuit breakers
- 10,000–65,000 A Short Circuit Current Rating (SCCR)
- Interiors supplied with tin plated copper bus as standard
- Interiors accept bolt-on and plug-on branch circuit breakers
- Three-phase, four-wire, and single-phase, three-wire interiors available
- Panelboards available with Mono-Flat™ front
- Suitable for use as service entrance equipment
- Branch circuit filler plates provide fast and easy installation
- Both fully and series-rated systems are available



14-inch-wide NQ Panelboard Main Lug



Main Breaker Panelboard



Main Lug Panelboard

**Table 9.11: Main Lug Interiors—Accepts Plug-On and Bolt-On Branch Breakers**

| Max. Number of Breakers | Main Ratings | Total $ Price Interior, Front, Box and Adapter Kit | | Interior Only (Order Branch Circuit Breakers Seperately) | | Type 1 Enclosure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Box 14"W x 5.75" Db | | Mono Flat Front | | Hinged Front | |
| | | Type 1 | Type 3R, 5, 12 | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. ■ | $ Price | Cat. No. | $ Price |
| **14-inch-wide Cabinet—Single Phase 3-Wire** | | | | | | | | | | | |
| 18 | 100 A | **1407.** | — | NQ18L1C14 | **951.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | | **1647.** | — | NQ30L1C14 | **1191.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | 225 A | **1748.** | — | NQ30L2C14 | **1292.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 42 | | **2028.** | — | NQ42L2C14 | **1151.** | NQB538 | **118.** | NQC38 | **338.** | N/A | — |
| **14-inch-wide Cabinet—Three Phase 4-Wire** | | | | | | | | | | | |
| 18 | 100 A | **1407.** | — | NQ418L1C14 | **951.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | | **1647.** | — | NQ430L1C14 | **1191.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | 225 A | **1748.** | — | NQ430L2C14 | **1292.** | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 42 | | **2028.** | — | NQ442L2C14 | **1151.** | NQB538 | **118.** | NQC38 | **338.** | N/A | — |

**Table 9.12: Main Circuit Breaker Interiors—Accepts Plug-On and Bolt-On Branch Breakers**

| Max. Number of Breakers | Main Ratings | Total $ Price Interior, Front, Box and Adapter Kit | | Interior Only (Order Branch Circuit Breakers Seperately) | | Main Circuit Breaker Adapter Kit (Less Circuit Breaker) | | | Type 1 Enclosure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Box 14"W x 5.75" Db | | Mono Flat Front | | Hinged Front | |
| | | Type 1 | Type 3R, 5, 12 | Cat. No. | $ Price | Cat. No | $ Price | Cat. No | Cat. No.♦ | $ Price | Cat. No. ■ | $ Price | Cat. No. | $ Price |
| **14-inch-wide Cabinet—Single Phase 3-Wire** | | | | | | | | | | | | | | |
| 16 ▲ | 100 | **1407.** | — | NQ18L1C14 | **951.** | — | — | Select QOB 2-pole or QOB-VH | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 28 ▲ | | **1647.** | — | NQ30L1C14 | **1191.** | — | — | | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | 225 | **1748.** | — | NQ30L2C14 | **1292.** | NQMB2HJ14 or NQMB2Q14 | **780.** | HD, HG, HJ, HL, OR JD, JG, JJ, JL, QB , QD, QG, QJ | NQB544 | **118.** | NQC44 | **338.** | N/A | — |
| 42 | | **2028.** | — | NQ42L2C14 | **1151.** | | **78.** | | NQB550 | **118.** | NQC50 | **359.** | N/A | — |
| **14-inch-wide Cabinet—Three Phase 4-Wire** | | | | | | | | | | | | | | |
| 15 ▲ | 100 | **1407.** | — | NQ418L1C14 | **951.** | — | — | Select QOB 3-pole or QOB-VH | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 27 ▲ | | **1647.** | — | NQ430L1C14 | **1191.** | — | — | | NQB532 | **118.** | NQC32 | **338.** | N/A | — |
| 30 | 225 | **1748.** | — | NQ430L2C14 | **1292.** | NQMB2HJ14 or NQMB2Q14 | **780.** | HD, HG, HJ, HL, OR JD, JG, JJ, JL, QB , QD, QG, QJ | NQB544 | **118.** | NQC44 | **338.** | N/A | — |
| 42 | | **2028.** | — | NQ442L2C14 | **1151.** | | **78.** | | NQB550 | **118.** | NQC50 | **359.** | N/A | — |

▲ Pole spaces shown are available for branch circuits, with spaces deducted for the back-fed main breaker.
■ Add "F" for flush mount, "S" for surface mount.
♦ All 14" W boxes come with blank endwalls.

**Table 9.13: NQ Accessories**

| Description | Catalog No. | $ Price | Schedule |
|---|---|---|---|
| **Equipment Ground Bars** | | | |
| Aluminum | PK27GTA | **33.80** | DE3A |
| PK23GTA+ #1 to #4/0 Al or Cu lug | PK23GTAL | **40.70** | |
| Copper | PK27GTACU | **84.00** | PE-1A |
| Ground Bar Insulator Kit | PKGTAB | **43.80** | DE3A |
| Filler plate (15 per package) | NQFP15★ | **68.00** | PE1A |
| **Handle Attachments—Branch Circuit Breakers** | | | |
| Handle lock-off | HLO1 | **9.90** | DE2A |
| Handle tie - (QO and QOB only) | QO1HT | **3.80** | |
| Handle padlock attachment—1-pole | QO1PA | **10.70** | |
| 2- and 3-pole | QO1PL | **10.70** | |
| Handle tie and lock-off for three 1-pole (QO, QOB) | QO3HT | **13.40** | |

★ Filler Plates are **$3.00** each and must be ordered in packages of 15.



© 2012 Schneider Electric
All Rights Reserved

### Table 9.14: NQ Merchandised Neutrals

| Mains Ampacity | 200% Neutral Kit | | | | Copper 100% Neutral Kit | | | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Box Add | Schedule | Catalog No. | $ Price | Box Add | Schedule |
| 100 | NQNL1 | **315.** | no adder | PE-1A | NQN1CU | **192.** | no adder | PE-1A |
| 225 | NQNL2 or NQNL2ACCY■ | **426.** | | | NQN2CU | | | |
| 400 | NQNL4▲ | **639.** | no adder | PE-1A | NQN6CU | **585.** | no adder | PE-1A |
| 600 | Not Available | | | | NQN6CU▲ | | | |

▲ Not to be used with SFL, FTL, or SFB. These combinations are factory assembled only.
■ For 225A panel with SFL, FTL, or SFB, use NQNL2ACCY (enclosure size increases by 6 inches). Otherwise, use NQNL2.

### Table 9.15: NQ Merchandised Sub-feed Lugs, Feed-through Lugs and Sub-feed Breakers

| Mains Ampacity | Sub-feed Lugs (N/A in MCB Interiors) | | | Feed-through Lugs | | | Sub-feed Circuit Breaker Kits (breaker not incl.) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Single SFB | | | Two SFB | | |
| | Catalog No. | $ Price | Schedule | Catalog No. | $ Price | Schedule | Catalog No. | $ Price | Schedule | Catalog No. | $ Price | Schedule |
| 100 A | NQSFL1 | **155.** | PE-1A | 100 A not available; | — | — | — | — | — | — | — | — |
| 225 A | NQSFL2 | **203.** | PE-1A | NQFTL2L♦<br>NQFTL2H★ | **476.** | PE-1A | NQSFB2Q or NQSFB2HJ | **1029.** | PE-1A | — | — | — |
| 400 A | NQSFL4 | **260.** | PE-1A | NQFTL4L♦<br>NQFTL4H★ | **507.** | PE-1A | Use the 2 SFB kit | | — | NQSFB4Q or NQSFB4HJ | **1290.** | PE-1A |
| 600 A | Use FTL | | | Factory Assembled Only | | | | | | | | |

Note: See Table 9.16 and Table 9.17 for box selection table.

♦ The final character L indicates the kit is used for Low circuit count interiors 30 and 42.
★ The final character H indicates the kit is used for High circuit count interiors 54, 72, and 84.

### Table 9.16: Box Selection Table: Merchandised NQ Main Lug Panelboards with Accessories

| Feature Circuits | Sub-feed Lugs | | | | Feed-through Lugs | | | | Sub-feed Circuit Breakers | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100 A | 225 A | 400 A | 600 A | 100 A | 225 A | 400 A | 600 A | 100 A | 225 A (one) | 400 A (two) | 600 A (two) |
| 18 | MH26 | — | — | Use | — | — | — | Factory Assembled Only | — | — | — | Factory Assembled Only |
| 30 | MH32 | MH38 | MH50 | Use | Use 225A Interior | MH38 | MH50 | | — | MH50 | MH74 | |
| 42 | — | MH44 | MH50 | Use | | MH38 | MH56 | | — | MH56 | MH74 | |
| 72 | — | MH50 | MH62 | Use | | MH50 | MH68 | | — | MH62 | MH86 | |
| 84 | — | MH56 | MH68 | Use | | MH56 | MH68 | | — | MH68 | ▼ | |

▼ (c) Requires box longer than available box offer.

### Table 9.17: Box Selection Table: Merchandised NQ Vertically Mounted Main Breaker Panelboards w/ Accessories

| Feature Circuits | Feed-through Lugs | | | | Sub-feed Circuit Breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | 100 A | 225 A | 400 A | 600 A | 100 A | 225 A (one) | 400 A (two) | 600 A (two) |
| 18 | — | — | — | Factory Assembled Only | — | — | — | Factory Assembled Only |
| 30 | — | MH50 | MH62 | | — | MH62 | MH86 | |
| 42 | — | | MH68 | | — | MH68 | MH86 | |
| 72 | — | MH62 | MH80 | | — | MH74 | △ | |
| 84 | — | MH68 | MH80 | | — | MH80 | △ | |

△ (c) Requires box longer than available box offer.

### Table 9.18: NQ Optional Lugs

| Ampacity | AL Compression Lug Kit | | | CU Mechanical Lug Kit | | | CU Compression Kit | | |
|---|---|---|---|---|---|---|---|---|---|
| | Catalog No. | Lug Wire Range | $ Price | Catalog No. | Lug Wire Range | $ Price | Catalog No. | Lug Wire Range | $ Price |
| 100 | NQALV1 | one #8–1/0 AWG | **117.00** | NQCUM1 | one #6–2/0 AWG | **347.00** | NQCUV1 | one #6–1/0 AWG | **345.00** |
| 225 | NQALV2 | one #4–300 kcmil | **33.00** | NQCUM2 | one #6–250 kcmil | | NCQUV2 | one 2/0–300 kcmil | **417.00** |
| 400 | NQALV4 | two 2/0–500 kcmil | **663.00** | NQCUM4 | one 1/0–750 kcmil<br>two 1/0–350 kcmil | **636.00** | NQCUV4 | one 400–700 kcmil | **767.00** |
| 600 | NQALV6 | two 2/0–500 kcmil | **1208.00** | NQCUM6 | one 1/0–750 kcmil<br>two 1/0–350 kcmil | **1139.00** | NQCUV6 | two 250–500 kcmil | **1364.00** |

### Table 9.19: NQ Accessories

| Description | | Catalog No. | $ Price | Schedule |
|---|---|---|---|---|
| **Sub-feed (Bolt-on)** | | | | |
| 2-pole | | QOB2125SL | **176.00** | DE2A |
| 3-pole | | QOB3125SL | **176.00** | |
| **Equipment Ground Bars** | | | | |
| Aluminum | | PK27GTA | **33.80** | DE3A |
| PK23GTA+ #1 to #4/0 Al or Cu lug | | PK23GTAL | **40.70** | |
| Copper | | PK27GTACU | **84.00** | PE-1A |
| Ground Bar Insulator Kit | | PKGTAB | **43.80** | DE3A |
| Filler plate (15 per package) | | NQFP15□ | **68.00** | PE1A |
| **Circuit I.D. Number Strips** | | | | |
| 1–102 odd/even (left side numbered 1,3,5 ...101) | | NQ102OE | **7.90** | PE1A |
| 103–204 odd/even (left side numbered 103,105,107 ... 203) | | NQ204OE | **7.90** | |
| 1–102 sequential (left side numbered 1,2,3 ... 102) | | NQ102S | **7.90** | |
| 103–204 sequential (left side numbered 103,104,105 ... 204) | | NQ204S | **7.90** | |
| Rail and Deadfront Extensions | 6 in. Extension | NQ6RDE | **252.00** | |
| | 12 in. Extension | NQ12RDE | **283.00** | |
| | 18 in. Extension | NQ18RDE | **343.00** | |
| | 24 in. Extension | NQ24RDE | **397.00** | |
| Touch-up paint USAS #49 Gray (Aerosol can) | | PK49SP | **39.00** | DE1 |
| **Handle Attachments—Branch Circuit Breakers** | | | | |
| Handle lock-off | | HLO1 | **9.90** | DE2A |
| Handle tie - (QO and QOB only) | | QO1HT | **3.80** | |
| Handle padlock attachment—1-pole | | QO1PA | **10.70** | |
| 2- and 3-pole | | QO1PL | **10.70** | |
| Handle tie and lock-off for three 1-pole (QO, QOB) | | QO3HT | **13.40** | |
| Handle tie for two 10–30 A single pole QO(B) circuit breaker | | QOHT2 | **10.90** | DE2 |
| Handle tie for three 10–30 A single pole QO(B) circuit breaker | | QOHT3 | **12.80** | |
| **Handle Padlock Attachment for Padlocking in OFF position** | | | | |
| For padlocking 1P QO circuit breaker in OFF position only, fixed attachment | | QO1PAF | **43.50** | DE2E |
| For padlocking 2P and 3P QO circuit breaker in OFF position only, fixed attachment | | QO2PAF | **25.80** | |
| For padlocking 1P QO-GFI, QO-AFI, QO-CAFI, and QO-EPD circuit breakers in OFF position only, fixed attachment | | QOGFI1PAF | **51.00** | |
| For padlocking 2P QO-GFI and QO-EPD circuit breakers in OFF position only, fixed attachment | | QOGFI2PAF | **38.40** | |
| **Neutral or Ground Lugs** | | | | |
| #10 to #2 Al or #14 to #4 Cu | | QO70AN | **9.90** | DE3A |
| #4 to #1/0 Al or Cu | | Q1100AN | **11.10** | |
| #1 to #4/0 Al or Cu | | Q1150AN | **32.40** | |
| **Endwalls for MH Enclosures** | | | | |
| Blank (one per package) | | 8011010501 | **41.10** | PE1A |
| With Knockouts (one per package) | | 8011010401 | **41.10** | |

□ Filler Plates are **$4.50** each and must be ordered in packages of 15.

© 2012 Schneider Electric
All Rights Reserved

## Table 9.20: QOB-GFI, QOB-EPD, and QOB-EPE Circuit Breakers

| Ampere Rating ▲ | One-pole | | Two-pole—Common Trip | | Three-pole—Common Trip | | | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **QOB-GFI—QOB Qwik-Gard™ Circuit Breaker With Ground Fault Circuit Interrupter—UL Class A 4–6 mA People Protection. ■** | | | | | | | | |
| | 120 Vac—10 k AIR | | 120/240 Vac—10 k AIR | | 208Y/120 Vac—10 k AIR | | | |
| 15 A | QOB115GFI | 248. | QOB215GFI | 444. | QOB315GFI | 791. | | |
| 20 A | QOB120GFI | 248. | QOB220GFI | 444. | QOB320GFI | 791. | | |
| 25 A | QOB125GFI | 248. | QOB225GFI | 444. | — | — | | |
| 30 A | QOB130GFI | 248. | QOB230GFI | 444. | QOB330GFI | 791. | | |
| 40 A | — | — | QOB240GFI | 444. | QOB340GFI | 791. | | |
| 50 A | — | — | QOB250GFI | 444. | QOB350GFI | 791. | | |
| 60 A | — | — | QOB260GFI ♦ | 444. | — | — | | |
| **QOB-VHGFI ★** | | | | | | | | |
| | 120 Vac—22 k AIR | | | | | | | |
| 15 A | QOB115VHGFI | 497. | | | | | | |
| 20 A | QOB120VHGFI | 497. | | | | | | |
| 25 A | QOB125VHGFI | 497. | | | | | | |
| 30 A | QOB130VHGFI | 497. | | | | | | |
| **QOB-EPD—QOB Equipment protection circuit breakers with UL Listed 30 mA (EPD) or 100 mA (EPE) equipment protection.** | | | | | | | | |
| | 120 Vac—10 k AIR | | 120/240 Vac—10 k AIR | | 240 Vac—10 k AIR | | | |
| 15 A | QOB115EPD | 417. | QOB215EPD | 671. | QOB315EPD ♦ | 1077. | QOB315EPE ♦ | 1077. |
| 20 A | QOB120EPD | 417. | QOB220EPD | 671. | QOB320EPD ♦ | 1077. | QOB320EPE | 1077. |
| 25 A | QOB125EPD | 417. | QOB225EPD | 671. | — | — | — | — |
| 30 A | QOB130EPD | 417. | QOB230EPD | 671. | QOB330EPD ♦ | 1077. | QOB330EPE ♦ | 1077. |
| 40 A | — | — | QOB240EPD | 671. | QOB340EPD ♦ | 1077. | QOB340EPE ♦ | 1077. |
| 50 A | — | — | QOB250EPD | 671. | QOB350EPD ♦ | 1077. | QOB350EPE ♦ | 1077. |
| 60 A | — | — | QOB260EPD | 671. | — | — | — | — |
| **QOB-VHEPD** | | | | | | | | |
| | 120 Vac—22 k AIR | | | | | | | |
| 15 A | QOB115VHEPD | 772. | | | | | | |
| 20 A | QOB120VHEPD | 772. | | | | | | |
| 25 A | QOB125VHEPD | 772. | | | | | | |
| 30 A | QOB130VHEPD | 772. | | | | | | |
| **QOB-HM—High magnetic trip circuit breakers** | | | | | | | | |
| 15 A | QOB115HM▼ | 39.80 | | | | | | |
| 20 A | QOB120HM▼ | | | | | | | |
| **QOB-K—Key operated QOB circuit breakers △** | | | | | | | | |
| | 120 Vac—10 k AIR | | | | | | | |
| 10 A | QOB110K | 168. | | | | | | |
| 15 A | QOB115K | 168. | | | | | | |
| 20 A | QOB120K | 168. | | | | | | |
| 25 A | QOB125K | 168. | | | | | | |
| 30 A | QOB130K | 168. | | | | | | |

## Table 9.21: Standard Interrupting QOB 10,000 AIR Circuit Breakers

| Ampere Rating ▲ | One-pole | | Two-pole—Common Trip | | Two-pole—Common Trip ◊ | | Three-pole—Common Trip | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **QOB Bolt-On** | | | | | | | | |
| | 120 Vac—10 k AIR 48 Vdc—5 k AIR | | 120/240 Vac—10 k AIR 48 Vdc—5 k AIR ▽ | | 240 Vac—10 k AIR | | 240 Vac—10 k AIR 48 Vdc—5 k AIR ▽ | |
| 10 A | QOB110 | 39.80 | QOB210 | 89. | — | — | QOB310 | 293. |
| 15 A | QOB115☆▼ | 39.80 | QOB215☆ | 89. | QOB215H | 240. | QOB315☆ | 293. |
| 20 A | QOB120☆▼ | 39.80 | QOB220☆ | 89. | QOB220H | 240. | QOB320☆ | 293. |
| 25 A | QOB125☆ | 39.80 | QOB225☆ | 89. | QOB225H | 240. | QOB325☆ | 293. |
| 30 A | QOB130☆ | 39.80 | QOB230☆ | 89. | QOB230H | 240. | QOB330☆ | 293. |
| 35 A | QOB135☆ | 39.80 | QOB235☆ | 89. | — | — | QOB335☆ | 293. |
| 40 A | QOB140☆ | 39.80 | QOB240☆ | 89. | QOB240H | 240. | QOB340☆ | 293. |
| 45 A | QOB145☆ | 39.80 | QOB245☆ | 89. | — | — | QOB345☆ | 293. |
| 50 A | QOB150☆ | 39.80 | QOB250☆ | 89. | QOB250H | 240. | QOB350☆ | 293. |
| 60 A | QOB160☆ | 39.80 | QOB260☆ | 89. | QOB260H | 240. | QOB360☆ | 293. |
| 70 A | QOB170☆ | 78. | QOB270☆ | 168. | QOB270H | 308. | QOB370☆▽ | 369. |
| 80 A | — | — | QOB280☆▽ | 240. | QOB280H | 366. | QOB380☆▽ | 419. |
| 90 A | — | — | QOB290☆▽ | 240. | QOB290H | 366. | QOB390☆▽ | 419. |
| 100 A | — | — | QOB2100☆▽ | 240. | QOB2100H | 366. | QOB3100☆▽ | 419. |
| 110 A | — | — | QOB2110☆▽ | 501. | — | — | — | — |
| 125 A | — | — | QOB2125☆▽ | 501. | — | — | — | — |
| Molded Case Switch 60 A max—240 Vac | QOB200 | 89. | — | — | — | — | QOB300 | 293. |
| Molded Case Switch 100 A max—240 Vac | QOB2000 | 234. | — | — | — | — | QOB3000 | 507. |

## Table 9.22: High Interrupting QOB and Specialty Circuit Breakers

| Ampere Rating ▲ | One-pole | | Two-pole—Common Trip | | Three-pole—Common Trip | |
|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **QOB-VH** | | | | | | |
| | 120 Vac—22 k AIR | | 120/240 Vac —22 k AIR | | 240 Vac—22 k AIR | |
| 15 A | QOB115VH☆▼ | 72. | QOB215VH☆ | 171. | QOB315VH☆ | 440. |
| 20 A | QOB120VH☆▼ | 72. | QOB220VH☆ | 171. | QOB320VH☆ | 440. |
| 25 A | QOB125VH☆ | 72. | QOB225VH☆ | 171. | QOB325VH☆ | 440. |
| 30 A | QOB130VH☆ | 72. | QOB230VH☆ | 171. | QOB330VH☆ | 440. |
| 40 A | QOB140VH | 86. | QOB240VH☆ | 171. | QOB340VH☆ | 440. |
| 50 A | QOB150VH | 86. | QOB250VH☆ | 171. | QOB350VH☆ | 440. |
| 60 A | QOB160VH | 86. | QOB260VH☆ | 171. | QOB360VH☆ | 440. |
| 70 A | QOB170VH | 137. | QOB270VH☆ | 273. | QOB370VH☆ | 560. |
| 80 A | — | — | QOB280VH☆ | 384. | QOB380VH☆ | 629. |
| 90 A | — | — | QOB290VH☆ | 384. | QOB390VH☆ | 629. |
| 100 A | — | — | QOB2100VH☆ | 384. | QOB3100VH☆ | 629. |
| 110 A | — | — | QOB2110VH☆ | 1110. | QOB3110VH ◒ | 1809. |
| 125 A | — | — | QOB2125VH☆ | 1110. | QOB3125VH ◒ | 1809. |
| 150 A | — | — | QOB2150VH ◒ | 1223. | QOB3150VH ◒ | 1809. |
| **QHB** | | | | | | |
| | 120 Vac—65 k AIR | | 120 Vac/240 Vac—65 k AIR | | 240 Vac—65 k AIR | |
| 15 A | QHB115☆▼ | 122. | QHB215☆ | 342. | QHB315☆ | 596. |
| 20 A | QHB120☆▼ | 122. | QHB220☆ | 342. | QHB320☆ | 596. |
| 25 A | QHB125☆ | 122. | QHB225☆ | 342. | QHB325☆ | 596. |
| 30 A | QHB130☆ | 122. | QHB230☆ | 342. | QHB330☆ | 596. |
| **QOB-HID—HID circuit breakers □** | | | | | | |
| | 120 Vac—10 k AIR | | 120/240 Vac—10 k AIR | | 240 Vac—10 k AIR | |
| 15 A | QOB115HID▼ | 49.50 | QOB215HID | 108. | QOB315HID | 327. |
| 20 A | QOB120HID▼ | 49.50 | QOB220HID | 108. | QOB320HID | 327. |
| 25 A | QOB125HID | 49.50 | QOB225HID | 108. | QOB325HID | 327. |
| 30 A | QOB130HID | 49.50 | QOB230HID | 108. | QOB330HID | 327. |
| 40 A | QOB140HID | 49.50 | QOB240HID | 108. | — | — |
| 50 A | QOB150HID | 49.50 | QOB250HID | 108. | — | — |
| **QOB-SWN—Switch Neutral—Common Trip—NEC 514.11** | | | | | | |
| | | | 1-pole—2-Wire 2 Spaces —120 Vac | | 2-pole—3-Wire 3 Spaces—120/240 Vac | |
| 10 A | — | — | QOB210SWN | 116. | QOB310SWN | 170. |
| 15 A | — | — | QOB215SWN | 116. | QOB315SWN | 170. |
| 20 A | — | — | QOB220SWN | 116. | QOB320SWN | 170. |
| 25 A | — | — | QOB225SWN | 116. | QOB325SWN | 170. |
| 30 A | — | — | QOB230SWN | 116. | QOB330SWN | 170. |
| 40 A | — | — | QOB240SWN | 116. | QOB340SWN | 170. |
| 50 A | — | — | QOB250SWN | 116. | QOB350SWN | 170. |

(Footnotes for Tables 9.20, 9.21, and 9.22)

- ▲ 10–30 A circuit breakers are suitable for use with 60 °C or 75 °C conductors. 35–60 A circuit breakers are suitable for use with 75 °C conductors.
- ■ Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.
- ♦ Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.
- ★ Recommended for applications where high initial inrush may occur and for individual dimmer applications.
- ▼ UL Listed as SWD (switching duty) rated suitable for switching 120 Vac fluorescent lighting loads.
- △ Available in single pole construction and can be mounted in any single pole space which will accept a standard QOB. These circuit breakers can be turned ON or OFF or RESET with a special key (Catalog No. QOK10) included with the circuit breaker. These circuit breakers are UL Listed and available as shown in the table.
- □ UL Listed for use on circuit feeding fluorescent and High Intensity Discharge (HID) lighting systems such as mercury vapor, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QOB circuit breakers.
- ◊ UL Listed 5,000 AIR on 3Ø corner grounded delta systems.
- ☆ UL Listed as HACR type for use with air conditioning, heating, and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
- ▽ DC Rating is not available on indicated products.
- ◒ QOB2150VH uses 4 pole spaces. QOB3110VH, QOB3125VH, and QOB3150VH each use 6 pole spaces. 40A maximum circuit breaker mounted opposite. Use with 75 °C wire only.
- * For QO plug-on circuit breaker pricing, see the tables starting on Digest page 1–2.
- ♦ See note in Instruction Bulletin when using in an enclosure with a QO403 or QON prefix.

## Table 9.23: QO/QOB Circuit Breaker Wire Sizes

| Breaker Type | Ampere Rating ◑ | Wire Size (AWG) | |
|---|---|---|---|
| | | Al | Cu |
| QOB 1-pole | 10–30 A | #14–8 | #14–8 |
| | 10–30 A | — | two #14–10 |
| | 35–70 A | #8–2 | #8–2 |
| QOB 2-pole | 10–30 A | #14–8 | #14–8 |
| | 10–30 A | — | two #14–10 |
| | 35–70 A | #8–2 | #8–2 |
| | 80–125 A | #4–2/0 | #4–2/0 |
| | 150–200 A | #4–300 kcmil | #4–300 kcmil |
| QOB 3-pole | 10–30 A | #14–8 | #14–8 |
| | 35–70 A | #8–2 | #8–2 |
| | 80–125 A | #4–2/0 | #4–2/0 |
| QOB-VH | 110–150 A | #4–300 kcmil | #4–300 kcmil |
| QOB-GFI and QOB-EPD | 15–30 A | #12–8 | #14–8 |
| | 40, 50, or 60 A | #12–4 | #14–6 |

◑ 10–30 A circuit breakers are suitable for use with 60 °C or 75 °C conductors. 35–60 A circuit breakers are suitable for use with 75 °C conductors.

## Table 9.24: QO™ Arc-Fault Circuit Breakers ✪ ◪

| Circuit Breaker Type | Ampere Rating ♦ | 1P 120 Vac 10 kAIR 1 Space Required | | 1P 120 Vac 22 kAIR 1 Space Required | |
|---|---|---|---|---|---|
| | | Catalog Number | $ Price | Catalog Number | $ Price |
| Combination Arc-Fault Interupter | 15 A | QOB115CAFI | 306. | QOB115VHCAFI | 612. |
| | 20 A | QOB120CAFI | 306. | QOB120VHCAFI | 612. |

Note: See Digest page 7-12 for accessories.

- ✪ UL Listed as HACR type for use with air conditioning, heating, and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
- ◪ QO arc-fault circuit breakers provide branch feeder protection (for example, QO115AFI) or combination protection (for example, QO115CAFI) as required by the NEC and local code adoption, and comply with UL 1699.
- ♦ 10–30 A circuit breakers are suitable for use with 60 °C or 75 °C conductors. 35–60 A circuit breakers are suitable for use with 75 °C conductors.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.25: Base Price (With Solid Neutral)**

| Mains Rating | Main Lugs | | Main Circuit Breaker (Circuit Breaker Interrupt Rating—pages 6-2 through 6-8) ▲ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard IC | | | HIC | | | Extra HIC | | | I-Limiter™ | |
| | $ Price | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | |
| | 2-pole | 3-pole | | 2-pole | 3-pole | | 2-pole | 3-pole | | 2-pole | 3-pole | | 2-pole | 3-pole |
| 60 A | — | — | QOB | 1192. | 1464. | QOB-VH | 1258. | 1586. | HJ▲ | 2950. | 3300. | FI | 4088. | 4858. |
| 100 A | 720. | 832. | QOB | 1254. | 1562. | QOB-VH | 1382. | 1712. | HJ▲ | 2950. | 3300. | FI | 4088. | 4858. |
| | 720. | 832. | | | | | | | | 2950. | 3300. | FI | 4088. | 4858. |
| | 720. | 832. | HD | 2030. | 2380. | HG | 2700. | 3050. | | 2950. | 3300. | FI | 4088. | 4858. |
| 150 A♦ | — | — | HD | 3180. | 3530. | HG | 3840. | 4190. | HJ▲ | 4000. | 4350. | — | — | — |
| 225 A♦ | 772. | 928. | QB<br>JD<br>QD | 2450.<br>3980.<br>3084. | 2800.<br>4300.<br>3434. | QG<br>JG | 3740.<br>4510. | 4090.<br>5100. | QJ<br>JJ▲ | 3970.<br>6450. | 4320.<br>7280. | KI | 7436. | 8680. |
| 250 A♦ | — | — | JD | 4390. | 4640. | JG | 5040. | 6020. | JJ▲ | 7100. | 8020. | KI | 8264. | 9672. |
| 400 A♦ | 1422. | 1634. | LA | 5366. | 6106. | LH | 7708. | 8834. | LJ | 10624. | 10624. | LR | 13552. | 13552. |
| 600 A■♦ | 2082. | 2326. | — | — | — | — | — | — | LJ | 12930. | 12930. | LR | 16002. | 16002. |

Note: Equipment Ground Bar—**38.**

▲ QL, HJ, HL, JJ, and JL circuit breakers are also available.
■ Copper bus standard
♦ Prices are for 54-circuit and fewer interiors. See the Product Selector for 72- and 84-circuit interior pricing.

**Table 9.26: Branch Circuit Breakers**

| Circuit Breaker Ampere Rating | Plug-On or Bolt-On $ Price | | | | |
|---|---|---|---|---|---|
| | 1-pole 120 Vac | 2-pole 120/240 Vac | 2-pole 240 Vac | 3-pole 240 Vac | 3-pole 208Y/120 Vac |
| **Space Only** | | | | | |
| All Space Only except below | 28. | 58. | 58. | 86. | — |
| QOB–VH, Space Only (125–150 A) | — | 116. | — | 174. | — |
| **10,000 AIR—Branch Circuit Breakers—QO™, QOB, QO-H, QOB-H** | | | | | |
| 15–60 A | 68. | 134. | 260. ★ | 352. | — |
| 70 A | 100. | 208. | 296. ★ | 396. | — |
| 80–100 A | — | 262. | 380. ★ | 458. | — |
| 110–125 A | — | 482. | — | — | — |
| **10,000 AIR—Combination Arc Fault Circuit Interrupters—QO-CAFI, QOB-CAFI** | | | | | |
| 15–20 A | 470. | — | — | — | — |
| **10,000 AIR—Qwik–Gard™—Class A—QO-GFI, QOB-GFI Provided with a 5 mA setting on ground fault sensor** | | | | | |
| 15–30 A | 272. | 488. | — | — | 920. |
| 40–50 A | — | 488. | — | — | 920. |
| 60 A | — | 488. | — | — | — |
| **10,000 AIR—Qwik–Gard—Class A—QO-EPD, QOB-EPD Provided with a 30 mA setting on ground fault sensor** | | | | | |
| 15–30 A | 462. | 828. | — | 1210. | — |
| 40–50 A | — | 828. | — | 1210. | — |
| 60 A | — | 828. | — | — | — |
| **10,000 AIR—Qwik–Gard—Class A—QO-EPE, QOB-EPE Provided with a 100 mA setting on ground fault sensor** | | | | | |
| 15–30 A | — | — | — | 1210. | — |
| 40–50 A | — | — | — | 1210. | |
| **(High Interrupting Capacity) 22,000 AIR Branch Circuit Breakers—QO-VH, QOB-VH** | | | | | |
| 15–30 A | 92. | 212. | — | 462. | — |
| 35–60 A | — | 212. | — | 462. | — |
| 70 A | — | 292. | — | 556. | — |
| 80–100 A | — | 378. | — | 606. | — |
| 110–125 A | — | 1022. | — | 1746.▼ | — |
| 150 A | — | 1140. ▼ | — | | — |
| **22,000 AIR—Combination Arc Fault Circuit Interrupters—QO-VHCAFI, QOB-VHCAFI** | | | | | |
| 15–20 A | 680. | — | — | — | — |
| **22,000 AIR—Qwik-Gard—Class A—QO-VHGFI, QOB-VHGFI** | | | | | |
| 15–30 A | 575. | — | — | — | — |
| **42,000 AIR Branch Circuit Breakers—QOH** | | | | | |
| 35–60 A | — | 368. △ | — | — | — |
| 70 A | — | 596. △ | — | — | — |
| 80–100 A | — | 688. △ | — | — | — |
| 110–125 A | — | 1402. △ | — | — | — |
| **65,000 AIR Branch Circuit Breakers—QH, QHB** | | | | | |
| 15–30 A | 144. | 348. | — | 596. | — |

Note: Shunt Trip, Auxiliary Switch, and Alarm Switch—accessories for circuit breakers—add $ Price from page 7-12.

★ UL Listed for use on 3Ø, grounded BØ systems, (5,000 AIR for this application).
▼ Bolt-on only; 2-pole requires 4 vertical spaces, 3-pole requires 6 vertical spaces.
△ Plug-on only.

**Table 9.27: Specialty Branch Circuit Breakers**

| Circuit Breaker Ampere Rating | Plug-On or Bolt-On $ Price | | | |
|---|---|---|---|---|
| | 1-pole 120 Vac | 2-pole 120/240 Vac | 2-pole 240 Vac | 3-pole 240 Vac |
| **Specialty Branch Circuit Breakers (10,000 AIR)** | | | | |
| **For High Intensity Discharge Lighting—QO-HID, QOB-HID** | | | | |
| 15–30 A | 78. | 148. | — | 376. |
| 40–50 A | 78. | 148. | — | — |
| **Switch Neutral—QO-SWN, QOB-SWN** | | | | |
| 15–50 A | — | 1-pole 2-wire (2 spaces) | — | 2-pole 3-wire (3 spaces) |
| | — | 154. | — | 220. |
| **High Magnetic Trip (For applications subject to high initial inrush)—QO-HM, QOB-HM** | | | | |
| 15–20 A | 68. | — | — | — |

## Sub-feed Circuit Breakers

Main lugs or main circuit breaker interior—1Ø or 3Ø. Maximum 1 circuit breaker per 225 A main lug or 250 A main circuit breaker panelboard, 2 circuit breakers per 400–600 A panelboard.

**Table 9.28: Sub-feed Circuit Breaker (110–225 A)**
(SeeTable 9.29 for correct box size.)

| No. of Poles | Ampacity | QB | QD | QG | HD | HG | JD | JG |
|---|---|---|---|---|---|---|---|---|
| 2 | 110–225 A | 1218. | 1762. | 3812. | 2456. | 3500. | 3020. | 4220. |
| 3 | 110–225 A | 1848. | 2296. | 4608. | 2872. | 3798. | 3370. | 5100. |
| Space | 110–225 A | 826. | 826. | 826. | 826. | 826. | 826. | 826. |

□ QJ, HJ, HL, JJ, and JL circuit breakers are also available.

**Table 9.29: Sub-feed Circuit Breaker Cabinet Data**

| Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces) | Box Height (20 in. W x 5.75 in. D) | | | | | |
|---|---|---|---|---|---|---|
| | 225 A | 250 A | 400 A | | 600 A | |
| | Main Lug | Main Circuit Breaker | Main Lug | Main Circuit Breaker | Main Lug | Main Circuit Breaker |
| 30 | 50 | 62 | 74 | 86 | 74 | Not available with MCB |
| 42 | 56 | 68 | 74 | 86 | 80 | |
| 54 | 56 | 68 | 80 | — | 80 | |
| 72 | 62 | 74 | 86 | — | 86 | |
| 84 | 68 | 80 | — | — | — | |

◊ Not Available in Type 3R, 5, 12 if subfeed breaker is over 150 A.

© 2012 Schneider Electric
All Rights Reserved

## Sub-feed Lugs

***NOTE:*** *Available on main lug interiors only, 1Ø or 3Ø.*

**Table 9.30: Sub-feed Wire Range Per Phase**

| Mains Rating | Incoming | Outgoing | Price per Panel |
|---|---|---|---|
| 100 | one #6-2/0 Al or Cu | one #6-2/0 Al or Cu | **$128.** |
| 225 | one 1/0-350 kcmil Al or Cu | one 1/0-350 kcmil Al or Cu | **$128.** |
| 400 | one 1/0-750 kcmil Cu only | one 1/0-750 kcmil Cu only | **$164.** |

**Table 9.31: Sub-feed Lug Cabinet Data**

| Max. No. of Branch Spaces | Box Height (20 in. W x 5.75 in. D) | | |
|---|---|---|---|
| | 100 A | 225 A | 400 A |
| 18 | MH26 | — | — |
| 30 | MH32 | MH38 | MH50 |
| 42 | — | MH44 | MH50 |
| 54 | — | MH44 | MH50 |
| 72 | — | MH50 | MH62 |
| 84 | — | MH56 | MH68 |

## Feed-through Lugs

**Table 9.32: Feed-through Lugs**

| Mains Rating | Feed-Through Wire Range Per Phase | $ Price |
|---|---|---|
| 100 A | one #6-2/0 Al or Cu | **344.** |
| 225 A | one #6–350 kcmil Al or Cu | **344.** |
| 400 A | one 1/0–750 kcmil or two 1/0–350 kcmil Al or Cu | **826.** |
| 600 A | two 1/0–750 kcmil Al or Cu | **826.** |

**Table 9.33: Feed-through Lug Cabinet Data**

| Max. No. of Branch Spaces | Box Height (20 in. W x 5.75 in. D) | | | | | |
|---|---|---|---|---|---|---|
| | 225 A | 250 A | 400 A | | 600 A | |
| | Main Lugs | Main Circuit Breaker | Main Lugs | Main Circuit Breaker | Main Lugs | Main Circuit Breaker ▲ |
| 30 | 38 | 50 | 50 | 62 | 62 | 68 |
| 42 | 38 | 50 | 56 | 68 | 62 | 80 |
| 72 | 50 | 62 | 68 | 80 | 74 | — |
| 84 | 56 | 68 | 68 | 80 | 80 | — |

▲ 8.75 in. deep box, ship fully assembled only.

**Table 9.34: Ground Bars**

| Ground Bars | $ Price Adder |
|---|---|
| Equipment Ground Bar | **38.** |
| Copper Ground Bar (add to Equipment Ground Bar price) | **52.** |
| Insulated/Isolated Ground Bar (add to Equipment Ground Bar price) | **86.** |

**Table 9.35: Name Plates**

| Name Plates | $ Price Adder |
|---|---|
| Standard white face/black letter laminated bakelite, 1 in. x 3.5 in., adhesive backed or screw mountable with screws in a bag assembly (price includes engraving) | **78.** |

**Table 9.36: Copper Bus Bars**

| Copper Bus Bars | $ Price Adder |
|---|---|
| 100 A, 225 A, 250 A | **128.** |
| 400 A | **388.** |
| 600 A | Standard |

**Table 9.37: Copper Neutrals**

| Copper Neutrals | $ Price Adder |
|---|---|
| 100–600 A | **132.** |

**Table 9.38: 200% Rated Neutrals**

| Panelboards with 200% rated neutrals are not available with 250 A J- and K-frame main circuit breakers or integral lighting contactors | | Add Per Panel $ Price |
|---|---|---|
| 100 A▲ | one #6-2/0 kcmil Al or Cu per lug | **586.** |
| 225 A▲ | one #6-350 kcmil Al or Cu per lug | **763.** |
| 400 A▲ | one #1/0-750 kcmil Al or Cu per lug or two 1/0-300 kcmil per lug | **950.** |

▲ Two incoming neutral lugs per panel

**Table 9.39: NQ Main Neutral Conductors—Required Size and Quantity**

| Panelboard Ampacity | Neutral Conductors Required | Actual Lug Wire Range |
|---|---|---|
| 100/125 | (2) 1/0 Cu or Al | (2) #4-300kcmil |
| 225 | (2) 4/0 Cu or (2) 300 kcmil Al | (2) #4-300 kcmil |
| 400 A | (4) 3/0 Cu or<br>(4) 250 kcmil Al<br>(2) 600 kcmil Cu<br>(2) 750 kcmil Al | (2) 1/0-300 kcmil or<br>(1) 750 kcmil |

**Note:** Neutral conductors must be of size and quantity per table above.

**Table 9.40: Metal Directory Frames**

| Metal Directory Frame | $ Price Adder |
|---|---|
| Replaces standard plastic stick-on directory pouch | **140.** |

**Table 9.41: Hinged Door-in-Door Trims**

| Hinged Door-in-Door Trim | Add Per Panel $ Price |
|---|---|
| Hinged Door-in-Door Trim has piano hinge down one side. Inner door has a lock, outer door is retained with screws | **646.** |
| Hinged Door-in-Door with Outer Door Lock in place of screws | **836.** |

**Table 9.42: Weatherproof or Dusttight Cabinets—Type 3R, 5, 12**

| Weatherproof or Dusttight Cabinets | $ Price Adder |
|---|---|
| **Note:** 600 A L-Frame main circuit breaker NQ panelboards are not available with a weatherproof enclosure (Use I-Line)<br><br>400 and 600 A NQ panelboards with sub-feed circuit breakers are not available with a weatherproof enclosure (Use I-Line).<br><br>400 A NQ panelboards are available with a subfeed breaker up to 150 A. See Table 9.29 on page 9-11. | **1516.** |

**Table 9.43: Optional Factory Assembled Lugs for Main Lug Interiors**

| Main Lug Interiors: | Price Per Pole Adder | | | |
|---|---|---|---|---|
| | 100A | 225A | 400A | 600A |
| Aluminum Compression Lugs | **58.** | **58.** | **148.** | **148.** |
| Copper Mechanical Lugs | **70.** | **108.** | **148.** | **168.** |
| Copper Compression Lugs | **70.** | **108.** | **148.** | **168.** |

**Table 9.44: Optional Factory Assembled Lugs for Main Circuit Breaker Interiors**

| Main Circuit Breaker Interiors: | Price Per Pole Adder | | | |
|---|---|---|---|---|
| | H Frame | J Frame | LA Frame | LC Frame |
| Aluminum Compression Lugs | **58.** | **98.** | **148.** | **148.** |
| Copper Mechanical Lugs | **70.** | **108.** | **148.** | **168.** |
| Copper Compression Lugs | **70.** | **108.** | **148.** | **168.** |

Note: Optional lugs are not available for Q frame main or QOB circuit breakers

**Table 9.45: Surgelogic™ Hard Bus SPD—Model IMA ■**

| Surge Current Rating kA | Voltage | | |
|---|---|---|---|
| | 120/240 V 1Ø3W | 208Y/120 V 3Ø4W | 240/120 V 3Ø4W High Leg |
| 100 | **10130.** | **11970.** | **11970.** |
| 120 | **10784.** | **12548.** | **15654.** |
| 160 | **12172.** | **13807.** | **13807.** |
| 200 | **14637.** | **17992.** | **17992.** |
| 240 | **17822.** | **20583.** | **20583.** |

■ SPD units add 18 in. of box height in NQ panelboards

**Table 9.46: Surgelogic SPD Options**

| Description | $ Price |
|---|---|
| Surge Counter | Standard |
| Dry Contacts | Standard |
| Remote Monitor | **2588.** |

Note: Additional factory modifications, See Digest page 9-38.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.47: NF Main Lug Interiors—Use I-Line™ Panelboards on 480 V 3Ø3W Delta Applications**

| Max No. of Single Pole EDB Circuit Breakers | Mains Rating | $ Total Price ▲ | | Interior Only ■ | | NEMA 1 Enclosure | | | | | | NEMA 3R, 5, 12 Enclosure △ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Box 20 in. W x 5.75 in. D ★ | | Mono-Flat™ Front ▼ | | Hinged Front | | Enclosure 20 in. W x 6.5 in. D | | Height (In.) |
| | | NEMA 1 | NEMA 3R, 5, 12 | Catalog No. ♦ | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | |
| **(Single Phase 3-Wire: Factory Assembled Only) Three Phase 4-Wire** | | | | | | | | | | | | | | |
| 18 | 125 | **2056.** | **3638.** | NF418L1 | **1446.** | MH26 | **113.** | NC26( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **2448.** | **4030.** | NF418L1C | **1838.** | MH26 | | NC26( ) | | NC26( )HR | | MH26WP | | |
| 30 | 125 | **2406.** | **3970.** | NF430L1 | **1766.** | MH32 | **113.** | NC32( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **2802.** | **4366.** | NF430L1C | **2162.** | MH32 | | NC32( ) | | NC32( )HR | | MH32WP | | |
| 30 | 250 | **2881.** | **4435.** | NF430L2 | **2219.** | MH38 | **113.** | NC38( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **3286.** | **4840.** | NF430L2C | **2624.** | MH38 | | NC38( ) | | NC38( )HR | | MH38WP | | |
| 42 | 250 | **3194.** | **5021.** | NF442L2 | **2418.** | MH44 | **113.** | NC44( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **3602.** | **5429.** | NF442L2C | **2826.** | MH44 | | NC44( ) | | NC44( )HR | | MH44WP | | |
| 54 | 250 | **4370.** | **6067.** | NF454L2 | **2616.** | MH50 | **113.** | NC50( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 56 |
| | | **4775.** | **6472.** | NF454L2C | **3021.** | MH50 | | NC50( ) | | NC50( )HR | | MH50WP | | |
| 66□ | 250 | **4800.** | **6485.** | NF466L2 | **3800.** | MH62 | **113.** | NC62( ) | **887.** | NC62( )HR | **887.** | MH62WP | **2685.** | 62 |
| | | **5442.** | **7127.** | NF466L2C | **4442.** | MH62 | | NC62( ) | | NC62( )HR | | MH62WP | | |
| 30 | 400 | **3308.** | **5075.** | NF430L4 | **2466.** | MH50 | **113.** | NC50V( ) | **729.** | NC50V( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **3716.** | **5483.** | NF430L4C | **2874.** | MH50 | | NC50V( ) | | NC50V( )HR | | MH50WP | | |
| 42 | 400 | **3572.** | **5325.** | NF442L4 | **2673.** | MH56 | **113.** | NC56V( ) | **786.** | NC56V( )HR | **983.** | MH56WP | **2652.** | 56 |
| | | **3895.** | **5648.** | NF442L4C | **2996.** | MH56 | | NC56V( ) | | NC56V( )HR | | MH56WP | | |
| 66□ | 400 | **5285.** | **6957.** | NF466L4 | **4200.** | MH74 | **113.** | NC74V( ) | **972.** | NC74V( )HR | **1215.** | MH74WP | **2757.** | 74 |
| | | **5792.** | **7464.** | NF466L4C | **4707.** | MH74 | | NC74V( ) | | NC74V( )HR | | MH74WP | | |
| 84□ | 400 | **6524.** | **8261.** | NF484L4 | **5346.** | MH86 | **113.** | NC86V( ) | **1065.** | NC86V( )HR | **1430.** | MH86WP | **2915.** | 86 |
| | | **7169.** | **8906.** | NF484L4C | **5991.** | MH86 | | NC86V( ) | | NC86V( )HR | | MH86WP | | |
| 30 | 600 | **3838.** | — | NF430L6C | **2996.** | MH50 | **113.** | NC50V( ) | **729.** | NC50V( )HR | **912.** | Factory Assembled Only | | 50 |
| 42 | 600 | **4087.** | — | NF442L6C | **3188.** | MH56 | **113.** | NC56V( ) | **786.** | NC56V( )HR | **983.** | | | 56 |
| 66□ | 600 | **6094.** | — | NF466L6C | **5009.** | MH74 | **113.** | NC74V( ) | **972.** | NC74V( )HR | **1215.** | | | 74 |
| 84□ | 600 | **7553.** | — | NF484L6C | **6375.** | MH86 | **113.** | NC86V( ) | **1065.** | NC86V( )HR | **1430.** | — | — | — |
| | 800 | Factory Assembled Only | | | | | | | | | | | | |

**Table 9.48: NF Main Circuit Breaker Interiors—Use I-Line Panelboards on 480 V 3Ø3W Delta Applications**

| Max. No. of One-pole EDB Circuit Breakers | Mains Rating | $ Total Price ▲ | | Main Circuit Breaker Adapter Kit | | Main Circuit Breaker Frame | Interior Only ■ | | NEMA 1 Enclosure | | | | | | NEMA 3R, 5, 12 Enclosure △ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Box 20 in. W x 5.75in. D ★ | | Mono-Flat™ Front ▼ | | Hinged Front | | Enclosure 20 in. W x 6.5 in. D | | Height (In.) |
| | | NEMA 1 | NEMA 3R, 5, 12 | Kit | $ Price | | Catalog No. ♦ | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | |
| **(Single Phase 3-Wire: Factory Assembled Only) Three Phase 4-Wire** | | | | | | | | | | | | | | | | | |
| 15 | 125 | **2056.** | **3638.** | Back-fed Main Breaker◊ | — | EDB, EGB or EJB | NF418L1 | **1446.** | MH26 | **113.** | NC26( ) | **497.** | NC26( )HR | **620.** | MH26WP | **2192.** | 26 |
| | | **2448.** | **4030.** | | | | NF418L1C | **1838.** | MH26 | | NC26( ) | | NC26( )HR | | MH26WP | | |
| 27 | 125 | **2406.** | **3970.** | | — | | NF430L1 | **1766.** | MH32 | **113.** | NC32( ) | **527.** | NC32( )HR | **657.** | MH32WP | **2204.** | 32 |
| | | **2802.** | **4366.** | | | | NF430L1C | **2162.** | MH32 | | NC32( ) | | NC32( )HR | | MH32WP | | |
| 18 | 125 | **2888.** | **4442.** | N150MH or N100MFI☆ | **780.** | HD/HG/ HJ/HL or FI | NF418L1 | **1446.** | MH38 | **113.** | NC38( ) | **549.** | NC38( )HR | **687.** | MH38WP | **2216.** | 38 |
| | | **3280.** | **4834.** | | | | NF418L1C | **1838.** | MH38 | | NC38( ) | | NC38( )HR | | MH38WP | | |
| 30 | 125 | **3322.** | **5149.** | | | | NF430L1 | **1766.** | MH44 | **113.** | NC44( ) | **663.** | NC44( )HR | **830.** | MH44WP | **2603.** | 44 |
| | | **3718.** | **5545.** | | | | NF430L1C | **2162.** | MH44 | | NC44( ) | | NC44( )HR | | MH44WP | | |
| 30 | 250 | **3841.** | **5608.** | N250MJ or N250MKC☆ | **780.** | JD/JG/ JJ/JL or KI | NF430L2 | **2219.** | MH50 | **113.** | NC50( ) | **729.** | NC50( )HR | **912.** | MH50WP | **2609.** | 50 |
| | | **4246.** | **6013.** | | | | NF430L2C | **2624.** | MH50 | | NC50( ) | | NC50( )HR | | MH50WP | | |
| 42 | 250 | **4097.** | **5850.** | | **780.** | | NF442L2 | **2418.** | MH56 | **113.** | NC56( ) | **786.** | NC56( )HR | **983.** | MH56WP | **2652.** | 56 |
| | | **4505.** | **6258.** | | | | NF442L2C | **2826.** | MH56 | | NC56( ) | | NC56( )HR | | MH56WP | | |
| 54 | 250 | **5278.** | **6947.** | | **780.** | | NF454L2 | **2616.** | MH62 | **113.** | NC62( ) | **786.** | NC62( )HR | **983.** | MH62WP | **2652.** | 56 |
| | | **5683.** | **7352.** | | | | NF454L2C | **3021.** | MH62 | | NC62( ) | | NC62( )HR | | MH62WP | | |
| 66□ | 250 | **5665.** | **7337.** | | **780.** | | NF466L2 | **3800.** | MH74 | **113.** | NC74( ) | **972.** | NC74( )HR | **1215.** | MH74WP | **2757.** | 74 |
| | | **6307.** | **7979.** | | | | NF466L2C | **4442.** | MH74 | | NC74( ) | | NC74( )HR | | MH74WP | | |
| 30 | 400 | **4246.** | **5931.** | N400M☆ | **780.** | LA/LH | NF430L4 | **2466.** | MH62 | **113.** | NC62V( ) | **887.** | NC62V( )HR | **1109.** | MH62WP | **2685.** | 62 |
| | | **4654.** | **6339.** | | | | NF430L4C | **2874.** | MH62 | | NC62V( ) | | NC62V( )HR | | MH62WP | | |
| 42 | 400 | **4514.** | **6195.** | N400M☆ | **780.** | | NF442L4 | **2673.** | MH68 | **113.** | NC68V( ) | **948.** | NC68V( )HR | **1185.** | MH68WP | **2742.** | 68 |
| | | **4837.** | **6518.** | | | | NF442L4C | **2996.** | MH68 | | NC68V( ) | | NC68V( )HR | | MH68WP | | |
| 66□ | 400 | **6158.** | **7895.** | N400M☆ | **780.** | | NF466L4 | **4200.** | MH86 | **113.** | NC86V( ) | **1065.** | NC86V( )HR | **1430.** | MH86WP | **2915.** | 86 |
| | | **6665.** | **8402.** | | | | NF466L4C | **4707.** | MH86 | | NC86V( ) | | NC86V( )HR | | MH86WP | | |

▲ Total Price includes: interior, front, main circuit breaker adapter kit, and enclosure.
■ Order branch circuit breakers separately.
♦ "C" suffix indicates copper bussing.
★ Embossed mounting holes add a 0.25-inch standoff to back of MH box.
▼ Add "F" for flush mount, "S" for surface mount.
△ Enclosure includes trim kit.
□ Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NEC, which allows single panelboard interiors greater than 42 circuits.
◊ Back-fed EDB 125 A 3 pole main circuit breaker must be ordered separately and field installed. Maximum breaker rating opposite is 20A.
☆ Select the appropriate main circuit breaker from pages starting on 7-21 and add the circuit breaker Price to the total Price of the panelboard.

**Table 9.49: NF Merchandised SPD Box Selection Table**

| Mains Rating | Max. Breaker Spaces | Main Lug Panelboard Box Requirements | | | | | | | | Main Circuit Breaker Panelboard Box Requirements | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NEMA 1 Enclosure | | | | | | NEMA 3R, 5, 12 Enclosure | | NEMA 1 Enclosure | | | | | | NEMA 3R, 5, 12 Enclosure | |
| | | Box | $ Price | Front | $ Price | Hinged | $ Price | Enclosure | $ Price | Box | $ Price | Front | $ Price | Hinged | $ Price | Enclosure | $ Price |
| 250A | 42 | MH56 | **113.** | NC56( ) | **887.** | NC56( )HR | **1109.** | MH56WP | **2685.** | MH68 | **113.** | NC68( ) | **972.** | NC68( )HR | **1215.** | MH68WP | **2742.** |
| 400 A | 42 | MH68 | | NC68V( ) | **972.** | NC68V( )HR | **1215.** | MH68WP | **2757.** | MH80 | | NC80( ) | **1722.** | M/B NC80V( )HR | **1430.** | MH80WP | **2915.** |

© 2012 Schneider Electric
All Rights Reserved

### Table 9.50: NF Merchandised Neutrals

| Mains Ampacity | 200% Neutral Kit | | | | Copper 100% Neutral Kit | | | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Box Add | Schedule | Catalog No. | $ Price | Box Add | Schedule |
| 125 | NFNL1 | **1029.** | No Adder | PE-1A | NFN1CU | **405.** | No Adder | PE-1A |
| 250 | NFNL2 | **1277.** | | | NFN2CU | | | |
| 400 | NFNL4▲ | **1914.** | No Adder | PE-1A | NFN6CU | **1148.** | No Adder | PE-1A |
| 600 | Factory Assembled Only | | | | NFN6CU▲ | | | |

▲ Not to be used with SFL, FTL, or SFB. These combinations are factory assembled only.

### Table 9.51: Modifications (Single- or Three-phase)

| Mains Ampacity | Sub-feed Lugs ■ ♦ | | | Feed-through Lugs ■ ♦ | | |
|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Schedule | Catalog No. | $ Price | Schedule |
| 125 | NF125SFL | **167.** | PE-1A | NF125FTL | **336.** | PE-1A |
| 250 | NF250SFL | **213.** | PE-1A | NF250FTL | **476.** | PE-1A |
| 400 | NF400SFL▼ | **356.** | PE-1A | NF400FTL | **507.** | PE-1A |
| 600 | △ | — | — | △ | — | — |
| 800 | | — | — | | — | — |

| Mains Ampacity | Sub-feed Circuit Breaker Kits ■ (circuit breaker not included) ★ | | | | | Schedule |
|---|---|---|---|---|---|---|
| | Single Sub-feed Circuit Breaker | | | Twin Sub-feed Circuit Breakers | | |
| | Catalog No. | $ Price | Schedule | Catalog No. | $ Price | |
| 250 | NF250SFBH/NF250SFBJ | **1029.** | PE-1A | — | — | — |
| 400 | — | — | — | NF600SFBH | **1290.** | PE1A |
| | — | — | — | NF600SFBJ | | |
| 600 | FACTORY ASSEMBLED ONLY | | | | | |
| 800 | FACTORY ASSEMBLED ONLY | | | | | |

Note: NF250SFBH and NF600SFBH are for use with HDL, HGL, HJL, and HLL circuit breakers. NF600SFBJ are for use with JDL, JGL, JJL, and JLL circuit breakers.

■ Available factory assembled only on non-linear panelboards.
♦ Select box from the Box Selection Table.
★ Order appropriate circuit breaker.
▼ Use copper wire only.
△ Available factory assembled only.

### Table 9.52: Special Features Box Selection Table—Standard Mechanical Lugs Only

| | Main Lugs Only | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feature | Sub-feed Lugs | | | | | Feed-through Lugs | | | | | Sub-feed Circuit Breaker | | |
| No. of Circuits | 18 | 30 | 42 | 66 | 84 | 18 | 30 | 42 | 66 | 84 | 30 | 42 | 66 |
| Ampacity | Cat. No. | Cat. No. | Cat. No. | Cat No. | Cat No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| 100/125 | MH26 | MH32 | — | — | — | MH32 | MH38 | — | — | — | — | — | — |
| 250 | — | MH38 | MH44 | MH62 | — | — | MH50 | MH56 | MH74 | — | MH56 | MH62 | MH80 |
| 400 | — | MH50 | MH56 | MH74 | MH86 | — | MH56 | MH62 | MH80 | MH92 | MH68 | MH74 | — |
| 600 | — | □ | □ | □ | □ | — | □ | □ | □ | □ | □ | □ | □ |
| 800 | | | | | | | | | | | | | |

□ Available factory assembled only.

### Table 9.53: Special Features Box Selection Table—Standard Mechanical Lugs Only *(continued)*

| | Vertical Main Circuit Breaker ◊ | | | | | | Back-fed Main Circuit Breaker | |
|---|---|---|---|---|---|---|---|---|
| Feature | Feed-through Lugs | | | | Sub-feed Circuit Breaker | | Feed-through Lugs | |
| No. of Circuits | 18 | 30 | 42 | 66 | 30 | 42 | 18 | 30 |
| Ampacity | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| 100/125 | MH44 | MH50 | — | — | — | — | MH32 | MH38 |
| 250 | — | MH62 | MH68 | MH86 | MH68 | MH74 | MH38 | MH44 |
| 400◊ | — | MH68 | MH74 | MH92 | MH80 | MH86 | — | — |
| 600 | Available factory assembled only. | | | | | | — | — |

◊ 400 A dimension for LA/LH main circuit breakers only.

### Table 9.54: Optional Main Lug Kits for Main Lug Panelboards

| Ampacity | AL Compression Lug Kit | | | | CU Mechanical Lug Kit | | | | CU Compression Lug Kit ☆ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Catalog No. | Lug Wire Range | $ Price | Schedule | Catalog No. | Lug Wire Range | $ Price | Schedule | Catalog No. | Lug Wire Range | $ Price | Schedule |
| 125 | NFALV1▽ | one #4–300 kcmil | **177.** | PE-1A | NFCUM1 | #6–2/0 AWG | **347.** | PE-1A | NFCUV1◒ | one #6–1/0 | **345.** | PE-1A |
| 250 | NFALV2 | one 250–350 kcmil | **333.** | | NFCUM2 | #6–250 kcmil | | | NFCUV2◒ | one 2/0–300 kcmil | **417.** | |
| 400 | NFALV4 | two 2/0–500 kcmil | **1122.** | PE-1A | NFCUM4 | one 1/0–750 kcmil, two 1/0–350 kcmil | **987.** | PE-1A | NFCUV4 | one 400–750 kcmil | **767.** | PE-1A |
| 600 | NFALV6 | two 2/0–500 kcmil | **1206.** | PE-1A | NFCUM6 | two 1/0–750 kcmil | **2236.** | PE-1A | NFCUV6 | two 250–500 kcmil | **1364.** | PE-1A |
| 800 | Contact your local Schneider Electric representative or distributor | | | | | | | | | | | |

☆ Use copper wire only.
▽ Use of this kit requires an additional 6 in. added to box height.
◒ Use of this kit to terminate larger than standard wire size requires an additional 6 in. added to box height.

### Table 9.55: NF Accessories

| Description | Catalog No. | $ Price | Schedule |
|---|---|---|---|
| Aluminum Equipment Ground Bar | PK27GTA | **33.80** | DE-3A |
| Copper Equipment Ground Bar | PK27GTACU | **84.00** | PE-1A |
| Large Aluminum Lug for Equipment Ground Bar | PK23GTAL | **40.70** | DE-3A |
| Equipment Ground Bar Insulator Kit | PKGTAB | **43.80** | |
| **Circuit I.D. number strips** | | | |
| 1–102 odd/even (left side numbered 1, 3, 5...101) | NF102OE | **7.90** | PE-1A |
| 103–204 odd/even (left side numbered 103, 105, 107...203) | NF204OE | | |
| 1–102 sequential (left side numbered 1, 2, 3 ...102) | NF102S | | |
| 103–204 sequential (left side numbered 103, 104, 105... 204) | NF204S | | |
| **Rail and Deadfront Extensions** | | | |
| 6 in. Extension | NF6RDE | **252.00** | PE-1A |
| 12 in. Extension | NF12RDE | **284.00** | |
| 18 in. Extension | NF18RDE | **344.00** | |

| Description | Catalog No. | $ Price | Schedule |
|---|---|---|---|
| Filler plate (15 per package) | NFFP15 | **113.00**∗ | PE-1A |
| EXB Fixed padlock attachment, Lock ON/OFF for ED, EG, and EJ Circuit Breakers 1, 2, or 3 poles | EDPA | **26.00** | DE-2 |
| EXB Fixed padlock attachment, Lock OFF only for ED, EG, and EJ Circuit Breakers 1, 2, or 3 poles | EDPAF | **30.00** | DE-2 |
| **Oversized Lugs for Neutral or Ground Bar** | | | |
| #10 to #2 Al or #14 to #4 Cu | QO70AN | **9.90** | DE-3A |
| #4 to #1/0 Al or Cu | Q1100AN | **11.10** | |
| #1 to #4/0 Al or Cu | Q1150AN | **32.40** | |
| Drip Hood for 20 in. wide enclosures | MHT2DH20 | **315.00** | PE-1A |

∗ Filler plates are $7.50 each and must be ordered in packages of 15.



© 2012 Schneider Electric
All Rights Reserved



EDB-EPD
1-pole
with Alarm Switch



EDB, EGB, EJB
3-pole
15–125 A



EDB, EGB, EJB
1-pole
15–70 A



EDB, EGB, EJB
2-pole
15–125 A

**Table 9.56: E-frame—125 A, Thermal-magnetic (480Y/277 Vac)**

| Ampere Rating | ED, EG, EJ (480Y/277 Vac) Hold | ED, EG, EJ (480Y/277 Vac) Trip | "D" Interrupting Level 18 kA @ 480Y/277 Vac Catalog Number | "D" Interrupting Level 18 kA @ 480Y/277 Vac $ Price | "G" Interrupting Level 35 kA @ 480Y/277 Vac Catalog Number | "G" Interrupting Level 35 kA @ 480Y/277 Vac $ Price | "J" Interrupting Level 65 kA @ 480Y/277 Vac Catalog Number | "J" Interrupting Level 65 kA @ 480Y/277 Vac $ Price | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|
| **1-pole, 277 Vac** | | | | | | | | | |
| 15 A | 270 | 875 | EDB14015▲■ | 150. | EGB14015▲■ | 255. | EJB14015▲■ | 408. | AL30FD #14–#6 Al or Cu |
| 20 A | | | EDB14020▲■ | | EGB14020▲■ | | EJB14020▲■ | | |
| 25 A | | | EDB14025■ | | EGB14025■ | | EJB14025■ | | |
| 30 A | | | EDB14030■ | | EGB14030■ | | EJB14030■ | | |
| 35 A | 630 | 1800 | EDB14035■ | 150. | EGB14035■ | 225. | EJB14035■ | 408. | AL100FD #14–2/0 Al or Cu |
| 40 A | | | EDB14040■ | | EGB14040■ | | EJB14040■ | | |
| 45 A | | | EDB14045■ | | EGB14045■ | | EJB14045■ | | |
| 50 A | | | EDB14050■ | | EGB14050■ | | EJB14050■ | | |
| 60 A | | | EDB14060 | | EGB14060 | | EJB14060 | | |
| 70 A | | | EDB14070 | 302. | EGB14070 | 507. | EJB14070 | 812. | |
| **2-pole, 480Y/277 Vac ♦** | | | | | | | | | |
| 15 A | 270 | 875 | EDB24015■ | 536. | EGB24015■ | 776. | EJB24015■ | 1241. | AL30FD #14–#6 Al or Cu |
| 20 A | | | EDB24020■ | | EGB24020■ | | EJB24020■ | | |
| 25 A | | | EDB24025■ | | EGB24025■ | | EJB24025■ | | |
| 30 A | | | EDB24030■ | | EGB24030■ | | EJB24030■ | | |
| 35 A | 630 | 1800 | EDB24035■ | 536. | EGB24035■ | 776. | EJB24035■ | 1241. | AL100FD #14–2/0 Al or Cu |
| 40 A | | | EDB24040■ | | EGB24040■ | | EJB24040■ | | |
| 45 A | | | EDB24045■ | | EGB24045■ | | EJB24045■ | | |
| 50 A | | | EDB24050■ | | EGB24050■ | | EJB24050■ | | |
| 60 A | | | EDB24060 | | EGB24060 | | EJB24060 | | |
| 70 A | | | EDB24070 | 756. | EGB24070 | 1280. | EJB24070 | 2048. | |
| 80 A | 1000 | 2300 | EDB24080 | 756. | EGB24080 | 1280. | EJB24080 | 2135. | AL100FD #14–2/0 Al or Cu |
| 90 A | | | EDB24090 | | EGB24090 | | EJB24090 | | |
| 100 A | | | EDB24100 | | EGB24100 | | EJB24100 | | |
| 110 A | | | EDB24110 | 1946. | EGB24110 | 2586. | EJB24110 | 3879. | |
| 125 A | | | EDB24125 | | EGB24125 | | EJB24125 | | |
| **3-pole, 480Y/277 Vac** | | | | | | | | | |
| 15 A | 270 | 875 | EDB34015■ | 669. | EGB34015■ | 1131. | EJB34015■ | 1358. | AL30FD #14–#6 Al or Cu |
| 20 A | | | EDB34020■ | | EGB34020■ | | EJB34020■ | | |
| 25 A | | | EDB34025■ | | EGB34025■ | | EJB34025■ | | |
| 30 A | | | EDB34030■ | | EGB34030■ | | EJB34030■ | | |
| 35 A | 630 | 1800 | EDB34035■ | 669. | EGB34035■ | 1131. | EJB34035■ | 1358. | AL100FD #14–2/0 Al or Cu |
| 40 A | | | EDB34040■ | | EGB34040■ | | EJB34040■ | | |
| 45 A | | | EDB34045■ | | EGB34045■ | | EJB34045■ | | |
| 50 A | | | EDB34050■ | | EGB34050■ | | EJB34050■ | | |
| 60 A | | | EDB34060 | | EGB34060 | | EJB34060 | | |
| 70 A | | | EDB34070 | 911. | EGB34070 | 1292. | EJB34070 | 2562. | |
| 80 A | 1000 | 2300 | EDB34080 | 911. | EGB34080 | 1292. | EJB34080 | 2562. | AL100FD #14–2/0 Al or Cu |
| 90 A | | | EDB34090 | | EGB34090 | | EJB34090 | | |
| 100 A | | | EDB34100 | | EGB34100 | | EJB34100 | | |
| 110 A | | | EDB34110 | 2421. | EGB34110 | 3216. | EJB34110 | 4826. | |
| 125 A | | | EDB34125 | | EGB34125 | | EJB34125 | | |
| **EPDs (Equipment Protection Devices), 1-pole, 277 Vac, Thermal-magnetic with 30 mA ground-fault protection★** | | | | | | | | | |
| 15 A | 270 | 875 | EDB14015EPD▲■ | 1151. | EGB14015EPD▲■ | 1256. | EJB14015EPD▲■ | 1409. | #14–#6 Cu or #12–#4 Al |
| 20 A | | | EDB14020EPD▲■ | | EGB14020EPD▲■ | | EJB14020EPD▲■ | | |
| 30 A | | | EDB14030EPD■ | | EGB14030EPD■ | | EJB14030EPD■ | | |
| 40 A | 630 | 1800 | EDB14040EPD■ | 1151. | EGB14040EPD■ | 1256. | EJB14040EPD■ | 1409. | |
| 50 A | | | EDB14050EPD■ | | EGB14050EPD■ | | EJB14050EPD■ | | |

Note: All EDB, EGB, and EJB circuit breakers are UL Listed as HACR Type. For 50 °C calibration, use a CA suffix. NF branch circuit breakers are fungus proof as standard.

▲ UL Listed as SWD (Switching duty rated).
■ UL Listed as HID (High Intensity Discharge rated).
♦ UL Listed for use on 240 V Corner-grounded Delta Systems (Grounded B Phase). See data bulletin 2700DB0202.
★ All EPDs occupy two spaces, with or without Alarm Switch option. For alarm switch, add 158 list Price and the suffix BA.

**Table 9.57: Factory installed Electrical Accessories**

| Auxiliary Switch (1A/1B) | Alarm Switch (NO) | Coil Burden Max. (VA) | Minimum Recommended Supply Transformer (VA) |
|---|---|---|---|
| | | 288 | 50 |
| Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED.<br>**Application**<br>Max Load = 10 A @ 120 Vac 50/60 Hz<br>Terminals for #14 AWG Cu wire | Used with control circuits and is actuated only when the circuit breaker has tripped.<br>**Application**<br>Max Load = 7 A @ 120 Vac 50/60 Hz<br>Terminals for #14 AWG Cu wire. | Shunt Trip—Trips the circuit breaker from a remote location by means of a coil energized from a separate circuit. A 120 V shunt trip will operate at 55% or more of rated voltage.<br>**Application**<br>For use with momentary or maintained push button. 120 Vac 50/60 Hz<br>Terminals for #14 AWG Cu wire. | |

**Table 9.58: Factory Installed Electrical Accessory Packages for ED, EG, EJ Circuit Breakers**

| Accessory Package | Suffix | $ Price |
|---|---|---|
| Auxiliary Switch/Alarm Switch Package▼△ | AABA | 312. |
| Shunt Trip Package▼△ | SA | 755. |
| Auxiliary Switch/Alarm Switch/Shunt Trip Package▼△ | AABASA | 1067. |
| Alarm Switch (N.O.) Package for EPDs only | BA | 237. |

▼ Accessory package takes an additional pole space.
△ Not available for EPD.

**Table 9.59: Terminal Nut Insert Kit**

| Circuit Breaker Type | Qty. per Kit | Catalog No. | $ Price |
|---|---|---|---|
| ED, EG, EJ | 3 | TIKFD | 17.40 |

**Table 9.60: Handle Accessories**

| Circuit Breaker Type | No. of Poles | Catalog No. | $ Price |
|---|---|---|---|
| **EXB Fixed Padlock Attachment, Lock ON/OFF** | | | |
| ED, EG, EJ | 1, 2, or 3 | EDPA | 39.00 |
| **EXB Fixed padlock attachment, Lock OFF only** | | | |
| ED, EG, EJ | 1, 2, or 3 | EDPAF | 45.00 |
| **EXB Removable padlock attachment, Lock OFF only** | | | |
| ED, EG, EJ | 1, 2, or 3 | HPAFD | 25.50 |
| **EXB Handle Ties** | | | |
| ED, EG, EJ | Ties 2 – 1P | ECB2HT | 16.80 |
| | Ties 3 – 1P | ECB3HT | 17.85 |

**Table 9.61: Interrupt Ratings (kA)**

| | EDB | EGB | EJB |
|---|---|---|---|
| 120 V | 25 | 65 | 100 |
| 240 V | 18 (1P), 25 | 35 (1P), 65 | 65 (1P), 100 |
| 480Y/277 V | 18 | 35 | 65 |

**Table 9.62: Mechanical Lug Kit Information (Al lugs for use with Al or Cu wire)**

| Circuit Breaker Application | | | | Number of Wires Per Lug and Wire Range | Catalog Number | Lugs Per Kit | $ price Per Kit |
|---|---|---|---|---|---|---|---|
| Standard | Ampere Rating | Optional | Ampere Rating | | | | |
| EDB, EGB, EJB | 15–30 A | — | — | one #12—#6 AWG Al or one #14—#6 AWG Cu | AL30FD | 3 | 41.30 |
| | 35–125 A | EDB, EGB, EJB | 15–30 A □ | one #12—2/0 AWG Al or one #14—2/0 AWG Cu | AL100FD | 3 | |
| — | — | EDB, EGB, EJB | 15–125 A | one #14—1/0 AWG Cu | CU100FD | 3 | |

□ Factory installed only. Use suffix "LH"

E-frame dimensions . . . . . Digest page 7-55

© 2012 Schneider Electric
All Rights Reserved

## Factory Assembled Pricing

▲ Use I-Line™ Panelboards on 480 V 3Ø3W Delta applications.

**Table 9.63: Base $ Price (including solid neutral)**

| Mains Rating | Main Lugs | | Main Circuit Breaker (Circuit Breaker Interrupt Rating—7-2 through 7-8) ▲ ■ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard IC | | | HIC | | | Extra HIC | | | I-Limiter™ | | |
| | 2-pole | 3-pole | Circuit Breaker | 2-pole | 3-pole | Circuit Breaker | 2-pole | 3-pole | Circuit Breaker | 2-pole | 3-pole | Circuit Breaker | 2-pole | 3-pole |
| 100 A | — | — | ED ♦ | **1636.** | **1882.** | EG ♦ | **2100.** | **2416.** | — | — | — | — | — | — |
| 100 A | — | — | — | — | — | — | — | — | HJ | **3248.** | **3598.** | FI | **4250.** | **4884.** |
| 125 A | **846.** | **972.** | ED ♦ | **3372.** | **3762.** | EG ♦ | **4324.** | **4976.** | — | — | — | — | — | — |
| 150 A | — | — | HD | **3270.** | **3620.** | HG | **4048.** | **4398.** | HJ | **4070.** | **4420.** | — | — | — |
| 225 A ★ | — | — | JD | **4120.** | **4380.** | JG | **5070.** | **5400.** | JJ | **6620.** | **7330.** | KI | **7266.** | **8352.** |
| 250 A ★ | **1002** | **1152.** | JD | **4500.** | **5140.** | JG | **6180.** | **6180.** | JJ | **7190.** | **8450.** | KI | **9154.** | **10522.** |
| 400 A ★ | **1326.** | **1524.** | LA | **5330.** | **6126.** | LH | **7712.** | **8864.** | LC | **8506.** | **9776.** | LI | **9350.** | **10746.** |
| 600 A ★▼ | **2366.** | **2622.** | — | — | — | — | — | — | LC | **9554.** | **10884.** | LI | **13640.** | **15678.** |
| 800 A ▼ | **3550.** | **3900.** | — | — | — | — | — | — | — | — | — | — | — | — |

▲ HL and JL frame circuit breakers are also available as main circuit breakers.
■ Contact your local Schneider Electric representative or distributor for Micrologic™ trip main circuit breaker pricing.
♦ Back-fed main circuit breaker.
★ Prices are for 54-circuit and fewer interiors. See the Product Selector for 66- and 84-circuit interior pricing.
▼ Copper bus only.

**Table 9.64: Branch Circuit Breakers—$ Price per circuit breaker**

| Circuit Breaker Ampere Rating | Standard Interrupting 25,000 AIR @ 240 Vac, 18,000 AIR @ 480Y/277 Vac ED Bolt-on Branch | | | High Interrupting 65,000 AIR @ 240 Vac, 35,000 AIR @ 480Y/277 Vac EG Bolt-on Branch | | | Extra High Interrupting 100,000 AIR @ 240 Vac, 65,000 AIR @ 480Y/277 Vac EJ Bolt-on Branch | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price |
| 15–60 A | **192.** | **442.** | **748.** | **324.** | **746.** | **1264.** | **518.** | **1196.** | **2024.** |
| 70 A | **342.** | **872.** | **1046.** | **578.** | **1474.** | **1710.** | **924.** | **2120.** | **2540.** |
| 80–100 A | — | **872.** | **1046.** | — | **1474.** | **1710.** | — | **2120.** | **2540.** |
| 110–125 A | — | **2210.** | **2724.** | — | **4114.** | **4754.** | — | **5300.** | **6300.** |
| Space Only | **42.** | **84.** | **126.** | **42.** | **84.** | **126.** | **42.** | **84.** | **126.** |

Note: All ED, EG, and EJ branch circuit breakers are UL Listed as HACR type.

**Table 9.65: EDB-EPD Equipment Protection Device Branch Circuit Breakers △ □**

| Circuit Breaker Ampere Rating | Standard Interrupting 25,000 AIR @ 240 Vac, 18,000 AIR @ 480Y/277 Vac ED Bolt-on Branch | | | High Interrupting 65,000 AIR @ 240 Vac, 35,000 AIR @ 480Y/277 Vac EG Bolt-on Branch | | | Extra High Interrupting 100,000 AIR @ 240 Vac, 65,000 AIR @ 480Y/277 Vac EJ Bolt-on Branch | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price | 1-pole $ Price | 2-pole $ Price | 3-pole $ Price |
| 15–60 A | **1472.** | — | — | **1596.** | — | — | **1788.** | — | — |

△ All 1-pole EDB-EPD branches use 2 poles of mounting space.
□ For bell alarm in EDB-EPD branch breaker, add **158.** to branch breaker price.

## Sub-feed Circuit Breaker

Available on 1Ø or 3Ø, 250–800 A main lugs or 250–600 A main circuit breaker interiors

- One sub-feed HD, HG, HJ, or HL or JD, JG, JJ, or JL circuit breaker per 250 A panelboard
- Two sub-feed HD, HG, HJ, or HL or two JD, JG, JJ, or JL circuit breakers per 400 A panelboard (do not mix H and J in a Panel)
- One sub-feed LA, LH, or LC circuit breaker (400 A max.) and one JD, JG, JJ, or JL circuit breaker or two sub-feed JD, JG, JJ, or JL circuit breakers per 600 A or 800 A panelboard (JJ and LC sub-feed circuit breakers cannot be used together).

**Table 9.66: Sub-feed Circuit Breaker (150–400 A)**

| No. of Poles | HD | HG | JD | JG | LA | LH | LC ◊ | Space |
|---|---|---|---|---|---|---|---|---|
| 2 | **2456.** | **3500.** | **3020.** | **4220.** | **3980.** | **5534.** | **8634.** | **826.** |
| 3 | **2872.** | **3798.** | **3370.** | **5100.** | **4916.** | **6510.** | **10156.** | **826.** |

◊ JJ and LC sub-feed circuit breakers cannot be used together.

**Table 9.67: Sub-feed Circuit Breaker Cabinet Data**

| Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces) | Box Height (20 in. W x 5.75 in. D) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250 A | | 400 A LA/LH | | 600 A | | 800 A |
| | Main Lugs | Main Breaker | Main Lugs | Main Breaker | Main Lugs | Main Breaker ☆ | Main Lugs ▽ |
| 30 | 56 | 68 | 68 | 80 | 74 | 80◒ | 68 |
| 42 | 62 | 74 | 74 | 86 | 80 | 86◒ | 74 |
| 54 | 68 | 80 | 80 | 92 | 86 | 92◒ | 80 |
| 66 | 80 | N/A | | | | | |
| 84 | N/A | | | | | | |

☆ 600 A main circuit breaker panelboards require an 8.75 in. deep, 26 in. wide box.
▽ 800 A main lug panelboards require an 8.75 in. deep, 26 in. wide box.
◒ Dimensions also for 400 A LC/LI main circuit breaker panels.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.68: Sub-feed (Double) Lugs (Standard Aluminum Mechanical Lugs)**
An additional mains end termination point that can be used to feed out to another panelboard or device from the incoming service lines.

***NOTE:*** *Available on main lug interiors only.*

| Mains Rating | Sub-feed Wire Range Wire Bending Space per NEC Table 373-6 | $ Price |
|---|---|---|
| 125 A | two #6–2/0 Al or Cu | **128.** |
| 250 A | two 1/0–350 kcmil Al or Cu | **128.** |
| 400 A | two 1/0–600 kcmil Cu | **344.** |
| 600 A | (4) 4/0–500 kcmil Al or Cu | **344.** |
| 800 A | (6) 3/0–500 kcmil Al or Cu | **522.** |

**Table 9.69: Sub-feed Lug Cabinet Data (Standard Aluminum Mechanical Lugs)**

| Max. No. of Branch Spaces | Main Lugs Box Height in Inches (20 in. W x 5.75 in. D) | | | | |
|---|---|---|---|---|---|
| | 125 A | 250 A | 400 A | 600 A | 800 A ▲ |
| 18 | 26 | — | — | — | — |
| 30 | 32 | 38 | 50 | 74 | 74 |
| 42 | — | 44 | 56 | 80 | 80 |
| 54 | — | 50 | 62 | 86 | 86 |

▲ 800 A main lug panelboards require an 8.75 in. deep and 26 in. wide box.

**Table 9.70: Feed-through Lugs (Standard Aluminum Mechanical Lugs)**
A second set of lugs assembled at the opposite end from the mains of the panelboard. Often used to connect another panelboard or device to the incoming lines. Available on main lugs and main circuit breaker panelboards.

| Mains Rating | Feed-through Wire Range Wire Bending Space per NEC Table 373-6 | $ Price |
|---|---|---|
| 125 A | one #6–2/0 kcmil Al or Cu | **344.** |
| 250 A | one #6–350 kcmil Al or Cu | **344.** |
| 400 A | one 1/0–750 kcmil or two 1/0–350 kcmil Al or Cu | **826.** |
| 600 A | two 1/0–600 kcmil Al or Cu | **826.** |

**Table 9.71: Feed-through Lug Cabinet Data (Standard Aluminum Mechanical Lugs)**

| Max. No. of Branch Spaces | Box Height in Inches (20 in. W x 5.75 in. D) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 125 A | 100/125 A | | 250 A | | 400 A LA/LH | | 600 A | | 800 A |
| | Main Breaker (back-fed only) | Main Lugs | Main Breaker | Main Lugs | Main Breaker | Main Lugs | Main Breaker | Main Lugs | Main Breaker ■ | Main Lugs ♦ |
| 18 | 38 | 32 | 44 | — | — | — | — | — | — | — |
| 30 | 44 | 38 | 50 | 50 | 62 | 56 | 68 | 62 | 74 | 56 |
| 42 | 50 | — | — | 56 | 68 | 62 | 74 | 68 | 80 | 62 |
| 54 | — | — | — | 62 | 74 | 68 | 80 | 74 | 86 | 68 |

■ 600 A main circuit breaker panelboards require an 8.75 in. deep, 26 in. wide box.
♦ 800 A main lug panelboards require an 8.75 in. deep, 26 in. wide box.

**Table 9.72: Ground Bars**

| Ground Bars | $ Price Adder |
|---|---|
| Equipment Ground Bar | **38.** |
| Copper Ground Bar (Add to Equipment Ground Bar Price) | **52.** |
| Insulated/Isolated Ground Bar (Add to Equipment Ground Bar Price) | **86.** |

**Table 9.73: Name Plates**

| Name Plates | $ Price Adder |
|---|---|
| Standard white face/black letter laminated bakelite, 1 in. x 3.5 in., adhesive-backed or screw mountable with screws in a bag assembly (Price includes engraving) | **78.** |

**Table 9.74: Copper Bus Bars**

| Copper Bus Bars | $ Price Adder |
|---|---|
| 100 A, 250 A | **458.** |
| 400 A | **624.** |
| 600 A, 800 A | Standard |

**Table 9.75: Copper Neutral**

| Copper Neutral | $ Price Adder |
|---|---|
| 100–600 A | **132.** |
| 800 A | **176.** |

**Table 9.76: 200% Rated Neutrals**

| Panelboards with 200% rated neutrals are available with sub-feed lugs, feed-through lugs, and main circuit breakers | Add Per Panel $ Price |
|---|---|
| 250 A | **769.** |
| 400 A | **950.** |
| 600 A | **1262.** |
| 800 A | **1894.** |

**Table 9.77: NF Main Neutral Conductors—Required Size and Quantity**

| Panelboard Ampacity | Neutral Conductors Required ♦ | Actual Lug Wire Range |
|---|---|---|
| 125 | (2) 1/0 Cu or (2) 1/0 Al | (2) #6-2/0 |
| 250 | (2) 4/0 Cu or (2) 300 kcmil Al | (2) #6-350 kcmil |
| 400 A | (4) 250 kcmil Al or (4) 3/0 Cuor (2) 600 kcmil Al | (2) 1/0-300 kcmil or (1) 1/0-750 kcmil |
| 600 | (4) 500 kcmil Al or (4) 350 kcmil Cu | (2) 1/0-750 kcmil |

Note: Neutral conductors must be of size and quantity per table above.

**Table 9.78: Metal Directory Frame**

| Metal Directory Frame | $ Price Adder |
|---|---|
| Not available with LC/LI main circuit breaker (Replaces standard plastic stick-on directory pouch) | **140.** |

**Table 9.79: Hinged Door-in-Door Trim**

| Hinged Door-in-Door Trim | Add Per Panel $ Price |
|---|---|
| Hinged Door-in-Door Trim has piano hinge down one side. Inner door has a lock, outer door is retained with screws | **646.** |
| Hinged Door-in-Door with Outer Door Lock in place of screws | **836.** |

**Table 9.80: Weatherproof or Dusttight Cabinets (Type 3R, 5, 12)**

| Weatherproof or Dusttight Cabinets —Type 3R, 5, 12 | $ Price Adder |
|---|---|
| (Not available with panelboards having LC/LE/LI/LX/LXI main circuit breakers) | **1516.** |

**Table 9.81: Optional Factory Assembled Lugs for Main Lug Interiors**

| Main Lug Interiors | $ Price Per Pole Adder | | | | |
|---|---|---|---|---|---|
| | 100 A | 225 A | 400 A | 600 A | 800 A |
| Aluminum Compression Lugs | **58.** | **58.** | **90.** | **118.** | **200.** |
| Copper Mechanical Lugs | **70.** | **108.** | **148.** | **168.** | **196.** |
| Copper Compression Lugs | **70.** | **108.** | **148.** | **168.** | **316.** |

**Table 9.82: Optional Factory Assembled Lugs for Main Circuit Breaker Interiors**

| Main Circuit Breaker Interiors | $ Price Per Pole Adder | | | |
|---|---|---|---|---|
| | H Frame | J Frame | LA Frame | LC Frame |
| Aluminum Compression Lugs | **59.** | **98.** | **128.** | **262.** |
| Copper Mechanical Lugs | **70.** | **108.** | **148.** | **168.** |
| Copper Compression Lugs | **70.** | **108.** | **148.** | **168.** |

**Table 9.83: Surgelogic™ Hard Bus SPD—Model IMA ★**

| Surge Current Rating kA | Voltage | | |
|---|---|---|---|
| | 208Y/120 V 3Ø4W | 240/120 V 3Ø4W High Leg | 480Y/277 V 3Ø4W |
| 100 | **11970.** | **11970.** | **12890.** |
| 120 | **12548.** | **15654.** | **13340.** |
| 160 | **13807.** | **13807.** | **14623.** |
| 200 | **17992.** | **17992.** | **20508.** |
| 240 | **20583.** | **20583.** | **23598.** |

★ Panelboard box height with SPD unit—Contact your local Schneider Electric representative or distributor.

**Table 9.84: Surgelogic SPD Options**

| Surgelogic SPD Options | $ Price |
|---|---|
| Surge Counter | Standard |
| Dry Contacts | Standard |
| Remote Monitor | **2588.** |

***NOTE:*** *For additional factory modifications, See Digest page 9-38.*

© 2012 Schneider Electric
All Rights Reserved

## NQ Single-Row (Column-width)—240 Vac Bolt-on

### (60 A Max. Branch Circuit Breaker)

### NQ Application Data

**Application:** For use on ac only. Meet Federal Specification W-P-115c, Type 1, Class 1. UL Listed.
**Service:** 1Ø3W, 3Ø3W, 3Ø4W,
3 Grd. "B" Ø—240 Vac max.
**AIR:** See the tables starting on Digest page 7-2.
**Mains:** Type NQ—Bolt-on main lugs: 100 A, 225 A

- Main circuit breaker: 100 A—QOU, 225 A—QB
- See the tables starting on Digest page 7-2 for main circuit breaker interrupt ratings. See catalog for terminal lug data.
- Main circuit breakers with higher interrupt ratings are available as factory assembled panelboards.

**Branches:** Bolt-on QOB, 60 A maximum. QOB 10-60 A 1-, 2- and 3-pole. See Digest page 9-10 for branch circuit breaker terminal data. QOB-VH and QHB branch circuit breakers are also available as factory assembled.
**Cabinet:** Front—Screw cover. Box—galvanized steel with removable endwalls.
**Gutters:**

- 100 A—4 in. min. mains end, 3 in. min. opposite mains
- 225 A—10 in. min. mains end, 5 in. min. opposite mains

**Table 9.85: NQ Single-Row (Column-width)—240 Vac Bolt-on ▲**

| Max. No. of Poles | Mains Rating | Total $ Price (Box Interior and Front) | Box and Interior with Solid Neutral (8.625 in. W. x 5 in. D.) (Order branch circuit breakers separately) | | | Front (Surface Mount) | |
|---|---|---|---|---|---|---|---|
| | | | Catalog Number | $ Price | Box Height (In.) | Catalog Number | $ Price |
| **1 Phase 3-Wire Main Lugs Only** | | | | | | | |
| 30 | 225 | **1669.** | NQ830L2C | **1298.** | 45 | LX45TS | **371.** |
| **Main Circuit Breaker—2-pole** | | | | | | | |
| 20 | 100 | **1818.** | NQ820B1C | **1452.** | 40 | LX40TS | **366.** |
| **3 Phase 4-Wire Main Lugs Only** | | | | | | | |
| 30 | 100 | **1608.** | NQ8430L1C | **1242.** | 40 | LX40TS | **366.** |
| 42 | 225 | **1938.** | NQ8442L2C | **1458.** | 58 | LX58TS | **480.** |
| **Main Circuit Breaker—3-pole** | | | | | | | |
| 30 | 100 | **2363.** | NQ8430B1C | **1992.** | 45 | LX45TS | **371.** |
| 42 | 225 | **4961.** | NQ8442B2C | **4416.** | 62 | LX62TS | **545.** |

▲ 60 A Maximum Branch—Copper Bus Standard.

**Table 9.86: Cable Troughs and Pull Boxes**

| Cable Troughs (L=Length) ■ | | | Pull Boxes with Solid Neutral | | |
|---|---|---|---|---|---|
| L (In.) | 8.625 in. x 5 in. Catalog Number | $ Price | S/N Terminals | Catalog Number | $ Price |
| 36 | MTX836 | **590.** | 42 | MPX81542 | **479.** |
| 48 | MTX848 | **651.** | | | |
| 56 | MTX856 | **753.** | | | |
| 66 | MTX866 | **753.** | | | |

■ Cable troughs are standard with a trough barrier.

## NF Single-Row (Column-width)—480Y/277 Vac Bolt-on

### (60 A Max. Branch Circuit Breaker)

### NF Application Data

**Application:** For use on ac only. Meet Federal Specification W-P-115c, Type 1, Class 1. UL Listed.
**Service:** 480Y/277 Vac, 3Ø4W
**AIR:** See the tables starting on Digest page 7-2
**Mains:** Type NF–Bolt-on main lugs: 125 A, 225 A

- Main circuit breaker: 100 A—FA, 100 A—HD, 225 A—JD. See the tables starting on Digest page 7-2 for main circuit breaker interrupt rating. See the catalog section for terminal lug data.
- Main circuit breakers with higher interrupt ratings are available as factory assembled panelboards.

**Branches:** EDB, EDG, or EDJ, 60 A maximum. See Digest page 9-15 for branch circuit breaker catalog numbers, List Prices and terminal data.
**Cabinet:** Front—Screw cover. Box—galvanized steel with removable endwalls.
**Gutters:**

- 100 A—4 in. min. mains end, 3 in. min.opposite mains
- 225 A—10 in. min. mains end, 5 in. min. opposite mains

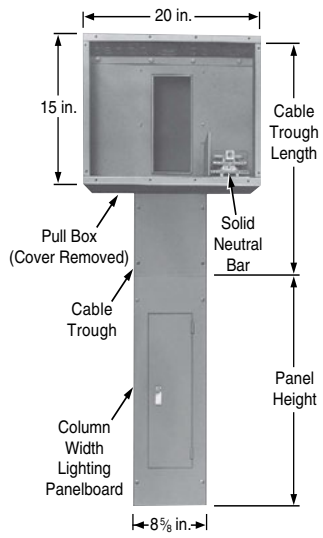
**Table 9.87: NF Single-Row (Column-width)—480Y/277 Vac Bolt-on**

| Max. No. of Poles | Mains Rating | Total $ Price (Box Interior and Front) | Box and Interior with S/N (8.625 in. W. x 5.625 in. D.) | | | Front (Surface Mount) | |
|---|---|---|---|---|---|---|---|
| | | | Catalog Number | $ Price | Box Height (In.) | Catalog Number | $ Price |
| **Main Lugs Only—3 Phase 4-Wire** | | | | | | | |
| 30 | 125 | **2410.** | NF8430L1C | **2009.** | 59 | NC59TS | **401.** |
| 42 | 225 | **3281.** | NF8442L2C | **2759.** | 71 | NC71TS | **522.** |
| **Main Circuit Breaker—3-pole** | | | | | | | |
| 30 | 100 | **3767.** | NF8430M1C<br>NF8430M1HDC | **3246.** | 65 | NC65TS | **521.** |
| 42 | 225 | **6660.** | NF8442M2JDC | **6042.** | 85 | NC85TS | **618.** |

**Table 9.88: Cable Troughs and Pull Boxes**

| Cable Troughs (L=Length) ♦ | | | Pull Boxes with Solid Neutral | | |
|---|---|---|---|---|---|
| L (In.) | 8.625 in. x 5.625 in. Catalog Number ★ | $ Price | S/N Terminals | Catalog Number | $ Price |
| 36 | NTX836 | **590.** | 42 | MPX81542 | **479.** |
| 48 | NTX848 | **651.** | | | |
| 56 | NTX856 | **753.** | | | |
| 66 | NTX866 | **753.** | | | |

♦ Cable troughs are standard with a trough barrier.
★ Box width = 8.625 in.; width at front, including flange, is 9.625 in..






© 2012 Schneider Electric
All Rights Reserved

## NQ Single Row (Column-Width)—240 Vac Bolt-On Factory Assembled Pricing

**Table 9.89: Base Price with Solid Neutral**

| Mains Rating | $ Price | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Main Lugs | | Main Circuit Breaker (Circuit Breaker Interrupt Rating—see Digest pages 7-2 through 7-5 | | | | | |
| | 2-Pole | 3-Pole | Circuit Breaker | 2-Pole | 3-Pole | Circuit Breaker | 2-Pole | 3-Pole |
| 100 A | 720. | 832. | QOB | 1254. | 1562. | — | — | — |
| | | | QB | — | 2800. | — | — | — |
| | | | QD | — | 3434. | QG | — | 4090. |
| 225 A | 772. | 912. | QB | — | 2800. | — | — | — |
| | | | QD | — | 3434. | QG | — | 4090. |

Note: Copper bus —standard.
Equipment Ground Bar $ Price adder—$38.00.
Copper Equipment Ground Bar (Add to Equipment Ground Bar $ Price) $ Price adder—$52.00.

**Table 9.90: Branch Circuit Breakers (price per breaker)**

| Circuit Breaker Ampere Rating | $ Price | | | |
|---|---|---|---|---|
| | 1-Pole 120 Vac | 2-Pole 120/240 Vac | 2-Pole 240 Vac | 3-Pole 240 Vac |
| **Space Only** | | | | |
| **All Space Only Except Below** | 28. | 58. | 58. | 86. |
| **10,000 AIR—Branch Circuit Breakers—QOB, QOB-H** | | | | |
| 15–60 A | 68. | 134. | 260. | 352. |
| **10,000 AIR—Qwik-Guard™—Class A—QOB-GFI** | | | | |
| 15–30 A | 272. | 488. | — | — |
| 40–60 A | — | 488. | — | — |
| **Specialty Branch Circuit Breakers (10,000 AIR) For High Intensity Discharge Lighting—QO-HID, QOB-HID** | | | | |
| 15–30 A | 78. | 148. | — | 376. |
| 40–50 A | 78. | 148. | — | — |
| **High Magnetic Trip (For applications subject to high initial inrush)—QO-HM, QOB-HN** | | | | |
| 15–20 A | 68. | — | — | — |
| **Provides 30 mA Equipment Protection—QO-EPD, QOB-EPD** | | | | |
| 15–30 A | 462. | 828. | — | — |
| **(High Interrupting Capacity) 22,000 AIR Branch Circuit Breakers—QO-VH, QOB-VH** | | | | |
| 15–30 A | 92. | 212. | — | 462. |
| 35–60 A | — | 212. | — | 462. |
| **22,000 AIR—Qwik-Guard—Class A—QO-VHGFI, QOB-VHGFI** | | | | |
| 15–30 A | 294. | — | — | — |

## NF Single Row (Column-Width)—480Y/277 Vac 3Ø4W Bolt-on Factory Assembly Pricing

**Table 9.91: Base Price with Solid Neutral**

| Mains Rating | Main Lugs | | Main Circuit Breaker (Circuit Breaker Interrupt Rating —see Digest pages 7-3 through 7-4 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard IC | | | HIC | | | Extra HIC | | | I-Limiter™ | | |
| | | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | | Circuit Breaker | $ Price | |
| | 2-Pole | 3-Pole | | 2-Pole | 3-Pole | | 2-Pole | 3-Pole | | 2-Pole | 3-Pole | | 2-Pole | 3-Pole |
| 100 A | — | 1074. | FA | — | 2184. | FH | — | 3044. | — | — | — | — | — | — |
| | — | | HD | — | 2842. | HG | — | 3792. | HJ | — | 4374. | FI | — | 7392. |
| 125 A | — | | | — | 3222. | | — | 4172. | | — | 4754. | KI | — | 13150. |
| 150 A | — | 1272. | HD | — | 3222. | HG | — | 4172. | HJ | — | 4754. | KI | — | 13150. |
| 225 A | — | | JD | — | 4784. | JG | — | 5982. | JJ | — | 8902. | | — | |

Note: Copper bus—standard.
Copper Neutral $ Price adder—$132.00.
Equipment Ground Bar $ Price adder—$38.00.
Copper Equipment Ground Bar (Add to Equipment Ground Bar $ Price) $ Price adder—$52.00.

**Table 9.92: Branch Circuit Breakers (price per breaker)**

| Circuit Breaker Ampere Rating | $ Price | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Standard Interrupting 25,000 AIR @ 240 Vac, 18,000 AIR @480Y/277 Vac ED Bolt-on Branch | | | High Interrupting 65,000 AIR @ 240 Vac, 35,000 AIR @480Y/277 Vac EG Bolt-on Branch | | | Extra High Interrupting 100,000 AIR @ 65,000 AIR @ 480Y/277 Vac EJ Bolt-on Branch | | |
| | 1-Pole | 2-Pole | 3-Pole | 1-Pole | 2-Pole | 3-Pole | 1-Pole | 2-Pole | 3-Pole |
| 15–60 A | 192. | 442. | 748. | 324. | 746. | 1264. | 518. | 1196. | 2024. |
| Space Only | 42. | 84. | 126. | 42. | 84. | 126. | 42. | 84. | 126. |

**Table 9.93: EDB-EPD Equipment Protection Device Branch Circuit Breakers**

| Circuit Breaker Ampere Rating | $ Price | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Standard Interrupting 25,000 AIR @ 240 Vac, 18,000 AIR @480Y/277 Vac ED Bolt-on Branch | | | High Interrupting 65,000 AIR @ 240 Vac, 35,000 AIR @480Y/277 Vac EG Bolt-on Branch | | | Extra High Interrupting 100,000 AIR @ 65,000 AIR @ 480Y/277 Vac EJ Bolt-on Branch | | |
| | 1-Pole | 2-Pole | 3-Pole | 1-Pole | 2-Pole | 3-Pole | 1-Pole | 2-Pole | 3-Pole |
| 15–60 A | 1472. | — | — | 1596. | — | — | 1788. | — | — |

© 2012 Schneider Electric
All Rights Reserved

## I-Line Merchandised Pricing Procedure

1. Select the appropriate branch circuit breakers and accessories based on the required ampacity and AIR ratings from Digest pages 9-24 through 9-30.
2. Determine the total mounting inches required by the branch circuit breakers. Pay close attention to the interior types and any branch mounting restrictions by referring to panel layouts on Digest pages 9-21 and 9-22. For example, larger frame circuit breakers may mount in only one side of the panel due to physical sizes. Therefore, for larger size branches, you may only be able to consider one half of the total mounting inches available.
3. Select proper main lug interior or main circuit breaker interior from Digest page 9-21 or 9-22 based on the mains ampacity and branch requirements from step 2.
4. Select blanks from the Accessories table on Digest page 9-23 as required to cover unused mounting space.
5. Select appropriate box and front from Digest page 9-21 or 9-22 to accommodate panel interior selected in step 3.
6. Apply appropriate discount schedule.

**Table 9.94: I-Line Merchandised Pricing Example**
600 Vac, 3Ø3W, 400 A, MLO, 14k AIR, Type 1 enclosure, 4 piece surface trim without door.

| Description | Catalog No. | Digest Page No. | $ Price |
|---|---|---|---|
| 400 Amp MLO Interior | HCM32734 | 9-21 | **2408.** |
| 4 Piece Surface Trim Without Door | HCM73TS | 9-21 | **699.** |
| Type 1 Enclosure | HC3273B | 9-21 | **243.** |
| (8) 60/3 | FA36060 | 9-25 | **7764.** |
| one 100/2 | FA26100AC | 9-25 | **947.** |
| one 4.5 in. Blanks | HNM4BL | 9-23 | **126.** |
| one 1.5 in. Blank | HNM1BL | 9-23 | **44.** |
| | | **Total Price** | **12231.** |

## I-Line Factory Assembled Pricing Procedure

1. Select price for main lugs or main circuit breaker from Base Price tables on Digest page 9-31. Include solid neutral and ground bar when required.
2. List branch circuit breakers and determine total mounting inches required. Include space only charge and mounting inches as required. Price branches from Digest page 9-32.
3. If total space required exceeds the maximum listed, price as two or more panels and add price for sub-feed lugs, so installer can cable between sections.
4. Add price for special features from Digest page 9-34.
5. For complete price, total all prices. Order panel by description.
6. Apply appropriate discount schedule.

**Table 9.95: I-Line Factory Assembled Pricing Example**
600 Vac, 3Ø3W, 400 A, MLO, 14k AIR, Type 1 enclosure, 4 piece surface trim without door.

| Description | Digest Page No. | $ Price |
|---|---|---|
| 400 A MLO Base Price | 9-31 | **2799.** |
| (8) 60/3 | 9-32 | **12072.** |
| one 100/2 | 9-32 | **1446.** |
| (3) 250/3 | 9-32 | **17100.** |
| | **Total Price** | **33417.** |

## QMB Factory Assembled

### QMB Panelboards—Method of Pricing

1. Make a sketch with main lugs or main switch at the top or bottom.
2. List required branch devices (switches and circuit breaker units). Include ampere rating, number of poles, and unit mounting height from the appropriate table on Digest pages 9-35 and 9-36.
3. 30–60 twin units are the same price as 600 V 60–60 twin units.
4. 30–100 and 60–100 twin units are the same price as 600 V 100–100 twin units.
5. List solid neutral from Digest page 9-36 if required. No unit mounting height is required.
6. List mains ampere rating, voltage, number of poles, and unit mounting space from the appropriate table on 9-36.
7. If total unit mounting height of branch devices exceeds maximum mounting space of the mains, price as two or more panelboards, adding sub-feed lugs or feed-thru lugs from the appropriate table on Digest page 9-36.
8. Insert at the right of each item the price from the appropriate table, including any accessories. The sum will be the complete panelboard price including the cabinet.
9. Specify H, R, or J fuse clips.

**Table 9.96: QMB Factory Assembled Pricing Example**
600 Vac, 3Ø3W, 400 A, Fusible 10k AIR, Type 1 Enclosure

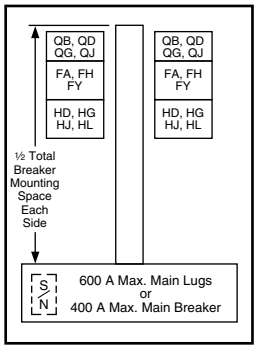
| Branches | Digest Page No. | $ Price |
|---|---|---|
| 400 A MLO Base Price | 9-36 | **2016.** |
| (4) 60/3 | 9-36 | **4338.** |
| one 100/3 | 9-36 | **3411.** |
| one 30/3 | — | — |
| | **Total Price** | **9765.** |



© 2012 Schneider Electric
All Rights Reserved

## TYPE HCN

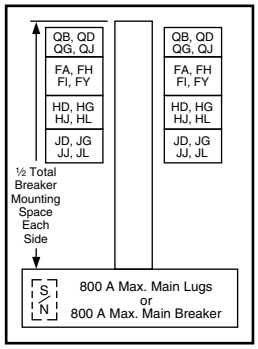
**225 A max. (240 V max.) branch circuit breaker QB, QD, QG, QJ**
**150 A max. branch circuit breaker FA, FH, FY, HD, HG, HJ, HL ✱**




Box Size:
26 in. Wide, 6.5 in. Deep

## TYPE HCM

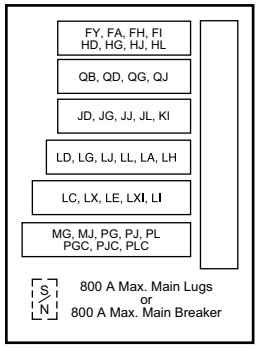
**250 A max. branch circuit breaker**
**FA, FH, FY, FI, QB, QD, QG, QJ, HD, HG, HJ, HL, JD, JG, JJ, JL**




Box Size:
32 in. Wide, 8.25 in. Deep

## TYPE HCP-SU◊

**800 A max. main circuit breaker**
**600 A max. branch circuit breaker**
**FY, FA, FH, FI, KI, LA, LD, LG, LJ, LL, LH, LC, LX, LI, LXI, LE, MG, MJ, PG, PJ, PL, PGC, PJC, PLC▽, QB, QD, QG, QJ, HD, HG, HJ, HL, JD, JG, JJ, JL**




Box Size:
26 in. Wide, 9.5 in. Deep

**Table 9.97: Interiors, Boxes and Fronts**
**(100 A and 225 A interiors include solid neutral, all others without solid neutral. Order solid neutral from 9-23)**

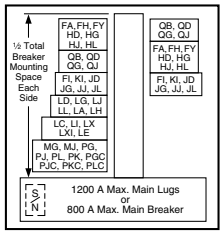
| Total Circuit Breaker Mounting Space (In.) | Mains Ampere Rating | Complete Surface $ Price (4 Piece Trim) (Less Branch Circuit Breakers) | | Interior Assembly (Less Branch Circuit Breakers) | | Front ▲ | | | | Box ♦ | | | | Box Height (In.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 4 Piece Trim Without Door ■ | | Trim With Door | | Type 1 | | NEMA 3R/5/12 ★ (Includes Front) | | |
| | | Type 1 $ Price | Type 3R/ 5/12 $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | |
| **HCN Main Lugs Only 3-pole—Suitable for use as service equipment when provided with a main circuit breaker. ☆** | | | | | | | | | | | | | | |
| 27 | 225 A | **2171.** | **4004.** | HCN14522N | **1593.** | HCN52T( ) | **335.** | HCN52T( )D | **411.** | HC2652B | **243.** | HC2652WP | **2411.** | 52 |
| | 400 A | **2195.** | **4028.** | HCN14524 | **1617.** | | | | | | | | | |
| | 600 A | **2392.** | **4225.** | HCN14526 | **1814.** | | | | | | | | | |
| 45 | 225 A | **2674.** | **4402.** | HCN23652N | **1991.** | HCN65T( ) | **440.** | HCN65T( )D | **530.** | HC2665B | **243.** | HC2665WP | **2411.** | 65 |
| | 400 A | **2702.** | **4430.** | HCN23654 | **2019.** | | | | | | | | | |
| | 600 A | **2960.** | **4688.** | HCN23656 | **2277.** | | | | | | | | | |
| 63 | 225 A | **3135.** | **4709.** | HCN32742N | **2298.** | HCN74T( ) | **594.** | HCN74T( )D | **717.** | HC2674B | **243.** | HC2674WP | **2411.** | 74 |
| | 400 A | **3156.** | **4730.** | HCN32744 | **2319.** | | | | | | | | | |
| | 600 A | **3396.** | **4970.** | HCN32746 | **2559.** | | | | | | | | | |
| 81 | 225 A | **3548.** | **6233.** | HCN41832N | **2552.** | HCN83T( ) | **753.** | HCN83T( )D | **890.** | HC2683B | **243.** | HC2683WP | **3681.** | 83 |
| | 400 A | **3564.** | **6249.** | HCN41834 | **2568.** | | | | | | | | | |
| | 600 A | **3824.** | **6509.** | HCN41836 | **2828.** | | | | | | | | | |
| 99 | 225 A | **4175.** | **6767.** | HCN50922N | **3086.** | HCN92T( ) | **846.** | HCN92T( )D | **1001.** | HC2692B | **243.** | HC2692WP | **3681.** | 92 |
| | 400 A | **4341.** | **6933.** | HCN50924 | **3252.** | | | | | | | | | |
| | 600 A | **4434.** | **7026.** | HCN50926 | **3345.** | | | | | | | | | |
| **HCN Main Circuit Breaker ▼ ◒ Includes 3-pole, vertically mounted main circuit breaker—Suitable for use as service equipment** | | | | | | | | | | | | | | |
| 27 | 400 A | **6649.** | **8377.** | HCN14654M | **5966.** | HCN65T( ) | **440.** | HCN65T( )D | **530.** | HC2665B | **243.** | HC2665WP | **2411.** | 65 |
| 36 | 100 A | **3860.** | **5588.** | HCN18651MN | **3177.** | | | | | | | | | |
| | 225 A | **5303.** | **7031.** | HCN18652MN | **4620.** | | | | | | | | | |
| 45 | 400 A | **7287.** | **8861.** | HCN23744M | **6450.** | HCN74T( ) | **594.** | HCN74T( )D | **717.** | HC2674B | **243.** | HC2674WP | **2411.** | 74 |
| 54 | 100 A | **4323.** | **5897.** | HCN27741MN | **3486.** | | | | | | | | | |
| | 225 A | **5759.** | **7333.** | HCN27742MN | **4922.** | | | | | | | | | |
| 63 | 225 A | **6068.** | **8753.** | HCN32832MN | **5072.** | HCN83T( ) | **753.** | HCN83T( )D | **890.** | HC2683B | **243.** | HC2683WP | **3681.** | 83 |
| | 400 A | **7836.** | **10521.** | HCN32834M | **6840.** | | | | | | | | | |
| 81 | 400 A | **8154.** | **10746.** | HCN41924M | **7065.** | HCN92T( ) | **846.** | HCN92T( )D | **1001.** | HC2692B | **243.** | HC2692WP | **3681.** | 92 |
| 90 | 225 A | **6590.** | **9182.** | HCN45922MN | **5501.** | | | | | | | | | |
| **HCM Main Lugs Only 3-pole—Suitable for use as service equipment when provided with a main circuit breaker. ☆** | | | | | | | | | | | | | | |
| 27 | 225 A | **2279.** | **4566.** | HCM14482N | **1644.** | HCM48T( ) | **392.** | HCM48T( )D | **483.** | HC3248B | **243.** | HC3248WP | **2922.** | 48 |
| | 400 A | **2404.** | **4691.** | HCM14484 | **1769.** | | | | | | | | | |
| | 600 A | **3175.** | **5462.** | HCM14486 | **2540.** | | | | | | | | | |
| | 800 A | **3709.** | **5996.** | HCM14488 | **3074.** | | | | | | | | | |
| 45 | 225 A | **2795.** | **5717.** | HCM23642N | **2036.** | HCM64T( ) | **516.** | HCM64T( )D | **633.** | HC3264B | **243.** | HC3264WP | **3681.** | 64 |
| | 400 A | **2891.** | **5813.** | HCM23644 | **2132.** | | | | | | | | | |
| | 600 A | **3530.** | **6452.** | HCM23646 | **2771.** | | | | | | | | | |
| | 800 A | **4041.** | **6963.** | HCM23648 | **3282.** | | | | | | | | | |
| 63 | 225 A | **3263.** | **6002.** | HCM32732N | **2321.** | HCM73T( ) | **699.** | HCM73T( )D | **864.** | HC3273B | **243.** | HC3273WP | **3681.** | 73 |
| | 400 A | **3350.** | **6089.** | HCM32734 | **2408.** | | | | | | | | | |
| | 600 A | **3921.** | **6660.** | HCM32736 | **2979.** | | | | | | | | | |
| | 800 A | **4644.** | **7383.** | HCM32738 | **3702.** | | | | | | | | | |
| 99 | 225 A | **4205.** | **7918.** | HCM50912N | **2966.** | HCM91T( ) | **996.** | HCM91T( )D | **1217.** | HC3291B | **243.** | HC3291WP | **4952.** | 91 |
| | 400 A | **4281.** | **7994.** | HCM50914 | **3042.** | | | | | | | | | |
| | 600 A | **4586.** | **8299.** | HCM50916 | **3347.** | | | | | | | | | |
| | 800 A | **5321.** | **9034.** | HCM50918 | **4082.** | | | | | | | | | |
| **HCM Main Circuit Breaker ▼ ◒ Includes 3-pole, vertically mounted main circuit breaker—Suitable for use as service equipment.** | | | | | | | | | | | | | | |
| 27 | 400 A | **7563.** | **10485.** | HCM14644M | **6804.** | HCM64T( ) | **516.** | HCM64T( )D | **633.** | HC3264B | **243.** | HC3264WP | **3681.** | 64 |
| 36 | 225 A | **5582.** | **8504.** | HCM18642MN | **4823.** | HCM73T( ) | **699.** | HCM73T( )D | **864.** | HC3273DB9♦ | **243.** | Use HCP | — | — |
| | 600 A | **11648.** | **10706.** | HCM18736MP | **10706.** | | | | | | | | | |
| | 800 A | **14549.** | **13607.** | HCM18738MP | **13607.** | | | | | | | | | |
| 45 | 400 A | **8007.** | **10746.** | HCM23734M | **7065.** | HCM73T( ) | **699.** | HCM73T( )D | **864.** | HC3273B | **243.** | HC3273WP | **3681.** | 73 |
| 54 | 225 A | **5969.** | **8708.** | HCM27732MN | **5027.** | | | | | | | | | |
| 72 | 600 A | **12377.** | **11138.** | HCM36916MP | **11138.** | HCM91T( ) | **996.** | HCM91T( )D | **1217.** | HC3291DB9♦ | **243.** | Use HCP | — | — |
| | 800 A | **15431.** | **14192.** | HCM36918MP | **14192.** | | | | | | | | | |
| 81 | 400 A | **9315.** | **13028.** | HCM41914M | **8076.** | HCM91T( ) | **996.** | HCM91T( )D | **1217.** | HC3291B | **243.** | HC3291WP | **4952.** | 91 |
| **HCP-SU □ Universal Single Row Main Lugs or Main Circuit Breaker ◒ 3-pole—Suitable for use as service equipment when provided with a main circuit breaker. ☆** | | | | | | | | | | | | | | |
| 54 | 800 | **5858.** | **9466.** | HCP54868SU | **4514.** | **HC2686T( )4P** | **1101.** | **HC2686T( )HR△** | **1658.** | HC2686DB | **243.** | HC2886WP | **4952.** | 86 |

▲ Add "F" for flush mount, "S" for surface mount.
■ Add-on door kit available from Peru. Example: For HCM48TS surface trim kit, order HCM48DS door kit.
♦ For Type 1 applications, order interior, front, and box. For Type 3R/5/12 applications, order interior and box only. The front is included with the box.
★ Remove drain screws for Type 3R rating.
▼ Bottom feed standard.
△ Hinged trim with door.
□ For main lugs panel, order sub-feed lug kit and back-feed as main lugs.
◊ For main circuit breaker panel, order plug-on I-Line type PG, PJ, PL, MG, or MJ circuit breakers from 9-28 through 9-30 and backfeed as the main breaker (order solid neutral from 9-22).
☆ Suitable for use as service equipment if equipped with an integral main circuit breaker or when not more than six main disconnecting means are provided and the panelboard is not used as a lighting and appliance branch circuit panelboard.
▽ PG, PJ, PL circuit breakers are available with both thermal-magnetic equivalent and Micrologic trip. The Micrologic circuit breakers are available 80% and 100% rated. "C" suffix denotes a 100% rating.
◒ Circuit breaker interrupt ratings, starting on Digest page 7-2.
✱ I-Line Surgelogic SPD not available.
♦ DB9 box is 9.5 inches deep.

© 2012 Schneider Electric
All Rights Reserved

## TYPE HCP

**800 A max. branch circuit breaker**
**FA▲, FH, FI, FY, QB, QD, QG, QJ, HD, HG, HJ, HL, JD, JG, JJ, JL, KI, LA, LD, LG, LJ, LL, LH, LC, LI, LX, LXI, LE, MG, MJ, PG, PJ, PL, PGC, PJC, PLC■**

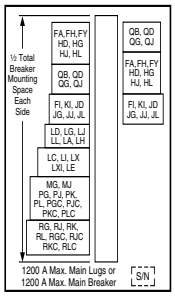



Box Size:
42 in. Wide, 9.5 in. Deep

- ▲ FA and JDA circuit breakers with field installable ground fault kits may be mounted in type HCP, HCP-SU, and HCR-U panelboards as shown, and require L-frame mounting space.
- ■ PG, PJ, and PL circuit breakers are available with both thermal-magnetic equivalent and Micrologic trip. The Micrologic circuit breakers are available 80% and 100% rated. "C" suffix denotes a 100% rating.

## TYPE HCR-U Universal Mains

**1200 A max. branch circuit breaker**
**FA♦, FH, FI, FY, QB, QD, QG, QJ, HD, HG, HJ, HL, JD, JG, JJ, JL, KI, LA, LD, LG, LJ, LL, LH, LC, LI, LX, LXI, LE, MG, MJ, PG, PJ, PL, PGC, PJC, PLC, RGC, RJC, RLC★▼**




Box Size:
44 in. Wide, 9.5 in. Deep

- ♦ FA and JDA circuit breakers with field installable ground fault kits may be mounted in type HCP, HCP-SU, and HCR-U panelboards as shown, and require L-frame mounting space.
- ★ When RL main circuit breakers with equipment ground fault are applied on a 3Ø4W system, order solid neutral catalog number HCR12SNCT. The HCR12SNCT includes a neutral current transformer.
- ▼ PG, PJ, and PL circuit breakers are available with both thermal-magnetic equivalent and Micrologic trip. The Micrologic circuit breakers are available 80% and 100% rated. "C" suffix denotes a 100% rating.

**Table 9.98: (1200 A Interiors Include solid neutral, all others without solid neutral. Order solid neutral from 9-23.)**

| Total Circuit Breaker Mtg. Space (In.) | Mains Amp. Rating | Max. No. of LC, MJ, PL, RL Circuit Breakers | Complete Surface $ Price (4 Piece Trim) (Less Branch Breakers) | Interior Assembly (Less Branch Circuit Breakers) | | Front △ | | | | Box ◊ | | Box Height (In.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 4 Piece Trim Without Door □ | | Trim With Door | | | | |
| | | | Type 1 | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | |
| **HCP Main Lugs Only—3-pole** Suitable for use as service equipment when provided with a main circuit breaker. ☆ | | | | | | | | | | | | |
| 27 | 400 | 1PL | **2751.** | HCP14504 | **1902.** | HCW50T( ) | **606.** | HCW50T( )D | **743.** | HC4250DB | **243.** | 50 |
| | 600 | | **3513.** | HCP14506 | **2664.** | | | | | | | |
| | 800 | | **4521.** | HCP14508 | **3672.** | | | | | | | |
| | 1200 | | **6365.** | HCP145012N | **5516.** | | | | | | | |
| 45 | 400 | 2PL | **3212.** | HCP23594 | **2298.** | HCW59T( ) | **671.** | HCW59T( )D | **827.** | HC4259DB | **243.** | 59 |
| | 600 | | **3860.** | HCP23596 | **2946.** | | | | | | | |
| | 800 | | **4874.** | HCP23598 | **3960.** | | | | | | | |
| | 1200 | | **7133.** | HCP235912N | **6219.** | | | | | | | |
| 63 | 400 | 3PL | **3795.** | HCP32684 | **2706.** | HCW68T( ) | **846.** | HCW68T( )D | **1052.** | HC4268DB | **243.** | 68 |
| | 600 | | **4476.** | HCP32686 | **3387.** | | | | | | | |
| | 800 | | **5309.** | HCP32688 | **4220.** | | | | | | | |
| | 1200 | | **7763.** | HCP326812N | **6674.** | | | | | | | |
| 99 | 400 | 5PL | **4716.** | HCP50864 | **3372.** | HCW86T( ) | **1101.** | HCW86T( )D | **1344.** | HC4286DB | **243.** | 86 |
| | 600 | | **5208.** | HCP50866 | **3864.** | | | | | | | |
| | 800 | | **6194.** | HCP50868 | **4850.** | | | | | | | |
| | 1200 | | **8529.** | HCP508612N | **7185.** | | | | | | | |
| **HCP Main Circuit Breaker▽—Includes 3-pole** Vertically mounted main circuit breaker—Suitable for use as service equipment. | | | | | | | | | | | | |
| 36 | 600 | 2LC | **12179.** | HCP18686M | **11090.** | HCW68T( ) | **846.** | HCW68T( )D | **1052.** | HC4268DB | **243.** | 68 |
| | 800 | | **15399.** | HCP18688M | **14310.** | | | | | | | |
| 72 | 600 | 4LC | **12987.** | HCP36866M | **11643.** | HCW86T( ) | **1101.** | HCW86T( )D | **1344.** | HC4286DB | **243.** | 86 |
| | 800 | | **16296.** | HCP36868M | **14952.** | | | | | | | |
| **HCR-U Universal Main Lugs or Main Circuit Breaker▽—3-pole** Suitable for use as service equipment when provided with a main circuit breaker. For Main Lugs panel, order sub-feed lug kit catalog number S33930 and back feed as main lugs. For Main Circuit Breaker panel, order plug-on I-Line type PG, PJ, PL, RGC, RJC, or RLC◒ circuit breakers from pages 9-27 through 9-29, and back feed as the main circuit breaker. (Order solid neutral separately) | | | | | | | | | | | | |
| 108 ✱ | 1200 | 6PL or 3RLC | **12557.** | HCR548612U | **11213.** | HCR86T( )♦ | **1101.** | HCR86T( )D | **1344.** | HC4486DB | **243.** | 86 |

- △ Add "F" for flush mount, "S" for surface mount.
- □ Add-on door kit available. Example: For HCW50TS trim kit, order HCW50D door kit.
- ◊ See Digest page 9-23 for 42 in. wide weatherproof enclosures.
- ☆ Suitable for use as service equipment if equipped with an integral main circuit breaker or when not more than six main disconnecting means are provided and the panelboard is not used as a lighting and appliance branch circuit panelboard.
- ▽ Circuit breaker interrupt ratings, starting on Digest page 7-2.
- ◒ When RL main circuit breakers with equipment ground fault are applied on a 3Ø4W system, order solid neutral catalog number HCR12SNCT. The HCR12SNCT includes a neutral current transformer.
- ✱ 15 in. of mounting space is taken up by the back fed main lug kit or RG, RJ, RL main circuit breaker, leaving 93 in. of branch circuit breaker mounting space.
- ♦ Add-on door kit available. Example: For HCR86TS trim kit, order HCW86D door kit.

**Table 9.99: Circuit Breaker / Sub-feed Lug Kit Mounting Space Requirement**

| Type of Circuit Breaker | Maximum Ampacity | No. of Poles | Inch Mounting Requirements | Type of Circuit Breaker | Maximum Ampacity | No. of Poles | Inch Mounting Requirements |
|---|---|---|---|---|---|---|---|
| FY | 30 A | 1 | 1.5 | QB, QD, QG, QJ | 225 A | 3 | 4.5 |
| FA, FH | 100 A | 1 | 1.5 | JD, JG, JJ, JL, KI, SL250 | 250 A | 2, 3 | 4.5 |
| FA, FH | | 2 | 3 | LA, LH, SL400 | 400 A | | 6 |
| FA, FH, SL-100 | | 3 | 4.5 | LD, LG, LJ, LL | 600 A | | 6 |
| FI | | 2, 3 | 4.5 | LC, LI, LXI | 600 A | | 7.5 |
| HD, HG | 150 A | 2 | 3 | MG, MJ, MA, MH, SL800, PGC, PJC, PLC | 800 A | | 9 |
| HD, HG | | 3 | 4.5 | | | | |
| HJ, HL | | 2, 3 | 4.5 | PG, PJ, PL, S33931 | 1200 A | | |
| QB, QD, QG, QJ | 225 A | 2 | 3 | RG, RJ, RL, RGC, RJC, RLC, S33930 | 1200 A | | 15 |

**Table 9.100: Main Circuit Breaker Interiors —Standard Frame Types ◑**

| Main Circuit Breaker Ampacity | Panelboard Type | Factory Supplied Main Circuit Breaker |
|---|---|---|
| 100 | HCN | FA36100 |
| 225 | HCN, HCM | JDA36225 |
| 400 | HCN | LAP36400MB |
| | HCM | LAP36400MB |
| 600 or 800 | HCM, HCP | MGP36600 or MGP36800 |

◑ Circuit breaker interrupt ratings, starting on Digest page 7-2.

**Table 9.101: Standard Copper Bus Interiors**

| Type | Main Ampacity |
|---|---|
| HCN | 600 |
| HCM, HCP-SU | 800 |
| HCP, HCR-U | 800 and Above |

Note: Merchandised copper interiors are not available in all ampacities. For example, if the application calls for a HCN 225 A copper bus interior, order an HCN 600 A interior .



© 2012 Schneider Electric
All Rights Reserved


Blank Fillers


Equipment Ground Bar


Solid Neutral

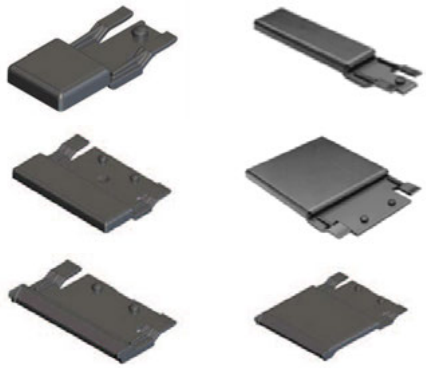
**Table 9.102: I-Line Merchandised Panelboard Accessories**

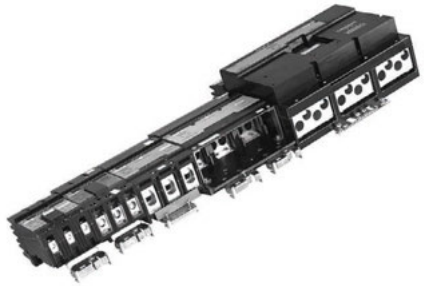
| Description | Catalog No. | $ Price |
|---|---|---|
| Blank Fillers—1.5 in. (minimum order 3) ▼ | HNM1BL | 14.30 |
| Blank Fillers—4.5 in. (minimum order 5) ▼ | HNM4BL | 25.20 |
| Solid Neutral Assemblies | | |
| 225 A | HC2SN | 252.00 |
| 400 A | HC4SN▲, HCW4SN■ | 333.00 |
| 600 A | HC6SN▲, HCW6SN■ | 464.00 |
| 800 A | HC8SN▲, HCW8SN■ | 717.00 |
| | HCPSU8SN♦ | 1151.00 |
| | HCPSU8SNCT♦ | 1269.00 |
| 1200 A | HCW12SN■ | 843.00 |
| 1200 A, for use with HCR-U universal panel only | HCWM12SN★ | 1151.00 |
| 1200 A, Including neutral CT for 3Ø4W systems | HCR12SNCT★ | 1269.00 |
| Equipment Ground Bar Kits—HCN | PK27GTA | 33.80 |
| HCM, HCP, HCR-U | PK32DGTA | 104.00 |
| Blank Extensions (For replacement purposes) | | |
| 1.5 in. for mounting on wide side of I-Line panelboard (minimum order 3) ▼ | HLW1BL | 14.30 |
| 4.5 in. for mounting on wide side of I-Line panelboard (minimum order 5) ▼ | HLW4BL | 25.20 |
| 1.5 in. for mounting on narrow side of I-Line panelboard (minimum order 3) ▼ | HLN1BL | 14.30 |
| 4.5 in. for mounting on narrow side of I-Line panelboard (minimum order 5) ▼ | HLN4BL | 25.20 |
| 4.5 in. for mounting on wide side of I-Line panelboard (minimum order 5) ▼ | HLW4EBL | 25.20 |
| 4.5 in. for mounting on narrow side of I-Line panelboard (minimum order 5) ▼ | HLN4EBL | 25.20 |

▲ Used on Type HCN, HCM.
■ Used on 400 A, 600 A, 800 A, and 1200 A HCP (main lugs), and 600 A and 800 A (main circuit breaker).
♦ Used on Type HCP-SU.
★ Used on Type HCR-U.
▼ Blank extension pricing is per unit. Multiply the list price by the quantity ordered. Note minimum order quantity.

**Table 9.103: Blank Extensions**

| Application | Circuit Breaker Mounting Ht. | Branch Circuit Side | Catalog Number |
|---|---|---|---|
| All applications, except Powerpact H/J with Micrologic trip unit 5/6 | 1.5 in. | Wide Side | HLW1BL |
| | 4.5 in. | | HLW4BL |
| All applications, except Powerpact H/J with Micrologic trip unit 5/6 | 1.5 in. | Narrow Side | HLN1BL |
| | 4.5 in. | | HLN4BL |
| Only Powerpact H/J circuit breakers with Micrologic trip unit 5/6 | 4.5 in. | Narrow Side | HLN4EBL |
| Only Powerpact H/J circuit breakers with Micrologic trip unit 5/6 | 4.5 in. | Wide Side | HLW4EBL |


Blank Extensions


Sub-feed Lug Kits

For Surgelogic™ I-Line plug-on SPD unit pricing and information, see Digest pages 6-3 and 6-4.

For field-installable I-Line door kits, see the Supplemental and Obsolescence Digest, Section 4.

**Table 9.104: Panelboard Adapter Kits**

| Crimp Lug Adapter Kits △ | I-Line Panelboard Type | | | |
|---|---|---|---|---|
| | HCN | HCM | HCP, HCR-U □ | $ Price |
| 400 A | HCN400VCA | HCM400VCA | HCW400VCA | 96. |
| 600 A | HCN600VCA | HCM600VCA | HCW600VCA | 197. |
| 800 A | — | HCM800VCA | HCW800VCA | 284. |
| 1200 A | — | — | HCW1200VCA | 491. |

△ For use with MLO panel, order VCEL lugs seperately.
□ Not for use with P- or R-frame circuit breakers or sub-feed kits S33930 or S33931.

**Table 9.105: Type 3R/5/12 Enclosures**

| Catalog Number | Interior Type | $ Price | Dimensions (In.) | | |
|---|---|---|---|---|---|
| | | | H | W | D |
| HC4250WP | HCP | 4952. | 50 | 42 | 12.95 |
| HC4259WP | HCP | 4952. | 59 | 42 | 12.95 |
| HC4268WP | HCP | 4952. | 68 | 42 | 12.95 |
| HC4286WP | HCP | 4952. | 86 | 42 | 12.95 |
| HC4486WP | HCR-U | 4952. | 86 | 44 | 14.50 |

**Table 9.106: Box Extensions**



| Catalog Number | Interior Type | Extension | $ Price |
|---|---|---|---|
| HC2609DEX (F or S) | HCP-SU | 9 in. | 552. |
| HC2609EX (F or S) | HCN | 9 in. | 552. |
| HC3209EX (F or S) | HCM | 9 in. | 552. |
| HC4212DEX (F or S) | HCP | 12 in. | 641. |
| HC4406DEX (F or S) | HCR-U | 6 in. | 552. |
| HC4412DEX (F or S) | HCR-U | 12 in. | 641. |

**Table 9.107: Sub-feed Lug Kits ◊☆**

| Ampere Rating | Height | | Catalog Number | $ Price | Max. Short Circuit System Ratings RMS Symmetrical Amperes | | | Protected by Circuit Breaker | For Use in I-Line Panelboard Types |
|---|---|---|---|---|---|---|---|---|---|
| | In. | (mm) | | | 240 Vac | 480 Vac | 600 Vac | | |
| 100 A | 4.5 | 114 | SL100 | 435. | 65,000 | 25,000 | 18,000 | FH | HCN, HCM, HCP, HCP-SU |
| 250 A | 4.5 | 114 | SL250 | 435. | 125,000 | 100,000 | 50,000 | JL | HCM, HCP, HCP-SU |
| 250 A | 4.5 | 114 | SL250 | 435. | 200,000 | 200,000 | 100,000 | KI | |
| 400 A | 6 | 152 | SL400▽ | 585. | 65,000 | 35,000 | 25,000 | LH | HCP, HCP-SU |
| 800 A | 9 | 229 | SL800 | 1731. | 65,000 | 65,000 | 25,000 | MJ | HCM, HCP, HCP-SU |
| | | | | 1731. | 125,000 | 100,000 | 50,000 | LL | |
| 1200 A | 9 | 229 | S33931 | 3500. | 100,000 | 65,000 | 25,000 | MJ, PJ | HCP, HCP-SU, HCR-U |
| 1200 A | 15 | 381 | S33930 | 3500. | 125,000 | 100,000 | 50,000 | RL | |

◊ Plug-on in same manner as a branch circuit breaker
☆ For other ratings, See the I-Line Information Manual, #80043-309-xx.
▽ SL400 cannot be used in HCM panelboards due to inadequate wire bending space.

**Table 9.108: Sub-feed Lug kit terminal data**

| Catalog No. (Prefix) | No. Poles | Ampere Rating | Std. Lug Kit Catalog No. | Standard Lug Wire Size ◒ |
|---|---|---|---|---|
| SL100 | 3 | 100 A | AL100FA | #14–1/0 AWG Cu or #12–1/0 AWG Al |
| SL250 | 3 | 250 A | — | #4 AWG–300 kcmil |
| SL400 | 3 | 400 A | AL400LA | one #1 AWG–600 kcmil or two #1 AWG–250 kcmil |
| SL800 | 3 | 800 A | AL900MA | (3) #3/0 AWG–500 kcmil |
| S33931 | 3 | 1200 A | AL1200P24K | (4) #3/0 AWG–500 kcmil |
| S33930 | 3 | 1200 A | AL1200R53K | (4) #3/0 AWG–600 kcmil |

◒ Unless otherwise specified, wire sizes apply to both aluminum and copper conductors.

© 2012 Schneider Electric
All Rights Reserved

**Table 9.109: QO™ Distribution Panel—240 Vac Max. Only Mounts in Type HCN, HCM, HCP, HCP-SU, or HCR-U I-Line panelboards, 30 A max. branch circuit breaker. Order QO plug-on circuit breakers from page 9-34.**

| Maximum No. 1-pole QO Circuit Breakers | Phase Connection | Mounting Height | | 2-pole Catalog Number | 3-pole Catalog Number | $ Price ▲ |
|---|---|---|---|---|---|---|
| | | In. | mm | | | |
| 6 | AB | 4.5 | 114 | HQO206AB | — | 369. |
| 6 | BC | 4.5 | 114 | HQO206BC | — | 369. |
| 6 | AC | 4.5 | 114 | HQO206AC | — | 369. |
| 6 | ABC | 4.5 | 114 | — | HQO306 | 369. |

▲ Includes (5) QO1DB dummy circuit breakers.



FA/FH, 1-pole
1.5 in (38 mm)
Mounting Height



FA/FH, 2-pole
3 in (76 mm)
Mounting Height



FA/FH, 3-pole
4.5 in (114 mm)
Mounting Height

**Table 9.110: Example: FJA, 20 A 1-pole, 277 Vac and 70 A 2- and 3-pole QB 240 Vac. Use phase option number for HD, HG, HJ, HL, JD, JG, JJ, JL, MG, and MJ.**

| Phase Option Number | Phase Connection | 1-pole | 2-pole | 3-pole |
|---|---|---|---|---|
| 1 | A | FJA140201 | — | — |
| 3 | B | FJA140203 | — | — |
| 5 | C | FJA140205 | — | — |
| 1 | AB | — | QBA220701 | — |
| 2 | AC | — | QBA220702 | — |
| 3 | BA | — | QBA220703 | — |
| 4 | BC | — | QBA220704 | — |
| 5 | CA | — | QBA220705 | — |
| 6 | CB | — | QBA220706 | — |
| Standard ■ | ABC | — | — | QBA32070 |
| 6 | CBA | — | — | QBA320706 |

■ The absence of a phase option number after a 3-pole catalog number will result in an ABC phase connection.

**Table 9.111: Example: FA, 30 A, 480 Vac. Use phase option letters for FH, FI, KI, LA, LH, LC, and LI.**

| Phase Option Letter | 1-pole | 2-pole | 3-pole |
|---|---|---|---|
| A | FA14035A | — | — |
| B | FA14035B | — | — |
| C | FA14035C | — | — |
| AB | — | FA24030AB | — |
| AC | — | FA24030AC | — |
| BC | — | FA24030BC | — |
| ABC | — | — | FA34030 |
| CBA | — | — | FA34030CBA |

**Table 9.112: Interrupt Ratings (kA)**

| | FA (240 V) | FA (480 V) | FJ |
|---|---|---|---|
| 240 V | 10 | 18 (1P), 25 (2, 3P) | 65 |
| 277 V | — | 18 | 65 |
| 480 V | — | 18 | — |
| 600 V | — | — | — |

F-frame accessories . . . . . starting on Supplemental Digest page 3-24
F-frame dimensions . . . . . Digest page 7-54
F-frame optional lugs . . . . . Digest page 7-51

## PowerPact™ D-frame Mission Critical Circuit Breakers

When the D-frame Mission Critical circuit breaker is used as a main circuit breaker with QO branch circuit breakers, the D-frame MC will remain closed during any fault that occurs downstream of the QO circuit breaker up to 30kA at 208Y/120 Vac.

**Table 9.113: PowerPact D-frame, 150–600 A–Mission Critical**

| Circuit Breaker Cat.alog Number ♦ | Continuous Current Rating | Terminal Wire Range (AWG/kcmil) | $ Price |
|---|---|---|---|
| DJA32150W | 150 A | #2-600 Cu or #2-500 Al | 10867. |
| DJA32250W | 250 A | | 10867. |
| DJA32400W | 400 A | | 10867. |
| DJA32600W | 600 A | (2) 2/0-350 Cu or (2) 2/0-500Al | 17148. |

♦ D-frame circuit breakers 400 A and below are 100% rated.

D-frame accessories, lugs . . . . . starting on Supplemental Digest page 3-27
D-frame dimensions . . . . . Digest page 7-55

**Table 9.114: F-frame—100 A, Thermal-magnetic (240 Vac)**

| Ampere Rating | AC Magnetic Trip Settings | | Standard Interrupting | | Terminal Wire Range |
|---|---|---|---|---|---|
| | Hold | Trip | Catalog Number | $ Price | |
| **2-pole, 240 Vac ★** | | | | | |
| 15 A | 275 | 600 | FA22015( ) | 398. | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al |
| 20 A | | | FA22020( ) | | |
| 25 A | | | FA22025( ) | | |
| 30 A | | | FA22030( ) | | |
| 35 A | 400 | 850 | FA22035( ) | | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 40 A | | | FA22040( ) | | |
| 45 A | | | FA22045( ) | | |
| 50 A | | | FA22050( ) | | |
| 60 A | 800 | 1450 | FA22060( ) | | |
| 70 A | | | FA22070( ) | 617. | |
| 80 A | | | FA22080( ) | | |
| 90 A | 900 | 1700 | FA22090( ) | | |
| 100 A | | | FA22100( ) | | |
| **3-pole, 240 Vac** | | | | | |
| 15 A | 275 | 600 | FA32015 | 572. | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al |
| 20 A | | | FA32020 | | |
| 25 A | | | FA32025 | | |
| 30 A | | | FA32030 | | |
| 35 A | 400 | 850 | FA32035 | 572. | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 40 A | | | FA32040 | | |
| 45 A | | | FA32045 | | |
| 50 A | | | FA32050 | | |
| 60 A | 800 | 1450 | FA32060 | 572. | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 70 A | | | FA32070 | 780. | |
| 80 A | | | FA32080 | | |
| 90 A | 900 | 1700 | FA32090 | 780. | AL100FA #14–#1/0 AWG Cu |
| 100 A | | | FA32100 | | |

★ 1- and 2-pole circuit breaker catalog numbers are completed by adding the required phase connection letters as a suffix.

**Table 9.115: F-frame—100 A, Thermal-magnetic (480 Vac)**

| Ampere Rating | AC Magnetic Trip Settings | | Standard Interrupting | | Extra High Interrupting | | Terminal Wire Range | |
|---|---|---|---|---|---|---|---|---|
| | Hold | Trip | Catalog Number | $ Price | Catalog Number | $ Price | FY/FA Lugs | FJ/FC Lugs |
| **1-pole, 277 Vac, 125 Vdc ▼** | | | | | | | | |
| 15 A | 275 | 600 | FY14015( )△ | 149. | FJA14015( ) | 651. | AL50FA #14-#4 AWG Cu, or #12-#4 AWG Al | AL30FD #12–#6 AWG Al, or #14–#6 AWG Cu |
| 20 A | | | FY14020( )△ | | FJA14020( ) | | | |
| 25 A | | | FY14025( )△ | | FJA14025( ) | | | |
| 30 A | | | FY14030( )△ | | FJA14030( ) | | | |
| 35 A | 400 | 850 | FA14035( )□ | 302. | FJA14035( ) | 651. | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al | AL100FD #12–#2/0 AWG Al or #14–#2/0 AWG Cu |
| 40 A | | | FA14040( )□ | | FJA14040( ) | | | |
| 45 A | | | FA14045( )□ | | FJA14045( ) | | | |
| 50 A | | | FA14050( )□ | | FJA14050( ) | | | |
| 60 A | 800 | 1450 | FA14060( )□ | 302. | FJA14060( ) | 651. | | |
| 70 A | | | FA14070( )□ | | FJA14070( ) | 720. | | |
| 80 A | | | FA14080( )□ | | — | — | | |
| 90 A | 900 | 1700 | FA14090( )□ | 302. | — | — | | |
| 100 A | | | FA14100( )□ | | — | — | | |
| **2-pole, 480 Vac, 250 Vdc ▼△□** | | | | | | | | |
| 15 A | 275 | 600 | FA24015( ) | 651. | — | — | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al | CU30FA4 one #14–#10 AWG Cu only |
| 20 A | | | FA24020( ) | | — | — | | |
| 25 A | | | FA24025( ) | | — | — | | |
| 30 A | | | FA24030( ) | | — | — | | |
| 35 A | 400 | 850 | FA24035( ) | 651. | — | — | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al | AL100FA4 one #14–#3 AWG Cu or one #12–#1 AWG Al |
| 40 A | | | FA24040( ) | | — | — | | |
| 45 A | | | FA24045( ) | | — | — | | |
| 50 A | | | FA24050( ) | | — | — | | |
| 60 A | 800 | 1450 | FA24060( ) | 651. | — | — | | |
| 70 A | | | FA24070( ) | 833. | — | — | | |
| 80 A | | | FA24080( ) | | — | — | | |
| 90 A | 900 | 1700 | FA24090( ) | 833. | — | — | | |
| 100 A | | | FA24100( ) | | — | — | | |
| **3-pole, 480 Vac, 250 Vdc ▼** | | | | | | | | |
| 15 A | 275 | 600 | FA34015 | 833. | — | — | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al | CU30FA4 one #14–#10 AWG Cu only |
| 20 A | | | FA34020 | | — | — | | |
| 25 A | | | FA34025 | | — | — | | |
| 30 A | | | FA34030 | | — | — | | |
| 35 A | 400 | 850 | FA34035 | 833. | — | — | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al | AL100FA4 one #14–#3 AWG Cu or one #12–#1 AWG Al |
| 40 A | | | FA34040 | | — | — | | |
| 45 A | | | FA34045 | | — | — | | |
| 50 A | | | FA34050 | | — | — | | |
| 60 A | 800 | 1450 | FA34060 | 833. | — | — | | |
| 70 A | | | FA34070 | 996. | — | — | | |
| 80 A | | | FA34080 | | — | — | | |
| 90 A | 900 | 1700 | FA34090 | 996. | — | — | | |
| 100 A | | | FA34100 | | — | — | | |

▼ 1- and 2-pole circuit breaker catalog numbers are completed by adding the required phase connection letters as a suffix.
△ Rated 277 Vac 15 and 20 A FY circuit breakers are rated for switching duty (SWD). 15, 20, 25, and 30 A FA I-Line circuit breakers are also available (no SWD rating).
□ Rated 277 Vac, 125 Vdc, except FY circuit breakers, which have no dc rating. 15–30 A circuit breakers suitable for use with 60 °C or 75 °C conductors. 35–100 A circuit breakers are suitable for use with 75 °C conductors.


© 2012 Schneider Electric
All Rights Reserved




FI36100
2- and 3-pole
4.5 in (114 mm)
Mounting Height



QB/QD/QG/QJ
Mounting Height:
2-pole—3 in (76 mm)
3-pole—4.5 in (114 mm)

**Table 9.116: F-frame—100 A, Thermal-magnetic (600 Vac)**

| Ampere Rating | AC Magnetic Trip Settings | | Standard Interrupting | | High Interrupting | | Current Limiting | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|
| | Hold | Trip | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | |
| **1-pole, 277 Vac, 125 Vdc ▲** | | | | | | | | | |
| 15 A | 275 | 600 | — | — | FH16015( ) | 507. | — | — | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al |
| 20 A | | | — | — | FH16020( ) | | — | — | |
| 25 A | | | — | — | FH16025( ) | | — | — | |
| 30 A | | | — | — | FH16030( ) | | — | — | |
| 35 A | 400 | 850 | — | — | FH16035( ) | 507. | — | — | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 40 A | | | — | — | FH16040( ) | | — | — | |
| 45 A | | | — | — | FH16045( ) | | — | — | |
| 50 A | | | — | — | FH16050( ) | | — | — | |
| 60 A | 800 | 1450 | — | — | FH16060( ) | 507. | — | — | |
| 70 A | | | — | — | FH16070( ) | 563. | — | — | |
| 80 A | | | — | — | FH16080( ) | | — | — | |
| 90 A | 900 | 1700 | — | — | FH16090( ) | 563. | — | — | |
| 100 A | | | — | — | FH16100( ) | | — | — | |
| **2-pole, 600 Vac, 250 Vdc ▲** | | | | | | | | | |
| 15 A | 275 | 600 | FA26015( ) | 780. | FH26015( ) | 1214. | — | — | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al |
| 20 A | | | FA26020( ) | | FH26020( ) | | FI26020( ) | 2763. | |
| 25 A | | | FA26025( ) | | FH26025( ) | | — | — | |
| 30 A | | | FA26030( ) | | FH26030( ) | | FI26030( ) | 2763. | |
| 35 A | 400 | 850 | FA26035( ) | 780. | FH26035( ) | 1214. | — | — | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 40 A | | | FA26040( ) | | FH26040( ) | | FI26040( ) | 2763. | |
| 45 A | | | FA26045( ) | | FH26045( ) | | — | — | |
| 50 A | | | FA26050( ) | | FH26050( ) | | FI26050( ) | 2763. | |
| 60 A | 800 | 1450 | FA26060( ) | 780. | FH26060( ) | 1214. | FI26060( ) | 2763. | |
| 70 A | | | FA26070( ) | 947. | FH26070( ) | 1452. | FI26070( ) | | |
| 80 A | | | FA26080( ) | | FH26080( ) | | FI26080( ) | | |
| 90 A | 900 | 1700 | FA26090( ) | 947. | FH26090( ) | 1452. | FI26090( ) | 2763. | |
| 100 A | | | FA26100( ) | | FH26100( ) | | FI26100( ) | | |
| **3-pole, 600 Vac, 250 Vdc** | | | | | | | | | |
| 15 A | 275 | 600 | FA36015 | 971. | FH36015 | 1446. | — | — | AL50FA #14–#4 AWG Cu or #12–#4 AWG Al |
| 20 A | | | FA36020 | | FH36020 | | FI36020 | 3459. | |
| 25 A | | | FA36025 | | FH36025 | | — | — | |
| 30 A | | | FA36030 | | FH36030 | | FI36030 | 3459. | |
| 35 A | 400 | 850 | FA36035 | 971. | FH36035 | 1446. | — | — | AL100FA #14–#1/0 AWG Cu or #12–#1/0 AWG Al |
| 40 A | | | FA36040 | | FH36040 | | FI36040 | 3459. | |
| 45 A | | | FA36045 | | FH36045 | | — | — | |
| 50 A | | | FA36050 | | FH36050 | | FI36050 | 3459. | |
| 60 A | 800 | 1450 | FA36060 | 971. | FH36060 | 1446. | FI36060 | 3459. | |
| 70 A | | | FA36070 | 1163. | FH36070 | 1632. | FI36070 | | |
| 80 A | | | FA36080 | | FH36080 | | FI36080 | | |
| 90 A | 900 | 1700 | FA36090 | 1163. | FH36090 | 1632. | FI36090 | 3459. | |
| 100 A | | | FA36100 | | FH36100 | | FI36100 | | |

▲ 1- and 2-pole circuit breaker catalog numbers are completed by adding the required connection letters as a suffix, See Digest page 9-24.

***NOTE:*** *As of January 1st, FI breakers will only fit on the wide side of I-Line panelboards.*

**Table 9.117: PowerPact™ Q-frame ■— 225 A, Thermal-magnetic (240 Vac)**

| Ampere Rating | AC Magnetic Trip Settings | | "B" Interrupting | | "D" Interrupting | | "G" Interrupting | | "J" Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Hold | Trip | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| **2-pole, 240 Vac ♦** | | | | | | | | | | |
| 70 A | 1000 | 1800 | QBA22070( ) | 600. | QDA22070( ) | 1202. | QGA22070( ) | 1593. | QJA22070( ) | 1992. |
| 80 A | | | QBA22080( ) | | QDA22080( ) | | QGA22080( ) | | QJA22080( ) | |
| 90 A | | | QBA22090( ) | | QDA22090( ) | | QGA22090( ) | | QJA22090( ) | |
| 100 A | 1200 | 2400 | QBA22100( ) | 600. | QDA22100( ) | 1202. | QGA22100( ) | 1593. | QJA22100( ) | 1992. |
| 110 A | | | QBA22110( ) | | QDA22110( ) | | QGA22110( ) | | QJA22110( ) | |
| 125 A | | | QBA22125( ) | | QDA22125( ) | | QGA22125( ) | | QJA22125( ) | |
| 150 A | | | QBA22150( ) | | QDA22150( ) | | QGA22150( ) | | QJA22150( ) | |
| 175 A | | | QBA22175( ) | | QDA22175( ) | | QGA22175( ) | | QJA22175( ) | |
| 200 A | | | QBA22200( ) | | QDA22200( ) | | QGA22200( ) | | QJA22200( ) | |
| 225 A | | | QBA22225( ) | | QDA22225( ) | | QGA22225( ) | | QJA22225( ) | |
| **3-pole, 240 Vac ★** | | | | | | | | | | |
| 70 A | 1000 | 1800 | QBA32070( ) | 1913. | QDA32070( ) | 2069. | QGA32070( ) | 2835. | QJA32070( ) | 3245. |
| 80 A | | | QBA32080( ) | | QDA32080( ) | | QGA32080( ) | | QJA32080( ) | |
| 90 A | | | QBA32090( ) | | QDA32090( ) | | QGA32090( ) | | QJA32090( ) | |
| 100 A | 1200 | 2400 | QBA32100( ) | 1913. | QDA32100( ) | 2069. | QGA32100( ) | 2835. | QJA32100( ) | 3245. |
| 110 A | | | QBA32110( ) | | QDA32110( ) | | QGA32110( ) | | QJA32110( ) | |
| 125 A | | | QBA32125( ) | | QDA32125( ) | | QGA32125( ) | | QJA32125( ) | |
| 150 A | | | QBA32150( ) | | QDA32150( ) | | QGA32150( ) | | QJA32150( ) | |
| 175 A | | | QBA32175( ) | | QDA32175( ) | | QGA32175( ) | | QJA32175( ) | |
| 200 A | | | QBA32200( ) | | QDA32200( ) | | QGA32200( ) | | QJA32200( ) | |
| 225 A | | | QBA32225( ) | | QDA32225( ) | | QGA32225( ) | | QJA32225( ) | |

■ Replacement lugs are not available on QB, QD, QG, or QJ circuit breakers. Lugs for QB, QD, QG, or QJ circuit breakers accept one #4 AWG–300 kcmil. No accessories are available for PowerPact Q Frame breakers.

♦ 2-pole QB, QD, QG, and QJ circuit breakers are completed by adding the required phasing numbers as indicated in the parentheses, See Digest page 9-24.

★ 3-pole QB, QD, QG, and QJ circuit breakers for ABC phasing are complete without additional phasing number. For CBA phasing, complete the catalog number by inserting the number "6" in the parentheses.

**Table 9.118: Interrupt Ratings (kA)**

| | FA | FH | FI | QB | QD | QG | QJ ▼ |
|---|---|---|---|---|---|---|---|
| 240 V | 25 | 25 (1P 35–100 A), 65 (1P 15–30 A, 2P, 3P) | 200 | 10 | 25 | 65 | 100 |
| 480 V | 18 | 25 (2, 3P) | | — | — | — | — |
| 600 V | 14 | 18 (2, 3P) | 100 | — | — | — | — |

▼ 3-pole QJ circuit breakers are rated at 208Y/120 Vac only.

F-frame accessories . . . . . starting on Supplemental Digest page 3-24
F-frame dimensions . . . . . Digest page 7-54
F-frame optional lugs . . . . . Digest page 7-51

Q-frame accessories . . . . . Digest page 7-38
. . . . . starting on Supplemental Digest page 3-24
Q-frame dimensions . . . . . Digest page 7-54
Q-frame optional lugs . . . . . Supplemental Digest page 3-29

© 2012 Schneider Electric
All Rights Reserved

**Table 9.119: H-frame 150 A Thermal-Magnetic UL Current-Limiting▲ Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit■ Suitable for Reverse Connection■**

| Current Rating @ 40°C | Fixed AC Magnetic Trip | | Cat. No.♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|
| | | | | D | G | J▲ | L▲ | |
| | | | | $ Price | | | | |
| | Hold | Trip | | 80% Rated | 80% Rated | 80% Rated | 80% Rated | |
| **H-frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc▲** | | | | | | | | |
| 15 A | 350 A | 750 A | H( )A26015( ) | 899. | 1338. | 1589. | 2364. | AL150HD 14–3/0 AWG Al or Cu |
| 20 A | 350 A | 750 A | H( )A26020( ) | 899. | 1338. | 1589. | 2483. | |
| 25 A | 350 A | 750 A | H( )A26025( ) | 899. | 1338. | 1589. | 2483. | |
| 30 A | 350 A | 750 A | H( )A26030( ) | 899. | 1338. | 1589. | 2483. | |
| 35 A | 400 A | 850 A | H( )A26035( ) | 899. | 1338. | 1589. | 2483. | |
| 40 A | 400 A | 850 A | H( )A26040( ) | 899. | 1338. | 1589. | 2483. | |
| 45 A | 400 A | 850 A | H( )A26045( ) | 899. | 1338. | 1589. | 2483. | |
| 50 A | 400 A | 850 A | H( )A26050( ) | 899. | 1338. | 1589. | 2483. | |
| 60 A | 800 A | 1450 A | H( )A26060( ) | 899. | 1338. | 1589. | 2483. | |
| 70 A | 800 A | 1450 A | H( )A26070( ) | 1088. | 1559. | 1824. | 2681. | |
| 80 A | 800 A | 1450 A | H( )A26080( ) | 1088. | 1559. | 1824. | 2681. | |
| 90 A | 800 A | 1450 A | H( )A26090( ) | 1088. | 1559. | 1824. | 2681. | |
| 100 A | 800 A | 1700 A | H( )A26100( ) | 1088. | 1559. | 1824. | 2681. | |
| 110 A | 900 A | 1700 A | H( )A26110( ) | 2195. | 3212. | 4671. | 5699. | |
| 125 A | 900 A | 1700 A | H( )A26125( ) | 2195. | 3212. | 4671. | 5699. | |
| 150 A | 900 A | 1700 A | H( )A26150( ) | 2195. | 3212. | 4671. | 5699. | |
| **H-frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | |
| 15 A | 350 A | 750 A | H( )A36015 | 1124. | 1575. | 1988. | 2993. | AL150HD 14–3/0 AWG Al or Cu |
| 20 A | 350 A | 750 A | H( )A36020 | 1124. | 1575. | 1988. | 2993. | |
| 25 A | 350 A | 750 A | H( )A36025 | 1124. | 1575. | 1988. | 2993. | |
| 30 A | 350 A | 750 A | H( )A36030 | 1124. | 1575. | 1988. | 2993. | |
| 35 A | 400 A | 850 A | H( )A36035 | 1124. | 1575. | 1988. | 2993. | |
| 40 A | 400 A | 850 A | H( )A36040 | 1124. | 1575. | 1988. | 2993. | |
| 45 A | 400 A | 850 A | H( )A36045 | 1124. | 1575. | 1988. | 2993. | |
| 50 A | 400 A | 850 A | H( )A36050 | 1124. | 1575. | 1988. | 2993. | |
| 60 A | 800 A | 1450 A | H( )A36060 | 1124. | 1575. | 1988. | 2993. | |
| 70 A | 800 A | 1450 A | H( )A36070 | 1361. | 1772. | 2225. | 3243. | |
| 80 A | 800 A | 1450 A | H( )A36080 | 1361. | 1772. | 2225. | 3243. | |
| 90 A | 800 A | 1450 A | H( )A36090 | 1361. | 1772. | 2225. | 3243. | |
| 100 A | 800 A | 1700 A | H( )A36100 | 1361. | 1772. | 2225. | 3243. | |
| 110 A | 900 A | 1700 A | H( )A36110 | 2730. | 3779. | 5432. | 6951. | |
| 125 A | 900 A | 1700 A | H( )A36125 | 2730. | 3779. | 5432. | 6951. | |
| 150 A | 900 A | 1700 A | H( )A36150 | 2730. | 3779. | 5432. | 6951. | |

▲ 2 pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix see Table 9.128.

**Table 9.120: J-frame 250 A Thermal-Magnetic UL Current-Limiting▲ Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit■ Suitable for Reverse Connection■**

| Current Rating @ 40°C | Adjustable AC Magnetic Trip | | Cat. No.♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|
| | | | | D | G | J▲ | L▲ | R▲ | |
| | | | | $ Price | | | | | |
| | Low | High | | 80% Rated | 80% Rated | 80% Rated | 80% Rated | 80% Rated | |
| **J-frame 250A 2P, 600 Vac 50/60 Hz, 250 Vdc▲** | | | | | | | | | |
| 150 A | 750 A | 1500 A | J( )A26150( ) | 2283. | 3372. | 4904. | 5985. | — | AL175JD 4–4/0 AWG Al or Cu |
| 175 A | 875 A | 1750 A | J( )A26175( ) | 2283. | 3372. | 4904. | 5985. | — | |
| 200 A | 1000 A | 2000 A | J( )A26200( ) | 2283. | 3372. | 4904. | 5985. | — | AL250JD 3/0 AWG–350 kcmil Al or Cu |
| 225 A | 1125 A | 2250 A | J( )A26225( ) | 2283. | 3372. | 4904. | 5985. | — | |
| 250 A | 1250 A | 2500 A | J( )A26250( ) | 3138. | 4463. | 6536. | 7338. | — | |
| **J-frame 250A 3P, 600 Vac 50/60 Hz, 250 Vdc** | | | | | | | | | |
| 150 A | 750 A | 1500 A | J( )A36150 | 2867. | 3968. | 5705. | 7299. | 9676. | AL175JD 4–4/0 AWG Al or Cu |
| 175 A | 875 A | 1750 A | J( )A36175 | 2867. | 3968. | 5705. | 7299. | 9676. | |
| 200 A | 1000 A | 2000 A | J( )A36200 | 2867. | 3968. | 5705. | 7299. | 9676. | AL250JD 3/0 AWG–350 kcmil Al or Cu |
| 225 A | 1125 A | 2250 A | J( )A36225 | 2867. | 3968. | 5705. | 7299. | 9676. | |
| 250 A | 1250 A | 2500 A | J( )A36250 | 3936. | 5252. | 7599. | 9173. | 11729. | |

▲ 2 pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix see Table 9.128.

**Table 9.121: H-frame 150 A and J-frame 250 A Electronic Trip UL Current-Limiting▲ Circuit Breakers (600 Vac) With Factory Sealed Trip Unit■ Suitable for Reverse Connection ★**

| Electronic Trip Unit | | | Sensor Rating | Cat. No.♦ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D | G | J▲ | L▲ | R▲ | |
| | | | | | $ Price | | | | | |
| Type | Function | Trip Unit | | | 80% Rated | 80% Rated | 80% Rated | 80% Rated | 80% Rated | |
| **600 Vac, 50/60 Hz, 3P** | | | | | | | | | | |
| Micrologic Standard | LI | 3.2□ | 60 A | H( )A36060U31X | 1316. | 1743. | 2224. | 3173. | 4171. | AL150HD▼ |
| | | | 100 A | H( )A36100U31X | 1569. | 1962. | 2382. | 3490. | 4591. | |
| | | | 150 A | H( )A36150U31X | 2911. | 3965. | 5626. | 7288. | 9631. | |
| | | | 250 A | J( )A36250U31X | 3120. | 4226. | 5970. | 7715. | 10102. | AL250JD△ |
| | LSI | 3.2S□ | 60 A | H( )A36060U33X | 1512. | 1939. | 2420. | 3370. | 4393. | AL150HD▼ |
| | | | 100 A | H( )A36100U33X | 1765. | 2159. | 2578. | 3686. | 4813. | |
| | | | 150 A | H( )A36150U33X | 3107. | 4161. | 5823. | 7484. | 9853. | |
| | | | 250 A | J( )A36250U33X | 3398. | 4505. | 6249. | 7994. | 10420. | AL250JD△ |
| Micrologic Ammeter | LSI | 5.2A | 60 A | H( )A36060U43X | 2143. | 2570. | 3051. | 4001. | 5185. | AL150HD▼ |
| | | | 100 A | H( )A36100U43X | 2396. | 2789. | 3209. | 4317. | 5653. | |
| | | | 150 A | H( )A36150U43X | 3738. | 4792. | 6453. | 8115. | 10836. | |
| | | | 250 A | J( )A36250U43X | 4299. | 5406. | 7150. | 8895. | 11561. | AL250JD△ |
| Micrologic Energy | LSI | 5.2E | 60 A | H( )A36060U53X | 2523. | 2950. | 3431. | 4380. | 5883. | AL150HD▼ |
| | | | 100 A | H( )A36100U53X | 2776. | 3169. | 3589. | 4697. | 6333. | |
| | | | 150 A | H( )A36150U53X | 4118. | 5172. | 6833. | 8495. | 11342. | |
| | | | 250 A | J( )A36250U53X | 4840. | 5947. | 7691. | 9436. | 12413. | AL250JD△ |
| Micrologic Ammeter | LSIG | 6.2A | 60 A | H( )A36060U44X | 2902. | 3330. | 3811. | 4760. | 6423. | AL150HD▼ |
| | | | 100 A | H( )A36100U44X | 3156. | 3549. | 3969. | 5077. | 6873. | |
| | | | 150 A | H( )A36150U44X | 4497. | 5551. | 7213. | 8875. | 11864. | |
| | | | 250 A | J( )A36250U44X | 5381. | 6487. | 8231. | 9976. | 13157. | AL250JD△ |
| Micrologic Energy | LSIG | 6.2E | 60 A | H( )A36060U54X | 3282. | 3709. | 4190. | 5140. | 6963. | AL150HD▼ |
| | | | 100 A | H( )A36100U54X | 3535. | 3929. | 4349. | 5456. | 7413. | |
| | | | 150 A | H( )A36150U54X | 4877. | 5931. | 7593. | 9254. | 12386. | |
| | | | 250 A | J( )A36250U54X | 5921. | 7028. | 8772. | 10517. | 13900. | AL250JD△ |

▲ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
■ See Supplemental Digest pages 3-2 and 3-3 for circuit breakers with field-interchangeable trip units
♦ To complete catalog number, replace the blank with the appropriate rating (D, G, J, L).
★ For applications requiring communications, see Digest page 7-49.
▼ AL150HD wire range is 14–3/0 AWG Al or Cu.
△ AL250JD wire range is 3/0 AWG–350 kcmil Al or Cu. For smaller wire range (4–4/0 AWG Al or Cu), replace the lug's wire binding screws with the larger binding screws provided.
□ 3P circuit breakers with this trip unit can be used for 2P applications.


© 2012 Schneider Electric
All Rights Reserved

**Table 9.122: K-frame—250 A, Thermal-magnetic, Current Limiting (600 Vac)**




KI36250
2- and 3-pole
4.5 in (114 mm)
Mounting Height

| Ampere Rating | AC Magnetic Trip Settings | | Current Limiting | | Terminal Wire Range |
|---|---|---|---|---|---|
| | Low | High | Catalog Number | $ Price | |
| **2-pole, 600 Vac, 250 Vdc ▲** | | | | | |
| 110 A | 550 | 1100 | KI26110( ) | **6633.** | AL250KA |
| 125 A | 625 | 1250 | KI26125( ) | **6633.** | one #4 AWG– |
| 150 A | 750 | 1500 | KI26150( ) | **6633.** | 350 kcmil |
| 175 A | 875 | 1750 | KI26175( ) | **6633.** | Al or Cu |
| 200 A | 1000 | 2000 | KI26200( ) | **6633.** | AL250KI |
| 225 A | 1125 | 2250 | KI26225( ) | **6633.** | one #1/0 AWG– |
| 250 A | 1250 | 2500 | KI26250( ) | **7704.** | 350 kcmil Al or Cu |
| **3-pole, 600 Vac, 250 Vdc** | | | | | |
| 110 A | 550 | 1100 | KI36110 | **8375.** | AL250KA |
| 125 A | 625 | 1250 | KI36125 | **8375.** | one #4 AWG– |
| 150 A | 750 | 1500 | KI36150 | **8375.** | 350 kcmil |
| 175 A | 875 | 1750 | KI36175 | **8375.** | Al or Cu |
| 200 A | 1000 | 2000 | KI36200 | **8375.** | AL250KI |
| 225 A | 1125 | 2250 | KI36225 | **8375.** | one #1/0 AWG– |
| 250 A | 1250 | 2500 | KI36250 | **9267.** | 350 kcmil Al or Cu |

▲ 2-pole circuit breaker catalog numbers are completed by adding required phase connection letters as suffix to catalog number. See Digest page 9-24.

## J-Frame Mission Critical Circuit Breaker

**Table 9.123: J-frame 250 A Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) With Factory Sealted Trip Units Suitable for Reverse Connection▲**

| Electronic Trip Unit Type | Trip Function | Trip Unit | Continuous Current | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | |
| Standard | LI | 3.2 W | 250 | JDA34250WU31X | **3619.** | JGA34250WU31X | **4857.** | JJA34250WU31X | **6808.** | JLA34250WU31X | **8759.** | AL250JD■ |
| Standard | LSI | 3.2S-W | 250 | JDA34250WU33X | **3931.** | JGA34250WU33X | **5169.** | JJA34250WU33X | **7119.** | JLA34250WU33X | **9071.** | AL250JD■ |
| High Perf. Ammerter | LSI | 5.2A-W | 250 | JDA34250WU43X | **4939.** | JGA34250WU43X | **6176.** | JJA34250WU43X | **8127.** | JLA34250WU43X | **10079.** | AL250JD■ |
| High Perf. Energy | LSI | 5.2E-W | 250 | JDA34250WU53X | **5544.** | JGA34250WU53X | **6782.** | JJA34250WU53X | **8732.** | JLA34250WU53X | **10684.** | AL250JD■ |
| High perf. Ammerter | LSIG | 6.2A-W | 250 | JDA34250WU44X | **6148.** | JGA34250WU44X | **7386.** | JJA34250WU44X | **9336.** | JLA34250WU44X | **11288.** | AL250JD■ |
| High Perf. Energy | LSIG | 6.2E-W | 250 | JDA34250WU54X | **6753.** | JGA34250WU54X | **7991.** | JJA34250WU54X | **9942.** | JLA34250WU54X | **11893.** | AL250JD■ |

▲ Standard rated (80%). Not available in 100% rated.
■ AL250JD terminal wire range is (1) 3/0 AWG–350 kcmil Al or Cu.

## L-Frame Mission Critical Circuit Breaker

**Table 9.124: L-frame 600 A Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) With Factory Sealted Trip Units Suitable for Reverse Connection▲**

| Electronic Trip Unit Type | Trip Function | Trip Unit | Continuous Current | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | |
| Standard | LI | 3.3 W | 250 | LDA34250WU31X | **5991.** | LGA34250WU31X | **6291.** | LJA34250WU31X | **10299.** | LLA34250WU31X | **11998.** | AL400L61K3■ |
| | | | 400<br>600 | LDA34400WU31X<br>LDA34600WU31X | **5991.**<br>**8684.** | LGA34400WU31X<br>LGA34600WU31X | **6291.**<br>**9126.** | LJA34400WU31X<br>LJA34600WU31X | **10299.**<br>**12733.** | LLA34400WU31X<br>LLA34600WU31X | **11998.**<br>**14263.** | AL600LF52K3♦ |
| Standard | LSI | 3.3S-W | 250 | LDA34250WU33X | **6656.** | LGA34250WU33X | **6990.** | LJA34250WU33X | **10999.** | LLA34250WU33X | **12698.** | AL400L61K3■ |
| | | | 400<br>600 | LDA34400WU33X<br>LDA34600WU33X | **6656.**<br>**9349.** | LGA34400WU33X<br>LGA34600WU33X | **6990.**<br>**9826.** | LJA34400WU33X<br>LJA34600WU33X | **10999.**<br>**13433.** | LLA34400WU33X<br>LLA34600WU33X | **12698.**<br>**14962.** | AL600LF52K3♦ |
| High Perf. Ammeter | LSI | 5.3A-W | 400<br>600 | LDA34400WU43X<br>LDA34600WU43X | **7674.**<br>**10366.** | LGA34400WU43X<br>LGA34600WU43X | **8062.**<br>**10896.** | LJA34400WU43X<br>LJA34600WU43X | **12070.**<br>**14503.** | LLA34400WU43X<br>LLA34600WU43X | **13769.**<br>**16033.** | AL600LF52K3♦ |
| High Perf. Energy | LSI | 5.3E-W | 400<br>600 | LDA34400WU53X<br>LDA34600WU53X | **8791.**<br>**11485.** | LGA34400WU53X<br>LGA34600WU53X | **9238.**<br>**12074.** | LJA34400WU53X<br>LJA34600WU53X | **13247.**<br>**15681.** | LLA34400WU53X<br>LLA34600WU53X | **14946.**<br>**17210.** | AL600LF52K3♦ |
| High Perf. Ammeter | LSIG | 6.3A-W | 400<br>600 | LDA34400WU44X<br>LDA34600WU44X | **9911.**<br>**12604.** | LGA34400WU44X<br>LGA34600WU44X | **10417.**<br>**13251.** | LJA34400WU44X<br>LJA34600WU44X | **14426.**<br>**17139.** | LLA34400WU44X<br>LLA34600WU44X | **16125.**<br>**18388.** | AL600LF52K3♦ |
| High Perf. Energy | LSIG | 6.3E-W | 400<br>600 | LDA34400WU54X<br>LDA34600WU54X | **11029.**<br>**13722.** | LGA34400WU54X<br>LGA34600WU54X | **11594.**<br>**14429.** | LJA34400WU54X<br>LJA34600WU54X | **15602.**<br>**18036.** | LLA34400WU54X<br>LLA34600WU54X | **17301.**<br>**19566.** | AL600LF52K3♦ |

▲ Standard rated (80%). Not available in 100% rated.
■ AL400L61K3 terminal wire range is (1) #2 AWG–500 kcmil Al or #2 AWG–600 kcmil Cu..
♦ AL600LF52K3 terminal wire range is (2) #3/0 AWG–500 kcmil Al or Cu.

**Table 9.125: PowerPact™ H-, J-, and L-frame Automatic Molded Case Switches, 600 Vac**

| Circuit Breaker | Poles | Ampere Rating | G Withstand | | | L Withstand | | | R Withstand | | | Terminal | Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | Cat. No. | $ Price | Trip Point | | |
| H-frame J-frame | 2▲ | 150 A<br>175 A<br>250 A | HGA26000S15( )<br>JGA26000S17( )<br>JGA26000S25( ) | **1349.**<br>**1827.**<br>**1827.** | 2250 A<br>3125 A<br>3125 A | HLA26000S15<br>JLA26000S17<br>JLA26000S25 | **1590.**<br>**1980.**<br>**1980.** | 2250 A<br>3125 A<br>3125 A | —<br>—<br>— | —<br>—<br>— | —<br>—<br>— | —<br>—<br>— | —<br>—<br>— |
| | 3 | 150 A<br>175 A<br>250 A | HGA36000S15<br>JGA36000S17<br>JGA36000S25 | **1799.**<br>**2286.**<br>**2286.** | 2250 A<br>3125 A<br>3125 A | HLA36000S15<br>JLA36000S17<br>JLA36000S25 | **1988.**<br>**2475.**<br>**2475.** | 2250 A<br>3125 A<br>3125 A | HRA36000S15<br>JRA36000S17<br>JRA36000S25 | **2295.**<br>**2860.**<br>**2860.** | 2250 A<br>3125 A<br>3125 A | AL150HD<br>AL175JD<br>AL250JD | 14 AWG–3/0 AWG Al/Cu<br>4–4/0 AWG Al/Cu<br>3/0 AWG–350 kcmil Al/Cu |
| L-frame | 3 | 400 A<br>600 A | LGA36000S40X<br>LGA36000S60X | **4572.**<br>**5065.** | 4800 A<br>6600A | LLA36000S40X<br>LLA36000S60X | **4972.**<br>**5465.** | 4800 A<br>6600 A | LRA36000S40X<br>LRA36000S60X | **5688.**<br>**6220.** | 4800 A<br>6600 A | AL150HD<br>AL250JD | AL600LS52K3<br>(2) 2/0 AWG–500 kcmil Al/Cu |

▲ 2-pole circuit breaker catalog numbers are completed by adding the required phase connection number as a suffix, see Table 9.128.

**Table 9.126: KI Interrupt Ratings (kA)**

| V | KI |
|---|---|
| 240 | 200 |
| 480 | 200 |
| 600 | 100 |

**Table 9.127: Interrupt Ratings (kA)**

| | D | G | J | L |
|---|---|---|---|---|
| 240 V | 25 | 65 | 100 | 125 |
| 480 V | 18 | 35 | 65 | 100 |

**Table 9.128: Phase Options—Example HDA26150( )**

| Phase Option Number | Phase Connection | 2-pole | 3-pole |
|---|---|---|---|
| 1 | AB | HDA261501 | — |
| 2 | AC | HDA261502 | — |
| 3 | BA | HDA261503 | — |
| 4 | BC | HDA261504 | — |
| 5 | CA | HDA261505 | — |
| 6 | CB | HDA261506 | — |
| Standard | ABC | — | JDA34250WU31X |
| 6 | CBA | — | JDA34250WU31X6 |

K-frame accessories . . . . . starting on Supplemental Digest page 3-25
K-frame dimensions. . . . . Supplemental Digest page 3-33
K-frame optional lugs. . . . . Supplemental Digest page 3-28
H-, J-, and L-frame accessories . . . . . starting on Digest page 7-36
H-, J-, and L-frame dimensions. . . . . starting on Digest page 7-54
H-, J-, and L-frame optional lugs. . . . . Digest page 7-39

© 2012 Schneider Electric
All Rights Reserved

## LA Mission Critical Circuit Breakers

The LA High Magnetic Withstand MC Circuit Breakers are designed to trip at a higher magnetic trip level (18–20 times handle rating) than typical molded case circuit breakers (MCCBs) (which trip at 5–10 times the handle rating). The high magnetic withstand value of these LA circuit breakers allow the downstream branch circuit breaker to clear the fault.



LA/LH
2- and 3-pole
6 in (152 mm)
Mounting Height

**Table 9.129: L-frame—400 A, I-Line™ LA/LH MC High Magnetic Withstand Circuit Breaker For Mission Critical Loads**

| Ampere Rating | AC Magnetic Level Factory Set ▲ | | Standard Interrupting | | High Interrupting | | Terminal | |
|---|---|---|---|---|---|---|---|---|
| | Hold | Trip | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | Wire Range |
| **LA/LH MC Circuit Breaker, 3P, 480 Vac** | | | | | | | | |
| 200 A | 3400 A | 4000 A | LA34200MC | **5571.** | LH34200MC | **8771.** | AL250LAMC | (1) 250–350 kcmil Al<br>(1) 3/0 AWG–350 kcmil Cu |
| 225 A | 3825 A | 4500 A | LA34225MC | **5571.** | LH34225MC | **8771.** | | |
| 250 A | 4250 A | 5000 A | LA34250MC | **5681.** | LH34250MC | **8882.** | | |
| 400 A | 6000 A | 7200 A | LA34400MC | **6941.** | LH34400MC | **10142.** | AL400LA | (1) 1 AWG–600 kcmil Al or<br>(2) 1 AWG–250 kcmil Al |

▲ AC magnetic setting tolerances are +0 -25% from maximum value shown.



LI
2- and 3-pole
7.5 in (190 mm)
Mounting Height

**Table 9.130: L-frame—400 A, Thermal-magnetic (600 Vac)**

| Ampere Rating | AC Magnetic Trip Settings | | Standard Interrupting | | High Interrupting | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|
| | Low | High | Catalog Number | $ Price | Catalog Number | $ Price | |
| **2-pole, 600 Vac, 250 Vdc ■** | | | | | | | |
| 125 A | 625 | 1250 | LA26125( ) | **4053.** | LH26125( ) | **6762.** | AL400LA<br>one #1 AWG–600 kcmil or<br>two #1 AWG–250 kcmil<br>AL or Cu |
| 150 A | 750 | 1500 | LA26150( ) | **4053.** | LH26150( ) | **6762.** | |
| 175 A | 875 | 1750 | LA26175( ) | **4053.** | LH26175( ) | **6762.** | |
| 200 A | 1000 | 2000 | LA26200( ) | **4053.** | LH26200( ) | **6762.** | |
| 225 A | 1125 | 2250 | LA26225( ) | **4053.** | LH26225( ) | **6762.** | |
| 250 A | 1250 | 2500 | LA26250( ) | **4053.** | LH26250( ) | **6762.** | |
| 300 A | 1500 | 3000 | LA26300( ) | **4053.** | LH26300( ) | **6762.** | |
| 350 A | 1750 | 3500 | LA26350( ) | **4053.** | LH26350( ) | **6762.** | |
| 400 A | 2000 | 4000 | LA26400( ) | **4053.** | LH26400( ) | **6762.** | |
| **3-pole, 600 Vac, 250 Vdc** | | | | | | | |
| 125 A | 625 | 1250 | LA36125 | **4944.** | LH36125 | **8145.** | AL400LA<br>one #1 AWG–600 kcmil or<br>two #1 AWG–250 kcmil<br>AL or Cu |
| 150 A | 750 | 1500 | LA36150 | **4944.** | LH36150 | **8145.** | |
| 175 A | 875 | 1750 | LA36175 | **4944.** | LH36175 | **8145.** | |
| 200 A | 1000 | 2000 | LA36200 | **4944.** | LH36200 | **8145.** | |
| 225 A | 1125 | 2250 | LA36225 | **4944.** | LH36225 | **8145.** | |
| 250 A | 1250 | 2500 | LA36250 | **4944.** | LH36250 | **8145.** | |
| 300 A | 1500 | 3000 | LA36300 | **4944.** | LH36300 | **8145.** | |
| 350 A | 1750 | 3500 | LA36350 | **4944.** | LH36350 | **8145.** | |
| 400 A | 2000 | 4000 | LA36400 | **4944.** | LH36400 | **8145.** | |



LC
2- and 3-pole
7.5 in (190 mm)
Mounting Height

**Table 9.131: L-frame—600 A, Thermal-magnetic (600 Vac)♦**

| Ampere Rating | AC Magnetic Trip Settings | | Extra High Interrupting | | Current Limiting | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|
| | Low | High | Catalog Number | $ Price | Catalog Number | $ Price | |
| **2-pole, 600 Vac ■** | | | | | | | |
| 300 A | 1500 | 3200 | LC26300( ) | **8312.** | LI26300( ) | **9563.** | AL600LI5<br>two #4/0 AWG–500 kcmil<br>AL or Cu |
| 350 A | 1750 | | LC26350( ) | | LI26350( ) | | |
| 400 A | 2000 | | LC26400( ) | | LI26400( ) | | |
| 450 A | 2250 | 4200 | LC26450( ) | **8691.** | LI26450( ) | **13949.** | |
| 500 A | 2500 | | LC26500( ) | | LI26500( ) | | |
| 600 A | 3000 | | LC26600( ) | | LI26600( ) | | |
| **3-pole, 600 Vac** | | | | | | | |
| 300 A | 1500 | 3200 | LC36300 | **9234.** | LI36300 | **10673.** | AL600LI5<br>two #4/0 AWG–500 kcmil<br>AL or Cu |
| 350 A | 1750 | | LC36350 | | LI36350 | | |
| 400 A | 2000 | | LC36400 | | LI36400 | | |
| 450 A | 2250 | 4200 | LC36450 | **9657.** | LI36450 | **15498.** | |
| 500 A | 2500 | | LC36500 | | LI36500 | | |
| 600 A | 3000 | | LC36600 | | LI36600 | | |

■ 2-pole circuit breaker catalog numbers are completed by adding required phase connection letters as suffix to catalog number. See Digest page 9-24.
♦ Type LC and LI circuit breakers are NOT recommended for use on single-motor branch circuits.

L-frame acccessories . . . . . starting on Supplemental Digest page 3-24
L-frame dimensions . . . . . Digest page 7-54
L-frame optional lugs . . . . . Digest page 7-53

**Table 9.132: Interrupt Ratings (kA)**

| | LA | LH | LC | LI |
|---|---|---|---|---|
| 240 V | 42 | 65 | 100 | 200 |
| 480 V | 30 | 35 | 65 | 200 |
| 600 V | 22 | 25 | 35 | 100 |



© 2012 Schneider Electric
All Rights Reserved

**Table 9.133: L-frame 600 A Circuit Breakers with Lugs and Factory-Sealed Electronic Trip Units Suitable for Reverse Connection▲**

| Electronic Trip Unit | | | Sensor Rating | Catalog Number■ | Interrupting Rating (2nd Letter of Catalog Number) | | | | | | | | | | Terminal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D | | G | | J ♦ | | L ♦ | | R ♦ | | |
| Type | Function | Trip Unit | | | $ Price | | | | | | | | | | |
| | | | | | 80% | 100% | 80% | 100% | 80% | 100% | 80% | 100% | 80% | 100% | |
| **600 Vac, 53/60 Hz, 3P** | | | | | | | | | | | | | | | |
| Micrologic Standard | LI | 3.3★ | 250 A | L( )A36250U31X | **5122.** | **5943.** | **5376.** | **6240.** | **8773.** | **10214.** | **10213.** | **11899.** | **11745.** | **13745.** | AL400L61K3▼ |
| | | | 400 A<br>600 A | L( )A36400U31X<br>L( )A36600U31X | **5122.**<br>**7404.** | **5943.**<br>— | **5376.**<br>**7779.** | **6240.**<br>— | **8773.**<br>**10836.** | **10214.**<br>— | **10213.**<br>**12132.** | **11899.**<br>— | **11745.**<br>**13952.** | **13745.**<br>— | AL600LF52K3△ |
| Micrologic Standard | LSI | 3.3S★ | 250 A | L( )A36250U33X | **5686.** | **6506.** | **5969.** | **6833.** | **9366.** | **10808.** | **10806.** | **12493.** | **12427.** | **14449.** | AL400L61K3▼ |
| | | | 400 A<br>600 A | L( )A36400U33X<br>L( )A36600U33X | **5686.**<br>**7968.** | **6506.**<br>— | **5969.**<br>**8372.** | **6833.**<br>— | **9366.**<br>**11429.** | **10808.**<br>— | **10806.**<br>**12725.** | **12493.**<br>— | **12427.**<br>**14634.** | **14449.**<br>— | |
| Micrologic Ammeter | LSI | 5.3A | 400 A<br>600 A | L( )A36400U43X<br>L( )A36600U43X | **6548.**<br>**8830.** | **7368.**<br>— | **6877.**<br>**9279.** | **7740.**<br>— | **10274.**<br>**12336.** | **11715.**<br>— | **11714.**<br>**13632.** | **13400.**<br>— | **13471.**<br>**15677.** | **15523.**<br>— | |
| Micrologic Energy | LSI | 5.3E | 400 A<br>600 A | L( )A36400U53X<br>L( )A36600U53X | **7495.**<br>**9778.** | **8316.**<br>— | **7874.**<br>**10277.** | **8738.**<br>— | **11271.**<br>**13334.** | **12713.**<br>— | **12711.**<br>**14630.** | **14398.**<br>— | **14618.**<br>**16825.** | **16705.**<br>— | AL600LF52K3△ |
| Micrologic Ammeter | LSIG | 6.3A | 400 A<br>600 A | L( )A36400U44X<br>L( )A36600U44X | **8444.**<br>**10726.** | **9264.**<br>— | **8873.**<br>**11275.** | **9736.**<br>— | **12270.**<br>**14332.** | **13711.**<br>— | **13710.**<br>**15628.** | **15396.**<br>— | **15767.**<br>**17972.** | **17887.**<br>— | |
| Micrologic Energy | LSIG | 6.3E | 400 A<br>600 A | L( )A36400U54X<br>L( )A36600U54X | **9392.**<br>**11674.** | **10212.**<br>— | **9870.**<br>**12273.** | **10734.**<br>— | **13267.**<br>**15329.** | **14709.**<br>— | **14707.**<br>**16626.** | **16394.**<br>— | **16913.**<br>**19120.** | **19069.**<br>— | |

▲ See Supplemental Digest page 3-4 for circuit breakers with field-interchangeable trip units.
■ For 100% rated circuit breakers (250 A and 400 A only), add a "C" in the 9th character place (for example, LRA36400CU31X).
♦ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
★ 3P circuit breakers with this trip unit can be used for 2P applications.
▼ AL400L61K3 terminal wire ranges are (1) 2 AWG–600 kcmil Cu or (1) 2 AWG–500 kcmil Al.
△ AL600LFS52K3 terminal wire range is (2) 3/0 –500 kcmil.
□ For applications requiring communications, see Digest page 7-43.

## Interrupt Ratings (kA)

| | G | J | L ◊ |
|---|---|---|---|
| 240 V | 65 | 100 | 125 |
| 480 V | 35 | 65 | 100 |
| 600 V ☆ | 18 | 25 | 25 |

◊ L interrupting rating is not available in M-frame.
☆ 600 V interrupt ratings not available for D-frame.

**Table 9.134: PowerPact M-frame: with ET1.0 Factory – sealed trip unit (not field adjustable)—800 A ▽**

| | Ampere Rating | Adjustable Instantaneous Trip Range ◒ | | G Interrupting | | J Interrupting | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|
| | | Low | High | Catalog Number ✱ | $ Price | Catalog Number ✱ | $ Price | |
| 2-pole, 600 Vac, 50/60 Hz | 300 A | 600 | 3000 | MGA26300( ) | **6633.** | MJA26300( ) | **8253.** | 3–3/0 through 500 kcmil Al or Cu |
| | 350 A | 700 | 3500 | MGA26350( ) | | MJA26350( ) | | |
| | 400 A | 800 | 4000 | MGA26400( ) | | MJA26400( ) | | |
| | 450 A | 900 | 4500 | MGA26450( ) | | MJA26450( ) | | |
| | 500 A | 1000 | 5000 | MGA26500( ) | | MJA26500( ) | | |
| | 600 A | 1200 | 6000 | MGA26600( ) | | MJA26600( ) | | |
| | 700 A | 1400 | 7000 | MGA26700( ) | **8370.** | MJA26700( ) | **10104.** | |
| | 800 A | 1600 | 8000 | MGA26800( ) | | MJA26800( ) | | |
| 3-pole, 600 Vac, 50/60 Hz | 300 A | 600 | 3000 | MGA36300 | **8168.** | MJA36300 | **9929.** | 3–3/0 through 500 kcmil Al or Cu |
| | 350 A | 700 | 3500 | MGA36350 | | MJA36350 | | |
| | 400 A | 800 | 4000 | MGA36400 | | MJA36400 | | |
| | 450 A | 900 | 4500 | MGA36450 | | MJA36450 | | |
| | 500 A | 1000 | 5000 | MGA36500 | | MJA36500 | | |
| | 600 A | 1200 | 6000 | MGA36600 | | MJA36600 | | |
| | 700 A | 1400 | 7000 | MGA36700 | **10608.** | MJA36700 | **12630.** | |
| | 800 A | 1600 | 8000 | MGA36800 | | MJA36800 | | |

▽ The ET 1.0 trip unit cannot be field replaced, nor does it allow adjustment of the long-time trip point setting. It is considered an electronic equivalent of a thermal-magnet circuit breaker.
◒ UL magnetic trip setting tolerances are ±10% from the nominal values shown.
✱ Fill in parentheses with the following phase connection options: (2) for AC and (5) for CA.

L-frame accessories . . . . . starting on Supplemental Digest page 3-24
L-frame dimensions . . . . . starting on Digest page 7-54
L-frame optional lugs . . . . . Digest page 7-53
M-frame accessories . . . . . starting on Digest page 7-36
M-frame dimensions . . . . . Digest page 7-55
M-frame optional lugs . . . . . Digest page 7-39

**Table 9.135: Automatic Molded Case Switches—600 Vac, 50/60 Hz**

| Ampere Rating | 2-pole | | 3-pole | | Withstand Rating ♦ | | | Trip Point Amperes | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|
| | Catalog Number ◑ | $ Price | Catalog Number | $ Price | 240 Vac | 480 Vac | 600 Vac | AC | |
| 600 A | PJA26000S60( ) | **6675.** | PJA36000S60 | **7263.** | 100 | 65 | 25 | 10000 | 3–3/0 through 500 kcmil Al or Cu |
| 800 A | PJA26000S80( ) | **7347.** | PJA36000S80 | **7938.** | 100 | 65 | 25 | 10000 | |
| 1000 A | PJA26000S10( ) | **8088.** | PJA36000S10 | **8676.** | 100 | 65 | 25 | 10000 | 4–3/0 through 500 kcmil Al or Cu |
| 1200 A | PJA26000S12( ) | **10895.** | PJA36000S12 | **11766.** | 100 | 65 | 25 | 10000 | |

♦ The withstand rating is the fault current, at rated voltage, that the molded case switch will withstand without damage when protected by a circuit breaker with an equal ampere rating.
◑ Fill in parentheses with the following phase connection options: (2) for AC or (5) for CA.

**Table 9.136: PowerPact P- and R-frame Interrupt Ratings**

| Voltage | P-frame Interrupt Rating | | | | R-frame Interrupt Rating | | | |
|---|---|---|---|---|---|---|---|---|
| | G | J | K | L | G | J | K | L |
| 240 Vac | 65 kA | 100 kA | 65 kA | 125 kA | 65 kA | 100 kA | 65 kA | 125 kA |
| 480 Vac | 35 kA | 65 kA | 50 kA | 100 kA | 35 kA | 65 kA | 65 kA | 100 kA |
| 600 Vac | 18 kA | 25 kA | 50 kA | 25 kA | 18 kA | 25 kA | 65 kA | 50 kA |

P- and R-frame accessories . . . . . starting on Digest page 7-36
P- and R-frame dimensions . . . . . Digest page 7-55
P- and R-frame optional lugs . . . . . Digest page 7-39

© 2012 Schneider Electric
All Rights Reserved

**Table 9.137: PowerPact P-frame 1200 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit**

| Electronic Trip Unit | | | Sensor Rating | Cat. No.▲■ | $ Price | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | G Interrupting ▲ | | J Interrupting ▲ | | K Interrupting ▲ | | L Interrupting ▲♦ | | |
| Type | Function | Code | | | 80% Rated | 100% Rated ■ | 80% Rated | 100% Rated ■ | 80% Rated | 100% Rated ■ | 80% Rated | 100% Rated ■ | |
| Basic Electronic Trip Unit (Not Interchangeable) | Fixed long-time, Adjustable Instantaneous | ET1.0I | 600 A | P( )A36060 | 14603. | — | 15480. | — | 15480. | — | 16359. | — | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 800 A | P( )A36080 | | | | | | | | | |
| | | | 1000 A | P( )A36100 | 20003. | — | 21207. | — | 21207. | — | 22410. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120 | | | | | | | | | |
| Micrologic Interchangeable Standard Trip Unit | LI | 3.0 | 250 A | P( )A36025(C)U31A | 15390. | 22479. | 16268. | 23897. | 16268. | 23897. | 17147. | 25314. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U31A | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U31A | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U31A | | | | | | | | | |
| | | | 1000 A | P( )A36100U31A | 20790. | — | 21995. | — | 21995. | — | 23198. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U31A | | | | | | | | | |
| | LSI | 5.0 | 250 A | P( )A36025(C)U33A | 15729. | 22794. | 16608. | 24231. | 16608. | 24231. | 17487. | 25668. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U33A | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U33A | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U33A | | | | | | | | | |
| | | | 1000 A | P( )A36100U33A | 21131. | — | 22334. | — | 22334. | — | 23538. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U33A | | | | | | | | | |
| Micrologic Interchangeable Ammeter Trip Unit | LI | 3.0A | 250 A | P( )A36025(C)U41A | 16242. | 23270. | 17121. | 24737. | 17121. | 24737. | 17999. | 26204. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U41A | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U41A | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U41A | | | | | | | | | |
| | | | 1000 A | P( )A36100U41A | 21642. | — | 22845. | — | 22845. | — | 24051. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U41A | | | | | | | | | |
| | LSI | 5.0A | 250 A | P( )A36025(C)U43A | 17739. | 24659. | 18618. | 26214. | 18618. | 26214. | 19497. | 27770. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U43A | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U43A | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U43A | | | | | | | | | |
| | | | 1000 A | P( )A36100U43A | 23141. | — | 24345. | — | 24345. | — | 25548. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U43A | | | | | | | | | |
| | LSIG | 6.0A | 250 A | P( )A36025(C)U44A | 19607. | 26393. | 20486. | 28058. | 20486. | 28058. | 21365. | 29721. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U44A | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U44A | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U44A | | | | | | | | | |
| | | | 1000 A | P( )A36100U44A | 25008. | — | 26211. | — | 26211. | — | 27416. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U44A | | | | | | | | | |
| Micrologic Interchangeable Power Trip Unit | LSI | 5.0P | 250 A | P( )A36025(C)U63AE1 | 22151. | 28754. | 23030. | 30566. | 23030. | 30566 | 23909. | 32379. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U63AE1 | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U63AE1 | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U63AE1 | | | | | | | | | |
| | | | 1000 A | P( )A36100U63AE1 | 27552. | — | 28757. | — | 28757. | — | 29960. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U63AE1 | | | | | | | | | |
| | LSIG | 6.0P | 250 A | P( )A36025(C)U64AE1 | 23234. | 29757. | 24111. | 31634. | 24111. | 31634. | 24990. | 33510. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U64AE1 | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U64AE1 | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U64AE1 | | | | | | | | | |
| | | | 1000 A | P( )A36100U64AE1 | 28634. | — | 29838. | — | 29838. | — | 31041. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U64AE1 | | | | | | | | | |
| Micrologic Interchangeable Harmonic Trip Unit | LSI | 5.0H | 250 A | P( )A36025(C)U73AE1 | 26234. | 32541. | 27113. | 34593. | 27113. | 34593. | 27992. | 36645 | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U73AE1 | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U73AE1 | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U73AE1 | | | | | | | | | |
| | | | 1000 A | P( )A36100U73AE1 | 31634. | — | 32837. | — | 32837. | — | 34043. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U73AE1 | | | | | | | | | |
| | LSIG | 6.0H | 250 A | P( )A36025(C)U74AE1 | 27315. | 33545. | 28194. | 35661. | 28194. | 35661. | 29073. | 37776. | (3) 3/0 AWG–500 kcmil Al or Cu AL800M23K |
| | | | 400 A | P( )A36040(C)U74AE1 | | | | | | | | | |
| | | | 600 A | P( )A36060(C)U74AE1 | | | | | | | | | |
| | | | 800 A | P( )A36080(C)U74AE1 | | | | | | | | | |
| | | | 1000 A | P( )A36100U74AE1 | 32717. | — | 33921. | — | 33921. | — | 35124. | — | (4) 3/0 AWG–500 kcmil Al or Cu AL1200P24K |
| | | | 1200 A | P( )A36120U74AE1 | | | | | | | | | |

**Table 9.138: PowerPact R-frame 1200 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit**

| Electronic Trip Unit | | | Sensor Rating | Cat. No. | $ Price | | | | | | | | Terminal Wire Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | G Interrupting▲♦ | | J Interrupting▲♦ | | K Interrupting▲♦ | | L Interrupting▲♦★ | | |
| Type | Function | Code | | | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | 80% Rated | 100% Rated | |
| Basic Electronic Trip Unit (Not Interchangeable) | Fixed Long-Time, Adjustable Instantaneous | ET1.01 | 1200 A | R( )A36120 | 27080. | — | 28777. | — | 28777. | — | 30533. | — | AL1200R53K (4) 3/0-600 kcmil Al or Cu |
| Micrologic Interchangeable Standard Trip Unit | LI | 3.0 | 1000 A | R( )A36100CU31A | — | 33945. | — | 36111. | — | 36111. | — | 38418. | |
| | | | 1200 A | R( )A36120CU31A | | | | | | | | | |
| | LSI | 5.0 | 1000 A | R( )A36100CU33A | — | 34401. | — | 36599. | — | 36599. | — | 38934. | |
| | | | 1200 A | R( )A36120CU33A | | | | | | | | | |
| Micrologic Interchangeable Ammeter Trip Unit | LI | 3.0A | 1000 A | R( )A36100CU41A | — | 35141. | — | 37383. | — | 37383. | — | 39770. | |
| | | | 1200 A | R( )A36120CU41A | | | | | | | | | |
| | LSI | 5.0A | 1000 A | R( )A36100CU43A | — | 36581. | — | 38916. | — | 38916. | — | 41400. | |
| | | | 1200 A | R( )A36120CU43A | | | | | | | | | |
| | LSI | 6.0A | 1000 A | R( )A36100CU44A | — | 38378. | — | 40829. | — | 40829. | — | 43434. | |
| | | | 1200 A | R( )A36120CU44A | | | | | | | | | |
| Micrologic Interchangeable Power Trip Unit | LSI | 5.0P | 1000 A | R( )A36100CU63AE1 | — | 40826. | — | 43431. | — | 43431. | — | 46205. | |
| | | | 1200 A | R( )A36120CU63AE1 | | | | | | | | | |
| | LSIG | 6.0P | 1000 A | R( )A36100CU64AE1 | — | 41867. | — | 44540. | — | 44540. | — | 47382. | |
| | | | 1200 A | R( )A36120CU64AE1 | | | | | | | | | |
| Micrologic Interchangeable Harmonic Trip Unit | LSI | 5.0H | 1000 A | R( )A36100CU73AE1 | — | 44754. | — | 47610. | — | 47610. | — | 50649. | |
| | | | 1200 A | R( )A36120CU73AE1 | | | | | | | | | |
| | LSIG | 6.0H | 1000 A | R( )A36100CU74AE1 | — | 45795. | — | 48719. | — | 48719. | — | 51827. | |
| | | | 1200 A | R( )A36120CU74AE1 | | | | | | | | | |

▲ To complete the catalog number, replace the blank ( ) with the appropriate interrupt rating (G, J, K, or L).

■ For 100% rated circuit breakers add a "C" in the 9th character place. For example, the catalog number for a 100% standard-type trip unit with LI trip functions at 250 A would be PGA36025**C**U31A.

♦ The L interrupt rating is supplied in 480 V only. Change the 5th character (voltage rating) from a 6 (600 V) to a 4 (480 V); for example, PLA34025U31A.

★ See Table 9.136 on Digest page 9-29 for interrupt ratings.

P- and R-frame accessories. . . . . starting on Digest page 7-36
P- and R-frame dimensions . . . . . Digest page 7-55
P- and R-frame trip unit options . . . . . Digest page 7-44
P- and R-frame optional lugs . . . . . Digest page 7-39
P- and R-frame alternate rating plugs . . . . . Digest page 7-45



© 2012 Schneider Electric
All Rights Reserved

**Table 9.139: Base $ Price—Main Lugs ▲**

| Panel Type | Main Lugs | | | | |
|---|---|---|---|---|---|
| | 225 A | 400 A | 600 A | 800 A | 1200 A |
| HCN | 1356. | 1866. | 2276. | — | — |
| HCM | — | 1866. | 2276. | 2512. | — |
| HCP-SU | — | — | 2990. | 3600. | — |
| HCP | — | — | 2456. | 3056. | 3968. |
| HCR-U | — | — | — | — | 4602. |

▲ When required, add the $ Price of a solid neutral from Table 9.140.

**Table 9.140: Standard Solid Neutral**

| Ampere Rating | $ Price |
|---|---|
| 100/225 A | 294. |
| 400 A | 384. |
| 600 A | 544. |
| 800 A | 764. |
| 1200 A | 1366. |

**Table 9.141: Base $ Price—Main Circuit Breaker ■**

| Panel Type | No. Poles | Main Circuit Breaker | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 100 A | | | 150 A | | | |
| | | FA | FH | FI ♦ | HD ♦ | HG ♦ | HJ ♦ | HL ♦ |
| HCN | 2 | 2100. | 2100. | 4642. | 3360. | 3860. | 4540. | 5550. |
| | 3 | 2418. | 2958. | 5864. | 3770. | 4210. | 4890. | 5900. |
| HCM | 2 | — | — | — | 3360. | 3860. | 4540. | 5550. |
| | 3 | — | — | — | 3770. | 4210. | 4890. | 5900. |

| Panel Type | No. Poles | 225 A | | | | | 400 A | | | | | | | | 600 A | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JD | JG | JJ | JL | KI ♦ | LD | LG | LJ | LL | LA | LH | LC ♦ | LI ♦ | LD | LG | LJ | LL | LC ♦ | LI ♦ | MG | MJ |
| | | | | | | | Electronic 100% | | | | | | | | Electronic 80% | | | | | | | |
| HCN | 2 | 3956. | 4146. | 7126. | 7356. | 8356. | — | — | — | — | 6132. | 9126. | — | — | — | — | — | — | — | — | — | — |
| | 3 | 4440. | 5550. | 7466. | 8676. | 10148. | — | — | — | — | 7136. | 10666 | — | — | — | — | — | — | — | — | — | — |
| HCM | 2 | 3956. | 4146. | 7126. | 7356. | 8356. | — | — | — | — | 6132. | 9126. | — | — | — | — | — | — | — | — | 8880. | 11260. |
| | 3 | 4440. | 5550. | 7466. | 8676. | 10148. | — | — | — | — | 7136. | 10666. | — | — | — | — | — | — | — | — | 10770. | 13400. |
| HCP, HCP-SU | 2 | — | — | — | — | — | 11865. | 12470. | 14795. | 15940. | — | — | 10366. | 11610. | 15425. | 16215. | 19235. | 20725. | 11176. | 16504. | 8880. | 11260. |
| | 3 | — | — | — | — | — | | | | | — | — | 11888. | 13354. | | | | | 12678. | 18090. | 10770. | 13400. |

| Panel Type | No. Poles | 800 A ★ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MG | MJ | PL ■ | PG ♦ | PJ ♦ | PL ♦ | PGC ♦ | PJC ♦ | PLC ♦ |
| | | | | | Micrologic™ 80% | | | Micrologic 100% | | |
| HCN | 2 | — | — | — | — | — | — | — | — | — |
| | 3 | — | — | — | — | — | — | — | — | — |
| HCM | 2 | 11846. | 14778. | — | — | — | — | — | — | — |
| | 3 | 14302. | 17456. | — | — | — | — | — | — | — |
| HCP, HCP-SU | 2 | 11846. | 14778. | 19346. | 15830. | 16830. | 21090. | 16542. | 18510. | 24250. |
| | 3 | 14302. | 17456. | 23416. | 18312. | 20280. | 24540. | 20144. | 22300. | 28220. |

| Panel Type | No. Poles | 1200 A ♦★▼ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | PG | PJ | PL | PG | PJ | PL | RGC | RJC | RLC |
| | | | | | Micrologic 80% | | | Micrologic 100% | | |
| HCP, HCP-SU | 2 | 22542. | 24336. | 26648. | 22380. | 24980. | 27980. | 24618. | 24478. | 32178. |
| | 3 | 24568. | 26560. | 29128. | 28710. | 31310. | 35570. | 31582. | 34442. | 40906. |
| HCR-U | 2 | 22542. | 24336. | 26648. | 22380. | 24980. | 27980. | 24618. | 24478. | 32178. |
| | 3 | 24568. | 26560. | 29128. | 28710. | 31310. | 35570. | 31582. | 34442. | 40906. |

■ When required, add the $ Price of a solid neutral from Table 9.140.
♦ Standard construction back-fed main.
★ PG, PJ, PL circuit breakers are available with both thermal-magnetic equivalent and Micrologic trip. The Micrologic circuit breakers are available 80% and 100% rated. The "C" suffix denotes a 100% rating.
▼ For 1200 A frame thermal magnetic circut breaker with 600 kcmil lugs, select an R-frame Thermal Magnetic circuit breaker in the Product Selector.

**Table 9.142: Electronic Trip Units for H-frame Circuit Breakers**

| | Standard $ Price | Ammeter $ Price | Energy $ Price |
|---|---|---|---|
| LI (3.0) | Standard | — | — |
| LSI (5.0) | 549. | 2550. | 3485. |
| LSIG (6.0) △ | — | 4577. | 5979. |

**Table 9.143: Electronic Trip Units for J-frame Circuit Breakers**

| | Standard $ Price | Ammeter $ Price | Energy $ Price |
|---|---|---|---|
| LI (3.0) | Standard | — | — |
| LSI (5.0) | 785. | 3643. | 4978. |
| LSIG (6.0) △ | — | 6538. | 8542. |

**Table 9.144: Electronic Trip Units (L-, P-, and R-frame Circuit Breakers)**

| | $ Price | | | | |
|---|---|---|---|---|---|
| | Standard | Ammeter | Energy N✪●▼: | Power | Harmonic |
| LI (3.0) | Standard | — | — | — | — |
| LSI (5.0) | 1670. | 4670. | 7659. | 21600. | 32330. |
| LSIG (6.0) △ | — | 9340. | 13777. | 31000. | 37000. |

△ When adding G, requires current transformers and a box extension and is available factory assembled only.
Note: Energy trip unit available for L-frame circuit breakers only.
PowerPact circuit breakers come with a standard LI trip unit. Use the above $ Price adder for increase in trip functionality. See Digest page 7-43 for L- frame trip unit descriptions. See Digest page 7-44 for P- and R- frame trip unit descriptions.

**Table 9.145: I-Line 200% Rated Neutral—Standard Terminal Configuration □**

| Panel Type | Ampacity | Type | Branch Space | | Neutral Terminals Quantity and Size | | Type 1 Enclosure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | In. | mm | Main | Branch | H | | W | | D | |
| | | | | | | | In. | mm | In. | mm | In. | mm |
| HCM | 600 A | MLO | 72 | 1829 | (8) 750 kcmil | (35) 350 kcmil, (9)#14-1/0, (17)#14-#4 | 91 | 2311 | 32 | 813 | 8.25 | 210 |
| | 600 A (MG, MJ) | M/B | 72 | 1829 | (8) 750 kcmil | | 91 | 2311 | 32 | 813 | 9.50 | 241 |
| | 800 A | MLO | 72 | 1829 | (8) 750 kcmil | | 91 | 2311 | 32 | 813 | 8.25 | 210 |
| | 800 A (MG, MJ) | M/B | 72 | 1829 | (8) 750 kcmil | | 91 | 2311 | 32 | 813 | 9.50 | 241 |
| HCR-U◊ | 1200A | M/B, MLO | 108 | 2743 | (8) 750 kcmil | (8) 600 kcmil, (15) 350 kcmil (9) #14-1/0, (17)#14-#4 | 86 | 2184 | 44 | 1118 | 9.50 | 241 |
| HCP | 600A | M/B, MLO | 63 | 1600 | (8) 750 kcmil | (35) 350 kcmil, (9)#14-1/0, (17)#14-#4 | 68 | 1727 | 42 | 1067 | 9.50 | 241 |
| | 800A | M/B, MLO | 99 | 2515 | (8) 750 kcmil | (35) 350 kcmil, (9)#14-1/0, (17)#14-#4 | 86 | 2184 | 42 | 1067 | 9.50 | 241 |
| HCP-SU☆ | 800A | M/B, MLO | 54 | 1371 | (8) 750 kcmil | (8) 750 kcmil, (21) 350 kcmil, (9) #14-1/0, (17) #14-#4 | 86 | 2184 | 26 | 660 | 9.5 | 241 |

□ Available in Type 1 enclosure only; for pricing, see Digest page 9-34.
◊ 6 in. enclosure extension is required for HCRU I-Line panelboard.
☆ 9 in. enclosure extension is required for HCP-SU I-Line panelboard.

© 2012 Schneider Electric
All Rights Reserved

Table 9.146: **Branch Circuit Breakers—Thermal Magnetic Circuit Breakers** ▲
(See Digest pages 7-4 through 7-8 for interrupt rating, voltage ratings, Fed. Specs, etc.)

| Circuit Breaker Ampere Rating | Circuit Breaker | 3-pole ▼ | | | | | 2-pole ▼ | | | | | 1-pole ▼ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 240 V | 480 Vac 250 Vdc | 600 V | Space Only | H (In.) | 240 Vac | 480 Vac 250 Vdc | 600 Vac | Space Only | H (In.) | 120 V | 277 V | 277 Vac 125 Vdc | Space Only | H (In.) |
| 15–60 A | FA (FY-1P) | **720.** | **882.** | **1006.** | **98.** | 4.5 | **520.** | **708.** | **786.** | **82.** | 3 | — | — | **270.** ♦ | **72.** | 1.5 |
| 70–100 A | FA | **832.** | **1142.** ■ | **1218.** | **98.** | 4.5 | **632.** | **956.** | **964.** | | | **354.** | **384.** | **384.** ♦ | **72.** | 1.5 |
| 15–60 A | FH | **1100.** | — | **1442.** | **98.** | 4.5 | **1050.** | — | **1218.** | **98.** | 3 | — | — | **518.** | **72.** | 1.5 |
| 70–100 A | | **1300.** | — | **1940.** | | | **1250.** | — | **1620.** | | | — | — | **650.** | **72.** | 1.5 |
| 15–60 A | FJ★ | **1300.** | **2080.** | — | **98.** | 3 | **1250.** | **1660.** | — | **98.** | 3 | — | **664.** | — | **72.** | 1.5 |
| 70–100 A | | **1500.** | **2470.** | — | | | **1450.** | **1980.** | — | | | — | **832.** | — | **72.** | 1.5 |
| 20–100 A | FI | — | — | **4254.** | **98.** | 4.5 | — | — | **3466.** ■ | **98.** | 4.5 | — | — | — | — | — |
| 15–60 A | HD | — | — | **1350.** | **98.** | 4.5 | — | — | **1150.** | **98.** | 3 | — | — | — | — | — |
| 70–100 A | | — | — | **1570.** | | | — | — | **1370.** | | | — | — | — | — | — |
| 110–150 A | | — | — | **2710.** | | | — | — | **2370.** | | | — | — | — | — | — |
| 15–60 A | HG | — | — | **1710.** | **98.** | 4.5 | — | — | **1352.** | **98.** | 3 | — | — | — | — | — |
| 70–100 A | | — | — | **2198.** | | | — | — | **1508.** | | | — | — | — | — | — |
| 110–150 A | | — | — | **3310.** | | | — | — | **3110.** | | | — | — | — | — | — |
| 15–60 A | HJ | — | — | **2380.** | **98.** | 4.5 | — | — | **2002.** | **98.** | 4.5 | — | — | — | — | — |
| 70–100 A | | — | — | **2700.** | | | — | — | **2364.** | | | — | — | — | — | — |
| 110–150 A | | — | — | **4500.** | | | — | — | **3980.** | | | — | — | — | — | — |
| 15–60 A | HL | — | — | **3910.** | **98.** | 4.5 | — | — | **3250.** | **98.** | 4.5 | — | — | — | — | — |
| 70–100 A | | — | — | **4054.** | | | — | — | **3402.** | | | — | — | — | — | — |
| 110–150 A | | — | — | **5530.** | | | — | — | **4600.** | | | — | — | — | — | — |
| 70–225 A | QB | **1696.** | — | — | **98.** | 4.5 | **560.** | — | — | **82.** | 3 | — | — | — | — | — |
| 70–225 A | QD | **2208.** | — | — | **98.** | 4.5 | **1300.** ■ | — | — | **82.** | 3 | — | — | — | — | — |
| 70–225 A | QG | **2870.** | — | — | **98.** | 4.5 | **2800.** | — | — | **82.** | 3 | — | — | — | — | — |
| 70–225 A | QJ | **3070.** | — | — | **98.** | 4.5 | **3000.** | — | — | **82.** | 3 | — | — | — | — | — |
| 150–225 A | JD | — | — | **2820.** | **98.** | 4.5 | — | — | **2600.** | **98.** | 4.5 | — | — | — | — | — |
| 250 A | | — | — | **3800.** | | | **3600.** | — | **3430.** | | | — | — | — | — | — |
| 150–225 A | JG | — | — | **3990.** | **98.** | 4.5 | **4600.** | — | **2790.** | **98.** | 4.5 | — | — | — | — | — |
| 250 A | | — | — | **4180.** | | | **3900.** | — | **3620.** | | | — | — | — | — | — |
| 150–225 A | JJ | — | — | **6110.** | **98.** | 4.5 | **4000.** | **5434.** | **5770.** | **98.** | 4.5 | — | — | — | — | — |
| 250 A | | — | — | **6500.** | | | **4300.** | **6672.** | **6450.** | | | — | — | — | — | — |
| 150–225 A | JL | — | — | **7320.** | **98.** | 4.5 | **4300.** | **5434.** | **6000.** | **98.** | 4.5 | — | — | — | — | — |
| 250 A | | — | — | **8900.** | | | | **6672.** | **6800.** | | | — | — | — | — | — |
| 150–225 A | KI | — | — | **7972.** | **98.** | 4.5 | — | — | **6216.** ■ | **98.** | 4.5 | — | — | — | — | — |
| 250 A | | — | — | **9268.** | | | — | — | **7262.** ■ | | | — | — | — | — | — |
| 300–400 A | LA | — | — | **4916.** | **252.** | 6 | — | — | **3980.** | **252.** | 6 | — | — | — | — | — |
| 300–400 A | LH | — | — | **5312.** | | | — | — | **4500.** | | | — | — | — | — | — |
| 300–400 A | LC | **5460.** | — | **10156.** | **456.** | 7.5 | **4550.** | — | **8634.** | **456.** | 7.5 | — | — | — | — | — |
| 450–600 A | | — | — | **10422.** | | | — | — | **8920.** | | | — | — | — | — | — |
| 300–400 A | LI | — | — | **11622.** | **456.** | 7.5 | — | — | **9878.** ■ | **456.** | 7.5 | — | — | — | — | — |
| 450–600 A | | — | — | **15834.** | | | — | — | **14248.** ■ | | | — | — | — | — | — |
| 300–600 A | MG | — | — | **8152.** | **662.** | 9 | — | — | **6322.** | **662.** | 9 | — | — | — | — | — |
| 700–800 A | | — | — | **10600.** | | | — | — | **8180.** | | | — | — | — | — | — |
| 300–600 A | MJ | — | — | **10126.** | **662.** | 9 | — | — | **8536.** | **662.** | 9 | — | — | — | — | — |
| 700–800 A | | — | — | **13306.** | | | — | — | **10944.** | | | — | — | — | — | — |
| 600–800 A | PL | — | **20360.** | — | **662.** | 9 | — | **16290.** | — | **662.** | 9 | — | — | — | — | — |
| 600–1200 A | PG | — | — | **19966.** | **662.** | 9 | — | — | **17940.** | **662.** | 9 | — | — | — | — | — |
| 600–1200 A | PJ /PK | — | — | **21960.** | **662.** | 9 | — | — | **19724.** | | | — | — | — | — | — |
| 1000–1200 A | PL | — | **24526.** | — | **662.** | 9 | — | **22046.** | — | **662.** | 9 | — | — | — | — | — |
| 250–400 A | PLC (100%) ▼ | — | **16940.** | — | **662.** | 9 | — | **13550.** | — | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | **22620.** | — | | | — | **18100.** | — | | | — | — | — | — | — |
| 700–800 A | | — | **24440.** | — | | | — | **19560.** | — | | | — | — | — | — | — |
| 1000–1200 A | RG (80%) ▼ | — | — | **24460.** | **662.** | 15 | — | — | **24460.** | **662.** | 15 | — | — | — | — | — |
| | RJ (80%) ▼ | — | — | **26710.** | | | — | — | **26710.** | | | — | — | — | — | — |
| | RL (80%) ▼ | — | — | **32580.** | | | — | — | **32580.** | | | — | — | — | — | — |

▲ See Digest pages 7-4 through 7-8 for additional dc ratings.
■ ac only.
♦ FA, 1P.
★ 480Y/277 Volt rated circuit breaker—Do not use on 480 Volt 3Ø3W Delta systems.
▼ See Table 9.144 on Digest page 9-31 for P- and R frame Micrologic trip unit price adders.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.147: Branch Circuit Breakers—Electronic Trip Circuit Breakers ▲**
(See Digest pages 7-4 through 7-8 for interrupt rating, voltage ratings, Fed. Specs, etc.)

| Circuit Breaker Ampere Rating | Circuit Breaker | 3-pole★ | | | | | 2-pole ★ | | | | | 1-pole ★ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 240 V | 480 Vac 250 Vdc | 600 V | Space Only | H | 240 Vac | 480 Vac 250 Vdc | 600 Vac | Space Only | H | 120 V | 277 V | 277 Vac 125 Vdc | Space Only | H |
| 15–60 A | HD (80%) ■ | — | — | **1790.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 35–100 A | | — | — | **2102.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 50–150 A | | — | — | **3756.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | JD (80%) ♦ | — | — | **4013.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 15–60 A | HG (80%) ■ | — | — | **2110.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 35–100 A | | — | — | **2380.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 50–150 A | | — | — | **4848.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | JG (80%) ♦ | — | — | **5082.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 15–60 A | HJ (80%) ■ | — | — | **2703.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 35–100 A | | — | — | **2898.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 50–150 A | | — | — | **6895.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | JJ (80%) ♦ | — | — | **7231.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 15–60 A | HL (80%) ■ | — | — | **4027.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 35–100 A | | — | — | **4263.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 50–150 A | | — | — | **8943.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | JL (80%) ♦ | — | — | **9381.** | **98.** | 4.5 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LD (80%) ★ | — | — | **5378.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **5378.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 200–600 A | | — | — | **7775.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LG (80%) ★ | — | — | **5645.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **5645.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 200–600 A | | — | — | **8167.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LJ (80%) ★ | — | — | **9212.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **9212.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 200–600 A | | — | — | **11378.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LL (80%) ★ | — | — | **10724.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **10724.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 200–600 A | | — | — | **12738.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LDC (100%) ★ | — | — | **6991.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **6991.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LLC (100%) ★ | — | — | **13941.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **13941.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LGC (100%) ★ | — | — | **7338.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **7338.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 70–250 A | LJC (100%) ★ | — | — | **11975.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 125–400 A | | — | — | **11975.** | **252.** | 6 | — | — | — | — | — | — | — | — | — | — |
| 60–400 A | DG (100%) ▼ | — | **5687.** | — | **252.** | 6 | — | **4550.** | — | **252.** | 6 | — | — | — | — | — |
| 600 A | DG (80%) ▼ | — | **8954.** | — | **252.** | 6 | — | **7163.** | — | **252.** | 6 | — | — | — | — | — |
| 60–400 A | DJ (100%) ▼ | — | **9118.** | — | **252.** | 6 | — | **7295.** | — | **252.** | 6 | — | — | — | — | — |
| 600 A | DJ (80%) ▼ | — | **12385.** | — | **252.** | 6 | — | **9908.** | — | **252.** | 6 | — | — | — | — | — |
| 60–400 A | DL (100%) ▼ | — | **10573.** | — | **252.** | 6 | — | **8458.** | — | **252.** | 6 | — | — | — | — | — |
| 600 A | DL (80%) ▼ | — | **13839.** | — | **252.** | 6 | — | **11071.** | — | **252.** | 6 | — | — | — | — | — |
| 250–400 A | PG (80%) ★ | — | — | **8900.** | **662.** | 9 | — | — | **7120.** | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | — | **13310.** | | | — | — | **10648.** | | | — | — | — | — | — |
| 700–800 A | | — | — | **14730.** | | | — | — | **12402.** | | | — | — | — | — | — |
| 1000–1200 A | | — | — | **21240.** | | | — | — | **16992.** | | | — | — | — | — | — |
| 250–400 A | PJ/PK (80%) ★ | — | — | **10400.** | **662.** | 9 | — | — | **9240.** | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | — | **15570.** | | | — | — | **12450.** | | | — | — | — | — | — |
| 700–800 A | | — | — | **17220.** | | | — | — | **13780.** | | | — | — | — | — | — |
| 1000–1200 A | | — | — | **24850.** | | | — | — | **19880.** | | | — | — | — | — | — |
| 250–400 A | PL (80%) ★ | — | **15400.** | — | **662.** | 9 | — | **12320.** | — | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | **20570.** | — | | | — | **16450.** | — | | | — | — | — | — | — |
| 700–800 A | | — | **22220.** | — | | | — | **17780.** | — | | | — | — | — | — | — |
| 1000–1200 A | | — | **29850.** | — | | | — | **23880.** | — | | | — | — | — | — | — |
| 250–400 A | PGC (100%) ★ | — | — | **9790.** | **662.** | 9 | — | — | **7832.** | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | — | **14642.** | | | — | — | **11714.** | | | — | — | — | — | — |
| 700–800 A | | — | — | **16200.** | | | — | — | **13642.** | | | — | — | — | — | — |
| 250–400 A | PJC/PKC (100%) ★ | — | — | **11960.** | **662.** | 9 | — | — | **9570.** | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | — | **17900.** | | | — | — | **14330.** | | | — | — | — | — | — |
| 700–800 A | | — | — | **19800.** | | | — | — | **15840.** | | | — | — | — | — | — |
| 250–400 A | PLC (100%)★ | — | **16940.** | — | **662.** | 9 | — | **13550.** | — | **662.** | 9 | — | — | — | — | — |
| 450–600 A | | — | **22620.** | — | | | — | **18100.** | — | | | — | — | — | — | — |
| 700–800 A | | — | **24440.** | — | | | — | **19560.** | — | | | — | — | — | — | — |
| 1000–1200 A | RG (100%) ★ | — | — | **29317.** | **662.** | 15 | — | — | **29317.** | **662.** | 15 | — | — | — | — | — |
| | RJ (100%) ★ | — | — | **32159.** | | | — | — | **32159.** | | | — | — | — | — | — |
| | RL (100%) ★ | — | — | **39389.** | | | — | — | **39389.** | | | — | — | — | — | — |

▲ See Digest pages 7-4 through 7-8 for additional dc ratings.
■ See Table 9.142 on Digest page 9-31 for H-frame electronic trip unit price adders.
♦ See Table 9.143 on Digest page 9-31 for J-frame electronic trip unit price adders.
★ See Table 9.144 on Digest page 9-31 for L-, P-, and R-frame electronic trip unit price adders.
▼ See the Supplemental Digest for D-frame electronic trip unit price adders.

© 2012 Schneider Electric
All Rights Reserved

### Table 9.148: QO Plug-On Branch Circuit Breakers

| | $ Price |
|---|---|
| Transition Charge per 6 QO one-pole spaces (H=4.5 in. per 6 one-pole spaces) | 328. |
| QO Branch circuit breakers | See Digest page 7-10 |

### Table 9.149: Sub-feed/Feed-through Lugs ▲

| Ampere Rating | $ Price |
|---|---|
| 225 A | 368. |
| 400 A | 600. |
| 600 A | 858. |
| 800 A | 1490. |
| 1200 A | 1890. |

▲ 2 or 3-pole Branch Mounted; SL Kit used for both SFL and TFL.

### Table 9.150: Ground Bars

| | $ Price |
|---|---|
| Equipment Ground Bar | 180. |
| Copper Ground Bar | 148. |
| Insulated/Isolated Ground Bar | $ Price Additional Neutral Assembly |

■ Add to equipment ground bar $ Price.

### Table 9.151: Name Plates

| | $ Price |
|---|---|
| Standard white face/black letter laminated bakelite, 1 in. x 3.5 in., adhesive backed or screw mountable with screws in a bag assembly ($ Price includes engraving) | 78. |

### Table 9.152: Copper Bus Bars

| Ampere Rating | Type | $ Price |
|---|---|---|
| 225 A | HCN, HCM | 528. |
| 400 A | HCN, HCM, HCP | 720. |
| 600 A | HCN | 720. |
| 600 A | HCM, HCP, HCR-U | 1274. |
| 800-1200 A | HCP, HCR-U | 1274. |

### Table 9.153: Neutrals

| Ampere Rating | Type | $ Price Adder |
|---|---|---|
| 100–400 A | Copper Neutral | 868. |
| 600 A | Copper Neutral | 894. |
| 800 A | Copper Neutral | 1108. |
| 1200 A | Copper Neutral | 1352. |

### Table 9.154: 200% Rated Neutrals

| Ampere Rating | Type | $ Price Adder |
|---|---|---|
| 225 A | Aluminum | 820. |
| 400 A | Aluminum | 940. |
| 600 A | Aluminum | 1340. |
| 800 A | Aluminum | 1350. |
| 1200 A | Aluminum | 2020. |
| 225 A | Copper | 1210. |
| 400 A | Copper | 1300. |
| 600 A | Copper | 1980. |
| 800 A | Copper | 2500. |
| 1200 A | Copper | 2900. |

### Table 9.155: Metal Directory Frame

| Metal Directory Frame | $ Price Adder |
|---|---|
| Frame attached to trim (not available on four piece trim) | 140. |

### Table 9.156: Door-in-Door Trim

| Door-in-Door Trim | $ Price Adder |
|---|---|
| Trim has piano hinge down one side. Door opens by single latch; Entire trim opens by removing screws. | 646. |
| Hinged Door-in-Door with Outer Door Lock Added | 836. |

### Table 9.157: Weatherproof or Dusttight Cabinets—Type 3R, 5, 12

| Weatherproof or Dusttight Cabinets | $ Price Adder |
|---|---|
| Maximum 26 in. wide box | 2156. |
| Maximum 28 in. wide box | 3312. |
| Maximum 32 in. wide box | 3312. |
| Maximum 42 in. wide box | 3312. |
| Maximum 44 in. wide box | 3312. |

### Table 9.158: Copper Mechanical Lugs

| Ampere Rating | Main Lug Interiors | Main Circuit Breaker Interiors |
|---|---|---|
| | $ Price per Pole | |
| 100/125 A | 70. | 70. |
| 250 A | 108. | 108. |
| 400 A | 148. | 148. |
| 600 A | 168. | 168. |
| 800 A | 196. | 196. |
| 1200 A | 236. | 236. |

### Table 9.159: Copper Compression Lugs

| Ampere Rating | Main Lug Interiors | Main Circuit Breaker Interiors |
|---|---|---|
| | $ Price per Pole | |
| 100/125 A | 70. | 70. |
| 250 A | 108. | 108. |
| 400 A | 148. | 148. |
| 600 A | 168. | 168. |
| 800 A | 316. | 316. |
| 1200 A | 836. | — |

### Table 9.160: Aluminum Compression Lugs VCEL

| Ampere Rating | Main Lug Interiors | Main Circuit Breaker Interiors ♦ |
|---|---|---|
| | $ Price Per Pole | |
| 100 A | 29.00 | 29.00 |
| 150 A | N/A | 29.00 |
| 250 A | 29.00 | 49.00 |
| 400 A | 45.00 | 74.00 |
| 600 A | 59.00 | 131.00 |
| 800 A | 100.00 | — |
| 1200 A | 118.00 | — |

Note: Additional factory modifications. See Digest page 9-38.

♦ Compression lugs are not available on LC, LI, LE, LX, and LXI circuit breakers.

## Surgelogic™ SPD

Surgelogic SPD unit in I-Line plug-on construction: An integrally mounted surge protection solution that mounts on to an I-Line Panelboard bus stack just like a J-Frame circuit breaker. Requires 13.5 in. of mounting height. Available as factory assembled and merchandised. For SPD unit pricing and information, see Digest pages 6-3 and 6-44.



I-Line Plug-On Unit with Surgelogic SPD

### Table 9.161: Surgelogic SPD Options

| Surgelogic SPD Options | $ Price |
|---|---|
| Dry Contacts | Standard |
| Remote Monitor | 2588. |

Note: Requires HCM interior minimum.

### Table 9.162: Surgelogic Branch Mounted I-Line SPD—Model IMA

| Voltage | Surge Current Rating kA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 100 kA | | 120 kA | | 160 kA | | 200 kA | | 240 kA | |
| | HL | FI | HL | FI | HL | FI | HL | FI | HL | FI |
| 120/240 1P3W | 18908. | 20416. | 20088. | 21692. | 23634. | 25520. | 29354. | 30958. | 34534. | 36420. |
| 208Y/120 3P4W | 19750. | 21260. | 20984. | 22588. | 24688. | 26574. | 30740. | 32342 | 36164. | 38050. |
| 240/120 3P4W | 19750. | 21260. | 20984. | 22588. | 24688. | 26574. | 30740. | 32342. | 36164. | 38050. |
| 480Y/277 3P4W | 20602. | 22110. | 21898. | 23492. | 25752. | 27638. | 32130. | 33734. | 37800. | 39686. |
| 600Y/347 3P4W | — | 23000. | — | 24438. | — | 28750. | — | 35198. | — | 41400. |



© 2012 Schneider Electric
All Rights Reserved

**Table 9.163: QMB Branch Switch Units**

| Unit Ampere Rating | Unit Height (In.) | Catalog Number | $ Price | Class R Fuse Kits | | | Electrical Interlock Kit | | Horsepower Ratings☆ | | | | | | | | | | | | 250 Vdc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No. Kits Req'd. | Catalog Number | $ Price | Catalog Number▲ | $ Price | 240 Vac | | | | 480 Vac | | | | 600 Vac | | | | |
| | | | | | | | | | Std. | | Max. | | Std. | | Max. | | Std. | | Max. | | |
| | | | | | | | | | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | 1Ø | 3Ø | |
| **2-pole, 240 Vac** | | | | | | | | | | | | | | | | | | | | | |
| 30 A-30 A | 4.5 | QMB221TW | **608.** | 2 | HRK30 | **25.50** | QMB300EK(1 or 2) | **357.** | 1.5 | 3 | 3 | 7.5 | — | — | — | — | — | — | — | — | 5 |
| 30 A-Blank | 4.5 | QMB221HW■ | **425.** | 1 | | | | | | | | | — | — | — | — | — | — | — | — | 5 |
| 60 A-60 A | 4.5 | QMB222TW | **608.** | 1 | QMB36R | **48.90** | QMB300EK(1 or 2) | **357.** | 3 | 7.5 | 10 | 15 | — | — | — | — | — | — | — | — | 10 |
| 60 A-Blank | 4.5 | QMB222HW■ | **425.** | | | | | | | | | | — | — | — | — | — | — | — | — | 10 |
| 100 A-100 A | 6 | QMB223TW | **990.** | 1 | QMB100R | **95.00** | QMB610EK(1 or 2) | **357.** | 7.5 | 15 | 15 | 30 | — | — | — | — | — | — | — | — | 20 |
| 100 A-Blank | 6 | QMB223HW■ | **695.** | | | | | | | | | | — | — | — | — | — | — | — | — | 20 |
| 200 A | 9 | QMB224W | **1200.** | 1 | HRK1020 | **47.70** | QMB200EK(1 or 2) | **357.** | — | 25 | 15 | 60 | — | — | — | — | — | — | — | — | 40 |
| 400 A | 15 | QMB225W | **3072.** | 1 | QMB4060R | **111.00** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 9 | QMB225WT3♦ | **2981.** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 600 A | Use 3-pole devices for 2-pole application. | | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | | | | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **3-pole, 240 Vac** | | | | | | | | | | | | | | | | | | | | | |
| 30 A-30 A | 4.5 | QMB321TW | **827.** | 2 | HRK30 | **25.50** | QMB300EK(1 or 2) | **357.** | — | 3 | — | 7.5 | — | — | — | — | — | — | — | — | — |
| 30 A-Blank | 4.5 | QMB321HW■ | **587.** | 1 | | | | | — | 3 | — | 7.5 | — | — | — | — | — | — | — | — | — |
| 60 A-60 A | 4.5 | QMB322TW | **827.** | 1 | QMB36R | **48.90** | | **357.** | — | 7.5 | — | 15 | — | — | — | — | — | — | — | — | — |
| 60 A-Blank | 4.5 | QMB322HW■ | **587.** | | | | | | — | 7.5 | — | 15 | — | — | — | — | — | — | — | — | — |
| 100 A-100 A | 6 | QMB323TW | **1265.** | 1 | QMB100R | **95.00** | QMB610EK(1 or 2) | **357.** | — | 15 | — | 30 | — | — | — | — | — | — | — | — | — |
| 100 A-Blank | 6 | QMB323HW■ | **879.** | | | | | | — | 15 | — | 30 | — | — | — | — | — | — | — | — | — |
| 200 A | 9 | QMB324W | **1673.** | 1 | HRK1020 | **47.70** | QMB200EK(1 or 2) | **357.** | — | 25 | — | 60 | — | — | — | — | — | — | — | — | — |
| 400 A | 15 | QMB325W | **4277.** | 1 | QMB4060R | **111.00** | — | — | — | 50 | — | 125 | — | — | — | — | — | — | — | — | — |
| | 9 | QMB325WT3♦ | **4143.** | — | — | — | — | — | — | 50 | — | — | — | — | — | — | — | — | — | — | — |
| 600 A | 15 | QMB326W | **6249.** | 1 | QMB4060R | **111.00** | — | — | — | 75 | — | 150 | — | — | — | — | — | — | — | — | — |
| | 15 | QMB326WT3♦ | **6249.** | — | — | — | — | — | — | 75 | — | — | — | — | — | — | — | — | — | — | — |
| 800 A | 15 | QMB327WT3♦ | **12140.** | — | — | — | — | — | — | 75 | — | — | — | — | — | — | — | — | — | — | — |
| **2-pole, 600 Vac, 250 Vdc★** | | | | | | | | | | | | | | | | | | | | | |
| 30 A-30 A | 4.5 | QMB261TW | **1050.** | 1 | QMB36R | **48.90** | QMB300EK(1 or 2) | **357.** | 1.5 | — | 3 | — | 3 | 5 | 7.5 | 15 | 3 | — | 10 | — | 5 |
| 30 A-Blank | 4.5 | QMB261HW■ | **702.** | | | | | | | — | | — | | | | | | — | | — | |
| 60 A-60 A | 6 | QMB262TW | **1050.** | 1 | QMB60R | **48.90** | | | 3 | — | 10 | — | 5 | 15 | 20 | 30 | 10 | — | 25 | — | 10 |
| 60 A-Blank | 6 | QMB262HW■ | **738.** | | | | | | | — | | — | | | | | | — | | — | |
| 100 A-100 A | 7.5 | QMB263TW | **1536.** | 2 | HRK1020 | **47.70** | | **357.** | 7.5 | — | 15 | — | 10 | 25 | 30 | 60 | 15 | — | 40 | — | 20 |
| 100 A-Blank | 7.5 | QMB263HW■ | **1083.** | 1 | | | | | | — | | — | | | | | | — | | — | |
| 200 A | 9 | QMB264W | **1791.** | 1 | HRK1020 | **47.70** | QMB200EK(1 or 2) | **357.** | 15 | — | — | — | 25 | 50 | 50 | 125 | 30 | — | 50 | — | 40 |
| 400 A | Use 3-pole devices for 2-pole application. | | | | | | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 600 A▼ | | | | | | | | | | | | | | | | | | | | | |
| **3-pole, 600 Vac★** | | | | | | | | | | | | | | | | | | | | | |
| 30 A-30 A | 4.5 | QMB361TW | **1241.** | 1 | QMB36R | **48.90** | QMB300EK(1 or 2) | **357.** | — | 3 | — | 7.5 | — | 5 | — | 15 | — | 7.5 | — | 20 | — |
| | 4.5 | QMJ361T | **1293.** | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | 20 | 5 |
| 30 A-Blank | 4.5 | QMB361HW■ | **861.** | 1 | QMB36R | **48.90** | QMB300EK(1 or 2) | **357.** | — | 3 | — | 7.5 | — | 5 | — | 15 | — | 7.5 | — | 20 | — |
| 60 A-60 A | 6 | QMB362TW | **1241.** | 1 | QMB60R | **48.90** | QMB610EK(1 or 2) | **357.** | — | 7.5 | — | 15 | — | 15 | — | 30 | — | 15 | — | 50 | — |
| | 6 | QMJ362T | **1293.** | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | 10 |
| 60 A-Blank | 6 | QMB362HW■ | **861.** | 1 | QMB60R | **48.90** | QMB610EK(1 or 2) | **357.** | — | 7.5 | — | 15 | — | 15 | — | 30 | — | 15 | — | 50 | — |
| 60 A-30 A | 6 | QMB362T21W | **1241.** | 1 ea. | QMB60R and QMB36R | **48.90** | QMB610EK(1 or 2) | **357.** | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 6 | | | | | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 100 A-100 A | 7.5 | QMB363TW | **1961.** | 2 | HRK1020 | **47.70** | QMB610EK(1 or 2) | **357.** | — | 15 | — | 30 | — | 25 | — | 60 | — | 30 | — | 75 | — |
| | 6 | QMJ363T | **2013.** | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | 20 |
| 100 A-Blank | 7.5 | QMB363HW■ | **1373.** | 1 | HRK1020 | **47.70** | QMB610EK(1 or 2) | **357.** | — | 15 | — | 30 | — | 25 | — | 60 | — | 30 | — | 75 | — |
| | 6 | QMJ363H■ | **1424.** | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | 20 |
| 100 A-30 A | 7.5 | QMB363T31W | **1961.** | 1 ea. | HRK1020 and QMB36R | **47.70** | QMB610EK(1 or 2) | **357.** | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 7.5 | | | | | **48.90** | | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 100 A-60 A | 7.5 | QMB363T32W | **1961.** | 1 ea. | HRK1020 and QMB60R | **47.70** | QMB610EK(1 or 2) | **357.** | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 7.5 | | | | | **48.90** | | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 200 A | 9 | QMB364W | **2306.** | 1 | HRK1020 | **47.70** | QMB200EK(1 or 2) | **357.** | — | 25 | — | 60 | — | 50 | — | 125 | — | 60 | — | 150 | — |
| 200 A-200 A | 7.5 | QMJ364T | **4712.** | — | — | — | QMB610EK(1 or 2) | **357.** | — | 25 | — | 60 | — | 50 | — | 125 | — | 60 | — | 150 | 40 |
| 200 A-Blank | 7.5 | QMJ364H■ | **2357.** | — | — | — | | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 400 A△ | 15 | QMB365W | **5445.** | 1 | QMB4060R | **111.00** | — | — | — | — | — | — | — | 100 | — | 250 | — | 125 | — | 350 | 50 |
| 400 A | 9 | QMJ365 | **5561.** | — | — | — | QMB200EK(1 or 2) | **357.** | — | 50 | — | 125 | — | 100 | — | 250 | — | 125 | — | 350 | 50 |
| 400 A△ | 9 | QMB365WT6◊ | **5276.** | — | — | — | — | | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 600 A▼△ | 15 | QMB366W | **6735.** | 1 | QMB4060R | **111.00** | — | — | — | — | — | — | — | 150 | — | 400 | — | 250 | — | 500 | — |
| 60 A0 | 15 | QMJ366 | **6704.** | — | — | — | — | — | — | 75 | — | 150 | — | — | — | — | — | | — | — | — |
| 800 A□ | 15 | QMB367W | **12140.** | — | — | — | — | — | — | — | — | — | — | 150 | — | 400 | — | 250 | — | 500 | — |

▲ "1" indicates one normally open and one normally closed contact.
"2" indicates two normally open and two normally closed contacts.
■ Blank units cannot be modified to accept a switch interior.
♦ Use 300 Vac Class T fuses only.
★ Class J fuse provisions—to field modify switch, move load side fuse base to position indicated in switch. Not available on 100-30, 100-60, or 800 A switch units.
▼ To adapt switch for 600 Vac Class T fuses, order kit Catalog Number **QMB600T6**, $ Price **194.** (Use T6 fuses with standard horsepower ratings only).
△ 250 Vdc rating.
□ To adapt switch for 600 Vac Class T fuses, order kit Catalog Number **QMB800T6**, $ Price **467.** (Use T6 fuses with standard horsepower ratings only).
◊ Use 600 Vac Class T fuses only.
☆ Horsepower rating applicable to 480Y/277 V system only.

Note: See the Supplemental Digest for merchandised motor starter units, QMB RTI panelboards, and replacement switches for Series 1–4 and D2 QMB panelboards.

Note: For series E1 and E2, QMJ switches may be used in 400 A–1200 A interiors in a NEMA 1 without door only. QMJ switches cannot be used in series E1 and E2, 225 A panelboards. QMJ switches cannot be used in NEMA 1 with door or any NEMA 3R/12 enclosure.

© 2012 Schneider Electric
All Rights Reserved

**Table 9.164: Base $ Price**

| Main Lugs | | | Main Switch ▲ | | | | | | Solid Neutral (Main Lugs and Main Switch) | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mains Rating (Amperes) | Maximum Mounting Space (In.) | Base $ Price (2- or 3-pole) | Mains Rating (Amperes) | Maximum Mounting Space (In.) | 240 Vac Base $ Price | | 600 Vac Base $ Price | | Ampere Rating | $ Price |
| | | | | | 2-pole | 3-pole | 2-pole | 3-pole | | |
| — | — | — | 100 | 51 | **2544.** | **3104.** | **3026.** | **3632.** | 100 A | **294.** |
| — | — | — | 200 | 51 | **2544.** | **3104.** | **3026.** | **3632.** | 200 A | **294.** |
| 225 | 60 | **1098.** | — | — | — | — | — | — | 225 A | **294.** |
| 400 | 60 | **1344.** | 400 | 45 | **4840.** | **6158.** | **5906.** | **7300.** | 400 A | **384.** |
| 600 | 60 | **2066.** | 600 | 45 | **7298.** ♦ | **8758.** ♦ | **7968.** ★▼ | **9338.** ★ | 600 A | **556.** |
| 800 | 60 | **2550.** | 800■ | 45 | **11098.** | **13704.** ♦ | **11128.** ★ | **13724.** ★ | 800 A | **786.** |
| 1200 | 45 | **3550.** | — | — | — | — | — | — | 1200 A | **912.** |

▲ Pricing includes Class R or J Rejection Clips if requested at time of order. Class J fuses available only on 600 V switches.
■ 800 A switch unit with provision for UL Class L fuses.
♦ Switches for use with 300 V Class T fuses are also available at no additional cost.
★ For 600 Vac UL Class T fuse provision on main switch, add $ **321.00**
▼ 250 Vdc rating.

**Table 9.165: Branch Switch $ Price** △

| Unit Ampere Rating | Switch Type | 240 Vac | | | | 600 Vac | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2-pole $ Price | 3-pole $ Price | Space Only $ Price | Unit Mounting Height (In.) | 2-pole $ Price | 3-pole $ Price | Space Only $ Price | Unit Mounting Height (In.) |
| **Twin Mounted Branch Switches** □ | | | | | | | | | |
| 30 A-Blank | QMB | **592.** | **784.** | **294.** | 4.5 | **852.** | **1012.** | **294.** | 4.5 |
| 60 A-Blank | QMB | | | | | | | **396.** | 6 |
| 100 A-Blank | QMB | **898.** | **1104.** | **392.** | 6 | **1276.** | **1592.** | **462.** | 7.5 |
| | QMJ ◊ ♦ | — | — | — | — | | | **396.** | 6 |
| 200 A-Blank | QMJ ◊ ♦ | — | — | — | — | **1984.** | **2576.** | **462.** | 7.5 |
| 60 A-30 A | QMB | — | — | — | — | **1216.** | **1446.** | **396.** | 6 |
| 100 A-30 A | QMB | **1822.** | **2274.** | **396.** | 6 | **1822.** | **2274.** | **462.** | 7.5 |
| 100 A-60 A | QMB | | | | | | | | |
| 30 A-30 A | QMB | **826.** | **1120.** | **294.** | 4.5 | **1216.** ◊ | **1446.** | **294.** | 4.5 |
| | QMJ ◊ ♦ | — | — | — | — | **1216.** | | | |
| 60 A-60 A | QMB | **826.** | **1120.** | **294.** | 4.5 | **1216.** ◊ | **1446.** | **396.** | 6 |
| | QMJ ◊ ♦ | — | — | — | — | **1216.** | | | |
| 100 A-100 A | QMB | **1282.** | **1576.** | **396.** | 6 | **1822.** ▽ | **2274.** | **462.** | 7.5 |
| | QMJ ◊ ♦ | — | — | — | — | **1822.** | | **396.** | 6 |
| 200 A-200 A | | — | — | — | — | **3970.** | **5154.** | **462.** | 7.5 |
| **Single Mounted Branch Switches** | | | | | | | | | |
| 200 A | QMB | **1484.** | **2034.** | **580.** | 9 | **1984.** ◊ | **2576.** | **580.** | 9 |
| 400 A | QMB | **3204.** | **4562.** | **878.** | 15 | **4300.** ◊ | **5764.** ◊ | **878.** | 15 |
| 400 A☆ | QMB | **3040.**☆ | **4360.**☆ | **580.** | 9 | **4098.** ◊☆ | **5552.** ◊☆ | **580.** | 9 |
| 400 A | QMJ ◊ ♦ | — | — | — | — | **4098.** | **5552.** | | |
| 600 A | QMB | **4888.** ▽ | **6374.** ◊▽ | **878.** | 15 | **5264.** ◊◒ | **6962.** ◊◒ | **878.** | 15 |
| 600 A | QMJ ◊ ♦ | — | — | — | — | **5264.** | **6962.** | | |
| 800 A✱ | QMB | **10682.** | **10682.** ▽ | **878.** | 15 | **10682.** ◒ | **10682.** ◒ | | |

△ Pricing includes Class R or J Rejection Clips if requested at time of order. Class J fuses available only on 600 V switches.
□ $ Price is per twin switch.
◊ 250 Vdc rating.
☆ For use with Class T fuses only. Use 300 V Class T fuses on 240 Vac max. systems and 600 V Class T fuses on 600 Vac max. systems.
▽ Switches for use with 300 V Class T fuses are also available at no additional cost.
◒ For 600 Vac UL Class T fuse provision on branch switch, add $ 307.00
✱ 800 A switch unit with provision for UL Class L fuses.
♦ QMJ switches are available in NEMA 1 enclosures only.

**Table 9.166: Accessories**

| Electrical Interlocks | | | Mains Ampere Rating | Sub-feed Lugs ◑ for Main Lugs Interior ◑ | Feed-through Lugs for Main Switch Interior | Copper Bus Bars |
|---|---|---|---|---|---|---|
| Number of Contacts | | Branch Switches 30–200 A $ Price | | | | |
| Normally Open | Normally Closed | | | | | |
| 1<br>2 | 1<br>2 | **472.** | 200 A | — | — | **488.** |
| | | | 225 A | **282.** | — | **488.** |
| | | | 400 A | **466.** | **872.** ✪ | **720.** |
| | | | 600 A | **856.** | **1268.** ✪ | **1148.** |
| | | | 800 A | **1150.** | **1512.** ✪ | **1372.** |
| | | | 1200 A | **1440.** | — | **1428.** |

◑ No extra box height required.
✪ Box height increases 6 in. Not available in Type 3R/5/12 construction.

**Table 9.167: Circuit Breakers, Twin Mounted H-frame— $ Price Per Twin Unit**

| Circuit Breaker Ampere Rating | | Unit Mounting Height (In.) | $ Price—3-pole | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Left Unit | Right Unit | | 240 V | | 480 V | | 600 V | | Space Only |
| | | | HD | HG | HD | HG | HD | HG | |
| 15–150 A | 15–150 A | 6 | **2914.** | **3572.** | **3324.** | **3814.** | **3674.** | **4018.** | **396.** |

Note: See the Supplemental and Obsolescence Digest for merchandised motor starter units, QMB RTI panelboards, and replacement switches for Series 1-4 and D2 QMB panelboards.

**Table 9.168: Circuit Breaker, Single Mounted JD-LA— $ Price Each**

| Circuit Breaker Ampere Rating | Unit Mounting Height (In.) | $ Price—3-pole | | | |
|---|---|---|---|---|---|
| | | 600 V | | | Space Only |
| | | JD | JG | LA | |
| 150–250 A | 6 | **3800.** | **5814.** | — | **396.** |
| 225–400 A | 7.5 | — | — | **5664.** | **462.** |

**Table 9.169: UL Listed Short Circuit Ratings**

| Starter Size | Fusible Switch—600 V Max. (w/Class R or J Fuses) RMS Sym. Amps | Thermal-magnetic Circuit Breaker 600 V Max. RMS Sym. Amps |
|---|---|---|
| 0 | 100,000 | 5,000 |
| 1 | 100,000 | 5,000 |
| 2 | 100,000 | 5,000 |
| 3 | 100,000 | 5,000 |



© 2012 Schneider Electric
All Rights Reserved

**Table 9.170: Ground Bar and Name Plates**

| Item | $ Price |
|---|---|
| Equipment Ground Bar | 180. |
| Copper Ground Bar | 148. ▲ |
| Insulated/Isolated Ground Bar | ▲■ |
| Name Plates | 78. ♦ |

▲ Add to Equipment Ground Bar $ Price.
■ $ Price an additional Neutral Assembly from Table 9.164 on Digest page 9-36 for Al insulated ground bar or from Table 9.171 for Cu insulated ground bar.
♦ Standard white face/black letter laminated bakelite, 1 in. x 3.5 in. adhesive backed or screw mountable with screws in a bag assembly. ($ Price includes engraving.)

**Table 9.171: Copper Neutral**

| | $ Price |
|---|---|
| Copper Neutral | |
| 125–400 A | 868. |
| 600 A | 894. |
| 800 A | 1108. |
| 1200 A | 1352. |
| Hinged Trim | N/A |
| Weatherproof or Dusttight Cabinets—Type 3R, 5, 12; 800 A Max. | 3054. |
| Mechanical Lugs 225 A–1200 A | Standard |

**Table 9.172: Copper Mechanical Lugs—Main Switch Interiors**

| Copper Mechanical Lugs | $ Price |
|---|---|
| 200 A | 108. |
| 400 A | 148. |
| 600 A | 168. |
| 800 A | 196. |

**Table 9.173: Copper Compression Lugs—Main Lug Interiors**

| Copper Compression Lugs | $ Price |
|---|---|
| 225 A | 108. |
| 400 A | 148. |
| 600 A | 168. |
| 800 A | 316. |
| 1200 A | 836. |

**Table 9.174: Aluminum Compression Lugs VCEL—Main Lug Interiors**

| Aluminum Compression Lugs VCEL | $ Price |
|---|---|
| 225 A | 58. |
| 400 A | 90. |
| 600 A | 118. |
| 800 A | 200. |
| 1200 A | 236. |

**Table 9.175: Aluminum Compression Lugs VCEL—Main or Branch Switches**

| Aluminum Compression Lugs VCEL | $ Price |
|---|---|
| 100 A #8–1/0 Al or Cu | 58. |
| 200 A #4–300 kcmil Al or Cu | 98. |
| 400 A 2/0–500 kcmil Al or Cu | 128. |
| 600 A 2/0–500 kcmil Al or Cu | 246. |
| 800 A 2/0–500 kcmil Al or Cu or 500 kcmil Cu or 500–750kcmil Al. | 262. |

**Table 9.176: Copper Compression Lugs—Main Switch Interiors**

| Copper Compression Lugs | $ Price |
|---|---|
| 200 A | 108. |
| 400 A | 148. |
| 600 A | 168. |
| 800 A | 196. |

**Table 9.177: Surgelogic™ SPD for QMB ★**

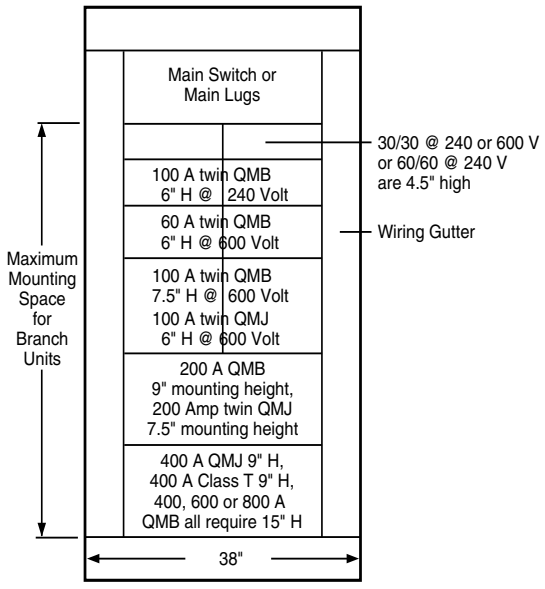
| Surge Current Rating kA | Voltage | | | | |
|---|---|---|---|---|---|
| | 120/240 V | 208Y/120 V | 240/120 Vac | 480Y/277 Vac | 600Y/347 Vac |
| | 1Ø3W | 3Ø4W | 3Ø4W High Leg | 3Ø4W | 3Ø4W |
| 100 | — | 14310. | — | 15410. | — |
| 120 | — | 15654. | — | 16754. | — |
| 160 | — | 18586. | — | 19686. | — |
| 200 | 19196. | 23596. | 23596. | 26896. | 26896. |
| 240 | 23760. | 27440. | 27440. | 31460. | 31460. |

★ Requires 9 in. of mounting height.

**Table 9.178: SPD Options**

| Surgelogic SPD Options | $ Price |
|---|---|
| Surge Counter | Standard |
| Dry Contacts | Standard |
| Remote Monitor | 2588. |

## QMB Layout Information




To maximize the quantity of branch switches, use QMJ switches from Digest page 9-36. Class J fuses are available in time delay construction suitable for motor and transformer loads.

© 2012 Schneider Electric
All Rights Reserved

**Table 9.179: NQ and NF Lighting Contactors—Mechanically Held**
(Furnish a one-line power and control voltage connection diagram.)

| Ampacity | Mechanically Held | | |
|---|---|---|---|
| | Type | $ Price | Minimum Additional Box Height Required ▲ H (In.) |
| **Square D™ Brand PB ■** | | | |
| 30 A 2P | PBM10B | **3772.** | 18 |
| 60 A 2P | PBP10B | **4634.** | 18 |
| 75 A 2P | PBN10B | **4986.** | 18 |
| 100 A 2P | PBQ10B | **5072.** | 18 |
| 150 A 2P | PBR10B | **7156.** | 18 |
| 200 A 2P | PBV10B | **8692.** | 18 |
| 225 A 2P | PBW10B | **9830.** | 18 |
| 30 A 3P | PBM11B | **3740.** | 18 |
| 60 A 3P | PBP11B | **4754.** | 18 |
| 75 A 3P | PBN11B | **5628.** | 18 |
| 100 A 3P | PBQ11B | **6454.** | 18 |
| 150 A 3P | PBR11B | **8078.** | 18 |
| 200 A 3P | PBV11B | **8736.** | 18 |
| 225 A 3P | PBW11B | **10062.** | 18 |
| **ASCO Type 920 ♦** | | | |
| 30 A 2P | 9202030 | **4694.** | 18 |
| 60 A 2P | 9202060 | **5954.** | 18 |
| 75 A 2P | 9202075 | **5954.** | 18 |
| 100 A 2P | 9202100 | **6194.** | 18 |
| 150 A 2P | 9202150 | **9242.** | 18 |
| 200 A 2P | 9202200 | **10882.** | 18 |
| 225 A 2P | 9202225 | **11875.** | 18 |
| 30 A 3P | 9203030 | **5436.** | 18 |
| 60 A 3P | 9203060 | **7638.** | 18 |
| 75 A 3P | 9203075 | **7638.** | 18 |
| 100 A 3P | 9203100 | **9184.** | 18 |
| 150 A 3P | 9203150 | **12998.** | 18 |
| 200 A 3P | 9203200 | **14434.** | 18 |
| 225 A 3P | 9203225 | **15750.** | 18 |

▲ NF panels require 18 in. of additional box height regardless of contactor ampacity or manufacturer.
■ If two-wire control is required—Square D™ brand. Add **708.** (No additional width or depth required)
♦ If two-wire control is required—ASCO type. Add **1412.** (No additional width or depth required)

**Table 9.180: Current Density Rated Panelboard Bus and Special Plating for Copper Bus**

| Ampacity | Copper Bus Special Plating $ List Price Adder ★ | Current Density Rated Bus $ List Price Adder | |
|---|---|---|---|
| | Tin or Silver Plating | 1000 A/in² Cu | 750 A/in² Al |
| 100 A | **1240.** | **510.** ▼ | **340.** △ |
| 125 A | | | |
| 225 A | **1240.** | **610.** ▼ | |
| 250 A | | | **456.** △ |
| 400 A | **2080.** | **830.** | **572.** △ |
| 600 A | **2080.** | **1050.** △ | **1080.** △□ |
| 800 A | **2080.** | **1490.** | **1244.** □ |
| 1200 A | **2080.** | **1710.** | **1432.** □◊ |

★ Standard copper bus plating material
– NQ and NF: Silver plated bus/tin plated connectors
– I-Line and QMB: Tin.
▼ NQ available in 42 circuit only.
△ Not available in NQ.
□ HCN 600 A and all 800–1200 A I-Line interiors available with copper bus only.
◊ 1200 A QMB with current density-rated bussing not available.

**Table 9.181: NQ and NF Panelboard Split Bus Bars**

| Maximum Ampacity MLO | $ List Price Adder | | Maximum Number of Pole Spaces Available | | Box Height (ft.) |
|---|---|---|---|---|---|
| | 1-phase | 3-phase | Main | Split | |
| **NQ Panelboards—125 A Maximum Lugs on Split Bus Section ☆** | | | | | |
| 225 A | **600.** | **900.** | 18 | 30 | 44 |
| | | | 30 | 18 | |
| | | | | 30 | |
| **NF Panelboards—125 A Maximum Lugs on Split Bus Section ☆** | | | | | |
| 250 A | — | **900.** | 18 | 30 | 56 |
| | | | 30 | 18 | |
| | | | | 30 | 62 |

☆ When greater than 125 A lugs are required on the split section of the bus, contact your local Schneider Electric representative or distributor for the box height.

**Table 9.182: I-Line™ Panelboard Split Bus Bars**

| Ampacity MLO | $ Price | | Additional Mounting Height Required On Split Bus Section ▽ |
|---|---|---|---|
| | 2-pole | 3-pole | Split Bus |
| 225 A | **560.** | **662.** | 7.5 in. |
| 400 A | **662.** | **858.** | 9 in. |
| 600 A | **786.** | **858.** | 12 in. |
| 800 A | **1094.** | **1238.** | 12 in. |
| 1200 A | **1320.** | **1442.** | 18 in. |

Note: For applications with main circuit breaker panelboards, contact your local Schneider Electric representative or distributor.
▽ For I-Line panelboards, dimension includes height of "SL" sub-feed lug kit from Digest, plus 3 in. from available branch mounting space.

## Main Circuit Breaker Without Overload Trip

**(Automatic Molded Case Switch)**

- (Not UL Listed)
  $ Price as standard main circuit breaker, no $ Price Adder.

## Shunt Trip Circuit Breakers

- See Digest page 7-35 for pricing.

Note: For molded case switch and automatic molded case switch short circuit current ratings, See Digest page 7-33.

## Special Features

For information on the following special features, please see the Supplemental and Obsolescence Digest.

- Powerlogic™ metering ◒
- Customer equipment space (NQ and NF) ◒
- Increased box depth ◒
- Increased gutters–top, bottom, and sides ◒
- Non-standard paint ◒
- Welded base channel ◒
- Type 1 gasketed ◒
- Type 2 drip hood ◒
- Type 3R/4/4X/5/12 stainless steel enclosure ◒
- Type 4X fiberglass enclosure ◒
- Stainless steel trim front ◒
- Padlockable hasp ◒
- Special locks (Corbin, Yale, Best) ◒
- Equal height boxes ◒
- Common trim to cover two equal height boxes ◒
- Panelboard skirt—hides conduits feeding a panelboard ◒
- Panelboard wireway—for terminating conduit in wireway endwall ◒
- Keyed mechanical interlocking of two or more circuit breakers (I-Line and QMB) ◒
- Motor operators (I-Line only)
- Panelboard interiors and special fronts to fit existing boxes
- A standard panelboard box has one blank endwall and one with knockouts. Blank endwalls or knockouts in both endwalls are also available ◒

◒ Supported by the Panelboard Product Selector.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.183: NQ Standard Aluminum Mechanical Lugs—Main Lugs**

| Panel Type | Ampere Rating | Lug Wire Range |
|---|---|---|
| NQ | 100 A | one #6-2/0 Al or Cu |
| | 225 A | one #6-350 kcmil Al or Cu |
| | 400 A | one 1/0-750 kcmil or<br>two 1/0-350 kcmil Al or Cu |
| | 600 A | two 1/0-750 kcmil Al or Cu |

**Table 9.184: NQ Standard Aluminum Mechanical Lugs—Main Circuit Breaker**

| Panel Type | Ampere Rating | Circuit Breaker Type | Lug Wire Range ▲ |
|---|---|---|---|
| NQ | 100 A | QOB | one #4–#2/0 Al or Cu |
| | | FI | one #14–#1/0 Al or Cu |
| | 150 A | HD, HG, HJ, HL | one #14–#3/0 Al or Cu |
| | 225 A | QB, QD, QG, QJ | one #4-300 kcmil Al or Cu |
| | 250 A | JD, JG, JJ, JL | one #3/0–350 kcmil Al or Cu ▲ |
| | | DJ | one #2–600 Cu or #2–500 Al |
| | | KI | one #1/0–350 kcmil Al or Cu |
| | 400 A | LA, LH | one #1–600 kcmil Al or Cu or<br>two #1–250 kcmil Al or Cu |
| | 600 A | LC | two #4/0-500 kcmil Al or Cu |

▲ The lug range shown is for the highest amperage of the circuit breaker frame shown in the table.

**Table 9.185: NF Standard Mechanical Lugs—Main Lugs**

| Panel Type | Ampere Rating | Lug Wire Range |
|---|---|---|
| NF | 125 A | one #6–2/0 Al or Cu |
| | 250 A | one #6–350 kcmil Al or Cu |
| | 400 A | one #1/0–750 kcmil or two #1/0–350 kcmil Al or Cu |
| | 600 A | two #1/0–600 kcmil Al or Cu |
| | 800 A | three #4/0–500 kcmil Al or Cu |

**Table 9.186: NF Standard Mechanical Lugs—Main Circuit Breaker**

| Panel Type | Ampere Rating | Circuit Breaker Type | Lug Wire Range ■ |
|---|---|---|---|
| NF | 125 A | ED, EG, EJ | one #14–#2/0 Al or Cu |
| | 100 A | FI | one #14–#1/0 Cu or one #12–#1/0 Al |
| | 150 A | HD, HG, HJ, HL | one #14–#3/0 Al or Cu |
| | 250 A | JD, JG, JJ, JL | one #3/0–350 kcmil Al or Cu ■ |
| | | DJ | one #2–600 Cu or #2–500 Al |
| | | KI | one #1/0–350 kcmil Al or Cu |
| | 400 A | LA, LH | one #1–600 kcmil or two #1–250 kcmil Al or Cu |
| | 600 A | LC, LI, LE, LX, LXI | two #4/0–500 kcmil Al or Cu |

■ The lug range shown is for the highest amperage of the circuit breaker frame shown in the table.

© 2012 Schneider Electric
All Rights Reserved

**Table 9.187: Standard Mechanical Lugs—Main Lugs**

| Panel Type | Ampere Rating | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|
| I-Line | 100 A | — | — |
| | 225 A | one #6–300 kcmil Al or Cu | one #6–300 kcmil Al or Cu |
| | 400 A | two #2–600 kcmil Al or Cu | one #2–600 kcmil Al or Cu |
| | 600 A | two #2–600 kcmil Al or Cu | two #2–500 kcmil Al or Cu |
| | 800 A | (4) 3/0–750 kcmil Al or Cu | (3) 3/0–500 kcmil Al or Cu |
| | 1200 A | (4) 3/0–750 kcmil Al or Cu | (4) 3/0–500 kcmil Al or Cu |

**Table 9.188: Standard Mechanical Lugs—Main Circuit Breaker**

| Panel Type | Ampere Rating | Circuit Breaker Type | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|---|
| I-Line | 100 A | FA, FH, FI | one #14-1/0 Al or Cu | one #14-1/0 Al or Cu |
| | 150 A | HD, HG, HJ, HL | one #14-3/0 Al or Cu | one #14-3/0 Al or Cu |
| | 225 A | KI | one #4-300 kcmil Al or Cu | one #4-300 kcmil Al or Cu |
| | 250 A | JD, JG, JJ, JL | one #1/0-#4/0 Al or Cu | one #1/0-300 kcmil Al or Cu |
| | | LX, LXI, LE | two #1-350 kcmil Al or Cu | two #1-350 kcmil Al or Cu |
| | 400 A | LA, LH | one #1-600 or two #1-250 kcmil Al or Cu | one #1-600 kcmil Al or Cu |
| | 600 A | LC, LI, LX, LXI, LE | two 4/0-500kcmil Al or Cu | two 4/0-500kcmil Al or Cu |
| | 800 A | MG, MJ, PG, PJ, PL | three 3/0-500 kcmil Al or Cu | three 3/0-500 kcmil Al or Cu |
| | 1200 A | PG, PJ, PL, RGC, RJC, RLC | four 3/0-500 kcmil Al or Cu | four 3/0-500 kcmil Al or Cu |

**Table 9.189: Standard Mechanical Lugs—Main Lugs**

| Panel Type | Mains Ampere Rating | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|
| QMB | 225 A | one #6–300 kcmil Al or Cu | one #6–300 kcmil Al or Cu |
| | 400 A | one #6–300 kcmil Al or Cu and, one 3/0–750 kcmil Al or Cu | one #6–300 kcmil Al or Cu and, one 3/0–750 kcmil Al or Cu |
| | 600 A | two 3/0–500 kcmil Al or Cu | two 3/0–500 kcmil Al or Cu |
| | 800 A | (4) 3/0–750 kcmil Al or Cu | (3) 3/0–500 kcmil Al or Cu or two 3/0–750 kcmil Al or Cu |
| | 1200 A | (4) 3/0–750 kcmil Al or Cu | (4) 3/0–500 kcmil Al or Cu or (4) 3/0–750 kcmil Al or Cu |
| | 1600 A | VCEL compression lugs Standard. | |

**Table 9.190: Standard Mechanical Lugs—Main Switch**

| Panel Type | Mains Ampere Rating | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|
| QMB | 200 A | #4–300 kcmil Al or Cu | one #4–300 kcmil Al or Cu |
| | 400 A | 3/0–600 kcmil Al or Cu | two 3/0–600 kcmil Al or Cu |
| | 600 A | 3/0–600 kcmil Al or Cu | two 3/0–600 kcmil Al or Cu |
| | 800 A | 3/0–600 kcmil Al or Cu | (3) 3/0–500 kcmil Al or Cu |

**Table 9.191: Standard Mechanical Lugs—QMB Branch Switch Units**

| Panel Type | Switch Ampere Rating | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|
| QMB | 30 A | one #14–#2 Al or Cu | one #14–#2 Al or Cu |
| | 60 A | one #14–#2 Al or Cu | one #14–#2 Al or Cu |
| | 100 A | one #14–1/0 Al or Cu | one #14–1/0 Al or Cu |
| | 200 A | one #4–300 kcmil Al or Cu | one #4–300 kcmil Al or Cu |
| | 400 A | two 3/0–600 kcmil Al or Cu | two 3/0–500 kcmil Al or Cu |
| | 600 A | two 3/0–600 kcmil Al or Cu | two 3/0–500 kcmil Al or Cu |
| | 800 A | (3) 3/0–600 kcmil Al or Cu | (3) 3/0–500 kcmil Al or Cu |

**Table 9.192: Standard Mechanical Lugs—QMJ Branch Switch Units ■**

| Panel Type | Switch Ampere Rating | Lug Wire Range ▲ | Wire Range Wire Bending Space per NEC Table 373-6 ▲ |
|---|---|---|---|
| QMJ | 30 A | one #14–#2 Al or Cu | one #14–#2 Al or Cu |
| | 60 A | one #14–#2 Al or Cu | one #14–#2 Al or Cu |
| | 100 A | one #14–1/0 Al or Cu | one #14–1/0 Al or Cu |
| | 200 A | one #6–300 kcmil Al or Cu | one #6–300 kcmil Al or Cu |
| | 400 A | one 1/0–750 kcmil Al or Cu | one 1/0–750 kcmil Al or Cu |
| | 400 A | two 1/0–300 kcmil Al or Cu | two 1/0–300 kcmil Al or Cu |
| | 600 A | two 3/0–600 kcmil Al or Cu | two 3/0–600 kcmil Al or Cu |

▲ (#) = Number of conductors per phase.
■ Use only 90 °C insulated conductors based on an ampacity of 75 °C conductors.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.193: Interior Boxes and Fronts — Includes Solid Neutral**

| I-Line Mounting Space | Part Number | Panelboard Ampacity | List $ Price | Single/ Duplex | Lighting Section Type | Lighting Section Amperage | Lighting Section Circuits | Busing | Ground Bar | Box | 4 Piece Trim Without Door | Trim with Door | NEMA 3R/5/12 (Includes Fromnt) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | CP18864N3Q2C | 400 | **10334.00** | S | NQ | 225 | 30 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N3Q2 | 400 | **7650.00** | S | NQ | 225 | 30 | Al | PK32DGTA | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N4Q2C | 400 | **10729.00** | S | NQ | 225 | 42 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N4Q2 | 400 | **8045.00** | S | NQ | 225 | 42 | Al | PK32DGTA | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N3F2C | 400 | **17549.00** | S | NF | 250 | 30 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N3F2 | 400 | **14749.00** | S | NF | 250 | 30 | Al | PK32DGTA | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N4F2C | 400 | **18147.00** | S | NF | 250 | 42 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18864N4F2 | 400 | **15388.00** | S | NF | 250 | 42 | Al | PK32DGTA | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18866N3Q4C | 600 | **15032.00** | S | NQ | 400 | 30 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18866N4Q4C | 600 | **15428.00** | S | NQ | 400 | 42 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18866N3F4C | 600 | **21270.00** | S | NF | 400 | 30 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 18 | CP18866N4F4C | 600 | **21863.00** | S | NF | 400 | 42 | Cu | PK32DGTACU | HC2686DB | HC2686T( )4P | HC2686T( )HR | HC2686WP |
| 22.5 | CP23734N3Q2C | 400 | **10686.00** | S | NQ | 225 | 30 | Cu | PK32DGTACU | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23734N3Q2 | 400 | **7942.00** | S | NQ | 225 | 30 | AL | PK32DGTA | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23734N3F2C | 400 | **18065.00** | S | NF | 250 | 30 | Cu | PK32DGTACU | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23734N3F2 | 400 | **15249.00** | S | NF | 250 | 30 | AL | PK32DGTA | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23736N3Q4C | 600 | **16159.00** | S | NQ | 400 | 42 | Cu | PK32DGTACU | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23736N3F4C | 600 | **22539.00** | S | NF | 400 | 42 | Cu | PK32DGTA | HC3273DB9 | HCM73T( )V | HCM73T( )VD | N/A |
| 22.5 | CP23914N4Q2C | 400 | **11091.00** | S | NQ | 225 | 42 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N4Q2 | 400 | **8346.00** | S | NQ | 225 | 42 | Al | PK32DGTA | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N5Q2C | 400 | **11604.00** | S | NQ | 225 | 54 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N5Q2 | 400 | **8797.00** | S | NQ | 225 | 54 | Al | PK32DGTA | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N4F2C | 400 | **18672.00** | S | NF | 250 | 42 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N4F2 | 400 | **15855.00** | S | NF | 250 | 42 | Al | PK32DGTA | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N5F2C | 400 | **19341.00** | S | NF | 250 | 54 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23914N5F2 | 400 | **16508.00** | S | NF | 250 | 54 | Al | PK32DGTA | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N4Q4C | 600 | **16563.00** | S | NQ | 400 | 42 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N5Q4C | 600 | **17076.00** | S | NQ | 400 | 54 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N4F4C | 600 | **23145.00** | S | NF | 400 | 42 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N5F4C | 600 | **23814.00** | S | NF | 400 | 54 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N44Q4C | 600 | **26032.00** | D | NQ | 400 | 42/42 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 22.5 | CP23916N53Q4C | 600 | **26141.00** | D | NQ | 400 | 54/30 | Cu | PK32DGTACU | HC3291DB9 | HCM91T( )V | HCM91T( )VD | N/A |
| 31.5 | CP32866N44Q4C | 600 | **26066.00** | D | NQ | 400 | 42/42 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32866N53Q4C | 600 | **26170.00** | D | NQ | 400 | 54/30 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32866N4BQ4C | 600 | **18362.00** | D | NQ | 400 | 42/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32866N44F4C | 600 | **38703.00** | D | NF | 400 | 42/42 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32866N53F4C | 600 | **38763.00** | D | NF | 400 | 54/30 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32866N4BF4C | 600 | **24681.00** | D | NF | 400 | 42/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N44Q6C | 800 | **36447.00** | D | NQ | 600 | 42/42 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N53Q6C | 800 | **36552.00** | D | NQ | 600 | 54/30 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N3BQ6C | 800 | **23026.00** | D | NQ | 600 | 30/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N4BQ6C | 800 | **23415.00** | D | NQ | 600 | 42/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N5BQ6C | 800 | **23300.00** | D | NQ | 600 | 54/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N44F6C | 800 | **38744.00** | D | NF | 600 | 42/42 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N53F6C | 800 | **38805.00** | D | NF | 600 | 54/30 | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N3BF6C | 800 | **23981.00** | D | NF | 600 | 30/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N4BF6C | 800 | **24563.00** | D | NF | 600 | 42/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |
| 31.5 | CP32868N5BF6C | 800 | **24599.00** | D | NF | 600 | 54/O | Cu | PK32DGTACU | HC4486DB | HCR86T( ) | HCR86T( )D | HC4486WP |

**Table 9.194: RTI Cabled Lighting Section Kit for I-Line Combo Panelboard**

| Part Number | Description | MLO Panelboard Ampacity | List $ Price | Lighting Section Type | Lighting Section Circuits |
|---|---|---|---|---|---|
| NFICRT418L1C | NF Lighting Section Kit | 125 | **1528.00** | NF | 18 |
| NFICRT442L2C | NF Lighting Section Kit | 250 | **1763.00** | NF | 42 |
| NFICRT442L4C | NF Lighting Section Kit | 400 | **2353.00** | NF | 42 |
| NFICRT442L6C | NF Lighting Section Kit | 600 | **2008.00** | NF | 42 |
| NQICRT418L1C | NQ Lighting Section Kit | 100 | **1564.00** | NQ | 18 |
| NQICRT442L2C | NQ Lighting Section Kit | 225 | **1373.00** | NQ | 42 |
| NQICRT442L4C | NQ Lighting Section Kit | 400 | **2156.00** | NQ | 42 |
| NQICRT442L6C | NQ Lighting Section Kit | 600 | **2332.00** | NQ | 42 |
| NQICRT418C1C | Contactor with 18 Circuit NQ Lighting Section Kit | 100 | **1225.00** | NQ | 18 |
| NFICRT418C1C | Contactor with 18 Circuit NF Lighting Section Kit | 125 | **1440.00** | NF | 18 |

© 2012 Schneider Electric
All Rights Reserved

This page contains UL Tested and Certified series combination ratings for panelboards. These ratings apply to either an integral main located in the same enclosure or a remote main located in a separate enclosure.

**Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲■ | Maximum Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges ♦★▼△ | | | |
|---|---|---|---|---|---|---|
| | | | Type | 1 Pole | 2 Pole | 3 Pole |
| 120/240 1P/3W | 22,000 | MG | QO (B) | 15–30 A | — | — |
| | 25,000 | LD, HD, JD | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| | 65,000 | HG, JG | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| | | LG | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>— |
| | | LJ | QO (B) GFI<br>QO (B) EPD | 15–30 A<br>15–30 A | 40–60 A<br>40–60 A | —<br>— |
| | 100,000 | HJ, JJ | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| | | LJ | QO (B)<br>QO(B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO(B) AFI<br>QO(B) CAFI | 15–70 A<br>15–70 A<br>—<br>—<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–30 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| | | DJ 400 A | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>150 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>— |
| | | QJ | QO (B)<br>QO (B) AS<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–30 A<br>150 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| | 125,000 | HL, JL | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>—<br>—<br>—<br>—<br>— |
| 208Y/120 3P/4W 240/120 V 3P/4W | 18,000 | LA/LH (L) 34200MC<br>LA/LH (L) 34225MC<br>LA/LH (L) 34250MC<br>LA/LH (L) 34400MC | QO (B) | 15–30 A | 15–30 A | 15–30 A |
| | 25,000 | LD | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | —<br>15–150 A<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>— |
| | 30,000 | DJ–W 150 A MC | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI | 15–70 A<br>—<br>15–30 A<br>15–20 A | 15–100 A<br>15–125 A<br>15–60 A<br>— | —<br>15–150 A<br>—<br>— |
| | | DJ–W 250 A MC | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI | 15–70 A<br>—<br>15–30 A<br>15–20 A | 15–100 A<br>—<br>15–60 A<br>— | —<br>15–150 A<br>—<br>— |
| | | DJ–W 600 A MC | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI | 15–70 A<br>—<br>15–30 A<br>15–20 A | 15–100 A<br>—<br>15–60 A<br>— | —<br>15–150 A<br>—<br>— |

**Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲■ | Maximum Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges ♦★▼△ | | | |
|---|---|---|---|---|---|---|
| | | | Type | 1 Pole | 2 Pole | 3 Pole |
| 208Y/120 3P/4W 240/120 V 3P/4W | 65,000 | LG | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>—<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | —<br>15–150 A<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>— |
| | | LJ | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>—<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | —<br>15–150 A<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>— |
| | | LL | QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE | —<br>—<br>— | —<br>—<br>— | 15–30 A<br>15–30 A<br>15–30 A |
| | 100,000 | DJ 400 A | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–60 A<br>15–60 A<br>—<br>— | —<br>15–150 A<br>—<br>—<br>—<br>— |
| | | QJ | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–60 A<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | 15–30 A<br>15–150 A<br>15–30 A<br>15–50 A<br>15–50 A<br>15–50 A<br>—<br>— |
| | | LJ | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>—<br>—<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–30 A<br>15–60 A<br>—<br>— | —<br>15–150 A<br>—<br>—<br>—<br>—<br>— |
| 240/120 V 3P/4W | 22,000 | QO (B) VH | QO (B)<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) PL<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–30 A<br>—<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–60 A<br>15–60 A<br>—<br>15–60 A<br>—<br>— | 15–100 A<br>15–50 A<br>15–50 A<br>15–50 A<br>—<br>—<br>— |
| 240/120 V 3P/4W | 25,000 | QD | QO (B)<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | 15–30 A<br>35–150 A<br>15–30 A<br>15–50 A<br>15–50 A<br>15–50 A<br>—<br>— |
| | | ED, FD | QO (B)<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–60 A<br>—<br>— | 15–100 A<br>15–50 A<br>—<br>— |
| | | KD | QO (B)<br>QO (B) AS<br>QO (B) GFI<br>QO (B) AFI | 15–70 A<br>15–30 A<br>15–30 A<br>15–20 A | 15–125 A<br>15–30 A<br>15–60 A<br>— | 15–100 A<br>15–30 A<br>—<br>— |
| | | HD, JD | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | 15–100 A<br>35–150 A<br>—<br>15–50 A<br>15–50 A<br>15–50 A<br>—<br>— |
| | | LD | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>—<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>—<br>— | —<br>15–150 A<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>—<br>— |

▲ For shown circuit breakers rated less than this maximum voltage, the indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker

■ Short circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.

♦ Suffixes HID, and SWD may also be applied to the applicable branch circuit breakers shown above. Suffix SWN may not be applied in combination with LC main breakers.

★ Where QO (B) circuit breakers are shown above, QO (B) H, QO (B) VH, and QOH (B) circuit breakers may also be used.

▼ Where QO (B) GFI circuit breakers are shown above, QO (B) EPD and/or QO (B) EPE circuit breakers may also be used. QO–EPE only comes in 3 pole construction.

△ Where QO (B) AFI circuit breakers are shown above, QO (B) CAFI circuit breakers may also be used.

□ To achieve selective coordination, the rating of the DJ main circuit breaker must be at least two times greater than the ampere rating of any branch circuit breaker.

◊ For complete series ratings for Delta Systems please reference NQ/NQM Panelboards Information Manual 80043–712–06.



© 2012 Schneider Electric
All Rights Reserved

**Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲■ | Maximum Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges ♦★▼△ | | | |
|---|---|---|---|---|---|---|
| | | | Type | 1 Pole | 2 Pole | 3 Pole |
| 240/120 V 3P/4W | 42,000 | LA, MA | Q2L–H<br>QDL | —<br>— | 100–225 A<br>70–225 A | 100–225 A<br>70–225 A |
| | | LC400A | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–70 A<br>15–125A<br>15–60 A<br>—<br>— | —<br>15–100 A<br>15–30 A<br>—<br>— |
| | | LC600A | QO (B) VH<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–60 A<br>—<br>— | 15–100 A<br>15–30 A<br>—<br>— |
| | | MG | QO (B) VH | 15–30 A | 15–30 A | 15–30 A |
| | 65,000 | LC400A | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–30 A<br>15–125 A<br>15–60 A<br>—<br>— | —<br>15–100 A<br>—<br>—<br>— |
| | | LC600A | QO (B) VH<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–30 A<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>—<br>— | 15–150 A<br>15–30 A<br>—<br>— |
| | | DJ400A | QO (B)<br>QO (B) VH<br>QO (B) H | 15–70 A<br>—<br>— | 15–125 A<br>—<br>15–100 A | —<br>15–150 A<br>— |
| | | DJ_W | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–20 A<br>15–20 A | 15–150 A<br>110–125 A<br>15–60 A<br>—<br>— | —<br>15–150 A<br>—<br>—<br>— |
| | | DJ, DG, DL 150–600 A | QO (B) EPD | — | — | 15–30 A |
| | | EG, FG, KG | QO (B)<br>QO (B) GFI<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–60 A<br>—<br>— | 15–100 A<br>—<br>—<br>— |
| | | QG | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) PL<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–60 A<br>15–60 A<br>—<br>— | 15–30 A<br>35–150 A<br>15–50 A<br>15–30 A<br>—<br>— |
| | | HG, JG | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) PL<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–30 A<br>15–30 A<br>—<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>15–60 A<br>—<br>— | 15–100 A<br>35–150 A<br>—<br>15–50 A<br>15–50 A<br>15–50 A<br>15–30 A<br>—<br>— |
| | | FC_ or KC_22___<br>FC_ or KC_34___ | QO (B)<br>QO (B) AS | 15–70 A<br>15–30 A | 15–100 A<br>15–30 A | 15–100 A<br>15–30 A |
| | | LG | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–60 A<br>15–60 A<br>—<br>— | —<br>15–150 A<br>—<br>15–30 A<br>15–30 A<br>—<br>— |
| | | LJ | QO (B)<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE | 15–70 A<br>15–30 A<br>15–30 A<br>— | 15–125 A<br>40–60 A<br>40–60 A<br>— | —<br>—<br>15–30 A<br>15–30 A |
| | | LL | QO (B) EPD<br>QO (B) EPE | —<br>— | —<br>— | 15–30 A<br>15–30 A |
| | 100,000 | FC_ or KC_22___<br>FC_ or KC_34___ | QO (B) GFI<br>QO (B) AFI | 15–30 A<br>15–20 A | 15–30 A<br>— | —<br>— |
| | | DJ400A | QO (B)<br>QO (B) H<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–100 A<br>—<br>15–60 A<br>15–60 A<br>—<br>— | —<br>—<br>15–150 A<br>—<br>—<br>—<br>— |
| | | EJ | QO (B) | 15–70 A | 15–125 A | 15–100 A |
| | | LJ | QO (B)<br>QO (B) VH<br>QO (B) H<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–70 A<br>—<br>—<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>15–125 A<br>15–100 A<br>15–30 A<br>15–60 A<br>—<br>— | —<br>15–150 A<br>—<br>—<br>—<br>—<br>— |
| | | HJ, JJ | QO (B)<br>QO (B) H<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–100 A<br>—<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | 15–100 A<br>—<br>35–150 A<br>15–30 A<br>15–50 A<br>15–50 A<br>—<br>— |

**Table 9.1: NQ Series Connected Circuit Breaker Ratings (RMS Symmetrical)**

| Maximum System Voltage AC ▲■ | Maximum Short Circuit Current Rating | Square D™ Brand Integral or Remote Main Circuit Breakers and Remote Main Fuses | Square D™ Brand Branch Circuit Breaker Catalog Designation and Allowable Ampere Ranges ♦★▼△ | | | |
|---|---|---|---|---|---|---|
| | | | Type | 1 Pole | 2 Pole | 3 Pole |
| 240/120 V 3P/4 | 125,000 | HL, JL | QO (B)<br>QO (B) H<br>QO (B) VH<br>QO (B) PL<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–30 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–100 A<br>—<br>15–60 A<br>15–60 A<br>15–60 A<br>—<br>— | 15–100 A<br>—<br>35–150 A<br>15–30 A<br>15–50 A<br>15–50 A<br>—<br>— |
| | 200,000 | FI, KI, HR, JR | QO (B)<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>15–30 A<br>15–30 A<br>15–20 A<br>15–20 A | 15–125 A<br>15–60 A<br>15–60 A<br>—<br>— | 15–100 A<br>—<br>—<br>—<br>— |
| 208Y/120 3P/4W | 200,000 | 200 A Max. Class T6, J Fuses | QO (B)<br>QO (B) GFI<br>QO (B) EPD | 15–70 A<br>—<br>— | 15–125 A<br>—<br>— | —<br>15–50 A<br>15–50 A |
| | | 400 A Max. Class T3 Fuses | QO (B)<br>QO (B) GFI<br>QO (B) EPE<br>QO (B) EPD | 15–70 A<br>15–30 A<br>—<br>15–30 A | 15–125 A<br>15–60 A<br>—<br>15–60 A | 15–100 A<br>15–50 A<br>15–50 A<br>15–50 A |
| 240/120 V 3P/4W | 42,000 | 400 A Max. Class T3 Fuses | QO (B) VH | 15–30 A | 15–125 A | — |
| | 50,000 | 400 A Max. Class T3 Fuses | QO (B) VH | — | — | 15–30 A |
| | 65,000 | 400 A Max. Class J Fuses | QO (B) VH<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI | 15–70 A<br>—<br>—<br>15–20 A<br>15–20 A | 15–125 A<br>—<br>—<br>—<br>— | —<br>15–50 A<br>15–50 A<br>—<br>— |
| | | 400 A Max. Class T6 Fuses | QO (B) VH<br>QO (B) AFI | 15–70 A<br>15–20 A | 15–125 A<br>— | 15–150 A<br>— |
| | 100,000 | 200 A Max. Class T3 Fuses | QO (B)<br>QO (B) VH<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE<br>QO (B) AFI<br>QO (B) CAFI<br>QOT | 15–70 A<br>—<br>15–30 A<br>15–30 A<br>—<br>15–20 A<br>15–20 A<br>15–30 A | 15–125 A<br>—<br>15–60 A<br>15–60 A<br>—<br>—<br>—<br>15–30 A | 15–100 A<br>15–30 A<br>—<br>15–50 A<br>15–50 A<br>—<br>—<br>— |
| | 200,000 | 200 A Max. Class J or T6 Fuses | QO (B) EPD<br>QO (B) EPE | —<br>— | —<br>— | 15–50 A<br>15–50 A |
| | | 400 A Max. Class T3 Fuses | QO (B)<br>QO (B) GFI<br>QO (B) EPD<br>QO (B) EPE | 15–70 A<br>15–30 A<br>15–30 A<br>— | 15–125 A<br>15–60 A<br>15–60 A<br>— | 15–100 A<br>—<br>15–50 A<br>15–50 A |

▲ For shown circuit breakers rated less than this maximum voltage, the indicated short circuit current rating also applies, but at the voltage rating of the circuit breaker.

■ Short circuit tests are conducted at 100–105% of the maximum rated voltage of the panelboard.

♦ Suffixes HID, SWD, and SWN may also be applied to the applicable branch circuit breakers shown above. Suffix SWN may **not** be applied in combination with LC main breakers.

★ Where QO (B) circuit breakers are shown above, QO (B) H, QO (B) VH, and QH (B) circuit breakers may also be used.

▼ Where QO (B) GFI circuit breakers are shown above, QO (B) EPD circuit breakers may also be used.

△ To acheive selective coordiantion, the rating of the DJ main circuit breaker must be at least two times greater than the ampere rating of any branch circuit breaker.

© 2012 Schneider Electric
All Rights Reserved

© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 10

# Integrated Power and Control Solutions (IPaCS) Equipment



MPS, see page **10-3**



IPC, see page **10-3**



IPC2, see page **10-4**


**IPaCS™ Equipment Overview** 10-2

**Modular Panelboard System** 10-3

**Integrated Power Center** 10-3

New! **Standby Power Connection Solutions** 10-4

New! **Submetering Integrated Power Center** 10-4

**Integrated Power Center 2** 10-4

- Integrated Power Center 2 10-4
- Integrated Power Center 2 Transformer Combo 10-5
- Integrated Power Center 2 Transformer Combo Merchandise Specifications 10-5
- Integrated Power Center 2 Transformer Combo Merchandise Configurations 10-6




SQUARE D by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

## Integrated Power and Control Solutions Equipment Overview

For over 30 years, the Schneider Electric Integrated Power and Control Solutions (IPaCS™) business has been providing integrated equipment solutions for retail construction, commercial, and industrial projects. The Square D™ brand IPaCS family of integrated equipment combines electrical distribution, building controls, and automation into a single, factory-assembled and pre-wired enclosure/lineup. Our innovative, cost-effective, integrated solutions save valuable floor space, shorten construction cycle times, and reduce installation and material handling costs.

### Modular Panelboard System—Pre-Engineered Solution

The Modular Panelboard System (MPS) is tailored to customer specifications and may include panels, transformers, and lighting control equipment. Special Powerlink™ lighting control and column-width panel interiors are available. Additional options include power and control cable wiring, contactors, terminal blocks, surge protective devices (SPDs), equipment spaces, and power metering/monitoring solutions. Seismically qualified MPS sections are also available.
Tailored to customer specifications, MPS sections are:

- 86 in. (2184 mm) high,
- 9.5 in. (241 mm) deep, and
- vary in width depending on customer specifications

### Integrated Power Center—Custom-Designed Solution

For more complex applications, the Integrated Power Center (IPC) allows for the integration of a variety of components, including electrical distribution equipment, HVAC controls, lighting controls, power quality and power conditioning products, SPDs, building management systems and power metering/monitoring solutions. As with all IPaCS integrated solutions, the IPC is designed to meet applicable codes and standards and is available as seismically qualified. Factory-assembled, pre-wired (based on shipping splits), and tested in a controlled environment, IPC sections are:

- 84 in. (2134 mm) high,
- 10.5 in. (267 mm) deep, and
- vary in width depending on customer specifications

### Standby Power Connection Solutions—UL Listed

The new family of Standby Power Connection Solutions are designed, tested, manufactured and listed to the UL standards providing you with a reliable solution to quickly and safely connect to a portable generator for standby power. The SPQ cam-lock (SPQCL) tap box design incorporates cam-lock receptacles for generator connection and the capabilities to be wired back to the standby power disconnect in the electrical distribution equipment. The SPQ lug-lug (SPQTB) tap box provides the capabilities to connect to a portable generator and the generator breaker cables using mechanical lugs in lieu of the cam-lock connectors.

The SPQ Cam-Lock Box is:

- 36 in. (915 mm) high
- 30 in. (762 mm) wide
- 16 in. (407 mm) deep

The SPQ Lug-Lug Box is:

- 36 in. (915 mm) high
- 30 in. (762 mm) wide
- 13 in. (330 mm) deep

### Submetering Integrated Power Center

The Submetering Integrated Power Center (IPC) is an ideal solution for multi-tenant or departmental metering applications within office towers, condominiums, apartment buildings, shopping centers, and other multi-user environments. The Submetering IPC combines the panel with breakers, the PowerLogic E4800 multi-circuit energy meter and the associated CTs in a factory-assembled and pre-wired solution saving significant space and on-site installation time. Submetering IPC sections are:

- 10.5 in. (267 mm) deep, and
- vary in width and height depending on the application

### Integrated Power Center 2

The newest addition to the family of Integrated solutions, the Integrated Power Center 2 (IPC2™) provides maximum flexibility to meet customers' specifications. Features include those found in the IPC and are provided in a free-standing enclosure that can be front and rear aligned when transformers are included. The IPC2 family is available as seismically-qualified. Enclosure options include NEMA 1, NEMA 1 with driphood and NEMA 3R. IPC2 sections are:

- 91.5 in. (2324 mm) high, and
- vary in width and depth depending on customer specifications

***NOTE:*** *Additional depths are available. Contact the Schneider Electric Integrated Power and Control Solutions business (1-800-868-9662) for more information.)*

### Integrated Power Center 2 Transformer Combo

Ideally suited for projects having both 480Y/277V and 208Y/120V requirements. Available as a stand-alone solution or can be incorporated into an MPS, IPC or IPC2 lineup. The standard 42" wide x 24" deep footprint will decrease space requirements by 40% or more. A typical IPC2 Transformer Combo includes two panels in the upper cells and a transformer in the bottom cell. Other upper cell options include contactors, individually mounted circuit breakers, ATS's, equipment spaces and power metering/monitoring solutions. The IPC2 Transformer Combo is available as seismically qualified.Enclosure options include NEMA 1, NEMA 1 with driphood and NEMA 3R. IPC2 Transformer Combo sections are:

- 91.5 in. (2324 mm) high, and
- vary in width and depth depending on the transformer kVA

Additional savings are realized on installation, material costs and material handling, as shown in the table below.

**Table 10.1: IPC2 Transformer Combo—Estimated Savings ▲**

| | Stick-Built | Transformer Combo | Savings Realized |
|---|---|---|---|
| **Estimated Installation Hours** | 26–32 | 3–6 | 23–26 |
| **Materials** | Associated pipe, wire and fittings | — | Associated pipe, wire and fittings |
| **No. of Pieces Handled** | 20–30 | 1 | 19–29 |

▲ Based on an NF 480 V panel, 75 kVA transformer, NQ 240 V panel installation.

The IPC2 Transformer Combo has been recognized by the electrical industry by winning the following awards:

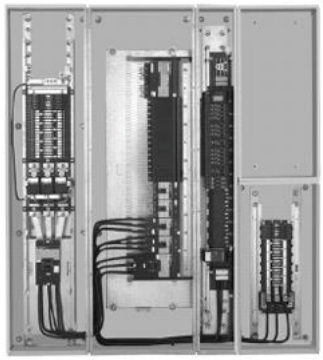
- 2006 INNOVATION Award given by the *Electrical Contracting Products* magazine
- 2006 Product of the Year Gold Medal Award given by the *Consulting/Specifying Engineer* magazine




© 2012 Schneider Electric
All Rights Reserved



**Modular Panelboard System**



**MPS Interior**



**Integrated Power Center**



**IPC Interior**

## Modular Panelboard System

The pre-engineered Modular Panelboard System (MPS) bundles electrical distribution equipment into a single factory-assembled and wired integrated system. This approach replaces the traditional method of independently mounting each panelboard and lighting control system. MPS allows for the integration of a variety of components including:

- Panelboards: I-Line, NF, NQ, and Column-width
- Surge Suppression: SPD integral to panel and/or separately mounted
- Lighting Controls: Powerlink™ or lighting contactors
- Monitoring/Metering: Powerlogic™ power meters, circuit monitors, branch circuit monitoring, and system display meters

Equipment spaces including factory-installed lighting contactors are available in three configurations:

1. Unwired: Mounted in cell only
2. Line side wired: Line side of each pole is wired to a branch circuit breaker
3. Fully wired: Line side of each pole is wired to a branch circuit breaker, load side of each pole is wired to a terminal block

Built on a panelboard platform, Modular Panelboard System sections are NEMA 1-rated and meet the requirements of UL 67. Individual MPS configurations include panel sections in full-height, stacked or side-by-side arrangements. Individual sections measure:

- 86 in. (2184 mm) high
- 10–44 in. (254–1118 mm) wide
- 9.5 in. (241 mm) deep

Typical applications for MPS equipment include:

- Restaurants / Food service
- Office buildings / Public buildings
- Warehouses
- Schools / Universities

## Integrated Power Center

The custom-designed Integrated Power Center (IPC) combines electrical distribution equipment and building management controls into a single factory-assembled and wired integrated system. IPC has much greater design flexibility for producing a fully customized solution integrating a variety of distribution and control components, including:

- Panelboards: I-Line, NF, NQ, and Column-width
- Surge Suppression: SPD integral to panel and/or separately mounted
- Lighting Controls: Powerlink™ or lighting contactors
- Monitoring/Metering: Powerlogic™ power meters, circuit monitors, branch circuit monitoring, and system display meters
- Power quality and power conditioning
- Building automation
- HVAC controls

Equipment spaces including factory-installed lighting contactors are available in three configurations:

1. Unwired: Mounted in cell only
2. Line side wired: Line side of each pole is wired to a branch circuit breaker
3. Fully wired: Line side of each pole is wired to a branch circuit breaker, load side of each pole is wired to a terminal block

Integrated Power Centers are NEMA 1 rated and meet the requirements of UL 891. As with all integrated solutions, IPCs are shipped to the site fully assembled, completely pre-tested and ready-to-install. Individual IPC configurations include panel sections in full height, stacked, or side-by-side arrangements. IPC sections measure:

- 84 in. (2134 mm) High
- 10.25 (260 mm) Deep
- Widths vary, depending upon customer specifications

Typical applications for IPC equipment include:

- Retail stores / Grocery stores
- Office buildings / Public buildings
- Shopping malls / Strip malls
- Schools/Universities
- Restaurants / Food service
- Hotels/Motels
- Warehouses
- Equipment rooms

### MPS and IPC Layout, Lead Time, and Pricing

Contact your local Schneider Electric representative or distributor.

### MPS and IPC Shipping

MPS and IPC lineups are shipped factory-assembled and pre-wired. Customers may specify single- or multiple-section shipping splits (some limitations apply). In addition, lineups may be ordered with or without factory-installed power cables.



© 2012 Schneider Electric
All Rights Reserved



**SPQ Cam-Lock Tap Box**



**SPQ Lug-Lug Tap Box**



**Submetering Integrated Power Center**



**Integrated Power Center 2**

New!

## Standby Power Connection Solutions

The Standby Power Quick-Connect (SPQ) Tap Box provides a reliable solution to quickly and safely connect to a portable standby power generator. Two versions of the SPQ Tap Box have been designed and tested to the required UL standard and offer a wider range of solutions for our customers. All SPQ Tap Boxes are NEMA 3R-rated.

### SPQ Cam-Lock Tap Box

- UL listed - UL 1008 SB
- NEMA Type 3R enclosure (can be used for NEMA Type 1 installations)
- Lockable door for safety and control access
- Mechanical lugs to standby power disconnect
- Color-coded cam-lock connectors for generator connection
- Hinged bottom access door for cam-lock connection
- Barriers over mechanical lugs for safety
- Application:
  - 400 A and 600 A available
  - 240 V and 480 V versions available
  - Three-phase + neutral + ground

- **SPQCL204RS** – 400 A, 208Y/120 V 3-phase, 4-wire + ground wire
- **SPQCL404RS** – 400 A, 480Y/277 V 3-phase, 4-wire + ground wire
- **SPQCL206RS** – 600 A, 208Y/120 V 3-phase, 4-wire + ground wire
- **SPQCL406RS** – 600 A, 480Y/277 V 3-phase, 4-wire + ground wire

### SPQ Lug-Lug Tap Box

- UL listed—UL 1773 (cUL listed also)
- NEMA Type 3R enclosure (can be used for NEMA Type 1 installations)
- Lockable door for safety and control access
- Mechanical lugs to standby power disconnect
- Generator connection lugs rated for Type W cable
- Application:
  - 400 A and 800 A available
  - 600 V maximum
  - Three-phase + neutral + ground

- **SPQTB604RS** – 400 A, 600 V max. 3-phase, 4-wire + ground wire
- **SPQTB608RS** – 800 A, 600 V max. 3-phase, 4-wire + ground wire

New!

## Submetering Integrated Power Center

The Submetering Integrated Power Center (IPC) is an ideal solution for multi-tenant or departmental metering applications. It combines the ability to meter multiple feeder breakers inside a pre-wired enclosure. The Submetering IPC offers significant space and labor savings by replacing individually enclosed, mounted, and wired panels and metering components and providing an integrated solution in one enclosure/lineup including:

- Panelboards
- PowerLogic™ E4800 Multi-Circuit Energy Meters and associated CTs
- Surge Suppression
- Factory-installed wiring between components

Submetering IPC width and height dimensions vary depending on the application. All sections are 10.5 in. (266.7 mm) deep.

Typical applications for Submetering IPC equipment include:

- Office towers
- Condominiums
- Apartment buildings
- Shopping centers
- Other multi-user environments
- Configurations with 2-PowerLogic E4800 meters plus Ethernet switch when required based on the number of metered points

## Integrated Power Center 2

The Integrated Power Center 2 (IPC2™) provides maximum design flexibility. In addition to the features found in the Integrated Power Center (IPC), IPC2 lineups are free-standing enclosures that can be front and rear-aligned. IPC2 has the ability to incorporate:

- Panelboards: I-Line, NF, and NQ
- Transformers: 300 Kva (max), EE
  - K-rated and HMT also available; may limit max kVA size of transformer
- Individually mounted circuit breakers
- Surge Suppression: SPD integral to panel and/or separately mounted
- Automatic Transfer Switch: Open type 400 A 3-pole maximum including a variety of options
- Lighting Controls: Powerlink™ or lighting contactors
- PowerLogic™ Monitoring / Metering: power meters, circuit monitors, branch circuit monitoring, and system display meters
- Building Management Systems

As a stand-alone solution, the IPC2 family provides the flexibility to enter and/or exit the section from either the top or bottom. IPC2 is offered in a variety of widths and depths:

- 24–48 in. (610–1219 mm) Wide
- 24–36 in. (610–915 mm) Deep

Typical applications for IPC2 equipment include:

- Schools/Universities
- Office buildings
- Data centers
- Industrial facilities
- Casinos
- Hotels
- Any project with panels and transformers

### ICP2 Layout, Lead Time, and Pricing

Contact your local Schneider Electric representative or distributor.

### IPC2 Shipping

IPC2 lineups are shipped fully assembled and ready-to-install. Customers may specify single- or multiple-section shipping splits (some limitations apply). In addition, lineups may be ordered with or without factory-installed power cables.



© 2012 Schneider Electric
All Rights Reserved



IPC2 Transformer Combo

## Integrated Power Center 2 Transformer Combo

For projects having both 480Y/277 V and 208Y/120 V requirements, the Integrated Power Center 2 (IPC2) Transformer Combo is the perfect solution. One of the most popular members of the IPC2 product family, the IPC2 Transformer Combo has been recognized by the industry multiple times for its innovative design.

As a stand-alone solution, the IPC2 Transformer Combo is appropriate when panelboards and transformers are installed in close proximity to each other. It provides the flexibility to enter and/or exit the section from either the top or the bottom. Catalog numbers have been created for some of the more typical configurations (see Table 10.2).

All IPC2 sections can be close-coupled to QED switchboard, MPS, and IPC products. Enclosure options for IPC2 include NEMA 1, NEMA 1 with driphood, and NEMA 3R-rated, and all meet the requirements of UL 891. These sections are also seismically qualified to meet IBC and ASCE7 requirements.

### Table 10.2: IPC2 Transformer Combo Merchandise Configuration Specifications

**Catalog No. IPC2TC-1EE**

| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 225/3 MB 18 k AIC<br>• 1–125/3 (Transformer)<br>• 39-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 225/3 MB 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 75 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-2EE**

| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 400 A MLO 18 k AIC<br>• 1–125/3 (Transformer)<br>• 39-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 225/3 MB 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 75 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-3EE**

| NQ Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 208Y/120 V 3Ø 4W<br>• 225/3 MB 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus<br>• FT Lugs | • 208Y/120 V 3Ø 4W<br>• 225 A MLO 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 75 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-4EE**

| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 400 A MLO 18 k AIC<br>• 1–175/3 (Transformer)<br>• 30-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 400/3 MB 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 112½ kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-5EE**

| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277V 3Ø 4W<br>• 400/3 MB 18k AIC<br>• 1-125/3 (Transformer)<br>• 27-1PSO<br>• Copper Bus/Ground Bus<br>• SUSE | • 208Y/120V 3Ø 4W<br>• 225/3 MB 10k AIC<br>• 42-1PSO<br>• Copper Bus/Ground Bus | • 480V-208Y/120V 3Ø<br>• 75kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-6EE**

| NF Panelboard | NQ Panelboard | NQ Panelboard | Transformer |
|---|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 225/3 MB 18 k AIC<br>• 1–125/3 (Transformer)<br>• 39-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 225/3 MB 10 k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus<br>• FT Lugs | • 208Y/120 V 3Ø 4W<br>• 225 A MLO 10k AIC<br>• 42-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 75 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-7EE**

| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 125 A MLO 18 k AIC<br>• 1–60/3 (Transformer)<br>• 15-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 125/3 MB 10 k AIC<br>• 12-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 45 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |

**Catalog No. IPC2TC-8EE**

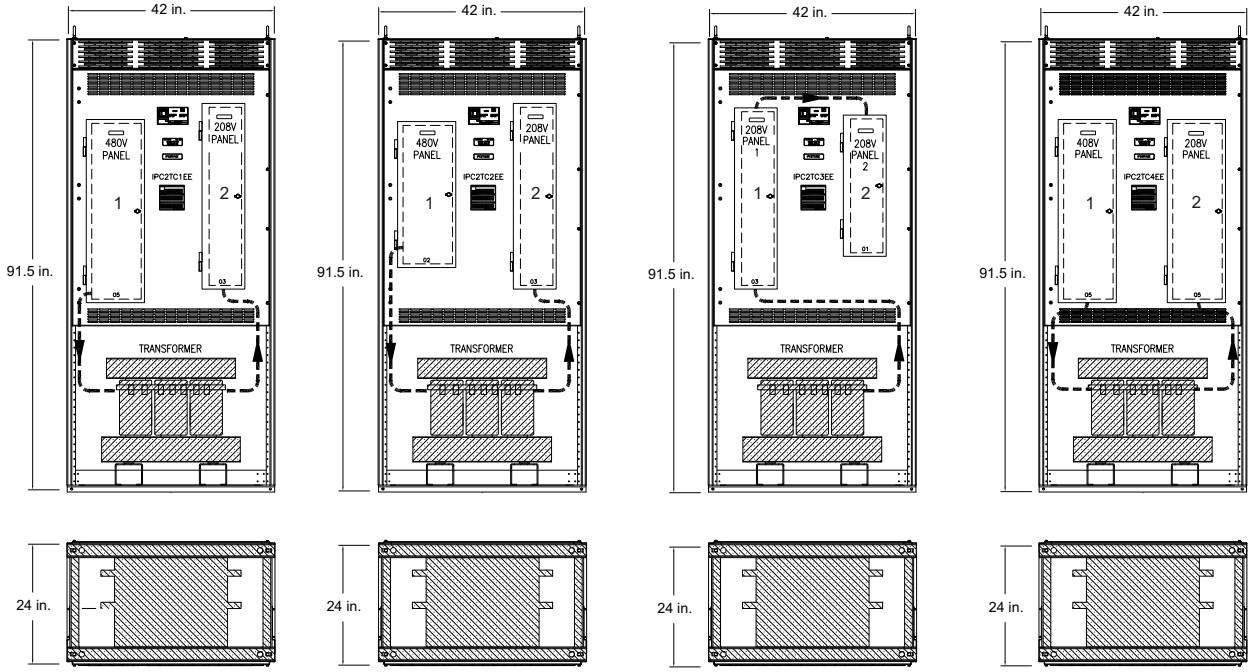
| NF Panelboard | NQ Panelboard | Transformer |
|---|---|---|
| • 480Y/277 V 3Ø 4W<br>• 125 A MLO 18 k AIC<br>• 1–40/3 (Transformer)<br>• 15-1PSO<br>• Copper Bus / Ground Bus<br>• SUSE | • 208Y/120 V 3Ø 4W<br>• 100/3 MB 10 k AIC<br>• 15-1PSO<br>• Copper Bus / Ground Bus | • 480 V–208Y/120 V 3Ø<br>• 30 kVA<br>• Energy Efficient transformers in compliance with the 2005 Energy Act<br>• 150 °C Temp Rise<br>• Aluminum Windings<br>• 6-2.5% Taps; 2+ 4- |



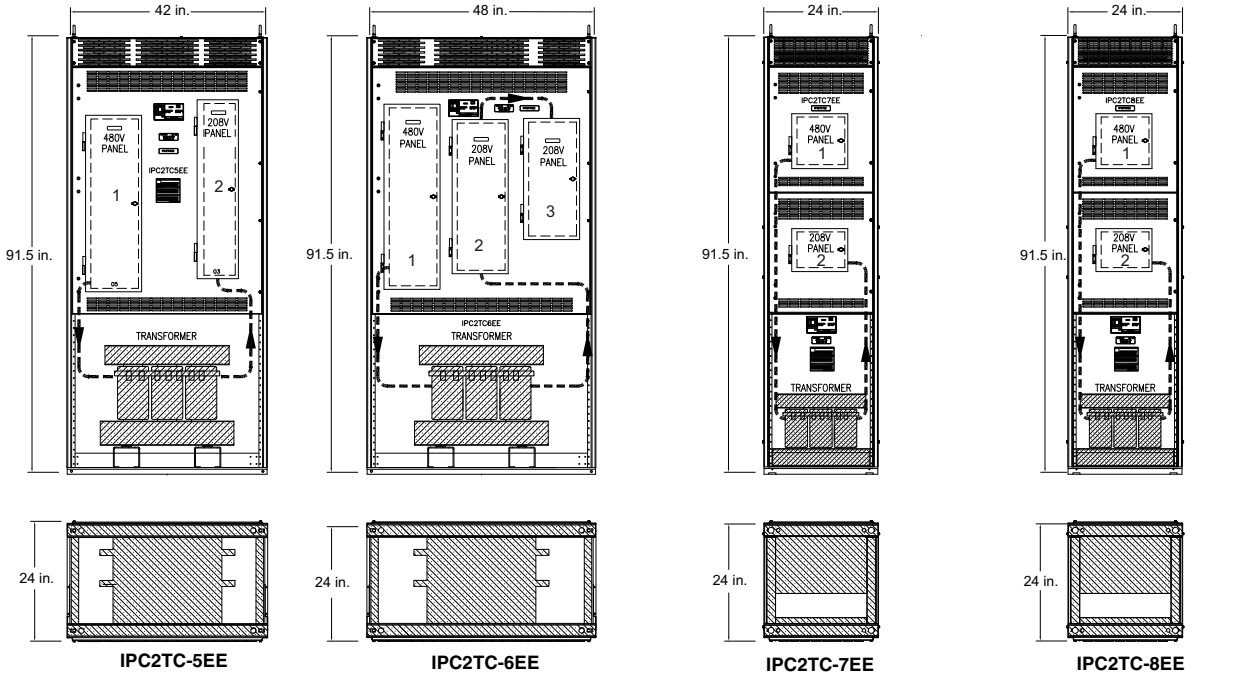
© 2012 Schneider Electric
All Rights Reserved

## Integrated Power Center 2 Transformer Combo Standard Merchandise Configurations

The IPC2™ Transformer Combo is available in eight standard merchandise configurations, as shown below (additional configurations are available; contact your local Schneider Electric representative or distributor).




**IPC2TC-1EE** **IPC2TC-2EE** **IPC2TC-3EE** **IPC2TC-4EE**




**IPC2TC-5EE** **IPC2TC-6EE** **IPC2TC-7EE** **IPC2TC-8EE**

***NOTE:*** *All sections have both top and bottom conduit entry/exit points.*



© 2012 Schneider Electric
All Rights Reserved

# Section 11

## Switchboards and Switchgear



QED-2 Switchboard
see page 11-2



Metalclad and HVL/cc Switchgear
see pages11-8 and 11-16



Unit Substation
see page 11-17



Model III Package Unit Substation
see page 11-17


### Power-Style™ Switchboards

| | | |
|---|---|---|
| | QED-2 Switchboard (UL Listed) | **11-2** |
| | QED-6 Switchboard (UL Listed) | **11-3** |
| | Commercial Multi-Metering Switchboards | **11-3** |

### Speed-D™ Switchboards

| | | |
|---|---|---|
| | Speed-D SB/SF Switchboards (UL Listed) | **11-4, 11-5** |

### Low Voltage Switchgear

| | | |
|---|---|---|
| | Power-Zone™ 4 Low Voltage Switchgear with Masterpact™ Circuit Breakers | **11-6** |
| | Micrologic™ Trip Units | **11-6** |

### Medium Voltage Switchgear

| | | |
|---|---|---|
| | MiniBreak™ Compact Height Switches— 5.5 kV—200 A | **11-7** |
| | HVL/cc Metal-Enclosed Load Interrupter Switchgear—Full Range | **11-8** |
| | HVL/cc Switchgear—Quick Ship Program—5–15 kV, 600 A | **11-9, 11-10** |
| | HVL Metal-Enclosed Load Interrupter Switchgear—Full Range | **11-11** |
| | HVL Switchgear—Quick Ship Program— 5 kV–15 kV, 600 A Features | **11-11** |
| | HVL Switches for Power-Dry II ™, Power-Cast II ™, and Uni-Cast II ™ Transformer Connections | **11-12, 11-13** |
| | Square D™ brand DIN/E Fuse Selection Tables—HVL | **11-14** |
| | Fuse Selection Tables Boric Acid Fuses—HVL | **11-14** |
| *New!* | DVCAS Switchgear for Wind Farm Applications | **11-15** |
| | Masterclad™ Medium Voltage Metalclad™ Switchgear (UL Listed) | **11-16** |
| | Arc Terminator™ Arc Extinguishing System | **11-16** |

### Unit Substations

| | | |
|---|---|---|
| | Unit Substations | **11-17** |
| *New!* | Power-Zone™ Model III Package Unit Substations | **11-17** |

### MV Controllers and Substation Circuit Breakers

| | | |
|---|---|---|
| | Motorpact™ Medium Voltage Motor Controllers (UL Listed) | **11-19** |
| *New!* | Vacuum Substation Circuit Breaker—Types FVR, EOX, and VOX (Not UL Listed) | **11-19** |

### MV Overhead Distribution

| | | |
|---|---|---|
| *New!* | Automatic Circuit Recloser | **11-20** |
| *New!* | Load Break Switch/Sectionalizer | **11-20** |
| *New!* | ADVC Controller Range | **11-20** |


### Transparent Ready™ Equipment

Switchboards and switchgear with Powerlogic™ circuit monitors and Web-enabled ethernet communication devices are part of the Transparent Ready power equipment family from Schneider Electric.

When specified as Transparent Ready, the power equipment is provided with a factory- configured “plug and play” communications system that allows the authorized user access to equipment status and monitoring information using only a standard Web browser. Ask your local Schneider Electric representative for details about Transparent Ready power distribution equipment.

Transparent Ready™
Web-enabled Power & Control



SQUARE D
by Schneider Electric

© 2011 Schneider Electric
All Rights Reserved

Schneider Electric



QED-2 Switchboard

## Power-Style QED-2 Switchboards (UL Listed)

For solutions that bring people, products, and information together, Square D™ brand Power-Style QED-2 low voltage switchboards from Schneider Electric are built to last and feature design innovations that make these products easier to install and maintain. Supported by one of the largest distributor, sales, and service organizations in the industry, QED-2 switchboards are readily available to meet the needs of contractors, consultants, and end-users.

### Q = Quality—Built to Last

As one of the most trusted names in electrical distribution, Square D™ brand QED-2 switchboards are designed with the highest standards of quality. From sturdy frames, securely fastened thread-forming screws, and standard bolted, base channels, users will see the difference during installation, operation, maintenance, and expansion projects.

### E = Efficient and Innovative Designs

In 2010, Schneider Electric launched QED-2, Series 2 switchboard designs. Series 2 designs represent the next generation of our QED-2 switchboard offering, with new features based on extensive customer feedback. From improved branch neutral and ground bar access, to enhanced instrument compartments, Series 2 designs provide easier access for performing equipment installation and maintenance procedures.

QED-2 switchboards feature Schneider Electric's unique I-Line™ plug-on connections in group-mounted construction. With the I-Line design, a screwdriver is the only tool required to firmly ratchet the line end of a molded-case circuit breaker directly onto the I-Line bus assembly. This plug-on design allows quick installation and mounting flexibility of circuit breakers up to 1200 A.

### D = Delivery—Ready When You Are

To meet tight project schedules and budgets, our Square D™ brand QED-2 switchboard offering brings together standard designs for the most frequently requested ratings and options, providing immediate pricing for quick shipments from 11 to 30 business days.

## Features

- QED-2 Switchboards are designed, listed, and built to UL 891
- Switchboard ratings through 6000 A, 200 kA; higher amperages available
- Front accessible load connections
- Front and rear alignment standard
- Cable, busway, transformer, or remote QED switchboard incoming fed
- Hot or cold sequence utility metering
- Thermal-magnetic, PowerPact™ electronic, or Masterpact™ NW stored energy fixed or drawout circuit breakers used as mains and feeders
- Group-mounted circuit breaker and fusible switch mains and feeders
- Fixed-mounted fusible swThe itch mains and feeders
- Powerlogic customer metering, including option for custom communications capability and interwiring
- Networked communications capabilities provide direct access to energy management at main and feeder level
- Internally-mounted Surgelogic™ surge protective devices
- Quick Connect Generator option available
- Main devices in six sub-division or single main configurations
- Main and branch devices in single section configuration
- Multiple individual devices in single section configurations
- Custom engineering, including main-tie-mains, multiple sets of thru-bus, reduced heights, and engineered houses





© 2011 Schneider Electric
All Rights Reserved

# Power-Style QED-6 Switchboards (UL Listed)



QED-6 Switchboard
(Class 2746)

## Masterpact™ NW and NT, and PowerPact™ H, J, and D Circuit Breakers

The QED-6 switchboard is designed to provide excellent distribution, protection, and power quality management in commercial electrical equipment. The circuit protection components of the switchboard are the Masterpact NW circuit breakers in 800–6000 A frame sizes, Masterpact NT circuit breakers in 800–1200 A frame sizes, and PowerPact H, J, and D circuit breakers in 15–600 A frame sizes. These circuit breakers deliver maximum system uptime, system selectivity, ease of maintenance, and reliable circuit protection.

QED-6 switchboard features include: Masterpact NW UL 489 Listed circuit breakers for main and feeder devices, Masterpact NT UL 489 Listed circuit breakers for feeder devices, PowerPact H, J, and D UL 489 Listed circuit breakers for feeder devices, and a wide range of designs and options. Highly flexible drawout/plug-in circuit breakers can meet a wide variety of power distribution requirements. Choices include plug-in or drawout construction in PowerPact H, J, and D circuit breakers, and optional prepared drawout or plug-in spaces that are equipped with all specified control functions. This capability allows quick additions for load upgrades.

- QED-6 switchboards are designed, listed, and built to UL 891; Masterpact and PowerPact circuit breakers are designed, listed, and built to UL 489
- Circuit breakers are individually mounted, rear connected; Masterpact NW and NT circuit breakers are drawout; PowerPact H, J, and D breakers are plug-in as standard, drawout as an option
- Family of field installable and upgradeable Micrologic™ trip units with optional Powerlogic™ data communications features
- Switchboard ratings up to 150 kA short-circuit current rating for services 1600–6000 A at 480 V and 100 kA at 600 V
- Up to (12) 250 A PowerPact H and J circuit breakers in a single 30-inch wide section
- Up to (8) 600 A frame PowerPact D or (8) 1200 A frame Masterpact NT circuit breakers in a single 30-inch wide section
- Flexible branch circuit breaker locations: Masterpact NW and NT and PowerPact H, J, and D circuit breakers can be mixed in a single 30-inch wide section (15–2000 A)
- Compartmentalization: separate compartments for circuit breakers, bussing, and load cabling
- Available in 54-, 60-, 72-, and 80-inch deep construction
- Available in NEMA 3R outdoor walk-in enclosures
- Masterpact and PowerPact circuit breakers are field maintainable

QED-6 switchboards are reliable power protection equipment when working with telecommunication facilities, e-business servers, or mainframes that perform critical business transactions. These types of facilities cannot afford downtime.

QED-6 rear-connected switchboards are designed as standalone switchboards or as an integral part of the low voltage equipment lineup in a user's power unit substation.

**Table 11.1: Circuit Breaker Selection**

| Rating (A) (Frame) | Circuit Breakers |
|---|---|
| 150–250 | PowerPact H, J |
| 400–600 | PowerPact D |
| 800–1200 | Masterpact NT |
| 800–6000 | Masterpact NW |

## Specify QED-6 Switchboards

When drawout construction is required for quick circuit breaker changeout; system requirements call for circuit breakers to close within five cycles; stored energy circuit breakers are required; front access to control wires is desired; ease of installation, maintenance, and upgrade of circuit breaker compartmentalization is required; system integrity and segregation of circuit breaker compartments from bus and cable compartments is required; equipment isolation is required.

## Benefits/Values of Circuit Breaker Performance

Masterpact NW and NT circuit breakers are designed to provide maximum protection and reliable operation with a long service life. They exceed all UL 489 endurance testing requirements and are certified to a minimum of 10,000 operations through the 3000 A frame.

## System Coordination

Short-time ratings are high, giving users excellent system coordination and selectivity with downstream breakers.

## High Short-Circuit Current Ratings (SCCR)

Up to 200 k AIR at 240 V, 150 k AIR at 480 V, and 100 k AIR at 600 V, which allows customers to design systems with high fault current and paralleling schemes.

## Arc Flash Limiting (LF) Feeder Breakers

High speed operation of Masterpact NW and NT circuit breakers (150 k AIR at 480 V) helps reduce arc flash incident energy (cal/cm2) on downstream equipment.

## Ease of Installation and Maintenance

Thru-the-door construction, an easy to operate drawout mechanism, and front access to all control wiring make this equipment easy to install, maintain, and upgrade. Load connections in the cable compartment are easily accessible in the rear of the switchboard. Remote racking of the Masterpact NW circuit breaker is also available with the optional remote racking tool, which, if required, is field installable.

## Ability to Upgrade

UL Listed, field-installable accessories include: motor operators, shunt trips, under voltage devices, trip units, and communication modules for trip units. Manually operated circuit breakers are field convertible to electrical operation.

## Open Communication System

The Micrologic trip units in Masterpact NW and NT circuit breakers use the Modbus™ protocol. This is a widely accepted protocol, which allows QED-6 to be integrated into new or many existing communication systems.

## Adaptable

Drawout and bolt-in circuit breakers, front access control wiring, and expandable lineups are quickly adaptable to changing load and control requirements.

## Expandable

Masterpact NW and NT circuit breakers have many control termination points, giving the equipment extensive flexibility and expandability for sophisticated control schemes.

## Power-Style Commercial Multi-Metering Switchboards (UL Listed)

- Designed, built, and listed to UL 891
- Lever bypass and EUSERC non-lever bypass
- Hot or cold sequence metering—EUSERC, NEMA, LOCAL
- Front and rear alignment standard
- Switchboard ratings through 4000 A, 100 kA
- Meter sections in either three- or six-socket section configuration
- Tenant mains either circuit breaker or fusible
- 60–200 A without lever bypass with self-contained meter sockets, 5- or 7-jaw, ring type and test block where required
- 60–200 A lever bypass with self-contained meter sockets, 7-jaw, ringless
- Factory-installed devices with completely wired from meter socket to disconnect
- Provisions for adding future tenants available, as well as future sections
- Sections in either NEMA 1 or NEMA 3R construction
- For use on 120/240 V, 120/208 V, and 277/480 V systems
- Integrated, front-accessible wireway for top exiting load cables
- Customer access area for top exiting load cables

Lever Bypass EUSERC



Classes 2755, 2756



© 2011 Schneider Electric
All Rights Reserved

## Speed-D SB/SF Switchboards (UL Listed)

- UL Listed
- Hot sequence utility compartment per EUSERC requirements
- Two types:
  - — Utility–Service disconnect–distribution
  - — Utility–Up to six service disconnects
- Single service disconnect, either circuit breaker or fusible rated 400, 600, or 800 A with either type of distribution interiors, NQ up to 240 Vac, I-Line™ through 480 Vac
- Six service disconnects, group-mounted fusible, QMB/QMJ, 30–400 A; utility compartment—400, 600, and 800 A
- Meter doors can be 15 inches high with one meter socket and test block, or 30 inches high with two meter sockets and test block
- Meter sockets can be 6-, 8-, 13-, or 15-jaw meter sockets with test block, based on application
- Accessories include:
  - — Underground pull sections with and without lug landing
  - — Loadside wireway
  - — Bus links for donut-type current transformers
  - — Double padlock hasp attachments
  - — Plug-on distribution panel
  - — Subfeed circuit breakers
- Full height add-on I-Line distribution section
- Stand-alone I-Line distribution section



EUSERC UCT,
Single Main Circuit Breaker with I-Line Distribution Panel



EUSERC UCT,
Fusible Multiple Mains

### Application

Suitable for use as service entrance equipment on ac systems. Sections contain metering compartment, barriers, main disconnects, distribution panel, neutral bus, and grounding provisions.

### Metering

C/T compartment with two 15-inch blank meter doors. (Order doors with meter socket from Table 11.6 on page 11-5.) Incoming cable lugs are for top feed with one twin conductor 2 AWG–600 kcmil lug per phase and neutral, suitable for aluminum or copper cables. Optional single conductor lug is available. Refer to Table 11.7 on page 11-5.

### Mains

Main circuit breaker types are either LH or MJ. Main fusible device is supplied with Class T fuses. Multiple main devices use plug-on fusible switches.

### Branches

NQ distribution bus is rated 400 A and provides mounting space for QO™/QOB Type (150 A maximum) circuit breakers. Panel provides space for mounting 42 single pole circuit breakers. One or two individually mounted 225 A maximum circuit breakers can be added with bus connectors. (Order subfeed circuit breakers from Table 11.8 on page 11-5.)

I-Line™ distribution bus is rated 400, 600, or 800 A and will accept 27 inches of I-Line circuit breakers on the left side with a maximum frame size of "J" . The right side will accept either a QO plug-on distribution panel (240 V only) or LA or LH I-Line circuit breaker.

### Enclosure

Totally enclosed front accessible with ANSI 49 gray baked enamel finish. Dimensions are 90 in. (H) x 36 in. (W) x 14 in. (D) for indoor and 90 in. (H) x 36 in. (W) x 24.5 in. (D) for outdoor enclosures.

## EUSERC Utility Metering, Main Disconnects and Distribution Panel (UL Listed)

**Table 11.2: Single Main Circuit Breaker with Distribution (Series E4)**

| System | Service Voltage | Mains Ratings (A) | Distribution Interior | SCCR 240 V Max. | SCCR 480 V | Circuit Breaker | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Indoor | | Outdoor | |
| | | | | | | Catalog No. | $ Price | Catalog No. | $ Price |
| 1Ø3W | 120/240 | 400 | NQ | 65 | — | SB124QS | **7895.00** | SB124QR | **10645.00** |
| | | | I-Line | 65 | — | SB124IS | **8700.00** | SB124IR | **11450.00** |
| | | | None | 65 | — | SB124WS | **6680.00** | SB124WR | **9430.00** |
| | | 600 | I-Line | 65 | — | SB126IS | **10975.00** | SB126IR | **13726.00** |
| | | | None | 65 | — | SB126WS | **8016.00** | SB126WR | **10766.00** |
| 3Ø4W▲ | 208Y/120 240/120 | 400 | NQ | 65 | — | SB324QS | **8651.00** | SB324QR | **11401.00** |
| 3Ø4W▲ | 208Y/120 240/120 | 400 | None | 65 | — | SB324WS | **7281.00** | SB324WR | **10031.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 400 | I-Line | 65 | 35 | SB344IS | **9673.00** | SB344IR | **12423.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 400 | None | 65 | 35 | SB344WS | **7653.00** | SB344WR | **10403.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 600 | I-Line | 65 | 50 | SB346IS | **12820.00** | SB346IR | **15570.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 600 | None | 65 | 65 | SB346WS | **9860.00** | SB346WR | **13229.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 800 | I-Line | 65 | 50 | SB348IS | **19569.00** | SB348IR | **22038.00** |
| 3Ø4W▲ | 208Y/120 240/120 480Y/277 | 800 | None | 65 | 65 | SB348WS | **18669.00** | SB348WR | **21137.00** |

▲ Can be used on 3Ø3W Delta voltage systems (for example, 240 V Delta or 480 V Delta).

**Table 11.3: Single Main Fusible Disconnect with Distribution (Series E4)**

| System | Service Voltage | Mains Ratings (A) | Distribution Interior | SCCR 240 V | SCCR 480 V | Fusible Disconnect | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Indoor | | Outdoor | |
| | | | | | | Catalog No. | $ Price | Catalog No. | $ Price |
| 1Ø3W | 120/240 | 400 | NQ | 65 | — | SF124QS | **8150.00** | SF124QR | **10900.00** |
| | | | I-Line | 100 | — | SF124IS | **8995.00** | SF124IR | **11705.00** |
| | | | None | 200 | — | SF124WS | **6935.00** | SF124WR | **9685.00** |
| | | 600 | I-Line | 100 | — | SF126IS | **11906.00** | SF126IR | **14656.00** |
| | | | None | 200 | — | SF126WS | **8946.00** | SF126WR | **11696.00** |
| 3Ø4W■ | 208Y/120 240/120 | 400 | NQ | 65 | — | SF324QS | **8929.00** | SF324QR | **11679.00** |
| 3Ø4W■ | 208Y/120 240/120 | 400 | None | 200 | — | SF324WS | **7559.00** | SF324WR | **10309.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 400 | I-Line | 100 | 65 | SF344IS | **9682.00** | SF344IR | **12432.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 400 | None | 200 | 200 | SF344WS | **7662.00** | SF344WR | **10412.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 600 | I-Line | 100 | 65 | SF346IS | **14453.00** | SF346IR | **17203.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 600 | None | 200 | 200 | SF346WS | **11493.00** | SF346WR | **14243.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 800 | I-Line | 100 | 65 | SF348IS | **25401.00** | SF348IR | **28782.00** |
| 3Ø4W■ | 208Y/120 240/120 480Y/277 | 800 | None | 200 | 200 | SF348WS | **24501.00** | SF348WR | **27881.00** |

■ Can be used on 3Ø3W Delta voltage systems (for example, 240 V Delta or 480 V Delta).

**Table 11.4: Multiple Mains—Fusible (Series E4)♦**

| System | Service Voltage | Mains Rating (A) | 240 V or 480 V Max. ★ | Multiple Mains (6) Fusible | | | |
|---|---|---|---|---|---|---|---|
| | | | | Indoor | | Outdoor | |
| | | | | Catalog No. | $ Price | Catalog No. | $ Price |
| 1Ø3W | 120/240 | 400 | 200 | SF124FS | **5565.00** | SF124FR | **8478.00** |
| 1Ø3W | 120/240 | 600 | 200 | SF126FS | **6678.00** | SF126FR | **8966.00** |
| 3Ø4W▼ | 208Y/120 240/120 408Y/277 | 400 | 200 | SF344FS | **7025.00** | SF344FR | **10050.00** |
| 3Ø4W▼ | 208Y/120 240/120 480Y/277 | 600 | 200 | SF346FS | **7319.00** | SF346FR | **10233.00** |
| 3Ø4W▼ | 208Y/120 240/120 480Y/277 | 800 | 200 | SF348FS | **8283.00** | SF348FR | **11199.00** |

♦ Multiple mains—provisions for mounting 30 inches of fusible devices. No more than six main devices permitted per NEC.

★ QMB/QMJ fusible switches, maximum 400 A, SCCR based on Class J, R, or T fuses. QMB plug-in circuit breaker rating is equal to the lowest rating of the circuit breaker.

▼ Can be used on 3Ø3W Delta voltage systems (for example, 240 V Delta or 480 V Delta).





© 2011 Schneider Electric
All Rights Reserved

### Table 11.5: I-Line™ Distribution Section (Series E4)

| System | Service Voltage | Mains Ratings (A) | Distribution Interior | SCCR 240 V Max. | SCCR 480 V Max. | Distribution Type | Indoor | | Outdoor | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Catalog No. | $ Price | Catalog No. | $ Price |
| 3Ø4W | 208Y/120<br>240/120<br>480Y/277 | 800 | I-Line | 65 k | 65 k | Add-on distribution section, must be connected to an SB UCT and main section without distribution panel, such as SB348WS. An I-Line plug-on subfeed lug kit must be ordered to terminate the distribution section. | SBAD800 | **10260.00** | SBAD800R | **13305.00** |
| 3Ø4W | 208Y/120<br>240/120<br>480Y/277 | 800 | I-Line | 125 k | 100 k | Stand-alone distribution section not connected to an SB section. A back-fed main circuit breaker or I-Line plug-on subfeed lug kit must be ordered to terminate the distribution section. (Non-ULSE) | SBSAD800 | **10620.00** | SBSAD800R | **13770.00** |

### Table 11.6: Meter Door Selection

| Meter Socket Jaws | 15-inch High Door With One Meter Socket and Test Block | | 30-inch High Door With Two Meter Sockets and Test Blocks | |
|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price |
| 6▲ | SBA15D6MS | **923.00** | — | — |
| 8 | SBA15D8MS | **984.00** | — | — |
| 13 | SBA15D13MS | **1230.00** | SBA30D13MS | **2093.00** |
| 15 | SBA15D15MS | **1358.00** | SBA30D15MS | **2217.00** |
| Blank | SBA15DBC | **495.00** | — | — |
| ■ | SBA15DMS | **617.00** | — | — |

▲ 6-jaw meter socket can also be used on 4- and 5-jaw applications.
■ Door with provisions for mounting meter socket.
Note: To order structure with meter door factory-installed, add door catalog number as suffix to structure (e.g. SF344IS-15D13MS).

### Table 11.7: Accessories

| Description | System | Phase | Pole Spaces | Catalog No. | $ Price |
|---|---|---|---|---|---|
| **Indoor underground pull section** (w/o lug landing)—26-in. (W)<br>Order separate SA8LL lug kit below if required. | | | | SA26PS | **2217.00** |
| **Outdoor (3R) underground pull section** (w/o lug landing)—26 in. (W) x 24.5 in. (D)<br>Order separate SA8LL lug landing kit below when required. | | | | SA26PSR | **4559.00** |
| **Lug landing kit**—800 A max. For terminating utility service cables in indoor or outdoor underground pull sections. | | | | SA8LL♦ | **753.00** |
| **Single barrel lug kit** —Kit provides single barrel lugs and pad in lieu of twin barrel lug provided with service section.<br>Mechanical lugs provided are sized to fit 1-3/0–750 kcmil cable. Two lugs per phase are supplied. | | | | SA7PL | **395.00** |
| **Loadside wireway**—11.5 in. (W) x 14 in. (D)—indoor only | | | | SA10LW | **1052.00** |
| **Bus link kit**—800 A max.—Order one kit per phase for 400, 600, and 800 A. | | | | SA10BL | **246.00** |
| **Double padlock hasp attachment**—For mounting two padlocks on door handle of rainproof enclosure. Padlocks not included. | | | | SS2PL | **113.00** |
| **Plug-On Distribution Panel**—mounts on right side of I-Line interior. Cannot be used with LA/LH branch circuit breaker.<br>Panel rated 225 A for 240 V applications. For QO™ type plug-on circuit breakers only. | 1Ø<br>3Ø<br>3Ø | AC<br>ABC<br>AB | 12 | SS212AC<br>SS312<br>SS212AB★ | **2339.00**<br>**2957.00**<br>**2339.00** |

♦ All EUSERC Utilities (except Arizona Public Service and Salt River Project) require a lug landing kit SA8LL.
★ To be used on 120/240 V, 3Ø4W delta applications.

### Table 11.8: Subfeed Circuit Breakers (Series E4) ▼

| Description | Rating (A) | 2-Pole△ Catalog No. | | $ Price | 3-Pole Catalog No. | | $ Price |
|---|---|---|---|---|---|---|---|
| | | Left | Right | | Left | Right | |
| **Subfeed Circuit Breaker Kit**—<br>Price includes circuit breaker, connectors and mounting hardware. The complete kit, mounting hardware, circuit breaker and connectors will be shipped direct from plant. Delivery is stock to three days. | 100 | SASFBH100L( ) | SASFBH100R( ) | **1480.00** | SASFBH100L | SASFBH100R | **1850.00** |
| | 110 | SASFBH110L( ) | SASFBH110R( ) | **1480.00** | SASFBH110L | SASFBH110R | **1850.00** |
| | 125 | SASFBH125L( ) | SASFBH125R( ) | **1480.00** | SASFBH125L | SASFBH125R | **1850.00** |
| | 150 | SASFBH150L( ) | SASFBH150R( ) | **1480.00** | SASFBH150L | SASFBH150R | **1850.00** |
| | 175 | SASFBJ175L( ) | SASFBJ175R( ) | **1644.00** | SASFBJ175L | SASFBJ175R | **2055.00** |
| | 200 | SASFBJ200L( ) | SASFBJ200R( ) | **1644.00** | SASFBJ200L | SASFBJ200R | **2055.00** |
| | 225 | SASFBJ225L( ) | SASFBJ225R( ) | **1644.00** | SASFBJ225L | SASFBJ225R | **2055.00** |

▼ Cannot use subfeed circuit breaker kit with multiple mains service section switchboards.
△ Two pole circuit breaker catalog numbers are completed by adding required phase connection letters as suffix (for example, SASFBH100LAC).

## Ordering Information

1. **Service section:** Order service section from either Table 11.2 on page 11-4 (single main circuit breaker with distribution), Table 11.3 on page 11-4 (single main fusible with distribution), or Table 11.4 on page 11-4 (multiple mains fusible), as determined by mains rating, voltage, and system.
2. **Meter doors:** Order meter door from Table 11.6 (meter door selection) as determined by the height and utility metering requirements.
3. **Accessories and subfeeds:** Order as required from Table 11.7 (accessories) and/or Table 11.8 (subfeed circuit breakers).
4. **Circuit breakers and switches:** Order devices from pages listed below as determined by voltage, trip rating, AIR, and mounting space.

Multiple Mains and Branch Devices

- QO, QOB, QO-VH, QOB-VH: pages 7-10 and 9-10
- I-Line: pages 9-24 to 9-30
- QMB Switches: page 9-35



© 2011 Schneider Electric
All Rights Reserved



Power-Zone 4 Low Voltage Switchgear (Class 6037)

## Power-Zone™ 4 Low Voltage Switchgear with Masterpact™ Circuit Breakers

Square D™ brand Power-Zone™ 4 low voltage, metal-enclosed, drawout switchgear is designed to provide superior electrical distribution, protection, and power quality management. The prime components of the switchgear are the Masterpact™ NW and NT ANSI rated circuit breaker. Power-Zone 4 switchgear is designed to maximize the functionality of the Masterpact circuit breakers, which, in turn, deliver maximum uptime, system selectivity, ease of maintenance, and reliable circuit protection. All of these features are packed into the smallest footprint available for low voltage drawout switchgear.

- Power-Zone 4 is designed and built to ANSI® C37.20.1 and is Listed to UL 1558
- Masterpact NW and NT drawout low voltage power circuit breakers are designed and built to ANSI C37.13 and C37.16. Listed to UL 1066
- Short-circuit current rating up to 200 kA at 240 V and 480 V without fuses
- High short-time withstand ratings up to 100 kA for 1 second, minimum
- Arc flash limiting (L1F) Masterpact NW feeder breakers available in 800, 1600, and 2000 A ratings
- Family of field installable and upgradeable Micrologic™ trip units with optional Powerlogic™ data communications features
- Power-Zone 4 switchgear can offer optional data communications capability
- Smallest equipment footprint available in this product class
- Front access to all control and communications wire connections
- Bolted copper bus provided as standard (up to 6000 A maximum)
- Large rear cable compartment pull area allowing maximum room for power cables
- Horizontal bus provision for future equipment expansion
- System designed for maximum uptime with low maintenance
- Modular circuit breaker designed for easy addition of control accessories
- Available in NEMA 3R outdoor walk-in enclosures

Masterpact NW circuit breakers are available in various levels of interrupting ratings from 42–200 kA at 480 V and 130 kA at 600 V.

The Masterpact NT circuit breaker is available in an 800 A frame size and 42 kA at 480 V interrupting rating. Up to 8 Masterpact NT circuit breakers can be mounted in a 30-inch wide section. (Not available for 600 V.)

Circuit breakers of like frame sizes and interrupting ratings are interchangeable.

**Table 11.9: Masterpact Circuit Breaker Selection**

| Rating (A) | Catalog No. | Rating (A) | Catalog No. |
|---|---|---|---|
| **Masterpact NW** | | | |
| 800 | NW08N1<br>NW08H1<br>NW08H2<br>NW08H3<br>NW08L1<br>NW08L1F | 4000 | NW40H2<br>NW40H3<br>NW40L1 |
| 1600 | NW16N1<br>NW16H1<br>NW16H2<br>NW16H3<br>NW16L1<br>NW16L1F | 5000 | NW50H2<br>NW50H3<br>NW50L1 |
| 2000 | NW20H1<br>NW20H2<br>NW20H3<br>NW20L1<br>NW20L1F | 6000 | NW60H2<br>NW60H3<br>NW60L1 |
| 3200 | NW32H1<br>NW32H2<br>NW32H3<br>NW32L1 | | |
| **Masterpact NT** | | | |
| 800 | NT08N1 | | |

## Micrologic™ Trip Units

A modern family of field-installable trip units is available with Masterpact NW and NT circuit breakers. The circuit breaker overcurrent protection consists of a microprocessor-based tripping device that requires no external power source. The complete tripping system has three main components: the air-core sensors, the trip device (with rating plug), and the trip actuator. The microprocessor-based trip unit uses true RMS current level sensing.

The Metering and Communications system is used in conjunction with Micrologic Type A, Type P, and Type H trip units (see Digest pages 7-47 and 7-48) for the Masterpact NW and NT circuit breakers. Modbus™ industry standard data communications allow this system to replace discrete meters, multiple transducers, analog wires, and analog-to-digital conversion equipment. Extensive information can be transmitted over a single communications cable to a Powerlogic system display, a personal computer, programmable logic controller, or other host system.

Basic circuit information, such as amperes, can be monitored using Micrologic Type A trip unit. Circuit breaker remote operation is available using the Micrologic Type P and Type H trip units with Powerlogic functionality. In addition to its metering capabilities, the Micrologic trip unit system is available with optional status inputs and relay outputs for monitoring discrete contacts and remote control of devices by way of the data communications channel.

Micrologic trip unit metering functions include:

- Amperes and volts
- Frequency
- Power
- Power demand
- Energy
- Energy demand
- Power factor
- Power quality measurements
- Communications
- Waveform capture
- Data logging
- Programmable contacts
- Current unbalance
- Over/under voltage
- Over/under frequency
- Voltage unbalance
- Phase sequence
- Reverse power
- Long time imaging
- Contact wear indicator
- Masterpact circuit breaker maintenance information

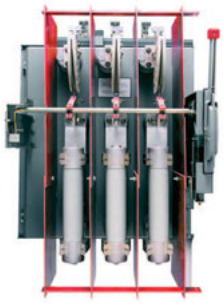




© 2011 Schneider Electric
All Rights Reserved




MiniBreak™ Switch Enclosure with Door (Class 6042)



MiniBreak Switch Interior Showing Fuses (Class 6042)

Listed Metal-enclosed Interrupter Switchgear

## MiniBreak™ Compact Height Switches—5.5 kV, 200 A

The Square D™ brand MiniBreak compact height switch enclosure is only 66-inches high and contains a single 3-pole load interrupter switch, rated 5.5 kV and 200 A. Enclosures are free-standing and suitable for both indoor (NEMA 1) and outdoor (NEMA 3R) applications. These switches are available unfused or with provisions for Square D™ brand current-limiting fuses rated from 10E A to 200E A. Factory-installed accessories include an auxiliary switch, strip heaters, and provisions for a "lock open" only key interlock. The door is mechanically interlocked with the switch operating handle. Set screw cable lugs for #14 solid—2/0 stranded aluminum or copper cable are provided for two line and one load connections. **Fuses are not furnished with this equipment. For fuse information and pricing, see Table 11.12. The Fused switches and many of the fuses listed in Table 11.12 are available from stock.**

### Table 11.10: Ratings

| | |
|---|---|
| **Max. design voltage (kV)** | 5.5 |
| **BIL (kV)** | 60 |
| **Frequency (Hz)** | 60 |
| **Continuous amperes** | 200 |
| **Interrupting amperes** | 200 |
| **Momentary (amperes asymmetrical)** | 20,000 |
| **Fault close (amperes asymmetrical)** | 20,000 |
| **Capacitor switching (kVAR)** | None |
| **Short time, 2 seconds (amperes symmetrical)** | 12,500 |
| **Low frequency withstand (kV)** | 19 |
| **Fuse integrated (symmetrical)** | 63,000 |

**NOTE:** 1200 hp maximum.

## Ordering Information

### Table 11.11: 5 kV—200 A Switch

| Type | Switch Catalog No. | $ Price |
|---|---|---|
| Unfused | HVMB305200U | **10274.00** |
| Fused | HVMB305200 | **11844.00** |

1. Select switch catalog number based on fused or unfused.
2. Select catalog numbers for modifications from Factory Modifications table.
3. If fused, select 5 kV, 200 A maximum current-limiting fuse from table below.
4. Price switch and fuses separately. Switches are furnished with provisions only for fuses.
5. Weight 450 lbs (204 kg).

### Table 11.12: Current-Limiting Fuses, Non-Disconnect Type (Extended Travel Blown Fuse Indicator)

| Continuous Current | Fuse Mounting Clip | | Catalog Number▲ | $ Price■ |
|---|---|---|---|---|
| | Size | Centers | | |
| **5 kV Fuse** | | | | |
| 10E<br>15E<br>20E<br>25E | D | 12" | 5GS010<br>5GS015<br>5GS020<br>5GS025 | **954.00** |
| 30E<br>40E<br>50E<br>65E<br>80E<br>100E | D | 12" | 5GS030<br>5GS040<br>5GS050<br>5GS065<br>5GS080<br>5GS100 | **1980.00** |
| 125E<br>150E<br>175E<br>200E | D | 12" | 5GS125<br>5GS150<br>5GS175<br>5GS200 | **3326.00** |

▲ Contact your Schneider Electric representative for current stock quantities.
■ Price includes one set of three fuses, packed in a single box.

### Table 11.13: Factory Modifications

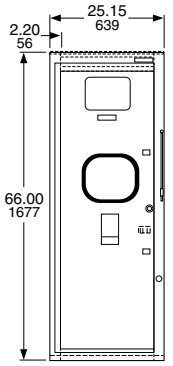
| Catalog No. | Description | $ Price |
|---|---|---|
| HVMX1 | Auxiliary switch, 1-N.O. and 1-N.C. contacts | **152.00** |
| HVMK1 | Provisions for lock open only key interlock (does not include the key cylinder—order separately) | **341.00** |
| HVMH1 | Strip heater 100 W @ 120 V | **1150.00** |
| HVMH2 | Strip heater with thermostat 100 W @ 120 V | **1772.00** |
| HVMSA3 | Distribution class surge arrester (set of three arresters) 3 kV, 2.55 MCOV♦ | **1618.00** |
| HVMSA6 | Distribution class surge arrester (set of three arresters) 6 kV, 5.10 MCOV♦ | **1926.00** |

♦ Arresters are line side connected.

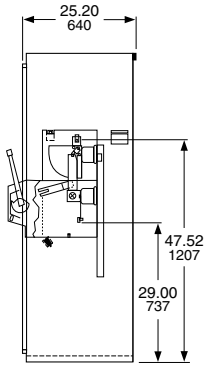
## Pricing Example

Price one (1), 5 kV, 200 A switch with 65E current-limiting fuses. Provide one auxiliary switch with 1-N.O. and 1-N.C. contact and with provision for installing a "lock open" key interlock on the switch operating mechanism.

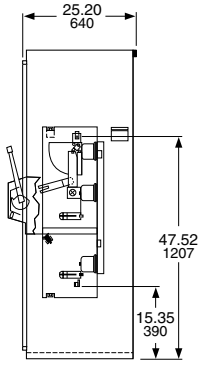
| Order: | Catalog No. | $ Price |
|---|---|---|
| Switch with enclosure | HVMB305200 | **11844.00** |
| Auxiliary switch | HVMX1 | **152.00** |
| Key interlock adapter | HVMK1 | **340.00** |
| Fuses (set of three, from page 11-14) | 5GS065 | **1980.00** |
| | **Total Price** | **14316.00** |



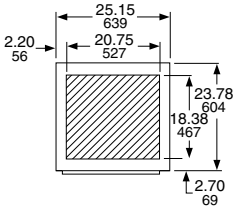

Front view




Section view (unfused)



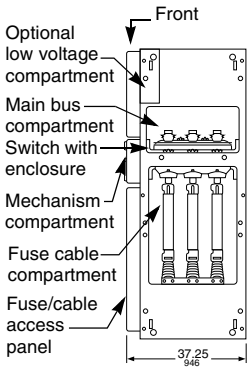

Section view (fused)



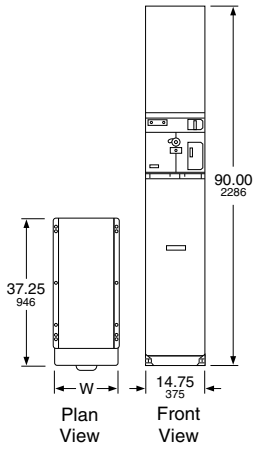

Top view selected area recommended (bottom conduit entrance)



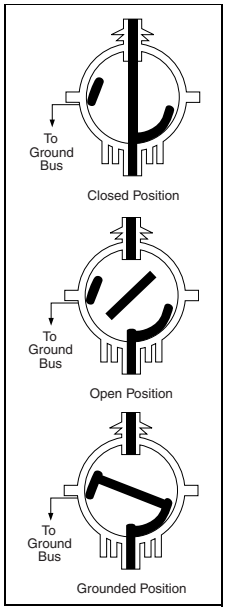
© 2011 Schneider Electric
All Rights Reserved




Right Side View




Plan View | Front View




Switch Contact Positions

Listed Metal-enclosed Interrupter Switchgear

## HVL/cc Metal-Enclosed Load Interrupter Switchgear—Full Range

Square D™ brand HVL/cc metal-enclosed load interrupter switchgear provides switching, metering, and interrupting capabilities for medium voltage electrical power distribution systems and is designed and tested per applicable ANSI/IEEE and NEMA standards.

Made up of modular units, the HVL/cc is easy to expand. Two main bus positions allow future extensions and connections to existing equipment.

HVL/cc switchgear is available in either single or multiple bay units. The design is compact, with front accessibility.

The HVL/cc switch can be equipped with either an over-toggle mechanism (OTM), which is standard, or an optional stored energy mechanism (SEM). An option with both mechanisms is the Fuselogic™ system. The Fuselogic system offers fuse tripping (with SEM) to provide protection against single phasing loads when a fuse has blown. It also has a mechanical interlock to prevent inadvertent switching until fuses have been installed or blown fuses have been replaced.

The HVL/cc enclosure is designed for front access only and can be positioned against walls, in small rooms or in pre-fabricated buildings. The small footprint can result in considerable cost savings from the reduction of building or room sizes.

**Table 11.14: HVL/cc Load Interrupter Switches—Full Range 600/1200 A Ratings**

| | | | | | |
|---|---|---|---|---|---|
| **Switch (kV)—maximum design** | 5.5 | 17.5 | 17.5 | 25.8 | 38 |
| **BIL (kV)** | 60 | 95 | 110 | 125 | 150 |
| **Frequency (Hz)** | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| **Withstand (kV)** | 19 | 36 | 36 | 50 | 80 |
| **Continuous current (A)** | 600/1200 | 600/1200 | 600/1200 | 600 | 600 |
| **Interrupting current (A)** | 600/1200 | 600/1200 | 600/1200 | 600 | 600 |
| **Fault close (kA asymmetrical)** | 40 | 40 | 40 | 32 | 32 |
| **Momentary current (kA asymmetrical)** | 40 | 40 | 40 | 32 | 32 |
| **Short time current (kA symmetrical)** | 25 | 25 | 25 | 25 | 25 |
| **Electrical endurance (number of operations at 80% P.F.)** | 100/600 A<br>26/1200 A | 100/600 A<br>26/1200 A | 100/600 A<br>26/1200 A | 100 | 100 |
| **Mechanical endurance (number of operations)** | 1000 | 1000 | 1000 | 1000 | 1000 |

### Switch Standard Features

- Switch Positions: Closed, open, and internally grounded (optional) (connects switch contacts to ground)
- Enclosure: Epoxy
- Medium: Sulphur hexalfluoride
- Maintenance: Maintenance free sealed for life
- Pressure:
  - — 5.8 PSI (≤17.5 kV)
  - — 22 PSI (25.8–38 kV)
- View ports to show switch blade position

### Options

- Internal ground switch: Has full fault making capability
- Fuselogic™ system
- Infrared viewing windows
- Class I, Division 2
- Fast auto transfers
- Duplex configurations
- Protective relaying
- Powerlogic™ metering
- 20-inch or 29.5-inch wide enclosures

### Fuselogic™

Fuselogic is a protection system that provides the ultimate in medium voltage fuse protection. This patented system utilizes Square D™ brand current-limiting fuses with mechanical sensors that function without any auxiliary power requirements. Several combinations of Fuselogic functions can be combined to provide simple blown fuse indication contacts with mechanical lockout to anti-single phasing protection. Anti-single phasing requires the optional stored energy mechanism (SEM). Fuselogic is available on both HVL/cc and HVL switches.

### Switchgear Standard Features

- Compartments: Switch, bus, fuse/cable, mechanism, and optional low voltage/control
- 11 gauge steel enclosure
- Epoxy insulators
- Fuse/cable access panel interlocked with switch
- Front access only
- Animated mechanism mimic bus
- Padlocking open or closed provision
- Top or bottom cable entry
- UL/CUL Listed
- Live line indicators on all incoming switch bays and outgoing feeder circuits
- Cable lugs included for one cable per phase
- Tin plated copper bus for lineups

**Table 11.15: Surge Arresters**

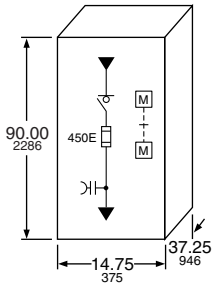
| System L-L Voltage kV | | Arrester MCOV-kV | |
|---|---|---|---|
| **Nominal** | **Maximum** | **Effectively Grounded Neutral Circuits** | **Impedance Grounded and Ungrounded Circuits** |
| 2.4 | 2.54 | — | 2.55 |
| 4.16 | 4.4 | 2.55 | 5.1 |
| 4.8 | 5.08 | — | 5.1 |
| 6.9 | 7.26 | — | 7.65 |
| 12.0 | 12.7 | 7.65 | 12.70 |
| 12.47 | 13.2 | 7.65 | 12.70 |
| 13.2 | 13.97 | 8.4 | — |
| 13.8 | 14.52 | 8.4 | — |





© 2011 Schneider Electric
All Rights Reserved

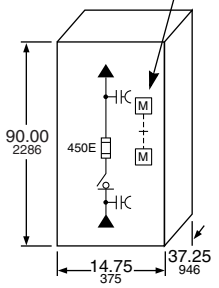
**NOTE:** Cable entry and exit must be opposite to maintain the minimum sections shown.




5 kV Indoor N1
Top Cable In/Bottom Cable Out Switch in Position A

Mechanical interlock between switch and fuse access panel.

**NOTE:** Mechanical interlock is standard on switches.




5 kV Indoor N1
Top Cable In/Bottom Cable Out Switch in Position B

## HVL/cc Switchgear—Quick Ship Program—5–15 kV, 600 A

The HVL/cc quick ship program provides basic fused and unfused load interrupter switch configurations for standalone or transformer primary applications. The Quick Ship program offers faster delivery, but with fewer options.

Three-pole, 600 A individual HVL/cc switches are available in free-standing indoor (NEMA 1) enclosures. These switches are available unfused or with provisions for Square D™ brand current-limiting DIN/E fuses. Factory optional accessories include auxiliary bays, main bus, auxiliary switches, extra cable terminating lugs, and distribution class surge arresters. The fuse access panel is mechanically interlocked with the switch mechanism. Key interlocks are not an available option with Digest-listed HVL/cc switches. (1) Set screw type lugs for (2) #2–350 kcmil copper or aluminum cables are provided for line and load connections. **Fuses are not furnished with this equipment. For fuse information and pricing refer to page 11-10.**

### Provisions for Future Expansion

All “single” HVL/cc switches have provisions for future expansion on either side.

Order main bus kits for copper 600 A bus. Include sketch for factory-assembled parts or lineups.

### 600 A Single Switch Unfused

Manual over-toggle mechanism, no grounding switch

Includes (1) set screw for (2) #2–350 kcmil Cu or Al conductors per phase

Application A = Top entry (incoming—cable or main bus), bottom exit (load—cable or main bus)

Application B = Bottom entry (incoming—cable or main bus), top exit (load—cable or main bus)

**Table 11.16: Unfused Switch Selection**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | $ Price |
|---|---|---|---|---|---|---|
| | | | | in | mm | |
| HVLCCA14305N | 4.76 | — | A | 14.75 | 375 | **17500.00** |
| HVLCCA20305N | 4.76 | — | A | 20.00 | 508 | **18024.00** |
| HVLCCA14315N | 15 | — | A | 14.75 | 375 | **19244.00** |
| HVLCCA20315N | 15 | — | A | 20.00 | 508 | **19770.00** |
| HVLCCB14305N | 4.76 | — | B | 14.75 | 375 | **17500.00** |
| HVLCCB20305N | 4.76 | — | B | 20.00 | 508 | **18024.00** |
| HVLCCB14315N | 15 | — | B | 14.75 | 375 | **19244.00** |
| HVLCCB20315N | 15 | — | B | 20.00 | 508 | **19770.00** |

### 600 A Single Switch Fused

(Provisions only for Square D™ brand current-limiting DIN/E fuses—order fuses separately)

Manual over-toggle mechanism, no grounding switch

Includes (1) set screw lug for (2) #2–350 kcmil Cu or Al conductor per phase

Application A = Top entry (incoming—cable or main bus), bottom exit (load—cable or main bus)

Application B = Bottom entry (incoming—cable or main bus), top exit (load—cable or main bus)

**Table 11.17: Fused Switch Selection**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | $ Price |
|---|---|---|---|---|---|---|
| | | | | in | mm | |
| HVLCCA14305D | 4.76 | 10–450E | A | 14.75 | 375 | **19392.00** |
| HVLCCA20305D | 4.76 | 10–450E | A | 20.00 | 508 | **19916.00** |
| HVLCCA14315D | 15 | 10–200E | A | 14.75 | 375 | **19858.00** |
| HVLCCA20315D | 15 | 10–200E | A | 20.00 | 508 | **20382.00** |
| HVLCCB14305D | 4.76 | 10–450E | B | 14.75 | 375 | **19392.00** |
| HVLCCB20305D | 4.76 | 10–450E | B | 20.00 | 508 | **19916.00** |
| HVLCCB14315D | 15 | 10–200E | B | 14.75 | 375 | **19858.00** |
| HVLCCB20315D | 15 | 10–200E | B | 20.00 | 508 | **20382.00** |

### 600 A Incoming Line Auxiliary Bay

For top incoming cable to application A (bottom cable exit) switch(es), order 600 A tin plated Cu main bus to adjacent section from bus table. Includes (1) set screw lug for (2) #2–350 kcmil Cu or Al conductor per phase.

**Table 11.18: Bays for Top Entry/Exit Cables**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | $ Price |
|---|---|---|---|---|---|---|
| | | | | in | mm | |
| HVLCCA14A | 4.76/15 | — | A | 14.75 | 375 | **1968.00** |
| HVLCCA20A | 4.76/15 | — | A | 20.00 | 508 | **2492.00** |

For bottom incoming cable to application B (top cable exit) switch(es), order 600 A tin plated Cu main bus to adjacent section from main bus kits table. Includes (1) set screw lug for (2) #2–350 kcmil Cu or Al conductor per phase.

**Table 11.19: Bays for Bottom Entry/Exit Cables**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | $ Price |
|---|---|---|---|---|---|---|
| | | | | in | mm | |
| HVLCCB14A | 4.76/15 | — | B | 14.75 | 375 | **1968.00** |
| HVLCCB20A | 4.76/15 | — | B | 20.00 | 508 | **2492.00** |

### 600 A Tin Plated Copper Main Bus Kits

**Table 11.20: Bus Kits**

| Catalog No. | Left (From) Application | Width | | Right (To) Application | Width | | $ Price |
|---|---|---|---|---|---|---|---|
| | | in | mm | | in | mm | |
| HVLCCMBA14A14 | A | 14.75 | 375 | A | 14.75 | 375 | **882.00** |
| HVLCCMBA14A20 | A | 14.75 | 375 | A | 20.00 | 508 | **946.00** |
| HVLCCMBA20A14 | A | 20.00 | 508 | A | 14.75 | 375 | **946.00** |
| HVLCCMBA20A20 | A | 20.00 | 508 | A | 20.00 | 508 | **1008.00** |
| HVLCCMBB14B14 | B | 14.75 | 375 | B | 14.75 | 375 | **882.00** |
| HVLCCMBB14B20 | B | 14.75 | 375 | B | 20.00 | 508 | **946.00** |
| HVLCCMBB20B14 | B | 20.00 | 508 | B | 14.75 | 375 | **946.00** |
| HVLCCMBB20B20 | B | 20.00 | 508 | B | 20.00 | 508 | **1008.00** |

### Ratings

HVL/cc Switch with manually operated type OTM mechanism in cubicle enclosure (does not include internal ground switch). Ratings are based on an X/R ratio of 1.6.

**Table 11.21: HVL/cc Switch Ratings**

| | | |
|---|---|---|
| **Switch (kV)—maximum design** | 5.5 | 17.5 |
| **BIL (kV)** | 60 | 95 |
| **Frequency (Hertz)** | 50/60 | 50/60 |
| **Withstand (kV)** | 19 | 36 |
| **Continuous current (amperes)** | 600 | 600 |
| **Interrupting current (amperes)** | 600 | 600 |
| **Fault close (amperes asymmetrical)** | 40,000 | 40,000 |
| **Integrated switch and fuse rating (amperes** | 65,000 | 65,000 |
| **Momentary current (amperes asymmetrical)** | 40,000 | 40,000 |
| **Short time current, 2 seconds (amperes symmetrical)** | 25,000 | 25,000 |
| **Operations at Full Load** | 100 | 100 |
| **Mechanical Endurance (number of operations)** | 1000 | 1000 |

▲ 50,000 for 630 A fuse.

### Factory Modifications

**Table 11.22: Factory Modifications**

| Catalog No. | Description | $ Price |
|---|---|---|
| HVLCC-X3 | Auxiliary switch 2 N.O.–2 N.C. contact | **762.00** |

### Distribution Class Surge Arresters

(One Set of Three) Switch Load Side Connected or Incoming Line Bay)

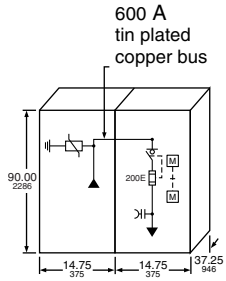
**Table 11.23: Surge Arresters**

| Catalog No. | kV Rating | Section Width Minimum Required | | $ Price |
|---|---|---|---|---|
| | | in | mm | |
| HVLCCDSA3 | 3 kV, 2.55 kV MCOV | 14.75 | 375 | **1618.00** |
| HVLCCDSA6 | 6 kV, 5.10 kV MCOV | 14.75 | 375 | **1926.00** |
| HVLCCDSA9 | 9 kV, 7.65 kV MCOV | 14.75 | 375 | **2248.00** |
| HVLCCDSA10 | 10 kV, 8.40 kV MCOV | 14.75 | 375 | **2446.00** |
| HVLCCDSA12 | 12 kV, 10.20 kV MCOV | 14.75 | 375 | **2836.00** |
| HVLCCDSA15 | 15 kV, 12.70 kV MVOV | 20.00 | 508 | **3424.00** |
| HVLCCDSA18 | 18 kV, 15.3 kV MCOV | 20.00 | 508 | **3948.00** |



Listed Metal-enclosed Interrupter Switchgear

© 2011 Schneider Electric
All Rights Reserved




Listed Metal-enclosed Interrupter Switchgear

## 600 A "Single" HVL/cc Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses for Cable Connection to Power-Dry™, Power-Cast™, and Uni-Cast™ Transformers

(FLC = 300 A MAXIMUM)
RH—Transformer on right, LH—Transformer on Left
Application A = Top Entry (Incoming Cables)
Application B = Bottom Entry (Incoming Cables)

**Table 11.24: 600 A "Single" HVL/cc Switch Selection**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | RH / LH | $ Price |
|---|---|---|---|---|---|---|---|
| | | | | in | mm | | |
| HVLCCA14405DGR | 4.76 | 10–450E | A | 14.75 | 375 | RH | **20134.00** |
| HVLCCA20405DGR | 4.76 | 10–450E | A | 20.00 | 508 | RH | **20660.00** |
| HVLCCA14405DGL | 4.76 | 10–450E | A | 14.75 | 375 | LH | **20134.00** |
| HVLCCA20405DGL | 4.76 | 10–450E | A | 20.00 | 508 | LH | **20660.00** |
| HVLCCA14415DGR | 15 | 10–200E | A | 14.75 | 375 | RH | **20614.00** |
| HVLCCA20415DGR | 15 | 10–200E | A | 20.00 | 508 | RH | **21138.00** |
| HVLCCA14415DGL | 15 | 10–200E | A | 14.75 | 375 | LH | **20614.00** |
| HVLCCA20415DGL | 15 | 10–200E | A | 20.00 | 508 | LH | **21138.00** |
| HVLCCB14405DGR | 4.76 | 10–450E | B | 14.75 | 375 | RH | **20134.00** |
| HVLCCB20405DGR | 4.76 | 10–450E | B | 20.00 | 508 | RH | **20660.00** |
| HVLCCB14405DGL | 4.76 | 10–450E | B | 14.75 | 375 | LH | **20134.00** |
| HVLCCB20405DGL | 4.76 | 10–450E | B | 20.00 | 508 | LH | **20660.00** |
| HVLCCB14415DGR | 15 | 10–200E | B | 14.75 | 375 | RH | **20614.00** |
| HVLCCB20415DGR | 15 | 10–200E | B | 20.00 | 508 | RH | **21138.00** |
| HVLCCB14415DGL | 15 | 10–200E | B | 14.75 | 375 | LH | **20614.00** |
| HVLCCB20415DGL | 15 | 10–200E | B | 20.00 | 508 | LH | **21138.00** |

**NOTE:** Switches with transformer connections are painted ANSI 49. Standalone switches are painted ANSI 61. Transformer connections in HVL/cc switches are based on standard Square D™ brand transformer connections. If these switches are used to connect to other manufacturers' transformers, then connections must match standard Square D™ brand transformer connections. (Cable connections are furnished with the transformer.)

## General Purpose E-Rated Current-Limiting Fuses:Type DIN/E for HVL/cc Switches

Integrated rating for 600 A HVL/cc switches with Square D™ brand DIN/E fuses listed below is 65 kA rms symmetrical amperes. (50 kA rms for 630 A fuse.)

Current-limiting fuses increase the integrated short-circuit current rating because of their energy-limiting capabilities.

To increase the short-circuit current rating of the entire lineup of switchgear, current-limiting fuses must be used in the entrance sections.

**Table 11.25: Fuse Selection**

| Catalog No. | kV Rating | Fuse Rating | Set of Fuses ▲ | Fuse Size | Section Width Required | | $ Price |
|---|---|---|---|---|---|---|---|
| | | | | | in | mm | |
| 55DE010 | 5.5 | 10E | 1 | Actual | 14.75 | 375 | **954.00** |
| 55DE015 | 5.5 | 15E | 1 | Actual | 14.75 | 375 | **954.00** |
| 55DE020 | 5.5 | 20E | 1 | Actual | 14.75 | 375 | **954.00** |
| 55DE025 | 5.5 | 25E | 1 | Actual | 14.75 | 375 | **954.00** |
| 55DE030 | 5.5 | 30E | 1 | Actual | 14.75 | 375 | **1980.00** |
| 55DE040 | 5.5 | 40E | 1 | Actual | 14.75 | 375 | **1980.00** |
| 55DE050 | 5.5 | 50E | 1 | Actual | 14.75 | 375 | **1980.00** |
| 55DE065 | 5.5 | 65E | 1 | Actual | 14.75 | 375 | **1980.00** |
| 55DE080 | 5.5 | 80E | 1 | Actual | 14.75 | 375 | **1980.00** |
| 55DE100 | 5.5 | 100E | 1 | Actual | 14.75 | 375 | **3326.00** |
| 55DE125 | 5.5 | 125E | 1 | Actual | 14.75 | 375 | **3326.00** |
| 55DE150 | 5.5 | 150E | 1 | Actual | 14.75 | 375 | **3326.00** |
| 55DE175 | 5.5 | 175E | 1 | Actual | 14.75 | 375 | **3326.00** |
| 55DE200 | 5.5 | 200E | 1 | Actual | 14.75 | 375 | **3326.00** |
| 55DE250 | 5.5 | 250E | 1 | Actual | 14.75 | 375 | **5742.00** |
| 55DE300 | 5.5 | 300E | 1 | Actual | 14.75 | 375 | **5742.00** |
| 55DE350 | 5.5 | 350E | 1 | Actual | 14.75 | 375 | **5742.00** |
| 55DE400 | 5.5 | 400E | 1 | Actual | 14.75 | 375 | **6430.00** |
| 55DE450 | 5.5 | 450E | 1 | Actual | 14.75 | 375 | **6430.00** |
| 175DE010 | 15.5 | 10E | 1 | Actual | 14.75 | 375 | **3214.00** |
| 175DE015 | 15.5 | 15E | 1 | Actual | 14.75 | 375 | **3214.00** |
| 175DE020 | 15.5 | 20E | 1 | Actual | 14.75 | 375 | **3214.00** |
| 175DE025 | 15.5 | 25E | 1 | Actual | 14.75 | 375 | **3214.00** |
| 175DE030 | 15.5 | 30E | 1 | Actual | 14.75 | 375 | **3290.00** |
| 175DE040 | 15.5 | 40E | 1 | Actual | 14.75 | 375 | **3290.00** |
| 175DE050 | 15.5 | 50E | 1 | Actual | 14.75 | 375 | **3290.00** |
| 175DE065 | 15.5 | 65E | 1 | Actual | 14.75 | 375 | **4446.00** |
| 175DE080 | 15.5 | 80E | 1 | Actual | 14.75 | 375 | **4446.00** |
| 175DE100 | 15.5 | 100E | 1 | Actual | 14.75 | 375 | **4446.00** |
| 175DE125 | 15.5 | 125E | 1 | Actual | 14.75 | 375 | **6878.00** |
| 175DE150 | 15.5 | 150E | 1 | Actual | 14.75 | 375 | **6878.00** |
| 155DE175 | 15.5 | 175E | 1 | Actual | 14.75 | 375 | **6878.00** |
| 155DE200 | 15.5 | 200E | 1 | Actual | 14.75 | 375 | **6878.00** |

▲ Each (1) set of fuses contains three fuses. (E.g., (2) sets of fuses yield a total of six fuses.)

## 600 A "Duplex" HVL/cc Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses for Cable Connection to Power-Dry, Power-Cast, and Uni-Cast Transformers

(FLC = 300 A MAXIMUM)
RH—Transformer on Right,
LH—Transformer on Left Includes Mechanical Interlock to Prevent Paralleling of Sources
Application A = Top Entry (Incoming Cables)
Application B = Bottom Entry (Incoming Cables)

**Table 11.26: 600 A "Duplex" HVL/cc Switch Selection**

| Catalog No. | kV Rating | Fuse Range | Application | Width | | RH / LH | $ Price |
|---|---|---|---|---|---|---|---|
| | | | | in | mm | | |
| HVLCCA14505DGR | 4.76 | 10–450E | A | 14.75 | 375 | RH | **54174.00** |
| HVLCCA20505DGR | 4.76 | 10–450E | A | 20.00 | 508 | RH | **56068.00** |
| HVLCCA14505DGL | 4.76 | 10–450E | A | 14.75 | 375 | LH | **54174.00** |
| HVLCCA20505DGL | 4.76 | 10–450E | A | 20.00 | 508 | LH | **56068.00** |
| HVLCCA14515DGR | 15 | 10–200E | A | 14.75 | 375 | RH | **57428.00** |
| HVLCCA20515DGR | 15 | 10–200E | A | 20.00 | 508 | RH | **59322.00** |
| HVLCCA14515DGL | 15 | 10–200E | A | 14.75 | 375 | LH | **57428.00** |
| HVLCCA20515DGL | 15 | 10–200E | A | 20.00 | 508 | LH | **59322.00** |
| HVLCCB14505DGR | 4.76 | 10–450E | B | 14.75 | 375 | RH | **54174.00** |
| HVLCCB20505DGR | 4.76 | 10–450E | B | 20.00 | 508 | RH | **56068.00** |
| HVLCCB14505DGL | 4.76 | 10–450E | B | 14.75 | 375 | LH | **54174.00** |
| HVLCCB20505DGL | 4.76 | 10–450E | B | 20.00 | 508 | LH | **56068.00** |
| HVLCCB14515DGR | 15 | 10–200E | B | 14.75 | 375 | RH | **57428.00** |
| HVLCCB20515DGR | 15 | 10–200E | B | 20.00 | 508 | RH | **59322.00** |
| HVLCCB14515DGL | 15 | 10–200E | B | 14.75 | 375 | LH | **57428.00** |
| HVLCCB20515DGL | 15 | 10–200E | B | 20.00 | 508 | LH | **59322.00** |

## Ordering Information

1. Select switch catalog number based on fused or unfused and cable entry locations (top or bottom) from Table 11.16 or Table 11.17 on page 9.
2. Select incoming line auxiliary bay from Table 11.18 or Table 11.19 on page 9, if required.
3. Select main bus from Table 11.20 on page 9, if required.
4. Select catalog numbers for factory modifications from Table 11.22 on page 9, if required.
5. If fused, select DIN/E fuses from Table 11.25.

## Pricing Example

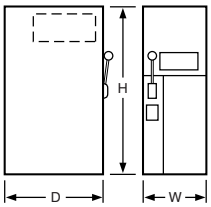
Order indoor 600 A, 5 kV, HVL/cc switch with bottom incoming and bottom outgoing cables (1) #2 AWG per phase, (1) set 200E fuses, and (1) set 6 kV surge arresters.

| Order: | Catalog. No. | $ Price |
|---|---|---|
| Switch w/fuse provisions and bottom exit load cables | HVLCCA14305D | **19392.00** |
| 600 incoming line auxiliary bay (Application A—bottom entry) | HVLCCA14A | **1968.00** |
| Main Bus (Application A—14 in. to Application A–14 in.) | HVLCCMBA14A14 | **882.00** |
| 6 kV LAs | HVLCCDSA6 | **1926.00** |
| Set 200E fuses | 55DE200 | **3326.00** |
| | **Total Price** | **13747.00** |



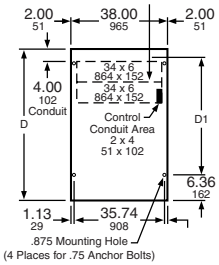


© 2011 Schneider Electric
All Rights Reserved




Side view Front view

Recommended power cable conduit area




Listed Metal-enclosed Interrupter Switchgear

## HVL Metal-Enclosed Load Interrupter Switchgear—Full Range

HVL™ 5–38 kV Load Interrupter is the most popular ANSI-rated switchgear in its class in America. Among medium voltage interrupter switchgear, both the switch and the enclosure stand as industry benchmarks in the areas of design, manufacturing, and performance. Load interrupter switchgear must perform a number of critical functions in a unit substation - protecting equipment and disconnecting faulted lines and transformers. Designed and tested to the latest applicable standards, HVL has been engineered to provide superior protection for your distribution system.

HVL switchgear is available for various applications and configurations, including:

- Individual service entrance bays
- Multiple-bay lineups incorporating HVL load interrupters and optional Visi/Vac™ circuit interrupters
- Substation primaries

Square D™ brand metal-enclosed switchgear has become an industry standard for its better system performance, lower maintenance cost, easier system expansion, and reduced system expense.

A full range of ratings and options are available but not listed in this publication. Contact your nearest Schneider Electric sales office or your local Schneider Electric distributor.

**Table 11.27: Ratings**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum design voltage (kV)** | 4.76 | 15 | 17 | 25.8 | 29 | 38 |
| **BIL (kV)** | 60 | 95 | 95 | 125 | 125 | 150 |
| **Frequency (Hz)** | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| **Continuous amperes** | 600/1200 | 600/1200 | 600 | 600/1200 | 600/1200 | 600 |
| **Interrupting amperes** | 600/1200 | 600/1200 | 600 | 600 | 400 | 400 |
| **Momentary (kA asymmetrical)** | 40/61/80 | 40/61/80 | 61 | 40/61 | 40/61 | 40 |
| **Fault close (kA asymmetrical)** | 40/61 | 40/61 | 40 | 40 | 40 | 20 |
| **Capacitor switching (kVAR)** | 2400 | 2400 | – | – | – | – |
| **Short time rating 2 seconds (kA symmetrical)** | 25/38/50 | 25/38/50 | 25 | 25 | 25 | 25 |
| **Low frequency withstand (kV)** | 19 | 36 | 36 | 60 | 60 | 60 |

## Standard Features

- 11 gauge steel enclosure
- Direct drive mechanism
- Permanently attached operating handle
- Visible isolation viewing window
- Mechanical interlocked fuse access door
- Provision for padlock and key interlock
- Highly flexible design
- ANSI 61 paint

## Options

- Outdoor construction
- Square D™ brand DIN-style current-limiting fuses
- Boric acid fuses
- Silver or tin plated copper bus
- 600, 1200, or 2000 A main bus
- Heat shrink insulated bus
- Motor operator
- Shunt trip
- Fuselogic™ tripping system
- Automatic load transfer schemes
- Roof bushings
- Key interlocks
- Surge arresters
- Utility metering bays
- Line selector switch
- Duplex switch
- Transformer connections
- Infrared windows for thermal scanning of connections

## Fuselogic™

Fuselogic is a protection system that provides the ultimate in medium voltage fuse protection. This patented system utilizes the Square D™ brand current-limiting fuses with mechanical sensors that function without any auxiliary power requirements. Several combinations of Fuselogic functions can be combined to provide simple blown fuse indication contacts with mechanical lockout to anti-single phasing protection. Anti-single phasing requires the optional stored energy mechanism (SEM). Fuselogic is available on both HVL/cc™ and HVL switches.

## HVL Switchgear—Quick Ship Program—5 kV–15 kV, 600 A Features

The HVL quick ship program provides basic fused and unfused load interrupter switch configurations for stand-alone or transformer primary applications. The Quick Ship program offers faster delivery, but with fewer options.

Three-pole, 600 A individual HVL switches are available in free-standing indoor (NEMA 1) or outdoor (NEMA 3R) enclosures. The switches used in these enclosures are UL Recognized and are listed under Category WIQG2 in File E140591(M). These switches are available unfused or with provisions for 3-inch diameter Square D™ brand current-limiting fuses or for boric acid fuses. Factory optional accessories include auxiliary switches, extra cable terminating lugs and distribution class surge arresters. The door is mechanically interlocked with the switch operating handle and provisions for key interlocks are standard. Set screw type lugs for one #2 solid—600 kcmil copper or aluminum cables are provided for line and load connections. Other standard features include a bolted enclosure with a viewing window, ground pad, and space heater (NEMA 3R only). Control power for heater must be from external source. **Fuses are not furnished with this equipment. For fuse information and pricing, refer to page 11-14. Switches are listed on pages 11-11 and 11-12, and many of the fuses listed on page 11-14 are available from stock.**

**Table 11.28: 600 A "Single" Switch Unfused**

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | $ Price |
|---|---|---|---|---|
| HVL305NG | 4.76 | — | NEMA 1 | **17500.00** |
| HVL305NW | 4.76 | — | NEMA 3R | **21524.00** |
| HVL315NG | 15 | — | NEMA 1 | **19244.00** |
| HVL315NW | 15 | — | NEMA 3R | **23478.00** |

**Table 11.29: 600 A "Single" Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses**

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | $ Price |
|---|---|---|---|---|
| HVL305DEG | 4.76 | 10–450E | NEMA 1 | **19392.00** |
| HVL305DEW | 4.76 | 10–450E | NEMA 3R | **21636.00** |
| HVL315DEG1 | 15 | 10–100E | NEMA 1 | **19858.00** |
| HVL315DEG2 | 15 | 125–200E | NEMA 1 | **19858.00** |
| HVL315DEW1 | 15 | 10–100E | NEMA 3R | **23978.00** |
| HVL315DEW2 | 15 | 125-200E | NEMA 3R | **23978.00** |

**Table 11.30: 600 A "Single" Switch with PROVISIONS ONLY for S&C Boric Acid Non-Disconnect Type Fuses**

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | $ Price |
|---|---|---|---|---|
| HVL305BG | 4.76 | 10E–400E | NEMA 1 | **24936.00** |
| HVL305BW | 4.76 | 10E–400E | NEMA 3R | **28606.00** |
| HVL315BG | 15 | 10E–400E | NEMA 1 | **26650.00** |
| HVL315BW | 15 | 10E–400E | NEMA 3R | **30688.00** |
| HVL317BG | 17 | 10E–400E | NEMA 1 | **29610.00** |
| HVL317BW | 17 | 10E–400E | NEMA 3R | **34098.00** |



© 2011 Schneider Electric
All Rights Reserved

**Table 11.31: Ratings**

| | | |
|---|---|---|
| **Max. Design Voltage (kV)** | 4.76 | 15.0 |
| **BIL (kV)** | 60 | 95 |
| **Frequency (Hz)** | 50/60 | 50/60 |
| **Continuous amperes** | 600 | 600 |
| **Interrupting amperes** | 600 | 600 |
| **Momentary (amperes asymmetrical)** | 40,000 | 40,000 |
| **Fault close (amperes asymmetrical)** | 40,000 | 40,000 |
| **Capacitor switching (kVAR)** | 2,400 | 2,400 |
| **Short-time rating, 2 seconds (amperes symmetrical)** | 25,000 | 25,000 |
| **Low frequency withstand (kV)** | 19 | 36 |

**Table 11.32: Distribution Class Surge Arresters**

| System L-L Voltage kV | | Arrester MCOV-kV | |
|---|---|---|---|
| Nominal | Maximum | Effectively Grounded Neutral Circuits | Impedance Grounded and Ungrounded Circuits |
| 2.4 | 2.54 | — | 2.55 |
| 4.16 | 4.4 | 2.55 | 5.1 |
| 4.8 | 5.08 | — | 5.1 |
| 6.9 | 7.26 | — | 7.65 |
| 12.0 | 12.7 | 7.65 | 12.70 |
| 12.47 | 13.2 | 7.65 | 12.70 |
| 13.2 | 13.97 | 8.4 | — |
| 13.8 | 14.52 | 8.4 | — |

**Table 11.33: Enclosure Type**

| Type | W | | D | | H | | Weight | |
|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | lbs | kg |
| Indoor | 38.00 | 965 | 54.50 | 1384 | 90.00 | 2286 | 1200 | 545 |
| Outdoor | 38.00 | 965 | 60.00 | 1524 | 97.50 | 2477 | 1400 | 636 |

## Provisions for Future Expansion

All "single" Digest switches have provisions for future expansion on either side. Order kits HVMB for top crossover copper 600 A bus and HVLC for line connections to the top bus. (Refer to the Factory Modifications table on page 11-13.) Include sketch for factory-assembled parts or lineups.

## HVL Switches for Power-Dry II ™, Power-Cast II ™, and Uni-Cast II ™ Transformer Connections

HVL switches can be configured for close coupling cable connections to listed dry type transformers for primary main switches of unit substations. These are listed in the tables below with current-limiting or boric acid fuses. Both single and duplex switch mains are included in this selection. Transformers are listed on page 14-20 and may not be suitable for close coupling. For transformer availability and specific configurations, contact your local Schneider Electric sales office. All connections in this digest are based on standard Square D™ brand transformer connections. If these switches are used to connect to other manufacturers' transformers, then connections must coordinate with standard Square D™ brand transformer connections. (Cable connections are furnished with the transformer.)

**Table 11.34: 600 A "Single" Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses for Cable Connection to Power-Dry II, Power-Cast II, and Uni-Cast II Transformers**
(FLC = 300 A max.) RH—Transformer on Right, LH—Transformer on Left

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | RH / LH | $ Price |
|---|---|---|---|---|---|
| HVL405DEGR | 4.76 | 10–450E | NEMA 1 | RH | **20134.00** |
| HVL405DEGL | 4.76 | 10–450E | NEMA 1 | LH | **20134.00** |
| HVL405DEWRH | 4.76 | 10–450E | NEMA 3R | RH | **25322.00** |
| HVL405DEWLH | 4.76 | 10–450E | NEMA 3R | LH | **25322.00** |
| HVL415DEGR1 | 15 | 10–100E | NEMA 1 | RH | **20614.00** |
| HVL415DEGR2 | 15 | 125–200E | NEMA 1 | RH | **20614.00** |
| HVL415DEGL1 | 15 | 10–100E | NEMA 1 | LH | **20614.00** |
| HVL415DEGL2 | 15 | 125–200E | NEMA 1 | LH | **20614.00** |
| HVL415DEWR1H | 15 | 10–100E | NEMA 3R | RH | **28070.00** |
| HVL415DEWR2H | 15 | 125-200E | NEMA 3R | RH | **28070.00** |
| HVL415DEWL1H | 15 | 10–100E | NEMA 3R | LH | **28070.00** |

**Table 11.34: 600 A "Single" Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses for Cable Connection to Power-Dry II, Power-Cast II, and Uni-Cast II Transformers**
(FLC = 300 A max.) RH—Transformer on Right, LH—Transformer on Left

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | RH / LH | $ Price |
|---|---|---|---|---|---|
| HVL415DEWL2H | 15 | 125-200E | NEMA 3R | LH | **28070.00** |

**Table 11.35: 600 A "Duplex" Switch with PROVISIONS ONLY for Square D™ brand Current-Limiting, Non-Disconnect Type Fuses for Cable Connection to Power-Dry II, Power-Cast II, and Uni-Cast II Transformers**
(FLC = 300 A max.) RH—Transformer on Right, LH—Transformer on Left

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | RH / LH | $ Price |
|---|---|---|---|---|---|
| HVL505DEGR | 4.76 | 10–450E | NEMA 1 | RH | **42028.00** |
| HVL505DEGL | 4.76 | 10–450E | NEMA 1 | LH | **42028.00** |
| HVL505DEWRH | 4.76 | 10–450E | NEMA 3R | RH | **49484.00** |
| HVL505DEWLH | 4.76 | 10–450E | NEMA 3R | LH | **49484.00** |
| HVL515DEGR1 | 15 | 10–100E | NEMA 1 | RH | **43084.00** |
| HVL515DEGR2 | 15 | 125–200E | NEMA 1 | RH | **43084.00** |
| HVL515DEGL1 | 15 | 10–100E | NEMA 1 | LH | **43084.00** |
| HVL515DEGL2 | 15 | 125–200E | NEMA 1 | LH | **43084.00** |
| HVL515DEWR1H | 15 | 10–100E | NEMA 3R | RH | **54904.00** |
| HVL515DEWR2H | 15 | 125–200E | NEMA 3R | RH | **54904.00** |
| HVL515DEWL1H | 15 | 10–100E | NEMA 3R | LH | **54904.00** |
| HVL515DEWL2H | 15 | 125-200E | NEMA 3R | LH | **54904.00** |

**Table 11.36: 600 A "Single" Switch with PROVISIONS ONLY for S&C Boric Acid Non-Disconnect Type Fuses for Cable Connection to Power-Dry II, Power-Cast II, and Uni-Cast II Transformers ■**
(FLC = 300 A max.) RH—Transformer on Right, LH—Transformer on Left

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | RH / LH | $ Price |
|---|---|---|---|---|---|
| HVL405BGR | 4.76 | 10E–400E | NEMA 1 | RH | **25666.00** |
| HVL405BGL | 4.76 | 10E–400E | NEMA 1 | LH | **25666.00** |
| HVL405BWRH | 4.76 | 10E–400E | NEMA 3R | RH | **30674.00** |
| HVL405BWLH | 4.76 | 10E–400E | NEMA 3R | LH | **30674.00** |
| HVL415BGR | 15 | 10E–400E | NEMA 1 | RH | **27390.00** |
| HVL415BGL | 15 | 10E–400E | NEMA 1 | LH | **27390.00** |
| HVL415BWRH | 15 | 10E–400E | NEMA 3R | RH | **32476.00** |
| HVL415BWLH | 15 | 10E–400E | NEMA 3R | LH | **32476.00** |

▲ Includes fuse holder only. See table on page 11-14 for fuse refills.

**Table 11.37: 600 A "Duplex" Switch with PROVISIONS ONLY for S&C Boric Acid Non-Disconnect Type Fuses for Cable Connection to Power-Dry II, Power-Cast II, and Uni-Cast II Transformers ■**
(FLC = 300 A max.) RH—Transformer on Right, LH—Transformer on Left

| Catalog No. | kV Rating | Fuse Range | Enclosure Type | RH / LH | $ Price |
|---|---|---|---|---|---|
| HVL505BGR | 4.76 | 10E–400E | NEMA 1 | RH | **47470.00** |
| HVL505BGL | 4.76 | 10E–400E | NEMA 1 | LH | **47470.00** |
| HVL505BWRH | 4.76 | 10E–400E | NEMA 3R | RH | **57742.00** |
| HVL505BWLH | 4.76 | 10E–400E | NEMA 3R | LH | **57742.00** |
| HVL515BGR | 15 | 10E–400E | NEMA 1 | RH | **49540.00** |
| HVL515BGL | 15 | 10E–400E | NEMA 1 | LH | **49540.00** |
| HVL515BWRH | 15 | 10E–400E | NEMA 3R | RH | **60514.00** |
| HVL515BWLH | 15 | 10E–400E | NEMA 3R | LH | **60514.00** |

■ Includes fuse holder only. See table on page 11-14 for fuse refills.

**NOTE:** Switches with transformer connections are painted ANSI 49. Standalone switches are painted ANSI 61.





© 2011 Schneider Electric
All Rights Reserved

## Fuse Selection

The rule of thumb method for selecting fuses for transformer protection is 1.33 times the self-cooled full load current of the transformer or the next higher fuse rating. Selection of the fuse is the customer's responsibility and should be based on transformer and system characteristics.

- **Maximum Fuse Size:**
  Maximum fuse size should be determined by comparing the fuse total clearing curve to the transformer damage curve. Contact Schneider Electric for transformer overload and short-circuit withstand capability.
- **Minimum Fuse Size:**
  Minimum fuse size shall carry the transformer magnetizing inrush current of 12 times full load amperes for 0.1 second.

**Table 11.38: Factory Modifications**

| Catalog No. | Description | $ Price |
|---|---|---|
| HVMB | Main Bus Kit, 600 A copper | **2288.00** |
| HVLC | Line side connector kit (main bus) 600 A with 2–1/0=500 MCM lugs (bottom entry only) | **1282.00** |
| | Provisions for key interlocks (does not include key cylinders—order separately | **0.00** |
| HVLX3 | Auxiliary switch 2 N.O.—2 N.C. contact | **762.00** |
| HVLC2 | Set screw type lugs 1/0—500 kcmil (qty. 3) | **196.00** |
| **Distribution Class Surge Arresters ▲** | | |
| HVDSA3 | 3 kV, 2.55 MCOV | **1618.00** |
| HVDSA6 | 6 kV, 5.10 MCOV | **1926.00** |
| HVDSA9 | 9 kV, 7.65 MCOV | **2248.00** |
| HVDSA10 | 10 kV, 8.40 MCOV | **2446.00** |
| HVDSA12 | 12 kV, 10.20 MCOV | **2836.00** |
| HVDSA15 | 15 kV, 12.70 MCOV | **3424.00** |

▲ Load side connected

## Standard Features

- Switches for transformer primaries are cable connected only.
- Key interlocks must be ordered and coordinated by customer.
- Standard color is ANSI 61 for standalone units; ANSI 49 for switches connecting to transformers.
- If switches are purchased to coordinate with Square D™ brand transformers, composite drawings and shipment coordination will not be available.
- Switches are not designed for any special dimensions for retrofit purposes. For dimensions other than shown, contact your nearest Schneider Electric sales office or your local Schneider Electric distributor.

## Ordering Information

1. Select switch catalog number based on fused or unfused and enclosure type.
2. Select catalog numbers for factory modifications from the table above.
3. If fused, select fuse from table on page 11-14.
4. Price switch and fuses separately. Switches are furnished with provisions only for current-limiting fuse or boric acid fuse.

## Pricing Example

Price one (1) indoor (NEMA 1), 15 kV, 600 A switch with 80E SM-5S boric acid fuses and 10 kV distribution class surge arresters for a 7.62/13.2 kV grounded wye system.

| Order: | Catalog No. | $ Price |
|---|---|---|
| Switch with indoor enclosure | HVL315BG | **26650.00** |
| Surge arrester, 10 kV | HVDSA10 | **2446.00** |
| Boric acid fuse (set of three, from page 11-14 | 15SM5080 | **1508.00** |
| | **Total Price** | **30634.00** |



© 2011 Schneider Electric
All Rights Reserved

## Square D™ Brand DIN/E Fuse Selection Tables—HVL

**Table 11.39: DIN/E Current-Limiting Fuses, Non-Disconnecting Type ▲■♦**
(Extended Travel Blown Fuse Indicator)

| Continuous Current | Fuse Mounting Clip ★ | | Catalog No. ▼ | $ Price △ |
|---|---|---|---|---|
| | Centers (in) | Diameter (mm) | | |
| **5 kV Fuse** | | | | |
| 10E | 17.4 | 51 | 55DE010 | **954.00** |
| 15E | 17.4 | 51 | 55DE015 | |
| 20E | 17.4 | 51 | 55DE020 | |
| 25E | 17.4 | 51 | 55DE025 | |
| 30E | 17.4 | 51 | 55DE030 | **1980.00** |
| 40E | 17.4 | 51 | 55DE040 | |
| 50E | 17.4 | 51 | 55DE050 | |
| 65E | 17.4 | 51 | 55DE065 | |
| 80E | 17.4 | 51 | 55DE080 | |
| 100E | 17.4 | 51 | 55DE100 | |
| 125E | 17.4 | 76 | 55DE125 | **3326.00** |
| 150E | 17.4 | 76 | 55DE150 | |
| 175E | 17.4 | 76 | 55DE175 | |
| 200E | 17.4 | 76 | 55DE200 | |
| 250E | 17.4 | 76 | 55DE250 | **5742.00** |
| 300E | 17.4 | 76 | 55DE300 | |
| 350E | 17.4 | 76 | 55DE350 | |
| 400E | 17.4 | 76 | 55DE400 | **6430.00** |
| 450E | 17.4 | 76 | 55DE450 | |
| **15 kV Fuse** | | | | |
| 10E | 17.4 | 51 | 175DE010 | **3214.00** |
| 15E | 17.4 | 51 | 175DE015 | |
| 20E | 17.4 | 51 | 175DE020 | |
| 25E | 17.4 | 51 | 175DE025 | |
| 30E | 17.4 | 51 | 175DE030 | **3290.00** |
| 40E | 17.4 | 76 | 175DE040 | |
| 50E | 17.4 | 76 | 175DE050 | |
| 65E | 17.4 | 76 | 175DE065 | **4446.00** |
| 80E | 17.4 | 76 | 175DE080 | |
| 100E | 17.4 | 88 | 175DE100 | |
| 125E | 21.14 | 88 | 175DE125 | **6878.00** |
| 150E | 21.14 | 88 | 175DE150 | |
| 175E | 21.14 | 88 | 155DE175 | |
| 200E | 21.14 | 88 | 155DE200 | |

▲ Square D™ brand DIN/E fuses are shown in this table. For fuses produced by other manufacturers, contact your nearest Schneider Electric sales office or your local Schneider Electric distributor.

■ Current-limiting fuses will increase the integrated short-circuit ratings beyond the non-fusible units. Contact your nearest Schneider Electric sales office or your local Schneider Electric distributor.

♦ Caution—These fuses will not work for the MiniBreak. See page 11-7 for the appropriate MiniBreak fuses.

★ All fuses are single barrel arrangement with ferrule diameters per the chart.

▼ Contact your Schneider Electric representative for current stock quantities.

△ Price includes one set of three fuses, packed in a single box.

## Boric Acid Fuse Selection Tables□—HVL

**Table 11.40: Boric Acid Fuses**

| Continuous Current | Fuse Type◊ | Catalog No. | $ Price | Fuse Type ☆ | Catalog No. ▽ | $ Price ◒ |
|---|---|---|---|---|---|---|
| **5 kV Fuse Refill** | | | | | | |
| 10E | SM-5S | 5SM5010 | | RBA400 | 405WBAF010 | |
| 15E | SM-5S | 5SM5015 | | RBA400 | 405WBAF015 | |
| 20E | SM-5S | 5SM5020 | | RBA400 | 405WBAF020 | |
| 25E | SM-5S | 5SM5025 | | RBA400 | 405WBAF025 | |
| 30E | SM-5S | 5SM5030 | | RBA400 | 405WBAF030 | |
| 40E | SM-5S | 5SM5040 | | RBA400 | 405WBAF040 | |
| 50E | SM-5S | 5SM5050 | **1472.00** | RBA400 | 405WBAF050 | **1692.00** |
| 65E | SM-5S | 5SM5065 | | RBA400 | 405WBAF065 | |
| 80E | SM-5S | 5SM5080 | | RBA400 | 405WBAF080 | |
| 100E | SM-5S | 5SM5100 | | RBA400 | 405WBAF100 | |
| 125E | SM-5S | 5SM5125 | | RBA400 | 405WBAF125 | |
| 150E | SM-5S | 5SM5150 | | RBA400 | 405WBAF150 | |
| 175E | SM-5S | 5SM5175 | | — | — | |
| 200E | SM-5S | 5SM5200 | | RBA400 | 405WBAF200 | |
| 250E | SM-5S | 5SM5250 | **1528.00** | RBA400 | 405WBAF250 | **1758.00** |
| 300E | SM-5S | 5SM5300 | | RBA400 | 405WBAF300 | |
| 400E | SM-5S | 5SM5400 | | RBA400 | 405WBAF400 | |
| **15 kV Fuse Refill** | | | | | | |
| 10E | SM-5S | 15SM5010 | | RBA400 | 415WBAF010 | |
| 15E | SM-5S | 15SM5015 | | RBA400 | 415WBAF015 | |
| 20E | SM-5S | 15SM5020 | | RBA400 | 415WBAF020 | |
| 25E | SM-5S | 15SM5025 | | RBA400 | 415WBAF025 | |
| 30E | SM-5S | 15SM5030 | | RBA400 | 415WBAF030 | |
| 40E | SM-5S | 15SM5040 | | RBA400 | 415WBAF040 | |
| 50E | SM-5S | 15SM5050 | **1508.00** | RBA400 | 415WBAF050 | **1732.00** |
| 65E | SM-5S | 15SM5065 | | RBA400 | 415WBAF065 | |
| 80E | SM-5S | 15SM5080 | | RBA400 | 415WBAF080 | |
| 100E | SM-5S | 15SM5100 | | RBA400 | 415WBAF100 | |
| 125E | SM-5S | 15SM5125 | | RBA400 | 415WBAF125 | |
| 150E | SM-5S | 15SM5150 | | RBA400 | 415WBAF150 | |
| 175E | SM-5S | 15SM5175 | | — | — | |
| 200E | SM-5S | 15SM5200 | | RBA400 | 415WBAF200 | |
| 250E | SM-5S | 15SM5250 | **1554.00** | RBA400 | 415WBAF250 | **1788.00** |
| 300E | SM-5S | 15SM5300 | | RBA400 | 415WBAF300 | |
| 400E | SM-5S | 15SM5400 | | RBA400 | 415WBAF400 | |

□ S&C Boric Acid Fuses
Type SM-5S fuses are manufactured by the S&C Electric Company. SM-5S has a 25.0 kA symmetrical short-circuit rating from 2.4 kV to 17.0 kV. For 16.5 kV ratings, only S&C boric acid fuses can be used.

◊ Cutler-Hammer - Westinghouse Fuses
Type RBA-400 fuses are manufactured by Cutler-Hammer - EATON Corporation. RBA-400 has a 37.5 kA symmetrical ampere short-circuit rating from 2.4 kV to 4.8 kV and 29.4 kA symmetrical from 12 kV to 13.8 kV.

☆ Caution—These fuses will not work for the MiniBreak. See page 11-7 for the appropriate MiniBreak fuses.

▽ Contact your Schneider Electric representative for current stock quantities.

◒ Price includes one set of three fuses, packed in a single box.

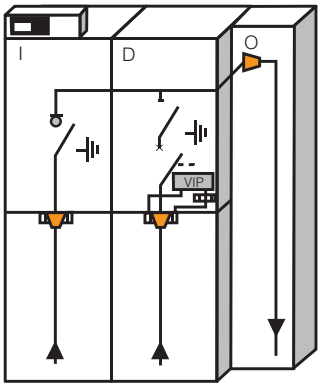




© 2011 Schneider Electric
All Rights Reserved



Typical IDO Configuration




## Recommended Configurations




**D + O**
Transformer protection + Outgoing line




**(I + D + O)**
Incoming line + Transformer protection + Outgoing line




**(I + I + D + O)**
Two Incoming lines + Transformer protection + Outgoing line

New!

# DVCAS Switchgear for Wind Farm Applications

DVCAS medium voltage (MV) switchgear from Schneider Electric is designed to meet the electrical switching, protection, and connection needs of wind farm applications up to 38 kV. Three different modules are available:

- Transformer protection module D
- Outgoing line module O
- Incoming line module I

For standard wind power applications, a maximum of four modules can be connected in various configurations to provide the most commonly used wind power functions.

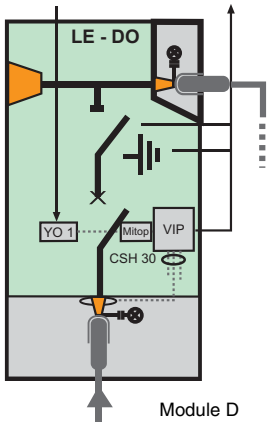
DVCAS switchgear is designed, manufactured, and tested in accordance with the following standards:

- C37.20.3
- C37.54
- CAN/CSA C22.2 No.31-M89

## Transformer Protection Module D

DVCAS switchgear module D provides transformer protection. Construction features include:

- Metal base frame
- Operating mechanism and relay compartment
  - — disconnector operating mechanism
  - — operating mechanism of the circuit breaker
  - — protection relay VIP
  - — zero sequence current transformer CSH 30
- MV cable compartment
  - — bushings for cable connection
  - — Three CRc current sensors per phase
- Stainless steel, gas-tight tank
  - — busbar system
  - — three position disconnector
  - — circuit breaker




Module D

## Outgoing Line Module O

DVCAS switchgear module O functions as an outgoing line to a downstream wind generator. There are two medium voltage cables per phase. Construction features include:

- Metal base frame
- Voltage presence indicator
- MV cable compartment
  - — bushings for cable connection
  - — clamps for MV cable connection

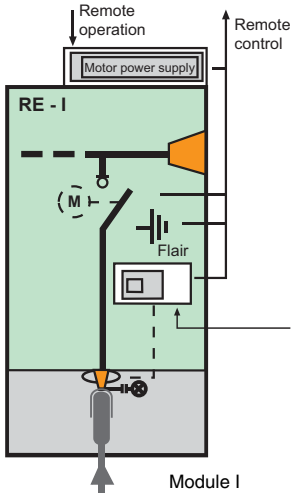
## Incoming Line Module I

DVCAS switchgear module I is a three-position switch-disconnector. It is recommended for the incoming line function from an upstream wind generator for the following reasons:

- Reduces downtime caused by faults
- Helps with fault detection
- Reduces interruptions due to maintenance work
- Improves energization works

Module I is always connected to module D on the right with single-phase, coupling bushings. Construction features include:

- Metal base frame
- Operating mechanism compartment
  - — operating mechanism of the switch-disconnector
  - — motor for the operating mechanism (optional)
- MV cable compartment
  - — bushings for cable connection
- Stainless steel, gas-tight tank
  - — busbar system
  - — three position disconnector




Module I

**Table 11.41: Ratings**

| Type | Rating | Type | Rating |
|---|---|---|---|
| **Frequency (Hz)** | 50/60 | **Short circuit breaking current capacity (kA)** | 20 |
| **Rated voltage (kV)** | 38 | **Short circuit making capacity, peak (kA)** | 50 |
| **Insulation level** | | **Internal arc withstand IAC AFL (kA/1s)** | 20 |
| Power frequency withstand voltage (kV) | 70 | **Degree of protection (NEMA/IP)** | |
| Lightning impulse withstand voltage, peak (kV) | 170 | HV compartment | 6/67 |
| **Rated current of the main busbar (A)** | 600 | LV and operating mechanism compartment | 6P/3X |
| **Short time withstand current (kA/s)** | 20/3 | **SF6 gas pressure at 20 ºC (PSI/bar)** | 4.35/0.3 |



© 2011 Schneider Electric
All Rights Reserved



Two-high, Masterclad 5–27 kV Indoor, Metalclad Switchgear



Vacuum VR Circuit Breaker for Masterclad Switchgear



Masterclad 27 kV, Outdoor, Non Walk-in, Metalclad Switchgear



Arc-Terminator™ Arc Extinguishing System



Two-high, Masterclad 5-15 kV Metalclad, Arc-Resistant Switchgear

# Masterclad™ Medium Voltage Metalclad Switchgear (UL Listed)

## The Reliability of a Quality Design

The quality of Square D™ brand Masterclad medium voltage metalclad switchgear stems from a design and manufacturing process that focuses on long-term switchgear performance with the highest degree of reliability.

Based on specific customer application needs, Schneider Electric engineers and technicians select the appropriate standard sections and bus configurations, with the ability to customize where needed. After the specified circuit breakers, instrument and control power transformers, relays, meters and other components are selected and approved. All are factory-assembled, wired, and tested as a complete assembly.

Listed Metalclad Switchgear

**Table 11.42: Ratings**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal voltage (kV)** | 4.16 | | | 7.2 | 13.8 | | | | 24.9 | |
| **Maximum voltage (kV)** | 4.76 | | | 8.25 | 15.0 | | | | 27.0 | |
| **BIL (kV)** | 60 | | | 95 | 95 | | | | 125 | |
| **Frequency (Hz)** | 50/60 | | | | | | | | | |
| **Continuous amperes (A)** | 1200–3000 | | | | | | | | 1200–2000 | |
| **MVA (reference only)** | 250 | 350 | 500 | 500 | 500 | 750 | 1000 | 1500 | 1250 | 2000 |
| **Short-time rating (kA) 3 seconds** | 40 | 50 | 63 | 50 | 25 | 40 | 50 | 63 | 25 | 40 |
| **Close and latch rating (kA) (peak)** | 104 | 130 | 164 | 130 | 65 | 104 | 130 | 164 | 68 | 108 |

## Type VR Vacuum Circuit Breaker

The VR breaker is a horizontal drawout type designed to provide long life, reduced maintenance, and ease of handling. The Type RI advanced design motor-charged stored energy mechanism is a model of reliability with simplicity-with an operating life exceeding ANSI requirements. The VR circuit breaker is UL labeled and includes a permanently mounted manual charging handle.

## Switchgear Construction

- Floor mounted breaker racking mechanism
- Standard epoxy supports or optional porcelain supports
- Aluminum or copper main bus
- Indoor NEMA 1
- Outdoor NEMA 3R
- Walk-in
- Non walk-in

## Active, Arc-Resistant Arc Terminator™ Arc Extinguishing System

Active system detects and controls the effects of internal arcing faults. It complies with ANSI C37.20.7 requirements for arc-resistant switchgear for Type 1, Type 2B, and Type 2C enclosures.

### Benefits

- Prevents pressure buildup
- Reduces release of toxic materials
- Eliminates need for reinforced switchgear
- Elimnates special requirements for buildings or plenums
- Minimizes equipment damage
- Reduces operating downtime

## Passive, Arc-Resistant Masterclad™ Medium Voltage Switchgear

This switchgear and all its components meet the IEEE C37.20.7 arc-resistant test guideline for Type 2B enclosures as well as all other applicable ANSI, UL, and CSA standards for metalclad switchgear.

### Benefits

- 50 kA arc containment for 0.5 seconds
- Voltage ratings from 2.4 kV to 15 kV up to 3,000 A
- Type 2B construction, one- and two-high structures
- Custom exhaust plenum available





© 2011 Schneider Electric
All Rights Reserved

## Power-Zone Load Center Unit Substations



Unit Substation

**Table 11.42: Complete Close Coupled Unit Substations Available**

| Product Type | Class Nos. | Product Section No. |
|---|---|---|
| **Primary Section** | | |
| Medium voltage load interrupter switchgear | 6040, 6045 | 11-1 |
| Metalclad switchgear | 6055 | |
| Low voltage Power-Style™ QED switchboard | 2741-2744 | |
| Air terminal chamber | 7421-23, 7310, 7240, 7320 | |
| **Transformer Section** | | |
| Open, ventilated dry—Power-Dry™ | 7421-23 | 14-1 |
| Open, ventilated dry/cast resin combination—Uni-Cast™ | 7320 | |
| Open, ventilated cast resin—Power-Cast™ | 7310 | |
| Mineral oil or high fire point fluid—liquid | 7240 | |
| **Secondary Section** | | |
| Medium voltage load interrupter switchgear | 6040 | 11-1 |
| Metalclad switchgear | 6055 | |
| Medium voltage motor control center | 8198 | |
| Low voltage Power-Style QED switchboard | 2741-2744 | |
| Air terminal chamber | 7421,23, 7310, 7240, 7320 | |
| Low voltage drawout switchgear | 6037 | |
| Low voltage Model 6 motor control centers | 8998 | 17-1 |

## *New!* Power-Zone Model III Package Unit Substations




Model III Package Unit Substation
with HVL/cc Load Interrupter Switch (on left)

### General

Power-Zone Model III package unit substations combine a primary switch, dry-type transformer, and I-Line™ distribution section into a single, compact unit. All components are engineered, manufactured, and tested by Schneider Electric. The substation is available with a UL listing.

The Model III is only 49 inches deep and 90 inches high, which allows the entire substation to pass through standard size doorways and narrow hallways.

The Model III is front accessible; the transformer taps are accessible from the side. For proper ventilation, a minimum distance of 12 inches should be maintained on the transformer side of the equipment.

Model III package unit substations are ideal for renovations and high rise applications requiring increased customer electrical demand as well as new construction requiring multiple zones and a small footprint.

### 75–1000 kVA at 480 V; 75–500 kVA at 240 V

Available with primary voltages of 2400–13800 V. Forced air cooling (AA/FA) provides an additional 33%. Features 220 °C insulation and 150 °C, 115 °C, or 80 °C temperature rise. Largest 80 °C or 115 °C rise unit available is 750 kVA.

The secondary circuit breaker distribution section may be equipped with an individually mounted secondary main breaker or an I-Line distribution panelboard. Branch circuit breakers from 15 A FY to PowerPact RLC 1200 A may be installed. PowerPact™ molded case circuit breakers M, P, and R frame are available with electronic trip units.

Additional options include CM 3000 and CM 4000 series circuit monitors, PM-800 series power meters, surge arresters, and I-Line plug-on unit with a Surgelogic™ Surge Protective Device (SPD).

### Incoming Line Section

Most Model IIIs are supplied with a Square D™ brand fused HVL/cc 600 A load interrupter switch. The HVL/cc offers the smallest footprint in the industry and is an exclusive sealed interruption type compartmentalized switch. Where switching and overcurrent protection are provided elsewhere, a full-height air-filled terminal chamber can be provided in place of the switch.

**Table 11.43: Primary Switch Ratings, Type HVL/cc**

| | | |
|---|---|---|
| **Nominal Voltage** | 4.16 | 13.8 |
| **BIL** | 60 | 95 |
| **Continuous amperes** | 600 | 600 |
| **Interrupting amperes** | 600 | 600 |
| **Fault close (kA asymmetrical)** | 40 | 40 |
| **Momentary current (kA asymmetrical 10 cycles)** | 40 | 40 |
| **Duty-cycle-fault-close (number of operations)** | 4 | 4 |
| **Grounding switch fault close (kA asymmetrical)** | 40 | 40 |
| **Short-time rating (kA asymmetrical 2 seconds)** | 25 | 25 |
| **Dielectric withstand (kV 1 minute)** | 19 | 36 |
| **Electrical endurance (close-open)** | 100 | 100 |
| **Mechanical endurance (close-open)** | 1000 | 1000 |



© 2011 Schneider Electric
All Rights Reserved

## Transformer Section

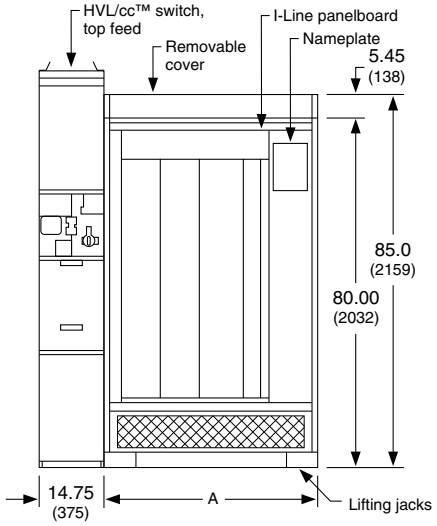
Special barrel wound dry-type transformers employing resin encapsulated VPI (Vacuum Pressure Impregnation) techniques are used to achieve the low-loss, compact design necessary for the space-saving package substation concept. Class H, 220 °C insulation is used throughout. Temperature rise is 150 °C as standard, although 80°C or 115 °C low temperature premium transformers are available through 750 kVA. Aluminum windings are standard with copper as an option. Four full capacity 2-1/2 percent taps are provided-two above nominal voltage and two below.

Fan cooling is optional. When selected, it increases the capacity rating of the transformer an additional 33 percent. The Model 98 digital controller is employed. This system provides precision control through the use of three high accuracy thermocouple type sensors—one in each phase of the windings.

The controller has a membrane front panel for displaying the temperature of all three phases with individual readings. The hottest phase is automatically displayed. The Model 98 digital controller features simple three-button operation with fan, alarm and trip function settings and is Powerlogic™ compatible.

**Table 11.44: Transformer Basic Insulation Levels**

| KV Class | Primary Voltages | BIL | 600 Hz Test |
|---|---|---|---|
| 1.2 | < 600 V Secondary | 10 | 4 kV |
| 2.5 | 2400 | 20 | 10 kV |
| 5.0 | 4160, 4800 | 30 | 12 kV |
| 7.2 | 6900, 7200 | 30 | 12 kV |
| 8.7 | 8320 | 45 | 19 kV |
| 15.0 | 12, 12.47, 13.2, 13.8 | 60 | 31 kV |




Power-Zone Model III
Front View

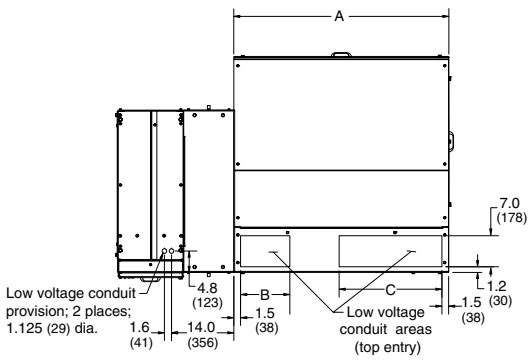
Dimensions shown in Inches (mm). See Table 11.45 for A, B, C, D, E dimensions.

## Distribution Section

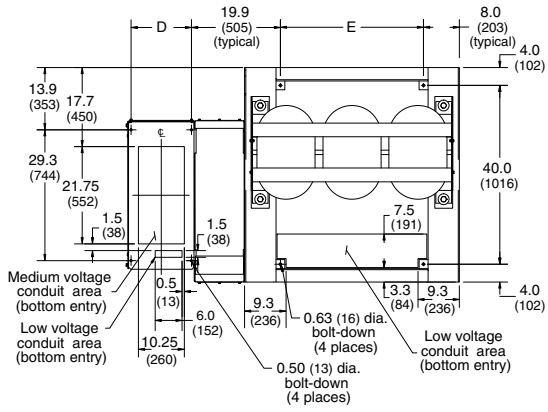
### I-Line™ Mounted Molded Case Circuit Breakers

Molded case circuit breakers are group mounted in an I-Line panelboard section offering the inherent ease of installation for which the plug-on I-Line circuit breaker has become known. All circuit breakers are quick-make, quick-break, thermal magnetic, permanent trip type and are factory-calibrated and sealed for accurate overcurrent response and maximum short-circuit strength. PowerPact™ P and R circuit breakers are available with solid-state Micrologic™ trip units. Current limiting high interrupting capacity FI, KI, and LI circuit breakers are also available. Circuit breakers may be safely back-fed for use as main circuit breakers. All circuit breakers are UL listed and carry integrated equipment rating when used exclusively with other Square D™ brand circuit breakers in intended assemblies.

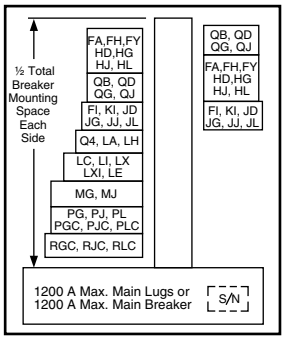
I-Line panel is available in 1200 A. Maximum mounting space is 108 inches. Tin-plated copper bus is standard.




Top Conduit Entrances




Bottom Conduit Entrances




HCR-U 1200 A I-Line panelboards can be used for up to 600 Vac. They are UL Listed under File E33139.

**Table 11.45: Substation Dimensions and Approximate Weights**

| kVA | Temperature Rise ° C | Dimensions (for above drawings) | | | | | Estimated Weight |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 75 | 80, 115, 150 | 48 | 11.0 | 23.0 | 13.5 | 32.0 | 3600 |
| 112.5 | | | | | | | |
| 150 | | | | | | | |
| 225 | 80, 115, 150 | | | | | | 4500 |
| 300 | | | | | | | |
| 500 | 150 | | | | | | 6000 |
| 500 | 80, 115 | 60 | 18.5 | 27.0 | 18.75 | 44.0 | 6200 |
| 750 | 80, 115, 150 | | | | | | 6700 |
| 1000 | 150 | | | | | | 7500 |

Contact your nearest Schneider Electric sales office for pricing assistance.





© 2011 Schneider Electric
All Rights Reserved

## Motorpact™ Medium Voltage Motor Controllers (UL Listed)



Square D™ brand Motorpact medium voltage motor controllers from Schneider Electric are designed and manufactured to tackle the toughest power and process control challenges. Our motor controllers feature industry-first innovations that provide unmatched performance, high reliability, low maintenance and exclusive technologies. Motorpact medium voltage motor controllers are designed to provide the most efficient means to control and protect a wide range of applications and may be configured for motor starting, transformer feeders, capacitor feeders, or future spaces. The design has fewer losses inside the controller, providing more efficient use of power for the connected load.

Motorpact controllers are designed to meet or exceed the standards for NEMA ICS3 Part 2, UL Standard 347, and IEC 60470. UL and cULus labels are standard.

Starting application for squirrel cage induction motors:

- Full voltage non-reversing
- Full voltage reversing
- 2-speed, 2-winding, 2-speed, 1-winding
- Reduced voltage non-reversing
  - — Auto transformers
  - — Solid state soft start
  - — Sequential soft start (S3) multi-motor starting

Enclosures are available in NEMA Type 1, 1A, and 3R and feature the smallest footprint in the industry at 14.75 inches wide. Enclosures that are 20 inches and 29.5 inches wide are also available for FVNR.

Optional arc resistant enclosures are available that meet IEEE C37.20.7.

Units are designed as one-high construction for ease of use with a optimum height for the operator controls and isolation switch disconnect handle.

Full front and or front and rear accessibility are provided. A full height cable pulling area is standard.

Controller voltage ratings range from 2.3–7.2 kV vacuum contactors feature a drawout design and have ratings of 200, 400, 450, and 720 A.

Options include live line indicators, blown fuse tripping, solid state protective relays, power factor correction capacitors, surge arresters, surge capacitors and a cable grounding switch.

Listed Controllers

## Vacuum Substation Circuit Breakers—Types FVR, EOX, VOX (Not UL Listed)

By combining the latest developments in circuit breaker technology with world-renowned quality, vacuum substation circuit breakers from Schneider Electric are the most advanced medium voltage circuit breakers available. Type FVR Powersub™ circuit breakers include arc-resistant construction and are built to comply with ANSI standards. Type EOX substation circuit breakers are available with a magnetic or spring actuator. Type VOX includes a vacuum circuit breaker housed in a tank filled with SF6 (sulfur hexafluoride) for added environmental benefits and reduced space requirements.

**Table 11.46: Vacuum Substation Circuit Breaker Ratings**

| Type | Voltage (kV) | Amperage (A) | BIL | Short-time Rating kA (3 seconds) |
|---|---|---|---|---|
| EOX ▲ | 15 | 1200, 2000 | 110 | 12–31.5 ■ |
| FVR | | 600–4000 | 110 | 12–40 |
| EOX ♦ | 27 | 1200, 2000 | 125 (150) | 25–31.5 |
| FVR | | 1200, 2000 | 125 (150) | 12–25@125; 31.5@150 |
| VOX | 38 | 1200, 2000 | 150 (200) | 12–40 |
| FVR | | 1200, 2000 | 150 | 12–31.5 |
| | | 1200 | 200 | 12–25 |

▲ Spring- and magnetic-actuated.
■ 31.5 for spring-actuated; maximum magnetic-actuated = 25.
♦ Spring- actuated.



Type FVR



New! Type EOX



New! Type VOX

The arc-resistant design of Type FVR circuit breakers takes safety to the next level. In the event of an arc, the arc-resistant construction provides increased safety for personnel working in proximity of the breaker by venting resultant arc by-products and ionized gases upward and away from exterior panels that otherwise may not remain intact and in place. Type FVR circuit breakers also provide superior protection as a result of their high speed operation. You can expect long life from the product as the vacuum interrupter contacts are protected from corroding elements and contamination.

Type EOX magnetic circuit breakers contain a magnetic actuator, electronic controller, and capacitors to store energy for circuit breaker operation. Our innovative design uses only one coil for opening and closing the circuit breaker. There are no critical friction parts, which increases the reliability and life of the mechanism. The tripping energy required is also lower than that of other products available on the market. In emergency situations, the circuit breaker can be easily tripped mechanically.

Type VOX circuit breaker vacuum interrupters are housed in a fully welded, sealed-for-life, stainless steel tank, providing a controlled gas insulated environment totally immune to external ambient conditions. A spring-charged mechanism provides manual or motorized circuit breaker operation.



© 2011 Schneider Electric
All Rights Reserved

## New! Automatic Circuit Recloser



N-series



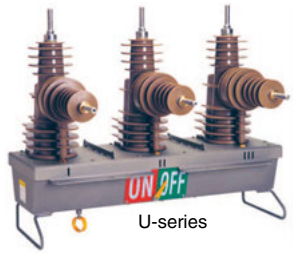
W-series

### Overview

The Automatic Circuit Recloser combines state-of-the-art vacuum arc interruption with integrated voltage and current measurement. These features are encased in a fully welded and sealed, 316 grade, stainless steel tank. Three types of reclosers are available: N-series (three-phase), U-series (three-phase), and W-series (single phase).

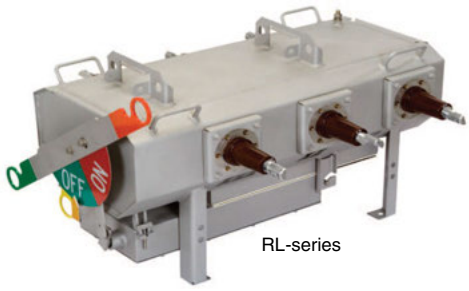
### Applications

- Feeder automatic circuit recloser
- Substation automatic circuit recloser
- Loop automation
- Automatic change-over
- Smart grid



U-series

## New! Load Break Switch/Sectionalizer



RL-series

### Overview

The RL-series Load Break Switch/Sectionalizer is a switch used in conjunction with an upstream recloser or circuit breaker. It counts the interruptions created by a recloser during a fault sequence. On a preset count, the sectionalizer trips during the dead time of the up stream recloser and isolates the faulty network section.

### Applications

- Manual load-break switch
- Motorized load-break switch
- Fully automated sectionalizer
- Normally-open tie point

**Table 11.47: Ratings**

| Attribute | Automatic Circuit Recloser | | | Load Break Switch/Sectionalizer |
|---|---|---|---|---|
| | N-series | U-series | W-series | RL-series |
| Phases | 3 | | 1 | 3 |
| Nominal Voltage (kV) | 15, 27, 38 | 15, 27 | 15, 24 | 15, 27, 38 |
| Continuous amperes (A) | 800 | 630 | 400 | 630 |
| Short-time rating (kA) | 12.5/16 | 12.5 | 6 | 12.5/16 |
| Insulation | Gas | Epoxy | Epoxy | Gas |
| Interruption | Vacuum | | | Gas |
| Operations (elec/mech) | 10000/10000 | | | 600/5000 |

## New! ADVC Controller


ADVC ULTRA Controller

### Overview

The ADVC controller offers advanced protection, measurement, diagnostic, and communication features in a reliable package. Designed around the user, the controller offers flexibility and choice. Users have a choice of two cubicle sizes (ULTRA and COMPACT) and two operator interfaces (flexVUE and setVUE).

All the protection, monitoring, communication, diagnostic, and automation features are included as standard in all models:

- ULTRA—large 316SS controller cubicle with two accessory mounting areas
- COMPACT—smaller 304SS controller cubicle with one accessory mounting area
- flexVUE—interface with 20 configurable status lamps and 12 quick action keys
- setVUE—large 4 x 40 LCD with familiar menu-driven operation

### Applications

The ADVC controller interfaces with the following:

- N-series recloser
- U-series recloser
- W-series recloser
- RL-series load break switch/sectionalizer





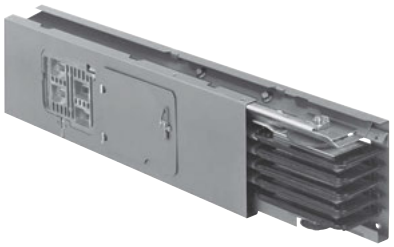
© 2011 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 12
# Busway

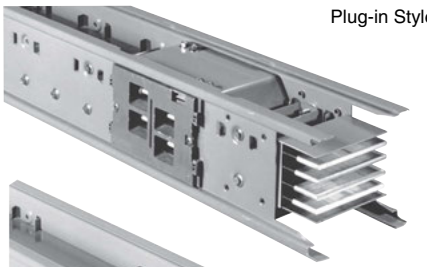


Powerbus 100–400 A pp. **12-2**

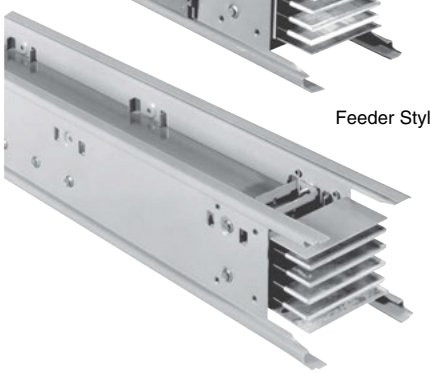


I-Line Plug-in Busway 225–600 A pp. **12-4**

Plug-in Style



Feeder Style



I-Line II Busway 800–5000 A pp. **12-5**




I-Line Plug-In Units pp. **12-9**



Power-Zone Busway pp.**12-16**

## Powerbus™ Busway


| | |
|---|---|
| 400 Ampere—600 Volt | **12-2** |
| 225 Ampere—600 Volt | **12-2** |
| 100 Ampere—600 Volt | **12-2** |
| Powerbus Plug-In Units | **12-3, 12-20** |


## I-Line™/ I-Line II Busway


| | |
|---|---|
| I-Line Busway Standard Components | **12-4** |
| I-Line II Busway Standard Components | **12-5** |
| I-Line II Pricing Instructions | **12-6, 12-7** |
| Accessories | **12-8** |
| Plug-In Units (Fusible and Circuit Breaker Types) | **12-9, 12-10** |
| PowerPact™ H- and J-Frame Plug-in Units | **12-11** |
| New! PowerPact™ H-, J-, and L-Frame Plug-in Units with Electronic Trip | **12-12** |
| PowerPact™ M-Frame Plug-in Units | **12-13** |
| New! PowerPact™ P-Frame Plug-in Units | **12-14** |
| PowerPact™ R-Frame Plug-in Units | **12-15** |


## Power-Zone™ Busway


| | |
|---|---|
| Non-Segregated Busway | **12-16** |
| Footage and Fittings | **12-17** |
| Options and Accessories | **12-18** |


### Distinct service advantages make your Busway installation “hassle-free”

- **Missing Link** program guarantees shipment in a maximum of 5 working days of a small quantity of indoor feeder straight lengths and fittings. Orders for outdoor busway or for international destinations may require 2 extra days for processing.
- **Measurement Services** are offered for your critical and complex projects. Schneider Electric will assist with field measurement and assume responsibility for the layout and exact fit of all components. Contact your local Schneider Electric sales office for exact details.
- **Emergency Service;** we are on call 24 hours a day, 7 days a week, 365 days a year. For emergencies, call 1-888-SquareD (1-888-778-2733).
- **Quick Ship** program provides product availability for time sensitive orders. The program is available through the product selectors and offers a limited selection of I-Line busway footage and fittings. Contact your local Schneider Electric sales office for exact details.



SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

# Powerbus Busway

## Construction

Powerbus busway construction consists of a light-weight electrical grade all-aluminum housing with up to five (5) silver-plated copper conductor bars for maximum electrical efficiency. The total product offer includes straight sections, fittings, accessories, and plug-in units for a total installation. This busway is available in 400 A, 225 A and 100 A ratings. A 50% integral ground is standard.

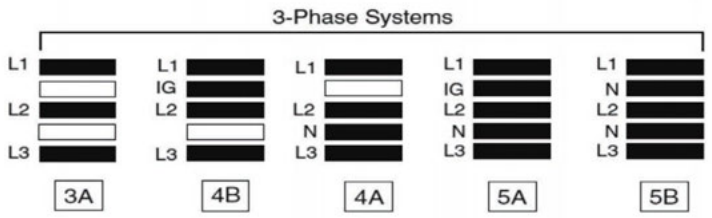
## Straight Sections

Straight sections of busway are available in 10 ft. and 4 ft. lenghts in a painted black finish. The Enhanced busway offer includes 10 plug-in openings on each side of a 10 ft. section and 3 plug-in openings on each side of a 4 ft. section.

## Metering and Communications Options

Powerbus busway tap boxes and plug-in units are available with optional metering and communication capabilities, which include an integrated display and the ability to remotely monitor the busway.






***NOTE:*** *Single phase sysstems are also available. Contact your local Schneider Electric representative.*

**Table 12.1: 3Ø3W—Powerbus Straight Lengths and Fittings▲—600 V Maximum**

| Amperage | Component | Configuration 3A | | Configuration 4B | |
|---|---|---|---|---|---|
| | | Catalog No. | $ Price | Catalog No. | $ Price |
| 100 A | Enhanced Straight 10 ft. | PBCE3A100AST120B | 1556.00 | PBCE4B100AST120B | 1860.00 |
| | Enhanced Straight 4 ft. | PBCE3A100AST48B | 887.00 | PBCE4B100AST48B | 1105.00 |
| | Elbow – Left | PBCF3A100ALLB | 1344.00 | PBCF4B100ALLB | 1406.00 |
| | Elbow – Right | PBCF3A100ALRB | 1344.00 | PBCF4B100ALRB | 1406.00 |
| | Cross Fitting | PBCF3A100ACRB | 1574.00 | PBCF4B100ACRB | 1660.00 |
| | Tap Box | PBCF3A100ATBB | 1962.00 | PBCF4B100ATBB | 2152.00 |
| | Tap Box w/Meter■♦ | PBCF3A100ATBM( )B | 5207.00 | PBCF4B100ATBM( )B | 5397.00 |
| 225 A | Enhanced Straight 10 ft. | PBCE3A225AST120B | 2896.00 | PBCE4B225AST120B | 3570.00 |
| | Enhanced Straight 4 ft. | PBCE3A225AST48B | 1208.00 | PBCE4B225AST48B | 1475.00 |
| | Elbow – Left | PBCF3A225ALLB | 2044.00 | PBCF4B225ALLB | 2490.00 |
| | Elbow – Right | PBCF3A225ALRB | 2044.00 | PBCF4B225ALRB | 2490.00 |
| | Cross Fitting | PBCF3A225ACRB | 2510.00 | PBCF4B225ACRB | 3060.00 |
| | Tap Box | PBCF3A225ATBB | 2600.00 | PBCF4B225ATBB | 2954.00 |
| | Tap Box w/Meter■ | PBCF3A225ATBM( )B | 5845.00 | PBCF4B225ATBM( )B | 6199.00 |
| 400 A | Enhanced Straight 10 ft. | PBCE3A400AST120B | 4690.00 | PBCE4B400AST120B | 5850.00 |
| | Enhanced Straight 4 ft. | PBCE3A400AST48B | 1976.00 | PBCE4B400AST48B | 2340.00 |
| | Elbow – Left | PBCF3A400ALLB | 2867.00 | PBCF4B400ALLB | 3595.00 |
| | Elbow – Right | PBCF3A400ALRB | 2867.00 | PBCF4B400ALRB | 3595.00 |
| | Cross Fitting | PBCF3A400ACRB | 3760.00 | PBCF4B400ACRB | 4694.00 |
| | Tap Box | PBCF3A400ATBB | 4275.00 | PBCF4B400ATBB | 4750.00 |
| | Tap Box w/Meter■ | PBCF3A400ATBM( )B | 7520.00 | PBCF4B400ATBM( )B | 7995.00 |

**Table 12.2: 3Ø4W—Straight Lengths and Fittings▲—600 V Maximum**

| Amperage | Component | Configuration 4A | | Configuration 5A | | Configuration 5B | |
|---|---|---|---|---|---|---|---|
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 100 A | Enhanced Straight 10 ft. | PBCE4A100AST120B | 1860.00 | PBCE5A100AST120B | 2319.00 | PBCE5B100AST120B | 2319.00 |
| | Enhanced Straight 4 ft. | PBCE4A100AST48B | 1105.00 | PBCE5A100AST48B | 1219.00 | PBCE5B100AST48B | 1219.00 |
| | Elbow – Left | PBCF4A100ALLB | 1406.00 | PBCF5A100ALLB | 2212.00 | PBCF5B100ALLB | 2212.00 |
| | Elbow – Right | PBCF4A100ALRB | 1406.00 | PBCF5A100ALRB | 2212.00 | PBCF5B100ALRB | 2212.00 |
| | Cross Fitting | PBCF4A100ACRB | 1660.00 | PBCF5A100ACRB | 2984.00 | PBCF5B100ACRB | 2984.00 |
| | Tap Box | PBCF4A100ATBB | 2152.00 | PBCF5A100ATBB | 2502.00 | PBCF5B100ATBB | 2502.00 |
| | Tap Box w/Meter■♦ | PBCF4A100ATBM( )B | 5397.00 | PBCF5A100ATBM( )B | 5747.00 | PBCF5B100ATBM( )B | 5747.00 |
| 225 A | Enhanced Straight 10 ft. | PBCE4A225AST120B | 3570.00 | PBCE5A225AST120B | 4650.00 | PBCE5B225AST120B | 4650.00 |
| | Enhanced Straight 4 ft. | PBCE4A225AST48B | 1475.00 | PBCE5A225AST48B | 2456.00 | PBCE5B225AST48B | 2456.00 |
| | Elbow – Left | PBCF4A225ALLB | 2490.00 | PBCF5A225ALLB | 3920.00 | PBCF5B225ALLB | 3920.00 |
| | Elbow – Right | PBCF4A225ALRB | 2490.00 | PBCF5A225ALRB | 3920.00 | PBCF5B225ALRB | 3920.00 |
| | Cross Fitting | PBCF4A225ACRB | 3060.00 | PBCF5A225ACRB | 5408.00 | PBCF5B225ACRB | 5408.00 |
| | Tap Box | PBCF4A225ATBB | 2954.00 | PBCF5A225ATBB | 4570.00 | PBCF5B225ATBB | 4570.00 |
| | Tap Box w/Meter■ | PBCF4A225ATBM( )B | 6199.00 | PBCF5A225ATBM( )B | 7815.00 | PBCF5B225ATBM( )B | 7815.00 |
| 400 A | Enhanced Straight 10 ft. | PBCE4A400AST120B | 5850.00 | PBCE5A400AST120B | 7150.00 | PBCE5B400AST120B | 7150.00 |
| | Enhanced Straight 4 ft. | PBCE4A400AST48B | 2340.00 | PBCE5A400AST48B | 2860.00 | PBCE5B400AST48B | 2860.00 |
| | Elbow – Left | PBCF4A400ALLB | 3595.00 | PBCF5A400ALLB | 5145.00 | PBCF5B400ALLB | 5145.00 |
| | Elbow – Right | PBCF4A400ALRB | 3595.00 | PBCF5A400ALRB | 5145.00 | PBCF5B400ALRB | 5145.00 |
| | Cross Fitting | PBCF4A400ACRB | 4694.00 | PBCF5A400ACRB | 6565.00 | PBCF5B400ACRB | 6565.00 |
| | Tap Box | PBCF4A400ATBB | 4750.00 | PBCF5A400ATBB | 6705.00 | PBCF5B400ATBB | 6705.00 |
| | Tap Box w/Meter■ | PBCF4A400ATBM( )B | 7995.00 | PBCF5A400ATBM( )B | 9950.00 | PBCF5B400ATBM( )B | 9950.00 |

Note: Also suitable for DC applications.

▲ Busway catalog numbers shown include a black painted finish. Contact your local Schneider Electric representative for a natural aluminum finish option.

■ Replace the ( ) in the Tap Box w/Meter catalog number with the meter suffix number in the table below. The meter will be configured based on the system voltage.

♦ For 100 A busway only, add an additional (L) for top cable access or a (U) for bottom cable access.

**Table 12.3: Accessories**

| Description | 100 A | | 225 A | | 400 A | |
|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| Standard Hanger | PB100FH | 50.00 | PB225FH | 80.00 | PB400FH | 100.00 |
| Side Mount Hanger | PB100HFW | 120.00 | PB225HFW | 120.00 | PB400HFW | 120.00 |
| Vertical Sway Brace | PB100VSB | 50.00 | PB225VSB | 80.00 | PB400VSB | 100.00 |
| End Closure | PB100AEC | 120.00 | PB225AEC | 226.00 | PB400AEC | 298.00 |
| Wall Flange | PB100WF | 140.00 | PB225WF | 196.00 | PB400WF | 244.00 |
| Plug-in Opening Cover | PBPIOCVR | 60.00 | PBPIOCVR | 60.00 | PBPIOCVR | 60.00 |

| Meter Suffix | System Voltage |
|---|---|
| 1 | 208Y/120 V 3Ø4W |
| 2 | 240 V 3Ø3W |
| 4 | 415/240 V 3Ø4W |
| 5 | 480Y/277 V 3Ø4W |



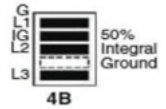


© 2012 Schneider Electric
All Rights Reserved

Three-Phase Systems




3A




4B




4A




5A




5B

## Powerbus Plug-in Units

Powerbus plug-in units are rated maximum 100 A and may be offered as field installable or factory assembled units. All units conform to NEMA type 1. An optional kit is available for FA and QO units to raise the protection to IP54. This kit raises the QOR unit to moisture protection of IPX3.

### Table 12.4: Plug-In Units— Circuit breakers not included

| Busbar Configuration | | Space for One (1) 3 Phase FA Circuit Breaker | | 3 Spaces for QO/QOB Circuit Breakers | | 3 Spaces for QO/QOB Circuit Breakers 3 Openings for Receptacles▽❂●▼: | |
|---|---|---|---|---|---|---|---|
| | Tap Box | FA Unit | | QO Unit | | QOR Unit | |
| | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 3A | PBPTB3A100 | 614.00 | PBPFA3A100 | 832.00 | PBPQO3A100 | 424.00 | PBPQOR3A100 | 566.00 |
| 4B | PBPTB4B100 | 670.00 | PBPFA4B100 | 870.00 | PBPQO4B100 | 452.00 | PBPQOR4B100 | 586.00 |
| 4A | PBPTB4A100 | 670.00 | PBPFA4A100 | 870.00 | PBPQO4A100 | 452.00 | PBPQOR4A100 | 586.00 |
| 5A | PBPTB5A100 | 782.00 | PBPFA5A100 | 946.00 | PBPQO5A100 | 466.00 | PBPQOR5A100 | 604.00 |

Note: Plug-in tap box to be installed on 100 A and 225 A busways only.

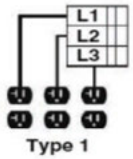
▲ Certain NEMA receptacles can be field installed in this unit. Consult your local Schneider Electric representative.

### Table 12.5: Factory Assembled Units with FA Circuit Breakers—600 V max

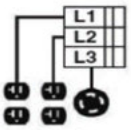
| Circuit Breaker Rating | 3A Configuration | | 4A Configuration▲ | | 5A Configuration | | 5B Configuration | |
|---|---|---|---|---|---|---|---|---|
| | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 15 | PBPFA3A100A015 | 1780.00 | PBPFA4A100A015 | 1820.00 | PBPFA5A100A015 | 1978.00 | PBPFA5B100A015 | 1978.00 |
| 20 | PBPFA3A100A020 | 1780.00 | PBPFA4A100A020 | 1820.00 | PBPFA5A100A020 | 1978.00 | PBPFA5B100A020 | 1978.00 |
| 30 | PBPFA3A100A030 | 1780.00 | PBPFA4A100A030 | 1820.00 | PBPFA5A100A030 | 1978.00 | PBPFA5B100A030 | 1978.00 |
| 40 | PBPFA3A100A040 | 1780.00 | PBPFA4A100A040 | 1820.00 | PBPFA5A100A040 | 1978.00 | PBPFA5B100A040 | 1978.00 |
| 50 | PBPFA3A100A050 | 1780.00 | PBPFA4A100A050 | 1820.00 | PBPFA5A100A050 | 1978.00 | PBPFA5B100A050 | 1978.00 |
| 60 | PBPFA3A100A060 | 1780.00 | PBPFA4A100A060 | 1820.00 | PBPFA5A100A060 | 1978.00 | PBPFA5B100A060 | 1978.00 |
| 70 | PBPFA3A100A070 | 1912.00 | PBPFA4A100A070 | 1954.00 | PBPFA5A100A070 | 2124.00 | PBPFA5B100A070 | 2124.00 |
| 80 | PBPFA3A100A080 | 1912.00 | PBPFA4A100A080 | 1954.00 | PBPFA5A100A080 | 2124.00 | PBPFA5B100A080 | 2124.00 |
| 90 | PBPFA3A100A090 | 1912.00 | PBPFA4A100A090 | 1954.00 | PBPFA5A100A090 | 2124.00 | PBPFA5B100A090 | 2124.00 |
| 100 | PBPFA3A100A100 | 1912.00 | PBPFA4A100A100 | 1954.00 | PBPFA5A100A100 | 2124.00 | PBPFA5B100A100 | 2124.00 |

Note: See Digest Section 7 for FA circuit breaker information.

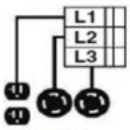
▲ The 4B configuration catalog numbers are also available and are priced the same as the 4A configuration.



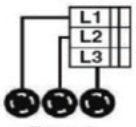

Type 1




Type 2




Type 3




Type 4

### Table 12.6: 120 V Factory Assembled Units

1-pole QO/QOB circuit breakers with NEMA 5-15R or 5-20R receptacles▲

| Circuit Breaker | | 4A Configuration | | 5A Configuration | | 5B Configuration | |
|---|---|---|---|---|---|---|---|
| Rating | Type | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| **Type 1** | | **(3 circuit breakers w. 3 duplex receptacles)** | | | | | |
| 15 | QO | PBPQOR4A100M115 | 850.00 | PBPQOR5A100M115 | 950.00 | PBPQOR5B100M115 | 950.00 |
| 15 | QOB | PBPQOR4A100M115B | 886.00 | PBPQOR5A100M115B | 986.00 | PBPQOR5B100M115B | 986.00 |
| 20 | QO | PBPQOR4A100M120 | 850.00 | PBPQOR5A100M120 | 950.00 | PBPQORBA100M120 | 950.00 |
| 20 | QOB | PBPQOR4A100M120B | 886.00 | PBPQOR5A100M120B | 986.00 | PBPQOR5B100M120B | 986.00 |
| **Type 2** | | **(3 circuit breakers w. 2 duplex/1 locking recpt.)** | | | | | |
| 15 | QO | PBPQOR4A100M215 | 862.00 | PBPQOR5A100M215 | 962.00 | PBPQOR5B100M215 | 962.00 |
| 15 | QOB | PBPQOR4A100M215B | 898.00 | PBPQOR5A100M215B | 998.00 | PBPQOR5B100M215B | 998.00 |
| 20 | QO | PBPQOR4A100M220 | 862.00 | PBPQOR5A100M220 | 962.00 | PBPQOR5B100M220 | 962.00 |
| 20 | QOB | PBPQOR4A100M220B | 898.00 | PBPQOR5A100M220B | 998.00 | PBPQOR5B100M220B | 998.00 |
| **Type 3** | | **(3 circuit breakers w. 1 duplex/2 locking recpt.)** | | | | | |
| 15 | QO | PBPQOR4A100M315 | 874.00 | PBPQOR5A100M315 | 974.00 | PBPQOR5B100M315 | 974.00 |
| 15 | QOB | PBPQOR4A100M315B | 910.00 | PBPQOR5A100M315B | 1010.00 | PBPQOR5B100M315B | 1010.00 |
| 20 | QO | PBPQOR4A100M320 | 874.00 | PBPQOR5A100M320 | 974.00 | PBPQOR5B100M320 | 974.00 |
| 20 | QOB | PBPQOR4A100M320B | 910.00 | PBPQOR5A100M320B | 1010.00 | PBPQOR5B100M320B | 1010.00 |
| **Type 4** | | **(3 circuit breakers w. 3 locking receptacles)** | | | | | |
| 15 | QO | PBPQOR4A100M415 | 886.00 | PBPQOR5A100M415 | 986.00 | PBPQOR5B100M415 | 986.00 |
| 15 | QOB | PBPQOR4A100M415B | 922.00 | PBPQOR5A100M415B | 1022.00 | PBPQOR5B100M415B | 1022.00 |
| 20 | QO | PBPQOR4A100M420 | 886.00 | PBPQOR5A100M420 | 986.00 | PBPQOR5B100M420 | 986.00 |
| 20 | QOB | PBPQOR4A100M420B | 922.00 | PBPQOR5A100M420B | 1022.00 | PBPQOR5B100M420B | 1022.00 |

Note: See Digest Section 7 for QOU circuit breaker information.

▲ Many more factory assembled units are availalbe using combinations of 1P/2P/3P circuit breakers with other NEMA receptacles. Maximum of 3 breaker spacess available. Consult your local Schneider Electric representative.

### Table 12.7: Factory Assembled Units

One (1) QOU circuit breaker and one (1) drop cord with connector▲

| Circuit Breaker | | NEMA Connector | Drop Cord Length (ft) | 4A Configuration | | 5A Configuration | | 5B Configuration | |
|---|---|---|---|---|---|---|---|---|---|
| Rating | Poles | | | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 15 A | 1 | L5-15 | 3 | PBPQOU4A100COOL515 | 886.00 | PBPQOU5A100COOL515 | 986.00 | PBPQOU5B100COOL515 | 986.00 |
| 20 A | 1 | L5-20 | 3 | PBPQOU4A100COOL520 | 886.00 | PBPQOU5A100COOL520 | 986.00 | PBPQOU5B100COOL520 | 986.00 |
| 30 A | 1 | L5-30 | 3 | PBPQOU4A100COOL530 | 896.00 | PBPQOU5A100COOL530 | 996.00 | PBPQOU5B100COOL530 | 996.00 |
| 15 A | 2 | L6-15 | 3 | PBPQOU4A100COOL615 | 948.00 | PBPQOU5A100COOL615 | 1048.00 | PBPQOU5B100COOL615 | 1048.00 |
| 20 A | 2 | L6-20 | 3 | PBPQOU4A100COOL620 | 948.00 | PBPQOU5A100COOL620 | 1048.00 | PBPQOU5B100COOL620 | 1048.00 |
| 30 A | 2 | L6-30 | 3 | PBPQOU4A100COOL630 | 958.00 | PBPQOU5A100COOL630 | 1058.00 | PBPQOU5B100COOL630 | 1058.00 |
| 20 A | 3 | L21-20 | 3 | PBPQOU4A100COOL2120 | 1152.00 | PBPQOU5A100COOL2120 | 1252.00 | PBPQOU5B100COOL2120 | 1252.00 |
| 30 A | 3 | L21-30 | 3 | PBPQOU4A100COOL2130 | 1162.00 | PBPQOU5A100COOL2130 | 1262.00 | PBPQOU5B100COOL2130 | 1262.00 |
| 15 A | 1 | L5-15 | 6 | PBPQOU4A100FOOL515 | 946.00 | PBPQOU5A100FOOL515 | 1046.00 | PBPQOU5B100FOOL515 | 1046.00 |
| 20 A | 1 | L5-20 | 6 | PBPQOU4A100FOOL520 | 946.00 | PBPQOU5A100FOOL520 | 1046.00 | PBPQOU5B100FOOL520 | 1046.00 |
| 30 A | 1 | L5-30 | 6 | PBPQOU4A100FOOL530 | 956.00 | PBPQOU5A100FOOL530 | 1056.00 | PBPQOU5B100FOOL530 | 1056.00 |
| 15 A | 2 | L6-15 | 6 | PBPQOU4A100FOOL615 | 1008.00 | PBPQOU5A100FOOL615 | 1108.00 | PBPQOU5B100FOOL615 | 1108.00 |
| 20 A | 2 | L6-20 | 6 | PBPQOU4A100FOOL620 | 1008.00 | PBPQOU5A100FOOL620 | 1108.00 | PBPQOU5B100FOOL620 | 1108.00 |
| 30 A | 2 | L6-30 | 6 | PBPQOU4A100FOOL630 | 1018.00 | PBPQOU5A100FOOL630 | 1118.00 | PBPQOU5B100FOOL630 | 1118.00 |
| 20 A | 3 | L21-20 | 6 | PBPQOU4A100FOOL2120 | 1212.00 | PBPQOU5A100FOOL2120 | 1312.00 | PBPQOU5B100FOOL2120 | 1312.00 |
| 30 A | 3 | L21-30 | 6 | PBPQOU4A100FOOL2130 | 1222.00 | PBPQOU5A100FOOL2130 | 1322.00 | PBPQOU5B100FOOL2130 | 1322.00 |

Note: See Digest Section 7 for QOU circuit breaker information. Catalog numbers shown have the breaker in the top slot in the front cover and the drop cord in the left position in the base of the unit. Other combinations are available.

▲ Factory assembled units are availalbe using combinations of 1P/2P/3P circuit breakers with other NEMA and IEC type receptacles. Maximum of three drop cords with six breaker spaces available. Consult your local Schneider Electric representative.

***NOTE:*** *Factory Assembled Units with Metering for Powerbus has been moved to page 12-20.*



© 2012 Schneider Electric
All Rights Reserved

## Table 12.8: Standard Components—Aluminum

**Aluminum**

| Number of Poles and Voltage | Rating (A) | 10'-0" Length | | 6'-0" Length | | Front Elbow▲ | | Top Elbow▲ | | Plug-In Tee | | Plug-In Tap Box | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 3Ø3W | 225 | AP30210 | **1900.00** | AP3026 | **1140.00** | AP302LF( ) | **2048.00** | AP302LT( ) | **2048.00** | PTT23WG | **3060.00** | PTB302G | **2134.00** |
| | 400 | AP30410 | **2320.00** | AP3046 | **1392.00** | AP304LF( ) | **2174.00** | AP304LT( ) | **2174.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| | 600 | AP30610 | **2920.00** | AP3066 | **1752.00** | AP306LF( ) | **2354.00** | AP306LT( ) | **2354.00** | PTT43WG | **3060.00** | PBTB306G | **4036.00** |
| 3Ø4W | 225 | AP50210 | **2320.00** | AP5026 | **1392.00** | AP502LF( ) | **2496.00** | AP502LT( ) | **2496.00** | PTT24WG | **3726.00** | PTB502G | **2588.00** |
| | 400 | AP50410 | **2920.00** | AP5046 | **1752.00** | AP504LF( ) | **2676.00** | AP504LT( ) | **2676.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |
| | 600 | AP50610 | **3980.00** | AP5066 | **2388.00** | AP506LF( ) | **2994.00** | AP506LT( ) | **2994.00** | PTT44WG | **3726.00** | PBTB506G | **4566.00** |
| 3Ø3W + Integral Ground Bus | 225 | AP302G10 | **2520.00** | AP302G6 | **1512.00** | AP302GLF( ) | **2234.00** | AP302GLT( ) | **2234.00** | PTT23WG | **3060.00** | PTB302G | **2134.00** |
| | 400 | AP304G10 | **2940.00** | AP304G6 | **1764.00** | AP304GLF( ) | **2360.00** | AP304GLT( ) | **2360.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| | 600 | AP306G10 | **3580.00** | AP306G6 | **2148.00** | AP306GLF( ) | **2552.00** | AP306GLT( ) | **2552.00** | PTT43WG | **3060.00** | PBTB306G | **4036.00** |
| 3Ø4W + Integral Ground Bus | 225 | AP502G10 | **2940.00** | AP502G6 | **1764.00** | AP502GLF( ) | **2682.00** | AP502GLT( ) | **2682.00** | PTT24WG | **3726.00** | PTB502G | **2588.00** |
| | 400 | AP504G10 | **3540.00** | AP504G6 | **2124.00** | AP504GLF( ) | **2862.00** | AP504GLT( ) | **2862.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |
| | 600 | AP506G10 | **4640.00** | AP506G6 | **2784.00** | AP506GLF( ) | **3192.00** | AP506GLT( ) | **3192.00** | PTT44WG | **3726.00** | PBTB506G | **4566.00** |

## Table 12.9: Standard Components—Copper

**Aluminum**

| Number of Poles and Voltage | Rating (A) | 10'-0" Length | | 6'-0" Length | | Front Elbow▲ | | Top Elbow▲ | | Plug-In Tee | | Plug-In Tap Box | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 3Ø3W | 225 | CP30210 | **2280.00** | CP3026 | **1368.00** | CP302LF( ) | **2162.00** | CP302LT( ) | **2162.00** | PTT23WG | **3060.00** | PTB302G | **2134.00** |
| | 400 | CP30410 | **3460.00** | CP3046 | **2076.00** | CP304LF( ) | **2516.00** | CP304LT( ) | **2516.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| | 600 | CP30610 | **4460.00** | CP3066 | **2676.00** | CP306LF( ) | **2816.00** | CP306LT( ) | **2816.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| 3Ø4W | 225 | CP50210 | **3060.00** | CP5026 | **1836.00** | CP502LF( ) | **2718.00** | CP502LT( ) | **2718.00** | PTT24WG | **3726.00** | PTB502G | **2588.00** |
| | 400 | CP50410 | **5080.00** | CP5046 | **3048.00** | CP504LF( ) | **3324.00** | CP504LT( ) | **3324.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |
| | 600 | CP50610 | **5780.00** | CP5066 | **3468.00** | CP506LF( ) | **3468.00** | CP506LT( ) | **3534.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |
| 3Ø3W + Integral Ground Bus | 225 | CP302G10 | **3260.00** | CP302G6 | **1956.00** | CP302GLF( ) | **2456.00** | CP302GLT( ) | **2456.00** | PTT23WG | **3060.00** | PTB302G | **2134.00** |
| | 400 | CP304G10 | **4440.00** | CP304G6 | **2664.00** | CP304GLF( ) | **2810.00** | CP304GLT( ) | **2810.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| | 600 | CP306G10 | **5480.00** | CP306G6 | **3288.00** | CP306GLF( ) | **3122.00** | CP306GLT( ) | **3122.00** | PTT33WG | **3060.00** | PBTB306G | **4036.00** |
| 3Ø4W + Integral Ground Bus | 225 | CP502G10 | **4040.00** | CP502G6 | **2424.00** | CP502GLF( ) | **3012.00** | CP502GLT( ) | **3012.00** | PTT24WG | **3726.00** | PTB502G | **2588.00** |
| | 400 | CP504G10 | **6060.00** | CP504G6 | **3636.00** | CP504GLF( ) | **3618.00** | CP504GLT( ) | **3618.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |
| | 600 | CP506G10 | **6800.00** | CP506G6 | **4080.00** | CP506GLF( ) | **3840.00** | CP506GLT( ) | **3840.00** | PTT34WG | **3726.00** | PBTB506G | **4566.00** |

▲ Add "I" for inside elbow; add "O" for outside elbow.

## Table 12.10: Common Accessories

| Ampere Rating | | Hanger | | | | | | End Closure | | Wall Flange | | Floor Flange | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | Copper | Flatwise | Vertical | Edgewise | $ Price | Seismic▲ | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 225 | 225 | HP2F | HP2V | HP3E | **64.00** | HP2SH | **96.00** | ACP2EC | **446.00** | ACP2WF | **418.00** | ACP2FF | **418.00** |
| 400 | 400 | HP3F | HP3V | HP3E | **64.00** | HP3SH | **96.00** | ACP3EC | **446.00** | ACP3WF | **418.00** | ACP3FF | **418.00** |
| — | 600 | HP3F | HP3V | HP3E | **64.00** | HP3SH | **96.00** | ACP3EC | **446.00** | ACP3WF | **418.00** | ACP3FF | **418.00** |
| 600 | — | HP5F | HP4V | HP5E | **64.00** | HP5SH | **96.00** | ACP4EC | **446.00** | ACP4WF | **418.00** | ACP4FF | **418.00** |

▲ For seismic applications, seismic hangers must be used with horizontal mount flatwise or edgewise busway. Vertical mount busway may use standard fixed or spring hangers.

## "Footage and Fittings" Method of Pricing

***NOTE:*** *For fast estimates not requiring catalog numbers, use these charts.*

## Table 12.11: Footage

| Number of Poles and Voltage | Ampere Rating | Aluminum Busway Footage | | | Copper Busway Footage | | |
|---|---|---|---|---|---|---|---|
| | | Standard | High Short Circuit | Ground Bus | Standard | High Short Circuit | Ground Bus |
| | | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot Adder | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot Adder |
| 3Ø3W 600 V | 225 | **190.00** | — | **62.00** | **228.00** | — | **98.00** |
| | 400 | **232.00** | **292.00** | **62.00** | **346.00** | **404.00** | **98.00** |
| | 600 | **292.00** | **346.00** | **66.00** | **446.00** | **500.00** | **102.00** |
| 3Ø4W 277/480 V | 225 | **232.00** | — | **62.00** | **306.00** | — | **98.00** |
| | 400 | **292.00** | **346.00** | **62.00** | **508.00** | **582.00** | **98.00** |
| | 600 | **398.00** | **446.00** | **66.00** | **578.00** | **630.00** | **102.00** |

## Table 12.12: Fittings

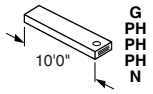
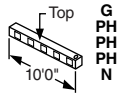
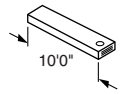
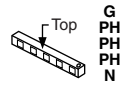
| Number of Poles and Voltage | Ampere Rating | Flanged End | Elbow Right Angle | Tap Box | Tee | Unfused Reducer | Expansion Fitting | Adapter Cubicle C/B or Fus. | End Closures | Fire Barriers |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $ Price Labor Only | $ Price Labor Only | $ Price Labor Only | $ Price Labor Only | $ Price Labor Only | $ Price Labor Only | $ Price Each | $ Price Each | $ Price Each |
| 3Ø3W 600 V | 225 | **954.00** | **1478.00** | **2134.00** | **1800.00** | — | **2486.00** | **10432.00** | **446.00** | **764.00** |
| | 400 | **1098.00** | **1478.00** | **4036.00** | **1800.00** | **930.00** | **2800.00** | **12312.00** | **446.00** | **764.00** |
| | 600 | **1408.00** | **1478.00** | **4036.00** | **1800.00** | **1024.00** | **3038.00** | **18298.00** | **446.00** | **764.00** |
| 3Ø4W 277/480 V | 225 | **982.00** | **1800.00** | **2588.00** | **2098.00** | — | **2936.00** | **10882.00** | **446.00** | **764.00** |
| | 400 | **1128.00** | **1800.00** | **4566.00** | **2098.00** | **1288.00** | **3186.00** | **12700.00** | **446.00** | **764.00** |
| | 600 | **1454.00** | **1800.00** | **4566.00** | **2098.00** | **1404.00** | **3634.00** | **18890.00** | **446.00** | **764.00** |





© 2012 Schneider Electric
All Rights Reserved

## Table 12.13: Straight Lengths (10 ft.) and Plug-in Tap Box

| Number of Poles | Ampere Rating | Aluminum | | | | Both Aluminum and Copper | | Copper | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | |  | |  | |  | |  | |
| | | 10'0" Length | | | | Plug-In Tap Box♦★ | | 10'0" Length | | | |
| | | Feeder Style▲ | | Plug-In Style■ | | | | Feeder Style▲ | | Plug-In Style■ | |
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 3Ø3W + Integral Ground Bus | 800 | AF2308G10ST | 3940.00 | AP2308G10ST | 3940.00 | PTB316G ( ) | 4664.00 | CF2308G10ST | 6440.00 | CP2308G10ST | 6440.00 |
| | 1000 | AF2310G10ST | 4400.00 | AP2310G10ST | 4400.00 | PTB316G ( ) | 4664.00 | CF2310G10ST | 6820.00 | CP2310G10ST | 6820.00 |
| | 1200 | AF2312G10ST | 5920.00 | AP2312G10ST | 5920.00 | PTB316G ( ) | 4664.00 | CF2312G10ST | 8840.00 | CP2312G10ST | 8840.00 |
| | 1350 | AF2313G10ST | 6820.00 | AP2313G10ST | 6820.00 | PTB316G ( ) | 4664.00 | CF2313G10ST | 10320.00 | CP2313G10ST | 10320.00 |
| | 1600 | AF2316G10ST | 8380.00 | AP2316G10ST | 8380.00 | PTB316G ( ) | 4664.00 | CF2316G10ST | 11860.00 | CP2316G10ST | 11860.00 |
| | 2000 | AF2320G10ST | 10040.00 | AP2320G10ST | 10040.00 | — | — | CF2320G10ST | 15140.00 | CP2320G10ST | 15140.00 |
| | 2500 | AF2325G10ST | 12220.00 | AP2325G10ST | 12220.00 | — | — | CF2325G10ST | 19220.00 | CP2325G10ST | 19220.00 |
| | 3000 | AF2330G10ST | 13980.00 | AP2330G10ST | 13980.00 | — | — | CF2330G10ST | 22880.00 | CP2330G10ST | 22880.00 |
| | 4000 | AF2340G10ST | 19120.00 | AP2340G10ST | 19120.00 | — | — | CF2340G10ST | 29600.00 | CP2340G10ST | 29600.00 |
| | 5000 | — | — | — | — | — | — | CF2350G10ST | 35700.00 | CP2350G10ST | 35700.00 |
| 3Ø4W + Integral Ground Bus | 800 | AF2508G10ST | 4780.00 | AP2508G10ST | 4780.00 | PTB516G ( ) | 5324.00 | CF2508G10ST | 8340.00 | CP2508G10ST | 8340.00 |
| | 1000 | AF2510G10ST | 5780.00 | AP2510G10ST | 5780.00 | PTB516G( ) | 5324.00 | CF2510G10ST | 9860.00 | CP2510G10ST | 9860.00 |
| | 1200 | AF2512G10ST | 7220.00 | AP2512G10ST | 7220.00 | PTB516G ( ) | 5324.00 | CF2512G10ST | 11800.00 | CP2512G10ST | 11800.00 |
| | 1350 | AF2513G10ST | 8260.00 | AP2513G10ST | 8260.00 | PTB516G ( ) | 5324.00 | CF2513G10ST | 13180.00 | CP2513G10ST | 13180.00 |
| | 1600 | AF2516G10ST | 10000.00 | AP2516G10ST | 10000.00 | PTB516G ( ) | 5324.00 | CF2516G10ST | 15940.00 | CP2516G10ST | 15940.00 |
| | 2000 | AF2520G10ST | 12220.00 | AP2520G10ST | 12220.00 | — | — | CF2520G10ST | 19620.00 | CP2520G10ST | 19620.00 |
| | 2500 | AF2525G10ST | 15000.00 | AP2525G10ST | 15000.00 | — | — | CF2525G10ST | 24040.00 | CP2525G10ST | 24040.00 |
| | 3000 | AF2530G10ST | 17440.00 | AP2530G10ST | 17440.00 | — | — | CF2530G10ST | 30620.00 | CP2530G10ST | 30620.00 |
| | 4000 | AF2540G10ST | 23420.00 | AP2540G10ST | 23420.00 | — | — | CF2540G10ST | 38720.00 | CP2540G10ST | 38720.00 |
| | 5000 | — | — | — | — | — | — | CF2550G10ST | 46900.00 | CP2550G10ST | 46900.00 |

▲ Feeder style also available in lengths from 16 to 119 inches.
■ Plug-in style also available in 4, 6, and 8 foot lengths.
♦ Add "(H)" or "(V)" to catalog number based on horizontal or vertical mounting arrangement.
★ Cannot be used for 800 A copper busway.

## Table 12.14: Fittings (All Feeder Style)

| Number of Poles | Ampere Rating | Aluminum | | | | | | Copper | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | |  | |  | |  | |  | |  | |
| | | End Tap Box | | Edgewise Elbow | | Flatwise Elbow | | End Tap Box | | Edgewise Elbow | | Flatters Elbow | |
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 3Ø3W with Integral Ground Bus | 800 | AF2308GETBMB | 4744.00 | AF2308GLEM11 | 2186.00 | AF2308GLFM11 | 2186.00 | CF2308GETBMB | 4953.00 | CF2308GLEM11 | 2645.00 | CF2308GLFM11 | 2645.00 |
| | 1000 | AF2310GETBMB | 4919.00 | AF2310GLEM11 | 2271.00 | AF2310GLFM12 | 2344.00 | CF2310GETBMB | 5120.00 | CF2310GLEM11 | 2714.00 | CF2310GLFM11 | 2714.00 |
| | 1200 | AF2312GETBMB | 5253.00 | AF2312GLEM11 | 3051.00 | AF2312GLFM12 | 3150.00 | CF2312GETBMB | 5497.00 | CF2312GLEM11 | 3587.00 | CF2312GLFM12 | 3734.00 |
| | 1350 | AF2313GETBMB | 5444.00 | AF2313GLEM11 | 3216.00 | AF2313GLFM13 | 3444.00 | CF2313GETBMB | 5736.00 | CF2313GLEM11 | 3858.00 | CF2313GLFM12 | 4030.00 |
| | 1600 | AF2316GETBMB | 5786.00 | AF2316GLEM11 | 3502.00 | AF2316GLFM13 | 3782.00 | CF2316GETBMB | 6076.00 | CF2316GLEM11 | 4140.00 | CF2316GLFM12 | 4338.00 |
| | 2000 | AF2320GETBMB | 6257.00 | AF2320GLEM11 | 3807.00 | AF2320GLFM15 | 4476.00 | CF2320GETBMB | 6682.00 | CF2320GLEM11 | 4742.00 | CF2320GLFM13 | 5246.00 |
| | 2500 | AF2325GETBMB | 7430.00 | AF2325GLEM11 | 4206.00 | AF2325GLFM17 | 5428.00 | CF2325GETBMB | 8014.00 | CF2325GLEM11 | 5490.00 | CF2325GLFM15 | 6771.00 |
| | 3000 | AF2330GETBMB | 8003.00 | AF2330GLEM11 | 4529.00 | AF2330GLFM18 | 6160.00 | CF2330GETBMB | 8745.00 | CF2330GLEM11 | 6161.00 | CF2330GLFM16 | 8067.00 |
| | 4000 | AF2340GETBMB | 9371.00 | AF2340GLEM11 | 5983.00 | AF2340GLFM22 | 9489.00 | CF2340GETBMB | 10260.00 | CF2340GLEM11 | 7938.00 | CF2340GLFM21 | 12901.00 |
| | 5000 | — | — | — | — | — | — | CF2350GETBMB | 12869.00 | CF2350GLEM11 | 9023.00 | CF2350GLFM21 | 14973.00 |
| 3Ø4W with Integral Ground Bus | 800 | AF2508GETBMB | 5408.00 | AF2508GLEM11 | 2668.00 | AF2508GLFM11 | 2668.00 | CF2508GETBMB | 5705.00 | CF2508GLEM11 | 3321.00 | CF2508GLFM11 | 3321.00 |
| | 1000 | AF2510GETBMB | 5712.00 | AF2510GLEM11 | 2852.00 | AF2510GLFM12 | 2948.00 | CF2510GETBMB | 6052.00 | CF2510GLEM11 | 3600.00 | CF2510GLFM11 | 3600.00 |
| | 1200 | AF2512GETBMB | 6052.00 | AF2512GLEM11 | 3802.00 | AF2512GLFM12 | 3922.00 | CF2512GETBMB | 6433.00 | CF2512GLEM11 | 4641.00 | CF2512GLFM12 | 4838.00 |
| | 1350 | AF2513GETBMB | 6286.00 | AF2513GLEM11 | 3992.00 | AF2513GLFM13 | 4268.00 | CF2513GETBMB | 6696.00 | CF2513GLEM11 | 4894.00 | CF2513GLFM12 | 5114.00 |
| | 1600 | AF2516GETBMB | 6679.00 | AF2516GLEM11 | 4311.00 | AF2516GLFM13 | 4645.00 | CF2516GETBMB | 7174.00 | CF2516GLEM11 | 5400.00 | CF2516GLFM12 | 5666.00 |
| | 2000 | AF2520GETBMB | 7412.00 | AF2520GLEM11 | 4718.00 | AF2520GLFM15 | 5533.00 | CF2520GETBMB | 8029.00 | CF2520GLEM11 | 6075.00 | CF2520GLFM13 | 6729.00 |
| | 2500 | AF2525GETBMB | 9006.00 | AF2525GLEM11 | 5228.00 | AF2525GLFM17 | 6728.00 | CF2525GETBMB | 9759.00 | CF2525GLEM11 | 6885.00 | CF2525GLFM15 | 8488.00 |
| | 3000 | AF2530GETBMB | 9921.00 | AF2530GLEM11 | 5675.00 | AF2530GLFM18 | 7710.00 | CF2530GETBMB | 11020.00 | CF2530GLEM11 | 8092.00 | CF2530GLFM16 | 10643.00 |
| | 4000 | AF2540GETBMB | 11628.00 | AF2540GLEM11 | 7212.00 | AF2540GLFM22 | 11505.00 | CF2540GETBMB | 12903.00 | CF2540GLEM11 | 10017.00 | CF2540GLFM21 | 16470.00 |
| | 5000 | — | — | — | — | — | — | CF2550GETBMB | 14952.00 | CF2550GLEM11 | 11516.00 | CF2550GLFM21 | 19333.00 |

## Table 12.15: Accessories

| Ampere Rating | | Hangers | | | | | | | End Closure | | Wall Flange | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Al | Cu | Horizontal Mount Busway | | Vertical Mount Busway | | $ Price | Seismic▲ | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| | | Flatwise | Edgewise | Fixed | Spring | | | | | | | |
| — | 800 | HF38F | HF43E | HFV | See Table 12.18 on page 12-8 | 64.00 | HF38SH | 96.00 | ACF38EC | 446.00 | ACF38WF | 418.00 |
| 800 | 1000 | HF43F | HF43E | HFV | | 64.00 | HF43SH | 96.00 | ACF43EC | 446.00 | ACF43WF | 418.00 |
| 1000 | 1200 | HF53F | HF58E | HFV | | 64.00 | HF53SH | 96.00 | ACF53EC | 446.00 | ACF53WF | 418.00 |
| — | 1350 | HF58F | HF58E | HFV | | 64.00 | HF58SH | 96.00 | ACF58EC | 446.00 | ACF58WF | 418.00 |
| 1200 | — | HF63F | HF67E | HFV | | 64.00 | HF63SH | 96.00 | ACF63EC | 446.00 | ACF63WF | 418.00 |
| — | 1600 | HF67F | HF67E | HFV | | 64.00 | HF67SH | 96.00 | ACF67EC | 446.00 | ACF67WF | 418.00 |
| 1350 | — | HF73F | HF78E | HFV | | 64.00 | HF73SH | 96.00 | ACF73EC | 446.00 | ACF73WF | 418.00 |
| — | 2000 | HF78F | HF78E | HFV | | 64.00 | HF78SH | 96.00 | ACF78EC | 446.00 | ACF78WF | 418.00 |
| 1600 | — | HF88F | HF88E | HFV | | 64.00 | HF88SH | 96.00 | ACF88EC | 446.00 | ACF88WF | 418.00 |
| 2000 | 2500 | HF13F | HF13E | HFV | | 64.00 | HF13SH | 96.00 | ACF13EC | 578.00 | ACF13WF | 418.00 |
| — | 3000 | HF15F | HF15E | HFV | | 64.00 | HF15SH | 96.00 | ACF15EC | 578.00 | ACF15WF | 418.00 |
| 2500 | 3200 | HF16F | HF16E | HFV | | 64.00 | HF16SH | 96.00 | ACF17EC | 578.00 | ACF17WF | 418.00 |
| 3000 | — | HF19F | HF19E | HFV | | 64.00 | HF19SH | 96.00 | ACF19EC | 578.00 | ACF19WF | 606.00 |
| 4000 | — | HF26F | HF26E | HFV | | 64.00 | HF26SH | 96.00 | ACF26EC | 732.00 | ACF26WF | 606.00 |
| — | 4000 | HF24F | HF24E | HFV | | 64.00 | HF24SH | 96.00 | ACF24EC | 732.00 | ACF24WF | 606.00 |
| — | 5000 | HF25F | HF26E | HFV | | 64.00 | HF25SH | 96.00 | ACF25EC | 732.00 | ACF25WF | 606.00 |

▲ For seismic applications, seismic hangers must be used with horizontal mount flatwise or edgewise busway. Vertical mount busway may use standard fixed or spring hangers.



© 2012 Schneider Electric
All Rights Reserved

**Table 12.16: Footage**

| Number of Poles and Voltage | Ampere Rating | Aluminum Busway | | | | | | Copper Busway | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indoor Feeder/ Plug-In/Riser | | Drip Resistant Feeder/ Plug-in/Riser | | Outdoor Feeder | | Indoor Feeder/ Plug-in Riser | | Drip Resistant Feeder/ Plug-in/Riser | | Outdoor Feeder | |
| | | Standard Short Circuit | High Short Circuit | Standard Short Circuit | High Short Circuit | Standard Short Circuit | High Short Circuit | Standard Short Circuit | High Short Circuit | Standard Short Circuit | High Short Circuit | Standard Short Circuit | High Short Circuit |
| | | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot | $ Price Per Foot |
| 3Ø3W 600 V 50% Integral Ground | 800 | 394.00 | 440.00 | 428.00 | 478.00 | 462.00 | 514.00 | 644.00 | 708.00 | 712.00 | 784.00 | 778.00 | 860.00 |
| | 1000 | 440.00 | 496.00 | 488.00 | 548.00 | 536.00 | 598.00 | 682.00 | 736.00 | 754.00 | 814.00 | 826.00 | 892.00 |
| | 1200 | 592.00 | 644.00 | 654.00 | 710.00 | 714.00 | 774.00 | 884.00 | 942.00 | 974.00 | 1036.00 | 1062.00 | 1130.00 |
| | 1350 | 682.00 | 732.00 | 752.00 | 808.00 | 822.00 | 884.00 | 1032.00 | 1088.00 | 1118.00 | 1182.00 | 1204.00 | 1274.00 |
| | 1600 | 838.00 | 894.00 | 926.00 | 990.00 | 1014.00 | 1084.00 | 1186.00 | 1282.00 | 1310.00 | 1416.00 | 1434.00 | 1550.00 |
| | 2000 | 1004.00 | 1062.00 | 1100.00 | 1164.00 | 1194.00 | 1264.00 | 1514.00 | 1594.00 | 1670.00 | 1756.00 | 1824.00 | 1916.00 |
| | 2500 | 1222.00 | 1282.00 | 1350.00 | 1416.00 | 1478.00 | 1550.00 | 1922.00 | 1972.00 | 2112.00 | 2168.00 | 2300.00 | 2362.00 |
| | 3000 | 1398.00 | 1464.00 | 1540.00 | 1612.00 | 1682.00 | 1760.00 | 2288.00 | 2362.00 | 2520.00 | 2602.00 | 2752.00 | 2842.00 |
| | 3200 | 1748.00 | 1830.00 | 1925.00 | 2015.00 | 2103.00 | 2200.00 | 2608.00 | 2692.00 | 2872.00 | 2966.00 | 3137.00 | 3240.00 |
| | 4000 | 1912.00 | 2008.00 | 2106.00 | 2212.00 | 2300.00 | 2416.00 | 2978.00 | 3070.00 | 3274.00 | 3376.00 | 3570.00 | 3682.00 |
| | 5000 | — | — | — | — | — | — | 3570.00 | 3686.00 | 3928.00 | 4054.00 | 4284.00 | 4420.00 |
| 3Ø4W 277/480 V 50% Integral Ground | 800 | 478.00 | 528.00 | 520.00 | 584.00 | 562.00 | 640.00 | 834.00 | 918.00 | 932.00 | 1024.00 | 1028.00 | 1130.00 |
| | 1000 | 578.00 | 628.00 | 632.00 | 686.00 | 686.00 | 744.00 | 986.00 | 1046.00 | 1084.00 | 1152.00 | 1182.00 | 1256.00 |
| | 1200 | 722.00 | 772.00 | 796.00 | 852.00 | 870.00 | 930.00 | 1180.00 | 1252.00 | 1298.00 | 1378.00 | 1416.00 | 1504.00 |
| | 1350 | 826.00 | 884.00 | 914.00 | 978.00 | 1000.00 | 1070.00 | 1318.00 | 1394.00 | 1452.00 | 1538.00 | 1584.00 | 1680.00 |
| | 1600 | 1000.00 | 1046.00 | 1094.00 | 1144.00 | 1186.00 | 1240.00 | 1594.00 | 1680.00 | 1754.00 | 1846.00 | 1912.00 | 2012.00 |
| | 2000 | 1222.00 | 1282.00 | 1350.00 | 1416.00 | 1478.00 | 1550.00 | 1962.00 | 2024.00 | 2162.00 | 2230.00 | 2362.00 | 2434.00 |
| | 2500 | 1500.00 | 1546.00 | 1648.00 | 1698.00 | 1796.00 | 1848.00 | 2404.00 | 2482.00 | 2648.00 | 2734.00 | 2892.00 | 2986.00 |
| | 3000 | 1744.00 | 1810.00 | 1914.00 | 1986.00 | 2084.00 | 2162.00 | 3062.00 | 3124.00 | 3368.00 | 3436.00 | 3672.00 | 3746.00 |
| | 3200 | — | — | — | — | — | — | 3491.00 | 3561.00 | 3840.00 | 3917.00 | 4186.00 | 4270.00 |
| | 4000 | 2342.00 | 2430.00 | 2572.00 | 2672.00 | 2802.00 | 2912.00 | 3872.00 | 3950.00 | 4256.00 | 4340.00 | 4640.00 | 4730.00 |
| | 5000 | — | — | — | — | — | — | 4690.00 | 4784.00 | 5156.00 | 5258.00 | 5622.00 | 5732.00 |

## Pricing Instructions For “Factory Assembled” Busway Systems (or Components)

### Standard Straight Lengths

The basic component of a busway system is a straight section with a “joint pak” factory-affixed to one end. Plug-in busway is available in standard lengths of 4, 6, 8, and 10 feet. Feeder busway is available in lengths from 16” to 120” in increments of 1”.

### Riser Busway

We also offer a “Riser” Plug-In busway with openings on one side only for riser installations. This busway offers the same short circuit ratings as our standard plug-in busway.

### Indoor Drip Resistant and IP54 Splash Resistant Busway

These water resistant features are available as an option for indoor plug-in and feeder busway. Price the drip resistant busway using the appropriate per foot price. Price the IP54 splash resistant busway using the outdoor per foot price.

### Outdoor Construction (Feeder Busway Only)

Besides the additional charge for outdoor busway, you must also add a charge for a weather seal if the busway passes through a building wall or roof from an interior to an exterior space (found under Miscellaneous Additions and Accessories on page 12-8). Please indicate the thickness of the wall, roof or floor when entering order. Add the “labor only” price for fittings and special features per general pricing instruction.

### High Short Circuit Bracing

I-Line busway is available with either standard short circuit bracing or high short circuit bracing. Table 12.19 on 12-8 lists maximum short circuit ratings for each busway type and rating.

### General Pricing Instructions

- Prepare a layout sketch of the busway run showing:
  - — All dimensions in feet and inches
  - — All wall and floor locations and thicknesses
  - — All fittings (use top of page 12-7 as a checklist)
- Add all dimensions together. Round up to the next foot.
- Multiply this total by the appropriate price per foot according to the tables above.
- To this, add the “labor only” charges for all fittings from page 12-7.
- Add hangers per page 12-8 (quantities explained below)
- Add for any other unit price items such as end closures, wall flanges, or special lug requirements from page 12-8.

### Hangers

Hangers for the I-Line II busway should be priced from the table on page 12-8. Indoor horizontal busway requires one hanger for every 10 feet of busway. Vertical indoor busway requires one hanger for every 16 feet. Outdoor feeder busway requires one hanger for every 5 feet in either vertical or horizontal mounting.

### Elbows

The elbow “labor only” charge applies to all types of 90° elbows within a particular rating of busway. The charge does not include any busway footage (i.e. a charge for the appropriate amount of busway footage would have to be added to the “labor only” charge to obtain a “complete device” charge). If elbow is other than 90°, double the labor only charge.

### Tee

The labor charge for tees shown in  applies to all factory assembled types of 90° tee fittings within a given rating. Dimensions and catalog number suffix of flatwise tee fittings will be found in the Class 5600 Manual. Refer to factory for edgewise tee dimensions. Crosses are also available.





© 2012 Schneider Electric
All Rights Reserved

**Table 12.17: Fittings**

| Number of Poles and Voltage | Ampere Rating | "Labor Only" Charges for Each Component (Copper or Aluminum) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Elbow Right Angle | Elbow Other Than 90° | Tee | Cross | Flanged End | Tap Box or Service Head | Unfused Reducer | Fused or C/B Cubicle | Expansion FTG. | Phase Transition | Bussed XFMR Conn. | Transformer Taps | |
| | | | | | | | | | | | | | One 3Ø XFMR Y or ▲ | Three 1Ø XFMRS Y or ▲ |
| 3Ø3W 600 V 50% Ground | 800 | 1464.00 | 2928.00 | 1792.00 | 3584.00 | 1512.00 | 4416.00 | 1334.00 | 20826.00 | 3950.00 | 10890.00 | 11164.00 | 1968.00 | 6440.00 |
| | 1000 | 1464.00 | 2928.00 | 1792.00 | 3584.00 | 1722.00 | 4552.00 | 1512.00 | 24108.00 | 4214.00 | 11158.00 | 12112.00 | 2284.00 | 6636.00 |
| | 1200 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 1900.00 | 4760.00 | 2514.00 | 28938.00 | 4330.00 | 11274.00 | 13270.00 | 2492.00 | 6944.00 |
| | 1350 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 2016.00 | 4876.00 | 3256.00 | — | 4396.00 | 11340.00 | 13690.00 | 2636.00 | 7112.00 |
| | 1600 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 2202.00 | 5088.00 | 3610.00 | 35192.00 | 5926.00 | 12872.00 | 14654.00 | 2918.00 | 7420.00 |
| | 2000 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 2624.00 | 5420.00 | 4578.00 | 41174.00 | 6468.00 | 13404.00 | 15816.00 | 3342.00 | 7904.00 |
| | 2500 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 3134.00 | 6412.00 | 4768.00 | — | 6944.00 | 13886.00 | 17594.00 | 3966.00 | 9144.00 |
| | 3000 | 1966.00 | 3932.00 | 2482.00 | 4964.00 | 3706.00 | 6838.00 | 7094.00 | — | 8704.00 | 15646.00 | 19562.00 | 4652.00 | 10602.00 |
| | 3200 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 4447.00 | 7612.00 | 8512.00 | — | 10229.00 | 17172.00 | 23474.00 | 5304.00 | 11891.00 |
| | 4000 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 4606.00 | 7778.00 | 8954.00 | — | 10556.00 | 17500.00 | 25188.00 | 5444.00 | 12168.00 |
| | 5000 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 5384.00 | 9894.00 | 11084.00 | — | 11092.00 | 18030.00 | 32432.00 | 5950.00 | 14072.00 |
| 3Ø4W 277/480 V 50% Ground | 800 | 1792.00 | 3584.00 | 2084.00 | 4168.00 | 1598.00 | 5010.00 | 1722.00 | 21232.00 | 4358.00 | 11296.00 | 12514.00 | 2066.00 | 6684.00 |
| | 1000 | 1792.00 | 3584.00 | 2084.00 | 4168.00 | 1908.00 | 5230.00 | 2024.00 | 24854.00 | 4958.00 | 11902.00 | 13700.00 | 2458.00 | 6982.00 |
| | 1200 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 2046.00 | 5450.00 | 3454.00 | 30526.00 | 5916.00 | 12858.00 | 15076.00 | 2668.00 | 7278.00 |
| | 1350 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 2144.00 | 5598.00 | 4404.00 | — | 6552.00 | 13496.00 | 15566.00 | 2806.00 | 7470.00 |
| | 1600 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 2482.00 | 5846.00 | 4778.00 | 37208.00 | 7944.00 | 14882.00 | 16890.00 | 3186.00 | 7802.00 |
| | 2000 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 2880.00 | 6394.00 | 6422.00 | 43144.00 | 8436.00 | 15380.00 | 17996.00 | 3606.00 | 8532.00 |
| | 2500 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 3486.00 | 7756.00 | 7932.00 | — | 9126.00 | 16070.00 | 20380.00 | 4326.00 | 9960.00 |
| | 3000 | 2478.00 | 4956.00 | 2918.00 | 5836.00 | 4130.00 | 8468.00 | 9538.00 | — | 11978.00 | 18922.00 | 22350.00 | 5074.00 | 11622.00 |
| | 3200 | 2918.00 | 5836.00 | 3412.00 | 6824.00 | 4956.00 | 9463.00 | 11445.00 | — | 13457.00 | 20397.00 | 26820.00 | 5795.00 | 13139.00 |
| | 4000 | 2918.00 | 5836.00 | 3412.00 | 6824.00 | 5136.00 | 9676.00 | 12754.00 | — | 13774.00 | 20714.00 | 29248.00 | 5950.00 | 13464.00 |
| | 5000 | 2918.00 | 5836.00 | 3412.00 | 6824.00 | 6416.00 | 11044.00 | 14984.00 | — | 14484.00 | 21428.00 | 36712.00 | 7420.00 | 15216.00 |

## Indoor Tap Boxes

Feeder cable tap boxes are used at the end (-ETBMB) or center (-CTB) of a busway run and incorporate a short section of busway into their construction. See Catalog Class 5600 for the length of the tap box then add the "labor only" charges shown above to complete the price.

Plug-in cable tap boxes are plugged into the side of the busway (at any opening except the very last opening of a run). The price shown in the table on page 12-5 is the complete device price. No "labor only" charge is required.

Lugs other than standard mechanical lugs may be selected from the table on page 12-8.

## Service Heads

Service heads are of outdoor construction and include Square D™ brand standard lugs. Price footage to end of busway run including dimension of service head. Add service head labor charge.

## Unfused Reducer

Unfused reducers are used to reduce from a higher amperage busway to a lower amperage. Price each rating of busway to the centerline of reducer and include the "labor only" price of the higher rating.

***NOTE:*** *The National Electric Code does not allow the use of unfused reducers in vertical riser installations. Refer to the NEC for restrictions in industrial installations.*

## Fused or Circuit Breaker Cubicle

These are used as in-line overcurrent protection devices. They can be used in conjunction with an unfused reducer to offer a device which reduces a run of busway in ampacity and offers overcurrent protection.

## I-Line to I-Line II Adapter

This adapter is used to join I-Line II busway (800 A–5000 A) to existing installations of original I-Line busway. If connecting to an existing "slot end" of original I-Line, use a "bolt end" adapter (-12B), and vice versa. Price as four feet of busway for 800 through 5000 A busway.

## Expansion Fittings

Expansion fitting labor only charge does not include busway footage. The expansion fitting is built into a 3 ft. – 4 in. straight length for 800 A–5000 A and a 5 feet – 0 inch straight length for 225 A–600 A. Limit of expansion or contraction is ±1-1/2 inches. Not available in outdoor construction.

## Bussed Transformer Connection

A bussed transformer connection is used when the busway physically attaches (other than cable) to a three phase transformer. Price busway footage to the edge of transformer L.V. or H.V. terminal. To this, add labor only charge for a "bussed transformer connection." For power company vault termination charges, consult the factory.

## Transformer Taps

Transformer taps are used to make cable connection to transformers. Calculate footage price to end of busway. Use standard dimensions. Price of taps includes lugs; if lugs other than standard Square D brand lugs are required, add charges from page 12-8. Note that taps need **NOT** be located directly above transformers for cable connections.

## Finger Protection to IP2X

This feature provides improved protection from accidental contact with live parts during insertion and removal of plug-in units. This feature meets the IP2X rating as defined by IEC529 standard. (Pricing on page 12-8.)

## Connection to Competitive Busway

Consult your nearest Schneider Electric sales office.



© 2012 Schneider Electric
All Rights Reserved

## Miscellaneous Additions and Accessories

### Table 12.18: Additions and Accessories

| Description | | | $ Price |
|---|---|---|---|
| **Integral Weather Seal Vapor Barrier**<br>(Required when busway passes through an exterior wall or roof) | | | **764.00** |
| **Roof Collar**<br>(Required when busway penetrates an exterior roof) | | | **870.00** |
| **Roof Flange Kit**<br>(Optional when busway penetrates an exterior roof) | | | **2346.00** |
| **Hanger, Horizontal Flatwise and Edgewise**<br>(See "Table 12.15: Accessories" on page 5.) | | | **64.00** |
| **Hangers, Vertical Fixed (HF-V)** | | | **64.00** |
| **Hangers, Vertical Spring** | | | |
| **Aluminum Busway** | **Copper Busway** | | |
| • 800 A through 1200 A | • 800 A through 1200 A | HFVS1 | **148.00** |
| • 2000 A through 2500 A | • 1350 A through 2000 A | HFVS2 | **292.00** |
| • 3000 A through 4000 A | • 2500 A through 5000 A | HFVS8 | **292.00** |
| **Lugs – Other than Square D Standard** | | each lug | **70.00** |
| **Lugs – Square D Standard added to flanged end** | | each lug | **70.00** |
| **Sway Brace Collar HP1SBC** | | | **82.00** |
| **Assembly Tool AT2** | | | **N/C** |
| **Finger Protection to IP2X**<br>(For each plug-in opening) Plug-in Busway only | | per foot | **17.00** |

Note: Finger protection can be ordered on I-Line II (800–5000 A) plug-in busway only.

## Electrical Data for I-Line II Busway

| | |
|---|---|
| **Standards:** | UL857 (File Number E22182); CSA C22.2 No. 27-1994 (File Number LL-61778); IEC 439 Part 2 |
| **Systems:** | AC–3Ø3W, 3Ø4W, 1Ø2W, 1Ø3W. DC–2-pole. All neutrals are 100% capacity. |
| **Voltage:** | 600 volts AC/DC, 50 Hz and 60 Hz |
| **Integral Ground:** | 50% capacity as standard for 800 A to 5000 A, as an option on 225 A to 600 A |
| **Enclosure:** | Indoor, indoor drip resistant and outdoor (indoor drip resistant and outdoor are available in I-Line II [800–5000 A] busway only) |

### Table 12.19: Short Circuit Ratings: UL 3 Cycle▲Test (KA, RMS Symmetrical)

| Ampere Rating | Aluminum | | | | Copper | | | |
|---|---|---|---|---|---|---|---|---|
| | AOF2<br>AF2 | AOFH2<br>AFH2 | AP<br>AP2/AR2 | APH<br>APH2/ARH2 | COF2<br>CF2 | COFH2<br>CFH2 | CP<br>CP2/CR2 | CPH<br>CPH2/CRH2 |
| 225 | — | — | 22 | — | — | — | 22 | — |
| 400 | — | — | 22 | 42 | — | — | 22 | 42 |
| 600 | — | — | 22 | 42 | — | — | 22 | 42 |
| 800 | 50 | 85 | 50 | 75 | 50 | 85 | 50 | 75 |
| 1000 | 50 | 100 | 50 | 100 | 50 | 85 | 50 | 75 |
| 1200 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 |
| 1350 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 |
| 1600 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 |
| 2000 | 100 | 100 | 125 | 150 | 50 | 100 | 65 | 100 |
| 2500 | 100 | 150 | 125 | 150 | 100 | 150 | 125 | 150 |
| 3000 | 100 | 150 | 125 | 150 | 100 | 150 | 125 | 150 |
| 3200 | — | — | — | — | 100 | 150 | 125 | 150 |
| 4000 | 150 | 200 | 200 | — | 150 | 200 | 200 | — |
| 5000 | — | — | — | — | 150 | 200 | 200 | — |

▲ 6 cycle and 30 cycle ratings are available. Please reference Catalog **5600CT9101**.



© 2012 Schneider Electric
All Rights Reserved




"Hook-Swing" Mounting

## Table 12.20: Fusible Plug-In Units

| Ampere Rating | Type of Connection | 240 Vac 3-Pole, 3 Fuse + G | | 120/208 Vac, (240 Vac Max.) 4-Pole, 3 Fuse + G | | 600 Vac 3-Pole, 3 Fuse + G | | 277/480 Vac, (600 Vac Max.) 4-Pole, 3 Fuse + G | |
|---|---|---|---|---|---|---|---|---|---|
| | | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 30 | Plug-in | PQ3203G | **972.00** | PQ4203G | **1136.00** | PQ3603G | **1042.00** | PQ4603G | **1182.00** |
| 60 | | PQ3206G | **1042.00** | PQ4206G | **1182.00** | PQ3606G | **1110.00** | PQ4606G | **1230.00** |
| 100 | | PQ3210G | **1478.00** | PQ4210G | **1604.00** | PQ3610G | **1512.00** | PQ4610G | **1734.00** |
| 200 | | PQ3220G | **2462.00** | PQ4220G | **2728.00** | PQ3620G | **2566.00** | PQ4620G | **2866.00** |
| 200▲ | | PS3220G▲ | **2462.00** | PS4220G▲ | **2728.00** | PS3620G▲ | **2566.00** | PS4620G▲ | **2866.00** |
| 400 | | PBQ3640G■ | **6442.00** | PBQ4640G■ | **6996.00** | PBQ3640G■ | **6442.00** | PBQ4640G■ | **6996.00** |
| 600 | | PBQ3660G■ | **9224.00** | PBQ4660G■ | **10090.00** | PBQ3660G■ | **9224.00** | PBQ4660G■ | **10090.00** |
| 800 | Bolt-on | — | — | — | — | PTQ36080G( )♦ | **16014.00** | PTQ46080G( )♦ | **19312.00** |
| 1000 | | — | — | — | — | PTQ36100G( )♦ | **18810.00** | PTQ46100G( )♦ | **19436.00** |
| 1200 | | — | — | — | — | PTQ36120G( )♦ | **30042.00** | PTQ46120G( )♦ | **30168.00** |

**Class J Fuses –** Provisions for installing Class J fuses are included in 30 through 600 A fusible devices. Conversion to Class J fuse spacing requires relocating the load side fuse base assembly from standard Class H fuse location to an alternate position in the enclosure.

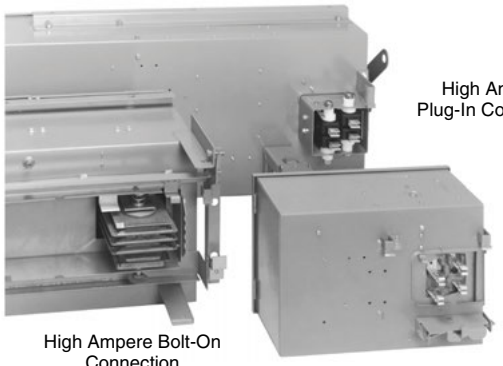
▲ For use on vertical riser applications only.

■ For vertical riser applications order auxiliary mounting kit—Catalog Number PBQ4060RMK. (Price **$300.**)

♦ This device uses bolt-on connection. It may be used only on plug-in busway with same number of poles. Add suffix (H) for horizontal applications and suffix (V) for vertical applications. Not for use on 800 A copper busway.

Note: For IP54 splash resistant construction, add "M54" suffix. IP54 price adder is 15%.

## Table 12.21: Class R Fuse Kits★



High Ampere Plug-In Connection

High Ampere Bolt-On Connection

Low Ampere Plug-In Connection

| Switch Size (A) | Voltage Rating | Kit★ Catalog No. | $ Price |
|---|---|---|---|
| 30 | 250 V▼<br>600 V▼ | QMB30R<br>QMB36R | **31.20**<br>**32.60** |
| 60 | 250 V▼<br>600 V▼ | QMB36R<br>QMB60R | **32.60**<br>**32.60** |
| 100<br>200 | All | HRK1020 | **31.80** |
| 400<br>600 | All | QMB4060R | **74.00** |

**Class R Fuse Kits** when installed reject all but class R fuses.

★ Kit must be field installed.

▼ Contains parts to convert two units.

## Table 12.22: Hooksticks

| Length | Catalog No. | $ Price | Length | Catalog No. | $ Price |
|---|---|---|---|---|---|
| 8' | 515608 | **452.00** | 14' | 515614 | **778.00** |

## Table 12.23: F-Frame Circuit Breaker Plug-in Units

| Circuit Breaker Frame | Trip Rating (A) | 240 Vac 3-Pole + G | | 120/208 Vac (240 Vac Max.) 3Ø4W + G | | 480 Vac 3-Pole + G | | 600 Vac 3-Pole + G | | 277/480 Vac (600 Vac Max.) 3Ø4W + G | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Catalog No. | Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| FA | 15 | PFA32015G | **1456.00** | PFA32015GN | **1640.00** | PFA34015G | **1776.00** | PFA36015G | **1930.00** | PFA36015GN | **2111.00** |
| | 20 | PFA32020G | **1456.00** | PFA32020GN | **1640.00** | PFA34020G | **1776.00** | PFA36020G | **1930.00** | PFA36020GN | **2111.00** |
| | 30 | PFA32030G | **1456.00** | PFA32030GN | **1640.00** | PFA34030G | **1776.00** | PFA36030G | **1930.00** | PFA36030GN | **2111.00** |
| | 40 | PFA32040G | **1456.00** | PFA32040GN | **1640.00** | PFA34040G | **1776.00** | PFA36040G | **1930.00** | PFA36040GN | **2111.00** |
| | 50 | PFA32050G | **1456.00** | PFA32050GN | **1640.00** | PFA34050G | **1776.00** | PFA36050G | **1930.00** | PFA36050GN | **2111.00** |
| | 60 | PFA32060G | **1456.00** | PFA32060GN | **1640.00** | PFA34060G | **1776.00** | PFA36060G | **1930.00** | PFA36060GN | **2111.00** |
| | 70 | PFA32070G | **1706.00** | PFA32070GN | **1894.00** | PFA34070G | **1942.00** | PFA36070G | **2132.00** | PFA36070GN | **2317.00** |
| | 80 | PFA32080G | **1706.00** | PFA32080GN | **1894.00** | PFA34080G | **1942.00** | PFA36080G | **2132.00** | PFA36080GN | **2317.00** |
| | 90 | PFA32090G | **1706.00** | PFA32090GN | **1894.00** | PFA34090G | **1942.00** | PFA36090G | **2132.00** | PFA36090GN | **2317.00** |
| | 100 | PFA32100G | **1706.00** | PFA32100GN | **1894.00** | PFA34100G | **1942.00** | PFA36100G | **2132.00** | PFA360100GN | **2317.00** |
| FH | 15 | — | — | — | — | — | — | PFH36015G | **2394.00** | PFH36015GN | **2578.00** |
| | 20 | — | — | — | — | — | — | PFH36020G | **2394.00** | PFH36020GN | **2578.00** |
| | 30 | — | — | — | — | — | — | PFH36030G | **2394.00** | PFH36030GN | **2578.00** |
| | 40 | — | — | — | — | — | — | PFH36040G | **2394.00** | PFH36040GN | **2578.00** |
| | 50 | — | — | — | — | — | — | PFH36050G | **2394.00** | PFH36050GN | **2578.00** |
| | 60 | — | — | — | — | — | — | PFH36060G | **2394.00** | PFH36060GN | **2578.00** |
| | 70 | — | — | — | — | — | — | PFH36070G | **2582.00** | PFH36070GN | **2784.00** |
| | 80 | — | — | — | — | — | — | PFH36080G | **2582.00** | PFH36080GN | **2784.00** |
| | 90 | — | — | — | — | — | — | PFH36090G | **2582.00** | PFH36090GN | **2784.00** |
| | 100 | — | — | — | — | — | — | PFH36100G | **2582.00** | PFH360100GN | **2784.00** |

▲ All these devices use plug-in connections.



© 2012 Schneider Electric
All Rights Reserved

**Table 12.24: Current Limiting Circuit Breaker Plug-in Units**

| Breaker Frame | Trip Rating Ampere | 480 Vac 3-Pole + G | | 277/480 Vac 3Ø4W + G | |
|---|---|---|---|---|---|
| | | Catalog No. ▲ | $ Price | Catalog No. ▲ | $ Price |
| FI | 20 | PFI34020G | 5982.00 | PFI34020GN | 6152.00 |
| | 30 | PFI34030G | 5982.00 | PFI34030GN | 6152.00 |
| | 40 | PFI34040G | 5982.00 | PFI34040GN | 6152.00 |
| | 50 | PFI34050G | 5982.00 | PFI34050GN | 6152.00 |
| | 60 | PFI34060G | 5982.00 | PFI34060GN | 6152.00 |
| | 70 | PFI34070G | 5982.00 | PFI34070GN | 6152.00 |
| | 80 | PFI34080G | 5982.00 | PFI34080GN | 6152.00 |
| | 90 | PFI34090G | 5982.00 | PFI34090GN | 6152.00 |
| | 100 | PFI34100G | 5982.00 | PFI34100GN | 6152.00 |
| KI | 125 | PKI34125G | 12438.00 | PKI34125GN | 12920.00 |
| | 150 | PKI34150G | 12438.00 | PKI34150GN | 12920.00 |
| | 175 | PKI34175G | 12438.00 | PKI34175GN | 12920.00 |
| | 200 | PKI34200G | 12438.00 | PKI34200GN | 12920.00 |
| | 225 | PKI34225G | 12438.00 | PKI34225GN | 12920.00 |
| | 250 | PKI34250G | 14274.00 | PKI34250GN | 14826.00 |
| LI | 300 | PBLI34300G | 17430.00 | PBLI34300GN | 18078.00 |
| | 350 | PBLI34350G | 17430.00 | PBLI34350GN | 18078.00 |
| | 400 | PBLI34400G | 17430.00 | PBLI34400GN | 18078.00 |
| | 500 | PBLI34500G | 25224.00 | PBLI34500GN | 26154.00 |
| | 600 | PBLI34600G | 25224.00 | PBLI34600GN | 26154.00 |
| LXI■ | 300 | PBLXI36300G | 26606.00 | PBLXI36300GN | 27254.00 |
| | 350 | PBLXI36350G | 26606.00 | PBLXI36350GN | 27254.00 |
| | 400 | PBLXI36400G | 26606.00 | PBLXI36400GN | 27254.00 |
| | 500 | PBLXI36500G | 37712.00 | PBLXI36500GN | 38642.00 |
| | 600 | PBLXI36600G | 37712.00 | PBLXI36600GN | 38642.00 |

▲ All these devices use plug-in connections.
■ LXI circuit breakers are rated up to 600 Vac max. and are supplied with -LSI (long time, short time, instantaneous pickup) adjustable trip unit functions. Contact your local Schneider Electric field office for pricing if alternate trip unit functions are required.

## Surge Protective Device Plug-In Units

All Busway SPD Plug-In Units include as standard:

- Individually Fused Modules
- Circuit Breaker Disconnect
- Cover Mounted Diagnostic Panel
- EMI/RFI Filter
- Audible Alarm with Test/Disable/Enable

**Table 12.25: Surge Capacity**

| System Voltage | 60,000 Amperes Per Phase | | 240,000 Amperes Per Phase | |
|---|---|---|---|---|
| | Catalog Number | $ Price | Catalog Number | $ Price |
| 208Y/120 Vac, 3Ø4W/Grd. | PIU2IMA16 | 4472.00 | PIU2IMA24 | 6407.00 |
| 240Y/120 Vac, 3Ø4W/Grd. | PIU3IMA16 | 4472.00 | PIU3IMA24 | 6407.00 |
| 480Y/277 Vac, 3Ø4W/Grd. | PIU4IMA16 | 4740.00 | PIU4IMA24 | 6792.00 |
| 600Y/347 Vac, 3Ø4W/Grd. | PIU8IMA16 | 4919.00 | PIU8IMA24 | 7048.00 |

Note: For IP54 splash resistant construction, add an "M54" suffix. The IP54 price adder is 15%.

**Table 12.26: Options**

| Description | When Required Add Suffix to Catalog Number | $ Price |
|---|---|---|
| Surge Counter and Dry Contacts | — | STD. |
| Remote Monitor with Dry Contacts | M | 788.00 |



© 2012 Schneider Electric
All Rights Reserved

### Table 12.27: H-Frame Circuit Breaker Plug-in Units—Standard (80%) Rated—3Ø3W

| Trip Rating Ampere | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 15 | PHD36015G | **1930.00** | PHG36015G | **2394.00** | PHJ36015G | **3184.00** | PHL36015G | **5171.00** |
| 20 | PHD36020G | **1930.00** | PHG36020G | **2394.00** | PHJ36020G | **3184.00** | PHL36020G | **5171.00** |
| 30 | PHD36030G | **1930.00** | PHG36030G | **2394.00** | PHJ36030G | **3184.00** | PHL36030G | **5171.00** |
| 40 | PHD36040G | **1930.00** | PHG36040G | **2394.00** | PHJ36040G | **3184.00** | PHL36040G | **5171.00** |
| 50 | PHD36050G | **1930.00** | PHG36050G | **2394.00** | PHJ36050G | **3184.00** | PHL36050G | **5171.00** |
| 60 | PHD36060G | **1930.00** | PHG36060G | **2394.00** | PHJ36060G | **3184.00** | PHL36060G | **5171.00** |
| 70 | PHD36070G | **2132.00** | PHG36070G | **2582.00** | PHJ36070G | **3718.00** | PHL36070G | **5715.00** |
| 80 | PHD36080G | **2132.00** | PHG36080G | **2582.00** | PHJ36080G | **3718.00** | PHL36080G | **5715.00** |
| 90 | PHD36090G | **2132.00** | PHG36090G | **2582.00** | PHJ36090G | **3718.00** | PHL36090G | **5715.00** |
| 100 | PHD36100G | **2132.00** | PHG36100G | **2582.00** | PHJ36100G | **3718.00** | PHL36100G | **5715.00** |
| 125 | PHD36125G | **4246.00** | PHG36125G | **6031.00** | PHJ36125G | **8266.00** | PHL36125G | **9987.00** |
| 150 | PHD36150G | **4246.00** | PHG36150G | **6031.00** | PHJ36150G | **8266.00** | PHL36150G | **9987.00** |

### Table 12.28: H-Frame Circuit Breaker Plug-in Units—Standard (80%) Rated—3Ø4W

| Trip Rating Ampere | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **3Ø4W + G, 277/480 Vac (600 Vac Max.) 50/60 Hz** | | | | | | | | |
| 15 | PHD36015GN | **2111.00** | PHG36015GN | **2578.00** | PHJ36015GN | **3428.00** | PHL36015GN | **5318.00** |
| 20 | PHD36020GN | **2111.00** | PHG36020GN | **2578.00** | PHJ36020GN | **3428.00** | PHL36020GN | **5318.00** |
| 30 | PHD36030GN | **2111.00** | PHG36030GN | **2578.00** | PHJ36030GN | **3428.00** | PHL36030GN | **5318.00** |
| 40 | PHD36040GN | **2111.00** | PHG36040GN | **2578.00** | PHJ36040GN | **3428.00** | PHL36040GN | **5318.00** |
| 50 | PHD36050GN | **2111.00** | PHG36050GN | **2578.00** | PHJ36050GN | **3428.00** | PHL36050GN | **5318.00** |
| 60 | PHD36060GN | **2111.00** | PHG36060GN | **2578.00** | PHJ36060GN | **3428.00** | PHL36060GN | **5318.00** |
| 70 | PHD36070GN | **2317.00** | PHG36070GN | **2784.00** | PHJ36070GN | **4008.00** | PHL36070GN | **5878.00** |
| 80 | PHD36080GN | **2317.00** | PHG36080GN | **2784.00** | PHJ36080GN | **4008.00** | PHL36080GN | **5878.00** |
| 90 | PHD36090GN | **2317.00** | PHG36090GN | **2784.00** | PHJ36090GN | **4008.00** | PHL36090GN | **5878.00** |
| 100 | PHD36100GN | **2317.00** | PHG36100GN | **2784.00** | PHJ36100GN | **4008.00** | PHL36100GN | **5878.00** |
| 125 | PHD36125GN | **4478.00** | PHG36125GN | **6267.00** | PHJ36125GN | **8510.00** | PHL36125GN | **10254.00** |
| 150 | PHD36150GN | **4478.00** | PHG36150GN | **6267.00** | PHJ36150GN | **8510.00** | PHL36150GN | **10254.00** |

### Table 12.29: J-Frame Circuit Breaker Plug-in Units—Standard (80%) Rated—3Ø3W

| Trip Rating Ampere | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 175 | PJD36175G | **4618.00** | PJG36175G | **8056.00** | PJJ36175G | **9424.00** | PJL36175G | **11581.00** |
| 200 | PJD36200G | **4618.00** | PJG36200G | **8056.00** | PJJ36200G | **9424.00** | PJL36200G | **11581.00** |
| 225 | PJD36225G | **4618.00** | PJG36225G | **8056.00** | PJJ36225G | **9424.00** | PJL36225G | **11581.00** |
| 250 | PJD36250G | **6380.00** | PJG36250G | **9834.00** | PJJ36250G | **10816.00** | PJL36250G | **13292.00** |

### Table 12.30: J-Frame Circuit Breaker Plug-in Units—Standard (80%) Rated—3Ø4W

| Trip Rating Ampere | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **3Ø4W + G, 277/480 Vac (600 Vac Max.) 50/60 Hz** | | | | | | | | |
| 175 | PJD36175GN | **4950.00** | PJG36175GN | **8366.00** | PJJ36175GN | **9788.00** | PJL36175GN | **11910.00** |
| 200 | PJD36200GN | **4950.00** | PJG36200GN | **8366.00** | PJJ36200GN | **9788.00** | PJL36200GN | **11910.00** |
| 225 | PJD36225GN | **4950.00** | PJG36225GN | **8366.00** | PJJ36225GN | **9788.00** | PJL36225GN | **11910.00** |
| 250 | PJD36250GN | **6712.00** | PJG36250GN | **10144.00** | PJJ36250GN | **11158.00** | PJL36250GN | **13669.00** |

▲ All these devices use plug-in connections.

Note: For IP54 splash resistant construction, add an "M54" suffix. The IP54 price adder is 15%.

### Table 12.31: Circuit Breaker Interrupting Ratings

| Interrupting Ratings (kA) | D | G | J | L |
|---|---|---|---|---|
| 240 V | 25 | 65 | 100 | 125 |
| 480 V | 18 | 35 | 65 | 100 |
| 600 V | 14 | 18 | 25 | 50 |



© 2012 Schneider Electric
All Rights Reserved

### Table 12.32: H- and J-Frame Circuit Breaker Plug-in Units with Electronic Trip—Standard (80%) Rated—3Ø3W New!

| Trip Rating Ampere | Trip Function▲ | Trip Unit | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price |
| **Micrologic Standard Trip Unit** | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 60 | LI | 3.2 | PHD36060GU31X | 2113.00 | PHG36060GU31X | 2577.00 | PHJ36060GU31X | 3367.00 | PHL36060GU31X | 5354.00 |
| 100 | | | PHD36100GU31X | 2315.00 | PHG36100GU31X | 2765.00 | PHJ36100GU31X | 3901.00 | PHL36100GU31X | 5898.00 |
| 150 | | | PHD36150GU31X | 4429.00 | PHG36150GU31X | 6214.00 | PHJ36150GU31X | 8449.00 | PHL36150GU31X | 10170.00 |
| 250 | | | PJD36250GU31X | 6641.00 | PJG36250GU31X | 10095.00 | PJJ36250GU31X | 11077.00 | PJL36250GU31X | 13553.00 |
| 60 | LSI | 3.2 S | PHD36060GU33X | 2309.00 | PHG36060GU33X | 2773.00 | PHJ36060GU33X | 3563.00 | PHL36060GU33X | 5550.00 |
| 100 | | | PHD36100GU33X | 2511.00 | PHG36100GU33X | 2961.00 | PHJ36100GU33X | 4097.00 | PHL36100GU33X | 6094.00 |
| 150 | | | PHD36150GU33X | 4625.00 | PHG36150GU33X | 6410.00 | PHJ36150GU33X | 8645.00 | PHL36150GU33X | 10366.00 |
| 250 | | | PJD36250GU33X | 6920.00 | PJG36250GU33X | 10374.00 | PJJ36250GU33X | 11356.00 | PJL36250GU33X | 13832.00 |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 60 | LSI | 5.2 A | PHD36060GU43X | 2968.00 | PHG36060GU43X | 3432.00 | PHJ36060GU43X | 4222.00 | PHL36060GU43X | 6209.00 |
| 100 | | | PHD36100GU43X | 3170.00 | PHG36100GU43X | 3620.00 | PHJ36100GU43X | 4756.00 | PHL36100GU43X | 6753.00 |
| 150 | | | PHD36150GU43X | 5284.00 | PHG36150GU43X | 7069.00 | PHJ36150GU43X | 9304.00 | PHL36150GU43X | 11025.00 |
| 250 | | | PJD36250GU43X | 7860.00 | PJG36250GU43X | 11314.00 | PJJ36250GU43X | 12296.00 | PJL36250GU43X | 14772.00 |

### Table 12.33: H- and J-Frame Circuit Breaker Plug-in Units with Electronic Trip—Standard (80%) Rated—3Ø4W New!

| Trip Rating Ampere | Trip Function ▲ | Trip Unit | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price |
| **Micrologic Standard Trip Unit** | | | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 60 | LI | 3.2 | PHD36060GNU31X | 2294.00 | PHG36060GNU31X | 2761.00 | PHJ36060GNU31X | 3611.00 | PHL36060GNU31X | 5501.00 |
| 100 | | | PHD36100GNU31X | 2500.00 | PHG36100GNU31X | 2967.00 | PHJ36100GNU31X | 4191.00 | PHL36100GNU31X | 6061.00 |
| 150 | | | PHD36150GNU31X | 4661.00 | PHG36150GNU31X | 6450.00 | PHJ36150GNU31X | 8693.00 | PHL36150GNU31X | 10437.00 |
| 250 | | | PJD36250GNU31X | 6973.00 | PJG36250GNU31X | 10405.00 | PJJ36250GNU31X | 11419.00 | PJL36250GNU31X | 13930.00 |
| 60 | LSI | 3.2 S | PHD36060GNU33X | 2490.00 | PHG36060GNU33X | 2957.00 | PHJ36060GNU33X | 3807.00 | PHL36060GNU33X | 5697.00 |
| 100 | | | PHD36100GNU33X | 2696.00 | PHG36100GNU33X | 3163.00 | PHJ36100GNU33X | 4387.00 | PHL36100GNU33X | 6257.00 |
| 150 | | | PHD36150GNU33X | 4857.00 | PHG36150GNU33X | 6646.00 | PHJ36150GNU33X | 8889.00 | PHL36150GNU33X | 10633.00 |
| 250 | | | PJD36250GNU33X | 7252.00 | PJG36250GNU33X | 10684.00 | PJJ36250GNU33X | 11698.00 | PJL36250GNU33X | 14209.00 |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 60 | LSI | 5.2 A | PHD36060GNU43X | 3149.00 | PHG36060GNU43X | 3616.00 | PHJ36060GNU43X | 4466.00 | PHL36060GNU43X | 6356.00 |
| 100 | | | PHD36100GNU43X | 3355.00 | PHG36100GNU43X | 3822.00 | PHJ36100GNU43X | 5046.00 | PHL36100GNU43X | 6916.00 |
| 150 | | | PHD36150GNU43X | 5516.00 | PHG36150GNU43X | 7305.00 | PHJ36150GNU43X | 9548.00 | PHL36150GNU43X | 11292.00 |
| 250 | | | PJD36250GNU43X | 8192.00 | PJG36250GNU43X | 11624.00 | PJJ36250GNU43X | 12638.00 | PJL36250GNU43X | 15149.00 |

▲ If alternate trip functions are required, contact your local Schneider Electric field office for pricing.
■ All these devices use plug-in connections.
Note: For IP54 splash resistant construction, add an "M54" suffix. The IP54 price adder is 15%.

### Table 12.34: L-Frame Circuit Breaker Plug-in Units with Electronic Trip—Standard (80%) Rated—3Ø3W New!

| Trip Rating Ampere | Trip Function▲ | Trip Unit | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price |
| **Micrologic Standard Trip Unit** | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 400 | LI | 3.3 | PBLD36400GU31X | 9398.00 | PBLG36400GU31X | 12846.00 | PBLJ36400GU31X | 14958.00 | PBLL36400GU31X | 17030.00 |
| 600 | | | PBLD36600GU31X | 13840.00 | PBLG36600GU31X | 16975.00 | PBLJ36600GU31X | 18600.00 | PBLL36600GU31X | 21326.00 |
| 400 | LSI | 3.3 S | PBLD36400GU33X | 10496.00 | PBLG36400GU33X | 14345.00 | PBLJ36400GU33X | 16676.00 | PBLL36400GU33X | 18049.00 |
| 600 | | | PBLD36600GU33X | 14939.00 | PBLG36600GU33X | 18320.00 | PBLJ36600GU33X | 21093.00 | PBLL36600GU33X | 22344.00 |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 400 | LSI | 5.3 A | PBLD36400GU43X | 12174.00 | PBLG36400GU43X | 15640.00 | PBLJ36400GU43X | 17605.00 | PBLL36400GU43X | 19608.00 |
| 600 | | | PBLD36600GU43X | 16617.00 | PBLG36600GU43X | 19377.00 | PBLJ36600GU43X | 21128.00 | PBLL36600GU43X | 23902.00 |
| 400 | LSIG | 6.3 A | PBLD36400GU44X | 15865.00 | PBLG36400GU44X | 19686.00 | PBLJ36400GU44X | 21247.00 | PBLL36400GU44X | 23536.00 |
| 600 | | | PBLD36600GU44X | 20309.00 | PBLG36600GU44X | 23904.00 | PBLJ36600GU44X | 24770.00 | PBLL36600GU44X | 27329.00 |

### Table 12.35: L-Frame Circuit Breaker Plug-in Units with Electronic Trip—Standard (80%) Rated—3Ø4W New!

| Trip Rating Ampere | Trip Function▲ | Trip Unit | D Interrupting | | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price | Catalog Number■ | $ Price |
| **Micrologic Standard Trip Unit** | | | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 400 | LI | 3.3 | PBLD36400GNU31X | 9890.00 | PBLG36400GNU31X | 13509.00 | PBLJ36400GNU31X | 15730.00 | PBLL36400GNU31X | 17910.00 |
| 600 | | | PBLD36600GNU31X | 14555.00 | PBLG36600GNU31X | 17851.00 | PBLJ36600GNU31X | 19560.00 | PBLL36600GNU31X | 22375.00 |
| 400 | LSI | 3.3 S | PBLD36400GNU33X | 10885.00 | PBLG36400GNU33X | 14875.00 | PBLJ36400GNU33X | 16942.00 | PBLL36400GNU33X | 18716.00 |
| 600 | | | PBLD36600GNU33X | 15490.00 | PBLG36600GNU33X | 18996.00 | PBLJ36600GNU33X | 20870.00 | PBLL36600GNU33X | 23130.00 |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | | | |
| 400 | LSI | 5.3 A | PBLD36400GNU43X | 12625.00 | PBLG36400GNU43X | 15956.00 | PBLJ36400GNU43X | 18256.00 | PBLL36400GNU43X | 20334.00 |
| 600 | | | PBLD36600GNU43X | 17232.00 | PBLG36600GNU43X | 19830.00 | PBLJ36600GNU43X | 21908.00 | PBLL36600GNU43X | 24748.00 |
| 400 | LSIG | 6.3 A | PBLD36400GNU44X | 16450.00 | PBLG36400GNU44X | 20485.00 | PBLJ36400GNU44X | 22030.00 | PBLL36400GNU44X | 24385.00 |
| 600 | | | PBLD36600GNU44X | 21055.00 | PBLG36600GNU44X | 24216.00 | PBLJ36600GNU44X | 25677.00 | PBLL36600GNU44X | 28294.00 |

▲ If alternate trip functions are required, contact your local Schneider Electric field office for pricing.
■ All these devices use plug-in connections.
Note: For IP54 splash resistant construction, add an "M54" suffix. The IP54 price adder is 15%.
The 250 A with Standard Trip Unit is also available. Contact your local Schneider Electric field office for ordering information.





© 2012 Schneider Electric
All Rights Reserved

**Table 12.36: M-Frame Circuit Breaker Plug-in Units with Basic Electronic Trip Unit (ET 1.0)—3Ø3W** *New!*

| Trip Rating Ampere | G Interrupting | | J Interrupting | |
|---|---|---|---|---|
| | Catalog Number▲■♦ | $ Price | Catalog Number▲■♦ | $ Price |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | |
| 300 | PTMG36300G( ) | **16014.00** | PTMJ36300G( ) | **17918.00** |
| 350 | PTMG36350G( ) | **16014.00** | PTMJ36350G( ) | **17918.00** |
| 400 | PTMG36400G( ) | **16014.00** | PTMJ36400G( ) | **17918.00** |
| 450 | PTMG36450G( ) | **16014.00** | PTMJ36450G( ) | **17918.00** |
| 500 | PTMG36500G( ) | **16014.00** | PTMJ36500G( ) | **17918.00** |
| 600 | PTMG36600G( ) | **16014.00** | PTMJ36600G( ) | **17918.00** |
| 700 | PTMG36700G( ) | **18810.00** | PTMJ36700G( ) | **20368.00** |
| 800 | PTMG36800G( ) | **18810.00** | PTMJ36800G( ) | **20368.00** |

**Table 12.37: M-Frame Circuit Breaker Plug-in Units with Basic Electronic Trip Unit (ET 1.0)—3Ø4W** *New!*

| Trip Rating Ampere | G Interrupting | | J Interrupting | |
|---|---|---|---|---|
| | Catalog Number▲■♦ | $ Price | Catalog Number▲■♦ | $ Price |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | |
| 300 | PTMG36300GN( ) | **16640.00** | PTMJ36300GN( ) | **18536.00** |
| 350 | PTMG36350GN( ) | **16640.00** | PTMJ36350GN( ) | **18536.00** |
| 400 | PTMG36400GN( ) | **16640.00** | PTMJ36400GN( ) | **18536.00** |
| 450 | PTMG36450GN( ) | **16640.00** | PTMJ36450GN( ) | **18536.00** |
| 500 | PTMG36500GN( ) | **16640.00** | PTMJ36500GN( ) | **18536.00** |
| 600 | PTMG36600GN( ) | **16640.00** | PTMJ36600GN( ) | **18536.00** |
| 700 | PTMG36700GN( ) | **19436.00** | PTMJ36700GN( ) | **22082.00** |
| 800 | PTMG36800GN( ) | **19436.00** | PTMJ36800GN( ) | **22082.00** |

▲ The ET 1.0 trip unit cannot be field replaced or have the long-time trip point setting adjusted.
■ All these devices use bolt-on connection. It may be used only on busway with same number of poles. Not for use on 800 A copper busway.
♦ To complete the catalog number, replace the blank with an “H” for horizontal applications and “V” for vertical applications.
Note: For IP54 splash resistant construction, add "M54" suffix. IP54 price adder is 15%.



© 2012 Schneider Electric
All Rights Reserved

## Table 12.38: P-Frame Circuit Breaker Plug-in Units—3Ø3W New!

| Trip Rating Ampere | Trip Function | Trip Unit | Interrupting Rating | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | G | | | J | | |
| | | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | |
| | | | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated |
| **Micrologic Standard Trip Unit** | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 400 | | | PTPG36040G( )U31A | **26760.00** | **37560.00** | PTPJ36040G( )U31A | **27995.00** | **38745.00** |
| 600 | | | PTPG36060G( )U31A | **26760.00** | **37560.00** | PTPJ36060G( )U31A | **27995.00** | **38745.00** |
| 800 | LI | 3.0 | PTPG36080G( )U31A | **26760.00** | **37560.00** | PTPJ36080G( )U31A | **27995.00** | **38745.00** |
| 1000 | | | PTPG36100G( )U31A | **34637.00** | **45366.00** | PTPJ36100G( )U31A | **35929.00** | **46502.00** |
| 1200 | | | PTPG36120G( )U31A | **34637.00** | — | PTPJ36120G( )U31A | **35929.00** | — |
| 400 | | | PTPG36040G( )U33A | **27300.00** | **37900.00** | PTPJ36040G( )U33A | **28532.00** | **39400.00** |
| 600 | | | PTPG36060G( )U33A | **27300.00** | **37900.00** | PTPJ36060G( )U33A | **28532.00** | **39400.00** |
| 800 | LSI | 5.0 | PTPG36080G( )U33A | **27300.00** | **37900.00** | PTPJ36080G( )U33A | **28532.00** | **39400.00** |
| 1000 | | | PTPG36100G( )U33A | **35064.00** | **46168.00** | PTPJ36100G( )U33A | **36328.00** | **47934.00** |
| 1200 | | | PTPG36120G( )U33A | **35064.00** | — | PTPJ36120G( )U33A | **36328.00** | — |
| **Micrologic Ammeter Trip Unit** | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 400 | | | PTPG36040G( )U41A | **28072.00** | **38560.00** | PTPJ36040G( )U41A | **29295.00** | **40068.00** |
| 600 | | | PTPG36060G( )U41A | **28072.00** | **38560.00** | PTPJ36060G( )U41A | **29295.00** | **40068.00** |
| 800 | LI | 3.0 A | PTPG36080G( )U41A | **28072.00** | **38560.00** | PTPJ36080G( )U41A | **29295.00** | **40068.00** |
| 1000 | | | PTPG36100G( )U41A | **35826.00** | **46435.00** | PTPJ36100G( )U41A | **37055.00** | **48856.00** |
| 1200 | | | PTPG36120G( )U41A | **35826.00** | — | PTPJ36120G( )U41A | **37055.00** | — |
| 400 | | | PTPG36040G( )U43A | **30300.00** | **40430.00** | PTPJ36040G( )U43A | **31520.00** | **41695.00** |
| 600 | | | PTPG36060G( )U43A | **30300.00** | **40430.00** | PTPJ36060G( )U43A | **31520.00** | **41695.00** |
| 800 | LSI | 5.0 A | PTPG36080G( )U43A | **30300.00** | **40430.00** | PTPJ36080G( )U43A | **31520.00** | **41695.00** |
| 1000 | | | PTPG36100G( )U43A | **38010.00** | **49424.00** | PTPJ36100G( )U43A | **39124.00** | **50342.00** |
| 1200 | | | PTPG36120G( )U43A | **38010.00** | — | PTPJ36120G( )U43A | **39124.00** | — |
| 400 | | | PTPG36040G( )U44A | **33052.00** | **42760.00** | PTPJ36040G( )U44A | **34250.00** | **44330.00** |
| 600 | | | PTPG36060G( )U44A | **33052.00** | **42760.00** | PTPJ36060G( )U44A | **34250.00** | **44330.00** |
| 800 | LSIG | 6.0 A | PTPG36080G( )U44A | **33052.00** | **42760.00** | PTPJ36080G( )U44A | **34250.00** | **44330.00** |
| 1000 | | | PTPG36100G( )U44A | **40725.00** | **50824.00** | PTPJ36100G( )U44A | **41700.00** | **51910.00** |
| 1200 | | | PTPG36120G( )U44A | **40725.00** | — | PTPJ36120G( )U44A | **41700.00** | — |

## Table 12.39: P-Frame Circuit Breaker Plug-in Units—3Ø4W New!

| Trip Rating Ampere | Trip Function | Trip Unit | Interrupting Rating | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | G | | | J | | |
| | | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | |
| | | | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated |
| **Micrologic Standard Trip Unit** | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 400 | | | PTPG36040GN( )U31A | **27760.00** | **38560.00** | PTPJ36040GN( )U31A | **28995.00** | **39745.00** |
| 600 | | | PTPG36060GN( )U31A | **27760.00** | **38560.00** | PTPJ36060GN( )U31A | **28995.00** | **39745.00** |
| 800 | LI | 3.0 | PTPG36080GN( )U31A | **27760.00** | **38560.00** | PTPJ36080GN( )U31A | **28995.00** | **39745.00** |
| 1000 | | | PTPG36100GN( )U31A | **35637.00** | **46366.00** | PTPJ36100GN( )U31A | **36929.00** | **47502.00** |
| 1200 | | | PTPG36120GN( )U31A | **35637.00** | — | PTPJ36120GN( )U31A | **36929.00** | — |
| 400 | | | PTPG36040GN( )U33A | **28300.00** | **38900.00** | PTPJ36040GN( )U33A | **29532.00** | **40400.00** |
| 600 | | | PTPG36060GN( )U33A | **28300.00** | **38900.00** | PTPJ36060GN( )U33A | **29532.00** | **40400.00** |
| 800 | LSI | 5.0 | PTPG36080GN( )U33A | **28300.00** | **38900.00** | PTPJ36080GN( )U33A | **29532.00** | **40400.00** |
| 1000 | | | PTPG36100GN( )U33A | **36064.00** | **47168.00** | PTPJ36100GN( )U33A | **37328.00** | **48934.00** |
| 1200 | | | PTPG36120GN( )U33A | **36064.00** | — | PTPJ36120GN( )U33A | **37328.00** | — |
| **Micrologic Ammeter Trip Unit** | | | | | | | | |
| **3Ø4W + G, 600 Vac 50/60 Hz** | | | | | | | | |
| 400 | | | PTPG36040GN( )U41A | **29072.00** | **39560.00** | PTPJ36040GN( )U41A | **30295.00** | **41068.00** |
| 600 | | | PTPG36060GN( )U41A | **29072.00** | **39560.00** | PTPJ36060GN( )U41A | **30295.00** | **41068.00** |
| 800 | LI | 3.0 A | PTPG36080GN( )U41A | **29072.00** | **39560.00** | PTPJ36080GN( )U41A | **30295.00** | **41068.00** |
| 1000 | | | PTPG36100GN( )U41A | **36826.00** | **47435.00** | PTPJ36100GN( )U41A | **38055.00** | **49856.00** |
| 1200 | | | PTPG36120GN( )U41A | **36826.00** | — | PTPJ36120GN( )U41A | **38055.00** | — |
| 400 | | | PTPG36040GN( )U43A | **31300.00** | **41430.00** | PTPJ36040GN( )U43A | **32520.00** | **42695.00** |
| 600 | | | PTPG36060GN( )U43A | **31300.00** | **41430.00** | PTPJ36060GN( )U43A | **32520.00** | **42695.00** |
| 800 | LSI | 5.0 A | PTPG36080GN( )U43A | **31300.00** | **41430.00** | PTPJ36080GN( )U43A | **32520.00** | **42695.00** |
| 1000 | | | PTPG36100GN( )U43A | **39010.00** | **50424.00** | PTPJ36100GN( )U43A | **40124.00** | **51342.00** |
| 1200 | | | PTPG36120GN( )U43A | **39010.00** | — | PTPJ36120GN( )U43A | **40124.00** | — |
| 400 | | | PTPG36040GN( )U44A | **34052.00** | **43760.00** | PTPJ36040GN( )U44A | **35250.00** | **45330.00** |
| 600 | | | PTPG36060GN( )U44A | **34052.00** | **43760.00** | PTPJ36060GN( )U44A | **35250.00** | **45330.00** |
| 800 | LSIG | 6.0 A | PTPG36080GN( )U44A | **34052.00** | **43760.00** | PTPJ36080GN( )U44A | **35250.00** | **45330.00** |
| 1000 | | | PTPG36100GN( )U44A | **41725.00** | **51824.00** | PTPJ36100GN( )U44A | **42700.00** | **52910.00** |
| 1200 | | | PTPG36120GN( )U44A | **41725.00** | — | PTPJ36120GN( )U44A | **42700.00** | — |

▲ The standard rating plug supplied with a trip unit will be the "A" rating plug. To specify an alternative rating plug, replace the "A" at the end of the catalog number with the applicable suffix letter. See the chart on page 7-45 for rating plug catalog suffix letters.

■ All these devices use bolt-on connection. It may be used only on busway with same number of poles. Not for use on 800 A copper busway. To complete the catalog number, replace the blank with an "H" for horizontal applications and "V" for vertical applications.

♦ Listed catalog numbers are for 80% rated circuit breakers. For 100% rated circuit breakers, replace the blank with an "HC" for horizontal applications and "VC" for vertical applications. For example, the catalog number for a 100% standard trip unit with standard LI trip functions at 800 A 3Ø3W for a horizontal application would be PTPG36080GHCU31A.

Notes:

- For IP54 splash resistant construction, add a "M54" suffix. IP54 price adder is 15%.
- The 250 A is available as a special device. Contact your local Schneider Electric field office for ordering information.





© 2012 Schneider Electric
All Rights Reserved

## Table 12.40: R-Frame Circuit Breaker Plug-in Units—3Ø3W

| Trip Rating Ampere | Trip Function | Trip Unit | Interrupting Rating | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | G | | | J | | | L | | |
| | | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | |
| | | | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated |
| **Micrologic Standard Trip Unit** | | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | | |
| 800 | LI | 3.0 | PTRG36080G( )U31A | **42232.00** | **48472.00** | PTRJ36080G( )U31A | **43800.00** | **50040.00** | PTRL36080G( )U31A | **45366.00** | **51606.00** |
| 1000 | | | PTRG36100G( )U31A | **42232.00** | **48472.00** | PTRJ36100G( )U31A | **43800.00** | **50040.00** | PTRL36100G( )U31A | **45366.00** | **51606.00** |
| 1200 | | | PTRG36120G( )U31A | **42232.00** | **48472.00** | PTRJ36120G( )U31A | **43800.00** | **50040.00** | PTRL36120G( )U31A | **45366.00** | **51606.00** |
| 1600 | | | PTRG36160G( )U31A | **42232.00** | — | PTRJ36160G( )U31A | **43800.00** | — | PTRL36160G( )U31A | **45366.00** | — |
| 800 | LSI | 5.0 | PTRG36080G( )U33A | **42686.00** | **48772.00** | PTRJ36080G( )U33A | **44254.00** | **50340.00** | PTRL36080G( )U33A | **45820.00** | **51906.00** |
| 1000 | | | PTRG36100G( )U33A | **42686.00** | **48772.00** | PTRJ36100G( )U33A | **44254.00** | **50340.00** | PTRL36100G( )U33A | **45820.00** | **51906.00** |
| 1200 | | | PTRG36120G( )U33A | **42686.00** | **48772.00** | PTRJ36120G( )U33A | **44254.00** | **50340.00** | PTRL36120G( )U33A | **45820.00** | **51906.00** |
| 1600 | | | PTRG36160G( )U33A | **42686.00** | — | PTRJ36160G( )U33A | **44254.00** | — | PTRL36160G( )U33A | **45820.00** | — |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | | |
| **3Ø3W + G, 600 Vac 50/60 Hz** | | | | | | | | | | | |
| 800 | LI | 3.0 A | PTRG36080G( )U41A | **43368.00** | **49342.00** | PTRJ36080G( )U41A | **44936.00** | **50910.00** | PTRL36080G( )U41A | **46502.00** | **52476.00** |
| 1000 | | | PTRG36100G( )U41A | **43368.00** | **49342.00** | PTRJ36100G( )U41A | **44936.00** | **50910.00** | PTRL36100G( )U41A | **46502.00** | **52476.00** |
| 1200 | | | PTRG36120G( )U41A | **43368.00** | **49342.00** | PTRJ36120G( )U41A | **44936.00** | **50910.00** | PTRL36120G( )U41A | **46502.00** | **52476.00** |
| 1600 | | | PTRG36160G( )U41A | **43368.00** | — | PTRJ36160G( )U41A | **44936.00** | — | PTRL36160G( )U41A | **46502.00** | — |
| 800 | LSI | 5.0 A | PTRG36080G( )U43A | **45366.00** | **51184.00** | PTRJ36080G( )U43A | **46934.00** | **52752.00** | PTRL36080G( )U43A | **48500.00** | **54318.00** |
| 1000 | | | PTRG36100G( )U43A | **45366.00** | **51184.00** | PTRJ36100G( )U43A | **46934.00** | **52752.00** | PTRL36100G( )U43A | **48500.00** | **54318.00** |
| 1200 | | | PTRG36120G( )U43A | **45366.00** | **51184.00** | PTRJ36120G( )U43A | **46934.00** | **52752.00** | PTRL36120G( )U43A | **48500.00** | **54318.00** |
| 1600 | | | PTRG36160G( )U43A | **45366.00** | — | PTRJ36160G( )U43A | **46934.00** | — | PTRL36160G( )U43A | **48500.00** | — |
| 800 | LSIG | 6.0 A | PTRG36080G( )U44A | **47856.00** | **53426.00** | PTRJ36080G( )U44A | **49424.00** | **54994.00** | PTRL36080G( )U44A | **50990.00** | **56560.00** |
| 1000 | | | PTRG36100G( )U44A | **47856.00** | **53426.00** | PTRJ36100G( )U44A | **49424.00** | **54994.00** | PTRL36100G( )U44A | **50990.00** | **56560.00** |
| 1200 | | | PTRG36120G( )U44A | **47856.00** | **53426.00** | PTRJ36120G( )U44A | **49424.00** | **54994.00** | PTRL36120G( )U44A | **50990.00** | **56560.00** |
| 1600 | | | PTRG36160G( )U44A | **47856.00** | — | PTRJ36160G( )U44A | **49424.00** | — | PTRL36160G( )U44A | **50990.00** | — |

## Table 12.41: R-Frame Circuit Breaker Plug-in Units—3Ø4W

| Trip Rating Ampere | Trip Function | Trip Unit | Interrupting Rating | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | G | | | J | | | L | | |
| | | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | | Catalog Number▲■♦ | $ Price | |
| | | | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated | | 80 % Rated | 100 % Rated |
| **Micrologic Standard Trip Unit** | | | | | | | | | | | |
| **3Ø4W + G, 277/480 Vac (600 Vac Max.) 50/60 Hz** | | | | | | | | | | | |
| 800 | LI | 3.0 | PTRG36080GN( )U31A | **43232.00** | **49472.00** | PTRJ36080GN( )U31A | **44800.00** | **51040.00** | PTRL36080GN( )U31A | **46366.00** | **52606.00** |
| 1000 | | | PTRG36100GN( )U31A | **43232.00** | **49472.00** | PTRJ36100GN( )U31A | **44800.00** | **51040.00** | PTRL36100GN( )U31A | **46366.00** | **52606.00** |
| 1200 | | | PTRG36120GN( )U31A | **43232.00** | **49472.00** | PTRJ36120GN( )U31A | **44800.00** | **51040.00** | PTRL36120GN( )U31A | **46366.00** | **52606.00** |
| 1600 | | | PTRG36160GN( )U31A | **43232.00** | — | PTRJ36160GN( )U31A | **44800.00** | — | PTRL36160GN( )U31A | **46366.00** | — |
| 800 | LSI | 5.0 | PTRG36080GN( )U33A | **43686.00** | **49772.00** | PTRJ36080GN( )U33A | **45254.00** | **51340.00** | PTRL36080GN( )U33A | **46820.00** | **52906.00** |
| 1000 | | | PTRG36100GN( )U33A | **43686.00** | **49772.00** | PTRJ36100GN( )U33A | **45254.00** | **51340.00** | PTRL36100GN( )U33A | **46820.00** | **52906.00** |
| 1200 | | | PTRG36120GN( )U33A | **43686.00** | **49772.00** | PTRJ36120GN( )U33A | **45254.00** | **51340.00** | PTRL36120GN( )U33A | **46820.00** | **52906.00** |
| 1600 | | | PTRG36160GN( )U33A | **43686.00** | — | PTRJ36160GN( )U33A | **45254.00** | — | PTRL36160GN( )U33A | **46820.00** | — |
| **Micrologic Ammeter Trip Unit** | | | | | | | | | | | |
| **3Ø4W + G, 277/480 Vac (600 Vac Max.) 50/60 Hz** | | | | | | | | | | | |
| 800 | LI | 3.0 A | PTRG36080GN( )U41A | **44368.00** | **50342.00** | PTRJ36080GN( )U41A | **45936.00** | **51910.00** | PTRL36080GN( )U41A | **47502.00** | **53476.00** |
| 1000 | | | PTRG36100GN( )U41A | **44368.00** | **50342.00** | PTRJ36100GN( )U41A | **45936.00** | **51910.00** | PTRL36100GN( )U41A | **47502.00** | **53476.00** |
| 1200 | | | PTRG36120GN( )U41A | **44368.00** | **50342.00** | PTRJ36120GN( )U41A | **45936.00** | **51910.00** | PTRL36120GN( )U41A | **47502.00** | **53476.00** |
| 1600 | | | PTRG36160GN( )U41A | **44368.00** | — | PTRJ36160GN( )U41A | **45936.00** | — | PTRL36160GN( )U41A | **47502.00** | — |
| 800 | LSI | 5.0 A | PTRG36080GN( )U43A | **46366.00** | **52184.00** | PTRJ36080GN( )U43A | **47934.00** | **53752.00** | PTRL36080GN( )U43A | **49500.00** | **55318.00** |
| 1000 | | | PTRG36100GN( )U43A | **46366.00** | **52184.00** | PTRJ36100GN( )U43A | **47934.00** | **53752.00** | PTRL36100GN( )U43A | **49500.00** | **55318.00** |
| 1200 | | | PTRG36120GN( )U43A | **46366.00** | **52184.00** | PTRJ36120GN( )U43A | **47934.00** | **53752.00** | PTRL36120GN( )U43A | **49500.00** | **55318.00** |
| 1600 | | | PTRG36160GN( )U43A | **46366.00** | — | PTRJ36160GN( )U43A | **47934.00** | — | PTRL36160GN( )U43A | **49500.00** | — |
| 800 | LSIG | 6.0 A | PTRG36080GN( )U44A | **48856.00** | **54426.00** | PTRJ36080GN( )U44A | **50424.00** | **55994.00** | PTRL36080GN( )U44A | **51990.00** | **57560.00** |
| 1000 | | | PTRG36100GN( )U44A | **48856.00** | **54426.00** | PTRJ36100GN( )U44A | **50424.00** | **55994.00** | PTRL36100GN( )U44A | **51990.00** | **57560.00** |
| 1200 | | | PTRG36120GN( )U44A | **48856.00** | **54426.00** | PTRJ36120GN( )U44A | **50424.00** | **55994.00** | PTRL36120GN( )U44A | **51990.00** | **57560.00** |
| 1600 | | | PTRG36160GN( )U44A | **48856.00** | — | PTRJ36160GN( )U44A | **50424.00** | — | PTRL36160GN( )U44A | **51990.00** | — |

▲ The standard rating plug supplied with a trip unit will be the "A" rating plug. To specify an alternative rating plug, replace the "A" at the end of the catalog number with the applicable suffix letter. See the chart on page 7-45 for rating plug catalog suffix letters.

■ All these devices use bolt-on connection. It may be used only on busway with same number of poles. Not for use on 800 A copper busway. To complete the catalog number, replace the blank with an "H" for horizontal applications and "V" for vertical applications.

♦ Listed catalog numbers are for 80% rated circuit breakers. For 100% rated circuit breakers, replace the blank with an "HC" for horizontal applications and "VC" for vertical applications. For example, the catalog number for a 100% standard trip unit with standard LI trip functions at 800 A 3Ø3W for a horizontal application would be PTRG36080GHCU31A.

Notes:

- For IP54 splash resistant construction, add a "M54" suffix. IP54 price adder is 15%.
- The 600 A is available as a special device. Contact your local Schneider Electric field office for ordering information.



© 2012 Schneider Electric
All Rights Reserved

- Non-segregated phase bus
- 600 V through 15 kV (1200 A–4000 A) [1]
- Aluminum, steel or stainless steel housing
- Aluminum or copper bus bars
- Insulated with fluidized bed epoxy (5 kV–15 kV)
- Complete line of fittings provides for any configuration
- Indoor trapeze and outdoor column supports
- For use in utilities, industrial and commercial facilities

Power-Zone bus is custom designed, manufactured and tested per ANSI C37.23 standards to meet customer specifications. The 600 V product is also UL Listed. It is a completely coordinated package of equipment with all the auxiliary material and supports for connecting transformers, switchgear, MCCs, and motors, in all types of utility, industrial, and commercial facilities.

**General Pricing Instruction** – Prepare a layout sketch (if applicable) of the run(s) showing all dimensions in feet and inches, all wall and floor locations and thicknesses and all fittings such as elbows, tees, flanged ends, cable tap boxes, expansion fittings, transformer connections, etc. Add all dimensions together using the center line of the bus and adjust the total to the higher whole foot. Multiply this total by the per foot price as determined by the type (indoor or weatherproof) (aluminum or copper) and the number of poles and any optional accessories (aluminum or steel enclosures, fiberglass or porcelain conductor supports, etc.). To this add the charges for each of the elbows, tees, flanged ends, cable tap boxes, expansion fittings, transformer connections, etc. The sum of these items plus the sum of any optional accessory is the price of the entire bus run. NOTE: Because the bus run is custom designed and built there are no “Complete Device” prices.

**Bus Footage** – The per foot price of the bus may be a combination of several prices depending on the job specifications and requirements. Some of these options are special momentary rating, special housing material and/or finish, special conductor supports, heaters and thermostats, and ground bus. The prices for these options are shown on page 12-17. They should be added to the per foot prices shown on page 12-17.

**Weatherproof Bus** – Priced the same as indoor. In addition, all weatherproof runs must be equipped with strip heaters to eliminate condensation and, if applicable, a thermostat. A heater should be priced for every seven (7) foot of bus and no more than 20 heaters can be controlled by one thermostat. Also, each bus run should have its own thermostat. The heaters are rated 240 V, 500 watts and operate at 120 V, 125 watts.

**Flanged Ends** – A flanged end is used to terminate the bus into switchgear, motor control centers, switchboards, or any rigid bus-to-bus connection. It consists of a gasketed equipment flange, up to 1'-0" of 3Ø3W conductor (3Ø4W as applicable), necessary insulation tapes, and required bolting hardware. If additional conductor length is required, add to the footage price on a per foot basis.

**Cable Tap Box** – A cable tap box includes a gasketed and accessible termination box, lugs, necessary insulation tape (between bus and lugs only), and required bolting hardware. Lug sizes and quantity should be specified by purchaser.



**Transformer/Generator Connection** – This type of termination should be priced whenever the bus is connecting to a transformer, generator, motor, switch or any connection where the bus bars are connecting to porcelain mounted equipment terminals. It will include the same components as a flanged end plus one set of flexible braid type connectors and a terminal box (if required).

**Bushing Box (Weatherhead)** – A bushing box is used on service entrance run where the cable connection to the bus must be made via porcelain bushings. It is comprised of the same components as a transformer connection plus 3 through stud type apparatus bushings, bushing stud connectors (lug pads) and a strip heater.

**Ground Bus** – The bus housing is designed and constructed to provide an electrically continuous ground path. The side rails of the bus housings are capable of carrying the full rated phase current continuously and, under short circuit conditions, are capable of carrying up to 60 kA RMS asymmetrical fault current for 3 seconds. Consequently, a separate ground bus is not necessary unless specified.

**Wall Entrance Seal** – A wall entrance seal consists of a wall throat, wall flange (one side of wall only), and a barrier which prevents air or vapor from passing from one room to another or from outdoors to indoors. It also carries a 1/2 hour fire rating. Consult factory for higher fire ratings. If additional wall flanges are required, they should be added at the prices given on page 12-19.

**Equipment Entrance Seal** – An equipment entrance seal should be priced whenever a barrier is required to prevent the passing of flame and/or gasses between the bus housing and the terminating equipment.

**Expansion Fittings** – An expansion fitting is used to counteract the strain placed on the bus due to the expansion and contraction of the building or the bus itself. One should be priced whenever the bus run crosses a building expansion joint and whenever a straight run of bus exceeds 60 feet.

**Flexible Housing (Misalignment) Collar** – Required at terminations or wall penetrations when vibrations due to seismic forces may cause damage to the bus. It may also be used to adjust for the “settling” of terminating equipment after installation.

1 For additional ratings, contact the factory.





© 2012 Schneider Electric
All Rights Reserved

**Supporting Steel (Hangers)** – Supports are not included in the "per foot" price of the bus and should be added on the basis of one for every 10 ft. for indoor and one for every 12 ft. for outdoor. Indoor supports are a trapeze type hanger while outdoor supports are a single or double column type support. Consult factory for other type supports.

**Hazardous or Seismic Locations** – Consult factory for bus runs which are to be installed in a location which is classified as hazardous or in a seismic location.

**Standard Construction** – The prices on this page are based on standard Power-Zone construction. Page 12-19 should be used to add any options or accessories. Standard construction is as follows:

- Conductor (plating): Copper (silver) or Aluminum (tin)
- Conductor Insulation (5 kV and 15 kV only): epoxy
- Conductor Supports: Glass reinforced polyester blocks
- Housing Material: Extruded Aluminum (1/8-inch Nominal)
- Housing Construction: Totally Enclosed Non-ventilated
- Joint Insulation: EPR and PVC tape
- BIL Rating: 25 kV (600 V), 60 kV (5 kV) and 95 kV (15 kV)
- Momentary (Short Circuit) Rating: 75 kA (600 V) and 60 kA (5 kV, 15 kV)
- Ground Conductor: Housing (100% rated)

**Table 12.42: Footage and Fittings**

| Cond. Mtl. | No. of Poles, Wires | Current Rtg. | $ Price Per Foot ▲ | Flanged End | Vert. Elb. | Horz. Elb. | Cable Tap Box | Vert. Tee | Horz. Tee | Indr. Exp. Ftg. | Outdr. Exp. Ftg. | Wall Entr. Seal | Equip. Entr. Seal | Phase Phase Trans. | Xfrm Conn. | Porc. Bshg. Box |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **600 V** | | | | | | | | | | | | | | | | |
| Aluminum | 3P, 3W | 1200 A | 1235. | 4430. | 4885. | 4195. | 14348. | 6740. | 6740. | 6595. | 13905. | 5400. | 3970. | 8825. | 15725. | 34275. |
| | | 1600 A | 1315. | 4535. | 5005. | 4265. | 14838. | 6760. | 6760. | 8075. | 15610. | 5410. | 3975. | 9150. | 17265. | 37510. |
| | | 2000 A | 1485. | 4905. | 5160. | 4340. | 17165. | 7020. | 7020. | 8635. | 16395. | 5435. | 3985. | 9840. | 19450. | 42687. |
| | | 2500 A | 1635. | 5120. | 5420. | 4390. | 17777. | 7190. | 7190. | 10895. | 18950. | 5450. | 3995. | 10145. | 21755. | 47865. |
| | | 3200 A | 1845. | 5310. | 5470. | 4435. | 18736. | 7195. | 7195. | 12835. | 20885. | 5475. | 4005. | 10525. | 23880. | 54800. |
| | 3P, 4W 100% Neutral | 1200 A | 1605. | 5759. | 6351. | 5454. | 18652. | 8762. | 8762. | 8574. | 18077. | 7020. | 5161. | 11473. | 20443. | 44558. |
| | | 1600 A | 1710. | 5895. | 6507. | 5545. | 19290. | 8788. | 8788. | 10498. | 20293. | 7033. | 5168. | 11895. | 22445. | 48763. |
| | | 2000 A | 1930. | 6376. | 6708. | 5642. | 22315. | 9126. | 9126. | 11226. | 21314. | 7066. | 5181. | 12792. | 25285. | 53417. |
| | | 2500 A | 2125. | 6656. | 7046. | 5707. | 23110. | 9347. | 9347. | 14164. | 24635. | 7085. | 5194. | 13189. | 28282. | 62225. |
| | | 3200 A | 2399. | 6903. | 7111. | 5766. | 24357. | 9354. | 9354. | 16686. | 27151. | 7104. | 5207. | 13683. | 31044. | 71240. |
| Copper | 3P, 3W | 1200 A | 1785. | 5115. | 5030. | 4195. | 15101. | 6885. | 6885. | 6890. | 14200. | 5400. | 3970. | 10085. | 16555. | 34960. |
| | | 1600 A | 1985. | 5320. | 5192. | 4230. | 15702. | 7007. | 7007. | 8310. | 15615. | 5410. | 3975. | 10505. | 18180. | 38250. |
| | | 2000 A | 2665. | 6190. | 5355. | 4265. | 18579. | 7130. | 7130. | 8815. | 16350. | 5435. | 3985. | 12205. | 20840. | 41220. |
| | | 2500 A | 2950. | 6645. | 5455. | 4340. | 19454. | 7320. | 7320. | 11160. | 18920. | 5450. | 3995. | 13105. | 23410. | 49420. |
| | | 3200 A | 4125. | 8995. | 6172. | 4390. | 22789. | 8007. | 8007. | 16120. | 24175. | 5475. | 4005. | 16740. | 29205. | 59385. |
| | | 4000 A | 5970. | 10680. | 6890. | 4435. | 26693. | 8695. | 8695. | 19690. | 28680. | 5527. | 4050. | 20215. | 35905. | 72125. |
| | | 5000 A | 6470. | 11585. | 7570. | 4620. | 29178. | 9330. | 9330. | 24950. | 34705. | 5580. | 4190. | 22400. | 42035. | 80380. |
| | | 6000 A | 7335. | 13895. | 9815. | 4590. | 33649. | 11060. | 11060. | 32305. | 42055. | 5610. | 4235. | 25960. | 50735. | 96635. |
| | 3P, 4W 100% Neutral | 1200 A | 2320. | 6650. | 6539. | 5454. | 19632. | 8951. | 8951. | 8957. | 18460. | 7020. | 5161. | 13111. | 21522. | 45448. |
| | | 1600 A | 2580. | 6916. | 6750. | 5501. | 20413. | 9110. | 9110. | 10803. | 20300. | 7033. | 5168. | 13657. | 23634. | 49725. |
| | | 2000 A | 3464. | 8047. | 6962. | 5595. | 24153. | 9269. | 9269. | 11460. | 21255. | 7066. | 5181. | 15867. | 27092. | 53586. |
| | | 2500 A | 3835. | 8639. | 7092. | 5642. | 25291. | 9516. | 9516. | 14508. | 24596. | 7085. | 5194. | 17037. | 30433. | 64246. |
| | | 3200 A | 5362. | 11694. | 7779. | 5707. | 29626. | 11492. | 11492. | 20956. | 31428. | 7104. | 5207. | 21762. | 37967. | 77201. |
| | | 4000 A | 7760. | 13884. | 9153. | 5766. | 34701. | 11810. | 11810. | 25597. | 37284. | 7129. | 5265. | 26280. | 46677. | 93763. |
| | | 5000 A | 8411. | 15061. | 9841. | 6006. | 37932. | 12129. | 12129. | 32435. | 45117. | 7254. | 5447. | 29120. | 54646. | 104494. |
| | | 6000 A | 9535. | 18064. | 12760. | 6246. | 43744. | 14378. | 14378. | 41997. | 54672. | 7293. | 5506. | 33748. | 65956. | 125626. |
| **5 kV** | | | | | | | | | | | | | | | | |
| Aluminum | 3P, 3W■ | 1200 A | 1410. | 4550. | 4495. | 4175. | 14480. | 6730. | 6730. | 6635. | 14690. | 5500. | 4265. | 9385. | 15835. | 52874. |
| | | 1600 A | 1500. | 4655. | 4570. | 4275. | 14971. | 6760. | 6760. | 8105. | 16635. | 5515. | 4285. | 9575. | 17385. | 56289. |
| | | 2000 A | 1690. | 5020. | 4640. | 4405. | 17292. | 7020. | 7020. | 8635. | 17625. | 5525. | 4315. | 10065. | 19560. | 62104. |
| | | 2500 A | 1840. | 5185. | 4690. | 4505. | 17849. | 7080. | 7080. | 10680. | 19205. | 5540. | 4370. | 10355. | 21715. | 68579. |
| | | 3000 A | 2120. | 5505. | 4760. | 4685. | 18951. | 7195. | 7195. | 12835. | 21825. | 5590. | 4425. | 10910. | 24070. | 76874. |
| Copper | 3P, 3W■ | 1200 A | 1815. | 5025. | 4495. | 4325. | 15003. | 6885. | 6885. | 6940. | 14995. | 5500. | 4265. | 10230. | 16465. | 53499. |
| | | 1600 A | 2185. | 5445. | 4532. | 4330. | 15840. | 7000. | 7000. | 8360. | 16415. | 5515. | 4285. | 11070. | 18305. | 57384. |
| | | 2000 A | 2870. | 6300. | 4570. | 4615. | 18700. | 7115. | 7115. | 8825. | 17350. | 5525. | 4310. | 12620. | 20935. | 62494. |
| | | 2500 A | 3165. | 6755. | 4640. | 4695. | 19576. | 7320. | 7320. | 11160. | 20150. | 5540. | 4370. | 13325. | 23525. | 71284. |
| | | 3000 A | 4340. | 9180. | 4715. | 5493. | 22993. | 8840. | 8840. | 16120. | 25110. | 5590. | 4425. | 17115. | 29395. | 83604. |
| | | 4000 A | 6375. | 10875. | 6340. | 6426. | 26908. | 9085. | 9085. | 19690. | 28680. | 5640. | 4471. | 20605. | 36100. | 98519. |
| | | 5000 A | 6965. | 11825. | 7435. | 7519. | 29448. | 9330. | 9330. | 24950. | 34705. | 5740. | 4590. | 22880. | 42280. | 110539. |
| | | 6000 A | 8175. | 14275. | 10095. | 8797. | 34068. | 11065. | 11065. | 32315. | 42065. | 5840. | 4610. | 26715. | 51120. | 133414. |
| **15 kV** | | | | | | | | | | | | | | | | |
| Aluminum | 3P, 3W■ | 1200 A | 1445. | 4655. | 4495. | 4175. | 14596. | 6820. | 6820. | 6815. | 14870. | 5500. | 4280. | 9510. | 16035. | 70042. |
| | | 1600 A | 1550. | 4765. | 4570. | 4275. | 15092. | 6850. | 6850. | 8290. | 16815. | 5515. | 4305. | 9710. | 17590. | 74618. |
| | | 2000 A | 1745. | 5190. | 4640. | 4405. | 17479. | 7160. | 7160. | 8910. | 17900. | 5525. | 4345. | 10265. | 19865. | 82879. |
| | | 2500 A | 1900. | 5445. | 4690. | 4505. | 17772. | 7245. | 7245. | 10445. | 18970. | 5540. | 4410. | 10325. | 21525. | 89639. |
| | | 3000 A | 2205. | 5700. | 4760. | 4685. | 19165. | 7330. | 7330. | 13105. | 22095. | 5590. | 4485. | 11170. | 24405. | 102938. |
| Copper | 3P, 3W■ | 1200 A | 1850. | 5130. | 4495. | 4325. | 15118. | 6975. | 6975. | 7125. | 15180. | 5500. | 4280. | 10350. | 16660. | 70854. |
| | | 1600 A | 2225. | 5555. | 4570. | 4330. | 15961. | 7092. | 7092. | 8545. | 16600. | 5515. | 4305. | 11195. | 18505. | 76139. |
| | | 2000 A | 2915. | 6415. | 4640. | 4615. | 18827. | 7210. | 7210. | 9005. | 17535. | 5525. | 4345. | 12756. | 21140. | 83152. |
| | | 2500 A | 3220. | 6925. | 4690. | 4695. | 19763. | 7455. | 7455. | 11430. | 20420. | 5540. | 4410. | 13525. | 23825. | 95223. |
| | | 3000 A | 4385. | 9380. | 4760. | 5493. | 23213. | 8975. | 8975. | 16395. | 25385. | 5590. | 4485. | 17370. | 29725. | 111960. |
| | | 4000 A | 6435. | 11075. | 6340. | 6426. | 27128. | 9232. | 9232. | 19960. | 28950. | 5640. | 4685. | 20860. | 36435. | 132968. |
| | | 5000 A | 7305. | 12065. | 7435. | 7519. | 29712. | 9490. | 9490. | 25270. | 35025. | 5740. | 4900. | 23195. | 42680. | 150018. |
| | | 6000 A | 8955. | 14575. | 10095. | 8797. | 34398. | 11250. | 11250. | 32680. | 42430. | 5840. | 6540. | 27135. | 51605. | 181627. |

▲ Hangers, supports and heater prices not included. See page 12-18 for pricing.
■ Add 30% for 3Ø4W (half-neutral): add 45% for 3Ø4W (full-neutral).



© 2012 Schneider Electric
All Rights Reserved

## Space Heaters/Thermostats

Space heaters must be priced for all weatherproof applications. One heater should be priced for every 7 feet of outdoor bus. If a thermostat is specified to control the heaters, at least one should be priced for each bus run. No more than 20 heaters can be controlled by each thermostat.

### Table 12.43: Thermostats/Space Heaters

| Description | $ Price Each |
|---|---|
| Thermostat | **800.00** |
| 120 V, 125 W space heater (240 V, 500 W rated) | **680.00** |

## Hangers/Supports

Hangers and supports are not included in prices on page 12-17. Price one indoor hanger for every 10 feet (maximum) of indoor bus and one outdoor support for every 12 feet (maximum) of outdoor bus (if required).

### Table 12.44: Hangers/Supports

| Support Description | Maximum Height | $ Price Each |
|---|---|---|
| Indoor Trapeze Hanger | — | **820.00** |
| Outdoor, Single Column Support | 6 feet<br>8 feet<br>10 feet<br>12 feet | **5709.00**<br>**6524.00**<br>**7340.00**<br>**8155.00** |
| Outdoor, Double Column Support | 14 feet<br>16 feet<br>18 feet<br>20 feet<br>22 feet | **14995.00**<br>**16495.00**<br>**17994.00**<br>**19494.00**<br>**20993.00** |

## Construction Options

### Table 12.45: Momentary (Asymmetrical Short Circuit) Ratings

| Voltage Class | Amperes | $ Price Per Foot ♦ Multiplier |
|---|---|---|
| 600 V | 75 KA<br>100 KA<br>150 KA | Standard<br>1.25<br>1.50 |
| 5 kV | 60 KA<br>80 KA<br>100 KA | Standard<br>1.05<br>1.25 |
| 15 kV | 60 KA<br>80 KA<br>100 KA<br>150 KA | Standard<br>1.05<br>1.25<br>1.50 |

♦ Include base price (page 12-17) plus all options.

### Table 12.46: Bus Enclosures

| Material and Finish | Per Foot $ Price Adder |
|---|---|
| Painted Aluminum (1/8" Nominal) | **Standard** |
| Painted 14 Gauge Steel | **680.00** |
| Painted 11 Gauge Steel | **800.00** |
| Unpainted 14 Gauge 304 Stainless Steel | **1600.00** |
| Unpainted 14 Gauge 316 Stainless Steel | **2160.00** |





© 2012 Schneider Electric
All Rights Reserved

## Miscellaneous Terminating Accessories

Miscellaneous terminating accessory prices should be added only if not already included in the price of the termination (see pricing instruction for further information).

### Table 12.47: Bushing Stud Connectors (Lug Pads)★

| Amperes | $ Price Each |
|---|---|
| 1200 A | **5607.00** |
| 1600 A | **5904.00** |
| 2000 A | **6315.00** |
| 2500 A | **7221.00** |
| 3000 A | **8202.00** |
| 4000 A | **9528.00** |

★ If not included on terminating equipment.

### Table 12.48: Flexible Connectors

| Voltage Class | $ Price Per Three Phase Connection▼ | | | | | |
|---|---|---|---|---|---|---|
| | 1200 A | 1600 A | 2000 A | 2500 A | 3000 A | 4000 A |
| 600 V | **7550.00** | **9175.00** | **10045.00** | **12425.00** | **16705.00** | **22245.00** |
| 5 kV | **7706.00** | **9300.00** | **10155.00** | **12535.00** | **16890.00** | **22440.00** |
| 15 kV | **7922.00** | **9405.00** | **10265.00** | **12705.00** | **17085.00** | **22635.00** |

▼ Add 45% for 3Ø4W (100%) connection. Add 30% for 3Ø4W (50%).

### Table 12.49: Terminal Boxes

| Box Size | 11 Gauge Steel | 3/16" Aluminum |
|---|---|---|
| 3' x 2' x 3' | **8350.00** | **11690.00** |
| 3' x 3' x 4' | **9895.00** | **13853.00** |
| 4' x 3' x 4' | **11195.00** | **15673.00** |
| 4' x 4' x 5' | **11935.00** | **16709.00** |
| 5' x 4' x 5' | **12740.00** | **17836.00** |
| 5' x 5' x 5' | **14020.00** | **19628.00** |

### Table 12.50: Miscellaneous Additions

| Description | $ Price |
|---|---|
| **PVC insulating boots:** (optional)▲ | |
| Splice (joint) (3Ø3W) | **2000.00** |
| Termination (3Ø3W) | **2000.00** |
| **Wall Flange:** (optional) (in addition to wall entrance seal) | |
| Aluminum | **1750.00** |
| 14 Gauge Steel | **1250.00** |
| 14 Gauge 304 Stainless Steel | **2000.00** |
| 14 Gauge 316 Stainless Steel | **2600.00** |
| **Optional Conductor Support** | |
| High Alumina Porcelain■ | **1150.00** |
| **Flexible Housing (Misalignment) Collar** (optional) | **3560.00** |

▲ Add 45% for 3Ø4W (100%) connection. Add 30% for 3Ø4W (50%).
■ Per foot



© 2012 Schneider Electric
All Rights Reserved

## Powerbus Plug-in Units With Metering

Powerbus plug-in units with metering are rated maximum 100 A and are offered as factory assembled units. All units conform to NEMA type 1.

### Table 12.51: Factory Assembled Units with Metering

One (1) ED circuit breaker, one (1) drop cord with connector▲, and one (1) PM5350 meter

| Circuit Breaker | | NEMA Connector | Drop Cord Length (ft) | 4A Configuration | | 5A Configuration | | 5B Configuration | |
|---|---|---|---|---|---|---|---|---|---|
| Rating | Poles | | | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 15 A | 1 | L5-15 | 3 | PBPEDU4A100COOL515M( ) | **1961.00** | PBPEDU5A100COOL515M( ) | **2061.00** | PBPEDU5B100COOL515M( ) | **2061.00** |
| 20 A | 1 | L5-20 | 3 | PBPEDU4A100COOL520M( ) | **1971.00** | PBPEDU5A100COOL520M( ) | **2071.00** | PBPEDU5B100COOL520M( ) | **2071.00** |
| 30 A | 1 | L5-30 | 3 | PBPEDU4A100COOL530M( ) | **1986.00** | PBPEDU5A100COOL530M( ) | **2086.00** | PBPEDU5B100COOL530M( ) | **2086.00** |
| 15 A | 2 | L6-15 | 3 | PBPEDU4A100COOL615M( ) | **2268.00** | PBPEDU5A100COOL615M( ) | **2368.00** | PBPEDU5B100COOL615M( ) | **2368.00** |
| 20 A | 2 | L6-20 | 3 | PBPEDU4A100COOL620M( ) | **2278.00** | PBPEDU5A100COOL620M( ) | **2378.00** | PBPEDU5B100COOL620M( ) | **2378.00** |
| 30 A | 2 | L6-30 | 3 | PBPEDU4A100COOL630M( ) | **2293.00** | PBPEDU5A100COOL630M( ) | **2393.00** | PBPEDU5B100COOL630M( ) | **2393.00** |
| 20 A | 3 | L21-20 | 3 | PBPEDU4A100COOL2120M( ) | **2482.00** | PBPEDU5A100COOL2120M( ) | **2582.00** | PBPEDU5B100COOL2120M( ) | **2582.00** |
| 30 A | 3 | L21-30 | 3 | PBPEDU4A100COOL2130M( ) | **2497.00** | PBPEDU5A100COOL2130M( ) | **2597.00** | PBPEDU5B100COOL2130M( ) | **2597.00** |
| 15 A | 1 | L5-15 | 6 | PBPEDU4A100FOOL515M( ) | **2021.00** | PBPEDU5A100FOOL515M( ) | **2121.00** | PBPEDU5B100FOOL515M( ) | **2121.00** |
| 20 A | 1 | L5-20 | 6 | PBPEDU4A100FOOL520M( ) | **2031.00** | PBPEDU5A100FOOL520M( ) | **2131.00** | PBPEDU5B100FOOL520M( ) | **2131.00** |
| 30 A | 1 | L5-30 | 6 | PBPEDU4A100FOOL530M( ) | **2046.00** | PBPEDU5A100FOOL530M( ) | **2146.00** | PBPEDU5B100FOOL530M( ) | **2146.00** |
| 15 A | 2 | L6-15 | 6 | PBPEDU4A100FOOL615M( ) | **2328.00** | PBPEDU5A100FOOL615M( ) | **2428.00** | PBPEDU5B100FOOL615M( ) | **2428.00** |
| 20 A | 2 | L6-20 | 6 | PBPEDU4A100FOOL620M( ) | **2338.00** | PBPEDU5A100FOOL620M( ) | **2438.00** | PBPEDU5B100FOOL620M( ) | **2438.00** |
| 30 A | 2 | L6-30 | 6 | PBPEDU4A100FOOL630M( ) | **2353.00** | PBPEDU5A100FOOL630M( ) | **2453.00** | PBPEDU5B100FOOL630M( ) | **2453.00** |
| 20 A | 3 | L21-20 | 6 | PBPEDU4A100FOOL2120M( ) | **2542.00** | PBPEDU5A100FOOL2120M( ) | **2642.00** | PBPEDU5B100FOOL2120M( ) | **2642.00** |
| 30 A | 3 | L21-30 | 6 | PBPEDU4A100FOOL2130M( ) | **2557.00** | PBPEDU5A100FOOL2130M( ) | **2657.00** | PBPEDU5B100FOOL2130M( ) | **2657.00** |

Note: See Digest Section 9 for ED circuit breaker information. Catalog numbers shown have the breaker in the top slot in the front cover and the drop cord in the left position in the base of the unit. Other combinations are available. The Power Meter display will be located below the breaker specs.
For remote monitoring capabilities, an EGX gateway is required. The EGX is located in the tap box with metering or in a separate EGX plug-in unit listed below. The units with metering can be daisy-chained together back to the EGX gateway. A maximum of 30 units should be daisy-chained together to one EGX.

▲ Factory assembled units are availalbe using combinations of 1P/2P/3P circuit breakers with other NEMA and IEC type receptacles. Maximum of three drop cords with three breaker spaces available. Consult your local Schneider Electric representative.

### Table 12.52: EGX Plug-in Unit (480 V Max)

| 4A Configuration | | 5A Configuration | | 5B Configuration | |
|---|---|---|---|---|---|
| Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| PBPEGX4A100T | **2687.00** | PBPEGX5A100T | **2787.00** | PBPEGX5B100T | **2787.00** |

Note: For remote monitoring capabilities, an EGX gateway is required. The EGX is located in the tap box with metering or in a separate EGX plug-in unit listed above. Units with metering can be daisy-chained together back to the EGX gateway. A maximum of 30 units should be daisy-chained together to one EGX.

### Table 12.53: NEMA Receptacles and Connectors

| Wring | Voltage | NEMA Non-Locking | | | NEMA Locking | | |
|---|---|---|---|---|---|---|---|
| | | 15 A | 20 A | 30 A | 15 A | 20 A | 30 A |
| 2-pole, 3-wire grounding | 120 | 5–15 | 5–20 | 5–30 | L5–15 | L5–20 | L5–30 |
| 2-pole, 3-wire grounding | 240 | 6–15 | 6–20 | 6–30 | L6–15 | L6–20 | L6–20 |
| 3-pole, 4-wire grounding | 120/240 | 14–15 | 14–20 | 14–30 | — | L14–20 | L14–30 |
| 3-pole, 4-wire grounding | 3Ø 240 | 15–15 | 15–20 | 15–30 | — | L15–20 | L15–30 |
| 4-pole, 5-wire grounding | 3ØY 120/208 | — | — | — | — | L21–20 | L21–30 |

Note: Additional NEMA and IEC type receptacles and connectors are available.

| Meter Suffix | System Voltage |
|---|---|
| 1 | 208Y/120 V 3Ø4W |
| 2 | 240 V 3Ø3W |
| 4 | 415/240 V 3Ø4W |
| 5 | 480Y/277 V 3Ø4W |

Note: Replace ( ) in above table with the appropriate meter suffix number. Connectors must be rated for appropriate voltages.





© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 13
## Wire Management

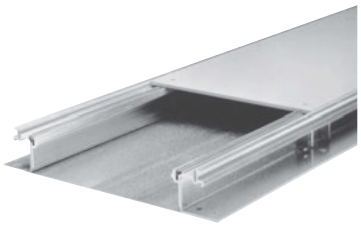




Wireway pp. **13-2**



Wall Duct pp. **13-4**



Trench Duct pp. **13-5**


### Wireway

| | |
|---|---|
| General Purpose Wireway | **13-2** |
| Oiltight Wireway | **13-3** |
| Raintight Wireways | **13-3** |
| Raintight Troughs | **13-3** |

### Wall Duct

| | |
|---|---|
| General Description | **13-4** |
| Components and Accessories | **13-4, 13-5** |

### Trench Duct

| | |
|---|---|
| General Description | **13-5** |
| Straight Sections and Fittings | **13-6** |
| Accessories and Components | **13-6** |


SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric

## General Purpose—NEMA Type 1

### Standards

Square-Duct wireway is Underwriters Laboratories listed as steel enclosed wireway and auxiliary gutter. CSA listing is also available.

### Sizes

2-1/2", 4", and 6" sizes are manufactured from 16 gauge steel. Straight lengths are available with or without knockouts. Knockouts are of various sizes in sides and bottom of wireway. 8", 10", and 12" sizes are made of 14 gauge steel and are furnished without knockouts.



Painted Hinge-Cover★
Type LDB—ANSI 49 Gray
Polyester Powder Finish

**Table 13.1: (Connectors not supplied; order separately▲)**

| Component | 2-1/2" x 2-1/2" | | | 4" x 4" | | | 6" x 6" | | | 8" x 8" | | 10" x 10" | | 12" x 12"★ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Catalog Number | | | Catalog Number | | | Catalog Number | | | Cat. No. | | Cat. No. | | Cat. No. | |
| | With Knockouts | Without Knockouts | $ Price | With Knockouts | Without Knockouts | $ Price | With Knockouts | Without Knockouts | $ Price | Without Knockouts | $ Price | Without Knockouts | $ Price | Without Knockouts | $ Price |
| 1' Length | LDB21KO | LDB21 | 24.00 | LDB41KO | LDB41 | 26.10 | LDB61KO | LDB61 | 48.20 | LDB81 | 76.00 | LDB101 | 97.00 | LDB121 | 107.00 |
| 2' Length | LDB22KO | LDB22 | 34.80 | LDB42KO | LDB42 | 38.50 | LDB62KO | LDB62 | 59.00 | LDB82 | 116.00 | LDB102 | 160.00 | LDB122 | 206.00 |
| 3' Length | LDB23KO | LDB23 | 44.20 | LDB43KO | LDB43 | 54.00 | LDB63KO | LDB63 | 84.00 | LDB83 | 177.00 | LDB103 | 226.00 | LDB123 | 308.00 |
| 4' Length | LDB24KO | LDB24 | 61.00 | LDB44KO | LDB44 | 75.00 | LDB64KO | LDB64 | 111.00 | LDB84 | 215.00 | LDB104 | 294.00 | LDB124 | 371.00 |
| 5' Length | LDB25KO | LDB25 | 75.00 | LDB45KO | LDB45 | 80.00 | LDB65KO | LDB65 | 120.00 | LDB85 | 240.00 | LDB105 | 362.00 | LDB125 | 427.00 |
| 6' Length | — | — | — | LDB46KO | LDB46 | 96.00 | LDB66KO | LDB66 | 151.00 | LDB86 | 284.00 | LDB106 | 428.00 | — | — |
| 10' Length | LDB210KO | LDB210 | 151.00 | LDB410KO | LDB410 | 167.00 | LDB610KO | LDB610 | 284.00 | LDB810 | 507.00 | LDB1010 | 693.00 | LDB1210 | 882.00 |
| 90° L | — | LDB290L | 54.00 | — | LDB490L | 61.00 | — | LDB690L | 69.00 | LDB890L | 111.00 | LDB1090L | 158.00 | LDB1290L | 202.00 |
| 90° Sweep L | — | LDB290LS | 95.00 | — | LDB490LS | 107.00 | — | LDB690LS | 155.00 | LDB890LS | 200.00 | LDB1090LS | 308.00 | LDB1290LS | 410.00 |
| 45° L | — | LDB245L | 54.00 | — | LDB445L | 66.00 | — | LDB645L | 69.00 | LDB845L | 111.00 | LDB1045L | 158.00 | LDB1245L | 202.00 |
| Tee | — | LDB2T | 62.00 | — | LDB4T | 75.00 | — | LDB6T | 84.00 | LDB8T | 155.00 | LDB10T | 206.00 | LDB12T | 292.00 |
| Junction Box | — | LDB2J | 69.00 | — | LDB4J | 84.00 | — | LDB6J | 104.00 | LDB8J | 164.00 | LDB10J | 208.00 | LDB12J | 292.00 |
| Telescope Ftg. | — | LDB2TF | 101.00 | — | LDB4TF | 111.00 | — | LDB6TF | 131.00 | LDB8TF | 218.00 | LDB10TF | 271.00 | LDB12TF | 317.00 |
| Connector▲ | — | LDB2C | 7.70 | — | LDB4C | 9.50 | — | LDB6C | 11.40 | LDB8C | 23.10 | LDB10C | 33.60 | LDB12C | 46.30 |
| Drop/Brkt Hgr. | — | LDB2H | 14.80 | — | LDB4H | 17.10 | — | LDB6H | 30.80 | LDB8H | 44.60 | LDB10H | 75.00 | LDB12H | 118.00 |
| Support Hanger | — | LDB2SH | 9.20 | — | LDB4SH | 12.60 | — | LDB6SH | 22.10 | LDB8SH | 31.50 | LDB10SH | 43.10 | LDB12SH | 58.00 |
| Closing Plate | LDB2CPKO | LDB2CP | 7.70 | LDB4CPKO | LDB4CP | 9.50 | LDB6CPKO | LDB6CP | 11.40 | LDB8CP■ | 15.50 | LDB10CP■ | 25.20 | LDB12CP■ | 34.80 |
| Panel Adapter | — | LDB2A | 23.00 | — | LDB4A | 27.10 | — | LDB6A | 35.40 | LDB8A | 48.20 | LDB10A | 71.00 | LDB12A | 80.00 |
| Open Adapter | — | LDB2OA | 30.50 | — | LDB4OA | 45.20 | — | LDB6OA | 59.00 | LDB8OA | 74.00 | LDB10OA | 108.00 | LDB12OA | 142.00 |
| Reducer | — | — | — | — | LDB42R | 39.80 | — | LDB64R | 69.00 | LDB86R | 80.00 | LDB108R | 100.00 | LDB1210R | 109.00 |
| | — | — | — | — | — | — | — | — | — | — | — | — | — | LDB128R | 116.00 |
| Adapter to "LD"♦ | — | LDB2GASK | 23.00 | — | LDB4GAS | 29.10 | — | LDB6GAS | 36.50 | LDB8GASK | 44.20 | LDB10GASK | 88.00 | — | — |
| Barrier Kit—5 ft. long w/hardware | — | — | — | — | LJB45B | 34.80 | — | LJB65B | 70.00 | LJB85B | 87.00 | — | — | — | — |
| 5 pc. Barrier Pack—5 ft. long | — | — | — | — | LJB45BKM | 79.00 | — | LJB65BKM | 120.00 | — | — | — | — | — | — |
| 5 pc. Barrier Bracket—2 compartment | — | — | — | — | LJB4BB2C | 23.10 | — | LJB6BB2C | 80.00 | — | — | — | — | — | — |
| 5 pc. Barrier Bracket—3 compartment | — | — | — | — | LJB4BB3C | 49.40 | — | LJB6BB3C | 96.00 | — | — | — | — | — | — |

▲ Add connectors for all lengths and fittings, except closing plates, reducers, and adapters.
■ These closing plates also available with knockout. Add "KO" to cat #; price is the same.
♦ Adapters to competitors' wireways also available. Contact your nearest Schneider Electric sales office for price and availability.
★ Painted 12" x 12" wireway is not furnished with hinge-cover (screw-cover only).

**NOTE:** For wireway fill information, see NEC 376.



© 2012 Schneider Electric
All Rights Reserved

## Oiltight—NEMA Type 12

**Type LJB** Oiltight lay-in wireway is fully gasketed and used to protect runs of electrical wiring from oil, water, coolants, dirt, or dust as well as physical damage. This wireway is manufactured to exceed oiltight and NFPA standards for industrial control equipment.



Lengths and fittings are made of 14 gauge steel with 10 gauge end flanges. Straight lengths and fittings have hinged covers with oil resistant gasket all around and are held closed with pull-down latches. All lengths and fittings are without knockouts. Type LJB lay-in Wireway is finished with ANSI-49 gray polyester powder finish over a corrosion resistant phosphate preparation. All Type LJB oiltight wireway is UL listed as steel enclosed wireway and auxiliary gutter. Conforms to NEMA Type 12.

**Table 13.2: Type LJB Lay-in■**

| Description | 2-1/2" x 2-1/2" | | 4" x 4" | | 6" x 6" | | 8" x 8" | | 12" x 6" | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| 1" Nipple | LJB201 | 74.00 | LJB401 | 76.00 | LJB601 | 95.00 | — | — | — | — |
| 2" Nipple | LJB202 | 80.00 | LJB402 | 81.00 | LJB602 | 100.00 | — | — | — | — |
| 3" Nipple | LJB203 | 84.00 | LJB403 | 85.00 | LJB603 | 106.00 | — | — | — | — |
| 6" Length | LJB206 | 92.00 | LJB406 | 99.00 | LJB606 | 123.00 | LJB806 | 170.00 | LJB12606 | 251.00 |
| 1' Length | LJB21 | 99.00 | LJB41 | 110.00 | LJB61 | 135.00 | LJB81 | 202.00 | LJB1261 | 325.00 |
| 2' Length | LJB22 | 129.00 | LJB42 | 135.00 | LJB62 | 184.00 | LJB82 | 271.00 | LJB1262 | 518.00 |
| 3' Length | LJB23 | 147.00 | LJB43 | 168.00 | LJB63 | 230.00 | LJB83 | 330.00 | LJB1263 | 624.00 |
| 4' Length | LJB24 | 186.00 | LJB44 | 201.00 | LJB64 | 280.00 | LJB84 | 391.00 | LJB1264 | 741.00 |
| 5' Length | LJB25 | 201.00 | LJB45 | 227.00 | LJB65 | 332.00 | LJB85 | 452.00 | LJB1265 | 846.00 |
| 10' Length▲ | LJB210 | 352.00 | LJB410 | 439.00 | LJB610 | 637.00 | LJB810 | 842.00 | LJB12610 | 1523.00 |
| 45° Top Opening | LJB245LT | 201.00 | LJB445LT | 182.00 | LJB645LT | 234.00 | LJB845LT | 332.00 | LJB12645LT | 410.00 |
| 45° Inside Opening | LJB245LI | 159.00 | LJB445LI | 182.00 | LJB645LI | 234.00 | LJB845LI | 332.00 | — | — |
| 45° Outside Opening | LJB245LO | 159.00 | LJB445LO | 182.00 | LJB645LO | 234.00 | LJB845LO | 332.00 | — | — |
| 90° Inside Opening | LJB290LI | 159.00 | LJB490LI | 182.00 | LJB690LI | 234.00 | LJB890LI | 332.00 | LJB12690LI | 410.00 |
| 90° Outside Opening | LJB290LO | 159.00 | LJB490LO | 182.00 | LJB690LO | 234.00 | LJB890LO | 332.00 | LJB12690LO | 410.00 |
| 90° Outside Top Opening | — | — | LJB490LOT | 182.00 | LJB690LOT | 234.00 | LJB890LOT | 332.00 | — | — |
| 90° Top Opening | LJB290LT | 159.00 | LJB490LT | 182.00 | LJB690LT | 234.00 | LJB890LT | 332.00 | LJB12690LT | 410.00 |
| Tee—Top Opening | LJB2TT | 188.00 | LJB4TT | 238.00 | LJB6TT | 285.00 | LJB8TT | 365.00 | LJB126TT | 572.00 |
| Tee—Outside Opening | LJB2TO | 221.00 | LJB4TO | 273.00 | LJB6TO | 328.00 | LJB8TO | 421.00 | — | — |
| Cross | LJB2X | 259.00 | LJB4X | 318.00 | LJB6X | 383.00 | LJB8X | 530.00 | LJB126X | 683.00 |
| Junction Box | LJB2JB | 247.00 | LJB4JB | 289.00 | LJB6JB | 351.00 | LJB8JB | 431.00 | — | — |
| Telescopic Fitting | LJB2TF | 144.00 | LJB4TF | 155.00 | LJB6TF | 177.00 | LJB8TF | 257.00 | LJB126TF | 464.00 |
| Closing Plate | LJB2CP | 29.70 | LJB4CP | 32.80 | LJB6CP | 43.40 | LJB8CP | 61.00 | LJB126CP | 81.00 |
| Panel Adapter | LJB2A | 29.00 | LJB4A | 39.80 | LJB6A | 47.80 | LJB8A | 76.00 | LJB126A | 107.00 |
| Bracket Hanger | LJB2BH | 15.50 | LJB4BH | 18.80 | LJB6BH | 25.10 | LJB8BH | 66.00 | — | — |
| Drop Hanger | LJB2DH | 19.20 | LJB4DH | 25.10 | LJB6DH | 39.50 | LJB8DH | 75.00 | — | — |
| Extra Connector Kit■ | LJB2C | 21.20 | LJB4C | 27.10 | LJB6C | 29.10 | LJB8C | 38.50 | LJB126C | 46.30 |
| 90° Connector | LJB290C | 21.20 | LJB490C | 27.10 | LJB690C | 29.10 | LJB890C | 38.50 | LJB12690C | 79.00 |
| Reducer to 2" | — | — | LJB42R | 97.00 | — | — | — | — | — | — |
| Reducer to 4" | — | — | — | — | LJB64R | 132.00 | — | — | LJB1264R | 144.00 |
| Reducer to 6" | — | — | — | — | — | — | LJB86R | 167.00 | LJB1266R | 144.00 |
| Cut-off fitting—not Lay-in | LJB2CF | 84.00 | LJB4CF | 100.00 | LJB6CF | 124.00 | LJB8CF | 181.00 | LJB126CF | 211.00 |
| Cut-off fitting—Lay-in | LJB2CFL | 150.00 | LJB4CFL | 166.00 | LJB6CFL | 190.00 | LJB8CFL | 266.00 | LJB126CFL | 318.00 |
| Transposition Fitting—CCW (Str) | LJB21CCW | 159.00 | LJB41CCW | 177.00 | LJB61CCW | 234.00 | — | — | — | — |
| Transposition Fitting—CW (Str) | LJB21CW | 140.00 | LJB41CW | 177.00 | LJB61CW | 211.00 | — | — | — | — |
| Transposition Elbow—CCW | LJB290LCCW | 159.00 | LJB490LCCW | 182.00 | LJB690LCCW | 234.00 | LJB890LCCW | 315.00 | — | — |
| Transposition Elbow—CW | LJB290LCW | 159.00 | LJB490LCW | 182.00 | LJB690LCW | 234.00 | LJB890LCW | 315.00 | — | — |
| Swivel fitting—Wireway to Wireway | LJB2S | 171.00 | LJB4S | 184.00 | LJB6S | 254.00 | LJB8S | 340.00 | — | — |
| Swivel fitting—Wireway to Box | LJB2SB | 171.00 | LJB4SB | 184.00 | LJB6SB | 254.00 | LJB8SB | 340.00 | — | — |
| Flex Fitting—Feed Through | LJB2FF | 212.00 | LJB4FF | 299.00 | LJB6FF | 385.00 | LJB8FF | 418.00 | — | — |
| Barrier Kit—5 ft. long w/hardware | — | — | LJB45B | 34.80 | LJB65B | 70.00 | LJB85B | 87.00 | LJB65B | 70.00 |
| 5 pc. Barrier Pack—5 ft. long | — | — | LJB45BKM | 79.00 | LJB65BKM | 120.00 | — | — | — | — |
| 5 pc. Barrier Bracket—2 compartment | — | — | LJB4BB2C | 23.10 | LJB6BB2C | 80.00 | — | — | — | — |
| 5 pc. Barrier Bracket—3 compartment | — | — | LJB4BB3C | 49.40 | LJB6BB3C | 99.00 | — | — | — | — |

▲ 10 foot straight lengths UL listed for up to 10 foot hanger spacing.

■ Connector kit furnished with each length and fitting.

## Raintight Wireway—NEMA Type 3R

**Outdoor raintight** wireway is used to protect electrical wiring against rain, sleet, and physical damage. Unique drip shield cover protects wiring from weather and maintains the "lay-in" feature for ease of wiring installation. Lengths and fittings are constructed of 16 gauge galvanized steel with ANSI-49 gray polyester powder finish over a corrosion resistant phosphate preparation. Underwriters Laboratories Listed as steel enclosed wireway and auxiliary gutter *(horizontal mounting only)*. Conforms to NEMA Type 3R.

**Table 13.3: Raintight Wireway**

| Description▲ | 4" x 4" | | 6" x 6" | | 8" x 8" | |
|---|---|---|---|---|---|---|
| | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 1' Length | LDRB41M | 99.00 | LDRB61M | 150.00 | LDRB81M | 226.00 |
| 5' Length | LDRB45M | 198.00 | LDRB65M | 291.00 | LDRB85M | 474.00 |
| 10' Length | LDRB410M | 487.00 | LDRB610M | 641.00 | LDRB810M | 641.00 |
| 90° L | LDRB490L | 148.00 | LDRB690L | 198.00 | LDRB890L | 278.00 |
| 30° Sweep L | LDRB430SE | 302.00 | LDRB630SE | 431.00 | LDRB830SE | 546.00 |
| Tee | LDRB4T | 186.00 | LDRB6T | 347.00 | LDRB8T | 317.00 |
| Junction Box | LDRB4J | 257.00 | LDRB6J | 296.00 | LDRB8J | 439.00 |
| Panel Adapter | LDRB44A | 87.00 | LDRB66A | 88.00 | LDRB88A | 126.00 |
| Connector▲ | LDRB4C | 21.00 | LDRB6C | 31.50 | LDRB8C | 42.00 |
| Closing Plate | LDRB4CP | 48.20 | LDRB6CP | 58.00 | LDRB8CP | 67.00 |
| Drop Hanger | LDRB4DH | 23.10 | LDRB6DH | 32.60 | LDRB8DH | 63.00 |
| Wall Hanger | LDRB4WH | 53.00 | LDRB6WH | 84.00 | LDRB8WH | 116.00 |
| Reducer | — | — | LDRB64R | 132.00 | LDRB86R | 164.00 |

▲ Add connectors for all lengths and fittings.

## Raintight Trough—NEMA Type 3R

Raintight trough is designed for ganging meter devices, panelboards, switches, and circuit breaker enclosures. Each length is a completely enclosed section with a removable cover that has provisions for sealing.

**Design:** 4" and 6" wireway is constructed of 16 gauge galvanized steel. 8", 10", and 12" wireway is constructed of 14 gauge galvanized steel. All raintight troughs conform to NEMA Type 3R.

**Finish:** ANSI-49 gray polyester powder finish over a corrosion resistant phosphate preparation. All raintight troughs are Underwriters Laboratories listed as steel enclosed wireway and auxiliary gutter *(horizontal mounting only)*.

**Table 13.4: Raintight Trough**

| Length | 4" x 4" | | 6" x 6" | | 8" x 8" | | 10" x 10" | | 12" x 12" | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| 1' | RDB41 | 84.00 | RDB61 | 109.00 | — | — | — | — | — | — |
| 2' | RDB42 | 120.00 | RDB62 | 162.00 | RDB82 | 215.00 | RDB102 | 289.00 | RDB122 | 366.00 |
| 3' | RDB43 | 151.00 | RDB63 | 212.00 | RDB83 | 287.00 | RDB103 | 382.00 | RDB123 | 440.00 |
| 4' | RDB44 | 188.00 | RDB64 | 266.00 | RDB84 | 360.00 | — | — | — | — |
| 5' | RDB45 | 224.00 | RDB65 | 318.00 | RDB85 | 427.00 | RDB105 | 527.00 | RDB125 | 626.00 |
| 6' | — | — | RDB66 | 372.00 | RDB86 | 589.00 | RDB106 | 632.00 | RDB126 | 673.00 |

© 2012 Schneider Electric
All Rights Reserved

## Class 5250—Wall Duct

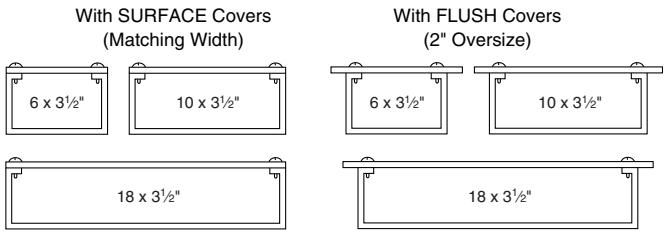
**UL Listed, File E65247, for Enclosure of Wiring to X-Ray Machines. Also available in aluminum for MRI application.**

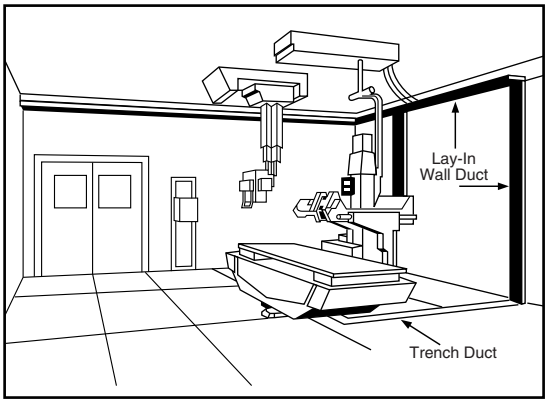
Wall duct is used as the continuation for standard trench duct in the floor. Wall duct can be routed up the wall and across the ceiling or under the finished floor (in ceiling space below) to provide a continuous lay-in raceway system from control consoles and floor equipment to overhead apparatus. Devices are furnished complete with covers and are available for either flush or surface mounted installations.

**General Notes:**

1. Standard construction is 14 gauge steel with gray electrodeposition paint. Alternate construction is painted aluminum.
2. Covers and coupling devices are furnished with each device.
3. Wire retainers are furnished with each device.
4. Straight lengths are field cut to length.
5. Partitions and tunnels are to be field modified and installed where required.
6. Hangers or other mounting devices to be furnished by others.






## Components and Accessories

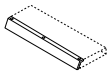

Horizontal Elbow


Edgewise Elbow

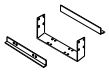

Tee


Cross

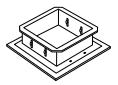

Flanged Cabinet Connector

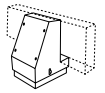

Wall Duct Dust Cover

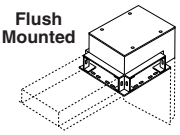

Sweep Edgewise Tee Kit


Edgewise Tee Kit


Reverse Edgewise Elbow


Ceiling Drop-out (Depth Adj. 4" to 7")


Sweep Edgewise Elbow Cabinet Connector


Flush Mounted

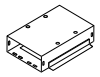

Surface Mounted

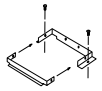
Sweep Edgewise Elbow

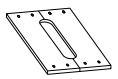

18" to 10" Reducer


Cabinet Connector


End Cap


Flush to Surface Adaptor


Floor Trench Vertical Elbow


Split Cover with Grommet


Sweep Wall Duct To Trench Duct Adaptor

**Table 13.5: Lay-In Wall Duct Components**

| Component | Flush Cover | | | Surface Cover | | |
|---|---|---|---|---|---|---|
| | Catalog Number | $ Price | Weight Lbs. | Catalog Number | $ Price | Weight Lbs. |
| 5'–0" Straight Length With Cover 6"W | RWT06S60 | **668.00** | 22.5 | RWT06S60S | **668.00** | 20.4 |
| 10"W | RWT10S60 | **668.00** | 39.2 | RWT10S60S | **668.00** | 36.4 |
| 18"W | RWT18S60 | **836.00** | 62.2 | RWT18S60S | **836.00** | 59.4 |
| 1'–6" Straight Length With Cover 6"W | RWT06S18 | **334.00** | 12.6 | RWT06S18S | **334.00** | 12.6 |
| 10"W | RWT10S18 | **334.00** | 16.4 | RWT10S18S | **334.00** | 16.3 |
| 18"W | RWT18S18 | **418.00** | 23.3 | RWT18S18S | **418.00** | 23.3 |
| Horizontal Elbow With Cover—90° 6"W | RWT06HE | **534.00** | 6.5 | RWT06HES | **534.00** | 6.0 |
| 10"W | RWT10HE | **534.00** | 9.3 | RWT10HES | **534.00** | 8.1 |
| 18"W | RWT18HE | **668.00** | 24.9 | RWT18HES | **668.00** | 23.7 |
| Horizontal Elbow With Cover—45° 6"W | — | — | — | RWT06HE45S | **534.00** | 6.0 |
| 10"W | — | — | — | RWT10HE45S | **534.00** | 8.1 |
| 18"W | — | — | — | RWT18HE45S | **668.00** | 23.7 |
| Edgewise Elbow With Cover 6"W | RWT06EE | **534.00** | 5.5 | RWT06EES | **534.00** | 5.5 |
| 10"W | RWT10EE | **534.00** | 7.5 | RWT10EES | **534.00** | 7.4 |
| 18"W | RWT18EE | **668.00** | 11.1 | RWT18EES | **668.00** | 11.0 |
| Tee With Cover 6"W | RWT06TE | **534.00** | 6.2 | RWT06TES | **534.00** | 5.9 |
| 10"W | RWT10TE | **534.00** | 8.5 | RWT10TES | **534.00** | 7.3 |
| 18"W | RWT18TE | **668.00** | 24.1 | RWT18TES | **668.00** | 22.9 |
| Cross With Cover 10"W | RWT10XE | **534.00** | 1.3 | RWT10XES | **534.00** | 6.2 |
| 18"W | RWT18XE | **668.00** | 1.8 | RWT18XES | **668.00** | 21.8 |
| Flanged Cabinet Connector With Cover 10"W | RWT10CUC | **334.00** | 8.0 | RWT10CUCS | **334.00** | 7.8 |
| Reverse Edgewise Elbow With Cover 6"W | RWT06REE | **534.00** | 5.8 | RWT06REES | **534.00** | 5.7 |
| 10"W | RWT10REE | **534.00** | 7.5 | RWT10REES | **534.00** | 7.4 |
| 18"W | RWT18REE | **668.00** | 11.1 | RWT18REES | **668.00** | 11.0 |
| Sweep Edgewise Elbow With Cover 6"W | — | | 10.0 | RWT06SSEES | **534.00** | 4.8 |
| 10"W | RWT10SFEE | **534.00** | 12.0 | RWT10SSEES | **534.00** | 11.8 |
| 18"W | RWT18SFEE | **668.00** | 16.5 | RWT18SSEES | **668.00** | 16.3 |
| Sweep Edgewise Elbow Cabinet Connector 10"W | — | — | — | RWT10SWEECC | **668.00** | 14.0 |
| 18"W | — | — | — | RWT18SWEECC | **878.00** | 20.0 |

Note: All devices available in aluminum. Add "A" suffix to the catalog number. Contact your local Schneider Electric sales office for pricing.



© 2012 Schneider Electric
All Rights Reserved

## Wall Duct Accessories

### Table 13.6: Lay-In Wall Duct Accessories

| Accessories | Catalog Number | $ Price | Weight Lbs. |
|---|---|---|---|
| 5'–0" Partition | RWTP60 | **100.00** | 5.4 |
| Straight through tunnel<br>for tees ▲ 10"W<br>18"W | <br>RWT10ST<br>RWT18ST | <br>**100.00**<br>**124.00** | <br>2.9<br>3.8 |
| 90° Elbow tunnel for crosses ▲ 10"W<br>18"W | RWT10ET<br>RWT18ET | **150.00**<br>**222.00** | 3.2<br>5.1 |
| 3 compartment tunnel for tees 10"W<br>18"W | RWT10PTE<br>RWT18PTE | **368.00**<br>**420.00** | 5.0<br>6.0 |
| 3 compartment tunnel for crosses 10"W<br>18"W | RWT10PXE<br>RWT18PXE | **526.00**<br>**630.00** | 8.0<br>9.0 |
| Edgewise Tee Kit 10"W<br>18"W | RWT10ETK<br>RWT18ETK | **150.00**<br>**222.00** | 1.3<br>2.1 |
| Sweep Edgewise Tee Kit 10"W<br>18"W | RWT10SWET<br>RWT18SWET | **822.00**<br>**990.00** | 8.0<br>8.0 |
| Flush to Surface Adaptor 10"W<br>18"W | RWT10FS<br>RWT18FS | **418.00**<br>**522.00** | 11.9<br>16.4 |
| Ceiling Drop-Out<br>12x12 Flush Cover 8"x8" | RWTCDO | **584.00** | 15.0 |
| Extra Coupling Device 10"W<br>18"W | RWT10COUP<br>RWT18COUP | **40.80**<br>**64.00** | .4<br>.5 |
| Extra Straight Cover—30" long<br>(Order 2 pcs. for 5 ft. of duct.)<br>Flush 10"W<br>18"W<br>Surface 10"W<br>18"W | <br><br>RWT10SCOV<br>RWT18SCOV<br>RWT10SCOVS<br>RWT18SCOVS | <br><br>**100.00**<br>**130.00**<br>**69.00**<br>**130.00** | <br><br>7.2<br>13.0<br>6.1<br>11.8 |

▲ Tunnels form a 3" wide compartment.

Note: All devices available in aluminum. Add "A" suffix to the catalog number. Contact your local Schneider Electric sales office for pricing.

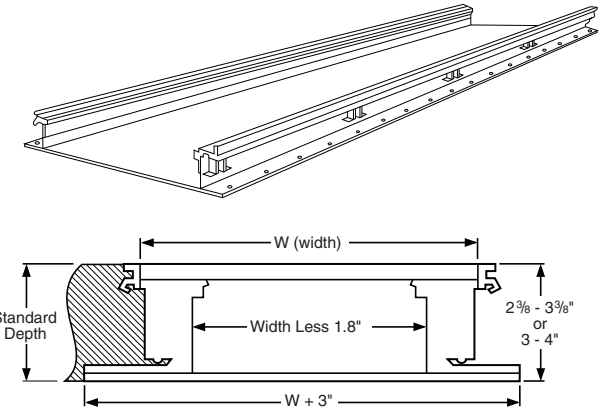
### Table 13.7: Wall Duct Accessories

| Accessories | Catalog Number | $ Price | Weight Lbs. |
|---|---|---|---|
| Reducer Coupling— 18" to 10"<br>10" to 6" | RWTRC<br>RWT06RC | **150.00**<br>**150.00** | 2.1<br>1.6 |
| Cabinet Connector 6"W<br>10"W<br>18"W | RWT06CC<br>RWT10CC<br>RWT18CC | **150.00**<br>**150.00**<br>**222.00** | 1.0<br>1.3<br>2.4 |
| End Cap 6"W<br>10"W<br>18"W | RWT06EC<br>RWT10EC<br>RWT18EC | **84.00**<br>**84.00**<br>**104.00** | 1.0<br>1.3<br>1.8 |
| Vertical Elbows for:<br>6" Trench to 6" Wall Duct<br>12" Trench to 10" Wall Duct<br>12" Trench to 18" Wall Duct<br><br>18" Trench to 10" Wall Duct<br>18" Trench to 18" Wall Duct | <br>RWT06FTVE06<br>RWT10FTVE12<br>RWT18FTVE12<br><br>RWT10FTVE18<br>RWT18FTVE18 | <br>**160.00**<br>**160.00**<br>**280.00**<br><br>**200.00**<br>**250.00** | <br><br>1.1<br>1.2<br><br>1.2<br>1.3 |
| Sweep Trench Duct to Wall Duct Adapter<br>(available in surface cover only)<br><br>12" Trench to 10" Wall Duct<br>18" Trench to 18" Wall Duct | <br><br>RWT10SWFTVE12<br>RWT18SWFTVE18 | <br><br>**348.00**<br>**522.00** | <br><br>10.0<br>14.0 |
| Split Cover with Grommet<br>12" long–3"x 8" Opening<br>Flush 6"W<br>10"W<br>18"W<br><br>Surface 6"W<br>10"W<br>18"W | <br><br>RWT06ACP<br>RWT10ACP<br>RWT18ACP<br><br>RWT06ACPS<br>RWT10ACPS<br>RWT18ACPS | <br><br>**94.00**<br>**94.00**<br>**104.00**<br><br>**74.00**<br>**74.00**<br>**93.00** | <br><br>2.6<br>3.1<br>4.8<br><br>2.0<br>2.7<br>4.0 |
| Dust Cover—5 ft. long | RWTDCOV60 | **150.00** | 5.5 |
| Grommet—100 ft. roll | RWTBG100 | **440.00** | |

Note: All devices available in aluminum. Add "A" suffix to the catalog number. Contact your local Schneider Electric sales office for pricing.

## Trench Duct

1. STANDARD LENGTH of trench duct is 10 ft. Gasketed cover plates are ordered and shipped separately.
2. FEATURES of trench duct:
   - —Trench duct width is cover plate width.
   - —Tub width is trench duct width less 1.8".
   - —Overall width (bottom flange to flange) is 3" wider than trench duct width.
   - —Standard depth is adjustable from 2-3/8" to 3-3/8". Also available as standard is depth adjustable from 3" to 4". To order, change "2" to "3". Ex. RSV063100120. Applies to trench duct, elbows, crosses, tees, and reducers. Same price as standard device. Other depths available.
   - —Tees, crosses, horizontal elbows, and reducers are shipped complete with cover plates assembled.
   - —Grey vinyl tile trim is furnished as standard. Aluminum is available when requested.
   - —All compartments over 17" wide must be supported with dividers or posts.
3. PRICES for additions and special features:
   - —For each foot of adjustable partition, add **$64.00** per foot of partition.
   - —For each 1" of depth beyond range of 3" to 4", add **$32.00** per foot of trench duct.
   - —For double tile trim on two sides of cover plate, ONLY add **$120.00** per foot of trench duct.
   - —For double tile trim on all four sides of cover plate, add **$400.00** per foot of trench duct.
   - —For support post, add **$64.00** per foot of trench duct for each row of posts required.




### Table 13.8: Assembled Trench Duct

All part numbers listed below are for 2 3/8"–3 3/8" deep, one compartment trench with vinyl tile trims.

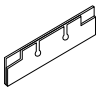
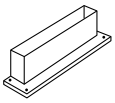
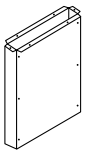
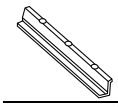
| Straight Sections | Trench Duct | | | | Complete Device | |
|---|---|---|---|---|---|---|
| | Length | Width | Catalog Number | $ Price | Per 10' Length | Per Foot |
| Full Length | 10'-0" | 6" | RSV062100120 | **1840.00** | **3240.00** | **324.00** |
| | | 9" | RSV092100120 | **1840.00** | **3240.00** | **324.00** |
| | | 12" | RSV122100120 | **2220.00** | **3920.00** | **392.00** |
| | | 18" | RSV182100120 | **2640.00** | **4740.00** | **474.00** |
| | | 24" | RSV242100120 | **3160.00** | **5660.00** | **566.00** |
| | | 30" | RSV302100120 | **3800.00** | **7100.00** | **710.00** |
| | **Covers Only (5 Plates per 10' Length)■** | | | | | |
| | 24" | 6" | RCP0624 | **280.00** | **3240.00** | **324.00** |
| | | 9" | RCP0924 | **280.00** | **3240.00** | **324.00** |
| | | 12" | RCP1224 | **340.00** | **3920.00** | **392.00** |
| | | 18" | RCP1824 | **420.00** | **4740.00** | **474.00** |
| | | 24" | RCP2424 | **500.00** | **5660.00** | **566.00** |
| | | 30" | RCP3024 | **660.00** | **7100.00** | **710.00** |
| | 12" | 12" | RCP1212 | **268.00** | — | — |
| | | 18" | RCP1812 | **334.00** | — | — |
| Factory Cut-to-Length (12" Wide Only) | 6'-0"L | 12" | RSV122100072 | **1654.00** | — | — |
| | 4'-3-1/2"L | 12" | RSV122100051.5 | **1102.00** | | |
| | 3'-3-1/2"L | 12" | RSV122100039.5 | **1102.00** | | |
| | 2'-0"L | 12" | RSV122100024 | **550.00** | | |
| | 1'-0"L | 12" | RSV122100012 | **550.00** | | |
| | 0'-3-1/2"L | 12" | RSV122100003.5 | **268.00** | | |
| | 3–24" Long Covers♦<br>2–24" Long Covers & 1 – Wall Duct Vertical Elbow♦<br>1–24" & 1–12" Long Cover & 1—Wall Duct Vertical Elbow♦<br>1–24" Long Cover♦<br>1–12" Long Cover♦<br>1–Wall Duct Vertical Elbow♦ | | | | All ordered separately | |

■ Straight length cover plates are shipped separately and must be ORDERED SEPARATELY.

♦ Covers and/or vertical elbows for connecting trench duct to lay-in wall duct—ORDER SEPARATELY.

© 2012 Schneider Electric
All Rights Reserved

### Table 13.9: Trench Duct Fittings

| Item | Width | Catalog No. | $ Price |
|---|---|---|---|
|  End Closures▲ | 6" | REC06 | **116.00** |
| | 9" | REC09 | **116.00** |
| | 12" | REC12 | **140.00** |
| | 18" | REC18 | **168.00** |
| | 24" | REC24 | **202.00** |
| | 30" | REC30 | **242.00** |
|  Vertical Elbows | 6" | RVE06 | **398.00** |
| | 9" | RVE09 | **398.00** |
| | 12" | RVE12 | **440.00** |
| | 18" | RVE18 | **570.00** |
| | 24" | RVE24 | **646.00** |
| | 30" | RVE30 | **762.00** |
|  Riser and Cabinet Connector (Removable Front) | 6" | RRC06 | **500.00** |
| | 9" | RRC09 | **500.00** |
| | 12" | RRC12 | **602.00** |
| | 18" | RRC18 | **722.00** |
| | 24" | RRC24 | **866.00** |
| | 30" | RRC30 | **1038.00** |
|  Z-Divider 5'-0"▲ Adjustable Barrier and Support Strip | | RZD60 | **252.00** |
| Tape for Trench Duct (180 ft. rolls) | | G1414 | **132.00** |
| Marker for Cellular Floor | | G1426 | **20.60** |

▲ For 3" to 4" trench duct, add a "3" to end of catalog number.

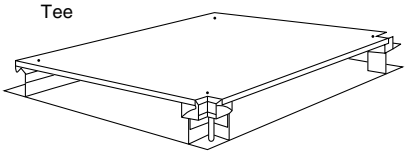
Note: All devices through 18" width are available in aluminum. Height is factory-set to customer specifications from 2-1/2 to 4 inches. (Non-Adjustable)

### Table 13.10: Trench Duct Elbows, Tees, and Crosses

| Item | Complete Device | | |
|---|---|---|---|
| | Width | Catalog Number | $ Price |
| 90° Horizontal▲ Elbows  | 6" | RHV062100009 | **1168.00** |
| | 9" | RHV092100012 | **1168.00** |
| | 12" | RHV122100015 | **1462.00** |
| | 18" | RHV182100021 | **1670.00** |
| | 24" | RHV242100027 | **2284.00** |
| | 30" | RHV302100033 | **2854.00** |
| 45° Horizontal Elbow▲ | 12" | RHV12245 | **1446.00** |
| Tees▲  | 6" | RTV062100011 | **1168.00** |
| | 9" | RTV092100014 | **1168.00** |
| | 12" | RTV122100017 | **1462.00** |
| | 18" | RTV182100023 | **1828.00** |
| | 24" | RTV242100029 | **2284.00** |
| | 30" | RTV302100035 | **2854.00** |
| Crosses▲  | 6" | RXV062100012 | **1670.00** |
| | 9" | RXV092100015 | **1670.00** |
| | 12" | RXV122100018 | **2086.00** |
| | 18" | RXV182100024 | **2610.00** |
| | 24" | RXV242100030 | **3262.00** |
| | 30" | RXV302100036 | **4076.00** |

▲ Includes cover; shipped attached.

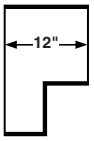
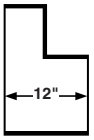
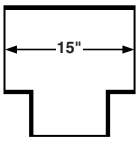
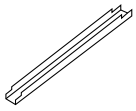
Tee

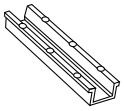
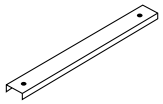
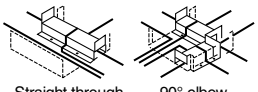


Note: All cover plate corner notches are 1-1/2" deep.

## Accessories and Components

### Table 13.11: Trench Duct Accessories

| Item/Catalog Number | | $ Price |
|---|---|---|
|  Right Hand Reducer 18" to 12" Cover Included | RRV182100012RR | **1670.00** |
|  Left Hand Reducer 18" to 12" Cover Included | RRV182100012LR | **1670.00** |
|  Reducing Tee 18" to 12" Cover Included | RTV182100017 | **1754.00** |
|  Spacer Bar and Barrier Adjustment Gage | 6" RSB06<br>9" RSB09<br>12" RSB12<br>18" RSB18<br>24" RSB24<br>30" RSB30 | **200.00**<br>**200.00**<br>**252.00**<br>**312.00**<br>**392.00**<br>**470.00** |

| Item/Catalog Number | | | $ Price |
|---|---|---|---|
|  | U-Compartment 5'-0" Long x 3 -1/2" Wide with Adjustable Height Sides | RUC60 | **500.00** |
|  Leveling Legs | 9" and 12" wide trench<br>18" and 24" wide trench<br>30" wide trench | G1500T12<br>G1500T24<br>G1500T36 | **84.00**<br>**84.00**<br>**84.00** |
| | Support Channel<br>Leveling Legs Not Included<br>5/16 x 18 x 3" | G19103 | **17.00** |
|  | Cover Lifter (Suction Cup Device) | G1735S | **836.00** |
| Tunnels for Trench Duct Elbows (Tee or Cross)  Straight through tunnel 90° elbow tunnel | 90° tunnel for 12" trench<br>90° tunnel for 18" trench<br>Straight tunnel for 12" trench<br>Straight tunnel for 18" trench | RSV122ET<br>RSV182ET<br>RSV122ST<br>RSV182ST | **200.00**<br>**280.00**<br>**116.00**<br>**118.00** |

### Table 13.12: Grommets

| | | |
|---|---|---|
| Grommet Material (50 ft. rolls) | RG50 | **152.00** |



© 2012 Schneider Electric
All Rights Reserved

# Section 14
# Transformers

Back to Product Index
Section Listing



General Purpose Transformer, see page 14-2



Sealed Transformer, see page 14-8



Industrial Control Transformer, see page 14-14



Mini Power-Zone™ Unit Substation, see page 14-12



Transformer Disconnect, see page 14-18


## General Purpose, Dry Type, 600 Volts and Below

Overview 14-2
EE Three-Phase Transformers 14-4
EE Single-Phase Transformers 14-5
EE Single- and Three-Phase, Watchdog™ Low Temperature Rise Transformers 14-5
EE NL and NLP Series Transformers 14-6
New! NEMA Premium Transformers 14-7
Sealed Single- and Three-Phase Transformers 14-8
Sealed Single-Phase, Export Model Transformers 14-8
Sealed Single-Phase, Buck and Boost Transformers 14-8
Sealed Single- and Three-Phase, Stainless Steel Enclosed Transformers 14-9
Non-Ventilated Single- and Three-Phase Transformers 14-9
New! Transformer Enclosures 14-9

## Miscellaneous

Enclosures and Accessories 14-10
Lug and Terminal Block Cover Kits; Weathershields; Wall and Ceiling Mounting Brackets 14-11

## Unit Substation, 600 Volts and Below

Sealed, Mini Power-Zone™ Unit Substations 14-12

## Industrial Control

Type T and Type TF Transformers 14-14
MultiTap™ Transformers 14-15
Accessories 14-17

## Transformer Disconnects

NEMA Type 1 and Type 12 Enclosures 14-18

## Instrument, 600 Volt Class

Voltage and Current Transformers 14-19

## Energy Efficient, Dry Type, 2.4, 5, and 15 kV

New! 1201–15,000 V, Three-Phase, Indoor Transformers 14-20
New! 1201–15,000 V, Single-Phase, Indoor Transformers 14-20




SQUARE D
by Schneider Electric
© 2011 Schneider Electric
All Rights Reserved

Schneider Electric

Public Law 109-58 of the Energy Policy Act of 2005 requires the manufacturing of energy efficient transformers after January 1, 2007 for all low-voltage distribution transformers.

According to Department of Energy Federal Registry Final Rule 10 CFR Part 429, 430, and 431, *Low-Voltage Dry-Type Distribution Transformers*, the efficiency of a low-voltage, dry-type, distribution transformer manufactured on or after January 1, 2007, shall be no less than that required for its kVA rating in the table below.

**Table 14.1: Required Efficiency Ratings of Low-Voltage Distribution Transformers**

| Single-Phase | | Three-Phase | |
|---|---|---|---|
| kVA | Efficiency (%) ▲ | kVA | Efficiency (%) ▲ |
| 15 | 97.7 | 15 | 97 |
| 25 | 98 | 30 | 97.5 |
| 37.5 | 98.2 | 45 | 97.7 |
| 50 | 98.3 | 75 | 98 |
| 75 | 98.5 | 112.5 | 98.2 |
| 100 | 98.6 | 150 | 98.3 |
| 167 | 98.7 | 225 | 98.5 |
| 250 | 98.8 | 300 | 98.6 |
| 333 | 98.9 | 500 | 98.7 |
| | | 750 | 98.8 |
| | | 1000 | 98.9 |

▲ Efficiencies are determined at the following reference conditions:
(1) for no-load losses, at the temperature of 20 °C;
(2) for load-losses, at the temperature of 75 °C and 35 percent of nameplate load.

(Source: Table 4–2 of National Electrical Manufacturers Association (NEMA) Standard TP–1–2002, *Guide for Determining Energy Efficiency for Distribution Transformers*.)

The following family of products meets these requirements.

### General Purpose, Three-Phase (15–2000 kVA) and Single-Phase (15–333 kVA)

General Purpose transformers provide the most economical solution.

- Aluminum or copper windings
- Isolation transformer
- 150 °C rise design on 220 °C insulation systems.

### Watchdog, Three-Phase (15–1500 kVA) and Single-Phase (15–333 kVA)

Watchdog transformers, by design, reduce energy consumption at loads greater than 50% loading, giving fewer BTUs/hour at those loading levels. The life expectancy is greater than that of 150 °C rise General Purpose units.

- Aluminum or copper windings
- Isolation transformer
- Two temperature rise options:
  - — 115 °C rise on 220 °C insulation systems (15% continuous emergency overload capacity)
  - — 80 °C rise on 220 °C insulation systems (30% continuous emergency overload capacity)

### K-Rated, Three-Phase (15–1000 kVA)

K-rated transformers mitigate Triplen harmonics via a Delta-Wye configuration.

- Aluminum or copper windings
- Isolation transformer with electrostatic shield
- K-4 and K-13 levels

### Harmonic Mitigating, Three-Phase (15–1000 kVA)

Harmonic Mitigating transformers mitigate Triplen harmonics via electromagnetic phase relations. They remove 5th and 7th harmonics when using dual devices with a 0° and a +30° phase shift. They further reduce 11th and 13th harmonics when a +15° or -15° shift is added to the dual devices. Available with:

- Aluminum or copper windings
- Isolation transformer

The following products are **not** included in the definition of Low Voltage, Dry-Type Distribution Transformers and are not required to comply with the efficiency table.

### Sealed, General Purpose, Three-Phase (3–30 kVA) and Single-Phase (.050–25 kVA)

Core and coils encapsulated in a sand and resin mixture allows for a more compact design.

- Copper windings
- Isolation transformer

### Non-Ventilated, Three-Phase (15–500 kVA) and Single-Phase (15–250 kVA)

Non-Ventilated transformers are designed to operate in harsh environmental conditions: dust, airborne contaminants, metal particles, or where weather conditions make ventilated openings impractical.

### Drive Isolation Transformers

Square D™ brand drive isolation transformers from Schneider Electric meet the special requirements for both adjustable frequency drives and dc motor drive power isolation. They cover the allowance for high surges, harmonics, and offset currents.

Drive isolation transformers are not shielded isolation transformers, but act to lessen transient generation into the supply power and act as a buffer for SCR current surges.

Available Voltages:

- Primary: 230 Delta, 460 Delta, 575 Delta
- Secondary: 230Y/133, 460Y/265, 5575Y/332

Available kVA:

- 7.5, 11, 15, 20, 27, 34, 40, 51, 63, 75, 93,118, 145, 175, 220, 275, 330, 440, 550 kVA

For part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.

### Motor Starting Auto Transformers

Auto transformers' design matches starter requirements.

- Open core and coil available
- Two-winding and three-winding
- Available in the following voltages:
  - — 208, 240, 480, or 600 V
- Available in the following horsepower:
  - — 10, 20, 30, 50, 75, 100, 125, 150, 200, 250, 300, 400 hp

For part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.

### IP00 Core and Coil Transformers

All Type 2 distribution devices are available as IP00 Core and Coil. These units are compliant with the 2005 Energy Act, as well as the excluded items.

For part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.



© 2011 Schneider Electric
All Rights Reserved

New!

### NEMA Premium

NEMA Premium is the only third-party standard that defines a complete range of efficiency levels that exceeds 2005 Energy Act requirements.

As a partner in the NEMA Premium Transformer Program, Schneider Electric has determined that this product meets the NEMA Premium efficiency specifications for premium energy efficiency.

**NOTE:** NEMA Premium is a trademark of the National Electrical Manufacturers Association.

**Table 14.2: Efficiency Ratings of NEMA Premium Transformers**

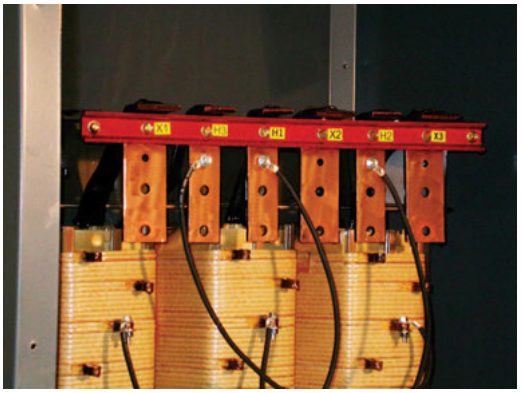
| Single phase | | Three phase | |
|---|---|---|---|
| kVA | Efficiency (%) | kVA | Efficiency (%) |
| 15 | 98.39 | 15 | 97.90 |
| 25 | 98.60 | 30 | 98.25 |
| 37.5 | 98.74 | 45 | 98.39 |
| 50 | 98.81 | 75 | 98.60 |
| 75 | 98.95 | 112.5 | 98.74 |
| 100 | 99.02 | 150 | 98.81 |
| 167 | 99.09 | 225 | 98.95 |
| 250 | 99.16 | 300 | 99.02 |
| 333 | 99.23 | 500 | 99.09 |
| | | 750 | 99.16 |
| | | 1000 | 99.23 |

### Schneider Electric Premium 30 Transformers Family

- K-rated, Three-Phase (15–1000 kVA). Available with:
  - Copper windings
  - K-9 and K-13 levels
- Harmonic Mitigating, Three-Phase (15–1000 kVA)
- Watchdog, Three-Phase (15–1000 kVA) and Single-Phase (15–333 kVA)

### Features of Distribution and NEMA Premium Transformers

- Provide an adequate wire bending radius for multiple cable options, per NEC 312.6(A) (called out in NEC 450.12 *Terminal Wire Space*)
- 200% cable landing on all X0 or H0 terminals
- Required ventilation clearance marked on all units in accordance with NEC Section 450.9.
  - All ventilated transformers from Schneider Electric require only a three-inch clearance—50% smaller than the industry average
- Terminals are sized for overcurrent and wire size, not for nameplate current rating
  - Primary terminals are sized to accept lugs up to 250% of nameplate current rating
  - Secondary terminals are sized to accept lugs up to 125% of nameplate current rating



Square D™ brand transformers from Schneider Electric feature the largest terminals in the industry.



## Sound Levels

Square D™ brand transformers meet the NEMA standards for sound level shown in Table 14.3.

**Table 14.3: NEMA Standards for Sound Levels**

| kVA Rating | Sound Level |
|---|---|
| 0–9 | 40 dB |
| 10–50 | 45 dB |
| 51–150 | 50 dB |
| 151–300 | 55 dB |
| 301–500 | 60 dB |
| 501–700 | 62 dB |
| 701–1000 | 64 dB |

For an additional charge, any Square D™ brand transformer can be built with a sound level that is 3 or 6 dB below the NEMA standard.

For part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.

© 2011 Schneider Electric
All Rights Reserved

## Table 14.4: EE Three-Phase Transformers; 60 Hz; 208Y/120 Secondary; cULus Listed

| kVA | Catalog No. | $ Price | Full Capacity Taps | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **480 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T3H | **3941.00** | 6–2.5%2+4– | 150 | 220 | 17D |
| 30 | EE30T3H | **5181.00** | 6–2.5%2+4– | 150 | 260 | 17D |
| 45 | EE45T3H | **6234.00** | 6–2.5%2+4– | 150 | 368 | 18D |
| 75 | EE75T3H | **9393.00** | 6–2.5%2+4– | 150 | 585 | 20D |
| 112.5 | EE112T3H | **12513.00** | 6–2.5%2+4– | 150 | 620 | 21D |
| 150 | EE150T3H | **16334.00** | 6–2.5%2+4– | 150 | 835 | 22D |
| 225 | EE225T3H | **21776.00** | 6–2.5%2+4– | 150 | 1110 | 24D |
| 300 | EE300T3H | **27924.00** | 6–2.5%2+4– | 150 | 1350 | 25D |
| 500 | EE500T68H | **39052.00** | 4–2.5%2+2– | 150 | 1875 | 30D |
| 750 | EE750T68H | **75516.00** | 4–2.5%2+2– | 150 | 2965 | 31D |
| 1000 | EE1000T77H | **121263.00** | 2–5%1+1– | 150 | 5200 | ♦ |
| **600 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T65H | **5011.00** | 6–2.5%2+4– | 150 | 240 | 17D |
| 30 | EE30T65H | **6586.00** | 6–2.5%2+4– | 150 | 290 | 17D |
| 45 | EE45T65H | **7925.00** | 6–2.5%2+4– | 150 | 372 | 18D |
| 75 | EE75T65H | **11941.00** | 6–2.5%2+4– | 150 | 585 | 20D |
| 112.5 | EE112T65H | **15907.00** | 6–2.5%2+4– | 150 | 712 | 21D |
| 150 | EE150T65H | **20765.00** | 6–2.5%2+4– | 150 | 790 | 22D |
| 225 | EE225T65H | **27683.00** | 6–2.5%2+4– | 150 | 945 | 24D |
| 300 | EE300T65H | **35498.00** | 6–2.5%2+4– | 150 | 1305 | 25D |
| 500 | EE500T79H | **49645.00** | 4–2.5%2+2– | 150 | 1870 | 30D |
| 750 | EE750T79H | **96000.00** | 4–2.5%2+2– | 150 | 2990 | 31D |
| 1000 | EE1000T79H | **154157.00** | 4–2.5%2+2– | 150 | 5800 | ♦ |
| **208 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T211H | **5011.00** | 3–5%1+2– | 150 | 210 | 17D |
| 30 | EE30T211H | **6586.00** | 3–5%1+2– | 150 | 210 | 17D |
| 45 | EE45T211H | **7925.00** | 3–5%1+2– | 150 | 374 | 18D |
| 75 | EE75T211H | **11941.00** | 3–5%1+2– | 150 | 575 | 20D |
| 112.5 | EE112T211H | **15907.00** | 3–5%1+2– | 150 | 604 | 21D |
| 150 | EE150T211H | **20765.00** | 3–5%1+2– | 150 | 795 | 22D |
| 225 | EE225T211H | **27683.00** | 3–5%1+2– | 150 | 1000 | 24D |
| 300 | EE300T211H | **35498.00** | 3–5%1+2– | 150 | 1425 | 25D |
| 500 | EE500T211H | **49645.00** | 3–5%1+2– | 150 | 1870 | 30D |
| **240 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T67H | **5011.00** | 6–2.5%2+4– | 150 | 240 | 17D |
| 30 | EE30T67H | **6586.00** | 6–2.5%2+4– | 150 | 260 | 17D |
| 45 | EE45T67H | **7925.00** | 6–2.5%2+4– | 150 | 379 | 18D |
| 75 | EE75T67H | **11941.00** | 6–2.5%2+4– | 150 | 590 | 20D |
| 112.5 | EE112T67H | **15907.00** | 6–2.5%2+4– | 150 | 620 | 21D |
| 150 | EE150T67H | **20765.00** | 6–2.5%2+4– | 150 | 805 | 22D |
| 225 | EE225T67H | **27683.00** | 6–2.5%2+4– | 150 | 972 | 24D |
| 300 | EE300T239H | **35498.00** | 3–5%1+2– | 150 | 1360 | 25D |
| 500 | EE500T239H | **49645.00** | 3–5%1+2– | 150 | 1900 | 25D |
| **480 V Delta Primary, Copper Windings** | | | | | | |
| 15 | EE15T3HCU | **6306.00** | 6–2.5%2 + 4– | 150 | 310 | 17D |
| 30 | EE30T3HCU | **8290.00** | 6–2.5%2 + 4– | 150 | 340 | 17D |
| 45 | EE45T3HCU | **9974.00** | 6–2.5%2 + 4– | 150 | 418 | 18D |
| 75 | EE75T3HCU | **15029.00** | 6–2.5%2 + 4– | 150 | 642 | 20D |
| 112.5 | EE112T3HCU | **20021.00** | 6–2.5%2 + 4– | 150 | 725 | 21D |
| 150 | EE150T3HCU | **26134.00** | 6–2.5%2 + 4– | 150 | 915 | 22D |
| 225 | EE225T3HCU | **34842.00** | 6–2.5%2 + 4– | 150 | 1125 | 24D |
| 300 | EE300T3HCU | **44679.00** | 6–2.5%2 + 4– | 150 | 1535 | 25D |
| 500 | EE500T68HCU | **62483.00** | 4–2.5%2 + 2– | 150 | 2350 | 30D |
| 750 | EE750T68HCU | **120826.00** | 4–2.5%2 + 2– | 150 | 3485 | 31D |

## Table 14.5: EE Three-Phase Transformers; 60 Hz; 480Y/277 Secondary; cULus Listed

| kVA | Catalog No. | $ Price | Full Capacity Taps | Deg. C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **208 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T212H | **5011.00** | 3–5%1+2– | 150 | 230 | 17D |
| 30 | EE30T212H | **6586.00** | 3–5%1+2– | 150 | 260 | 17D |
| 45 | EE45T212H | **7925.00** | 3–5%1+2– | 150 | 375 | 18D |
| 75 | EE75T212H | **11941.00** | 3–5%1+2– | 150 | 550 | 20D |
| 112.5 | EE112T212H | **15907.00** | 3–5%1+2– | 150 | 615 | 21D |
| 150 | EE150T212H | **20765.00** | 3–5%1+2– | 150 | 800 | 22D |
| 225 | EE225T212H | **27683.00** | 3–5%1+2– | 150 | 991 | 24D |
| 300 | EE300T212H | **35498.00** | 3–5%1+2– | 150 | 1425 | 25D |
| 500 | EE500T212H | **49645.00** | 3–5%1+2– | 150 | 1919 | 30D |
| **480 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T1814H | **5011.00** | 6–2.5%2+4– | 150 | 215 | 17D |
| 30 | EE30T1814H | **6586.00** | 6–2.5%2+4– | 150 | 260 | 17D |
| 45 | EE45T1814H | **7925.00** | 6–2.5%2+4– | 150 | 385 | 18D |
| 75 | EE75T1814H | **11941.00** | 6–2.5%2+4– | 150 | 660 | 20D |
| 112.5 | EE112T1814H | **15907.00** | 6–2.5%2+4– | 150 | 615 | 21D |
| 150 | EE150T1814H | **20765.00** | 6–2.5%2+4– | 150 | 820 | 22D |
| 225 | EE225T1814H | **27683.00** | 6–2.5%2+4– | 150 | 998 | 24D |
| 300 | EE300T1814H | **35498.00** | 6–2.5%2+4– | 150 | 1500 | 25D |
| 500 | EE500T76H | **49645.00** | 4–2.5%2+2– | 150 | 2040 | 30D |

## Table 14.6: EE Three-Phase Transformers; 60 Hz; 240 Delta Secondary; cULus Listed

| kVA | Catalog No. | $ Price | Full Capacity Taps | Deg. C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **480 V Delta Primary, Aluminum Windings** | | | | | | |
| 15 | EE15T6H | **5011.00** | 6–2.5%2+4– | 150 | 220 | 17D |
| 30 | EE30T6H | **6586.00** | 6–2.5%2+4– | 150 | 260 | 17D |
| 45 | EE45T6H | **7925.00** | 6–2.5%2+4– | 150 | 368 | 18D |
| 75 | EE75T6H | **11941.00** | 6–2.5%2+4– | 150 | 585 | 20D |
| 112.5 | EE112T6H | **15907.00** | 6–2.5%2+4– | 150 | 620 | 21D |
| 150 | EE150T6H | **20765.00** | 6–2.5%2+4– | 150 | 835 | 22D |
| 225 | EE225T6H | **27683.00** | 6–2.5%2+4– | 150 | 1110 | 24D |
| 300 | EE300T6H | **35498.00** | 6–2.5%2+4– | 150 | 1350 | 25D |
| 500 | EE500T63H | **49645.00** | 4–2.5%2+2– | 150 | 1875 | 30D |
| 750 | EE750T63H | **96000.00** | 4–2.5%2+2– | 150 | 2965 | 31D |
| 1000 | EE1000T78H | **154157.00** | 2–5%1+1– | 150 | 5200 | ♦ |
| **480 V Primary with 120 Center Tap, Aluminum Windings** | | | | | | |
| 240 Delta with 120 center taps have historically been limited to 5% capacity on the center tap. The units from Schneider Electric offer greater limits on 120 V center tap. Limits are determined by the total transformer loading and the following formula used to size new 120 V center tap units: (240 V balanced loads) + 2.5 x (120 V loads) = kVA required | | | | | | |
| 15 | EE15T151HCT | **5117.00** | 2–5%– | 150 | 220 | 17D |
| 30 | EE30T151HCT | **6726.00** | 2–5%– | 150 | 295 | 17D |
| 45 | EE45T151HCT | **8093.00** | 2–5%– | 150 | 385 | 18D |
| 75 | EE75T151HCT | **12193.00** | 2–5%– | 150 | 590 | 19D |
| 112.5 | EE112T151HCT | **16243.00** | 2–5%– | 150 | 635 | 21D |
| 150 | EE150T151HCT | **21202.00** | 2–5%– | 150 | 783 | 22D |
| 225 | EE225T151HCT | **28266.00** | 2–5%– | 150 | 1080 | 24D |
| 300 | EE300T151HCT | **36247.00** | 2–5%– | 150 | 1355 | 25D |
| 500 | EE500T151HCT | **50691.00** | 2–5%– | 150 | 2137 | 30D |
| 750 | EE750T151HCT | **98020.00** | 2–5%– | 150 | 2982 | 31D |
| 1000 | EE1000T151HCT | **149905.00** | 2–5%– | 150 | 5800 | ♦ |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.
♦ Contact factory.

**NOTE:** FCBN = full capacity below normal
Lugs are furnished by customer
Refer to www.squared.com/eexfmr for additional information.

Other Primary and Secondary combinations are available via the Schneider Electric Product Configurator. Contact your local Schneider Electric representative for more information.



© 2011 Schneider Electric
All Rights Reserved

**Table 14.7: EE Single-Phase Transformers**

| kVA | Catalog No. | $ Price | Full Capacity Taps | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **Single-Phase—240 X 480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed through 167 kVA** | | | | | | |
| 15 | EE15S3H | **3072.00** | 6–2.5%2+4–♦ | 150 | 215 | 17D |
| 25 | EE25S3H | **4151.00** | 6–2.5%2+4–♦ | 150 | 275 | 17H |
| 37.5 | EE37S3H | **5534.00** | 6–2.5%2+4–♦ | 150 | 340 | 18H |
| 50 | EE50S3H | **6731.00** | 6–2.5%2+4–♦ | 150 | 395 | 18H |
| 75 | EE75S3H | **9128.00** | 6–2.5%2+4–♦ | 150 | 619 | 21D |
| 100 | EE100S3H | **15091.00** | 6–2.5%2+4–♦ | 150 | 682 | 22D |
| 167 | EE167S3H | **17333.00** | 6–2.5%2+4–♦ | 150 | 982 | 24D |
| 250 | EE250S3H | **35837.00** | 6–2.5%2+4–♦ | 150 | 1060 | 25D |
| 333 | EE333S3H | **44586.00** | 6–2.5%2+4–♦ | 150 | 1854 | 31D |
| **Single-Phase—600 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed through 167 kVA** | | | | | | |
| 15 | EE15S3534H | **3733.00** | 6–2.5%2+4–♦ | 150 | 215 | 17D |
| 25 | EE25S3534H | **5044.00** | 6–2.5%2+4–♦ | 150 | 275 | 17H |
| 37.5 | EE37S3534H | **6723.00** | 6–2.5%2+4–♦ | 150 | 400 | 18H |
| 50 | EE50S3534H | **8177.00** | 6–2.5%2+4–♦ | 150 | 450 | 18H |
| 75 | EE75S3534H | **11089.00** | 6–2.5%2+4–♦ | 150 | 605 | 21D |
| 100 | EE100S3534H | **18332.00** | 6–2.5%2+4–♦ | 150 | 795 | 22D |
| 167 | EE167S3534H | **21056.00** | 6–2.5%2+4–♦ | 150 | 985 | 24D |
| 250 | EE250S3534H | **43535.00** | 6–2.5%2+4–♦ | 150 | 1065 | 25D |
| 333 | EE333S3534H | **50383.00** | 6–2.5%2+4–♦ | 150 | 1865 | 31D |
| **Single-Phase—208 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed through 167 kVA** | | | | | | |
| 15 | EE15S60H | **4506.00** | 2-5%FCBN | 150 | 200 | 17D |
| 25 | EE25S60H | **5866.00** | 2-5%FCBN | 150 | 275 | 17H |
| 37.5 | EE37S60H | **7818.00** | 2-5%FCBN | 150 | 397 | 18H |
| 50 | EE50S60H | **9508.00** | 2-5%FCBN | 150 | 420 | 18H |
| 75 | EE75S60H | **12890.00** | 2-5%FCBN | 150 | 621 | 21D |
| 100 | EE100S60H | **19613.00** | 2-5%FCBN | 150 | 795 | 22D |
| 167 | EE167S60H | **24484.00** | 2-5%FCBN | 150 | 985 | 24D |
| **Single-Phase—277 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed through 167 kVA** | | | | | | |
| 15 | EE15S61H | **4506.00** | 2-5%FCBN | 150 | 225 | 17D |
| 25 | EE25S61H | **5866.00** | 2-5%FCBN | 150 | 285 | 17H |
| 37.5 | EE37S61H | **7818.00** | 2-5%FCBN | 150 | 410 | 18H |
| 50 | EE50S61H | **9508.00** | 2-5%FCBN | 150 | 460 | 18H |
| 75 | EE75S61H | **12890.00** | 2-5%FCBN | 150 | 630 | 21D |
| 100 | EE100S61H | **19613.00** | 2-5%FCBN | 150 | 695 | 22D |
| 167 | EE167S61H | **24484.00** | 2-5%FCBN | 150 | 995 | 24D |

## EE Three- and Single-Phase Watchdog Low Temperature Rise Transformers

Designed to maximize energy efficiency, supplies highest efficient levels for 24 hour loading greater than 50%. Extra long life expectancy using 220 °C insulation system designed for full load operation at a maximum temperature rise of 115 °C or 80 °C instead of 150 °C. Continuous emergency overload capability of 15% on 115 °C rise and 30% on 80 °C rise.

**Table 14.8: EE Watchdog Transformers**

| kVA | Catalog No. | $ Price | Full Capacity Taps | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **115 °C Rise Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed** | | | | | |
| 15 | EE15T3HF | **4861.00** | 6–2.5%2 + 4– | 220 | 17D |
| 30 | EE30T3HF | **7292.00** | 6–2.5%2 + 4– | 368 | 18D |
| 45 | EE45T3HF | **8777.00** | 6–2.5%2 + 4– | 585 | 20D |
| 75 | EE75T3HF | **13222.00** | 6–2.5%2 + 4– | 620 | 21D |
| 112.5 | EE112T3HF | **17614.00** | 6–2.5%2 + 4– | 835 | 22D |
| 150 | EE150T3HF | **22993.00** | 6–2.5%2 + 4– | 980 | 24D |
| 225 | EE225T3HF | **30652.00** | 6–2.5%2 + 4– | 1349 | 25D |
| 300 | EE300T68HF | **39094.00** | 6–2.5%2 + 4– | 2050 | 30D |
| 500 | EE500T68HF | **54673.00** | 6–2.5%2 + 2– | 2330 | 30D |
| **115 °C Rise Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed. Copper Windings** | | | | | |
| 15 | EE15T3HFCU | **7778.00** | 6–2.5%2 + 4– | 260 | 17D |
| 30 | EE30T3HFCU | **11667.00** | 6–2.5%2 + 4– | 420 | 18D |
| 45 | EE45T3HFCU | **14043.00** | 6–2.5%2 + 4– | 642 | 20D |
| 75 | EE75T3HFCU | **21155.00** | 6–2.5%2 + 4– | 675 | 20D |
| 112.5 | EE112T3HFCU | **28182.00** | 6–2.5%2 + 4– | 741 | 21D |
| 150 | EE150T3HFCU | **36789.00** | 6–2.5%2 + 4– | 1050 | 22D |
| 225 | EE225T3HFCU | **49043.00** | 6–2.5%2 + 4– | 1220 | 24D |
| 300 | EE300T68HFCU | **62551.00** | 6–2.5%2 + 4– | 2300 | 30D |
| 500 | EE500T68HFCU | **87477.00** | 6–2.5%2 + 2– | 2409 | 30D |
| **80 °C Rise Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed** | | | | | |
| 15 | EE15T3HB | **5304.00** | 6–2.5%2 + 4– | 220 | 17D |
| 30 | EE30T3HB | **7956.00** | 6–2.5%2 + 4– | 368 | 18D |
| 45 | EE45T3HB | **9574.00** | 6–2.5%2 + 4– | 585 | 20D |
| 75 | EE75T3HB | **14424.00** | 6–2.5%2 + 4– | 620 | 21D |
| 112.5 | EE112T3HB | **19215.00** | 6–2.5%2 + 4– | 835 | 22D |
| 150 | EE150T3HB | **24641.00** | 6–2.5%2 + 4– | 980 | 24D |
| 225 | EE225T3HB | **33438.00** | 6–2.5%2 + 4– | 1349 | 25D |
| 300 | EE300T68HB | **43282.00** | 6–2.5%2 + 4– | 2400 | 30D |
| 500 | EE500T68HB | **60531.00** | 6–2.5%2 + 2– | 2964 | 31D |
| **80 °C Rise Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed. Copper Windings** | | | | | |
| 15 | EE15T3HBCU | **8486.00** | 6–2.5%2 + 4– | 260 | 17D |
| 30 | EE30T3HBCU | **12730.00** | 6–2.5%2 + 4– | 418 | 18D |
| 45 | EE45T3HBCU | **15318.00** | 6–2.5%2 + 4– | 642 | 20D |
| 75 | EE75T3HBCU | **23078.00** | 6–2.5%2 + 4– | 725 | 21D |
| 112.5 | EE112T3HBCU | **30744.00** | 6–2.5%2 + 4– | 910 | 21D |
| 150 | EE150T3HBCU | **39426.00** | 6–2.5%2 + 4– | 1125 | 24D |
| 225 | EE225T3HBCU | **53501.00** | 6–2.5%2 + 4– | 1425 | 24D |
| 300 | EE300T68HBCU | **69251.00** | 6–2.5%2 + 4– | 2400 | 30D |
| 500 | EE500T68HBCU | **96850.00** | 6–2.5%2 + 2– | 2578 | 30D |
| **115 °C Rise Single-Phase—240x480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | |
| 15 | EE15S3HF | **4453.00** | 6–2.5%2 + 4–♦ | 275 | 17H |
| 25 | EE25S3HF | **5797.00** | 6–2.5%2 + 4–♦ | 340 | 18H |
| 37.5 | EE37S3HF | **7726.00** | 6–2.5%2 + 4–♦ | 395 | 18H |
| 50 | EE50S3HF | **9396.00** | 6–2.5%2 + 4–♦ | 620 | 21D |
| 75 | EE75S3HF | **12738.00** | 6–2.5%2 + 4–♦ | 685 | 22D |
| 100 | EE100S3HF | **19381.00** | 6–2.5%2 + 4–♦ | 985 | 24D |
| **80 °C Rise Single-Phase—240x480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | |
| 15 | EE15S3HB | **4918.00** | 6–2.5%2 + 4–♦ | 280 | 17H |
| 25 | EE25S3HB | **6403.00** | 6–2.5%2 + 4–♦ | 345 | 18H |
| 37.5 | EE37S3HB | **8533.00** | 6–2.5%2 + 4–♦ | 400 | 18H |
| 50 | EE50S3HB | **10378.00** | 6–2.5%2 + 4–♦ | 625 | 21D |
| 75 | EE75S3HB | **14069.00** | 6–2.5%2 + 4–♦ | 690 | 22D |
| 100 | EE100S3HB | **21406.00** | 6–2.5%2 + 4–♦ | 995 | 24D |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.
♦ When 240 V tap is used, there will be 3–5% taps: 1 above and 2 below.

**NOTE:** FCBN = full capacity below normal
Lugs are furnished by customer
Refer to www.squared.com/eexfmr for additional information.



© 2011 Schneider Electric
All Rights Reserved

## EE NL and NLP Series Transformers

- Three-phase dry type transformers, 480 Delta to 208Y/120
- Aluminum or copper windings
- Electrostatic shield
- Class 220 insulation
- Double size neutral terminal for additional customer neutral cables
- Additional coil capacity to compensate for higher non-linear load loss
- cULus Listed

### Table 14.9: 480 Delta Primary, 208Y/120 Primary

| kVA | Catalog No. | $ Price | Taps | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **NL Series for Typical Non-Linear Load Service; K-4 Rated; Aluminum Windings; 115 °C Rise** | | | | | |
| 15 | EE15T3HFISNL | **5834.00** | 6–2.5% 2+4– | 256 | 17D |
| 30 | EE30T3HFISNL | **8751.00** | 6–2.5% 2+4– | 320 | 18D |
| 45 | EE45T3HFISNL | **10533.00** | 6–2.5% 2+4– | 515 | 20D |
| 75 | EE75T3HFISNL | **15866.00** | 6–2.5% 2+4– | 535 | 21D |
| 112.5 | EE112T3HFISNL | **21137.00** | 6–2.5% 2+4– | 800 | 22D |
| 150 | EE150T3HFISNL | **27592.00** | 6–2.5% 2+4– | 1110 | 24D |
| 225 | EE225T3HFISNL | **38389.00** | 6–2.5% 2+4– | 1349 | 25D |
| 300 | EE300T68HFISNL | **53179.00** | 4–2.5% 2+2– | 1750 | 30D |
| 500 | EE500T68HFISNL | **73483.00** | 4–2.5% 2+2– | 2295 | 31D |
| **NL Series for Typical Non-Linear Load Service; K-4 Rated; Copper Windings; 115 °C Rise** | | | | | |
| 15 | EE15T3HFISCUNL | **9334.00** | 6–2.5% 2+4– | 260 | 17D |
| 30 | EE30T3HFISCUNL | **14002.00** | 6–2.5% 2+4– | 395 | 18D |
| 45 | EE45T3HFISCUNL | **16853.00** | 6–2.5% 2+4– | 730 | 20D |
| 75 | EE75T3HFISCUNL | **25386.00** | 6–2.5% 2+4– | 640 | 20D |
| 112.5 | EE112T3HFISCUNL | **33819.00** | 6–2.5% 2+4– | 935 | 22D |
| 150 | EE150T3HFISCUNL | **44147.00** | 6–2.5% 2+4– | 1300 | 24D |
| 225 | EE225T3HFISCUNL | **61422.00** | 6–2.5% 2+4– | 1450 | 25D |
| 300 | EE300T68HFISCUNL | **85086.00** | 4–2.5% 2+2– | 2450 | 25D |
| **NLP Series for More Severe Non-Linear Load Service; K-13 Rated; Aluminum Windings; 115 °C Rise** | | | | | |
| 15 | EE15T3HFISNLP | **6636.00** | 6–2.5% 2+4– | 256 | 17D |
| 30 | EE30T3HFISNLP | **9954.00** | 6–2.5% 2+4– | 375 | 18D |
| 45 | EE45T3HFISNLP | **11981.00** | 6–2.5% 2+4– | 500 | 20D |
| 75 | EE75T3HFISNLP | **18048.00** | 6–2.5% 2+4– | 560 | 21D |
| 112.5 | EE112T3HFISNLP | **24043.00** | 6–2.5% 2+4– | 800 | 22D |
| 150 | EE150T3HFISNLP | **31386.00** | 6–2.5% 2+4– | 1110 | 24D |
| 225 | EE225T3HFISNLP | **42764.00** | 6–2.5% 2+4– | 1335 | 25D |
| 300 | EE300T68HFISNLP | **56966.00** | 4–2.5% 2+2– | 2350 | 30D |
| 500 | EE500T68HFISNLP | **79157.00** | 4–2.5% 2+2– | 3200 | 31D |
| **NLP Series for More Severe Non-Linear Load Service; K-13 Rated; Copper Windings; 115 °C Rise** | | | | | |
| 15 | EE15T3HFISCUNLP | **10618.00** | 6–2.5% 2+4– | 260 | 17D |
| 30 | EE30T3HFISCUNLP | **15926.00** | 6–2.5% 2+4– | 430 | 18D |
| 45 | EE45T3HFISCUNLP | **19170.00** | 6–2.5% 2+4– | 730 | 20D |
| 75 | EE75T3HFISCUNLP | **28877.00** | 6–2.5% 2+4– | 640 | 20D |
| 112.5 | EE112T3HFISCUNLP | **38469.00** | 6–2.5% 2+4– | 985 | 22D |
| 150 | EE150T3HFISCUNLP | **50218.00** | 6–2.5% 2+4– | 1135 | 24D |
| 225 | EE225T3HFISCUNLP | **68422.00** | 6–2.5% 2+4– | 1477 | 25D |
| 300 | EE300T68HFISCUNLP | **91146.00** | 4–2.5% 2+2– | 2650 | 30D |

### Table 14.10: Harmonic Mitigating, 480 Primary to 208zz/120 Secondary—UL Listed

| kVA | Catalog No. | $ Price | Taps | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **0° Phase Shift; Copper Windings; 130 °C Rise** | | | | | |
| 15 | HM15T208NCU | **12670.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T208NCU | **19416.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T208NCU | **23364.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T208NCU | **35204.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T208NCU | **46900.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T208NCU | **61226.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T208NCU | **81616.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T208NCU | **104664.00** | 6–2.5% 2+4– | 1535 | 25D |
| **30° Phase Shift; Copper Windings; 130 °C Rise** | | | | | |
| 15 | HM15T255NCU | **12670.00** | 3-5%1+2- | 310 | 17D |
| 30 | HM30T255NCU | **19416.00** | 3-5%1+2- | 340 | 17D |
| 45 | HM45T255NCU | **23364.00** | 3-5%1+2- | 418 | 18D |
| 75 | HM75T255NCU | **35204.00** | 3-5%1+2- | 642 | 20D |
| 112.5 | HM112T255NCU | **46900.00** | 3-5%1+2- | 725 | 21D |
| 150 | HM150T255NCU | **61226.00** | 3-5%1+2- | 915 | 22D |
| 225 | HM225T255NCU | **81616.00** | 3-5%1+2- | 1125 | 24D |
| 300 | HM300T255NCU | **104664.00** | 3-5%1+2- | 1535 | 25D |
| **+15° Phase Shift; Copper Windings; 130 °C Rise** | | | | | |
| 15 | HM15T251NCU | **12670.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T251NCU | **19416.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T251NCU | **23364.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T251NCU | **35204.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T251NCU | **46900.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T251NCU | **61226.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T251NCU | **81616.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T251NCU | **104664.00** | 6–2.5% 2+4– | 1535 | 25D |
| **15° Phase Shift; Copper Windings; 130 °C Rise** | | | | | |
| 15 | HM15T259NCU | **12670.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T259NCU | **19416.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T259NCU | **23364.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T259NCU | **35204.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T259NCU | **46900.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T259NCU | **61226.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T259NCU | **81616.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T259NCU | **104664.00** | 6–2.5% 2+4– | 1535 | 25D |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.

Additional temperature rises are available; for part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.



© 2011 Schneider Electric
All Rights Reserved

New!

NEMA Premium

As a partner in the NEMA Premium Transformer Program, Schneider Electric has determined that this product meets the NEMA Premium Efficiency specifications for premium energy efficiency.

## Table 14.11: 480 V Delta Primary, 208Y/120 Secondary

| kVA | Catalog No. | $ Price | Taps | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **NP Series for Typical Non-Linear Load Service— K-9 Rated—Copper Windings; 130 °C Rise** | | | | | |
| 15 | EP15T3HNISCUNP | **16395.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | EP30T3HNISCUNP | **24925.00** | 6–2.5% 2+4– | 340 | 18D |
| 45 | EP45T3HNISCUNP | **28425.00** | 6–2.5% 2+4– | 418 | 20D |
| 75 | EP75T3HNISCUNP | **44590.00** | 6–2.5% 2+4– | 642 | 21D |
| 112.5 | EP112T3HNISCUNP | **57863.00** | 6–2.5% 2+4– | 725 | 22D |
| 150 | EP150T3HNISCUNP | **74683.00** | 6–2.5% 2+4– | 915 | 24D |
| 225 | EP225T3HNISCUNP | **104646.00** | 6–2.5% 2+4– | 1125 | 25D |
| 300 | EP300T3HNISCUNP | **136718.00** | 4–2.5% 2+2– | 1535 | 30D |
| **NP Series for Typical Non-Linear Load Service— K-9Rated—Copper Windings; 115 °C Rise** | | | | | |
| 15 | EP15T3HFISCUNP | **21313.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | EP30T3HFISCUNP | **32402.00** | 6–2.5% 2+4– | 340 | 18D |
| 45 | EP45T3HFISCUNP | **36952.00** | 6–2.5% 2+4– | 418 | 20D |
| 75 | EP75T3HFISCUNP | **57967.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | EP112T3HFISCUNP | **75222.00** | 6–2.5% 2+4– | 725 | 22D |
| 150 | EP150T3HFISCUNP | **97088.00** | 6–2.5% 2+4– | 915 | 24D |
| 225 | EP225T3HFISCUNP | **136040.00** | 6–2.5% 2+4– | 1125 | 25D |
| 300 | EP300T3HFISCUNP | **177733.00** | 4–2.5% 2+2– | 1535 | 25D |
| **NLP Series for More Severe Non-Linear Load Service—K-13 Rated—Copper Windings; 150 °C Rise** | | | | | |
| 15 | EP15T3HISCUNLP | **17451.00** | 6–2.5% 2+4– | 260 | 17D |
| 30 | EP30T3HISCUNLP | **26527.00** | 6–2.5% 2+4– | 430 | 18D |
| 45 | EP45T3HISCUNLP | **30253.00** | 6–2.5% 2+4– | 730 | 20D |
| 75 | EP75T3HISCUNLP | **47459.00** | 6–2.5% 2+4– | 640 | 20D |
| 112.5 | EP112T3HISCUNLP | **61585.00** | 6–2.5% 2+4– | 985 | 22D |
| 150 | EP150T3HISCUNLP | **79488.00** | 6–2.5% 2+4– | 1135 | 24D |
| 225 | EP225T3HISCUNLP | **110288.00** | 6–2.5% 2+4– | 1477 | 25D |
| 300 | EP300T68HISCUNLP | **141419.00** | 4–2.5% 2+2– | 2650 | 30D |




## Table 14.12: Harmonic Mitigating, 480 Primary to 208zz/120 Secondary; Copper Windings

| kVA | Catalog No. | $ Price | Taps | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **0° Phase Shift** | | | | | |
| 15 | HM15T208HNCUEP | **20822.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T208HNCUEP | **32341.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T208HNCUEP | **36872.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T208HNCUEP | **57857.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T208HNCUEP | **75082.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T208HNCUEP | **96912.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T208HNCUEP | **131554.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T208HNCUEP | **162393.00** | 6–2.5% 2+4– | 1535 | 25D |
| **30° Phase Shift** | | | | | |
| 15 | HM15T255HNCUEP | **20822.00** | 3-5%1+2- | 310 | 17D |
| 30 | HM30T255HNCUEP | **32341.00** | 3-5%1+2- | 340 | 17D |
| 45 | HM45T255HNCUEP | **36872.00** | 3-5%1+2- | 418 | 18D |
| 75 | HM75T255HNCUEP | **57857.00** | 3-5%1+2- | 642 | 20D |
| 112.5 | HM112T255HNCUEP | **75082.00** | 3-5%1+2- | 725 | 21D |
| 150 | HM150T255HNCUEP | **96912.00** | 3-5%1+2- | 915 | 22D |
| 225 | HM225T255HNCUEP | **131554.00** | 3-5%1+2- | 1125 | 24D |
| 300 | HM300T255HNCUEP | **162393.00** | 3-5%1+2- | 1535 | 25D |
| **+15° Phase Shift** | | | | | |
| 15 | HM15T251HNCUEP | **20822.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T251HNCUEP | **32341.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T251HNCUEP | **36872.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T251HNCUEP | **57857.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T251HNCUEP | **75082.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T251HNCUEP | **96912.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T251HNCUEP | **131554.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T251HNCUEP | **162393.00** | 6–2.5% 2+4– | 1535 | 25D |
| **-15° Phase Shift** | | | | | |
| 15 | HM15T259HNCUEP | **20822.00** | 6–2.5% 2+4– | 310 | 17D |
| 30 | HM30T259HNCUEP | **32341.00** | 6–2.5% 2+4– | 340 | 17D |
| 45 | HM45T259HNCUEP | **36872.00** | 6–2.5% 2+4– | 418 | 18D |
| 75 | HM75T259HNCUEP | **57857.00** | 6–2.5% 2+4– | 642 | 20D |
| 112.5 | HM112T259HNCUEP | **75082.00** | 6–2.5% 2+4– | 725 | 21D |
| 150 | HM150T259HNCUEP | **96912.00** | 6–2.5% 2+4– | 915 | 22D |
| 225 | HM225T259HNCUEP | **131554.00** | 6–2.5% 2+4– | 1125 | 24D |
| 300 | HM300T259HNCUEP | **162393.00** | 6–2.5% 2+4– | 1535 | 25D |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.

Additional temperature rises are available; for part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.



© 2011 Schneider Electric
All Rights Reserved

## Sealed Three- and Single-Phase Transformers

**Table 14.13: Sealed Transformers**

| kVA | Catalog No. | $ Price | Full Capacity Taps | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed; Copper Windings** | | | | | | |
| 3 | 3T2F | **2016.00** | 2–5%FCBN | 115 | 120 | 12C |
| 6 | 6T2F | **2310.00** | 2–5%FCBN | 115 | 145 | 12C |
| 9 | 9T2F | **3088.00** | 2–5%FCBN | 115 | 235 | 14C |
| 15 | 15T2F | **4644.00** | 2–5%FCBN | 115 | 300 | 14C |
| 30 | 30T2F | **8536.00** | 2–5%FCBN | 115 | 660 | 16C |
| **Three-Phase—480 V Delta Primary; 240 V Delta Secondary; 60 Hz; cULus Listed; Copper Windings** | | | | | | |
| 3 | 3T5F | **2016.00** | 2–5%FCBN | 115 | 120 | 12C |
| 6 | 6T5F | **2310.00** | 2–5%FCBN | 115 | 145 | 12C |
| 9 | 9T75F | **3088.00** | 4–2.5%FCBN | 115 | 235 | 14C |
| 15 | 15T75F | **4644.00** | 4–2.5%FCBN | 115 | 300 | 14C |
| 30 | 30T75F | **8536.00** | 4–2.5%FCBN | 115 | 660 | 16C |
| **Single-Phase—240 X 480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | | |
| 0.05 | 50SV1A | **182.00** | None | 55 | 4.2 | 1A |
| 0.10 | 100SV1A | **214.00** | None | 55 | 4.5 | 2A |
| 0.15 | 150SV1A | **254.00** | None | 55 | 6.2 | 3A |
| 0.25 | 250SV1B | **270.00** | None | 80 | 10.5 | 4A |
| 0.50 | 500SV1B | **386.00** | None | 80 | 13.8 | 5A |
| 0.75 | 750SV1F | **460.00** | None | 115 | 15.5 | 6A |
| 1 | 1S1F | **602.00** | None | 115 | 21.2 | 7A |
| 1.5 | 1.5S1F | **724.00** | None | 115 | 30.1 | 8A |
| 2 | 2S1F | **896.00** | None | 115 | 39.1 | 9A |
| 3 | 3S1F | **1144.00** | None | 115 | 60 | 10A |
| 5 | 5S1F | **1556.00** | None | 115 | 115 | 13B |
| 7.5 | 7S1F | **2188.00** | None | 115 | 135 | 13B |
| 10 | 10S1F | **2712.00** | None | 115 | 165 | 13B |
| **Single-Phase—600 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | | |
| 0.05 | 50SV51A | **182.00** | None | 55 | 4.2 | 1A |
| 0.10 | 100SV51A | **214.00** | None | 55 | 4.5 | 2A |
| 0.15 | 150SV51A | **262.00** | None | 55 | 6.2 | 3A |
| 0.25 | 250SV51B | **290.00** | None | 80 | 10.5 | 4A |
| 0.50 | 500SV51B | **408.00** | None | 80 | 13.8 | 5A |
| 0.75 | 750SV51F | **486.00** | None | 115 | 15.5 | 6A |
| 1 | 1S51F | **634.00** | None | 115 | 21.2 | 7A |
| 1.5 | 1.5S51F | **758.00** | None | 115 | 30.1 | 8A |
| 2 | 2S51F | **940.00** | None | 115 | 39.1 | 9A |
| 3 | 3S4F | **1240.00** | 2–5%FCBN | 115 | 60 | 10A |
| 5 | 5S4F | **1676.00** | 2–5%FCBN | 115 | 115 | 13B |
| 7.5 | 7S4F | **2348.00** | 2–5%FCBN | 115 | 135 | 13B |
| 10 | 10S4F | **2922.00** | 2–5%FCBN | 115 | 165 | 13B |
| **Single-Phase—120x240 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | | |
| 1 | 1S6F | **1090.00** | None | 115 | 21.2 | 7A |
| 1.5 | 1.5S6F | **1558.00** | None | 115 | 30.1 | 8A |
| 2 | 2S6F | **1746.00** | None | 115 | 39.1 | 9A |
| 3 | 3S6F | **1892.00** | None | 115 | 60 | 10A |
| 5 | 5S6F | **2418.00** | None | 115 | 110 | 13B |
| 7.5 | 7S6F | **3216.00** | None | 115 | 135 | 13B |
| 10 | 10S6F | **3992.00** | None | 115 | 150 | 13B |
| **Single-Phase—208 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | | |
| 1 | 1S7F | **1090.00** | None | 115 | 21.2 | 7A |
| 1.5 | 1.5S7F | **1558.00** | None | 115 | 30.1 | 8A |
| 2 | 2S7F | **1746.00** | None | 115 | 39.1 | 9A |
| 3 | 3S7F | **1892.00** | None | 115 | 60 | 10A |
| 5 | 5S7F | **2418.00** | None | 115 | 110 | 13B |
| 7.5 | 7S7F | **3216.00** | None | 115 | 135 | 13B |
| 10 | 10S7F | **3992.00** | None | 115 | 150 | 13B |
| **Single-Phase—277 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed** | | | | | | |
| 1 | 1S8F | **1090.00** | None | 115 | 21.2 | 7A |
| 1.5 | 1.5S8F | **1558.00** | None | 115 | 30.1 | 8A |
| 2 | 2S8F | **1746.00** | None | 115 | 39.1 | 9A |
| 3 | 3S8F | **1892.00** | None | 115 | 60 | 10A |
| 5 | 5S8F | **2418.00** | None | 115 | 110 | 13B |
| 7.5 | 7S8F | **3216.00** | None | 115 | 135 | 13B |
| 10 | 10S8F | **3992.00** | None | 115 | 150 | 13B |

**NOTE:** FCBN = full capacity below normal

## Sealed Single-Phase Export Model Transformers

These general purpose transformers accommodate voltage systems worldwide. Export model transformers 10 kVA and smaller, certified by TUV (File no. E9571881.01) to meet EN61558-1, are CE marked in addition to being cULus Listed. For CE marked transformers in other ratings, contact your local Schneider Electric representative for CE marked transformers up to 300 kVA, single and three phase. See page 14-11 for optional Fingersafe™ terminal block cover kit.

**Table 14.14: Sealed Export Model Transformers**

| kVA | Catalog No. | $ Price | Deg. C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|
| **Single-Phase—190/200/208/220/380/400/416/440 V Primary; 110/220 V Secondary; 50/60 Hz; cULus Listed ★** | | | | | |
| 1 | 1S67F | **1180.00** | 115 | 21.2 | 7A |
| 2 | 2S67F | **1716.00** | 115 | 39.1 | 9A |
| 3 | 3S67F | **2290.00** | 115 | 55.2 | 10A |
| 5 | 5S67F | **2554.00** | 115 | 135 | 13B |
| 7.5 | 7S67F | **3314.00** | 115 | 165 | 13B |
| 10 | 10S67F | **4004.00** | 115 | 165 | 13B |

## Sealed Single-Phase Buck and Boost Transformers—cULus Listed

When buck and boost transformers are interconnected as an autotransformer, they can supply small changes in voltage. Wiring diagrams and sizing are available from catalog 7414CT0201 or www.buckboostcalculator.com.

Units can also be used as isolation transformers for 120 x 240 to 12/24 or 16/32 by connecting using the directions located on the transformer's name plate.

**NOTE:** When used to supply a 3-phase, 4-wire load, the source must be 3-phase, 4-wire.

**Table 14.15: Sealed Buck and Boost Transformers**

| kVA | 120 x 240 V Primary 60 Hz | | | 240 x 480 V Primary 60 Hz | | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|---|---|
| | 12/24 V Secondary | 16/32 V Secondary | $ Price | 24/48 V Secondary | $ Price | | | |
| .05 | 50SV43A | 50SV46A | **206.00** | 50SV82A | **284.00** | 55 | 4.2 | 1A |
| .10 | 100SV43A | 100SV46A | **246.00** | 100SV82A | **344.00** | 55 | 4.5 | 2A |
| .15 | 150SV43A | 150SV46A | **276.00** | 150SV82A | **386.00** | 55 | 6.2 | 3A |
| .25 | 250SV43B | 250SV46B | **328.00** | 250SV82B | **460.00** | 80 | 10.5 | 4A |
| .50 | 500SV43B | 500SV46B | **420.00** | 500SV82B | **588.00** | 80 | 13.8 | 5A |
| .75 | 750SV43F | 750SV46F | **552.00** | 750SV82F | **774.00** | 115 | 15.5 | 6A |
| 1.0 | 1S43F | 1S46F | **676.00** | 1S82F | **948.00** | 115 | 21.2 | 7A |
| 1.5 | 1.5S43F | 1.5S46F | **830.00** | 1.5S82F | **1162.00** | 115 | 30.1 | 8A |
| 2.0 | 2S43F | 2S46F | **1072.00** | 2S82F | **1500.00** | 115 | 39.1 | 9A |
| 3.0 | 3S43F | 3S46F | **1480.00** | 3S82F | **2072.00** | 115 | 60 | ♦ |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.
♦ Dimensions: 14.50 (H) x 8.60 (W) x 6.50 (D).
★ May be used for 240 x 480 to 120/240 at 60 Hz only.

**NOTE:** Refer to www.us.squared.com/buckboost for additional information.



© 2011 Schneider Electric
All Rights Reserved

## Stainless Steel Enclosed

The transformers listed below have an epoxy-resin encapsulated core and coil assembly inside a non-ventilated, #316 stainless steel enclosure that meets NEMA Type 3R or Type 4X requirements. All units are painted ANSI 49 gray to give an extra layer of protection and improve the cosmetic appearance of the device.

**Table 14.16: Stainless Steel Enclosed Transformers**

| kVA | Catalog No. | $ Price | Full Capacity Taps | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed; NEMA Type 3R** | | | | | | |
| 3 | 3T2FSS | **4116.00** | 2–5% FCBN | 115 | 120 | 12C |
| 6 | 6T2FSS | **4924.00** | 2–5% FCBN | 115 | 145 | 12C |
| 9 | 9T2FSS | **6072.00** | 2–5% FCBN | 115 | 234 | 14C |
| 15 | 15T2FSS | **7726.00** | 2–5% FCBN | 115 | 300 | 14C |
| 30 | 30T2FSS | **13022.00** | 2–5% FCBN | 115 | 660 | 16C |
| **Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz; cULus Listed; NEMA Type 4X** | | | | | | |
| 3 | 4X3T2FSS | **13377.00** | 2–5% FCBN | 115 | 165 | 54X |
| 6 | 4X6T2FSS | **16003.00** | 2–5% FCBN | 115 | 195 | 54X |
| 9 | 4X9T2FSS | **19734.00** | 2–5% FCBN | 115 | 290 | 54X |
| 15 | 4X15T2FSS | **25110.00** | 2–5% FCBN | 115 | 350 | 54X |
| 30 | 4X30T2FSS | **42322.00** | 2–5% FCBN | 115 | 850 | 55X |
| **Single-Phase—240x480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed; NEMA Type 3R** | | | | | | |
| 1 | 1S1FSS | **1274.00** | None | 115 | 21 | 7A |
| 1.5 | 1.5S1FSS | **1778.00** | None | 115 | 30 | 8A |
| 2 | 2S1FSS | **1914.00** | None | 115 | 39 | 9A |
| 3 | 3S1FSS | **2684.00** | None | 115 | 60 | 10A |
| 5 | 5S1FSS | **3880.00** | None | 115 | 110 | 13B |
| 7.5 | 7S1FSS | **4164.00** | None | 115 | 135 | 13B |
| 10 | 10S1FSS | **4764.00** | None | 115 | 150 | 13B |
| 15 | 15S1FSS | **7036.00** | None | 115 | 225 | 15B |
| 25 | 25S1FSS | **9606.00** | None | 115 | 300 | 15B |
| **Single-Phase—240x480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed; NEMA Type 4X** | | | | | | |
| 1 | 4X1S1FSS | **9555.00** | None | 115 | 48 | 51X |
| 1.5 | 4X1.5S1FSS | **9779.00** | None | 115 | 55 | 51X |
| 2 | 4X2S1FSS | **10527.00** | None | 115 | 55 | 51X |
| 3 | 4X3S1FSS | **14762.00** | None | 115 | 75 | 52X |
| 5 | 4X5S1FSS | **12610.00** | None | 115 | 125 | 52X |
| 7.5 | 4X7S1FSS | **13533.00** | None | 115 | 150 | 52X |
| 10 | 4X10S1FSS | **15483.00** | None | 115 | 180 | 52X |
| 15 | 4X15S1FSS | **22867.00** | None | 115 | 390 | 53X |
| 25 | 4X25S1FSS | **31220.00** | None | 115 | 450 | 53X |
| **Single-Phase—480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed; NEMA Type 3R** | | | | | | |
| 3 | 3S40FSS | **2684.00** | 2–5% FCBN | 115 | 60 | 10A |
| 5 | 5S40FSS | **3880.00** | 2–5% FCBN | 115 | 110 | 13B |
| 7.5 | 7S40FSS | **4164.00** | 2–5% FCBN | 115 | 135 | 13B |
| 10 | 10S40FSS | **4764.00** | 2–5% FCBN | 115 | 150 | 13B |
| 15 | 15S40FSS | **7036.00** | 2–5% FCBN | 115 | 225 | 15B |
| 25 | 25S40FSS | **9606.00** | 2–5% FCBN | 115 | 300 | 15B |
| **Single-Phase—480 V Primary; 120/240 V Secondary; 60 Hz; cULus Listed; NEMA Type 4X** | | | | | | |
| 3 | 4X3S40FSS | **14762.00** | 2–5% FCBN | 115 | 75 | 52X |
| 5 | 4X5S40FSS | **12610.00** | 2–5% FCBN | 115 | 125 | 52X |
| 7.5 | 4X7S40FSS | **13533.00** | 2–5% FCBN | 115 | 150 | 52X |
| 10 | 4X10S40FSS | **15483.00** | 2–5% FCBN | 115 | 180 | 52X |
| 15 | 4X15S40FSS | **22867.00** | 2–5% FCBN | 115 | 390 | 53X |
| 25 | 4X25S40FSS | **31220.00** | 2–5% FCBN | 115 | 450 | 53X |

## Non-Ventilated

Non-ventilated enclosures meet the IP55 protection code (dust and jetting water protection) per the IEC 60529 standard. This makes the product ideal for environments where large quantities of dust, airborne contaminants, spraying water, or any other environmental conditions (for example, drifting snow) that a ventilated Type 3R enclosed device would be impractical.

**Table 14.17: Non-Ventilated Transformers**

| kVA | Catalog No. | $ Price | Full Capacity Taps | Degree C Temp. Rise | Weight (lbs) ▲ | Enclosure ▲■ |
|---|---|---|---|---|---|---|
| **Three-Phase—480 V Delta Primary; 208Y/120 V Secondary; 60 Hz** | | | | | | |
| 30 | 30T3HNV | **8090.00** | 6–2.5%2 + 4– | 150 | 340 | 19E |
| 45 | 45T3HNV | **12396.00** | 6–2.5%2 + 4– | 150 | 510 | 19E |
| 75 | 75T3HNV | **19118.00** | 6–2.5%2 + 4– | 150 | 1025 | 22E |
| 112.5 | 112T3HNV | **25848.00** | 6–2.5%2 + 4– | 150 | 1250 | 24E |
| 150 | 150T3HNV | **33348.00** | 6–2.5%2 + 4– | 150 | 2000 | 25E |
| 225 | 225T3HNV | **50238.00** | 6–2.5%2 + 4– | 150 | 2100 | 30E |
| 300 | 300T3HNV | **55152.00** | 6–2.5%2 + 4– | 150 | 3950 | 31E |
| **Single-Phase—240X480 V Primary; 120/240 V Secondary; 60 Hz** | | | | | | |
| 15 | 15S3HNV | **5042.00** | 6–2.5%2 + 4–♦ | 150 | 230 | 17E |
| 25 | 25S3HNV | **7562.00** | 6–2.5%2 + 4–♦ | 150 | 310 | 18E |
| 37.5 | 37S3HNV | **11248.00** | 6–2.5%2 + 4–♦ | 150 | 350 | 18E |
| 50 | 50S3HNV | **14384.00** | 6–2.5%2 + 4–♦ | 150 | 450 | 21E |
| 75 | 75S3HNV | **17600.00** | 6–2.5%2 + 4–♦ | 150 | 880 | 24E |
| 100 | 100S3HNV | **22286.00** | 6–2.5%2 + 4–♦ | 150 | 975 | 25E |

▲ Not for construction. Contact your local Schneider Electric representative for certified prints.
■ For enclosure styles, see Table 14.19 on page 14-10.
♦ When 240 V tap is used, there will be 3–5% taps: 1 above and 2 below.

**NOTE:** FCBN = full capacity below normal
Lugs are furnished by customer

## Transformer Enclosures

*New!*

Designed to allow energy efficient products to be installed in environments requiring more protection. These are Type 3R enclosures constructed of #304 stainless steel for corrosive protection.

Transformer enclosures are shipped separately from transformers so they can be pre-installed on the job site. Three standard enclosures are available for installation of enclosure types D, H, or F.

**Table 14.18: Transformer Enclosures**

| Catalog No. | $ Price | Enclosure ▲■ |
|---|---|---|
| 7400SS3R18D22D | **8444.00** | 18D, 18H, 19D, 20D, 21D, 22D |
| 7400SS3R24D38D | **15118.00** | 24D, 25D, 26D, 28D, 29D, 30D, 31D, 36D, 37D, 38D |
| 7400SS3R31D35F | **24622.00** | 31D, 32F, 33F, 34F, 35F, 36D, 37D, 38D |



© 2011 Schneider Electric
All Rights Reserved



Style A—NEMA 3R Rated



Style B—NEMA 3R Rated



Style C—NEMA 3R Rated



Styles D and H—NEMA 2 Rated
Converts to NEMA 3R with Weathershield



Style E—IP55 Rated



Style F—NEMA 1 Rated

## Enclosures and Accessories

**Table 14.19: Enclosure Dimensions and Accessories ▲**

| Enclosure Number/ Style | | Height | | Width | | Depth | | Mounting | Weathershield | Wall Mounting Bracket | Ceiling Mounting Bracket | Insulation Class °C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | In. | mm | In. | mm | In. | mm | | | | | |
| 1 | A | 5.00 | 127 | 4.47 | 114 | 3.44 | 87 | Wall | ■ | ♦ | — | 105 |
| 2 | A | 5.50 | 140 | 4.47 | 114 | 3.44 | 87 | Wall | ■ | ♦ | — | 105 |
| 3 | A | 5.00 | 127 | 4.85 | 123 | 3.75 | 95 | Wall | ■ | ♦ | — | 105 |
| 4 | A | 5.50 | 140 | 5.23 | 133 | 4.06 | 103 | Wall | ■ | ♦ | — | 130 |
| 5 | A | 6.19 | 157 | 6.19 | 157 | 4.69 | 119 | Wall | ■ | ♦ | — | 130 |
| 6 | A | 6.69 | 170 | 6.19 | 157 | 4.69 | 119 | Wall | ■ | ♦ | — | 180 |
| 7 | A | 8.13 | 270 | 6.94 | 176 | 5.31 | 135 | Wall | ■ | ♦ | — | 180 |
| 8 | A | 8.25 | 210 | 8.68 | 220 | 6.56 | 167 | Wall | ■ | ♦ | — | 180 |
| 9 | A | 9.56 | 243 | 8.68 | 220 | 6.56 | 167 | Wall | ■ | ♦ | — | 180 |
| 10 | A | 10.50 | 267 | 8.62 | 219 | 6.50 | 165 | Wall | ■ | ♦ | — | 180 |
| 11 | A | 12.56 | 319 | 8.62 | 219 | 6.50 | 165 | Wall | ■ | ♦ | — | 180 |
| 12 | C | 13.50 | 343 | 14.75 | 375 | 9.00 | 229 | Wall | ■ | ♦ | — | 180 |
| 13 | B | 14.75 | 375 | 9.75 | 248 | 11.75 | 298 | Wall | ■ | ♦ | — | 180 |
| 14 | C | 14.75 | 375 | 19.10 | 485 | 12.25 | 311 | Wall | ■ | ♦ | — | 180 |
| 15 | B | 20.00 | 508 | 15.00 | 381 | 13.50 | 343 | Wall | ■ | ♦ | — | 180 |
| 16 | C | 22.00 | 559 | 25.00 | 635 | 13.50 | 343 | Wall | ■ | ♦ | — | 180 |
| 17 | D | 27.00 | 686 | 20.00 | 508 | 16.00 | 406 | Floor | WS363 | WMB361362 | CMB363 | 220 |
| | E | 27.00 | 686 | 20.00 | 508 | 16.00 | 406 | Floor | ▼ | WMB361362 | CMB363 | 220 |
| | H | 37.00 | 940 | 20.00 | 508 | 16.00 | 406 | Floor | WS363 | WMB361362 | CMB363 | 220 |
| 18 | D | 30.00 | 762 | 20.00 | 508 | 20.00 | 508 | Floor | WS363 | WMB363364 | CMB363 | 220 |
| | E | 30.00 | 762 | 20.00 | 508 | 20.00 | 508 | Floor | ▼ | WMB363364 | CMB363 | 220 |
| | H | 37.00 | 940 | 20.00 | 508 | 20.00 | 508 | Floor | WS363 | WMB363364 | CMB363 | 220 |
| 19 | D | 30.00 | 762 | 30.00 | 762 | 20.00 | 508 | Floor | WS364 | WMB363364 | CMB364 | 220 |
| | E | 30.00 | 762 | 30.00 | 762 | 20.00 | 508 | Floor | ▼ | WMB363364 | CMB364 | 220 |
| 20 | D | 37.00 | 940 | 30.00 | 762 | 20.00 | 508 | Floor | WS364 | WMB363364 | CMB364 | 220 |
| | E | 37.00 | 940 | 30.00 | 762 | 20.00 | 508 | Floor | ▼ | WMB363364 | CMB364 | 220 |
| 21 | D | 37.00 | 940 | 30.00 | 762 | 24.00 | 610 | Floor | WS364 | — | CMB364 | 220 |
| | E | 37.00 | 940 | 30.00 | 762 | 24.00 | 610 | Floor | ▼ | — | CMB364 | 220 |
| 22 | D | 43.75 | 1111 | 32.00 | 813 | 27.00 | 686 | Floor | WS380 | — | CMB380 | 220 |
| | E | 43.75 | 1111 | 32.00 | 813 | 27.00 | 686 | Floor | ▼ | — | CMB380 | 220 |
| 23 | E | 48 | 1219 | 48 | 1219 | 29.5 | 749 | Floor | ▼ | — | — | 220 |
| 24 | D | 49.5 | 1257 | 35 | 889 | 28.5 | 724 | Floor | WS381 | — | CMB381 | 220 |
| | E | 49.5 | 1257 | 35 | 889 | 28.5 | 724 | Floor | Note 5 | — | CMB381 | 220 |
| 25 | D | 49.5 | 1257 | 41 | 1041 | 32 | 813 | Floor | WS382 | — | — | 220 |
| | E | 49.5 | 1257 | 41 | 1041 | 32 | 813 | Floor | ▼ | — | — | 220 |
| 26 | D | 57.5 | 1461 | 41 | 1041 | 32 | 813 | Floor | WS382 | — | — | 220 |
| 28 | D | 60 | 1524 | 56 | 1422 | 36 | 914 | Floor | WS370A | — | — | 220 |
| | E | 60 | 1524 | 56 | 1422 | 36 | 914 | Floor | ▼ | — | — | 220 |
| 29 | D | 68 | 1727 | 56 | 1422 | 36 | 914 | Floor | WS370A | — | — | 220 |
| 30 | D | 71 | 1803 | 48 | 1219 | 36 | 914 | Floor | WS383 | — | — | 220 |
| | E | 71 | 1803 | 48 | 1219 | 36 | 914 | Floor | ▼ | — | — | 220 |
| 31 | D | 74 | 1880 | 56 | 1422 | 40.5 | 1029 | Floor | WS384 | — | — | 220 |
| | E | 74 | 1880 | 56 | 1422 | 40.5 | 1029 | Floor | ▼ | — | — | 220 |
| 32 | F | 91.5 | 2388 | 56 | 1422 | 54 | 1372 | Floor | ★ | — | — | 220 |
| 33 | F | 94 | 2388 | 72 | 1829 | 54 | 1372 | Floor | ★ | — | — | 220 |
| 34 | F | 94 | 2388 | 84 | 2134 | 54 | 1372 | Floor | ★ | — | — | 220 |
| 35 | F | 94 | 2388 | 96 | 2438 | 54 | 1372 | Floor | ★ | — | — | 220 |
| 36 | D | 40.5 | 1031 | 36.5 | 916 | 21.75 | 553 | Floor | ★ | — | — | 220 |
| 37 | D | 51.5 | 1310 | 40.5 | 1031 | 26.5 | 674 | Floor | ★ | — | — | 220 |
| 38 | D | 66 | 1679 | 50.5 | 1285 | 32 | 814 | Floor | ★ | — | — | 220 |
| 39 | F | 90 | 2290 | 80 | 2036 | 50 | 1272 | Floor | ★ | — | — | 220 |
| 40 | F | 90 | 2290 | 90 | 2290 | 50 | 1272 | Floor | ★ | — | — | 220 |
| 41 | F | 100 | 2545 | 100 | 2545 | 60 | 1527 | Floor | ★ | — | — | 220 |
| 42 | F | 108 | 2748 | 108 | 2748 | 60 | 1527 | Floor | ★ | — | — | 220 |
| 43 | F | 90 | 2290 | 64 | 1628 | 44 | 1120 | Floor | ★ | — | — | 220 |
| 44 | F | 90 | 2290 | 72 | 1832 | 50 | 1272 | Floor | ★ | — | — | 220 |
| 45 | D | 80 | 2036 | 64 | 1628 | 44 | 1120 | Floor | ★ | — | — | 220 |
| 51 | X | 9.5 | 24 | 10 | 25 | 7.75 | 20 | Wall | △ | ♦ | — | 180 |
| 52 | X | 12 | 30 | 13.75 | 35 | 13.75 | 35 | Wall | △ | ♦ | — | 180 |
| 53 | X | 24 | 61 | 21.5 | 55 | 16.38 | 42 | Wall | △ | ♦ | — | 180 |
| 54 | X | 23 | 58 | 25.5 | 65 | 13.75 | 35 | Wall | △ | ♦ | — | 180 |
| 55 | X | 31.5 | 80 | 31.5 | 80 | 16.25 | 41 | Wall | △ | ♦ | — | 180 |
| 61 | HX | Contact your local Schneider Electric representative for details. | | | | | | | | | | |
| 62 | HX | | | | | | | | | | | |
| 63 | HX | | | | | | | | | | | |

▲ These dimensions are not for construction. Contact your local Schneider Electric representative for certified prints.
■ Transformer is NEMA Type 3R Standard. Weathershield not required for outdoor use.
♦ Wall mounting brackets are a standard part of transformer enclosure. Accessory not required.
★ Special outdoor construction required for NEMA Type 3R applications. Contact your local Schneider Electric representative for details.
▼ Indoor/outdoor enclosure standard. Weathershield not required.
△ Transformer is NEMA Type 4X Standard. Weathershield not required.

**NOTE:** Wall mounting brackets are used with units weighing no more than 700 lbs.
Ceiling mounting brackets are used with units weighing no more than 1200 lbs.
Weathershields are available for units 600 Volts and below. For 2.4, 5, and 15 kV units suitable for outdoor use, contact the factory.



© 2011 Schneider Electric
All Rights Reserved

Lugs are not supplied with transformer units. They must be purchased separately.

### Table 14.20: Mechanical Lug Kits

| Catalog No. ▲ | $ Price Per Kit | Lugs Per Kit | Wire Range | Cap Screws | Current Range | Grounding Lugs per Kit | Wire Range | Bonding Lugs per Kit | Wire Range |
|---|---|---|---|---|---|---|---|---|---|
| **Single-Phase Primary, Single-Phase Secondary, Three-Phase Delta Primary, Three-Phase Delta Secondary** | | | | | | | | | |
| DASKP100 | **28.00** | 3 | 1/0–14 STR. | 1/4 x 1 in | Up to 100 A | Not applicable | Not applicable | Not applicable | Not applicable |
| DASKP250 | **51.00** | 3 | 350 kcmil–6 STR. | 3/8 x 2 in | 101 to 250 A | | | | |
| DASKP400 | **91.00** | 3 | 600 kcmil–4 STR. (2) 250 kcmil–1/0 STR. | 3/8 x 2 in | 201 to 400 A | | | | |
| DASKP600 | **182.00** | 6 | 600 kcmil–4 STR. (2) 250 kcmil–1/0 STR. | 3/8 x 2 in | 601 to 800 A | | | | |
| DASKP1000 | **272.00** | 9 | 600 kcmil–2 STR. | 3/8 x 2 in | 601 to 800 A | | | | |
| DASKP1200 | **363.00** | 12 | 600 kcmil–2 STR. | 3/8 x 2 in | 801 to 1200 A | | | | |
| **Single-Phase Primary and Secondary, Three-Phase Wye Secondary, Three-Phase Delta with Center Tap** | | | | | | | | | |
| DASKGS100 | **79.00** | 5 | 1/0–14 STR. | 1/4 x 1 in | Up to 100 A | 1 | (4) 2/0 to 14 STR | 1 | 2 to 14 STR |
| DASKGS250 | **118.00** | 5 | 350 kcmil–6 STR. | 3/8 x 2 in | 101 to 250 A | 1 | (4) 2/0 to 14 STR | 1 | 2 to 14 STR |
| DASKGS400 | **184.00** | 5 | 600 kcmil–4 STR. (2) 250 kcmil–1/0 STR. | 3/8 x 2 in | 201 to 400 A | 1 | (4) 2/0 to 14 STR | 1 | 1/0 to 14 STR |
| DASKGS600 | **370.00** | 10 | 600 kcmil–2 STR. | 3/8 x 2 in | 601 to 800 A | 1 | (4) 350 kcmil to 6 STR. | 1 | 250 kcmil to 6 STR. |
| DASKGS1000 | **521.00** | 15 | 600 kcmil–2 STR. | 3/8 x 2 in | 601 to 800 A | 1 | (4) 350 kcmil to 6 STR. | 1 | 250 kcmil to 6 STR. |
| DASKGS1200 | **672.00** | 20 | 600 kcmil–2 STR. | 3/8 x 2 in | 801 to 1200 A | 1 | (4) 350 kcmil to 6 STR. | 1 | 250 kcmil to 6 STR. |
| DASKGS2000 | **824.00** | 25 | 600 kcmil–2 STR. | 3/8 x 2 in | 1201 to 2000 A | 1 | (4) 350 kcmil to 6 STR. | 1 | 250 kcmil to 6 STR. |

▲ Subject to minimum billing and freight charges when not ordered with transformer.

### Table 14.21: Compression Lug Kits

| Transformer kVA Sizes | Kit Catalog No. | $ Price Per Kit | Terminal Lugs | | Aluminum or Copper Conductor Range (AWG or kcmil) | Hardware Included | |
|---|---|---|---|---|---|---|---|
| | | | Qty. | Catalog No. | | Qty. | Cap Screws |
| 15–37 ½ 1Ø<br>15–45 3Ø | VCELSK1 | **261.00** | 8<br>5 | VCEL02114S1<br>VCEL030516H1 | #8–1/0<br>#4–300 kcmil | 8<br>1 | 1/4 x 1 in<br>1/4 x 2 in |
| 50–75 1Ø<br>75–112 ½ 3 Ø | VCELSK2 | **424.00** | 13 | VCEL030516H1 | #4–300 kcmil | 8<br>8 | 1/4 x 1 in<br>1/4 x 2 in |
| 100–167 1Ø<br>150–300 3Ø | VCELSK3 | **2407.00** | 3 | VCEL030516H1 | #4–300 kcmil | 3 | 1/4 x 3/4 in |
| | | | 26 | VCEL07512H1 | 500–750 kcmil Al<br>500 kcmil Cu | 16 | 3/8 x 2 in |
| 500 3Ø | VCELSK4 | **2619.00** | 34 | VCEL07512H1 | 500–750 kcmil Al<br>500 kcmil Cu | 21 | 3/8 x 2 in |

Fingersafe™ terminal block cover kits for encapsulated transformers can be used to meet touch-safe requirements of EN60-204.

### Table 14.22: Fingersafe Terminal Block Cover Kits

| Fits Enclosure | Kit Catalog No. | $ Price |
|---|---|---|
| 7A (1 kVA) | 7400ENT9 | **200.00** |
| 9A (2 kVA) | 7400ENT11 | **200.00** |
| 10A (3 kVA) | 7400ENT11 | **200.00** |
| 13B (5–10 kVA) | 7400ENT13 | **284.00** |

### Table 14.23: Weathershields; Wall and Ceiling Mounting Brackets

| Weathershields | | Ceiling Mounting Brackets ♦ | | Wall Mounting Brackets ■ | |
|---|---|---|---|---|---|
| Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| WS363 | **299.00** | CMB363 | **300.00** | WMB361362 | **663.00** |
| WS364 | **299.00** | CMB364 | **300.00** | WMB363364 | **663.00** |
| WS370A | **2325.00** | CMB380 | **748.00** | | |
| WS380 | **682.00** | CMB381 | **748.00** | | |
| WS381 | **682.00** | | | | |
| WS382 | **1160.00** | | | | |
| WS383 | **2184.00** | | | | |
| WS384 | **2464.00** | | | | |

■ Wall mounting brackets may be prohibited in some California areas requiring 12-inch spacing from wall. Wall mounting brackets can only be used with units weighing no more than 700 lbs.

♦ Base channels are supplied for ceiling mounting; trapeze hangers must be furnished by customer. Ceiling mounting brackets can only be used with units weighing no more than 1200 lbs.

*New!* All ventilated units are now available with factory-installed, thermo-viewing windows. The windows allow completion of yearly maintenance requirements without removing the front cover and accessing the transformers.

Available on all enclosures 17D through 35D. For more information, refer to Data Bulletin 7400DB1101 or contact your local Schneider Electric representative or distributor.



© 2011 Schneider Electric
All Rights Reserved





## Sealed, Mini Power-Zone™ Unit Substation

The Square D™ brand Mini Power-Zone™ unit substation from Schneider Electric provides the answer to requirements for a portable, compact power supply for small loads. This complete package yields considerable savings in installation time and costs. Its NEMA Type 3R enclosure is suitable for both indoor and outdoor use. The transformer is 115 °C rise and epoxy-resin encapsulated. The panel section uses Square D™ brand QO™ style circuit breakers.

**NOTE:** Mini Power-Zone unit substations are UL 1062 File E92978 Listed.

Mini Power-Zone unit substations include factory-installed primary main and secondary main circuit breakers. Circuit breaker ratings are selected to meet National Electrical Code requirements and coordinate with transformer magnetizing inrush current. Order feeder circuit breakers (QO™ plug-on type) from your local Schneider Electric distributor. Use Qwik-Gard™ breakers for required ground fault protection. Tandem breakers are not permitted.

If bolt-on circuit breakers are required instead of plug-on, change the Mini Power-Zone part number from MPZ to MPZB. The MPZB product line leverages the NQ interior for application requirements.

The Mini Power-Zone unit substation uses a separate transformer and panel section. This allows the panel section to be removed and wired first if desired. Also the transformer can be replaced without disturbing the panel section and associated wiring. The new transformer simply slides into the top of the panel section and primary and secondary leads are reconnected to the main circuit breakers.

**Table 14.24: Standard Enclosure (NEMA Type 3R)**

| kVA | Catalog No. | $ Price | Input Voltage | Full Capacity Taps | Weight (lbs) | Dimensions ▲ H In. | H mm | W In. | W mm | D In. | D mm | Primary Main Circuit Breaker Rating (A) | Secondary Main Circuit Breaker Rating (A) | Feeder Breakers Max. No. 1- or 3-Pole | Feeder Breakers Max. A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZ15T2F | **10088.00** | 480 | 2–5% FCBN | 510 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZ22T2F | **12502.00** | 480 | 2–5% FCBN | 725 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZ30T2F | **15338.00** | 480 | 2–5% FCBN | 755 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZ3S40F | **3565.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZ5S40F | **3890.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZ7S40F | **4542.00** | 480 | 2–5% FCBN | 200 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZ10S40F | **4938.00** | 480 | 2–5% FCBN | 215 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZ15S40F | **6410.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZ25S40F | **9560.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |
| **Output Three-Phase Panel Rated 208Y/120—Interrupting Rating 25 AIC** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZ15T2F25K | **12395.00** | 480 | 2–5% FCBN | 710 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZ22T2F25K | **14809.00** | 480 | 2–5% FCBN | 725 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZ30T2F25K | **17645.00** | 480 | 2–5% FCBN | 755 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240—Interrupting Rating 25 AIC** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZ3S40F25K | **5872.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZ5S40F25K | **6197.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZ7S40F25K | **6849.00** | 480 | 2–5% FCBN | 200 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZ10S40F25K | **7245.00** | 480 | 2–5% FCBN | 215 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZ15S40F25K | **8717.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZ25S40F25K | **11867.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZB15T2F | **12610.00** | 480 | 2–5% FCBN | 510 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZB22T2F | **15624.00** | 480 | 2–5% FCBN | 725 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZB30T2F | **19176.00** | 480 | 2–5% FCBN | 755 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZB3S40F | **4535.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZB5S40F | **4860.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZB7S40F | **5680.00** | 480 | 2–5% FCBN | 200 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZB10S40F | **6170.00** | 480 | 2–5% FCBN | 215 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZB15S40F | **8010.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZB25S40F | **11950.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |

▲ Dimensions: DO NOT use for construction. Contact your local Schneider Electric representative for certified prints.

**NOTE:** Other input voltages are available. Contact your local Schneider Electric representative for part numbers and quotations.
Available input voltages: 600, 240, and 208, single- and three-phase.
FCBN = full capacity below normal



© 2011 Schneider Electric
All Rights Reserved

## Table 14.25: Standard Enclosure (NEMA Type 3R) (continued)

| kVA | Catalog No. | $ Price | Input Voltage | Full Capacity Taps | Weight (lbs) | Dimensions ▲ H In. | H mm | W In. | W mm | D In. | D mm | Primary Main Circuit Breaker Rating (A) | Secondary Main Circuit Breaker Rating (A) | Feeder Breakers Max. No. 1- or 3-Pole | Feeder Breakers Max. A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZB15T2F25K | **14917.00** | 480 | 2–5% FCBN | 710 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZB22T2F25K | **17931.00** | 480 | 2–5% FCBN | 725 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZB30T2F25K | **21483.00** | 480 | 2–5% FCBN | 755 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZB3S40F25K | **6843.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZB5S40F25K | **7168.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZB7S40F25K | **7987.00** | 480 | 2–5% FCBN | 200 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZB10S40F25K | **8478.00** | 480 | 2–5% FCBN | 215 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZB15S40F25K | **10317.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZB25S40F25K | **14257.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZB15T2F65K | **15638.00** | 480 | 2–5% FCBN | 710 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZB22T2F65K | **18652.00** | 480 | 2–5% FCBN | 725 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZB30T2F65K | **22204.00** | 480 | 2–5% FCBN | 755 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZB3S40F65K | **7564.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZB5S40F65K | **7889.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZB7S40F65K | **8708.00** | 480 | 2–5% FCBN | 200 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZB10S40F65K | **9799.00** | 480 | 2–5% FCBN | 215 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZB15S40F65K | **11038.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZB25S40F65K | **14978.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |

## Table 14.26: Painted 316 Stainless Steel Enclosure (NEMA Type 3R)

| kVA | Catalog No. | $ Price | Input Voltage | Full Capacity Taps | Weight (lbs) | Dimensions ▲ H In. | H mm | W In. | W mm | D In. | D mm | Primary Main Circuit Breaker Rating (A) | Secondary Main Circuit Breaker Rating (A) | Feeder Breakers Max. No. 1- or 3-Pole | Feeder Breakers Max. A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZ15T2FSS | **20108.00** | 480 | 2–5% FCBN | 710 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZ22T2FSS | **23122.00** | 480 | 2–5% FCBN | 725 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 70 | 80 | | 60 |
| 30 | MPZ30T2FSS | **24376.00** | 480 | 2–5% FCBN | 755 | 44.6 | 1133 | 27.4 | 696 | 13.6 | 345 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZ3S40FSS | **10705.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZ5S40FSS | **11030.00** | 480 | 2–5% FCBN | 175 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 15 | 30 | | 20 |
| 7.5 | MPZ7S40FSS | **12428.00** | 480 | 2–5% FCBN | 200 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 20 | 40 | | 30 |
| 10 | MPZ10S40FSS | **12920.00** | 480 | 2–5% FCBN | 215 | 32.7 | 831 | 12.0 | 305 | 11.9 | 302 | 30 | 60 | | 40 |
| 15 | MPZ15S40FSS | **14758.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZ25S40FSS | **17266.00** | 480 | 2–5% FCBN | 390 | 42.9 | 1090 | 17.4 | 442 | 13.5 | 343 | 100 | 125 | | 100 |
| **Output Three-Phase Panel Rated 208Y/120** | | | | | | | | | | | | | | **Max. No. 1- or 3-Pole** | **Max. A** |
| 15 | MPZB15T2FSS | **25135.00** | 480 | 2–5% FCBN | 710 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 48.6 | 40 | 60 | 24 or 8 | 40 |
| 22.5 | MPZB22T2FSS | **28896.00** | 480 | 2–5% FCBN | 725 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 48.6 | 70 | 80 | | 60 |
| 30 | MPZB30T2FSS | **30476.00** | 480 | 2–5% FCBN | 755 | 48.6 | 1234 | 27.4 | 696 | 13.6 | 48.6 | 90 | 100 | | 80 |
| **Output Single-Phase Panel Rated 120/240** | | | | | | | | | | | | | | **Max. No. 1- or 2-Pole** | **Max. A** |
| 3 | MPZB3S40FSS | **13455.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 302 | 10 | 20 | 10 or 5 | 20 |
| 5 | MPZB5S40FSS | **13780.00** | 480 | 2–5% FCBN | 175 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 41.0 | 15 | 30 | | 20 |
| 7.5 | MPZB7S40FSS | **15542.00** | 480 | 2–5% FCBN | 200 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 41.0 | 20 | 40 | | 30 |
| 10 | MPZB10S40FSS | **16159.00** | 480 | 2–5% FCBN | 215 | 41.0 | 1041 | 12.0 | 305 | 11.9 | 41.0 | 30 | 60 | | 40 |
| 15 | MPZB15S40FSS | **18442.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 51.0 | 60 | 80 | 28 or 13 | 60 |
| 25 | MPZB25S40FSS | **21583.00** | 480 | 2–5% FCBN | 390 | 51.0 | 1295 | 17.4 | 442 | 13.5 | 51.0 | 100 | 125 | | 100 |

▲ Dimensions: DO NOT use for construction. Contact your local Schneider Electric representative for certified prints.

**NOTE:** FCBN = full capacity below normal



© 2011 Schneider Electric
All Rights Reserved

Type T transformers are designed with low impedance windings for excellent voltage regulation and can accommodate the high inrush current associated with contactors, starters, solenoids, and relays. Type T transformers are manufactured using the most advanced insulating materials and are the best choice if size and cost are of concern.

Type TF transformers include factory-installed primary and secondary fuse blocks. Type TF transformers consist of two primary fuse blocks and one secondary fuse block. The primary includes rejection-style clips to increase the AIC ratings for the fuses. Since the fuse blocks are mounted on the top of the transformer, Type TF transformers are interchangeable with Type T transformers except for their increased height.

### Table 14.27: Type T and TF Transformers

| VA | VA | Type T Transformers | | Type TF Transformers | | Weight (lbs) |
|---|---|---|---|---|---|---|
| UL/CSA/ NOM | CE | Catalog No. | $ Price | Catalog No. | $ Price | |
| **240 V x 480 V Primary, 120 V Secondary; 230 V x 460 V Primary, 115 V Secondary; 220 V x 440 V Primary, 110 V Secondary** | | | | | | |
| 25 | 25 | 9070T25D1 | **111.00** | 9070TF25D1 | **160.00** | 2.5 |
| 50 | 50 | 9070T50D1 | **116.00** | 9070TF50D1 | **165.00** | 2.5 |
| 75 | 75 | 9070T75D1 | **138.00** | 9070TF75D1 | **185.00** | 3.8 |
| 100 | 100 | 9070T100D1 | **155.00** | 9070TF100D1 | **201.00** | 3.8 |
| 150 | 150 | 9070T150D1 | **165.00** | 9070TF150D1 | **213.00** | 5.5 |
| 200 | 200 | 9070T200D1 | **204.00** | 9070TF200D1 | **255.00** | 5.5 |
| 250 | 160 | 9070T250D1 | **239.00** | 9070TF250D1 | **287.00** | 7.1 |
| 300 | 200 | 9070T300D1 | **264.00** | 9070TF300D1 | **312.00** | 8.5 |
| 350 | 250 | 9070T350D1 | **281.00** | 9070TF350D1 | **330.00** | 10.5 |
| 500 | 300 | 9070T500D1 | **350.00** | 9070TF500D1 | **395.00** | 11.9 |
| 750 | 500 | 9070T750D1 | **483.00** | 9070TF750D1 | **531.00** | 11.0 |
| 1000 | 630 | 9070T1000D1 | **585.00** | 9070TF1000D1 | **639.00** | 20.6 |
| 1500 | 1000 | 9070T1500D1 | **837.00** | 9070TF1500D1 | **884.00** | 34.0 |
| 2000 | 1500 | 9070T2000D1 | **1017.00** | 9070TF2000D1 | **1065.00** | 47.0 |
| 3000 | 2000 | 9070T3000D1 | **1412.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D1 | **2373.00** | — | — | 89.0 |
| **208 V Primary, 120 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D3 | **135.00** | 9070TF50D3 | **185.00** | 2.5 |
| 75 | 75 | 9070T75D3 | **162.00** | 9070TF75D3 | **230.00** | 3.8 |
| 100 | 100 | 9070T100D3 | **182.00** | 9070TF100D3 | **276.00** | 3.8 |
| 150 | 150 | 9070T150D3 | **230.00** | 9070TF150D3 | **287.00** | 5.5 |
| 200 | 200 | 9070T200D3 | **293.00** | 9070TF200D3 | **347.00** | 5.5 |
| 250 | 160 | 9070T250D3 | **363.00** | 9070TF250D3 | **417.00** | 7.1 |
| 300 | 200 | 9070T300D3 | **372.00** | 9070TF300D3 | **426.00** | 8.5 |
| 350 | 250 | 9070T350D3 | **432.00** | 9070TF350D3 | **522.00** | 10.5 |
| 500 | 300 | 9070T500D3 | **471.00** | 9070TF500D3 | **696.00** | 11.9 |
| 750 | 500 | 9070T750D3 | **665.00** | 9070TF750D3 | **716.00** | 11.0 |
| 1000 | 630 | 9070T1000D3 | **837.00** | 9070TF1000D3 | **906.00** | 20.6 |
| 1500 | 1000 | 9070T1500D3 | **1170.00** | 9070TF1500D3 | **1221.00** | 34.0 |
| 2000 | 1500 | 9070T2000D3 | **1358.00** | 9070TF2000D3 | **1409.00** | 47.0 |
| 3000 | 2000 | 9070T3000D3 | **1914.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D3 | **3015.00** | — | — | 89.0 |
| **600 V Primary, 120 V Secondary; 575 V Primary, 115 V Secondary; 550 V Primary, 110 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D5 | **135.00** | 9070TF50D5 | **185.00** | 2.5 |
| 75 | 75 | 9070T75D5 | **162.00** | 9070TF75D5 | **230.00** | 3.8 |
| 100 | 100 | 9070T100D5 | **182.00** | 9070TF100D5 | **276.00** | 3.8 |
| 150 | 150 | 9070T150D5 | **230.00** | 9070TF150D5 | **287.00** | 5.5 |
| 200 | 200 | 9070T200D5 | **293.00** | 9070TF200D5 | **347.00** | 5.5 |
| 250 | 160 | 9070T250D5 | **363.00** | 9070TF250D5 | **417.00** | 7.1 |
| 300 | 200 | 9070T300D5 | **372.00** | 9070TF300D5 | **426.00** | 8.5 |
| 350 | 250 | 9070T350D5 | **432.00** | 9070TF350D5 | **522.00** | 10.5 |
| 500 | 300 | 9070T500D5 | **471.00** | 9070TF500D5 | **696.00** | 11.9 |
| 750 | 500 | 9070T750D5 | **665.00** | 9070TF750D5 | **716.00** | 11.0 |
| 1000 | 630 | 9070T1000D5 | **837.00** | 9070TF1000D5 | **906.00** | 20.6 |
| 1500 | 1000 | 9070T1500D5 | **1170.00** | 9070TF1500D5 | **1221.00** | 34.0 |
| 2000 | 1500 | 9070T2000D5 | **1358.00** | 9070TF2000D5 | **1409.00** | 47.0 |
| 3000 | 2000 | 9070T3000D5 | **1914.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D5 | **3015.00** | — | — | 89.0 |
| **277 V Primary, 120 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D4 | **135.00** | — | — | 2.5 |
| 75 | 75 | 9070T75D4 | **162.00** | — | — | 3.8 |
| 100 | 100 | 9070T100D4 | **182.00** | — | — | 3.8 |
| 150 | 150 | 9070T150D4 | **230.00** | — | — | 5.5 |
| 200 | 200 | 9070T200D4 | **293.00** | — | — | 5.5 |
| 250 | 160 | 9070T250D4 | **363.00** | — | — | 7.1 |
| 300 | 200 | 9070T300D4 | **372.00** | — | — | 8.5 |
| 350 | 250 | 9070T350D4 | **432.00** | — | — | 10.5 |
| 500 | 300 | 9070T500D4 | **471.00** | — | — | 11.9 |
| 750 | 500 | 9070T750D4 | **665.00** | — | — | 11.0 |
| 1000 | 630 | 9070T1000D4 | **837.00** | — | — | 20.6 |
| 1500 | 1000 | 9070T1500D4 | **1170.00** | — | — | 34.0 |
| 2000 | 1500 | 9070T2000D4 | **1358.00** | — | — | 47.0 |
| 3000 | 2000 | 9070T3000D4 | **1914.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D4 | **3015.00** | — | — | 89.0 |
| **240 V x 480 V Primary, 120/240 V Secondary; 230 V x 460 V Primary, 115/230 V Secondary; 220 V x 440 V Primary, 110/220 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D31 | **188.00** | 9070TF50D31 | **372.00** | 2.5 |
| 75 | 75 | 9070T75D31 | **197.00** | 9070TF75D31 | **384.00** | 3.8 |
| 100 | 100 | 9070T100D31 | **207.00** | 9070TF100D31 | **394.00** | 3.8 |
| 150 | 150 | 9070T150D31 | **273.00** | 9070TF150D31 | **452.00** | 5.5 |
| 200 | 200 | 9070T200D31 | **353.00** | 9070TF200D31 | **498.00** | 5.5 |
| 250 | 160 | 9070T250D31 | **381.00** | 9070TF250D31 | **564.00** | 7.1 |
| 300 | 200 | 9070T300D31 | **435.00** | 9070TF300D31 | **570.00** | 8.5 |
| 350 | 250 | 9070T350D31 | **455.00** | 9070TF350D31 | **630.00** | 10.5 |
| 500 | 300 | 9070T500D31 | **509.00** | 9070TF500D31 | **638.00** | 11.9 |
| 750 | 500 | 9070T750D31 | **710.00** | 9070TF750D31 | **795.00** | 11.0 |
| 1000 | 630 | 9070T1000D31 | **837.00** | 9070TF1000D31 | **920.00** | 20.6 |
| 1500 | 1000 | 9070T1500D31 | **1224.00** | 9070TF1500D31 | **1524.00** | 34.0 |
| 2000 | 1500 | 9070T2000D31 | **1854.00** | 9070TF2000D31 | **2154.00** | 47.0 |
| 3000 | 2000 | 9070T3000D31 | **2741.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D31 | **3368.00** | — | — | 89.0 |
| **600 V Primary, 120/240 V Secondary; 575 V Primary, 115/230 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D37 | **135.00** | 9070TF50D37 | **372.00** | 2.5 |
| 75 | 75 | 9070T75D37 | **162.00** | 9070TF75D37 | **384.00** | 3.8 |
| 100 | 100 | 9070T100D37 | **182.00** | 9070TF100D37 | **394.00** | 3.8 |
| 150 | 150 | 9070T150D37 | **230.00** | 9070TF150D37 | **452.00** | 5.5 |
| 200 | 200 | 9070T200D37 | **293.00** | 9070TF200D37 | **498.00** | 5.5 |
| 250 | 160 | 9070T250D37 | **363.00** | 9070TF250D37 | **564.00** | 7.1 |
| 300 | 200 | 9070T300D37 | **372.00** | 9070TF300D37 | **570.00** | 8.5 |
| 350 | 250 | 9070T350D37 | **432.00** | 9070TF350D37 | **630.00** | 10.5 |
| 500 | 300 | 9070T500D37 | **471.00** | 9070TF500D37 | **638.00** | 11.9 |
| 750 | 500 | 9070T750D37 | **665.00** | 9070TF750D37 | **795.00** | 11.0 |
| 1000 | 630 | 9070T1000D37 | **837.00** | 9070TF1000D37 | **920.00** | 20.6 |
| 1500 | 1000 | 9070T1500D37 | **1170.00** | 9070TF1500D37 | **1524.00** | 34.0 |
| 2000 | 1500 | 9070T2000D37 | **1358.00** | 9070TF2000D37 | **2154.00** | 47.0 |
| 3000 | 2000 | 9070T3000D37 | **1914.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D37 | **3015.00** | — | — | 89.0 |
| **380/400/415 V Primary, 115/230 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D33 | **188.00** | 9070TF50D33 | **372.00** | 2.5 |
| 75 | 75 | 9070T75D33 | **197.00** | 9070TF75D33 | **384.00** | 3.8 |
| 100 | 100 | 9070T100D33 | **207.00** | 9070TF100D33 | **394.00** | 3.8 |
| 150 | 150 | 9070T150D33 | **273.00** | 9070TF150D33 | **452.00** | 5.5 |
| 200 | 200 | 9070T200D33 | **353.00** | 9070TF200D33 | **498.00** | 5.5 |
| 250 | 160 | 9070T250D33 | **381.00** | 9070TF250D33 | **564.00** | 7.1 |
| 300 | 200 | 9070T300D33 | **435.00** | 9070TF300D33 | **570.00** | 8.5 |
| 350 | 250 | 9070T350D33 | **455.00** | 9070TF350D33 | **630.00** | 10.5 |
| 500 | 300 | 9070T500D33 | **509.00** | 9070TF500D33 | **638.00** | 11.9 |
| 750 | 500 | 9070T750D33 | **710.00** | 9070TF750D33 | **795.00** | 11.0 |
| 1000 | 630 | 9070T1000D33 | **837.00** | 9070TF1000D33 | **920.00** | 20.6 |
| 1500 | 1000 | 9070T1500D33 | **1224.00** | 9070TF1500D33 | **1524.00** | 34.0 |
| 2000 | 1500 | 9070T2000D33 | **1854.00** | 9070TF2000D33 | **2154.00** | 47.0 |
| 3000 | 2000 | 9070T3000D33 | **2741.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D33 | **3368.00** | — | — | 89.0 |







© 2011 Schneider Electric
All Rights Reserved

## Table 14.28: Type T and TF Transformers (continued)

| VA | VA | Type T Transformers | | Type TF Transformers | | Weight (lbs) |
|---|---|---|---|---|---|---|
| UL/CSA/ NOM | CE | Catalog No. | $ Price | Catalog No. | $ Price | |
| **208/230/460 V Primary, 115 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D20 | **188.00** | 9070TF50D20 | **270.00** | 4 |
| 75 | 75 | 9070T75D20 | **197.00** | 9070TF75D20 | **293.00** | 5.5 |
| 100 | 100 | 9070T100D20 | **207.00** | 9070TF100D20 | **360.00** | 5.5 |
| 150 | 150 | 9070T150D20 | **273.00** | 9070TF150D20 | **443.00** | 5.5 |
| 200 | 200 | 9070T200D20 | **353.00** | 9070TF200D20 | **497.00** | 8.5 |
| 250 | 160 | 9070T250D20 | **381.00** | 9070TF250D20 | **548.00** | 10.5 |
| 300 | 200 | 9070T300D20 | **435.00** | 9070TF300D20 | **563.00** | 10.5 |
| 350 | 250 | 9070T350D20 | **455.00** | 9070TF350D20 | **585.00** | 11.9 |
| 500 | 300 | 9070T500D20 | **509.00** | 9070TF500D20 | **608.00** | 11 |
| 750 | 500 | 9070T750D20 | **710.00** | 9070TF750D20 | **951.00** | 20.6 |
| 1000 | 630 | 9070T1000D20 | **837.00** | 9070TF1000D20 | **1320.00** | 34 |
| 1500 | 1000 | 9070T1500D20 | **1224.00** | 9070TF1500D20 | **1524.00** | 47 |
| 2000 | 1500 | 9070T2000D20 | **1854.00** | 9070TF2000D20 | **2154.00** | 60 |
| 3000 | 2000 | 9070T3000D20 | **2741.00** | — | — | 89 |
| **240/480/600 V Primary, 120 V Secondary; 230/460/575 V Primary, 115 V Secondary; 220/440/550 V Primary, 110 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D32 | **188.00** | 9070TF50D32 | **372.00** | 3.8 |
| 75 | 75 | 9070T75D32 | **197.00** | 9070TF75D32 | **384.00** | 3.8 |
| 100 | 100 | 9070T100D32 | **207.00** | 9070TF100D32 | **394.00** | 5.5 |
| 150 | 150 | 9070T150D32 | **273.00** | 9070TF150D32 | **452.00** | 5.5 |
| 200 | 200 | 9070T200D32 | **353.00** | 9070TF200D32 | **498.00** | 7.1 |
| 250 | 160 | 9070T250D32 | **381.00** | 9070TF250D32 | **564.00** | 8.5 |
| 300 | 200 | 9070T300D32 | **435.00** | 9070TF300D32 | **570.00** | 10.5 |
| 350 | 250 | 9070T350D32 | **455.00** | 9070TF350D32 | **630.00** | 11.9 |
| 500 | 300 | 9070T500D32 | **509.00** | 9070TF500D32 | **638.00** | 11.0 |
| 750 | 500 | 9070T750D32 | **710.00** | 9070TF750D32 | **795.00** | 20.6 |
| 1000 | 630 | 9070T1000D32 | **837.00** | 9070TF1000D32 | **920.00** | 34.0 |
| 1500 | 1000 | 9070T1500D32 | **1224.00** | 9070TF1500D32 | **1524.00** | 47.0 |
| 2000 | 1500 | 9070T2000D32 | **1854.00** | 9070TF2000D32 | **2154.00** | 60.0 |
| 3000 | 2000 | 9070T3000D32 | **2741.00** | — | — | 89.0 |
| **240/416/480/600 V Primary, 99/120/130 V Secondary; 230/400/460/575 V Primary, 95/115/125 V Secondary; 220/380/440/550 V Primary, 90/110/120 V Secondary; 208/360/416/520 V Primary, 85/104/115 V Secondary** | | | | | | |
| 50 | 50 | 9070T50D50 | **315.00** | 9070TF50D50 | **502.00** | 4 |
| 75 | 75 | 9070T75D50 | **341.00** | 9070TF75D50 | **528.00** | 7.2 |
| 100 | 100 | 9070T100D50 | **350.00** | 9070TF100D50 | **537.00** | 7.1 |
| 150 | 150 | 9070T150D50 | **366.00** | 9070TF150D50 | **553.00** | 8.5 |
| 200 | 200 | 9070T200D50 | **417.00** | 9070TF200D50 | **604.00** | 10.5 |
| 250 | 160 | 9070T250D50 | **455.00** | 9070TF250D50 | **642.00** | 10.5 |
| 300 | 200 | 9070T300D50 | **497.00** | 9070TF300D50 | **684.00** | 11.9 |
| 350 | 250 | 9070T350D50 | **512.00** | 9070TF350D50 | **699.00** | 11 |
| 500 | 300 | 9070T500D50 | **656.00** | 9070TF500D50 | **843.00** | 11 |
| 750 | 500 | 9070T750D50 | **761.00** | 9070TF750D50 | **948.00** | 20.6 |
| 1000 | 630 | 9070T1000D50 | **996.00** | 9070TF1000D50 | **1183.00** | 34 |
| 1500 | 1000 | 9070T1500D50 | **1352.00** | 9070TF1500D50 | **1524.00** | 47.0 |
| 2000 | 1500 | 9070T2000D50 | **1854.00** | 9070TF2000D50 | **2154.00** | 60.0 |
| 3000 | 2000 | 9070T3000D50 | **2741.00** | — | — | 89.0 |
| **240 V X 480 V Primary, 24/120 V Secondary (24 V limited to 20% Capacity)** | | | | | | |
| 50 | 50 | 9070T50D15 | **135.00** | — | — | 2.5 |
| 75 | 75 | 9070T75D15 | **162.00** | — | — | 3.8 |
| 100 | 100 | 9070T100D15 | **207.00** | — | — | 3.8 |
| 150 | 150 | 9070T150D15 | **230.00** | — | — | 5.5 |
| 200 | 200 | 9070T200D15 | **293.00** | — | — | 5.5 |
| 250 | 160 | 9070T250D15 | **381.00** | — | — | 7.1 |
| 300 | 200 | 9070T300D15 | **435.00** | — | — | 8.5 |
| 350 | 250 | 9070T350D15 | **455.00** | — | — | 10.5 |
| 500 | 300 | 9070T500D15 | **509.00** | — | — | 11.9 |
| 750 | 500 | 9070T750D15 | **710.00** | — | — | 11.0 |
| 1000 | 630 | 9070T1000D15 | **837.00** | — | — | 20.6 |
| 1500 | 1000 | 9070T1500D15 | **1224.00** | — | — | 34.0 |
| 2000 | 1500 | 9070T2000D15 | **1854.00** | — | — | 47.0 |
| 3000 | 2000 | 9070T3000D15 | **2229.00** | — | — | 60.0 |
| 5000 | 3000 | 9070T5000D15 | **3015.00** | — | — | 89.0 |

## Table 14.29: Type T Transformers

| VA | VA | Catalog No. | $ Price | Weight (lbs) |
|---|---|---|---|---|
| UL/CSA/ NOM | CE | | | |
| **240 V x 480 V Primary, 24 V Secondary** | | | | |
| 50 | 50 | 9070T50D2 | **135.00** | 2.5 |
| 75 | 75 | 9070T75D2 | **162.00** | 3.8 |
| 100 | 100 | 9070T100D2 | **182.00** | 3.8 |
| 150 | 150 | 9070T150D2 | **230.00** | 5.5 |
| 200 | 200 | 9070T200D2 | **293.00** | 5.5 |
| 250 | 160 | 9070T250D2 | **363.00** | 7.1 |
| 300 | 200 | 9070T300D2 | **372.00** | 8.5 |
| 350 | 250 | 9070T350D2 | **432.00** | 10.5 |
| 500 | 300 | 9070T500D2 | **471.00** | 11.9 |
| 750 | 500 | 9070T750D2 | **665.00** | 11.0 |
| 1000 | 630 | 9070T1000D2 | **837.00** | 20.6 |
| **208 V Primary, 24 V Secondary** | | | | |
| 50 | 50 | 9070T50D14 | **135.00** | 2.5 |
| 75 | 75 | 9070T75D14 | **162.00** | 3.8 |
| 100 | 100 | 9070T100D14 | **182.00** | 3.8 |
| 150 | 150 | 9070T150D14 | **230.00** | 5.5 |
| 200 | 200 | 9070T200D14 | **293.00** | 5.5 |
| 250 | 160 | 9070T250D14 | **363.00** | 7.1 |
| 300 | 200 | 9070T300D14 | **372.00** | 8.5 |
| 350 | 250 | 9070T350D14 | **432.00** | 10.5 |
| 500 | 300 | 9070T500D14 | **471.00** | 11.9 |
| 750 | 500 | 9070T750D14 | **665.00** | 11.0 |
| 1000 | 630 | 9070T1000D14 | **837.00** | 20.6 |
| **120 V x 240 V Primary, 24 V Secondary** | | | | |
| 50 | 50 | 9070T50D23 | **135.00** | 2.5 |
| 75 | 75 | 9070T75D23 | **162.00** | 3.8 |
| 100 | 100 | 9070T100D23 | **182.00** | 3.8 |
| 150 | 150 | 9070T150D23 | **230.00** | 5.5 |
| 200 | 200 | 9070T200D23 | **293.00** | 5.5 |
| 250 | 160 | 9070T250D23 | **363.00** | 7.1 |
| 300 | 200 | 9070T300D23 | **372.00** | 8.5 |
| 350 | 250 | 9070T350D23 | **432.00** | 10.5 |
| 500 | 300 | 9070T500D23 | **471.00** | 11.9 |
| 750 | 500 | 9070T750D23 | **665.00** | 11.0 |
| 1000 | 630 | 9070T1000D23 | **837.00** | 20.6 |
| **120 V Primary, 12/24 V Secondary** | | | | |
| 50 | 50 | 9070T50D13 | **135.00** | 2.5 |
| 75 | 75 | 9070T75D13 | **162.00** | 3.8 |
| 100 | 100 | 9070T100D13 | **182.00** | 3.8 |
| 150 | 150 | 9070T150D13 | **230.00** | 5.5 |
| 200 | 200 | 9070T200D13 | **293.00** | 5.5 |
| 250 | 160 | 9070T250D13 | **363.00** | 7.1 |
| 300 | 200 | 9070T300D13 | **372.00** | 8.5 |
| 350 | 250 | 9070T350D13 | **432.00** | 10.5 |
| 500 | 300 | 9070T500D13 | **471.00** | 11.9 |
| 750 | 500 | 9070T750D13 | **665.00** | 11.0 |
| 1000 | 630 | 9070T1000D13 | **837.00** | 20.6 |
| **MultiTap 24 Volt Control Primary 208/240/277/380/480 V Primary, 24 V Secondary** | | | | |
| 50 | 50 | 9070T50D19 | **188.00** | 4.0 |
| 75 | 75 | 9070T75D19 | **197.00** | 7.2 |
| 100 | 100 | 9070T100D19 | **207.00** | 7.2 |
| 150 | 150 | 9070T150D19 | **273.00** | 7.1 |
| 200 | 200 | 9070T200D19 | **353.00** | 8.5 |
| 250 | 160 | 9070T250D19 | **381.00** | 10.5 |
| 300 | 200 | 9070T300D19 | **435.00** | 11.9 |
| 350 | 250 | 9070T350D19 | **455.00** | 11.9 |
| 500 | 300 | 9070T500D19 | **509.00** | 11.0 |
| 750 | 500 | 9070T750D19 | **710.00** | 20.6 |
| 1000 | 630 | 9070T1000D19 | **837.00** | 34.0 |



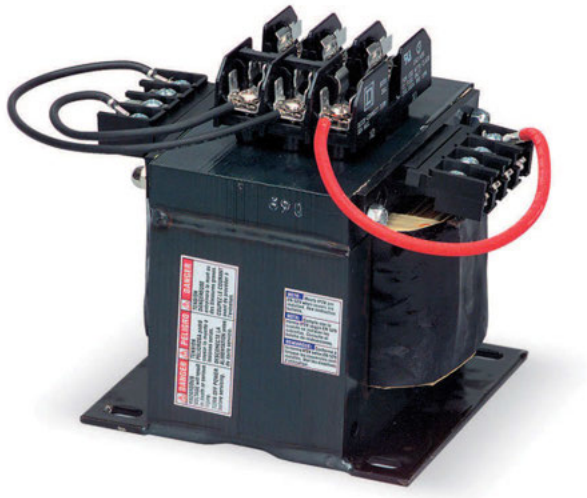
© 2011 Schneider Electric
All Rights Reserved

## Table 14.30: Type T Dimensions

| Type | Voltage Code | Height | | Width | | Depth | | Accessory Key |
|---|---|---|---|---|---|---|---|---|
| | | In. | mm | In. | mm | In. | mm | |
| T25 | D1 | 2.58 | 66 | 3.00 | 76 | 3.09 | 79 | I |
| T50 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 2.58 | 66 | 3.00 | 76 | 3.09 | 79 | I |
| | D20, D32 | 2.89 | 73 | 3.38 | 86 | 3.34 | 85 | II |
| | D19, D50 | 2.89 | 73 | 3.38 | 86 | 4.43 | 113.0 | III, IV |
| T75 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37, D20, D32 | 2.58 | 66 | 3.00 | 76 | 3.09 | 79 | I |
| | D19, D50 | 3.20 | 81 | 3.75 | 95 | 4.7 | 119.4 | III, IV |
| T100 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 2.89 | 73 | 3.38 | 86 | 3.34 | 85 | I |
| | D20, D32 | 3.20 | 81 | 3.75 | 95 | 3.59 | 91 | II |
| | D19, D50 | 3.20 | 81 | 3.75 | 95 | 4.7 | 119.4 | III, IV |
| T150 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37, D20 | 3.20 | 81 | 3.75 | 95 | 3.59 | 91 | I |
| | D19, D32 | 3.20 | 81 | 3.75 | 95 | 4.7 | 119.4 | II |
| | D50 | 3.84 | 98.0 | 4.50 | 114.3 | 4.74 | 120.4 | III, IV |
| T200 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 3.20 | 81 | 3.75 | 95 | 3.59 | 91 | I |
| | D20 | 3.20 | 81 | 3.75 | 95 | 4.7 | 119.4 | II |
| | D19, D32 | 3.84 | 98.0 | 4.50 | 114.3 | 4.74 | 120.4 | II |
| | D50 | 3.84 | 98.0 | 4.50 | 114.3 | 5.11 | 129.8 | III, IV |
| T250 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 3.21 | 82 | 3.75 | 95 | 5.30 | 135 | I |
| | D20 | 3.84 | 98.0 | 4.50 | 114.3 | 4.74 | 120.4 | II |
| | D19, D32, D50 | 3.84 | 98.0 | 4.50 | 114.3 | 5.11 | 129.8 | III, IV |
| T300 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 3.84 | 98.0 | 4.50 | 114.3 | 4.74 | 120.4 | I |
| | D19, D20 | 3.84 | 98.0 | 4.50 | 114.3 | 5.11 | 129.8 | II |
| | D32, D50 | 3.84 | 98.0 | 4.50 | 114.3 | 5.49 | 139.4 | III, IV |
| T350 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 3.84 | 98.0 | 4.50 | 114.3 | 5.11 | 129.8 | I |
| | D19, D20, D32 | 3.84 | 98.0 | 4.50 | 114.3 | 5.49 | 139.4 | II |
| | D50 | 4.51 | 114.6 | 5.25 | 133.4 | 5.61 | 142.5 | III, IV |
| T500 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 3.84 | 98.0 | 4.50 | 114.3 | 5.49 | 139.4 | I |
| | D19, D20, D32, D50 | 4.51 | 114.6 | 5.25 | 133.4 | 5.61 | 142.5 | III, IV |
| T750 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 4.51 | 114.6 | 5.25 | 133.4 | 5.61 | 142.5 | I |
| | D19, D20, D32, D50 | 4.51 | 114.6 | 5.25 | 133.4 | 6.30 | 160.0 | III, IV |
| T1000 | D1, D5, D2, D23, D14, D13, D15, D3, D4, D31, D33, D37 | 4.51 | 114.6 | 5.25 | 133.4 | 6.30 | 160.0 | I |
| | D19, D20, D32, D50 | 6.17 | 156.7 | 7.06 | 179.3 | 5.92 | 150.4 | III, IV |
| T1500 | D1, D5, D15, D3, D4, D31, D33, D37 | 6.17 | 156.7 | 7.06 | 179.3 | 5.92 | 150.4 | I |
| | D20, D32, D50 | 6.17 | 156.7 | 7.06 | 179.3 | 7.17 | 182.1 | III, IV |
| T2000 | D1, D5, D15, D3, D4, D31, D33, D37 | 6.17 | 156.7 | 7.06 | 179.3 | 7.17 | 182.1 | I |
| | D20, D32, D50 | 7.63 | 193.8 | 9.00 | 228.6 | 6.38 | 162.1 | III, IV |
| T3000 | D3, D4, D15, D31, D33, D37 | 7.63 | 193.8 | 9.00 | 228.6 | 6.38 | 162.1 | I |
| | D20 | 7.63 | 194 | 9.00 | 229 | 8.31 | 211 | II |
| | D1, D5, | 8.75 | 222 | 9.00 | 229 | 7.24 | 184 | I |
| | D32, D50 | 8.75 | 222 | 9.00 | 229 | 9.15 | 232 | III, IV |
| T5000 | D3, D4, D15, D31, D33, D37 | 7.63 | 194 | 9.00 | 229 | 8.31 | 211 | I |
| | D1, D5, | 8.75 | 222 | 9.00 | 229 | 9.15 | 232 | I |
| TF2000 | D1, D5, D15, D3, D4, D31, D33, D37 | 7.46 | 189.5 | 7.06 | 179.3 | 7.17 | 182.1 | I |
| | D20, D32, D50 | | | 9.00 | 228.6 | 6.38 | 162.1 | III, IV |

## Table 14.31: Type TF Dimensions

| Type | Voltage Code | Height | | Width | | Depth | | Accessory Key |
|---|---|---|---|---|---|---|---|---|
| | | In. | mm | In. | mm | In. | mm | |
| TF25 | D1 | 4 | 101.6 | 3.00 | 76 | 3.09 | 79 | I |
| TF50 | D1, D5, D3, D4, D31, D33, D37 | 4 | 101.6 | 3.00 | 76 | 3.09 | 79 | I |
| | D20, D32 | 4.25 | 107.9 | 3.38 | 86 | 3.34 | 85 | II |
| | D50 | 4.25 | 107.9 | 3.38 | 86 | 4.43 | 113.0 | III, IV |
| TF75 | D1, D5, D3, D4, D31, D33, D37, D20, D32 | 4.25 | 107.9 | 3.00 | 76 | 3.09 | 79 | I |
| | D50 | 4.55 | 115.6 | 3.75 | 95 | 4.7 | 119.4 | III, IV |
| TF100 | D1, D5,D3, D4, D31, D33, D37 | 4.25 | 107.9 | 3.38 | 86 | 3.34 | 85 | I |
| | D20, D32 | 4.55 | 115.6 | 3.75 | 95 | 3.59 | 91 | II |
| | D50 | 4.55 | 115.6 | 3.75 | 95 | 4.7 | 119.4 | III, IV |
| TF150 | D1, D5, D3, D4, D31, D33, D37, D20 | 4.55 | 115.6 | 3.75 | 95 | 3.59 | 91 | I |
| | D32 | 4.55 | 115.6 | 3.75 | 95 | 4.7 | 119.4 | II |
| | D50 | 5.1 | 129.6 | 4.50 | 114.3 | 4.74 | 120.4 | III, IV |
| TF200 | D1, D5, D3, D4, D31, D33, D37 | 4.55 | 115.6 | 3.75 | 95 | 3.59 | 91 | I |
| | D20 | 5.1 | 129.6 | 3.75 | 95 | 4.7 | 119.4 | II |
| | D32 | 5.1 | 129.6 | 4.50 | 114.3 | 4.74 | 120.4 | II |
| | D50 | 5.1 | 129.6 | 4.50 | 114.3 | 5.11 | 129.8 | III, IV |
| TF250 | D1, D5, D3, D4, D31, D33, D37 | 4.55 | 115.6 | 3.75 | 95 | 5.30 | 135 | I |
| | D20 | 5.1 | 129.6 | 4.50 | 114.3 | 4.74 | 120.4 | II |
| | D32, D50 | 5.1 | 129.6 | 4.50 | 114.3 | 5.11 | 129.8 | III, IV |
| TF300 | D1, D5, D3, D4, D31, D33, D37 | 5.1 | 129.6 | 4.50 | 114.3 | 4.74 | 120.4 | I |
| | D20 | 5.1 | 129.6 | 4.50 | 114.3 | 5.11 | 129.8 | II |
| | D32, D50 | 5.1 | 129.6 | 4.50 | 114.3 | 5.49 | 139.4 | III, IV |
| TF350 | D1, D5, D3, D4, D31, D33, D37 | 5.1 | 129.6 | 4.50 | 114.3 | 5.11 | 129.8 | I |
| | D20, D32 | 5.1 | 129.6 | 4.50 | 114.3 | 5.49 | 139.4 | II |
| | D50 | 5.73 | 145.6 | 5.25 | 133.4 | 5.61 | 142.5 | III, IV |
| TF500 | D1, D5, D3, D4, D31, D33, D37 | 5.1 | 129.6 | 4.50 | 114.3 | 5.49 | 139.4 | I |
| | D20, D32, D50 | 5.73 | 145.6 | 5.25 | 133.4 | 5.61 | 142.5 | III, IV |
| TF750 | D1, D5,D3, D4, D31, D33, D37 | 5.73 | 145.6 | 5.25 | 133.4 | 5.61 | 142.5 | I |
| | D20, D32, D50 | 5.73 | 145.6 | 5.25 | 133.4 | 6.30 | 160.0 | III, IV |
| TF1000 | D1, D5, D3, D4, D31, D33, D37 | 5.73 | 145.6 | 5.25 | 133.4 | 6.30 | 160.0 | I |
| | D20, D32, D50 | 7.46 | 189.5 | 7.06 | 179.3 | 5.92 | 150.4 | III, IV |
| TF1500 | D1, D5, D15, D3, D4, D31, D33, D37 | 7.46 | 189.5 | 7.06 | 179.3 | 5.92 | 150.4 | I |
| | D20, D32, D50 | 7.46 | 189.5 | 7.06 | 179.3 | 7.17 | 182.1 | III, IV |
| TF2000 | D1, D5, D15, D3, D4, D31, D33, D37 | 7.46 | 189.5 | 7.06 | 179.3 | 7.17 | 182.1 | I |
| | D20, D32, D50 | | | 9.00 | 228.6 | 6.38 | 162.1 | III, IV |





© 2011 Schneider Electric
All Rights Reserved

## Accessories

The Type T control transformers offer multiple field installable accessories:

### Table 14.32: Fingersafe™ Covers (Not Supplied with Unit)

| Type | Type Accessory Key ▲ | | | Description | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|---|---|---|---|
| | I | II | III, IV | | | | |
| FSC1 | T25–T200 | T25–T150 | — | 2 covers per kit | **21.00** | 10 | **210.00** |
| FSC2 | T250–T5000 | T250–T5000 | — | 2 covers per kit | **30.00** | 10 | **300.00** |
| FSC23 | — | — | T25–T5000 | 2 covers per kit | **30.00** | 10 | **300.00** |

▲ Kits must be ordered separately. Also supplied in bulk packages of 100 individual covers. Add "B" to Type number (available only on FSC1B and FSC2B).

### Table 14.33: Separate NEMA Type 1 Enclosures for Transformers

| Class 9991 Type | For Use With |
|---|---|
| UE7 | EO1, EO17, T50 |
| LG1 | EO2, EO3, EO4, EO15, EO16, EO18, EO19, T75, T100, T150, T200, T250, T300, T350, T500 |
| SDG4 | EO51, EO61, T750, T1000, EO71 |

**NOTE:** User must drill mounting holes. See pages 16-106 and 16-107 for dimensions.

### Table 14.34: Jumper Kits

| Catalog No. | Type Accessory Key | | | Description | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|---|---|---|---|
| | I | II | III, IV | | | | |
| 3003302753 | T25–T200 | T25–T150 | — | Two jumpers per bag Minimum order of 50 kits | **8.00** | 50 | **400.00** |
| 3003302754 | T250–T5000 | T200–T3000 | T25–T3000 | | **5.00** | 50 | **250.00** |

**NOTE:** Jumpers are supplied with voltage codes that require them. If additional kits are required, order per above chart.

### Table 14.35: Fuse Pullers (For Use on TF and FB Accessory)

| Catalog No. | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|
| 9070FP1 | **33.00** | 10 | **330.00** |

## Field Installed Fuse Options

### Table 14.36: Primary and Secondary Fusing

| Type | Type Accessory Key | | | Description | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|---|---|---|---|
| | I | II | III, IV | | | | |
| FB3A | 25–200 | 25–150 | — | Three pole fuse block for primary and secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection and 1 non-rejection) | **87.00** | 1 | **87.00** |
| FB3B | 250–2000 | 200–2000 | 25–2000 | Three pole fuse block for primary and secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection and 1 non-rejection) | **87.00** | 1 | **87.00** |

### Table 14.37: Primary Fusing

| Type | Type Accessory Key | | | Description | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|---|---|---|---|
| | I | II | III, IV | | | | |
| FB2A | 25–200 | 25–150 | — | Two pole fuse block for primary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection) | **75.00** | 1 | **75.00** |
| FB2B | 250–2000 | 200–2000 | 25–2000 | Two pole fuse block for primary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection) | **75.00** | 1 | **75.00** |

### Table 14.38: Field-Installable Secondary Fuse Clips

| Type | Type Accessory Key ♦ | | | Description | $ Price Each | Order Qty. | Order $ Price |
|---|---|---|---|---|---|---|---|
| | I | II | III, IV | | | | |
| SF25A | 25–200 | 25–150 | — | Secondary fuse block accommodates 1-1/4 x 1/4 inch fuse | **21.00** | 10 | **210.00** |
| SF25B | 250–2000 | 200–2000 | 25–2000 | Secondary fuse block accommodates 1-1/4 x 1/4 inch fuse | **21.00** | 10 | **210.00** |
| SF41A ■ | 25–200 | 25–150 | — | Secondary fuse clip accommodates 1-1/2 x 13/32 inch midget fuse | **18.00** | 10 | **180.00** |
| SF41B ■ | 250–2000 | 200–2000 | 25–2000 | Secondary fuse clip accommodates 1-1/2 x 13/32 inch midget fuse | **18.00** | 10 | **180.00** |
| FB1A | 25–200 | 25–150 | — | One pole fuse block for secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (1 non-rejection) | **53.00** | 1 | **53.00** |
| FB1B | 250–2000 | 200–2000 | 25–2000 | One pole fuse block for secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (1 non-rejection) | **53.00** | 1 | **53.00** |

■ SF41 can be installed on the following voltage codes: D1, D5, D24, D3, D4, D51, D2, D23, D14, D25, D20, D95, D19, D22, D36.

♦ I = voltage codes D1, D2, D3, D4, D5, D12, D13, D14, D15, D23, D24, D25, D31, D32, D33, D36, D5
II = voltage codes D18, D20
III, IV= voltage codes D19, D50

## Selection Guide

1. Determine the inrush and sealed VA of each coil in the control circuit and the VA of all other components.
2. Total the **sealed** VA of all operating coils and the VA of all other loads. (This determines the minimum VA size required for the circuit.)
3. Total the **inrush** VA of all coils that are starting at the same time and all loads and coils that are running.
4. Locate a value in the VA column of Table 14.39 that is **equal to** or **greater than** the value calculated in step 2.
5. In the VA row selected in step 4, find the inrush value under the appropriate voltage regulation column of Table 14.39. If this value is **greater than** the calculated value from step 3, this is the correct transformer VA rating.

   If the inrush value on the selected VA row is **not greater than** the calculated value from step 3, use the next higher transformer VA rating, that is, the rating on the next row.

If your supply voltage is stable and fluctuates less than 5%, Schneider Electric recommends you use the 90% secondary voltage column. If your supply voltage is not stable and fluctuates more than 10% we recommend you use the 95% secondary voltage column. We recommend that you never use the 85% secondary voltage column since magnetic devices lose life expectancy if they are continuously started at 85% of rated voltage.

### Table 14.39: Regulation Chart for Type T

| VA | Inrush VA @ 20% power factor | | | Inrush VA @ 40% power factor | | |
|---|---|---|---|---|---|---|
| | 95% Secondary Voltage | 90% Secondary Voltage | 85% Secondary Voltage | 95% Secondary Voltage | 90% Secondary Voltage | 85% Secondary Voltage |
| 50 | 193 | 266 | 339 | 151 | 215 | 282 |
| 75 | 271 | 396 | 20 | 210 | 318 | 430 |
| 100 | 339 | 499 | 659 | 266 | 404 | 549 |
| 150 | 666 | 893 | 1120 | 529 | 731 | 942 |
| 200 | 588 | 815 | 1041 | 459 | 659 | 866 |
| 250 | 1416 | 1910 | 2388 | 1057 | 1494 | 1936 |
| 300 | 1634 | 2184 | 2709 | 1194 | 1681 | 2169 |
| 350 | 1894 | 2592 | 3261 | 1392 | 2005 | 621 |
| 500 | 3197 | 4104 | 4981 | 2374 | 3195 | 4019 |
| 750 | 3770 | 5515 | 7231 | 2887 | 4391 | 5945 |
| 1000 | 6587 | 9079 | 11430 | 4706 | 6886 | 9051 |
| 1500 | 19324 | 23983 | 28607 | 15066 | 19361 | 23756 |
| 2000 | 31384 | 38777 | 6161 | 24794 | 31630 | 38667 |
| 3000 | 26539 | 39934 | 52713 | 19355 | 30721 | 42216 |
| 5000 | 53111 | 85265 | 116277 | 39368 | 66309 | 93882 |



© 2011 Schneider Electric
All Rights Reserved



Transformer disconnects are available in NEMA Type 1 Standard, NEMA Type 12 Standard, and NEMA Type 1 Mini.

## Transformer Disconnects for NEMA Type 1 and Type 12 Enclosures

Square D™ brand transformer disconnects mount inside or outside a control system enclosure. The transformer disconnect being connected directly to the 480 V system controls power for auxiliary, single-phase loads when the main three-phase disconnect is either ON or OFF. The transformer disconnect is normally wired to the line side of the control panel's main disconnect.

This convenient source of 120 V power can be used for auxiliary or isolated loads, such as panel lighting, portable power tools, and programmable controller equipment.

Units consist of copper-wound transformers, a disconnect switch, and primary and secondary fuse blocks. All blocks are installed in NEMA Type 1 or Type 12 enclosures.

Transformer disconnects are UL Listed. Use Square D™ brand Type TF industrial control transformers and Square D™ brand disconnect switches.

Multiple enclosure options and accessories are available. See catalog 9070CT0301 or contact your local Schneider Electric representative or distributor.

- Standard NEMA Type 1
- Mini NEMA Type 1
- Compact NEMA Type 1
- NEMA Type 12



**Table 14.40: Transformer Disconnects**

| VA | Catalog No. Without Outlet | $ Price | Catalog No. With Outlet | $ Price | Enclosure | H | | W | | D | | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | In. | mm | In. | mm | In. | mm | |
| **NEMA Type 1 Enclosure, 240 x 480 V Primary, 120 V Secondary (Compact Design)** | | | | | | | | | | | | |
| 100 | 9070MN100G0D1 | **1338.00** | 9070MN100G0D1G13 | **1551.00** | G0 | 7.00 | 178 | 11.30 | 287 | 7.81 | 198 | 16 |
| 250 | 9070MN250G0D1 | **1488.00** | 9070MN250G0D1G13 | **1701.00** | G0 | 7.00 | 178 | 11.30 | 287 | 7.81 | 198 | 21 |
| 500 | 9070MN500G0D1 | **1640.00** | 9070MN500G0D1G13 | **1853.00** | G0 | 7.00 | 178 | 11.30 | 287 | 7.81 | 198 | 24 |
| 750 | 9070SK750G3D1 | **1721.00** | 9070SK750G3D1G13 | **1934.00** | G3 | 13.40 | 340 | 14.80 | 376 | 10.21 | 259 | 47 |
| 1000 | 9070SK1000G3D1 | **2259.00** | 9070SK1000G3D1G13 | **2472.00** | G3 | 13.40 | 340 | 14.80 | 376 | 10.21 | 259 | 51 |
| 1500 | 9070SK1500G3D1 | **3351.00** | 9070SK1500G3D1G13 | **3564.00** | G3 | 13.40 | 340 | 14.80 | 376 | 10.21 | 259 | 65 |
| 2000 | 9070SK2000G3D1 | **4257.00** | 9070SK2000G3D1G13 | **4470.00** | G3 | 13.40 | 340 | 14.80 | 376 | 10.21 | 259 | 71 |
| 3000 | 9070SK3000G3D1 | **5696.00** | 9070SK3000G3D1G13 | **5909.00** | G3 | 13.40 | 340 | 14.80 | 376 | 10.21 | 259 | 85 |
| **NEMA Type 1 Enclosure, 240 x 480 V Primary, 120 V Secondary** | | | | | | | | | | | | |
| 250 | 9070SK250G1D1 | **1353.00** | 9070SK250G1D1G13 | **1566.00** | G1 | 9.40 | 239 | 11.80 | 300 | 8.96 | 228 | 26 |
| 500 | 9070SK500G1D1 | **1488.00** | 9070SK500G1D1G13 | **1701.00** | G1 | 9.40 | 239 | 11.80 | 300 | 8.96 | 228 | 28 |
| 750 | 9070SK750G1D1 | **1674.00** | 9070SK750G1D1G13 | **1887.00** | G1 | 9.40 | 239 | 11.80 | 300 | 8.96 | 228 | 33 |
| 1000 | 9070SK1000G1D1 | **2199.00** | 9070SK1000G1D1G13 | **2412.00** | G1 | 9.40 | 239 | 11.80 | 300 | 8.96 | 228 | 37 |
| 1500 | 9070SK1500G2D1 | **3255.00** | 9070SK1500G2D1G13 | **3468.00** | G2 | 13.40 | 340 | 14.80 | 376 | 12.21 | 310 | 67 |
| 2000 | 9070SK2000G2D1 | **3699.00** | 9070SK2000G2D1G13 | **3912.00** | G2 | 13.40 | 340 | 14.80 | 376 | 12.21 | 310 | 73 |
| 3000 | 9070SK3000G2D1 | **4955.00** | 9070SK3000G2D1G13 | **5168.00** | G2 | 13.40 | 340 | 14.80 | 376 | 12.21 | 310 | 87 |
| **NEMA Type 1 Enclosure, 480 V Primary, 120 V Secondary** | | | | | | | | | | | | |
| 5000 | 9070SK5000G4D9 | **7748.00** | 9070SK5000G4D9G13 | **7961.00** | G4 | 16.90 | 429 | 18.20 | 462 | 14.50 | 368 | 125 |
| **NEMA Type 12 Enclosure, 240 x 480 V Primary, 120 V Secondary** | | | | | | | | | | | | |
| 250 | 9070SK250A2D1 | **3281.00** | 9070SK250A2D1G13 | **3494.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 46 |
| 500 | 9070SK500A2D1 | **3417.00** | 9070SK500A2D1G13 | **3630.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 49 |
| 750 | 9070SK750A2D1 | **3621.00** | 9070SK750A2D1G13 | **3834.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 53 |
| 1000 | 9070SK1000A2D1 | **3723.00** | 9070SK1000A2D1G13 | **3936.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 58 |
| 1500 | 9070SK1500A2D1 | **4095.00** | 9070SK1500A2D1G13 | **4308.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 79 |
| 2000 | 9070SK2000A2D1 | **4364.00** | 9070SK2000A2D1G13 | **4577.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 85 |
| 3000 | 9070SK3000A2D1 | **5448.00** | 9070SK3000A2D1G13 | **5661.00** | A2 | 16.50 | 419 | 14.50 | 368 | 13.50 | 343 | 99 |
| **NEMA Type 12 Enclosure, 240 x 480 V Primary, 120 V Secondary, Flange Switch** | | | | | | | | | | | | |
| 250 | 9070SK250A3D1 | **3281.00** | 9070SK250A3D1G13 | **3494.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 48 |
| 500 | 9070SK500A3D1 | **3417.00** | 9070SK500A3D1G13 | **3630.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 53 |
| 750 | 9070SK750A3D1 | **3621.00** | 9070SK750A3D1G13 | **3834.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 57 |
| 1000 | 9070SK1000A3D1 | **3723.00** | 9070SK1000A3D1G13 | **3936.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 61 |
| 1500 | 9070SK1500A3D1 | **4095.00** | 9070SK1500A3D1G13 | **4308.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 75 |
| 2000 | 9070SK2000A3D1 | **4364.00** | 9070SK2000A3D1G13 | **4577.00** | A3 | 15.50 | 394 | 17.00 | 432 | 10.00 | 254 | 86 |



© 2011 Schneider Electric
All Rights Reserved

## Voltage Transformers

Schneider Electric offers three models of voltage transformers, each suited for a particular application:

- Model 450R
  - — Applications requiring accurate voltage measurement within the 0.3% accuracy class
  - — Switchboards with 1% instrumentation
- Model 460R
  - — Applications with less critical accuracy and low burden requirements
  - — Transducers and other panelboard monitoring
- Model E470
  - — Extremely accurate voltage measurement
  - — Low burden applications, such as PLC modules and similar, high-impedance electronic devices

**Table 14.41: Voltage Transformers**

| Application | Model Number | Accuracy/Burden and Thermal Rating | Primary Voltages (120 V Secondary) |
|---|---|---|---|
| Large Burden | 450R | 0.3 W, X, M, Y; 500 VA Thermal | 120–600 V |
| Small Burden | 460R | 0.6 W, 1.2X; 150 VA Thermal | 120–600 V |
| Small Burden | 470R | 0.3W, 1.2X; 150 VA Thermal | 120–600 V |

## Current Transformers

Current transformers are low cost, compact units that offer good electrical performance in a general purpose transformer.

- They are very easy to mount on the conductors.
- All current transformers feature permanent polarity marks molded into the case.

The following types of current transformers are available:

- General purpose
- Toroidal (single ratio)
- Rectangle window (single ratio)
- Split core
- Bushing (single ratio) (multi-ratio)

For part numbers, see Section 6 of the Supplemental Digest or see the Schneider Electric Product Configurator.

Contact your local Schneider Electric representative for other available features.

**Table 14.42: Current Transformers**

| Window Diameter | | Model Number | Usual Application | | | Primary Range in Amperes ▲ | UL Recognized Product |
|---|---|---|---|---|---|---|---|
| In. | mm | | Metering | Metering or Control Relaying | High Output Relaying | | |
| 1.3 | 28 | 2NR | X | | | 50–300 | |
| 1.56 | 40 | 5NR | X | | | 100–600 | |
| | | 54R | X | | | 100–600 | |
| 1.94 | 49 | 64R | X | | | 100–750 | |
| | | 66R | | X | | 100–750 | |
| 2.25 | 57 | 7RL | | | | 50–1500 | |
| | | 7RT | | | | 50–1500<br>150–1500 ■ | |
| 2.34 | 59 | 74R | X | | | 200–1500 | |
| | | 76R | | X | | 200–1500 | |
| 2.50 | 63 | 74RFT | | | | — | |
| | | 180R | | X | | 100–1500 | |
| | | 200R | | X | | 100–600 | |
| 3.50 | 89 | 201R | | X | | 100–800 | |
| 4.00 | 102 | 100R | | X | | 200–2000 | Yes |
| | | 110R | | X | | 200–2000 | |
| 4.25 | 108 | 170R | | X | | 200–2000 | |
| 4.50 | 114 | 312R | | | X | 600–4000 | |
| | | 202R | | X | X | 100–1000 | |
| 5.25 | 133 | 203R | | X | | 100–3000 | |
| 5.75 | 146 | 120R | | X | | 200–3000 | |
| 6.25 | 159 | 210R | | X | X | 200–3000 | |
| 6.88 | 175 | 151R | | | X | 600–4000 | |
| | | 152R | | X | X | 50–4000 | |
| 8.13 | 206 | 140R | | X | X | 50–6000 | |
| 2.12 x 4.25 | 54 x 108 | 260R | X | | | 100–4000 | |
| 3.50 x 6.25 | 89 x 159 | 273 | X | | | 200–4000 | |
| 3.56 x 8.81 | 90 x 224 | 270R | X | | | 400–5000 | |
| 7.45 x 3.75 | 189 x 95 | 560R | X | | | 400–5000 | |

▲ With a 5 A secondary.
■ With a 1 A secondary.



© 2011 Schneider Electric
All Rights Reserved

## Ordering Information

To complete the three- or single-phase catalog numbers on this page:

1. In Table 14.44 or Table 14.46, find your required voltage rating.
2. Note the voltage code for that rating.
3. In Table 14.43 or Table 14.45, find the transformer with the required voltage rating.
4. Replace the ( ) in the catalog number of that transformer with the voltage code noted in step 2.

**Example 1**: 1000 kVA, 3Ø, 60 Hz, 150 °C temp. rise, 60 kV BIL, NEMA sound level, ventilated indoor enclosure, 13.2 kV delta 480Y/277, 2-2.5% full capacity taps. 2AN and 2BN = catalog no. EE1000T51H.

**Example 2**: 750 kVA 3Ø, 60 Hz, 80 °C temp. rise, 60 kV BIL, NEMA sound level, ventilated indoor enclosure, 4160 V Delta, 480Y/277, 2-2.5% full capacity taps. 2AN and 2BN = catalog no. EE750T19HB. Add 20% to listed price.

**Example 3:** 167 kVA, 2400/4160Y-120/240, 1Ø, 60 Hz = catalog no. EE167S13H. The unit would be supplied with 2–2.5% above and 2–2.5% full capacity below normal taps on the primary.

## 1201–15,000 V, Three-Phase, Indoor Transformers

New!

All transformers are built with 220 °C insulation and 150 °C temperature rise. For 115 °C rise add 10% to price and F to catalog number. For 80 °C rise add 20% to price and B to catalog number. Check with your local Schneider Electric representative to verify dimensional changes and weights and for copper windings.

Standard high voltage taps: 4-2.5%, 2AN and 2BN. For 4-2.5% FCBN, add BN to catalog number.

### Table 14.43: Three-Phase Transformers

| kVA | Catalog No. | $ Price | Weight (lbs) | Enclosure ▲ |
|---|---|---|---|---|
| **2.4 kV and 5 kV Voltage Class, 60 Hz, 150 °C Rise** | | | | |
| 112.5 | EE112T( )H | **51125.00** | 1540 | 36D |
| 150 | EE150T( )H | **62805.00** | 1760 | 37D |
| 225 | EE225T( )H | **84500.00** | 2090 | 37D |
| 300 | EE300T( )H | **101965.00** | 2310 | 38D |
| 500 | EE500T( )H | **119077.00** | 3520 | 38D |
| 750 ■ | EE750T( )H | **149110.00** | 4290 | 39F |
| 1000 ■ | EE1000T( )H | **185080.00** | 8140 | 40F |
| 1500 ■ | EE1500T( )H | **222440.00** | 9900 | 40F |
| 2000 ■ | EE2000T( )H | **255265.00** | 11990 | 41F |
| 2500 ■ | EE2500T( )H | **308692.00** | 13420 | 42F |
| **15 kV Voltage Class, 60 Hz,150 °C Rise** | | | | |
| 112.5 | EE112T( )H | **58586.00** | 2200 | 38D |
| 150 | EE150T( )H | **72309.00** | 2420 | 38D |
| 225 | EE225T( )H | **98125.00** | 3080 | 45D |
| 300 | EE300T( )H | **137445.00** | 3630 | 45D |
| 500 | EE500T( )H | **139650.00** | 5500 | 44F |
| 750 ■ | EE750T( )H | **165870.00** | 6600 | 39F |
| 1000 ■ | EE1000T( )H | **210915.00** | 8140 | 40F |
| 1500 ■ | EE1500T( )H | **241298.00** | 9900 | 40F |
| 2000 ■ | EE2000T( )H | **282852.00** | 11990 | 41F |
| 2500 ■ | EE2500T( )H | **327549.00** | 13420 | 42F |
| 3000 ■ | EE3000T( )H | **421833.00** | 16940 | 42F |

▲ See 14-10 for enclosures. Enclosures are for indoor use only. Transformers suitable for outdoor use are available on special order. Adding a weather shield will not make medium voltage transformer suitable for outdoor use.

■ Dimensions and prices listed for 480 volt secondary only. For 240 V or 208 V, contact your local Schneider Electric representative.

### Table 14.44: Three-Phase Voltage Codes

| kV Class | Code | Primary | Secondary |
|---|---|---|---|
| 2.4 30 kV BIL | 13 | 2400 Delta | 208Y/120 |
| | 14 | 2400 Delta | 480Y/277 |
| | 15 | 2400 Delta | 240 Delta |
| | 16 | 2400 Delta | 480 Delta |
| | 17 | 2400 Delta | 600 Delta |
| 5 30 kV BIL | 18 | 4160 Delta | 208Y/120 |
| | 19 | 4160 Delta | 480Y/277 |
| | 20 | 4160 Delta | 240 Delta |
| | 21 | 4160 Delta | 480 Delta |
| | 22 | 4160 Delta | 600 Delta |
| | 23 | 4160Y/2400 | 240 Delta |
| | 25 | 4160Y/2400 | 480 Delta |
| | 26 | 4160/2400 | 600 Delta |
| | 27 | 4800 Delta | 208Y/120 |
| | 28 | 4800 Delta | 480Y/277 |
| | 29 | 4800 Delta | 240 Delta |
| | 30 | 4800 Delta | 480 Delta |
| | 31 | 4800 Delta | 600 Delta |
| 15 60 kV BIL | 32 | 7200 Delta | 208Y/120 |
| | 33 | 7200 Delta | 480Y/277 |
| | 34 | 7200 Delta | 240 Delta |
| | 35 | 7200 Delta | 480 Delta |
| | 36 | 7200 Delta | 600 Delta |
| | 37 | 12000 Delta | 208Y/120 |
| | 38 | 12000 Delta | 480Y/277 |
| | 39 | 12000 Delta | 240 Delta |
| | 40 | 12000 Delta | 480 Delta |
| | 41 | 12000 Delta | 600 Delta |
| | 42 | 12470 Delta | 208Y/120 |
| | 43 | 12470 Delta | 480Y/277 |
| | 44 | 12470 Delta | 240 Delta |
| | 45 | 12470 Delta | 480 Delta |
| | 46 | 12470 Delta | 600 Delta |
| | 47 | 12470Y/7200 | 240 Delta |
| | 48 | 12470Y/7200 | 480 Delta |
| | 49 | 12470Y/7200 | 600 Delta |
| | 50 | 13200 Delta | 208Y/120 |
| | 51 | 13200 Delta | 480Y/277 |
| | 52 | 13200 Delta | 240 Delta |
| | 53 | 13200 Delta | 480 Delta |
| | 54 | 13200 Delta | 600 Delta |
| | 55 | 13200Y/7620 | 240 Delta |
| | 56 | 13200Y/7620 | 480 Delta |
| | 57 | 13200Y/7620 | 600 Delta |
| | 58 | 13800 Delta | 208Y/120 |
| | 59 | 13800 Delta | 480Y/277 |
| | 60 | 13800 Delta | 240 Delta |
| | 61 | 13800 Delta | 480 Delta |
| | 62 | 13800 Delta | 600 Delta |

## 1201–15,000 V, Single-Phase, Indoor Transformers

New!

All transformers are built with 220 °C insulation and 150 °C temperature rise. For 115 °C rise add 10% to price and F to catalog number. For 80 °C rise add 20% to price and B to catalog number, and check with your local Schneider Electric representative for dimensional changes.

Standard high voltage taps: 4–2.5%, 2AN and 2BN. For 4-2.5% FCBN, add BN to catalog number.

### Table 14.45: Single-Phase Transformers

| kVA | Catalog No. | $ Price | Weight (lbs) | Enclosure ♦ |
|---|---|---|---|---|
| **2.4 kV Voltage Class, 60 Hz, 150 °C Rise** | | | | |
| 167 | EE167S( )H | **45444.00** | 1650 | 38D |
| 250 | EE250S( )H | **59253.00** | 2420 | 38D |
| 333 | EE333S( )H | **72783.00** | 3300 | 45D |
| **5 kV Voltage Class, 60 Hz, 150 °C Rise** | | | | |
| 167 | EE167S( )H | **48777.00** | 1650 | 38D |
| 250 | EE250S( )H | **63312.00** | 2420 | 38D |
| 333 | EE333S( )H | **77478.00** | 3520 | 45D |
| **15 kV Voltage Class, 60 Hz, 150 °C Rise** | | | | |
| 167 | EE167S( )H | **56136.00** | 2640 | 38D |
| 250 | EE250S( )H | **72705.00** | 3740 | 45D |
| 333 | EE333S( )H | **86835.00** | 5500 | 45D |

♦ See 14-10 for enclosures. Enclosures are for indoor use only. Transformers suitable for outdoor use are available on special order. Adding a weather shield will not make medium voltage transformer suitable for outdoor use.

### Table 14.46: Single-Phase Voltage Codes

| kV Class | Code | Primary | Secondary |
|---|---|---|---|
| 2.4 30 kV BIL | 14 | 2400 Delta | 120/240 |
| | 25 | 2400 Delta | 277 |
| 5 30 kV BIL | 13 | 2400/4160Y | 120/240 |
| | 15 | 4800 Delta | 20/240 |
| | 16 | 4160 Delta | 20/240 |
| | 24 | 2400/4160Y | 277 |
| | 26 | 4800 Delta | 277 |
| | 27 | 4160 Delta | 277 |
| 15 60 kV BIL | 17 | 4160/7200Y | 120/240 |
| | 18 | 7200 | 120/240 |
| | 28 | 4160/7200Y | 277 |
| | 29 | 7200 | 277 |
| | 19 | 4160/12470Y | 120/240 |
| | 20 | 7620/13200Y | 120/240 |
| | 21 | 12470 | 120/240 |
| | 22 | 13200 | 120/240 |
| | 23 | 13800 | 120/240 |
| | 30 | 4160/12470Y | 277 |
| | 31 | 7620/13200Y | 277 |
| | 32 | 12470 | 277 |
| | 33 | 13200 | 277 |
| | 34 | 13800 | 277 |

## Special Notes

1. Distribution class lightning arresters are recommended as good practice, but are not included in the above prices. Arrester addition may affect dimensions. Contact your local Schneider Electric representative.
2. For 15 kV transformers requiring bottom entrance or exit, a separate compartment is required for adequate termination space and clearance. Transformers 1500 kVA and above with top entrance or exit may require a separate compartment to provide adequate wiring space. Contact your local Schneider Electric representative for special requirements.
3. If the transformer requires a 94-inch high enclosure for a switchgear line-up, or if a special enclosure is required, contact your local Schneider Electric representative.
4. For 95 kV BIL, consult your local Schneider Electric representative. (May affect dimensions.)



© 2011 Schneider Electric
All Rights Reserved

# Section 15
# Medical Products

Operating Room Isolated Power Panel
(see page **15-2**)



Iso-Gard Series 6 LIM
(see page **15-4**)




Iso-Gard IGR Nurses' Station Indicator
(see page **15-5**)




**Isolated Power Panels** 15-2
- Operating Room Panels 15-2
- ICU/CCU Panels 15-2
- Controlled Panels 15-3
- X-ray and Laser Receptacles 15-3
- Duplex Panels 15-3
- Dual Output Voltage Panels 15-3

**Line Isolation Monitor (LIM)** 15-4
- New! Iso-Gard™ Series 6 15-4

**Remote Indicators/Displays** 15-4
- New! Remote Alarm Indicators 15-4
- New! Nurses' Station Indicators/Alarm Annunciator 15-5
- New! IGT Dual Clock/Timer 15-5
- New! IGT1550 Remote Control 15-5

**Accessories** 15-6
- Power/Ground Modules 15-6
- Hospital Ground Cords and Jacks 15-6

All Square D™ brand Isolated Power Panels meet or exceed UL® 1022 and 1047 and are cUL Listed.

All products listed in this section are available through standard ordering procedures from authorized Schneider Electric distributors. For more information, contact your nearest Schneider Electric sales office or distributor. Call 1-888-778-2733 or visit www.schneider-electric.us.



© 2012 Schneider Electric
All Rights Reserved

## Life Safety from Schneider Electric Medical Products

Schneider Electric has been deeply involved in isolated power systems since 1944. The current Iso-Gard™ brand of isolated power panels has evolved over the years and will continue to do so. With the ever-changing needs of the health care industry, Schneider Electric is the leader in innovation and design.

Recent updates to some of our current panels include the ability to use bolt-on or plug-on circuit breakers in all panels. With the growing need for X-ray and laser use, the controlled power panel solves many difficult situations where both of these technologies are required, but at different ampere ratings.

Mixing and matching components is easier today than ever before, with panels that can serve up to 16 circuits. The Iso-Gard Series 6 line isolation monitor (LIM) has communication capabilities and the ability to monitor the transformer temperature and current flow.

Schneider Electric can work with facility managers, design engineers, contractors, or anyone else trying to design an isolated power system. We can provide custom configurations to fit your needs. Simply configure the panel desired by starting with the basic operating room (OR) panel and adding the intensive care unit (ICU)/critical care unit (CCU) or controlled power panel options you need.

- Panels are field expandable to 16 circuits for all panels by adding Square D™ brand QO™ or QOB circuit breakers from Schneider Electric.
- Panels come with a main circuit breaker.
- Panels are 5 mA and field adjustable to 2mA.
- Six-inch deep panels are not available for all kVA ratings.

Orders can be automatically configured on the Schneider Electric brand ordering system available from your nearest Schneider Electric distributor.

To request drawings and/or product design and availability information, send an e-mail to: medical_products@us.schneider-electric.com



## Operating Room Panels

First introduced in the 1960s, but newly redesigned in 2011, this standard unit is most often used to supply 120 V service to the receptacles in an operating room. However, its use is not restricted to that application; it can also be used in critical care areas. This panel incorporates the following Schneider Electric components:

- Primary circuit breaker
- Isolation transformer
  - — low-leakage
  - — electrostatically shielded
  - — 180 °C insulat ion system
  - — 115 °C temperature rise
  - — 30 dB sound level
- Reference ground bus bar
- Iso-Gard LIM
- NQ panelboard interior

Operating room panels are non-ventilated and are supplied with a #304 stainless steel trim with a brushed finish. Under continuous full load and normal hospital ambient conditions, the surface temperature of the front trim panel will be no greater than 50 °C. The panels are UL Listed under Section 1047, *Isolated Power Systems Equipment*

**Table 15.1: Operating Room Panel Ordering Information**

| Catalog No. | kVA Rating | Backbox Depth (in inches) | Width/Height (in inches) |
|---|---|---|---|
| SIP | 3 and 5 | 6 | 24 W x 43 H |
| | 7.5 and 10 | 8 | |

## ICU/CCU Panels

Redesigned in 2011, these panels incorporate the same components and features as the operating room panels, but have the added feature of eight power receptacles and six approved grounding jacks connected to a ground bus for attaching fixed equipment and building structural grounds.

The power receptacles are “hospital only,” locking-type receptacles. Duplex or single receptacles are available on request. Although the panel is designed to serve the needs of a coronary care or intensive care bed, it has been widely applied to provide power within special procedure rooms, cardiovascular laboratories, and general operating rooms.

**Table 15.2: ICU/CCUPanel Ordering Information**

| Catalog No. | kVA Rating | Backbox Depth (in inches) | Width/Height (in inches) |
|---|---|---|---|
| SIP | 3, 5, 7.5 and 10 | 8 | 24 W x 45 H |





© 2012 Schneider Electric
All Rights Reserved

## Controlled Panels



Controlled isolated power panels from Schneider Electric are designed to provide power for portable equipment outlets. In the past, most equipment operated on 60 A circuits. Today, these loads vary from 20 to 60 A and multiple pieces of equipment are being used. By applying the proper kVA loading, a panel can now provide power to multiple rooms and maintain safe operating conditions. All these panels are available in both one-phase and three-phase configurations with 5 to 25 kVA ratings.

The type of controls applied depends on the need. Schneider Electric has a variety of control schemes from push buttons to switches located in the operating room. The NEC requires that an audible and visual indication of alarm be available wherever isolated power is used. We use a receptacle module with a remote alarm indicator built into it for this purpose. A receptacle module without a remote alarm indicator is also available. The control of these circuits is important not only for the safety of turning them on and off, but they also turn the remote alarm indicators on and off at the same time. This reduces any confusion caused by an alarm going off in the operating room from circuits that don't need to be energized.

The basic control scheme is the mechanical interlock panel. The panel will serve various locations within the hospital. Interlocking circuitry allows predetermined locations to be used at any given time. Consequently, the line isolation monitor (LIM) monitors only the wiring and its inherent leakage to that receptacle. Remote indicator alarm stations must be located at the receptacle location. A push button station located in the panel controls the interlocking system. If the panel location is inaccessible or inconvenient for operating personnel, the push button station is available in a separate module that can be installed at the nurses' station or any other convenient location. This can be an inconvenience since this type of control system requires someone to select which room will be turned on. It also poses a potential problem in that someone could easily push a button to turn the power on in another room, thus turning off the power in a room that may actually be usinga piece of equipment.

**Table 15.3: Controlled Panel Ordering Information**

| Catalog No. | kVA Rating | Backbox Depth (in inches) | Width/Height (in inches) |
|---|---|---|---|
| SIP | 15 | 12 | 30 W x 51 H |
| | 25 | 14 | |



## Receptacle Modules for Controlled Panels

X-ray/laser power receptacle modules from Schneider Electric provide a convenient source of power for portable X-ray and laser equipment. The receptacle provided in each module is matched to the NEMA plug configuration of the equipment with which it will be used, and is mounted behind the door on the stainless steel face plate. The door features a concealed hinge and a touch latch.

## Duplex Panels



The Duplex Isolation Power Panel is a single enclosure containing two complete hospital isolation systems. A divider in the unit's backbox separates the systems from top-to-bottom and front-to-back.

Each system has its own set of equipment, all of which is manufactured by Schneider Electric:

- Primary circuit breaker
- Isolation transformer
- Reference ground bus bar
- Iso-Gard™ line isolation monitor (LIM)
- NQ panelboard interior

**Table 15.4: Duplex Isolation Panel Ordering Information**

| Catalog No. | kVA Rating ▲ | Backbox Depth (in inches) | Width/Height (in inches) |
|---|---|---|---|
| SIX | 3–10 | 8 | 34 W x 71 H |

▲ Panels are available in any combination of two kVA ratings.

## Dual Output Voltage Panels



The dual output voltage, hospital isolated power panel is a single, ungrounded panel that can supply two different output voltages simultaneously. Similar to a standard distribution panel or load center, it can supply both 120/208 V or 120/240 V of ungrounded, isolated, single-phase power using only one isolation transformer. Other hospital isolation panels can supply only one output voltage.

Typically, the 208 or 240 V circuits of the dual output voltage panel supply power to operating room equipment such as mobile X-ray machines or surgical lasers. At the same time, the panel's 120 V circuits can supply power to convenience receptacles, surgical lights, X-ray film illuminators, sterilizers, and other 120 V appliances commonly found in operating rooms. This panel is ideally suited as a power supply for power/ground modules and X-ray indicator/receptacle modules.

**Table 15.5: Dual Output Panel Ordering Information**

| Catalog No. | Output Voltage Rating (in Vac) | Backbox Depth (in inches) | Width/Height (in inches) |
|---|---|---|---|
| SIDV | 120/208 | 14 | 34 W x 51 H |
| | 120/240 | | |



© 2012 Schneider Electric
All Rights Reserved

## New! Iso-Gard™ Series 6 Line Isolation Monitor—UL Recognized

The Square D brand, Iso-Gard Series 6, microprocessor-controlled, line isolation monitor (LIM) is included as standard equipment in all Schneider Electric hospital isolation panels. This LIM is also available as a replacement unit for older LIMs, is a direct replacement for all previous Schneider Electric LIMs, and is electrically compatible with all hospital isolated power systems.




- Automatic and manual self-test and self-calibration that reduces the frequency of required periodic testing
- Digital and analog display
- Unique audible alarm that will not be confused with other equipment
- UL component recognized and CSA classified
- Microprocessor-controlled circuitry for highest accuracy and stability

**Table 15.6: Iso-Gard LIM Ordering Information and Specifications**

| Catalog No. | Operating Voltage | Hazard Current Alarm Level | Mode | Monitor Hazard Current |
|---|---|---|---|---|
| IG6 | 85–265 Vac, 50 or 60 Hz | 2 or 5 mA (selectable) | Single-phase | 25 µA or less |

## Remote Alarm Indicators

The National Electrical Code® (NEC®) **requires** audible and visual alarm indication where isolation power is used (NEC 517-160). Schneider Electric offers the IG2000P and RA1 remote alarm indicators for this purpose.

New! IG2000P




RA1








© 2012 Schneider Electric
All Rights Reserved

## New! Nurses' Station Indicators/Alarm Annunciators

Nurses' station indicators are available by combining the standard IG2000P remote onto a ganged plate or by using the new IGR or IGRD indicators/alarm annunciators. The IGR unit can support up to 199 panels on a single, twisted-pair connector. The IGRD unit has a larger capacity.

IGR




IGRD




## New! Iso-Gard™ IGT Dual Clock/Timer

The IGT unit displays both time of day and elapsed time information. The top, four-digit display shows the current time. It can operate in both 12- and 24-hour time modes. The bottom, four-digit display is an elapsed time counter controlled by the Count/Reset and Hold/Resume buttons.

- Bright-red LED display for enhanced readability under the intense lighting conditions found in hospital operating rooms
- 12/24 hour selectable mode
- Power outage backup for at least 24 hours without batteries
- Designed for flush wall mounting

A multi-display unit is available by combining the IGT unit into a four display unit and utilizing an IGT 1550 four-point remote control.

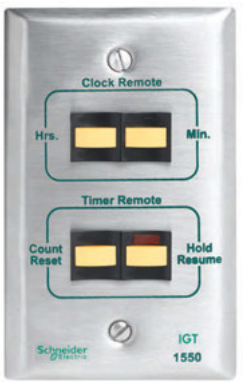
## New! Iso-Gard™ IGT1550 Remote Control

The IGT1550 remote control provides the ability to control a clock/elapsed timer, such as the IGT, from a more convenient location.

IGT




IGT1550





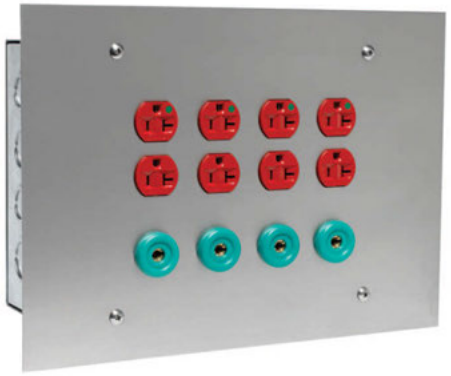

© 2012 Schneider Electric
All Rights Reserved

## Power/Ground Modules

When both ground jacks and power receptacles are required, these UL Listed modules offer convenience and save labor in field wiring. The units include four power receptacles, four twist-to-lock ground jacks, and a ground bus with a generous number of lugs for external ground connections.

The main ground connection in the module accommodates up to a #1/0 cable. The units are completely factory wired; only field power connections and ground connections are necessary. They are furnished with Type 304, brushed stainless steel face plates.

4 Red Duplex Receptacles and 4 Ground Jacks



4 Locking Receptacles and 4 Ground Jacks



## Hospital Ground Cords and Jacks

Schneider Electric provides hospital-grade devices for the supply and grounding of portable equipment.

- Hospital ground cords
  - — Highly flexible wire with a heavy duty lug or clip end
  - — Ground cord with lug end is UL Listed (UL 467)
  - — Various lengths available
- Hospital ground jacks

Ground Cord with Lug End



Ground Jack



Ground Cord with Clip End







© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 16

## NEMA Contactors and Starters




**Manual Starters and Switches** (p. 16-4)



**Definite Purpose Contactors and Starters** (p. 16-70)




**NEMA Style Type S Contactors and Starters** (p. 16-14)




**Lighting Contactors** (p. 16-59)



**Pump Panel** (p. 16-75)



**Combination Starters** (p. 16-31)




**NEMA Style TeSys N Contactors and Starters** (p. 16-139)


**NEMA AC Magnetic Contactors and Starters Catalog Numbering System** 16-13

**Combination Starters—NEMA Style**

Non-Reversing
- Non-Fusible Disconnect Class 8538 — **16-32, 16-34**
- Fusible Disconnect Class 8538 — **16-31, 16-33, 16-34**
- Electronic Motor Circuit Protector (MCP) Class 8539 — **16-35, 16-36, 16-37**
- Thermal Magnetic Circuit Breaker Class 8539 — **16-38, 16-39**

Reversing
- Non-Fusible Disconnect Class 8738 — **16-52**
- Fusible Disconnect Class 8738, 8739 — **16-51, 16-52**
- Electronic Motor Circuit Protector (MCP) Class 8739 — **16-53**
- Thermal Magnetic Circuit Breaker Class 8739 — **16-55**

**Contactors—NEMA Style**
- Non-Reversing Class 8502 — **16-14**
- Reversing Class 8702 — **16-44**
- Vacuum, Low Voltage, Non-Reversing Class 8502 — **16-28**
- Vacuum, Low Voltage, Reversing Class 8702 — **16-50**

**Definite Purpose Contactors and Starters** 16-70
Class 8910, 8965

**Duplex Motor Starters** Class 8941 — **16-78**

**Enclosures** Class 9991 — **16-93**

**External Reset Mechanisms** Class 9065 — **16-92**

**Factory Modifications (Forms)** — **16-100**

**Lighting Contactors** Class 8903 — **16-59**
- Panel Board (PB) Lighting Contactors — See Supplemental Digest

**Manual Starters and Switches** Class 2510, 2511, 2512 — **16-4**

**Multispeed Starters** Class 8810 — See Supplemental Digest

**Overload Relays**
- Bimetallic Class 9065 — **16-89**
- Melting Alloy Class 9065 — **16-82**
- Motor Logic/Motor Logic Plus Class 9065 — **16-83**
- TeSys T Motor Management System — **16-84**

**Pump Panels**
- Full Voltage Class 8940 — **16-75**

**Reduced Voltage Starters**
- Electro-Mechanical Class 8600 — See Supplemental Digest

**Starters, Full Voltage—NEMA Style**
- Non-Reversing Class 8536 — **16-18**
- Reversing Class 8736 — **16-46**
- TeSys U Simple Motor Starter — **16-12**
- Vacuum, Low Voltage, Non-Reversing Class 8536 — **16-29**

**Additional Products**
- Accessories Class 9998, 9999 — **16-108**
- Renewal Parts Class 9998 — **16-105**
- Thermal Units — **16-116**
- Reversing Drum Switches Class 2601 — See Supplemental Digest

New! **TeSys N Contactors and Starters** — **16-139**




© 2012 Schneider Electric
All Rights Reserved










| Class | 2510, 2511, 2512 | 8502 & 8702 | 8536 & 8736 | 8538 & 8738 | 8539 & 8739 |
|---|---|---|---|---|---|
| | Manual Starters and Switches, Non-Reversing, Reversing and Two Speed | NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Magnetic Contactors | NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Magnetic Starters | NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Combination (Disconnect Switch) Magnetic Starters | NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Combination (PowerPact™ Circuit Breaker) Magnetic Starters |
| | | | | | |
| **Page** | 16-4 | 8502 16-14 | 8536 16-18 | 8538 16-31 | 8539 16-35 |
| | | 8702 16-44 | 8736 16-46 | 8738 16-51 | 8739 16-53 |
| | | | | | |
| **NEMA Sizes** | Type F = N/A | 00 to 7 | 00 to 7 | 8538 = 0 to 6 | 8539 = 0 to 7 |
| | Type K = N/A | | | 8738 = 0 to 5 | 8739 = 0 to 6 |
| | Type M = 0 & 1 | | | | |
| **Load Voltage** | Type F = 277 V | 600 Vac Max. | 600 Vac Max. | 600 Vac Max. | 600 Vac Max. |
| | Types K & M = 600 Vac | | | | |
| **Current Ratings (Continuous)** | Type F = 16 A | 9A to 810 A | 9 A to 810 A | 8538 = 18 A to 540 A | 8539 = 18 A to 810 A |
| | Types K & M = 30 A | | | 8738 = 18 A to 270 A | 8739 = 18 A to 540 A |
| **Horsepower Ratings (Maximum)** | Type F = 1 | 1/2 to 600 | 1/2 to 600 | 8538 =1/2 to 400 | 8539 = 1/2 to 600 |
| | Type K = 20 | | | 8738 = 1/2 to 200 | 8739 = 1/2 to 400 |
| | Type M = 10 | | | | |
| **Overload Relay** | Type F = Melting Alloy | N/A | Melting Alloy | Melting Alloy | Melting Alloy |
| | Type K = N/A | | Bi-Metalic | Bi-Metalic | Bi-Metalic |
| | Type M = Melting Alloy | | Solid State | Solid State | Solid State |
| | | | | | |
| **Enclosure Types** | 1, Flush Mount, 3R, 4, 4X, 7 & 9 and Open | 1, 3R, 4, 4X, 12/3R, 7 & 9 and Open | 1, 3R, 4, 4X, 12/3R, 7 & 9 and Open | 1, 4, 4X, 12/3R | 1, 4, 4X, 12/3R |
| **Approvals** | UL File E42243 NLRV | UL File E78351 NLDX | UL File E78351 NLDX | UL File E152395 NKJH7 | UL File E152395 NKJH7 |
| | UR File E42243 NLRV2 | CSA 60905 Class 3211-04 | CSA 60905 Class 3211-04 | CSA LR584 Class 3211 04 | CSA LR584 Class 3211 04 |
| | CSA File LR 25490 | CE IEC 947-4-1 Sizes 00–5 Only | CE IEC 947-4-1 Sizes 00–5 Only | | |





© 2012 Schneider Electric
All Rights Reserved

# Selection Information









| 8903L & 8903S | 8903<br>Combination Devices | 8910, 8911, 8965 | 8940 | 8941 |
|---|---|---|---|---|
| Multipole electrically held and mechanically held contactors available in 30 A configurations to 12 poles and 800 A configurations to 3 poles. | Type S lighting contactors electrically held and mechanically held available with disconnect switches or PowerPact™ circuit breakers | Definite Purpose non- reversing contactors available as compact 1 or 2 pole to 40 A and 2 to 4 pole to 90 A. Reversing and Starter Configurations also available. | Well-Guard Control™ Pumping Plant Panels available with disconnect switches or PowerPact™ circuit breakers. | NEMA Style AC Duplex Motor Controllers available as a combination starter or without disconnecting means. |
| | | | | |
| 16-59 | 16-61 | 8910 16-70 | 16-75 | 16-78 |
| | | 8911 16-74 | | |
| | | 8965 16-81 | | |
| | | | | |
| N/A | N/A | N/A | 1 to 7 | 1 to 4 |
| | | | | |
| | | | | |
| | | | | |
| 600 Vac Max. | 600 Vac Max. | 600 Vac Max. | 600 Vac Max. | 600 Vac Max. |
| | | | | |
| | | | | |
| 8903L to 30 A | 300 A (Disconnect) | 20 A to 40 A (Compact) | 27 A to 810 A | 27 A to 135 A |
| 8903S to 800 A | 600 A (Circuit Breaker) | 20 A to 90 A | | |
| | | | | |
| N/A | N/A | 1/2 to 50 | 1/2 to 600 | 1/2 to 100 |
| | | | | |
| | | | | |
| | | | | |
| N/A | N/A | Melting Alloy (8911) | Melting Alloy | Melting Alloy |
| | | | Bi-Metallic | Bi-Metallic |
| | | | Solid State | Solid State |
| | | | | |
| 1, 3R, 4, 4X, 12/3R and Open | 1, 4, 4X, 12/3R | 1 | 3R | 1, 4, 4X, 12/3R and Open |
| | | | | |
| UL File E78427 NRNT | UL File E16151 NRNT | UR E3190 NLDX2 | UL/cUL 152395 NKJH | UL File E152395 NKJH7 |
| CSA LR60905 Class 3231 01 | cUL File E16151 NRNT | CSA LR25490 Class 3211 04 | | |
| | | | | |



© 2012 Schneider Electric
All Rights Reserved

# Fractional Horsepower Manual Starters with Melting Alloy Type Thermal Overload Relay

**Table 16.1: Single-Unit Types—Class 2510—Rated 16 A — Thermal Units**
**Prices shown do not include thermal units. Standard trip thermal units are $21.50 each. See page 16-116 for selection information.**

| Type of Operator | No. of Poles | Features | NEMA 1 General Purpose Enclosure Surface Mounting | | | | General Purpose Flush Mounting (Without Pull Box) | | | | | | NEMA Type 4▲ Watertight and Dusttight Enclosure | | NEMA Types 3R, 7 & 9 Hazardous Locations Div. 1 & 2 Class I Groups B, C, & D & Class II Groups E, F & G Enclosure | | Open Type | | Number of Thermal Units Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard | | Oversized | | Gray Flush Plate | | Standard Stainless Steel Flush Plate | | Jumbo Stainless Steel Flush Plate | | | | | | | | |
| | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | |
| **Basic Starter—Class 2510** | | | | | | | | | | | | | | | | | | | |
| Toggle | 1 | Standard | FG1 | **86.00** | FGJ1 | **99.00** | FF1 | **78.00** | FS1 | **83.00** | — | — | — | — | — | — | FO1 | **71.00** | 1 |
| | | With Red Pilot Light♦ | FG1P | **129.00** | FGJ1P | **143.00** | FF1P | **122.00** | FS1P | **129.00** | FSJ1P | **149.00** | — | — | — | — | FO1P | **116.00** | |
| | 2 | Standard | FG2 | **99.00** | FGJ2 | **116.00** | FF2 | **93.00** | FS2 | **99.00** | — | — | — | — | — | — | FO2 | **86.00** | 1 |
| | | With Red Pilot Light♦ | FG2P | **143.00** | FGJ2P | **158.00** | FF2P | **120.00** | FS2P | **143.00** | FSJ2P | **165.00** | — | — | — | — | FO2P | **129.00** | |
| Key | 1 | Standard | FG3 | **116.00** | FGJ3 | **129.00** | FF3 | **107.00** | FS3 | **114.00** | — | — | — | — | — | — | FO3 | **99.00** | 1 |
| | | With Red Pilot Light♦ | FG3P | **158.00** | FGJ3P | **171.00** | FF3P | **149.00** | FS3P | **158.00** | FSJ3P | **179.00** | — | — | — | — | FO3P | **143.00** | |
| | 2 | Standard | FG4 | **129.00** | FGJ4 | **143.00** | FF4 | **122.00** | FS4 | **129.00** | — | — | — | — | — | — | FO4 | **114.00** | 1 |
| | | With Red Pilot Light♦ | FG4P | **171.00** | FGJ4P | **185.00** | FF4P | **165.00** | FS4P | **171.00** | FSJ4P | **192.00** | — | — | — | — | FO4P | **158.00** | |
| **Starter with Handle Guard/Lock-Off—Class 2510** | | | | | | | | | | | | | | | | | | | |
| Toggle | 1 | Standard | FG5 | **99.00** | FGJ5 | **114.00** | Order basic starter plus separate handle guard kit. | | | | | | FW1 | **320.00** | FR1 | **350.00** | ■ | — | 1 |
| | | With Red Pilot Light ♦ | FG5P | **143.00** | FGJ5P | **158.00** | | | | | | | FW1P | **435.00** | — | — | | — | |
| | 2 | Standard | FG6 | **116.00** | FGJ6 | **129.00** | | | | | | | FW2 | **336.00** | FR2 | **363.00** | ■ | — | 1 |
| | | With Red Pilot Light♦ | FG6P | **158.00** | FGJ6P | **171.00** | | | | | | | FW2P | **449.00** | — | — | | — | |

▲ Furnished with one 3/4" pipe tap in bottom (reversible for top feed). To obtain 3/4" pipe tap top and bottom, add suffix letter "H" to type number and add **$19.10** to price.
■ For replacement starter, order open type above. For NEMA 4 with pilot light, retain pilot light mounting bracket from original device.

**Table 16.2: Duplex Units—Class 2510**

| Type of Operator | No. of Poles | Features | NEMA 1 General Purpose Enclosure Surface Mounting | | General Purpose Flush Mounting (Without Pull Box) | | | | | | Number of Thermal Units Required |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gray Flush Plate for Wall or Cavity Mounting | | Stainless Steel Flush Plate for Wall or Cavity Mounting | | Replacement Starter Class 2510 | | |
| | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | |
| **One Starter in Duplex Enclosure—Class 2510** | | | | | | | | | | | |
| Toggle | 2 | Standard | FG02 | **158.00** | — | — | — | — | — | — | 1 |
| | | With Red Pilot Light ♦ | FG02P | **201.00** | — | — | — | — | — | — | |
| Key | 2 | With Red Pilot Light ♦ | FG04P | **201.00** | — | — | — | — | — | — | 1 |
| **Two Starters in One Enclosure—Class 2510** | | | | | | | | | | | |
| Toggle | 2 Each Str. | Standard | FG22 | **243.00** | FF22 | **228.00** | — | — | — | — | 2 |
| | | With Red Pilot Light on Each♦ | FG22P | **399.00** | FF22P | **386.00** | FS22P | **399.00** | — | — | |
| Key | 2 Each Str. | With Red Pilot Light on Each♦ | FG44P | **458.00** | FF44P | **441.00** | FS44P | **458.00** | — | — | 2 |
| **Starter and "AUTO-OFF-HAND" SPDT Selector Switch (AC Only)—Class 2510** | | | | | | | | | | | |
| Toggle | 1 | Standard | FG71 | **221.00** | FF71 | **207.00** | — | — | — | — | 1 |
| | | With Red Pilot Light ♦ | FG71P | **264.00** | FF71P | **251.00** | FS71P | **264.00** | — | — | |
| | 2 | Standard | FG72 | **234.00** | FF72 | **221.00** | — | — | — | — | 1 |
| | | With Red Pilot Light♦ | FG72P | **278.00** | FF72P | **264.00** | FS72P | **278.00** | — | — | |
| Key | 2 | With Red Pilot Light♦ | FG74P | **306.00** | FF74P | **293.00** | FS74P | **306.00** | — | — | 1 |
| **Two Speed Starters (AC Only)—Class 2512** | | | | | | | | | Replacement Starter Class 2510 | | |
| Toggle | 1 | With Mechanical Interlock: | | | | | | | | | 2 |
| | | Standard | FG11 | **314.00** | FF11 | **300.00** | — | — | FO1T | **86.00** | |
| | | With 2 Red Pilot Lights♦ | FG11P | **471.00** | FF11P | **458.00** | — | — | FO1PT | **129.00** | |
| | | With HIGH-OFF-LOW Selector Switch: | | | | | | | | | |
| | | With 2 Red Pilot Lights♦ | — | — | — | — | FS101P | **471.00** | FO1PT | **129.00** | |
| | 2 | With Mechanical Interlock: | | | | | | | | | 2 |
| | | Standard | FG22 | **342.00** | FF22 | **329.00** | — | — | FO2T | **99.00** | |
| | | With 2 Red Pilot Lights♦ | FG22P | **500.00** | FF22P | **485.00** | — | — | FO2PT | **143.00** | |
| | | With HIGH-OFF-LOW Selector Switch: | | | | | | | | | |
| | | With 2 Red Pilot Lights♦ | — | — | — | — | FS202P | **500.00** | FO2PT | **143.00** | |

♦ For green pilot light, add the letter "G" to the catalog number (i.e. 2510FG2P**G**).



Type FG2P

**Table 16.3: Horsepower Ratings Type F**

| Volts | Maximum Horsepower | | |
|---|---|---|---|
| | AC Single Phase | | DC 2-Pole Only |
| | 1-Pole | 2-Pole | |
| 115–230 | 1 | 1 | 3/4 |
| 277 | 1 | 1 | — |

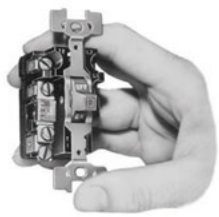
Note: Continuous current rating—16 A.

**Table 16.4: Approvals—2510 Type F and K**

| Enclosed | | Open | |
|---|---|---|---|
| (UL Listed) | File E42243 | (UL Component Recognized) | File E42243 |
| | CCN NLRV | | CCN NLRV2 |
| CSA Certified File LR25490 Class 3211-05 | | | |

**Table 16.5: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 2510 | FG1 |



Type FO2





© 2012 Schneider Electric
All Rights Reserved

### Table 16.6: Non-Reversing—Class 2510

| Type of Operator | No. of Poles | Features | NEMA 1 General Purpose Enclosure Surface Mounting | | | | General Purpose Flush Mounting (Without Pull Box) | | | | | | NEMA Type 4 ▲ Watertight and Dusttight Enclosure | | NEMA Types 3R, 7 & 9 ▲ Hazardous Locations Div. 1 & 2 Class I Groups B, C & D & Class II Groups E, F, and G Enclosure | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Standard | | Oversized | | Gray Flush Plate | | Standard Stainless Steel Flush Plate | | Jumbo Stainless Steel Flush Plate | | | | | | | |
| | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| Toggle | 2 | Standard With Pilot Light♦ | KG1 | **66.00** | KGJ1 | **81.00** | KF1 | **59.00** | KS1 | **66.00** | — | — | KW1 | **314.00** | KR1 | **342.00** | KO1 | **52.00** |
| | | 115 Vac | KG1A | **138.00** | KGJ1A | **153.00** | KF1A | **131.00** | KS1A | **138.00** | KSJ1A | **161.00** | KW1A | **428.00** | — | — | KO1A ■ | **125.00** |
| | | 230 Vac | KG1B | **138.00** | KGJ1B | **153.00** | KF1B | **131.00** | KS1B | **138.00** | KSJ1B | **161.00** | KW1B | **428.00** | — | — | KO1B ■ | **125.00** |
| | 3 | Standard With Pilot Light♦ | KG2 | **149.00** | KGJ2 | **165.00** | KF2 | **143.00** | KS2 | **149.00** | — | — | KW2 | **386.00** | KR2 | **442.00** | KO2 | **120.00** |
| | | 208-277 Vac | KG2B | **221.00** | KGJ2B | **234.00** | KF2B | **215.00** | KS2B | **221.00** | KSJ2B | **243.00** | KW2B | **500.00** | — | — | KO2B ■ | **207.00** |
| | | 440-600 Vac | KG2C | **221.00** | KGJ2C | **234.00** | KF2C | **215.00** | KS2C | **221.00** | KSJ2C | **243.00** | KW2C | **500.00** | — | — | KO2C ■ | **207.00** |
| | 2 | Standard With Pilot Light♦ | KG5 | **78.00** | KGJ5 | **93.00** | — | — | — | — | — | — | KW5 | **327.00** | — | — | KO5 | **64.00** |
| | | 115 Vac | KG5A | **149.00** | — | — | — | — | — | — | — | — | KW5A | **440.00** | — | — | KO5A ■ | **120.00** |
| | | 230 Vac | KG5B | **149.00** | — | — | — | — | — | — | — | — | KW5B | **440.00** | — | — | KO5B ■ | **120.00** |
| | 3 | Standard With Pilot Light♦ | KG6 | **162.00** | KGJ6 | **176.00** | — | — | — | — | — | — | KW6 | **396.00** | — | — | KO6 | **147.00** |
| | | 208-277 Vac | KG6B | **233.00** | — | — | — | — | — | — | — | — | KW6B | **512.00** | — | — | KO6B ■ | **219.00** |
| | | 440-600 Vac | KG6C | **233.00** | — | — | — | — | — | — | — | — | KW6C | **512.00** | — | — | KO6C ■ | **219.00** |
| Key | 2 | Standard With Pilot Light♦ | KG3 | **95.00** | KGJ3 | **110.00** | KF3 | **89.00** | KS3 | **95.00** | — | — | — | — | — | | KO3 | **81.00** |
| | | 115 Vac | KG3A | **167.00** | KGJ3A | **179.00** | KF3A | **161.00** | KS3A | **167.00** | KSJ3A | **185.00** | — | — | — | | KO3A | **153.00** |
| | | 230 Vac | KG3B | **167.00** | KGJ3B | **179.00** | KF3B | **161.00** | KS3B | **167.00** | KSJ3B | **185.00** | — | — | — | — | KO3B | **153.00** |
| | 3 | Standard With Pilot Light♦ | KG4 | **179.00** | KGJ4 | **192.00** | KF4 | **171.00** | KS4 | **179.00** | — | — | — | — | — | — | KO4 | **165.00** |
| | | 208-277 Vac | KG4B | **251.00** | KGJ4B | **264.00** | KF4B | **243.00** | KS4B | **251.00** | KSJ4B | **270.00** | — | — | — | — | KO4B | **234.00** |
| | | 440-600 Vac | KG4C | **251.00** | KGJ4C | **264.00** | KF4C | **243.00** | KS4C | **251.00** | KSJ4C | **270.00** | — | — | — | — | KO4C | **234.00** |

▲ Furnished with one 3/4" pipe tap in bottom (reversible for top feed). To obtain 3/4" pipe tap top and bottom, add suffix letter "H" to type number and add **$28.70** to price.

■ When replacing starter with pilot light in NEMA 4 enclosure, retain pilot light mounting bracket from original device.

### Table 16.7: Reversing—Class 2511

| Type of Operator | Number of Poles | Motor Types for Which Suitable | Features (Including Mechanical Interlock) | NEMA 1 General Purpose Enclosure Surface Mounting | | With Flush Plate for Cavity Mounting (Without Pull Box) | | Replacement Switch Class 2510 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price |
| Toggle | 2 | Single Ø 3-Lead Repulsion-Induction | Standard With Pilot Light:♦ | KG11 | **287.00** | KF11 | **270.00** | KO1T | **66.50** |
| | | | 115 Vac | KG11A | **399.00** | KF11A | **386.00** | KO1AT | **138.00** |
| | | | 230 Vac | KG11B | **399.00** | KF11B | **386.00** | KO1BT | **138.00** |
| | 3 | Three Ø; Also Single Ø Capacitor, Split Ø, or 4-Lead Repulsion-Induction | Standard With Pilot Light:♦ | KG22 | **441.00** | KF22 | **428.00** | KO2T | **149.00** |
| | | | 110–120 Vac | KG22A | **557.00** | KF22A | **543.00** | KO2AT | **221.00** |
| | | | 208–220 Vac | KG22B | **557.00** | KF22B | **543.00** | KO2BT | **221.00** |
| | | | 440–600 Vac | KG22C | **557.00** | KF22C | **543.00** | KO2CT | **221.00** |

### Table 16.8: Two Speed—Class 2512

| Type of Operator | Number of Poles | Motor Types for Which Suitable | Features (Including Mechanical Interlock) | NEMA 1 General Purpose Enclosure Surface Mounting | | With Flush Plate for Cavity Mounting (Without Pull Box) | | Replacement Switch Class 2510 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price |
| Toggle | 2 | Single Ø Two Winding (3-Lead) | Standard With 2 Pilot Lights:♦ | KG11 | **287.00** | KF11 | **270.00** | KO1T | **66.50** |
| | | | 115 Vac | KG11A | **513.00** | KF11A | **500.00** | KO1AT | **138.00** |
| | | | 230 Vac | KG11B | **513.00** | KF11B | **500.00** | KO1BT | **138.00** |
| | 3 | Three Ø Separate Winding (Wye-Connected) | Standard With 2 Pilot Lights:♦ | KG22 | **441.00** | KF22 | **428.00** | KO2T | **152.00** |
| | | | 208–240 Vac | KG22B | **671.00** | KF22B | **656.00** | KO2BT | **221.00** |
| | | | 440–600 Vac | KG22C | **671.00** | KF22C | **656.00** | KO2CT | **221.00** |

♦ For green pilot light, add the letter "G" to the catalog number (i.e. 2510KW2C**G**).

### Table 16.9: Class 2510 Horsepower Ratings

| Class 2510 | No. of Poles | Motor Type AC | Maximum Hp | | | | DC Rating | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 115 Volts | 230 Volts | 460 Volts | 575 Volts | 90 Volts | 115 Volts | 230 Volts |
| KO1 KO3 | 2 | Single Ø | 2 | 2 | 3 | 3 | 1 | 2 | 1-1/2 |
| KO2 KO4 | 3 | Three Ø | 2 | 7-1/2 | 10 | 10 | 1 | 2 | 1-1/2 |
| KO5 | 2 | Single Ø | 2 | 3 | 7-1/2 | 10 | 1 | 2 | 1-1/2 |
| KO6 | 3 | Three Ø | 2 | 7-1/2 | 15 | 20 | 1 | 2 | 1-1/2 |

Note: Continuous current rating 30 A at 600 Vac maximum.

### Table 16.10: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number | Class | Type |
| • Type Number | 2510 | KO2 |

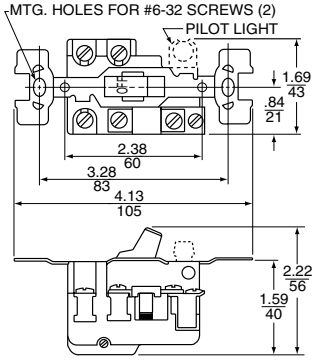
### Table 16.11: Class 2511 and 2512 Horsepower Ratings Type K

| Device | No. of Poles | Motor Type AC | Maximum Hp | | | DC Ratings | | |
|---|---|---|---|---|---|---|---|---|
| | | | 115 Volts | 230 Volts | 460–575 Volts | 90 Volts | 115 Volts | 230 Volts |
| Class 2511 | 2 | Single Ø | 2 | 2 | 3 | 1 | 2 | 1-1/2 |
| | 3 | Three Ø | 2 | 7-1/2 | 10 | 1 | 2 | 1-1/2 |
| Class 2512 | 2 | Single Ø | 2 | 2 | 3 | 1 | 2 | 1-1/2 |
| | 3 | 3 Ø, Constant or Variable Torque | 2 | 7-1/2 | 10 | 1 | 2 | 1-1/2 |
| | 3 | 3 Ø, Constant Horsepower | 2 | 7-1/2 | 10 | 1 | 2 | 1-1/2 |

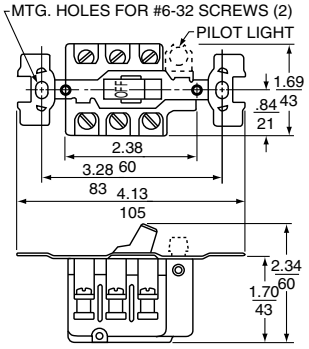


© 2012 Schneider Electric
All Rights Reserved

## Open Type

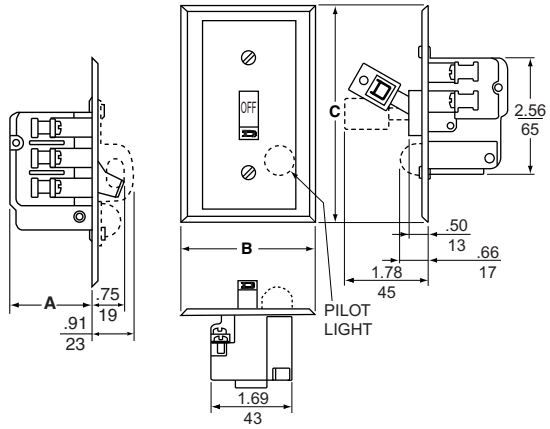



Types FO1, 1P, 2
Fractional Hp Starter




Types KO1, 1A, 1B, 2, 2B, 2C
Types KO5, 5A, 5B, 6, 6B, 6C
Motor Starting Switch

## NEMA 1 General Purpose Enclosure (Flush Mount)




## NEMA 4 Watertight Die Cast Zinc Enclosure

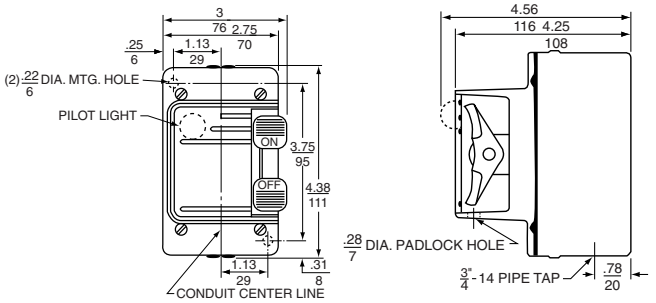


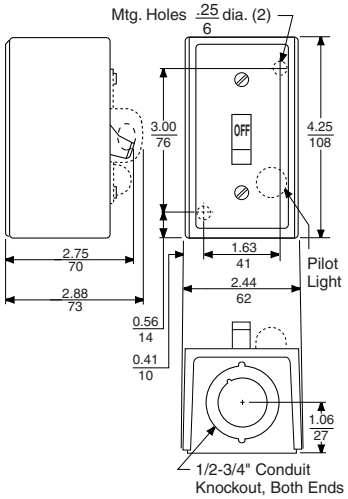

**Table 16.12:**

| Device | Class | Type |
|---|---|---|
| Fractional Hp Starter | 2510 | FW1, 1P, 2, 2P |
| Motor Starting Switch | 2510 | KW1, 1A, 1B, 2, 2B, 2C |

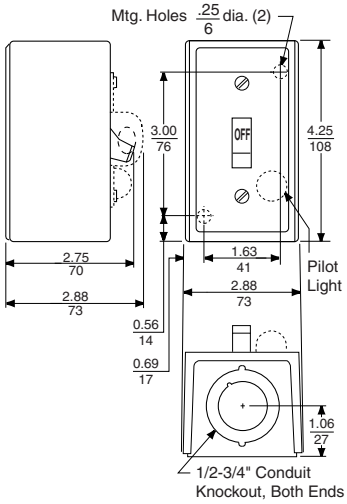
**Table 16.13:**

| Device | Type of Operator | Class 2510 Type | Dimensions | | |
|---|---|---|---|---|---|
| | | | A | B | C |
| Fractional Hp Starter | Toggle | FF1, 1P, 2, 2P<br>FS1, 1P, 2, 2P | 1-7/16 | 2-3/4 | 4-1/2 |
| | | FSJ1P, 2P | 1-7/16 | 3-1/2 | 5-1/4 |
| | Key | FF3, 3P, 4, 4P<br>FS3, 3P, 4, 4P | 1-7/16 | 2-3/4 | 4-1/2 |
| | | FSJ3P, 4P | 1-7/16 | 3-1/2 | 5-1/4 |
| Motor Starting Switch | Toggle | KF1, 1A, 1B, 2, 2B, 2C<br>KS1, 1A, 1B, 2, 2B, 2C | 1-3/4 | 2-3/4 | 4-1/2 |
| | | KSJ1A, 1B, 2B, 2C | 1-3/4 | 3-1/2 | 5-1/4 |
| | Key | KF3, 3A, 3B, 4, 4B, 4C<br>KS3, 3A, 3B, 4, 4B, 4C | 1-3/4 | 2-3/4 | 4-1/2 |
| | | KSJ3A, 3B, 4B, 4C | 1-3/4 | 3-1/2 | 5-1/4 |

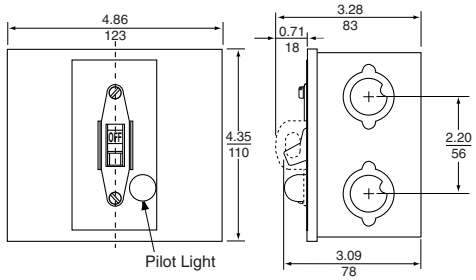
## NEMA 1 General Purpose Enclosure (Surface Mount)




Standard
(Class 2510 Types FG & KG, Single Unit)




Oversized
(Class 2510 Types FGJ & KGJ, Single Unit)




Jumbo
(Class 9991Type KE2, see page 16-11)





© 2012 Schneider Electric
All Rights Reserved

## NEMA 3R, 7, and 9 Aluminum Enclosure for Hazardous Locations

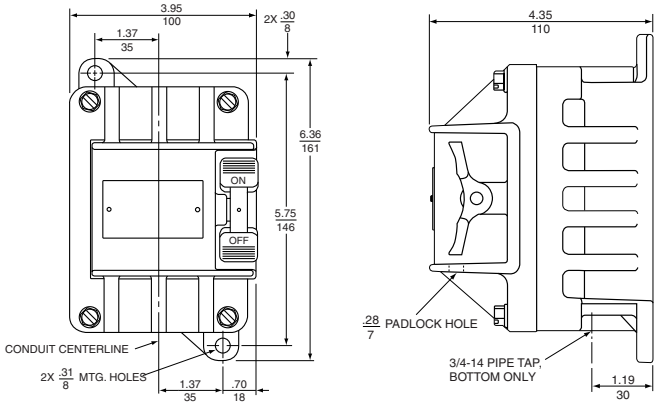



**Table 16.14: NEMA 3R, 7, and 9 Aluminum Enclosure for Hazardous Locations**

| Device | Class | Type |
|---|---|---|
| Fractional Hp Starter | 2510 | FR1, 2 |
| Motor Starting Switch | 2510 | KR1, 2 |

## Dimensions for Duplex Devices

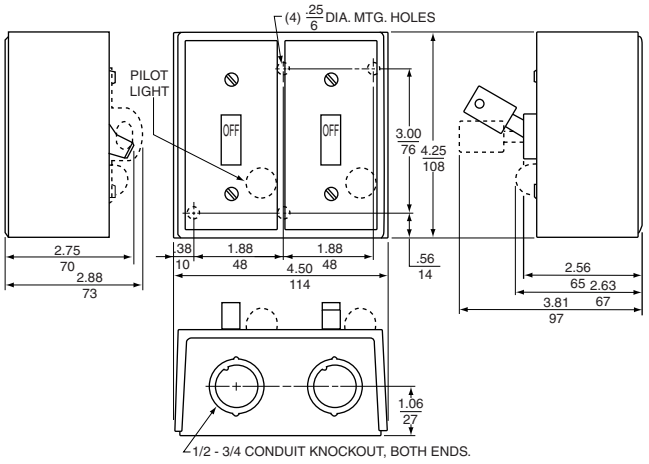



**Table 16.15: NEMA 1 General Purpose Surface Mount Enclosure for Duplex Devices**

| Device | Type of Operator | Class | Type |
|---|---|---|---|
| One Starter | Toggle | 2510 | FGO2, 02P |
| | Key | 2510 | FGO4P |
| Two Starters | Toggle | 2510 | FG22, 22P |
| | Key | 2510 | FG44P |
| One Starter and One Selector Switch▲ | Toggle | 2510 | FG71, 71P, 72, 72P |
| | Key | 2510 | FG74P |
| Reversing Switch■ | Toggle | 2511 | KG11, 11A, 11B, 22, 22A, 22B, 22C |
| Two Speed Starter | Toggle | 2512 | FG11, 11P, 22, 22P |
| Two Speed Switch | Toggle | 2512 | KG11, 11A, 11B, 22, 22B, 22C |

▲ Selector switch is on left, increases overall depth to 3-1/2".
■ Only one pilot light (located on right) is used on Class 2511 switches.

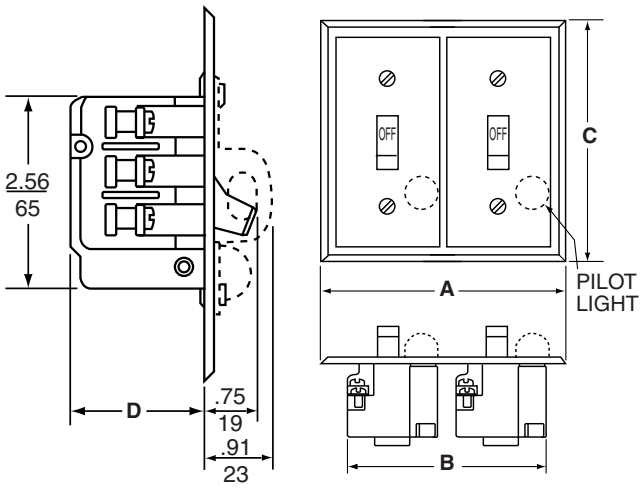



**Table 16.16: General Purpose Flush Mounting Plate for Duplex Devices**

| Device | Type of Operator | Class | Type | Dimensions♦ | | | |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D |
| Two Starters | Toggle | 2510 | FF22, 22P | 5-1/4 | 3-3/4 | 5-1/4 | 1-7/16 |
| | | | FS22P | 4-9/16 | 3-1/2 | 4-1/2 | 1-7/16 |
| | Key | 2510 | FF44P | 5-1/4 | 3-3/4 | 5-1/4 | 1-7/16 |
| | | | FS44P | 4-9/16 | 3-1/2 | 4-1/2 | 1-7/16 |
| One Starter and One Selector Switch★ | Toggle | 2510 | FF71, 71P, 72, 72P | 5-1/4 | 3/4 | 5-1/4 | 2 |
| | | | FS71P, 72P | 4-9/16 | 3-1/2 | 4-1/2 | 2 |
| | Key | 2510 | FF74P | 5-1/4 | 3-3/4 | 5-1/4 | 2 |
| | | | FS74P | 4-9/16 | 3-1/2 | 4-1/2 | 2 |
| Reversing Switch | Toggle | 2511 | KF11, 11A, 11B KF22, 22A KF22B, 22C | 5-1/4 | 3-3/4 | 5-1/4 | 1-3/4 |
| Two Speed Starter | Toggle | 2512 | FF11, 11P, 22, 22P | 5-1/4 | 3-3/4 | 5-1/4 | 1-7/16 |
| Two Speed Switch | Toggle | 2512 | KF11, 11A, 11B, KF22, 22B, 22C | 5-1/4 | 3-3/4 | 5-1/4 | 1-3/4 |

♦ Dimensions include factory wired power connections.
★ Selector Switch is on left, extends 1-5/8" from mounting surface.



© 2012 Schneider Electric
All Rights Reserved



Types M and T integral horsepower manual starters provide convenient "On-Off" operation of small single phase, polyphase or DC motors. Typical applications include small machine tools, pumps, fans and conveyors.

- Push button (M) or toggle (T) operators
- Reliable overload protection
- Pilot light and auxiliary contact available

**Table 16.17: Integral Horsepower Manual Starters**

Note that the prices shown do not include thermal units. Standard trip thermal units are **$21.50** each; see page 16-116 for selection information.

| Non-Reversing | | | | | Class 2510 | | | | | | | | | | | | Max. Voltage: 600 Vac | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of Poles | NEMA Size | Ratings | | | NEMA 1 Surface Mounting | | | NEMA 4/4X Watertight and Dusttight Enclosure Brushed Stainless Steel | | NEMA 4/4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure | | ▲ NEMA 7 & 9 For Hazardous Locations Class I – Groups C, D Class II – Groups E, F & G | | NEMA 12 Dusttight and Driptight Industrial Use Enclosure | | Open Type | | | |
| | | Motor Voltage | Max. Hp | | Square P.B. Operator | Toggle Operator | $ Price | | | | | | | | | Square P.B. Operator | Toggle Operator | $ Price | |
| | | | Poly-Phase | Single Phase | Type | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | | | |
| 2-Pole | M-0 | 115<br>230 | —<br>— | 1<br>2 | MBG1 | TBG1 | **264.00** | MBW11■ | **720.00** | MBW1■ | **720.00** | MBR1■ | **1004.00** | MBA1■ | **363.00** | MBO1 | TBO1 | **234.00** |
| | M-1 | 115<br>230 | —<br>— | 2<br>3 | MCG1 | TCG1 | **336.00** | MCW11 | **891.00** | MCW1 | **891.00** | MCR1 | **1197.00** | MCA1 | **435.00** | MCO1 | TCO1 | **306.00** |
| | M-1P | 115<br>230 | —<br>— | 3<br>5 | MCG2 | TCG2 | **491.00** | MCW12 | **1089.00** | MCW2 | **1089.00** | MCR2 | **1382.00** | MCA2 | **593.00** | MCO2 | TCO2 | **309.00** |
| 3-Pole | M-0 | 115<br>200-230<br>380-575 | —<br>3<br>5 | —<br>—<br>— | MBG2 | TBG2 | **314.00** | MBW12■ | **770.00** | MBW2■ | **770.00** | MBR2■ | **1062.00** | MBA2■ | **414.00** | MBO2 | TBO2 | **287.00** |
| | M-1 | 115<br>200-230<br>380-575 | —<br>7-1/2<br>10 | —<br>—<br>— | MCG3 | TCG3 | **386.00** | MCW13 | **941.00** | MCW3 | **941.00** | MCR3 | **1254.00** | MCA3 | **485.00** | MCO3 | TCO3 | **356.00** |
| DC 2-Pole | M-0 | 115<br>230 | 1 hp–D.C.<br>1-1/2 hp–D.C. | | MBG4 | TBG4 | **264.00** | MBW14 | **720.00** | MBW4 | **720.00** | — | — | MBA4 | **363.00** | MBO4 | TBO4 | **234.00** |
| | M-1 | 115<br>230 | 1-1/2 hp–D.C<br>2 hp–D.C. | | MCG5 | TCG5 | **336.00** | MCW15 | **891.00** | MCW5 | **891.00** | MCR5 | **1188.00** | MCA5 | **435.00** | MCO5 | TCO5 | **306.00** |

▲ NEMA 7 & 9 enclosures are cast-iron. NEMA 7 & 9 enclosures (cast aluminum) are available for outdoor use; to order these type of enclosures, replace the "R" in the catalog number with a "T". For additional information, contact Schneider Electric Customer Care Center.

■ Approved for group motor installations per NEC 430-53(c).

### All Except NEMA 7 & 9

File E42243
CCN NLRV

File LR60905
Class 3211-05

### NEMA 7 & 9 Only

File E58760
CCN NPXZ

File LR26817
Class 3218-04

**Table 16.18: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 2510 | MCA1 |





© 2012 Schneider Electric
All Rights Reserved

## Reversing and Two Speed

Class 2511 reversing and Class 2512 two-speed manual starters consist of two mechanically interlocked Class 2510 Types M or T manual starters.

**Table 16.19: Reversing Class 2511**

| Class | Description | Number of Poles | NEMA Size | Ratings | | NEMA 1 Surface Mounting | | | Open Type | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Motor Voltage | Maximum Hp | Square P.B. Operator | Toggle Operator | $ Price | Square P.B. Operator | Toggle Operator | $ Price |
| 2511 | Standard | 3-Pole | M-0 | 200-230<br>380-575 | 3<br>5 | MBG1 | TBG1 | **984.00** | MBO1 | TBO1 | **899.00** |
| | | | M-1 | 200-230<br>380-575 | 7-1/2<br>10 | MCG1 | TCG1 | **1197.00** | MCO1 | TCO1 | **1112.00** |

**Table 16.20: Two Speed (Wye-Connected Separate Winding Motors Only) Class 2512**

| Class | Description | Number of Poles | NEMA Size | Ratings | | | NEMA 1 Surface Mounting | | | Open Type | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Motor Voltage | Constant Hp | Constant Torque or Variable Torque | Square P.B. Operator | Toggle Operator | $ Price | Square P.B. Operator | Toggle Operator | $ Price |
| 2512 | Standard | 3-Pole | M-0 | 200-230<br>380-575 | 2<br>3 | 3<br>5 | MBG1 | TBG1 | **984.00** | MBO1 | TBO1 | **899.00** |
| | | | M-1 | 200-230<br>380-575 | 5<br>7-1/2 | 7-1/2<br>10 | MCG1 | TCG1 | **1197.00** | MCO1 | TCO1 | **1112.00** |

## Thermal Units

Starters will not operate without properly installed thermal units and device reset. Thermal unit must be installed so that markings face the front of starter.

## Application Data

**Size–**Available in NEMA Sizes M-0, M-1, and M-1P.

**Poles–**Two poles single phase; three poles polyphase; 2 poles DC.

**Voltage–**600 volts AC max.; 250 volts DC max.

**Overload Relays–**Melting alloy thermal overload relays have provisions for one Type B thermal unit for single phase starters and three Type B thermal units for three phase starters. **All thermal units must be installed and the device reset before the starter contacts will operate.** After overload relays have tripped, allow one or two minutes for the alloy to solidify before resetting.

**Operator–**Available with a push button or toggle operator in open and NEMA 1 versions. NEMA 4/4X (stainless) and 12 versions utilize a direct acting push button only. NEMA 4/4X (polyester) and 7/9 versions utilize an external toggle to actuate a push button device inside.

## Maintenance of Equipment

For proper performance, all equipment should be periodically inspected and maintained. Replacement contacts and interlocks are available in kit form to facilitate servicing and stocking. In addition, the service bulletin contains an exploded view of the device with components clearly marked for easy identification by description and part number.

**Mechanism Lock Off–**Both open devices and starters in NEMA 1 surface and flush mounting, and NEMA 4, 4X, 7 & 9 and 12 enclosures can be locked in the OFF or STOP position. The NEMA 1 surface mounting, 4, 4X, 7 & 9 and 12 enclosures can also be locked closed to prevent unauthorized entry.

**Table 16.21: Terminal information and Replacement Contact Kits**

| NEMA Size | Power Terminals | | Auxiliary Interlock Terminals | | Number of Poles | Service Bulletin | Replacement Contact Kit | |
|---|---|---|---|---|---|---|---|---|
| | Type of Lug | Wire Size (Solid or Stranded Copper Wire) Min.-Max. | Type of Lug | Wire Size (Solid or Stranded Copper Wire) Min.-Max. | | | Class | Type |
| M-0 | Pressure Wire | #14–#8 | Pressure Wire | #16–#12 | 2 or 3 | 312AS | 9998 | ML1 |
| M-1 | Pressure Wire | #14–#8 | Pressure Wire | #16–#12 | 2 or 3 | 312AS | 9998 | ML2 |
| M-1P | Box Lug | #14–#6 | Pressure Wire | #16–#12 | 2 | 312AS | 9998 | ML2 |

## Accessories and Modification Kits

**One auxiliary contact,** either N.O. or N.C. can easily be added internally to any open or enclosed Type M or T manual starter. It occupies the space provided in either the upper right hand or left hand corners of the device. These contacts are for AC loads only. For electrical ratings, refer to page 16-110, Class 9999 Types SX11 or SX12.

A unique red **pilot light** assembly that clips into place is available **factory installed** on NEMA 1, 4, 4X, 12 and flush enclosures or as a **field modification kit** on the NEMA 1 surface or flush mounting enclosures. See page 16-11. The color cap assembly snaps into a knockout in the enclosure cover on the NEMA 1 enclosures. Pilot light kits are available for use on Various voltages (110-600 volts). Pilot light assemblies are not available for NEMA 7 & 9 enclosures.



© 2012 Schneider Electric
All Rights Reserved

# Type M and T—Integral Horsepower—Approximate Dimensions

Class **2510, 2511, 2512** / Refer to Catalog **2510CT9701**





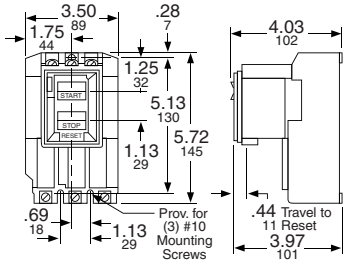
NEMA 1
General Purpose Surface Mounting



NEMA 4/4X
Watertight and Dusttight
Stainless Steel



NEMA 12
Dusttight and Driptight
Industrial Use



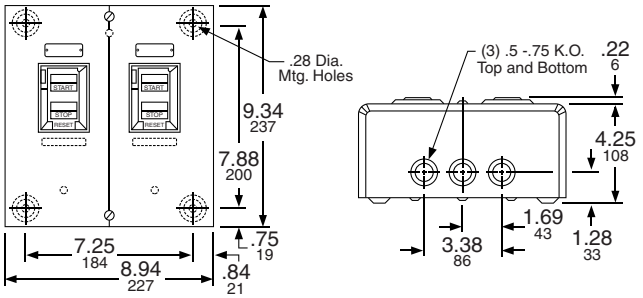

Class 2510 Type M Sizes M-0, M-1
and M-1P, Open Type
Approximate Shipping Weight—3 lb



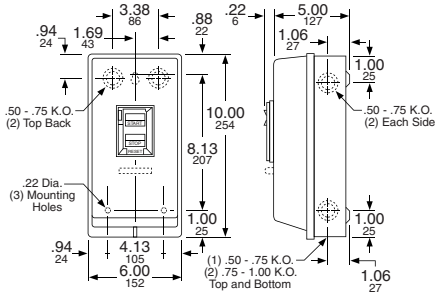
NEMA 4/4X
Watertight, Dusttight
and Corrosion Resistant
Glass Polyester



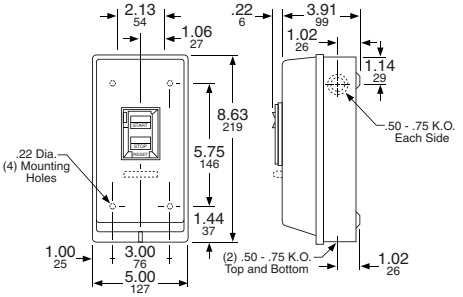
NEMA 7 & 9
Hazardous Locations
Cast Iron



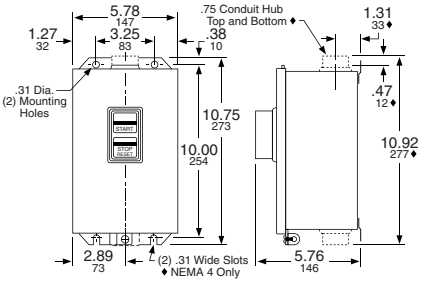

Classes 2511, 2512, Types M & T
Sizes M-0 and M-1 NEMA 1
General Purpose Enclosure
Approximate Shipping Weight—9 lb



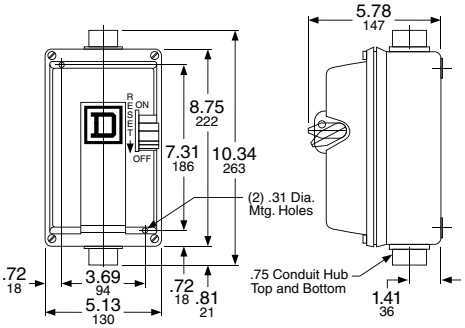

Class 2510 Type M & T Size M-1P
NEMA 1 General Purpose Enclosure
Approximate Shipping Weight—5 lb



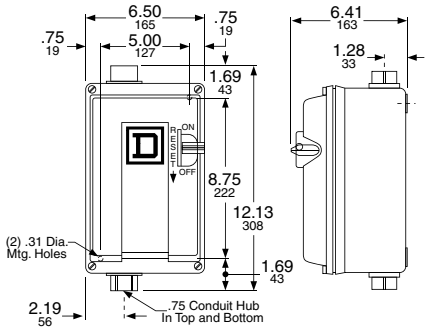

Class 2510 Types M & T Sizes M-0 and M-1
NEMA 1 General Purpose Enclosure
Approximate Shipping Weight—5 lb



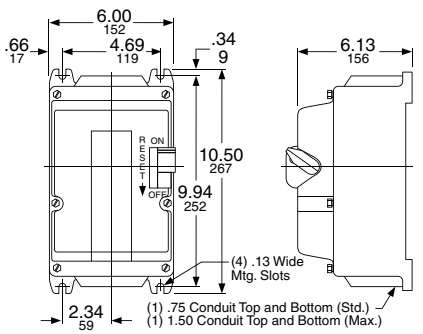

Class 2510 Type M Sizes M-0, M-1 and M-1P
NEMA 4/4X Watertight Stainless Steel Enclosure
NEMA 12 Dusttight Industrial Use Enclosure
Approximate Shipping Weight—9 lb




Class 2510 Type M Size M-0 (AC–DC)
and Size M-1 (DC) NEMA 4/4X
Watertight Corrosion-Resistant
Glass Polyester Enclosure
Approximate Shipping Weight—6 lb




Class 2510 Type M Sizes M-1 and M-1P (AC)
NEMA 4/4X Watertight Corrosion-Resistant
Glass Polyester Enclosure
Approximate Shipping Weight—6 lb




Class 2510 Type M Sizes M-0, M-1 and M-1P
NEMA 7 & 9 Hazardous Location
Cast Iron Enclosure
Approximate Shipping Weight—18 lb





© 2012 Schneider Electric
All Rights Reserved

### Table 16.22: Accessories—Class 2510 Types F and K

| Description | Class & Type | $ Price |
|---|---|---|
| Handle Guard Kit with Padlock Provision▲ | 2510FL1 | **14.30** |
| Emergency Off Actuator | 2510PB1 | **35.60** |
| Additional Key for Key Operated Devices | 2510FK1 | **4.80** |

▲ Standard on Type K devices.

### Table 16.23: Pilot Light Kits—Class 2510 Types F and K

| Application | Voltage | Red Pilot Light | Green Pilot Light | $ Price |
|---|---|---|---|---|
| | | Class & Type | Class & Type | |
| Type KF, KG, KW■ | 110–120 Vac | 9999PL11 | 9999PL11G | **71.00** |
| | 208–277 Vac | 9999PL12 | 9999PL12G | **71.00** |
| | 440–600 Vac | 9999PL13 | 9999PL13G | **71.00** |
| Type FF, FG, FW■ | 115–240 Vac/dc | 9999PL10 | 9999PL10G | **42.80** |

■ Lens cannot be replaced. Pilot light kits for NEMA 4 Enclosed Units are for replacement purposes only.

### Table 16.24: Replacement Nameplates—Class 2510 Types F and K

| Description | Application | Nameplate Marking | Nameplate Type Number—Class 2510 | | | | $ Price |
|---|---|---|---|---|---|---|---|
| | | | For Type K Switch | | For Type F Starter (Includes "Reset" Indication) | | |
| | | | Without Pilot Light | With Pilot Light | Without Pilot Light | With Pilot Light | |
| 1-3/4" x 2-13/16" Nameplate with Embossed Mounting Holes for #6 Oval Head Screws | Standard commercial switch box cover or flush plate, including Square D stainless steel plates | (Blank) | FN1 | — | FN2 | — | **21.50** |
| | | (Special marking – Specify marking desired.) | FN5 | — | FN6 | — | **42.80** |
| 1-29/32" x 3-27/32" Flat Nameplate with Mounting Holes for #6 Pan Head Screws | Square D NEMA 1 surface mounted enclosure or gray flush plate | (Blank) | FN10 | FN20 | FN30 | FN40 | **21.50** |
| | | High | FN11 | FN21 | FN31 | FN41 | **21.50** |
| | | Low | FN12 | FN22 | FN32 | FN42 | **21.50** |
| | | Forward | FN13 | — | — | — | **21.50** |
| | | Reverse | FN14 | FN24 | — | — | **21.50** |
| | | (Special marking—Specify marking desired.) | FN15 | FN25 | FN35 | FN45 | **42.80** |

## Contact Kits

See page 16-107 for Class 9998 Replacement Contact Kits.

### Table 16.25: Modifications (Types M & T only)

| Description | Factory Modifications and Forms | | Field Modifications | |
|---|---|---|---|---|
| | Form Number | Price Addition | Kit Class & Type | $ Price |
| Red Pilot Light♦ | P11△ | **116.00** | 9999MP1 (110–120 V)<br>9999MP2 (208–240 V)<br>9999MP3 (440–600 V) | **140.00** |
| Auxiliary Contacts★ | X1 (1 N.O.)<br>X2 (1 N.C.) | **158.00** | 9999SX11 (N.O.)<br>9999SX12 (N.C.) | **99.00** |
| Jumper Straps ▼ | N/A | — | 9998SO31 | **14.30** |
| Contactor only | Y76 | No Charge | N/A | — |

♦ May only be field-added to NEMA 1 enclosures. For green pilot light, order 9999SPG1 additionally.

★ For proper operation, only one auxiliary contact kit per device may be added.

▼ Used to control a single phase motor utilizing a three phase starter.

△ P11 Pilot Light Voltage Codes:
120 V—V02
200/208 V—V08
230 V—V03
460 V—V06
575 V—V07
The pilot light Form P11 requires a voltage code.
Catalog number example: 2510MBG1V02P11.

### Table 16.26: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9991 | KE1 |

### Table 16.27: Replacement Parts

| Description | Class and Type | $ Price |
|---|---|---|
| Replacement Toggle Kits:<br>Type FW and KW (NEMA 4)<br>Type FR and KR (NEMA 7 & 9) | <br>9998HW1<br>9998HR2 | <br>**29.30**<br>**30.90** |
| Replacement Handle Kits:<br>NEMA 12 (Ser. B) Type MBA, MCA<br>NEMA 4/4X (Stainless) (Ser. A & B) Type MBW, MCW<br>NEMA 4/4X (Stainless) (Ser. C) Type MBW, MCW<br>NEMA 4/4X (Polyester) Type MBW, MCW<br>NEMA 7 and 9 Type MBR, MCR | <br>9998HWA1<br>9998HWA1<br>31085-381-50<br>9998HWA1<br>9998HR3 | <br>**57.00**<br>**57.00**<br>**57.00**<br>**57.00**<br>**57.00** |
| Internal Lever | 9998IL1 | **14.30** |

### Table 16.28: Enclosures

| For use with Class 2510 Type | Enclosure | Catalog Number | $ Price |
|---|---|---|---|
| F and K | NEMA 1 Standard | 9991EN1 | **29.30** |
| M–Sizes M0 & M1 | | 9991MG1 | **57.00** |
| M–Size M1P | | 9991MG2 | **57.00** |
| FO1, FO1P, FO2, FO2P, FO3, FO3P, FO4, FO4P | NEMA 1 Oversized | 9991FE1 | **42.80** |
| KO1, KO1A, KO1B, KO2, KO2B, KO2C, KO3, KO3A, KO3B, KO4, KO4B, KO4C, KO5, KO5A, KO5B, KO6, KO6B, KO6C | NEMA 1 Oversized | 9991KE1 | **42.80** |
| | NEMA 1 Jumbo | 9991KE2 | **86.00** |
| | NEMA 3R | 9991KE3 | **215.00** |



© 2012 Schneider Electric
All Rights Reserved

# NEMA Style TeSys™ U Simple Motor Starter

Refer to Catalog **8502CT0201**

SQUARE D by Schneider Electric
www.schneider-electric.us

NEMA style TeSys U motor starter is integrated, simple to choose and to install, consisting of a control unit snapped in a powerbase. NEMA style TeSys U can be configured to fit specific applications as well. The NEMA style TeSys U uses the same optional accessories: reverser, current limiter, predictive maintenance options and communication options as the IEC TeSys U.

To get detailed information about TeSys U, visit our website at www.schneider-electric.us.com.




## Selecting a NEMA TeSys U Motor Starter in Three Steps


Power Base

### Table 16.29: Step 1. Select Power Base

| Control Connection | NEMA Size | Three Phase (HP max.) | | | | Single Phase (HP max.) | Power Bases | |
|---|---|---|---|---|---|---|---|---|
| | | 200/208 V | 220/240 V | 460 V | 575/600 V | 240 V | Catalog Number | $ Price |
| With screw terminations | 1 | 7.5 | 7.5 | 10 | 10 | 3 | LUB32NR | **488.00** |

### Table 16.30: Step 2. Select Control Unit ■

| Setting Range A | Standard 3-phase Class 10 trip ▲ | $ Price | Advanced 3-phase Class 10 trip ▲ | $ Price | Advanced single-phase Class 10 trip ▲ | $ Price | Advanced 3-phase Class 20 trip ▲ | $ Price |
|---|---|---|---|---|---|---|---|---|
| 0.15–0.6 | LUCAX6•• | **120.00** | LUCBX6•• | **150.00** | LUCCX6•• | **150.00** | LUCDX6•• | **150.00** |
| 0.3–1.4 | LUCA1X•• | **120.00** | LUCB1X•• | **150.00** | LUCC1X•• | **150.00** | LUCD1X•• | **150.00** |
| 1.25–5.0 | LUCA05•• | **120.00** | LUCB05•• | **150.00** | LUCC05•• | **150.00** | LUCD05•• | **150.00** |
| 3–12 | LUCA12•• | **120.00** | LUCB12•• | **150.00** | LUCC12•• | **150.00** | LUCD12•• | **150.00** |
| 4.5–18 | LUCA18•• | **120.00** | LUCB18•• | **150.00** | LUCC18•• | **150.00** | LUCD18•• | **150.00** |
| 8–32 | LUCA32•• | **120.00** | LUCB32•• | **150.00** | LUCC32•• | **150.00** | LUCD32•• | **150.00** |

▲ Complete catalog number by adding appropriate code from voltage code table below. For example: LUCAX6FU.
■ The control unit contains solid state overload relay and control power source for TeSys U. For more details on the different control units, their functions, and placement on the power base see page 18-29.


Control Unit

### Table 16.31: Voltage Codes

| Volts | 24 | 48–72 | 110–240 |
|---|---|---|---|
| DC | BL♦ | — | — |
| AC | B | — | — |
| DC or AC | — | ES★ | FU |

♦ DC voltage with range of 0.90 to 1.10 of nominal.
★ 48–72 Vdc; 48 Vac


Auxiliary Contact

### Table 16.32: Step 3. Select Auxiliary Contacts (optional)

| Terminals | Contact Indicates | Contact Normal Status | Contact State for Each Mode▼ Off | Ready | Run | Short Circuit Trip | Overload Trip (Manual Reset) | Overload Trip (Remote/ Auto Reset)△ | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| **Auxiliary Contact Blocks** | | | | | | | | | | |
| Screw | Ready condition | N.O. | O | I | I | O | O | I | LUA1C11 | **34.50** |
| | Fault condition | N.C. | I | I | I | O | O | I | | |
| Screw | Ready condition | N.O. | O | I | I | O | O | I | LUA1C20 | |
| | Fault condition | N.O. | O | O | O | I | I | O | | |
| **Auxiliary Contact Function Modules** | | | | | | | | | | |
| Screw | Power pole status | 2 N.O. | — | — | — | — | — | — | LUFN20 | **34.50** |
| Screw | Power pole status | 1 N.O. and 1 N.C. | — | — | — | — | — | — | LUFN11 | |
| Screw | Power pole status | 2 N.C. | — | — | — | — | — | — | LUFN02 | |

▼ I–indicates closed contact; O–indicates open contact
△ Requires multifunction or advanced control unit plus fault differentiation module LUFDDA10.

| Accessories for LUB32/LUB32NR | Quick Description | For details & selection, see pages: |
|---|---|---|
| Current Limiter | Increases the breaking capacity to 130kA @ 460 V | 18-30 |
| Reverser | Stacked or side mounted (LU6MB0•• ▲ only) | 18-30 |
| Line phase barrier | Required for use as a self-protected combination starter (UL508E) | 18-30 |
| Multifunction Control Unit | Has functions for monitoring and predictive maintenance | 18-30 |
| Function modules | Fault differentiation, Thermal overload, Motor load indication | 18-30 |
| Communication modules | Integrates into existing networks, major protocols available | 18-31 |
| Soft Starter + TeSys U | Use Altistart U01Soft Starter with TeSys U | 18-32 |
| Powerbus | Use TeSys U with a prewired system | 18-31 |
| Configuration and connection accessories | PowerSuite software, busbar, external handle | 18-31 |

▲ Complete catalog number by adding appropriate code from voltage code table below. For example: LUCAX6FU.

Accessories . . . . . pages 18-29 to 18-31
Dimensions. . . . . page 18-50

E164862
CCN NLDX

LR43364
Class 3211 08







© 2012 Schneider Electric
All Rights Reserved

**Class 8536** **Type S C G - 3 V02** **Form S**

**General Classification**

| | |
|---|---|
| 8502 | Contactor Page 16-14 |
| 8536 | Starter Page 16-18 |
| 8538 | Combination Starter with Disconnect Switch Page 16-31 |
| 8539 | Combination Starter with Circuit Breaker Page 16-35 |
| 8702 | Reversing Contactor Page 16-44 |
| 8736 | Reversing Starter Page 16-46 |
| 8738 | Reversing Combination Starter with Disconnect Switch Page 16-54 |
| 8739 | Reversing Combination Starter with Circuit Breaker |
| 8810 | Two Speed Starter ▲ |
| 8903 | Type S Lighting Contactors Page 16-60 ▲ |
| 8940 | Pumping Plant Panel ▲ |
| 8941 | Duplex Controller Page 16-78 ▲ |

**Numerals**

Used to designate specific, physical arrangements, such as number of poles, fuse clip size, etc.; but the numbering varies with Class of equipment. Consult Digest listings for specific device numbers.

**Voltage Code**

AC operated devices without control transformer

| Code | Voltage/Frequency |
|---|---|
| V01 | 24/60 |
| V02 | 120/60 or 110/50 |
| V06 | 480/60 or 440/50 |
| V07 | 600/60 or 550/50 |
| V08 | 208/60 |

V81 - 480V Primary, 120V Secondary for units using a fused transformer control circuit Form (F4T).

This is only a partial listing consult Digest pages 16-14 and 16-101 for more information.

**Design**

Type S NEMA Contactors and Starters

| NEMA Size | | 8903 (only) | |
|---|---|---|---|
| A | Size 00 | | |
| B | Size 0 | M | 30 Amperes |
| C | Size 1 | P | 60 Amperes |
| D | Size 2 | Q | 100 Amperes |
| E | Size 3 | V | 200 Amperes |
| F | Size 4 | X | 300 Amperes |
| G | Size 5 | Y | 400 Amperes |
| H | Size 6 | Z | 600 Amperes |
| J | Size 7 | J | 800 Amperes |

**Common Forms (factory modifications) Page 16-100**

| | |
|---|---|
| A | "Start-Stop" pushbuttons in the enclosure cover |
| B■ | Bimetallic overload relays |
| C | "Hand-Off-Auto" selector switch in the enclosure cover |
| F4T | Fused transformer control circuit (primary fuses only) |
| FF4T | Fused transformer control circuit (primary & secondary fuses) |
| H | Solid state overload relay |
| P1 | Red ON pilot light in the enclosure cover |
| P2 | Green OFF pilot light in cover |
| S | Separate control circuit |
| X01 | One "normally closed" auxiliary contact N.C. |
| X10 | One "normally open" auxiliary contact N.O. |

Consult Digest pages 16-100 to 16-104 for additional form letters, When more than one form is applied to a single device, arrange Forms in alphabetical order.

**Enclosure**

| | |
|---|---|
| A | NEMA 12 Industrial Use |
| F | NEMA 1 Flush Mounting General Purpose |
| G | NEMA 1 General Purpose Surface Mounting |
| H | NEMA 3R Rainproof |
| O | Open Style Device (no enclosure) |
| R | NEMA 7 & 9 Hazardous Environments, Spin Top |
| T | NEMA 7 & 9 Hazardous Environments, Bolted |
| W | NEMA 4 Watertight, 4X Corrosion Resistant |

▲ Combination two speed starters will replace the "S" with a "C", "U" or "D". Pumping plant panels have Various leading characters. Not all use Type S contactors. Duplex controllers use "N", "C", "U", and "D".

■ May also designate Motor Logic Plus overload relay

## Table 16.33: How to Order

| To Order Specify: | Catalog Number | | | |
|---|---|---|---|---|
| • Class Number<br>• Type Number<br>• Voltage Code<br>• Form(s)<br>see pages 16-100–16-104 | Class | Type | Voltage Code | Form(s) |
| | 8539 | SCG44 | V06 | AH20P1X11 |

Note: Description: NEMA Size 1, (10 Hp) Electronic Motor Circuit Protector (MCP) Combo Starter in a NEMA Type 1 enclosure with a 480V coil, start/stop pushbutton (A), class 20 SSOLR (H20), red pilot light (P1), 1 N.O. and 1 N.C. auxiliary contact (X11)

**IMPORTANT - This information is intended for general interpretation of catalog numbers. Do not use to create catalog numbers for this product line.**

Note: The terms Type and Form do not appear in the catalog number.

Devices are wired from factory according to customer preference as follows:

- Common control
- Separate control (Form S)
- Control power transformer (CPT)



© 2012 Schneider Electric
All Rights Reserved



Type SCO2
Size 1, 3-Pole Contactor

Class 8502 Type S magnetic contactors are used to switch heating loads, capacitors, transformers, and electric motors where overload protection is provided separately. Class 8502 contactors are available in NEMA sizes 00 through 7. Type S contactors are designed for operation at 600 Vac, 50 to 60 Hz.

**Table 16.34: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Size 0-5)▲ | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | SAO12■ | **329.00** | SAG12■ | **360.00** | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO2■ | **414.00** | SBG2■ | **446.00** | SBW12■ | **945.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO2■ | **485.00** | SCG2■ | **518.00** | SCW12■ | **1031.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO2■ | **882.00** | SDG2■ | **1031.00** | SDW12■ | **1391.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO2■ | **1425.00** | SEG2■ | **1715.00** | SEW12■ | **3167.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO2■ | **3419.00** | SFG2■ | **4022.00** | SFW12■ | **6501.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | SGO2■ | **7451.00** | SGG2■ | **8550.00** | SGW12■ | **11685.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | SHO2■ | **20339.00** | SHG2■ | **25172.00** | SHW2■ | **32378.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | SJO2■ | **29028.00** | SJG2■ | **33875.00** | SJW2■ | **40995.00** |

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard voltage codes shown below.

**Table 16.35: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24♦ | — | V01 | No Charge |
| 120★ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

♦ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8502SBO2V01S).
★ 120 Volt Polyphase contactors are wired for separate control Form S must be specified (i.e., order as 8502SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . page 16-24
Factory Modifications (Forms) . . . . . page 16-100
Separate Enclosures (Class 9991) . . . . . page 16-93
Replacement Parts (Class 9998) . . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.36: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure | | NEMA 7 & 9 Hazardous Locations Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F, & G | | | | | NEMA 12/3R ▲ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Bolted Type | | | | | | |
| | | | | Type | $ Price | Cast Iron ■ | Cast Aluminum ★ | $ Price | SPIN TOP™ Type | $ Price | Type | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | Use Size 0 | | Use Size 0 | | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBW22♦ | **945.00** | SBT2♦ | SBT42♦ | **2070.00** | SBR2♦ | **2591.00** | SBA2♦ | **617.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCW22♦ | **1031.00** | SCT2♦ | SCT42♦ | **2163.00** | SCR2♦ | **2705.00** | SCA2♦ | **689.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDW22♦ | **2057.00** | SDT2♦ | SDT42♦ | **3482.00** | SDR2♦ | **4350.00** | SDA2♦ | **1344.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEW22♦ | **3959.00** | — | SET42♦ | **5205.00** | SER2♦ | **2007.00** | SEA2♦ | **2084.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFW22♦ | **8123.00** | — | SFT42♦ | **8415.00** | SFR2♦ | **10524.00** | SFA2♦ | **5247.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | — | — | — | SGT42♦ | **18542.00** | SGR2♦ | **23178.00** | SGA2♦ | **11685.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | — | — | — | — | — | — | — | SHA2♦ | **29016.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | –<br>300<br>600<br>600 | — | — | — | — | — | — | — | SJA2♦ | **37719.00** |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to one Pilot Light and a Selector Switch or Start-Stop Push Button.
♦ Coil voltage code must be specified to order this product. Refer to voltage codes shown on page 16-14.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

## Auxiliary Units

Auxiliary contacts and power poles can be added by the factory or in the field on all Type S starters and contactors. The table below shows the maximum number of auxiliary units **(in addition to the holding circuit contact)** that can be added to a given size starter or contactor. In addition, it is possible to add a second internal contact on NEMA Size 0, 1, and 2 contactors and starters.

**Table 16.37:**

| NEMA Size | Type | No. of Poles of Basic Contactor | Maximum Number of External Auxiliary Units (In addition to holding circuit contact) |
|---|---|---|---|
| 00 | SA | 2–3 | 4 single circuit auxiliary contacts (N.O. or N.C.) if second internal auxiliary contact is not used. |
| 0, 1 and 2 | SB<br>SC<br>SD | 1, 2 or 3 | 4 single circuit auxiliary contacts (N.O. or N.C.) |
| | | | 2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 power pole adder (1 or 2 poles, N.O. or N.C.) |
| | | 4 or 5 | 2 single circuit auxiliary contacts (N.O. or N.C.) |
| 3, 4 and 5 | SE<br>SF<br>SG | 2–5 (Size 3 and 4) | 3 single circuit auxiliary contacts (N.O. or N.C.) |
| | | 2–3 (Size 5) | 2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 NEMA Size 0-1 or Size 2 power pole adder (1 or 2 poles, N.O. or N.C.) |
| 6 and 7 | SH<br>SJ | 2–3 | 3 single circuit auxiliary contacts (N.O. or N.C.) |
| | | | 2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 NEMA Size 0–1 or Size 2 power pole adder (1 or 2 poles, N.O. or N.C.) |

Dimensions . . . . . .page 16-24
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991) . . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999) . . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

**Table 16.38: 600 Vac Maximum—50–60 Hz**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X –Watertight, Dusttight, Brushed Stainless Steel Enclosure (Size 0-5)▲ | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price |
| **1-Pole Single Phase** | | | | | | | | | |
| 0 | 18 | 115<br>230 | 1<br>2 | SBO5■ | **329.00** | SBG5■ | **360.00** | SBW15■ | **860.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | SCO5■ | **399.00** | SCG5■ | **432.00** | SCW15■ | **945.00** |
| **2-Pole Single Phase** | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | SAO11■ | **287.00** | SAG11■ | **318.00** | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | SBO1■ | **372.00** | SBG1■ | **404.00** | SBW11■ | **903.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | SCO1■ | **441.00** | SCG1■ | **476.00** | SCW11■ | **989.00** |
| 2 | 45 | 115<br>230 | 3<br>7-1/2 | SDO1■ | **827.00** | SDG1■ | **975.00** | SDW11■ | **1998.00** |
| 3 | 90 | —<br>— | —<br>— | SEO1■ | **1310.00** | SEG1■ | **1601.00** | SEW11■ | **3054.00** |
| 4 | 135 | — | — | SFO1■ | **3162.00** | SFG1■ | **3765.00** | SFW11■ | **6245.00** |
| 5 | 270 | — | — | SGO1■ | **6852.00** | SGG1■ | **7952.00** | SGW11■ | **11087.00** |
| 6 | 540 | — | — | SHO1■ | **17433.00** | SHG1■ | **22266.00** | SHW1■ | **29388.00** |
| 7 | 810 | — | — | SJO1■ | **25452.00** | SJG1■ | **30285.00** | SJW1■ | **37407.00** |
| **4-Pole Polyphase** | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO3■ | **527.00** | SBG3■ | **561.00** | SBW13■ | **1074.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO3■ | **599.00** | SCG3■ | **633.00** | SCW13■ | **1146.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO3■ | **1139.00** | SDG3■ | **1287.00** | SDW13■ | **2712.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO3■ | **1823.00** | SEG3■ | **2114.00** | SEW13■ | **3965.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO3■ | **4757.00** | SFG3■ | **5360.00** | SFW13■ | **8864.00** |
| **5-Pole Polyphase** | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO4■ | **684.00** | SBG4■ | **719.00** | SBW14■ | **1229.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO4■ | **755.00** | SCG4■ | **788.00** | SCW14■ | **1301.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO4■ | **1710.00** | SDG4■ | **1857.00** | SDW14■ | **3281.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO4■ | **2735.00** | SEG4■ | **3024.00** | SEW14■ | **4877.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO4■ | **6579.00** | SFG4■ | **7182.00** | SFW14■ | **10688.00** |

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-14.

Dimensions . . . . . page 16-24
Factory Modifications (Forms) . . . . . page 16-100
Separate Enclosures (Class 9991) . . . . . page 16-93
Replacement Parts (Class 9998) . . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.39: 600 Vac Maximum—50–60 Hz**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | NEMA 4X Watertight, Dusttight Corrosion-Resistant Glass-Polyester Enclosure | | NEMA 7 & 9, Div. 1 & 2 Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G | | | | | NEMA 12/3R▲ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Bolted Type | | | SPIN TOP™ Type | | | |
| | | | | Type | $ Price | Cast Iron ■ | Cast Aluminum★ | $ Price | | $ Price | Type | $ Price |
| **1-Pole Single Phase** | | | | | | | | | | | | |
| 0 | 18 | 115<br>230 | 1<br>2 | —<br>— | — | SBT5♦ | SBT45♦ | **1979.00** | SBR5♦ | **2475.00** | SBA5♦ | **531.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | —<br>— | — | SCT5♦ | SCT45♦ | **2070.00** | SCR5♦ | **2591.00** | SCA5♦ | **603.00** |
| **2-Pole Single Phase** | | | | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | Use Size 0 | | Use Size 0 | | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | SBW21♦ | **903.00** | SBT1♦ | SBT41♦ | **2021.00** | SBR1♦ | **2528.00** | SBA1♦ | **575.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | SCW21♦ | **989.00** | SCT1♦ | SCT41♦ | **2100.00** | SCR1♦ | **2627.00** | SCA1♦ | **647.00** |
| 2 | 45 | 115<br>230 | 3<br>7-1/2 | SDW21♦ | **1998.00** | SDT1♦ | SDT41♦ | **3402.00** | SDR1♦ | **4257.00** | SDA1♦ | **1287.00** |
| 3 | 90 | —<br>— | —<br>— | Consult Schneider Electric CCC at (1-888-778-2733) | | —<br>— | SET41♦ | **5076.00** | SER1♦ | **6344.00** | SEA1♦ | **1971.00** |
| 4 | 135 | — | — | | | —<br>— | SFT41♦ | **8139.00** | SFR1♦ | **10175.00** | SFA1♦ | **4991.00** |
| 5 | 270 | — | — | — | — | —<br>— | —<br>— | — | SGR1♦ | **22350.00** | SGA1♦ | **11087.00** |
| 6 | 540 | — | — | — | — | —<br>— | —<br>— | — | — | — | SHA1♦ | **26112.00** |
| 7 | 810 | — | — | — | — | — | — | — | — | — | SJA1♦ | **34131.00** |
| **4-Pole Polyphase** | | | | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBW23♦ | **1074.00** | SBT3♦ | Consult Schneider Electric CCC at (1-888-778-2733) | **2199.00** | SBR3♦ | **2748.00** | SBA3♦ | **732.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>19 | SCW23♦ | **1146.00** | SCT3♦ | | **2291.00** | SCR3♦ | **2867.00** | SCA3♦ | **804.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDW23♦ | **2712.00** | SDT3♦ | | **4199.00** | SDR3♦ | **5255.00** | SDA3♦ | **1601.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | Consult Schneider Electric CCC at (1-888-778-2733) | | | | — | SER3♦ | **7604.00** | SEA3♦ | **2484.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | | | | | — | SFR3♦ | **14283.00** | SFA3♦ | **7011.00** |
| **5-Pole Polyphase** | | | | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | Consult Schneider Electric CCC at (1-888-778-2733) | | — | — | — | — | — | SBA4♦ | **890.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | | | — | — | — | — | — | SCA4♦ | **959.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | | | — | — | — | — | — | SDA4♦ | **2169.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | | | — | — | — | — | — | SEA4♦ | **3396.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | | | — | — | — | — | — | SFA4♦ | **8837.00** |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to 1 pilot light and a selector switch or Start-Stop push button.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-14.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

Coil Voltage Codes and page number reference for additional information are shown on page 16-14.
For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved



Type SCO3
Size 1, 3-Pole Starter

## General Information

Type S magnetic starters are used for full-voltage starting and stopping of AC squirrel cage motors. Motor overload protection is provided via melting alloy type thermal overload relays. Type S starters are available in NEMA Sizes 00 through 7, and are designed for operation at 600 Vac, 50 to 60 Hz.

## Solid State Overload Relay Protection (Motor Logic™)

These ambient insensitive overload relays are available on Sizes 00 through 6 and standard on size 7. They provide phase loss, phase unbalance protection. To order, add Form **H30** (for selectable trip class 10 or 20 protection). For more information about Motor Logic, see pages 16-83 and 16-102.

## *New!* Adapted Bimetal (NEMA Sizes 00–1)

The Adapted Bimetal motor starter consists of a specially designed adapter that attaches with bus bars to the NEMA Type S contactor and holds the LRD or LR3D (IEC Style) bimetal overload relay. This starter configuration can be ordered by adding Form E (adapater only) to the standard catalog number. Once the FLA of the motor has been determined, the LRD or LR3D bimetal overload can be purchased separately and installed in the field at a later date. For more information see Table 16.421.

## *New!* TeSys T Motor Management System (NEMA Sizes 1–6)

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T can predict what will happen in the process, as it accurately monitors current, voltage, and power over a wide range. For additional information about TeSys T Motor Management System, see pages 16-84 to 16-88 and page 16-103.

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.40:**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Size 0-5)▲ | | NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | SAO12■ | **386.00** | SAG12■ | **419.00** | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO2■ | **485.00** | SBG2■ | **518.00** | SBW12■ | **1017.00** | SBW22■ | **1017.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO3■ | **557.00** | SCG3■ | **590.00** | SCW13■ | **1103.00** | SCW23■ | **1103.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO1■ | **1013.00** | SDG1■ | **1160.00** | SDW11■ | **2186.00** | SDW21■ | **2186.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO1■ | **1638.00** | SEG1■ | **1929.00** | SEW11■ | **3380.00** | SEW21■ | **4226.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO1■ | **3747.00** | SFG1■ | **4350.00** | SFW11■ | **6827.00** | SFW21■ | **8535.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | SGO1■ | **9152.00** | SGG1■ | **10254.00** | SGW11■ | **15795.00** | — | — |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | SHO2■ | **21756.00** | SHG2■ | **28881.00** | SHW2■ | **36003.00** | — | — |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | SJO2■ | **31256.00** | SJG2■ | **38381.00** | SJW2■ | **45503.00** | — | — |

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.




Schneider Electric offers express shipping for factory modified NEMA Type 1 and Type 12/3R Enclosed Starters. When you need them fast, our Laser™ Delivery program is the answer to getting your product when you need it most. Ask for Laser™ Delivery, then select the product and the modifications you need when you place your order. It's as easy as that!





© 2012 Schneider Electric
All Rights Reserved

**Table 16.41: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | NEMA 7 & 9 For Hazardous Locations Div. 1 & 2 Class I–Groups C, D Class II–Groups E, F, & G | | | | | NEMA 12/3R▲ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Bolted Type | | | SPIN TOP™ Type | $ Price | Type | $ Price |
| | | | | Cast Iron■ | Cast Aluminum★ | $ Price | | | | |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | Use Size 0 | | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBT2♦ | SBT42♦ | **2150.00** | SBR2♦ | **2690.00** | SBA2♦ | **689.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCT3♦ | SCT43♦ | **2241.00** | SCR3♦ | **2804.00** | SCA3♦ | **761.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDT1♦ | SDT41♦ | **3623.00** | SDR1♦ | **4527.00** | SDA1♦ | **1472.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | — | SET43♦ | **5439.00** | SER3♦ | **6800.00** | SEA1♦ | **2298.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | — | SFT41♦ | **8778.00** | SFR1♦ | **10971.00** | SFA1♦ | **5574.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | — | SGT41♦ | **20970.00** | SGR1♦ | **26211.00** | SGA1♦ | **13386.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | — | — | — | — | — | SHA2♦ | **32727.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | –<br>300<br>600<br>600 | — | — | — | — | — | SJA2♦ | **42227.00** |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to 1 Pilot Light and Selector Switch or Start-Stop Push-Button.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection Table 16.41 shown on page 16-18.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

**Table 16.42: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼ | — | V01 | No Charge |
| 120△ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

▼ 24 V coils are not available on Sizes 4–7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8536SBO2V01S).
△ 120 Volt Polyphase contactors are wired for separate control. **Form S** (separate control) must be specified (i.e., order as 8536SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . .page 16-24
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991) . . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999) . . . . . .page 16-108

For How to Order Information, see page 16-13.




Schneider Electric offers express shipping for factory modified NEMA Type 1 and Type 12/3R Enclosed Starters. When you need them fast, our Laser™ Delivery program is the answer to getting your product when you need it most. Ask for Laser™ Delivery, then select the product and the modifications you need when you place your order. It's as easy as that!



© 2012 Schneider Electric
All Rights Reserved

## 2-Pole Single Phase—600 Vac Maximum—50–60 Hz

**Table 16.43:**

Note that prices shown do not include thermal units. Devices require 1 thermal unit. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 00 | 9 | 115<br>230 | 1/3<br>1 | SAO11▲ | **386.00** | SAG11▲ | **419.00** | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | SBO1▲ | **435.00** | SBG1▲ | **468.00** | SBW11▲ | **966.00** | SBW21▲ | **966.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | SCO1▲ | **507.00** | SCG1▲ | **539.00** | SCW11▲ | **1052.00** | SCW21▲ | **1052.00** |
| 1P | 36 | 115<br>230 | 3<br>5 | SCO2▲ | **662.00** | SCG2▲ | **696.00** | SCW12▲ | **1209.00** | SCW22▲ | **1209.00** |
| 2 | 45 | 115<br>230 | 3<br>7-1/2 | SDO6▲ | **918.00** | SDG6▲ | **1067.00** | SDW16▲ | **2091.00** | SDW26▲ | **2091.00** |

## 4-Pole, 2-Phase—600 Vac Maximum—50–60 Hz

**Table 16.44:**

Note that prices shown do not include thermal units. Devices require 2 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO3▲ | **629.00** | SBG3▲ | **675.00** | SBW13▲ | **1229.00** | SBW23▲ | **1229.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO4▲ | **714.00** | SCG4▲ | **761.00** | SCW14▲ | **1301.00** | SCW24▲ | **1301.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO2▲ | **1283.00** | SDG2▲ | **1430.00** | SDW12▲ | **2910.00** | SDW22▲ | **2910.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO2▲ | **2096.00** | SEG2▲ | **2357.00** | SEW12▲ | **4206.00** | Consult Schneider Electric CCC at (1-888-778-2733) | |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO2▲ | **5142.00** | SFG2▲ | **5715.00** | SFW12▲ | **9221.00** | | |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

### Table 16.45: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24■ | — | V01 | No Charge |
| 120♦ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

■ 24 V coils are not available on Sizes 4–7. On sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8536SBO2V01S).

♦ 120 Volt Polyphase starters are wired for separate control. **Form S** (separate control) must be specified (i.e., order as 8536SCO2V02S).

Note: For voltage codes used with control transformers, see 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions. . . . . page 16-24
Factory Modifications (Forms) . . . . . page 16-100
Separate Enclosures (Class 9991) . . . . . page 16-93
Replacement Parts (Class 9998). . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## 2-Pole Single Phase—600 Vac Maximum—50–60 Hz

**Table 16.46:**

Note that prices shown do not include thermal units. Devices require 1 thermal unit. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | NEMA 7 & 9 Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F, & G | | | | | NEMA 12/3R■ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Bolted Type | | | SPIN TOP™ Type | $ Price | Type | $ Price |
| | | | | Cast Iron ♦ | Cast Aluminum▲ | $ Price | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | Use Size 0 | | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | SBT1★ | SBT41 | **2091.00** | SBR1★ | **2619.00** | SBA1★ | **639.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | SCT1★ | SCT41 | **2186.00** | SCR1★ | **2732.00** | SCA1★ | **710.00** |
| 1P | 36 | 115<br>230 | 3<br>5 | SCT2★ | SCT42 | **2363.00** | SCR2★ | **2952.00** | SCA2★ | **867.00** |
| 2 | 45 | 115<br>230 | 3<br>7-1/2 | SDT6★ | SDT46 | **3513.00** | SDR6★ | **4400.00** | SDA6★ | **1380.00** |

▲ NEMA 7 and 9 bolted cast aluminum are not UL listed.

## 4-Pole 2-Phase—600 Vac Maximum—50–60 Hz

**Table 16.47:**

Note that prices shown do not include thermal units. Devices require 2 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Coil Voltage | NEMA 7 & 9 Hazardous Locations Class I, Groups C & D Class II, Groups E, F, & G | | | | | NEMA 12/3R ■ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Bolted Type | | | SPIN TOP™ Type | $ Price | Type | $ Price |
| | | | | | Cast Iron ♦ | Cast Aluminum | $ Price | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | 208<br>240<br>480<br>600 | SBT3★ | Consult Schneider Electric CCC at (1-888-778-2733) | **2348.00** | SBR3★ | **2939.00** | SBA3★ | **846.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | 208<br>240<br>480<br>600 | SCT4★ | | **2433.00** | SCR4★ | **3047.00** | SCA4★ | **932.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | 208<br>240<br>480<br>600 | SDT2★ | | **4797.00** | SDR2★ | **6002.00** | SDA2★ | **1742.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | 208<br>240<br>480<br>600 | Consult Schneider Electric CCC at (1-888-778-2733) | | — | SER2★ | **8679.00** | SEA2★ | **2726.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | 208<br>240<br>480<br>600 | | | — | — | — | SFA2★ | **7370.00** |

■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Limited to 1 Pilot Light and Selector Switch or Start-Stop Push-Button.
★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-20.

Dimensions . . . . . .page 16-24
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991). . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved



## Types SB–SD With Auxiliary Load Terminals

It is sometimes desirable to use capacitors in motor branch circuits to improve power factor. The Size 0–2 Type SB–SD starters listed below include three auxiliary terminals to allow easy connection of power factor correction capacitors. When capacitors are connected using these terminals, no adjustment to the selection of thermal units is necessary. The auxiliary terminals accept #12–16 solid or stranded wire. NEMA Size 3 & 4 starters have provisions for auxiliary connections. User must supply lugs as necessary.

The Type S starters with auxiliary load terminals may also be used to control two motors simultaneously from a single starter. However, this application is tightly restricted by Section 430-53 of the National Electrical Code. Refer to the NEC for restrictions regarding overload protection, size of controller and motor branch circuit protection.

**Table 16.48: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Motor Voltage | Max. Hp | Open Type | $ Price |
|---|---|---|---|---|
| 0 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBTO2▲ | **485.00** |
| 1 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCTO3▲ | **557.00** |
| 2 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDTO1▲ | **1011.00** |

## Extra Capacity Single Phase Starters (Not NEMA Style)
## 2-Pole Single Phase—250 Vac Maximum—50–60 Hz

**Table 16.49:**

Note that prices shown do not include thermal unit. Devices require 1 thermal unit. Standard trip thermal unit is **$21.50** each. See page 16-116 for selection information.

| Motor Voltage | Max. Hp | Open Type | | NEMA 1 General Purpose Enclosure | | NEMA 3R Rainproof, Sleet Resistant, Outdoor Use Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 4X Watertight Corrosion Resistant Glass-Polyester Enclosure | | NEMA 12/3R ♦ Dusttight and Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 115<br>230 | 5<br>10 | SDO8▲■ | **1304.00** | — | — | SDH8▲■ | **1787.00** | — | — | — | — | — | — |
| 115<br>230 | 7-1/2<br>15 | SEO6▲ | **1431.00** | SEG6▲ | **1722.00** | SEH6▲ | **2091.00** | SEW16▲ | **3176.00** | SEW26▲ | **3969.00** | SEA6▲ | **2091.00** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
■ Uses a Size 3 overload relay.
♦ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.

**Table 16.50: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified.
▼ 120 Volt Polyphase starters are wired for separate control and must be ordered with Form S (i.e., 8536SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101. Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions. . . . . page 16-24
Factory Modifications (Forms) . . . . . page 16-100
Separate Enclosures (Class 9991) . . . . . page 16-93
Replacement Parts (Class 9998). . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## Application Data for Selection

**Table 16.51:**

| NEMA Size | Load Voltage | Maximum Hp Rating—Nonplugging and Nonjogging Duty | | Maximum Hp Rating—Plugging and Jogging Duty ▲ | | Continuous Current Rating, (A) 600 Volt Max. | Service—Limit Current Rating, (A) ■ | Tungsten and Infrared Lamp Load, (A) 250 Volts Max. ♦ | Resistance Heating Loads, KW—other than Infrared Lamp Loads ★ | | KVA Rating for Switching Transformer Primaries at 50 or 60 Cycles | | | | 3Ø Rating for Switching Capacitors ▼ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Inrush Currents (Worst Case Peak) ? 20 Times Peak of Continuous Current Rating | | Inrush Currents (Worst Case Peak) > 20–40 Times Peak of Continuous Current Rating | | |
| | | Single Phase | Poly-Phase | Single Phase | Poly-Phase | | | | Single Phase | Poly-Phase | Single Phase | Poly-Phase | Single Phase | Poly-Phase | KVAR |
| 00 | 115 | 1/2 | — | — | — | 9 | 11 | 5 | — | — | — | — | — | — | — |
| | 200 | — | 1-1/2 | — | — | 9 | 11 | 5 | — | — | — | — | — | — | — |
| | 230 | 1 | 1-1/2 | — | — | 9 | 11 | 5 | — | — | — | — | — | — | — |
| | 380 | — | 1-1/2 | — | — | 9 | 11 | — | — | — | — | — | — | — | — |
| | 460 | — | 2 | — | — | 9 | 11 | — | — | — | — | — | — | — | — |
| | 575 | — | 2 | — | — | 9 | 11 | — | — | — | — | — | — | — | — |
| 0 | 115 | 1 | — | 1/2 | — | 18 | 21 | 10 | — | — | 0.6 | — | 0.3 | — | — |
| | 200 | — | 3 | — | 1-1/2 | 18 | 21 | 10 | — | — | — | 1.8 | — | 0.9 | — |
| | 230 | 2 | 3 | 1 | 1-1/2 | 18 | 21 | 10 | — | — | 1.2 | 2.1 | 0.6 | 1.0 | — |
| | 380 | — | 5 | — | 1-1/2 | 18 | 21 | — | — | — | — | — | — | — | — |
| | 460 | — | 5 | — | 2 | 18 | 21 | — | — | — | 2.4 | 4.2 | 1.2 | 2.1 | — |
| | 575 | — | 5 | — | 2 | 18 | 21 | — | — | — | 3.0 | 5.2 | 1.5 | 2.6 | — |
| 1 | 115 | 2 | — | 1 | — | 27 | 32 | 15 | 3 | 5 | 1.2 | — | 0.6 | — | — |
| | 200 | — | 7-1/2 | — | 3 | 27 | 32 | 15 | — | 9.1 | — | 3.6 | — | 1.8 | — |
| | 230 | 3 | 7-1/2 | 2 | 3 | 27 | 32 | 15 | 6 | 10 | 2.4 | 4.3 | 1.2 | 2.1 | — |
| | 380 | — | 10 | — | 5 | 27 | 32 | — | — | 16.5 | — | — | — | — | — |
| | 460 | — | 10 | — | 5 | 27 | 32 | — | 12 | 20 | 4.9 | 8.5 | 2.5 | 4.3 | — |
| | 575 | — | 10 | — | 5 | 27 | 32 | — | 15 | 25 | 6.2 | 11.0 | 3.1 | 5.3 | — |
| 1P | 115 | 3 | — | 1-1/2 | — | 36 | 42 | 24 | — | — | — | — | — | — | — |
| | 230 | 5 | — | 3 | — | 36 | 42 | 24 | — | — | — | — | — | — | — |
| 2 | 115 | 3 | — | 2 | — | 45 | 52 | 30 | 5 | 8.5 | 2.1 | — | 1.0 | — | — |
| | 200 | — | 10 | — | 7-1/2 | 45 | 52 | 30 | — | 15.4 | — | 6.3 | — | 3.1 | — |
| | 230 | 7-1/2 | 15 | 5 | 10 | 45 | 52 | 30 | 10 | 17 | 4.1 | 7.2 | 2.1 | 3.6 | 8 |
| | 380 | — | 25 | — | 15 | 45 | 52 | — | — | 28 | — | — | — | — | — |
| | 460 | — | 25 | — | 15 | 45 | 52 | — | 20 | 34 | 8.3 | 14 | 4.2 | 7.2 | 16 |
| | 575 | — | 25 | — | 15 | 45 | 52 | — | 25 | 43 | 10.0 | 18 | 5.2 | 8.9 | 20 |
| 3 | 115 | — | — | — | — | 90 | 104 | 60 | 10 | 17 | 4.1 | — | 2.0 | — | — |
| | 200 | — | 25 | — | 15 | 90 | 104 | 60 | — | 31 | — | 12 | — | 6.1 | — |
| | 230 | — | 30 | — | 20 | 90 | 104 | 60 | 20 | 34 | 8.1 | 14 | 4.1 | 7.0 | 27 |
| | 380 | — | 50 | — | 30 | 90 | 104 | — | — | 56 | — | — | — | — | — |
| | 460 | — | 50 | — | 30 | 90 | 104 | — | 40 | 68 | 16 | 28 | 8.1 | 14 | 53 |
| | 575 | — | 50 | — | 30 | 90 | 104 | — | 50 | 86 | 20 | 35 | 10 | 18 | 67 |
| 4 | 200 | — | 40 | — | 25 | 135 | 156 | 120 | — | 45 | — | 20 | — | 10 | — |
| | 230 | — | 50 | — | 30 | 135 | 156 | 120 | 30 | 52 | 14 | 23 | 6.8 | 12 | 40 |
| | 380 | — | 75 | — | 50 | 135 | 156 | — | — | 86.7 | — | — | — | — | — |
| | 460 | — | 100 | — | 60 | 135 | 156 | — | 60 | 105 | 27 | 47 | 14 | 23 | 80 |
| | 575 | — | 100 | — | 60 | 135 | 156 | — | 75 | 130 | 34 | 59 | 17 | 29 | 100 |
| 5 | 200 | — | 75 | — | 60 | 270 | 311 | 240 | — | 91 | — | 41 | — | 20 | — |
| | 230 | — | 100 | — | 75 | 270 | 311 | 240 | 60 | 105 | 27 | 47 | 14 | 24 | 80 |
| | 380 | — | 150 | — | 125 | 270 | 311 | — | — | 173 | — | — | — | — | — |
| | 460 | — | 200 | — | 150 | 270 | 311 | — | 120 | 210 | 54 | 94 | 27 | 47 | 160 |
| | 575 | — | 200 | — | 150 | 270 | 311 | — | 150 | 260 | 68 | 117 | 34 | 59 | 200 |
| 6△ | 200 | — | 150 | — | 125 | 540 | 621 | 480 | — | 182 | — | 81 | — | 41 | — |
| | 230 | — | 200 | — | 150 | 540 | 621 | 480 | 120 | 210 | 54 | 94 | 27 | 47 | 160 |
| | 380 | — | 300 | — | 250 | 540 | 621 | — | — | 342 | — | — | — | — | — |
| | 460 | — | 400 | — | 300 | 540 | 621 | — | 240 | 415 | 108 | 188 | 54 | 94 | 320 |
| | 575 | — | 400 | — | 300 | 540 | 621 | — | 300 | 515 | 135 | 234 | 68 | 117 | 400 |
| 7△ | 230 | — | 300 | — | — | 810 | 932 | — | 180 | 315 | — | — | — | — | 240 |
| | 460 | — | 600 | — | — | 810 | 932 | — | 360 | 625 | — | — | — | — | 480 |
| | 575 | — | 600 | — | — | 810 | 932 | — | 450 | 775 | — | — | — | — | 600 |

Tables and footnotes are taken from NEMA Standards.

▲ Ratings shown are for applications requiring repeated interruptions of stalled motor current or repeated closing of high transient currents encountered in rapid motor reversal, involving more than five openings or closings per minute and more than ten in a ten-minute period, such as plug-stop, plug-reverse or jogging duty. Ratings apply to single speed and multi-speed controllers.

■ Per NEMA Standards paragraph ICS 2-321.20, the service-limit current represents the maximum rms current, in Amperes, which the controller may be expected to carry for protracted periods in normal service. At service-limit current ratings, temperature rises may exceed those obtained by testing the controller at its continuous current rating. The ultimate trip current of over-current (overload) relays or other motor protective devices shall not exceed the service-limit current ratings of the controller.

♦ FLUORESCENT LAMP LOADS—300 VOLTS AND LESS—The characteristics of fluorescent lamps are such that it is not necessary to derate Class 8502 contactors below their normal continuous current rating. Class 8903 contactors may also be used with fluorescent lamp loads. For controlling tungsten and infrared lamp loads, and resistance heating loads, Class 8903 AC lighting contactors are recommended. These contactors are specifically designed for such loads and are applied at their full rating as listed in the Class 8903 Section.

★ Ratings apply to contactors which are employed to switch the load at the utilization voltage of the heat producing element with a duty which requires continuous operation of not more than five openings per minute. Class 8903 Types L and S lighting contactors are rated for resistance heating loads.

▼ When discharged, a capacitor has essentially zero impedance. For repetitive switching by a contactor, sufficient impedance should be connected in series to limit inrush current to not more than 6 times the contactor rated continuous current. In many installations, the impedance of connecting conductors may be sufficient for this purpose. When switching to connect additional banks, the banks already on the line may be charged and can supply additional available short-circuit current which should be considered when selecting the impedance to limit the current.

The ratings for capacitor switching above assume the following maximum available fault currents:

— NEMA Size 00–3: 5,000 A RMS Sym.
— NEMA Size 4–5: 10,000 A RMS Sym.
— NEMA Size 6: 18,000 A RMS Sym.
— NEMA Size 7: 30,000 A RMS Sym.

Note: If available fault current is greater than these values, connect sufficient impedance in series as noted in the previous paragraph.

△ For NEMA Size 6 & 7, the operation rate is as follows: Continuous operation rate is 3 operations per minute maximum; Jogging or Plugging Duty operation rate is 15 operations per minute for a maximum of three minutes.

The motor ratings in Table 16.51 are NEMA standard ratings and apply only when the code letter of the motor is the same as or occurs earlier in the alphabet than is shown in the Table 16.52. Motors having code letters occurring later in the alphabet may require a larger controller. Consult Schneider Electric CCC at (1-888-778-2733).

**Table 16.52:**

| Motor Hp Rating | Maximum Allowable Motor Code Letter |
|---|---|
| 1-1/2–2 | L |
| 3–5 | K |
| 7-1/2 and above | H |



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.53: Dimensions for Class 8502 Open Type

| NEMA Size | Type | No. of Poles | Fig. No. | Dimensions—Inches (Refer to Appropriate Figure) | | | | | | | | | Wt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H | I | |
| | | | | IN | IN | IN | IN | IN | IN | IN | IN | IN | (lb) |
| 00 | SAO | 2–3 | 1 | 3-7/32 | 4-11/32 | 4-7/32 | 1-5/8 | 1-5/8 | 7/32 | 3-15/16 | — | — | 4 |
| 0 | SBO | 1–3 | 1 | 3-7/32 | 4-11/32 | 4-7/32 | 1-5/8 | 1-5/8 | 7/32 | 3-15/16 | — | — | 4 |
| 1 | SCO | 4–5 | | 4-1/4 | 4-11/32 | 4-7/32 | 1-5/8 | 2-5/8 | 7/32 | 3-15/16 | — | — | 4-1/2 |
| 2 | SDO | 2–3 | 1 | 4-5/16 | 5-1/8 | 4-15/16 | 2-5/32 | 2-5/32 | 7/32 | 4-19/32 | 17/32 | 1-1/16 | 6-3/4 |
| | | 4–5 | | 5-5/8 | 5-1/8 | 4-15/16 | 2-5/32 | 3-15/32 | 7/32 | 4-19/32 | 17/32 | 1-1/16 | 8-1/4 |
| 3 | SEO | 2–3 | 1 | 5-15/32 | 7-3/32 | 6-1/2 | 1-7/8 | 3-17/32 | 5/16 | 6-1/32 | 3-1/4 | 4-3/4 | 14 |
| | | 4–5 | | 9-3/4 | 7-7/8 | 6-1/2 | 3-15/16 | 5-13/16 | 5/16 | 7 | 4-17/32 | 9-1/16 | 22 |
| 4 | SFO | 2–3 | 1 | 6 | 8-3/16 | 6-1/2 | 2-1/16 | 3-15/16 | 5/16 | 7 | 3-19/32 | 5-5/16 | 18 |
| | | 4–5 | | 9-3/4 | 8-3/16 | 6-1/2 | 3-15/16 | 5-13/16 | 5/16 | 7 | 4-17/32 | 9-1/16 | 22 |
| 5 | SGO | 2–3 | 1 | 8-2/3 | 12-5/16 | 8-3/4 | 3-1/4 | 5-13/16 | 5/8 | 11-1/8 | 4-3/4 | 7-1/4 | 45 |
| 6 | SHO | 2–3 | 1 | 10-35/64 | 28-1/16 | 9 | 3-17/32 | 7-1/32 | 5-1/16 | 18-9/16 | 4-3/4 | 7-1/4 | 80 |
| 7 | SJO | 2–3 | 1 | 10-35/64 | 37-1/4 | 10-7/8 | 3-17/32 | 7-1/32 | 7-7/32 | 22-3/8 | 4-3/4 | 7-1/4 | 135 |

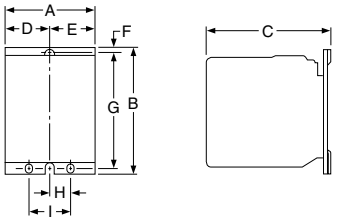



Figure 1
Class 8502

### Table 16.54: Dimensions for 8536 Open Type

| NEMA Size | Type | No. of Poles | Fig. No. | Dimensions—Inches (Refer to Appropriate Figure) | | | | | | | | | Wt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H | I | |
| | | | | IN | IN | IN | IN | IN | IN | IN | IN | IN | (lb) |
| 00, 0, 1, 1P | SAO–SCO | 2–3 | 2 | 3-1/2 | 6-49/64 | 4-7/32 | 1/2 | 1 | 1-39/64 | 13/64 | 6-1/4 | 3-31/32 | 5 |
| 0, 1 | SBO–SCO | 4 | 2 | 4-17/32 | 6-49/64 | 4-7/32 | 1/2 | 1 | 2-2/3 | 13/64 | 6-1/4 | 3-31/32 | 5-1/2 |
| 2 | SDO | 2–3 | 2 | 4-5/16 | 7-13/16 | 4-15/16 | 1/2 | 1 | 2-5/32 | 13/64 | 7-11/32 | 4-1/16 | 7-3/4 |
| | | 4 | | 5-5/8 | 7-13/16 | 4-15/16 | 1/2 | 1 | 3-15/32 | 13/64 | 7-11/32 | 4-1/16 | 9-1/4 |
| 3 | SEO | 2–3 | 2 | 5-15/32 | 11-3/32 | 6-1/2 | 7/8 | 1-3/4 | 3-19/32 | 5/16 | 10-3/16 | 5-3/4 | 17 |
| | | 4 | | 9-3/4 | 12-1/8 | 6-1/2 | 1-13/16 | 1-3/4 | 5-13/16 | 5/16 | 11-3/16 | 5-3/4 | 25 |
| 4 | SFO | 3 | 2 | 6 | 12-7/8 | 6-1/2 | 1-13/16 | 1-3/4 | 3-15/16 | 5/16 | 11-3/16 | 5-3/4 | 22 |
| | | 4 | | 9-3/4 | 12-7/8 | 6-1/2 | 1-13/16 | 1-3/4 | 5-29/32 | 5/16 | 11-3/16 | 5-3/4 | 25 |
| 5 | SGO | 3 | 2 | 8-9/16 | 17-9/16 | 8-3/4 | 4-3/4 | 7-1/4 | 5-12/32 | 5/8 | 16-3/8 | 6 | 62 |
| 6 | SHO | 3 | 2 | 12-11/32 | 28-1/16 | 9 | 4-3/4 | 7-1/4 | 5-25/32 | 5-1/16 | 18-9/16 | 8-11/16 | 85 |
| 7 | SJO | 3 | 2 | 12-11/32 | 37-1/4 | 10-7/8 | 4-3/4 | 7-1/4 | 5-25/32 | 7-7/32 | 22-3/8 | 9 | 140 |

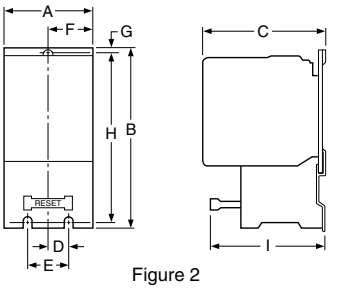



Figure 2
Class 8536

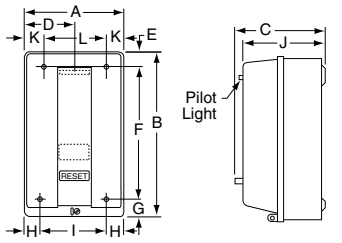



Figure 3

### Table 16.55: Dimensions for NEMA 1 General Purpose Enclosure

| NEMA Size | Type | No. of Poles | Fig. No. | Dimensions—Inches | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | | D | E | F | G | H | I | J | K | L |
| | | | | | | 8502 | 8536 | | | | | | | | | |
| 00<br>0<br>1 | SAG<br>SBG<br>SCG | All<br>All<br>All | 3<br>3<br>3 | 6 | 10 | 5-9/32 | 5-9/16 | 3 | 7/8 | 8-1/8 | 1 | 15/16 | 4-1/8 | 5 | — | — |
| 2 | SDG | All | 3 | 7-13/16 | 12-11/16 | 6-1/32 | 6-5/16 | — | 1-3/32 | 10-1/2 | 1-3/32 | 1-3/32 | 5-5/8 | 5-3/4 | 1-3/32 | 5-5/8 |
| 3 | SEG | All | 3 | 11-7/16 | 21-13/16 | 8 | 8-3/8 | — | 1-17/32 | 18-3/4 | 1-17/32 | 1-17/32 | 8-3/8 | 7-3/4 | 1-17/32 | 8-3/8 |
| 4 | SFG | All | 5 | 11-1/4 | 25-5/32 | 9 | 9 | 8-19/32 | 1-1/4 | 1-1/4 | 22-5/16 | 1-7/16 | 7/16 | — | — | — |
| 5 | SGG | All | 5 | 17-7/32 | 44-7/32 | 12-13/16 | 12-15/16 | 13 | 2-1/8 | 2-1/8 | 40 | 2-1/8 | 9/16 | — | — | — |
| 6 | SHG | All | 4 | 65-3/4 | 20-7/32 | 13-1/8 | 13-1/8 | — | 11 | 64-1/2 | 2-5/16 | 5-1/2 | — | — | — | — |
| 7 | SJG | All | 4 | 93 | 34-1/2 | 23-1/2 | 23-1/2 | Floor Mounting | | | | | | | | |

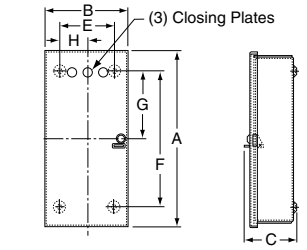



Figure 4

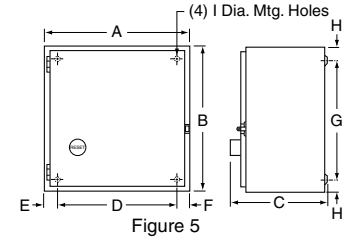



Figure 5





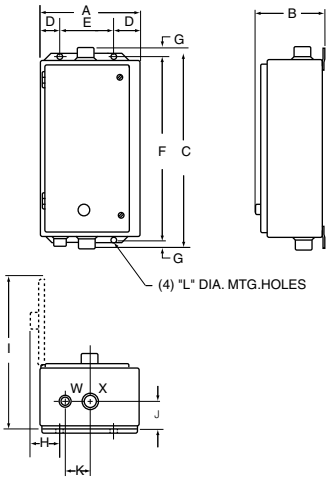
© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.56: NEMA 4 & 4X—Stainless Steel Watertight Enclosures▲

| NEMA Size | Class | Type | No. of Poles | Dimensions—Inches | | | | | | | | | | | | Bot. Hub Only | Top & Bot. Hub |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H | I | J | K | L | W | X |
| 0 and 1 | 8502 | SBW | All | 6-3/8 | 7-1/8 | 13-3/16 | 1-9/16 | 3-1/4 | 12 | 19/32 | 1-3/16 | 11-25/32 | 1-5/8 | 2-5/16 | 5/16 | 3/4" Dia. Hub | 1" Dia. Hub |
| | | SCW | | | | | | | | | | | | | | | |
| | 8536 | SBW | All | 6-3/8 | 7-13/16 | 13-3/16 | 1-9/16 | 3-1/4 | 12 | 19/32 | 1-7/8 | 11-25/32 | 1-5/8 | 2-5/16 | 5/16 | | |
| | | SCW | | | | | | | | | | | | | | | |
| 2 | 8502 | SDW | All | 8-1/8 | 7-7/8 | 16-3/16 | 1-9/16 | 5 | 15 | 1-3/32 | 1-15/16 | 14-3/4 | 2 | 2-5/8 | 5/16 | 3/4" Dia. Hub | 1-1/2" Dia. Hub |
| | 8536 | SDW | All | 8-1/8 | 8-9/16 | 16-3/16 | 1-9/16 | 5 | 15 | 1-3/32 | 2-7/8 | 14-3/4 | 2 | 2-5/8 | 5/16 | | |
| 3 and 4 | 8502 | SEW | All | 18-5/32 | 8-3/4 | 32-7/32 | 3-5/64 | 12 | 30-1/2 | 7/8 | 3-11/16 | 26-23/32 | 2-9/16 | 3-3/16 | 7/16 | 3/4" Dia. Hub | 2-1/2" Dia. Hub |
| | | SFW | | | | | | | | | | | | | | | |
| | 8536 | SEW | All | 18-5/32 | 9-9/16 | 32-7/32 | 3-5/64 | 12 | 30-1/2 | 7/8 | 4-1/2 | 26-23/32 | 2-9/16 | 3-3/16 | 7/16 | 3/4" Dia. Hub | 2-1/2" Dia. Hub |
| | | SFW | | | | | | | | | | | | | | | |
| 5 | 8502 & 8536 | SGW | All | 17-7/32 | 12-5/8 | 47-7/32 | 4-1/8 | 9 | 46 | 5/8 | 4-19/32 | 28-5/16 | 3-1/8 | 5-3/4 | 9/16 | 3/4" Dia. Hub | 3-1/2" Dia. Hub |
| 6▲ | 8502 & 8536 | SHW | All | 20-7/32 | 12-1/8 | 65-7/32 | 4-1/8 | 12 | 64 | 5/8 | 4-19/32 | 30-13/16 | 2-11/16 | 4-1/2 | 9/16 | 3/4" Dia. Hub | (2) 3" Dia. Hub |
| 7▲ | 8502 & 8536 | SJW | All | 34-1/2 | 23-1/2 | 101 | Floor Mounting | | | | | | | | | | |

▲ Size 6 and 7 are sheet steel enclosures, and are rated NEMA 4 only.




NEMA 4 & 4X
Watertight Enclosure

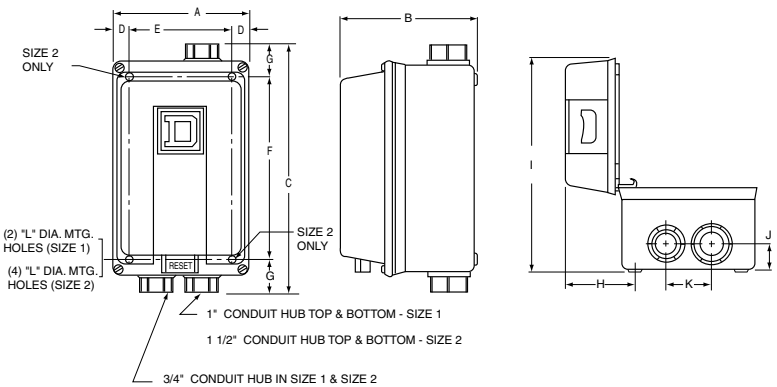
### Table 16.57: NEMA 4 & 4X—Stainless Steel Watertight Enclosures with Form F4T■

| NEMA Size | Class | Type | No. of Poles | Dimensions—Inches | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H | I | J | K | L |
| 0 and 1 | 8502 | SBW | All | 12-5/8 | 7-1/8 | 14-11/16 | 2-9/16 | 7-1/2 | 13-1/2 | 19/32 | 3-3/16 | 18-13/16 | 1-21/32 | 2-5/16 | 5/16 |
| | | SCW | | | | | | | | | | | | | |
| | 8536 | SBW | All | 12-5/8 | 7-13/16 | 14-11/16 | 2-9/16 | 7-1/2 | 13-1/2 | 19/32 | 3-7/8 | 18-13/32 | 1-21/32 | 2-5/16 | 5/16 |
| | | SCW | | | | | | | | | | | | | |
| 2 | 8502 | SDW | All | 14-7/8 | 7-9/16 | 16-5/16 | 2-9/16 | 9-3/4 | 15 | 21/32 | 3-3/16 | 20-7/8 | 2 | 2-5/8 | 5/16 |
| | 8536 | SDW | All | 14-7/8 | 8-1/4 | 16-5/16 | 2-9/16 | 9-3/4 | 15 | 21/32 | 3-7/8 | 20-7/8 | 2 | 2-5/8 | 5/16 |
| 3 and 4 | 8502 | SEW | 2–3 | Same as Standard NEMA 4 dimensions, see above. | | | | | | | | | | | |
| | | SFW | 2–3 | | | | | | | | | | | | |
| | 8536 | SEW | 2–3 | Same as Standard NEMA 4 dimensions, see above. | | | | | | | | | | | |
| | | SFW | 2–3 | | | | | | | | | | | | |
| 5 | 8502 & 8536 | SGW | All | Same as Standard NEMA 4 dimensions, see above. | | | | | | | | | | | |
| 6■ | 8502 & 8536 | SHW | All | Form F4T is supplied as standard. Refer to page 16-101. | | | | | | | | | | | |
| 7■ | 8502 & 8536 | SJW | All | | | | | | | | | | | | |

■ Size 6 and 7 are sheet steel enclosures, and are rated NEMA 4 only.

### Table 16.58: NEMA 4X—Watertight & Corrosion Resistant Glass Polyester Enclosures

| Size | Type | No. of Poles | Dimensions—Inches (see the figure below) | | | | | | | | | | | | | Bot. Hub Only | Top & Bot. Hub | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | | W | X | |
| 0, 1 | SBW | All | 6-1/2 | 6-7/16 | 12-1/8 | 3/4 | 5 | 8-3/4 | 1-11/16 | 3-11/32 | 10-1/16 | 1-5/16 | 2-1/8 | 5/16 | | 3/4 | 1 | 17 |
| | SCW | | | | | | | | | | | | | | | | | |
| 2 | SDW | All | 8-1/2 | 7-1/16 | 13-7/8 | 3/4 | 7 | 10-1/2 | 1-11/16 | 3-29/32 | 11-15/16 | 1-5/8 | 2-3/8 | 5/16 | | 3/4 | 1-1/2 | 22 |






© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

**Table 16.59: NEMA 4X—Watertight & Corrosion Resistant Glass Polyester Enclosures**

| NEMA Size | Type | No. of Poles | Dimensions—Inches (see Figure 1) | | | | |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | E | F |
| 0-2▲ | SBW<br>SCW<br>SDW | All | 16-7/8 | 9-25/32 | 22-3/4 | 10-1/8 | 21-1/2 |
| 3-4■ | SEW<br>SFW | All | 25-13/16 | 11-15/16 | 33-1/2 | 18-1/2 | 32-1/4 |

▲ With control power transformer (Form F4T).
■ Dimensions also for Form F4T.

Note: Devices with Form F4T may use larger enclosure. Consult Schneider Electric CCC at (1-888-778-2733) for dimensions.

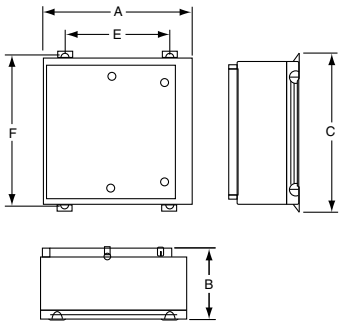



Figure 1
NEMA 4X

## NEMA 7 & 9—Bolted Cover, Cast Iron

See Figure 2 for dimensions for NEMA size 0 and 1 (weight is 59 pounds).
See Figure 3 for NEMA size 2 (weight is 75 pounds).

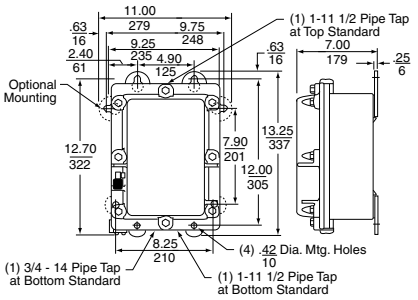



Figure 2
Size 0 and 1

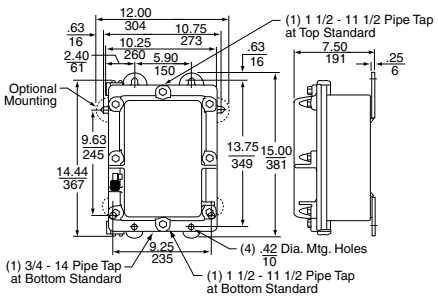



Figure 3
Size 2

**Table 16.60: NEMA 7 & 9—SPIN TOP™ Enclosure**

| Conduit Sizes Loc. A, B, C & D | | | Dimensions—Inches (See Figure 4) | | | | | | | | | | | | | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NEMA Size | Std. | Type | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | |
| 0–1 | 1-1/4 | SBR<br>SCR | 10-5/8 | 26 | 15-1/4 | 8 | 4-3/4 | 5-3/8 | 3-3/4 | 1-1/16 | 7-1/2 | 11 | 7-5/16 | 2-1/16 | — | — | 70 |
| 2 | 1-1/2 | SDR | 13-7/8 | 30-1/2 | 19-1/4 | 8 | 4-3/4 | 5-1/4 | 3-3/4 | 1-1/16 | 7 | 18 | 9-3/8 | 2-3/4 | — | — | 100 |
| 3–4 | 2-1/2 | SER<br>SFR | 13-3/8 | 39-1/2 | 20-1/4 | 8 | 4-3/4 | 7-1/2 | 3-3/4 | — | 7-3/4 | 23 | 8-5/8 | 3 | — | — | 165<br>195 |
| 5 | 4 | SGR | 19 | 53-1/2 | 27-3/4 | — | — | 11-1/4 | 5-3/4 | 1/8 | 16 | 20-5/8 | 11-3/8 | 4-5/16 | 12 | 6-1/2 | 375 |

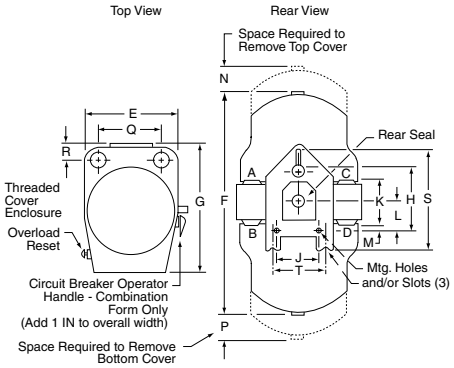



Figure 4
NEMA 7 & 9
SPIN TOP™ Enclosure



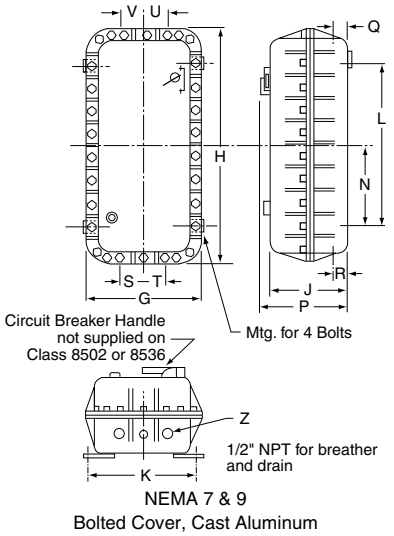


© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.61: NEMA 7 & 9—Bolted Cover, Cast Aluminum

| NEMA Size | Type | Dimensions—Inches | | | | | | | | | Z Dia. | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G | H | J | K | L | N | P | Q, R | S, T, U, V | | |
| 0–1 | SBT SCT | 14-1/4 | 17-1/4 | 9-1/2 | 12-1/4 | 8-7/8 | 4-1/2 | 11 | 2-3/8 | 3-1/8 | 1-1/2 | 75 |
| 2 | SDT | 13-5/8 | 27-5/8 | 9-1/2 | 12-1/4 | 19-1/4 | 9-5/8 | 11 | 2-3/8 | 3-1/8 | 1-1/2 | 115 |
| 3–4 | SET SFT | 18-1/8 | 31-5/8 | 10 | 16-1/4 | 19-1/4 | 9-5/8 | 12-5/8 | 2-3/8 | 3-3/4 | 2-1/2 | 180 |
| 5 | SGT | 24-1/2 | 45-5/8 | 13-3/4 | 22-1/2 | 27-1/2 | 13-3/4 | 15-3/8 | 3-7/16 | 4 | 4 | 500 |



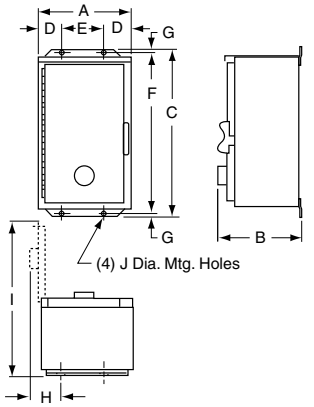

NEMA 7 & 9
Bolted Cover, Cast Aluminum

### Table 16.62: NEMA 12/3R—Dusttight Enclosure

| NEMA Size | Type | No. of Poles | Dimensions—Inches | | | | | | | | | | Weight (lb) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | Class 8502 | Class 8536 |
| 0 | SBA | All | 6-3/8 | 8-17/32 | 12-3/4 | 1-9/16 | 3-1/4 | 12 | 3/8 | 3-9/16 | 12-1/4 | 5/16 | 15 | 16 |
| 1 | SCA | All | | | | | | | | | | | | |
| 2 | SDA | All | 8-1/8 | 9-9/32 | 16 | 1-9/16 | 5 | 15 | 1/2 | 3-9/16 | 15-3/8 | 5/16 | 22 | 23 |
| 3 | SEA | All | 18-5/32 | 9-9/16 | 31-1/2 | 3-5/64 | 12 | 30-1/2 | 1/2 | 4-1/2 | 26-23/32 | 7/16 | 65 | 68 |
| 4 | SFA | All | | | | | | | | | | | 69 | 73 |
| 5 | SGA | All | 17-7/32 | 13-7/16 | 47 | 4-1/8 | 9 | 46 | 1/2 | 5-13/32 | 28-5/16 | 9/16 | 160 | 177 |
| 6 | SHA | All | 20-7/32 | 13 | 65 | 4-1/8 | 12 | 64 | 1/2 | 6-7/16 | 30-7/8 | 11/16 | 228 | 233 |
| 7 | SJA | All | 34-1/2 | 23-1/2 | 93 | Floor Mounting | | | | | | | — | — |

### Table 16.63: NEMA 12/3R—Dusttight Enclosure With Form F4T

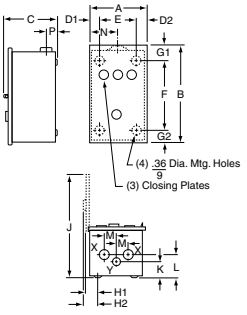
| NEMA Size | Type | No. of Poles | Dimensions—Inches | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J |
| 0 | SBA | All | 11-7/8 | 8 | 13-1/2 | 2-13/16 | 6-3/4 | 12-3/4 | 3/8 | 3-29/32 | 18-3/8 | 5/16 |
| 1 | SCA | All | | | | | | | | | | |
| 2 | SDA | All | 14-7/8 | 8-1/8 | 16 | 2-9/16 | 9-3/4 | 15 | 3/8 | 3-21/32 | 21-1/2 | 5/16 |
| 3 | SEA | 2–3 | Same as Standard NEMA 12 dimensions, see above. | | | | | | | | | |
| 4 | SFA | 2–3 | | | | | | | | | | |
| 5 | SGA | All | Same as Standard NEMA 12 dimensions, see above. | | | | | | | | | |
| 6 | SHA | All | Form F4T is supplied as standard. Refer to page 16-101. | | | | | | | | | |
| 7 | SJA | All | | | | | | | | | | |




NEMA 12

### Table 16.64: NEMA 3R—Rainproof and Sleet Resistant Enclosures

| Size | Type | No. of Poles | Dimensions—Inches | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D1 | D2 | E | F | G1 | G2 | H1 | H2 | J | K | L | M | N | P | K.O. X | K.O. Y |
| 0, 1 | SBH SCH | All | 8-27/32 | 12-9/32 | 7-1/8 | 1-3/8 | 1-7/16 | 6 | 7-1/2 | 2-19/32 | 2-3/16 | 2-1/16 | 2-5/8 | 14-9/32 | 1-3/8 | 1-3/8 | 1-7/8 | 4-3/8 | 1-27/32 | 1/2<br>3/4<br>1 | 1/2<br>3/4<br>1 |
| 2 | SDH | All | 9-27/32 | 16-9/32 | 8-5/8 | 1-3/8 | 1-7/16 | 7 | 11-1/2 | 2-19/32 | 2-3/16 | 2-1/16 | 2-5/8 | 16-25/32 | 1-5/16 | 1-3/4 | 2-1/8 | 4-7/8 | 1-27/32 | 1<br>1-1/4<br>1-1/2 | 1/2<br>3/4 |
| 3 | SEH | All | 12-27/32 | 25-9/32 | 8-5/8 | 1-3/8 | 1-7/16 | 10 | 20-1/2 | 2-19/32 | 2-3/16 | 2-1/16 | 2-5/8 | 19-25/32 | 1-5/16 | 1-15/16 | 2-7/16 | 6-3/8 | 1-27/32 | 1<br>1-1/4<br>2<br>2-1/2 | 1/2<br>3/4 |
| 4 | SFH | All | 12-27/32 | 40-9/32 | 9-1/8 | 1-3/8 | 1-7/16 | 10 | 35-1/2 | 2-19/32 | 2-3/16 | 2-1/16 | 2-5/8 | 20-9/32 | 1-5/16 | 2-5/16 | 2-11/16 | 6-3/8 | 1-27/32 | 1<br>1-1/4<br>2<br>2-1/2 | 1/2<br>3/4 |




NEMA 3R



© 2012 Schneider Electric
All Rights Reserved



Class 8502 Type WH

## General Information

Class 8502 Type W non-reversing vacuum contactors used to switch capacitors, transformers and electric motors where overload protection is separately provided. Type W vacuum contactors are designed for operation at 600 Volts, 50/60 Hz. (See page 16-50 for Class 8702 Reversing Vacuum Contactors.)

**Table 16.65: Class 8502—Full Voltage 3 Pole Vacuum Contactors**

| NEMA Size | Enclosed Ampere Rating | Locked Rotor Current (A) | Motor Voltage | Max. Hp | Open Type | |
|---|---|---|---|---|---|---|
| | | | | | Type | $ Price |
| 4 | 135 | 1080 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | WFO3▲ | **3965.00** |
| 5 | 270 | 2160 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | WGO3▲ | **8004.00** |
| 6 | 540 | 4320 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | WHO3▲ | **22383.00** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.

**Table 16.66: Class 9998—Replacement Coils for Class 8502 and 8702 Vacuum Contactors (Includes Rectifier)**

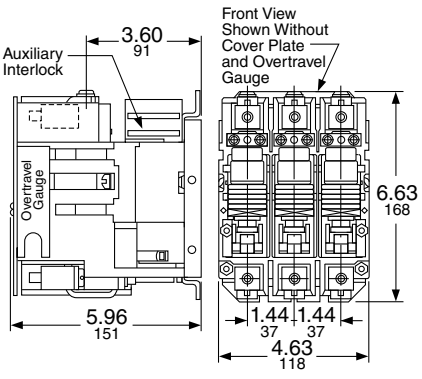
| Size | Type | Poles | Class and Type | Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number) | | | | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | | 120 V 110 V | 240 V 220 V | 480 V 440 V | 600 V 550 V | |
| 4 | WF | 3 | 9998WF | 120 | 240 | 480 | 600 | **732.00** |
| 5 | WG | 3 | 9998WG | 120 | 240 | 480 | 600 | **1724.00** |
| 6 | WH | 3 | 9998WH | 120 | 240 | 480 | 600 | **1904.00** |

**Table 16.67: Class 9999—Vacuum Contactor Kits**

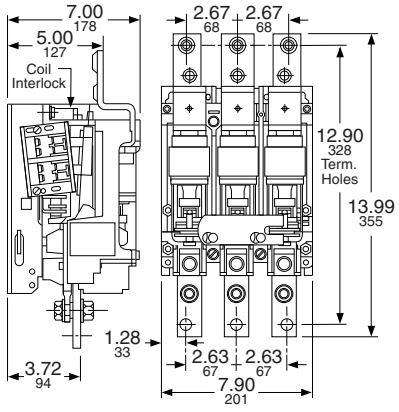
| For Use With | | Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Type | Size | | | |
| WF–WG<br>WH | 4–5<br>6 | Auxiliary Contacts, Non-Convertible<br>1-N.O. & 1-N.C. Isolated Contacts | WX11 | **116.00** |
| WF<br>WG–WH | 4<br>5–6 | Coil Circuit Auxiliary Contacts<br>1-N.O. & 1-N.C. Isolated Contacts, Delayed Break<br>1-N.C. Isolated Contact | WCX11<br>WLX01 | **153.00**<br>**476.00** |
| WG | 5 | Lug Kits<br>(6) lugs included | LUW5 | **261.00** |
| WH | 6 | Lug Kits<br>(6) lugs included | LUW6 | **270.00** |

**Table 16.68: Coil Voltage Codes**

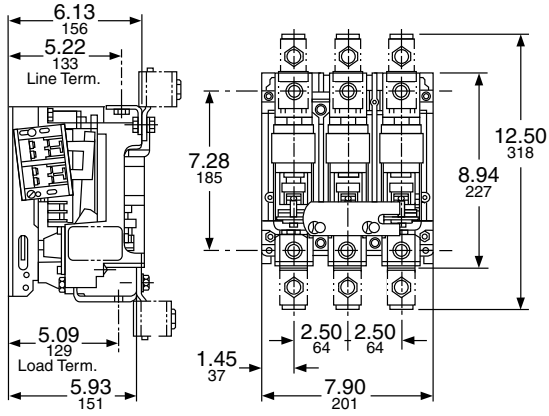
| Volts | 110 | 120 | 220 | 240 | 440 | 480 | 550 | 600 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** | V02 | | V03 | | V06 | | V07 | |
| **60 Hz** | | V02 | | V03 | | V06 | | V07 |




Dimensions for Class 8502 Type WF Size 4




Dimensions for Class 8502 Type WH Size 6




Dimensions for Class 8502 Type WG Size 5

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved



Class 8502 Type VH

## General Information

The Class 8502 Type V vacuum contactor is a three-pole, 1500 V rated device which meets UL508 (1.5 kV) and CSA. Vacuum technology offers long life and low maintenance in a compact, lightweight design. The contactor is suitable for contaminated atmospheres because the main contacts are sealed in vacuum bottles. Also, since gravity is not used to assist contactor operation, the Class 8502 contactor may be mounted in any plane without special modifications. Type V vacuum contactors are designed for the control of inductive or non-inductive loads at voltages between 200 and 1500 Vac.

**Table 16.69: Class 8502—Full Voltage 3 Pole Vacuum Contactors**

| NEMA Size | Enclosed Ampere Rating | Locked Rotor Current (A) | Motor Voltage | Max. Hp | Open Type | |
|---|---|---|---|---|---|---|
| | | | | | Type | $ Price |
| 4 | 160 | 1080 | 200<br>230<br>460<br>575<br>800<br>1000<br>1500 | 50<br>60<br>125<br>150<br>200<br>250<br>400 | VFO3▲ | **3965.00** |
| 5 | 320 | 2160 | 200<br>230<br>460<br>575<br>800<br>1000<br>1500 | 100<br>125<br>250<br>300<br>400<br>—<br>800 | VGO3▲ | **8004.00** |
| 6 | 540 | 4320 | 200<br>230<br>460<br>575<br>800<br>1000<br>1500 | 150<br>200<br>400<br>400<br>—<br>—<br>1300 | VHO3▲ | **22383.00** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.

**Table 16.70: Class 9998—Replacement Coils for Class 8502 and 8702 (Contains Rectifier)**

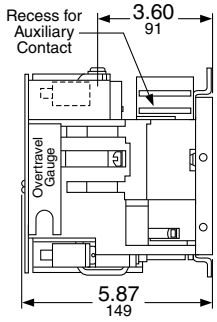
| Size | Type | Poles | Class and Type | Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number) | | | | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | | 120 Volts 110 Volts | 240 Volts 220 Volts | 480 Volts 440 Volts | 600 Volts 550 Volts | |
| 4 | VF | 3 | 9998WF | 120 | 240 | 480 | 600 | **732.00** |
| 5 | VG | 3 | 9998WG | 120 | 240 | 480 | 600 | **1724.00** |
| 6 | VH | 3 | 9998WH | 120 | 240 | 480 | 600 | **1904.00** |

**Table 16.71: Class 9999—Vacuum Starter Kits**

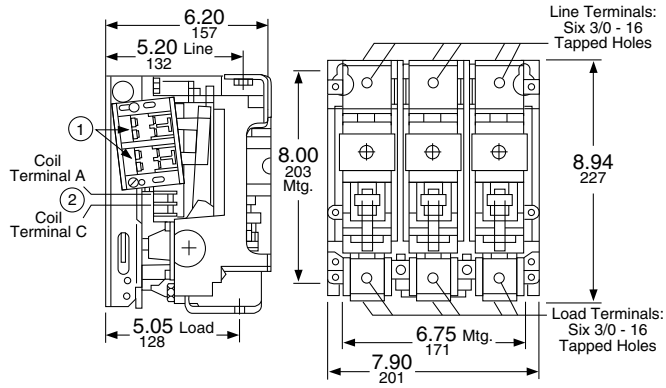
| For Use With | | Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Type | Size | | | |
| VF–VG<br>VH | 4–5<br>6 | Auxiliary Contacts, Non-Convertible<br>1 N.O. & 1 N.C. Isolated Contacts | WX11 | **116.00** |
| VF<br>VG–VH | 4<br>5–6 | Coil Circuit Auxiliary Contacts<br>1 N.O. & 1 N.C. Isolated Contacts, Delayed Break<br>1 N.C. Isolated Contact | WCX11<br>WLX01 | **153.00**<br>**476.00** |
| VG | 5 | Lug Kits<br>(6) lugs included | LUW5 | **261.00** |
| VH | 6 | Lug Kits<br>(6) lugs included | LUW6 | **1715.00** |

**Table 16.72: Coil Voltage Codes**

| Volts | 110 | 120 | 220 | 240 | 440 | 480 | 550 | 600 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** | V02 | | V03 | | V06 | | V07 | |
| **60 Hz** | | V02 | | V03 | | V06 | | V07 |

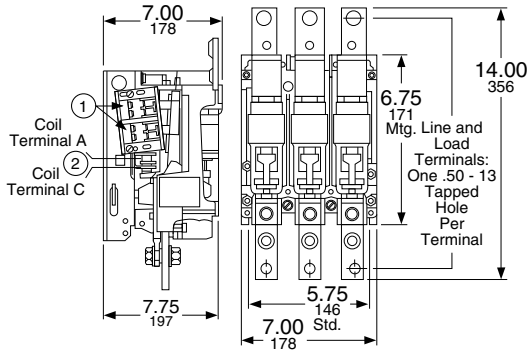



Dimensions for Class 8502 Type VF Size 4




1 Two Dual Circuit Auxiliary Contacts can be located on both sides of contactor.
2 Coil Terminals B and D located on opposite side of contactor.

Dimensions for Class 8502 Type VG Size 5




1 Two Dual Circuit Auxiliary Contacts can be located on both sides of contactor.
2 Coil Terminals B and D located on opposite side of contactor.

Dimensions for Class 8502 Type VH Size 6

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## General Information

Class 8536 Type W non-reversing vacuum starters are used to switch electric motors where overload protection is not separately provided.

Type W vacuum starters are designed for operation at 600 Volts, 50/60 Hz. Starters are available exclusively with Motor Logic™ Feature Base Solid State Overload Relays.

### Table 16.73: Class 8536—Full Voltage Vacuum Starters

| NEMA Size | Enclosed Ampere Rating | Locked Rotor Current (A) | Motor Voltage | Max. Hp | Open Type | |
|---|---|---|---|---|---|---|
| | | | | | Type | $ Price |
| 4 | 135 | 1080 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | WFO3▲ | **4433.00** |
| 5 | 270 | 2160 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | WGO3▲ | **10125.00** |
| 6 | 540 | 4320 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | WHO3▲ | **24008.00** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table at left.

### Table 16.74: Class 9998—Replacement Coils for Class 8536 Vacuum Starters

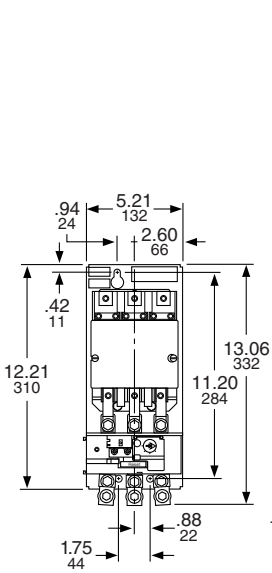
| Size | Type | Poles | Class and Type | Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number) | | | | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | | 120 Volts 110 Volts | 240 Volts 220 Volts | 480 Volts 440 Volts | 600 Volts 550 Volts | |
| 4 | WF | All | 9998WF | 120 | 240 | 480 | 600 | **732.00** |
| 5 | WG | All | 9998WG | 120 | 240 | 480 | 600 | **1724.00** |
| 6 | WH | All | 9998WH | 120 | 240 | 480 | 600 | **1904.00** |

### Table 16.75: Class 9999—Vacuum Starter Kits

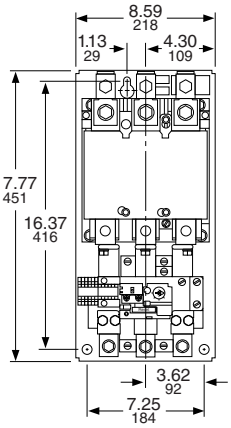
| For Use With | | Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Type | Size | | | |
| WF–WG<br>WH | 4–5<br>6 | Auxiliary Contacts, Non-Convertible<br>1 N.O. & 1 N.C. Isolated Contacts | WX11 | **122.00** |
| WF<br>WG–WH | 4<br>5–6 | Coil Circuit Auxiliary Contacts<br>1 N.O. & 1 N.C. Isolated Contacts, Delayed Break<br>1 N.C. Isolated Contact | WCX11<br>WLX01 | **114.00**<br>**503.00** |
| WG | 5 | Lug Kits<br>(6) lugs included | LUW5 | **275.00** |

### Table 16.76: Coil Voltage Codes

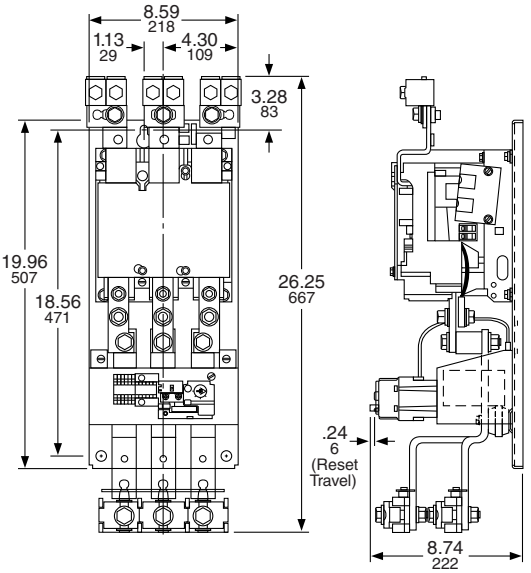
| Volts | 110 | 120 | 220 | 240 | 440 | 480 | 550 | 600 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** | V02 | | V03 | | V06 | | V07 | |
| **60 Hz** | | V02 | | V03 | | V06 | | V07 |




**Dimensions for Class 8536 Type WF Size 4**




**Dimensions for Class 8536 Type WG Size 5**




**Dimensions for Class 8536 Type WH Size 6**

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved



3 or 5 Days
Laser Delivery

Schneider Electric offers express shipping for factory modified NEMA Combo Starters. When you need them fast, our Laser™ Delivery program is the answer to getting your product when you need it most. Ask for Laser™ Delivery, then select the product and the modifications you need when you place your order. It's as easy as that!

## General Information

Class 8538 and 8539 Type S combination starters combine the requirements of motor overload and short circuit protection into one package. These starters are manufactured in accordance with NEMA standards and are UL Listed (although some Form numbers may not be listed—contact Schneider Electric Customer Care Center for information). Class 8538 and 8539 combination starters are designed to operate at 600 Vac maximum, 50 to 60 Hz—and are supplied with melting alloy overload relays as standard.

### 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information. For class J fuse clip, use Form **Y1072** (no charge).

**Table 16.77: Fusible Full Voltage Type (Class H Fuse Clips), with Melting Alloy Overload Relays**

| Ratings | | | Fuse Clip Size (A) | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)♦ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 3 | 0 | 30 | SBG12▲ | 1344.00 | SBW12▲ | 2712.00 | SBW22▲ | 3123.00 | SBA22▲ | SBA12▲ | 1686.00 |
| | 5 | 1 | 30 | SCG12▲ | 1416.00 | SCW12▲ | 2781.00 | SCW22▲ | 3195.00 | SCA22▲ | SCA12▲ | 1758.00 |
| | 7-1/2 | | 60 | SCG13▲ | 1443.00 | SCW13▲ | 2811.00 | SCW23▲ | 3239.00 | SCA23▲ | SCA13▲ | 1785.00 |
| | 10 | 2 | 60 | SDG12▲ | 2228.00 | SDW12▲ | 4334.00 | SDW22▲ | 4778.00 | SDA22▲ | SDA12▲ | 2712.00 |
| | 20 | 3 | 100 | SEG15▲ | 3752.00 | SEW15▲ | 7425.00 | SEW25▲ | 8166.00 | SEA25▲ | SEA15▲ | 4377.00 |
| | 25 | | 200 | SEG12▲ | 4064.00 | SEW12▲ | 7739.00 | — | — | SEA22▲ | SEA12▲ | 4692.00 |
| | 40 | 4 | 200 | SFG15▲ | 7199.00 | SFW15▲ | 11898.00 | — | — | SFA25▲ | SFA15▲ | 8936.00 |
| | 75 | 5 | 400 | SGG15▲ | 16122.00 | SGW15▲ | 28112.00 | — | — | SGA25▲ | SGA15▲ | 20336.00 |
| | 150 | 6 | 600 | SHG13▲ | 42305.00 | SHW13▲ | 54077.00 | — | — | SHA23▲ | SHA13▲ | 47219.00 |
| 230 (240) | 3 | 0 | 30 | SBG12▲ | 1344.00 | SBW12▲ | 2712.00 | SBW22▲ | 3123.00 | SBA22▲ | SBA12▲ | 1686.00 |
| | 5 | 1 | 30 | SCG12▲ | 1416.00 | SCW12▲ | 2781.00 | SCW22▲ | 3195.00 | SCA22▲ | SCA12▲ | 1758.00 |
| | 7-1/2 | | 60 | SCG13▲ | 1443.00 | SCW13▲ | 2811.00 | SCW23▲ | 3239.00 | SCA23▲ | SCA13▲ | 1785.00 |
| | 15 | 2 | 60 | SDG12▲ | 2228.00 | SDW12▲ | 4334.00 | SDW22▲ | 4778.00 | SDA22▲ | SDA12▲ | 2712.00 |
| | 25 | 3 | 100 | SEG15▲ | 3752.00 | SEW15▲ | 7425.00 | SEW25▲ | 8166.00 | SEA25▲ | SEA15▲ | 4377.00 |
| | 30 | | 200 | SEG12▲ | 4064.00 | SEW12▲ | 7739.00 | — | — | SEA22▲ | SEA12▲ | 4692.00 |
| | 50 | 4 | 200 | SFG15▲ | 7199.00 | SFW15▲ | 11898.00 | — | — | SFA25▲ | SFA15▲ | 8936.00 |
| | 100 | 5 | 400 | SGG15▲ | 16122.00 | SGW15▲ | 28112.00 | — | — | SGA25▲ | SGA15▲ | 20336.00 |
| | 200 | 6 | 600 | SHG13▲ | 42305.00 | SHW13▲ | 54077.00 | — | — | SHA23▲ | SHA13▲ | 47219.00 |
| 460 (480) | 5 | 0 | 30 | SBG13▲ | 1344.00 | SBW13▲ | 2712.00 | SBW23▲ | 3123.00 | SBA23▲ | SBA13▲ | 1686.00 |
| | 10 | 1 | 30 | SCG14▲ | 1443.00 | SCW14▲ | 2811.00 | SCW24▲ | 3239.00 | SCA24▲ | SCA14▲ | 1785.00 |
| | 15 | 2 | 30 | SDG16▲ | 2241.00 | SDW16▲ | 4350.00 | SDW26▲ | 4791.00 | SDA26▲ | SDA16▲ | 2712.00 |
| | 25 | | 60 | SDG14▲ | 2271.00 | SDW14▲ | 4377.00 | SDW24▲ | 4820.00 | SDA24▲ | SDA14▲ | 2754.00 |
| | 50 | 3 | 100 | SEG13▲ | 3824.00 | SEW13▲ | 7497.00 | SEW23▲ | 8244.00 | SEA23▲ | SEA13▲ | 4449.00 |
| | 100 | 4 | 200 | SFG13▲ | 7254.00 | SFW13▲ | 11955.00 | — | — | SFA23▲ | SFA13▲ | 8991.00 |
| | 200 | 5 | 400 | SGG13▲ | 16122.00 | SGW13▲ | 28112.00 | — | — | SGA23▲ | SGA13▲ | 20336.00 |
| | 400 | 6 | 600 | SHG12▲ | 42305.00 | SHW12▲ | 54077.00 | — | — | SHA22▲ | SHA12▲ | 47219.00 |
| 575 (600) | 5 | 0 | 30 | SBG13▲ | 1344.00 | SBW13▲ | 2712.00 | SBW23▲ | 3123.00 | SBA23▲ | SBA13▲ | 1686.00 |
| | 10 | 1 | 30 | SCG14▲ | 1443.00 | SCW14▲ | 2811.00 | SCW24▲ | 3239.00 | SCA24▲ | SCA14▲ | 1785.00 |
| | 15 | 2 | 30 | SDG16▲ | 2241.00 | SDW16▲ | 4350.00 | SDW26▲ | 4791.00 | SDA26▲ | SDA16▲ | 2712.00 |
| | 25 | | 60 | SDG14▲ | 2271.00 | SDW14▲ | 4377.00 | SDW24▲ | 4820.00 | SDA24▲ | SDA14▲ | 2754.00 |
| | 50 | 3 | 100 | SEG13▲ | 3824.00 | SEW13▲ | 7497.00 | SEW23▲ | 8244.00 | SEA23▲ | SEA13▲ | 4449.00 |
| | 100 | 4 | 200 | SFG13▲ | 7254.00 | SFW13▲ | 11955.00 | — | — | SFA23▲ | SFA13▲ | 8991.00 |
| | 200 | 5 | 400 | SGG13▲ | 16122.00 | SGW13▲ | 28112.00 | — | — | SGA23▲ | SGA13▲ | 20336.00 |
| | 400 | 6 | 600 | SHG12▲ | 42305.00 | SHW12▲ | 54077.00 | — | — | SHA22▲ | SHA12▲ | 47219.00 |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-32.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.78: Fusible Disconnect Switch Type (Class H Fuse Clips), Single Phase▼△**

| Motor Voltage | Max. Hp | Coil Voltage | NEMA Size | Poles | Fuse Clip Size (A) | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R★ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | With External Reset | Without External Reset | $ Price |
| | | | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | Type | |
| 120 | 1 | 120 | 0 | 2 | 30 | SBG62V02 | 1344. | SBW62V02 | 2712. | SBW65V02 | 3123. | SBA65V02 | SBA62V02 | 1686. |
| | 2 | | 1 | | 30 | SCG62V02 | 1416. | SCW62V02 | 2781. | SCW65V02 | 3195. | SCA65V02 | SCA62V02 | 1758. |
| | 3 | | 2 | | 60 | SDG62V02 | 2228. | SDW62V02 | 4334. | SDW65V02 | 4778. | SDA65V02 | SDA62V02 | 2712. |
| 240 | 2 | 240 | 0 | 2 | 30 | SBG62V03 | 1344. | SBW62V03 | 2712. | SBW65V03 | 3123. | SBA65V03 | SBA62V03 | 1686. |
| | 3 | | 1 | | 30 | SCG62V03 | 1416. | SCW62V03 | 2781. | SCW65V03 | 3195. | SCA65V03 | SCA62V03 | 1758. |
| | 7-1/2 | | 2 | | 60 | SDG62V03 | 2228. | SDW62V03 | 4334. | SDW65V03 | 4778. | SDA65V03 | SDA62V03 | 2712. |

★ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
▼ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
△ Not included in Laser™ Delivery program.

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50-60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.




Refer to page 16-31 for details.

**Table 16.79: Non-Fusible Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays**

| Ratings | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)■ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | | | | | | | Type | Type | |
| 200 (208) | 3 | 0 | SBG11♦ | 1301.00 | SBW11♦ | 2669.00 | SBW21♦ | 3068.00 | SBA21♦ | SBA11♦ | 1643.00 |
| | 7-1/2 | 1 | SCG11♦ | 1373.00 | SCW11♦ | 2739.00 | SCW21♦ | 3153.00 | SCA21♦ | SCA11♦ | 1715.00 |
| | 10 | 2 | SDG11♦ | 2169.00 | SDW11♦ | 4278.00 | SDW21♦ | 4706.00 | SDA21♦ | SDA11♦ | 2654.00 |
| | 25 | 3 | SEG11♦ | 3609.00 | SEW11♦ | 7284.00 | SEW21♦ | 8010.00 | SEA21♦ | SEA11♦ | 4235.00 |
| | 40 | 4 | SFG11♦ | 6956.00 | SFW11♦ | 11655.00 | — | — | SFA21♦ | SFA11♦ | 8693.00 |
| | 75 | 5 | SGG11♦ | 15609.00 | SGW11♦ | 27599.00 | — | — | SGA21♦ | SGA11♦ | 19823.00 |
| | 150 | 6 | SHG11♦ | 41174.00 | SHW11♦ | 52568.00 | — | — | SHA21♦ | SHA11♦ | 45710.00 |
| 230 (240) | 3 | 0 | SBG11♦ | 1301.00 | SBW11♦ | 2669.00 | SBW21♦ | 3068.00 | SBA21♦ | SBA11♦ | 1643.00 |
| | 7-1/2 | 1 | SCG11♦ | 1373.00 | SCW11♦ | 2739.00 | SCW21♦ | 3153.00 | SCA21♦ | SCA11♦ | 1715.00 |
| | 15 | 2 | SDG11♦ | 2169.00 | SDW11♦ | 4278.00 | SDW21♦ | 4706.00 | SDA21♦ | SDA11♦ | 2654.00 |
| | 30 | 3 | SEG11♦ | 3609.00 | SEW11♦ | 7284.00 | SEW21♦ | 8010.00 | SEA21♦ | SEA11♦ | 4235.00 |
| | 50 | 4 | SFG11♦ | 6956.00 | SFW11♦ | 11655.00 | — | — | SFA21♦ | SFA11♦ | 8693.00 |
| | 100 | 5 | SGG11♦ | 15609.00 | SGW11♦ | 27599.00 | — | — | SGA21♦ | SGA11♦ | 19823.00 |
| | 200 | 6 | SHG11♦ | 41174.00 | SHW11♦ | 52568.00 | — | — | SHA21♦ | SHA11♦ | 45710.00 |
| 460 (480) | 5 | 0 | SBG11♦ | 1301.00 | SBW11♦ | 2669.00 | SBW21♦ | 3068.00 | SBA21♦ | SBA11♦ | 1643.00 |
| | 10 | 1 | SCG11♦ | 1373.00 | SCW11♦ | 2739.00 | SCW21♦ | 3153.00 | SCA21♦ | SCA11♦ | 1715.00 |
| | 25 | 2 | SDG11♦ | 2169.00 | SDW11♦ | 4278.00 | SDW21♦ | 4706.00 | SDA21♦ | SDA11♦ | 2654.00 |
| | 50 | 3 | SEG11♦ | 3609.00 | SEW11♦ | 7284.00 | SEW21♦ | 8010.00 | SEA21♦ | SEA11♦ | 4235.00 |
| | 100 | 4 | SFG11♦ | 6956.00 | SFW11♦ | 11655.00 | — | — | SFA21♦ | SFA11♦ | 8693.00 |
| | 200 | 5 | SGG11♦ | 15609.00 | SGW11♦ | 27599.00 | — | — | SGA21♦ | SGA11♦ | 19823.00 |
| | 400 | 6 | SHG11♦ | 41174.00 | SHW11♦ | 52568.00 | — | — | SHA21♦ | SHA11♦ | 45710.00 |
| 575 (600) | 5 | 0 | SBG11♦ | 1301.00 | SBW11♦ | 2669.00 | SBW21♦ | 3068.00 | SBA21♦ | SBA11♦ | 1643.00 |
| | 10 | 1 | SCG11♦ | 1373.00 | SCW11♦ | 2739.00 | SCW21♦ | 3153.00 | SCA21♦ | SCA11♦ | 1715.00 |
| | 25 | 2 | SDG11♦ | 2169.00 | SDW11♦ | 4278.00 | SDW21♦ | 4706.00 | SDA21♦ | SDA11♦ | 2654.00 |
| | 50 | 3 | SEG11♦ | 3609.00 | SEW11♦ | 7284.00 | SEW21♦ | 8010.00 | SEA21♦ | SEA11♦ | 4235.00 |
| | 100 | 4 | SFG11♦ | 6956.00 | SFW11♦ | 11655.00 | — | — | SFA21♦ | SFA11♦ | 8693.00 |
| | 200 | 5 | SGG11♦ | 15609.00 | SGW11♦ | 27599.00 | — | — | SGA21♦ | SGA11♦ | 19823.00 |
| | 400 | 6 | SHG11♦ | 41174.00 | SHW11♦ | 52568.00 | — | — | SHA21♦ | SHA11♦ | 45710.00 |

**Table 16.80: Non-Fusible Disconnect Switch Type, Single Phase★▼**

| Motor Voltage | Max. Hp | Coil Voltage | NEMA Size | Poles | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | | | | | | | | | Type | Type | |
| 120 | 1 | 120 | 0 | 2 | SBG61V02 | 1301.00 | SBW61V02 | 2669.00 | SBW64V02 | 3068.00 | SBA64V02 | SBA61V02 | 1643.00 |
| | 2 | | 1 | | SCG61V02 | 1373.00 | SCW61V02 | 2739.00 | SCW64V02 | 3153.00 | SCA64V02 | SCA61V02 | 1715.00 |
| | 3 | | 2 | | SDG61V02 | 2169.00 | SDW61V02 | 4278.00 | SDW64V02 | 4706.00 | SDA64V02 | SDA61V02 | 2654.00 |
| 240 | 2 | 240 | 0 | 2 | SBG61V03 | 1301.00 | SBW61V03 | 2669.00 | SBW64V03 | 3068.00 | SBA64V03 | SBA61V03 | 1643.00 |
| | 3 | | 1 | | SCG61V03 | 1373.00 | SCW61V03 | 2739.00 | SCW64V03 | 3153.00 | SCA64V03 | SCA61V03 | 1715.00 |
| | 7-1/2 | | 2 | | SDG61V03 | 2169.00 | SDW61V03 | 4278.00 | SDW64V03 | 4706.00 | SDA64V03 | SDA61V03 | 2654.00 |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosure.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.81: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24□△ | — | V01 | No Charge |
| 120□ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

△ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified(i.e., order as 8538SBG11V01S).
□ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8538SCG11V02S).
Note: For voltage codes used with control transformers, see page 16-101. Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved




Refer to page 16-31 for details.

## 3-Pole Polyphase – 600 Vac Maximum – 50-60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

### Table 16.82: Fusible (with Class R Fuse Clips) Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays—(100,000 AIC Rated)

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)♦ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | With External Reset | Without External Reset | $ Price |
| Motor Voltage (Starter Voltage) | Max. Hp Polyphase | NEMA Size | Fuse Clip Size (A) | Type | $ Price | Type | $ Price | Type | $ Price | Type | Type | |
| 200 (208) | 3 | 0 | 30 | SBG32■ | 1367.00 | SBW32■ | 2732.00 | SBW42■ | 3140.00 | SBA42■ | SBA32■ | 1709.00 |
| | 5 | 1 | 30 | SCG32■ | 1436.00 | SCW32■ | 2804.00 | SCW42■ | 3225.00 | SCA42■ | SCA32■ | 1778.00 |
| | 7-1/2 | 1 | 60 | SCG33■ | 1466.00 | SCW33■ | 2834.00 | SCW43■ | 3252.00 | SCA43■ | SCA33■ | 1808.00 |
| | 10 | 2 | 60 | SDG32■ | 2249.00 | SDW32■ | 4356.00 | SDW42■ | 4791.00 | SDA42■ | SDA32■ | 2732.00 |
| | 20 | 3 | 100 | SEG35■ | 3794.00 | SEW35■ | 7469.00 | SEW45■ | 8216.00 | SEA45■ | SEA35■ | 4419.00 |
| | 25 | 3 | 200 | SEG32■ | 4108.00 | SEW32■ | 7781.00 | — | — | SEA42■ | SEA32■ | 4734.00 |
| | 40 | 4 | 200 | SFG35■ | 7241.00 | SFW35■ | 11942.00 | — | — | SFA45■ | SFA35■ | 8978.00 |
| | 75 | 5 | 400 | SGG35■ | 16221.00 | SGW35■ | 28214.00 | — | — | SGA45■ | SGA35■ | 20435.00 |
| | 150 | 6 | 600 | SHG33■ | 42782.00 | SHW33■ | 54176.00 | — | — | SHA43■ | SHA33■ | 47696.00 |
| 230 (240) | 3 | 0 | 30 | SBG32■ | 1367.00 | SBW32■ | 2732.00 | SBW42■ | 3140.00 | SBA42■ | SBA32■ | 1709.00 |
| | 5 | 1 | 30 | SCG32■ | 1436.00 | SCW32■ | 2804.00 | SCW42■ | 3225.00 | SCA42■ | SCA32■ | 1778.00 |
| | 7-1/2 | 1 | 60 | SCG33■ | 1466.00 | SCW33■ | 2834.00 | SCW43■ | 3252.00 | SCA43■ | SCA33■ | 1808.00 |
| | 15 | 2 | 60 | SDG32■ | 2249.00 | SDW32■ | 4356.00 | SDW42■ | 4791.00 | SDA42■ | SDA32■ | 2732.00 |
| | 25 | 3 | 100 | SEG35■ | 3794.00 | SEW35■ | 7469.00 | SEW45■ | 8216.00 | SEA45■ | SEA35■ | 4419.00 |
| | 30 | 3 | 200 | SEG32■ | 4108.00 | SEW32■ | 7781.00 | — | — | SEA42■ | SEA32■ | 4734.00 |
| | 50 | 4 | 200 | SFG35■ | 7241.00 | SFW35■ | 11942.00 | — | — | SFA45■ | SFA35■ | 8978.00 |
| | 100 | 5 | 400 | SGG35■ | 16221.00 | SGW35■ | 28214.00 | — | — | SGA45■ | SGA35■ | 20435.00 |
| | 200 | 6 | 600 | SHG33■ | 42782.00 | SHW33■ | 54176.00 | — | — | SHA43■ | SHA33■ | 47696.00 |
| 460 (480) | 5 | 0 | 30 | SBG33■ | 1394.00 | SBW33■ | 2762.00 | SBW43■ | 3176.00 | SBA43■ | SBA33■ | 1736.00 |
| | 10 | 1 | 30 | SCG34■ | 1466.00 | SCW34■ | 2834.00 | SCW44■ | 3252.00 | SCA44■ | SCA34■ | 1808.00 |
| | 15 | 2 | 30 | SDG36■ | 2262.00 | SDW36■ | 4370.00 | SDW46■ | 4805.00 | SDA46■ | SDA36■ | 2748.00 |
| | 25 | 2 | 60 | SDG34■ | 2291.00 | SDW34■ | 4400.00 | SDW44■ | 4841.00 | SDA44■ | SDA34■ | 2775.00 |
| | 50 | 3 | 100 | SEG33■ | 3866.00 | SEW33■ | 7541.00 | SEW43■ | 8294.00 | SEA43■ | SEA33■ | 4491.00 |
| | 100 | 4 | 200 | SFG33■ | 7298.00 | SFW33■ | 11997.00 | — | — | SFA43■ | SFA33■ | 9035.00 |
| | 200 | 5 | 400 | SGG33■ | 16221.00 | SGW33■ | 28214.00 | — | — | SGA43■ | SGA33■ | 20435.00 |
| | 400 | 6 | 600 | SHG32■ | 42782.00 | SHW32■ | 54176.00 | — | — | SHA42■ | SHA32■ | 47696.00 |
| 575 (600) | 5 | 0 | 30 | SBG33■ | 1394.00 | SBW33■ | 2762.00 | SBW43■ | 3176.00 | SBA43■ | SBA33■ | 1736.00 |
| | 10 | 1 | 30 | SCG34■ | 1466.00 | SCW34■ | 2834.00 | SCW44■ | 3252.00 | SCA44■ | SCA34■ | 1808.00 |
| | 15 | 2 | 30 | SDG36■ | 2262.00 | SDW36■ | 4370.00 | SDW46■ | 4805.00 | SDA46■ | SDA36■ | 2748.00 |
| | 25 | 2 | 60 | SDG34■ | 2291.00 | SDW34■ | 4400.00 | SDW44■ | 4841.00 | SDA44■ | SDA34■ | 2775.00 |
| | 50 | 3 | 100 | SEG33■ | 3866.00 | SEW33■ | 7541.00 | SEW43■ | 8294.00 | SEA43■ | SEA33■ | 4491.00 |
| | 100 | 4 | 200 | SFG33■ | 7298.00 | SFW33■ | 11997.00 | — | — | SFA43■ | SFA33■ | 9035.00 |
| | 200 | 5 | 400 | SGG33■ | 16221.00 | SGW33■ | 28214.00 | — | — | SGA43■ | SGA33■ | 20435.00 |
| | 400 | 6 | 600 | SHG32■ | 42782.00 | SHW32■ | 54176.00 | — | — | SHA42■ | SHA32■ | 47696.00 |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
♦ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
Note: Some control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

### Table 16.83: Fusible Disconnect Switch Type (Class R Fuses), Single Phase★▼

| Motor Voltage | Max. Hp | Coil Voltage | NEMA Size | Poles | Fuse Clip Size (A) | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | With External Reset | Without External Reset | $ Price |
| | | | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | Type | |
| 120 | 1 | 120 | 0 | 2 | 30 | SBG63V02 | 1367.00 | SBW63V02 | 2732.00 | SBW66V02 | 3140.00 | SBA66V02 | SBA63V02 | 1709.00 |
| | 2 | | 1 | | 30 | SCG63V02 | 1436.00 | SCW63V02 | 2804.00 | SCW66V02 | 3225.00 | SCA66V02 | SCA63V02 | 1178.00 |
| | 3 | | 2 | | 60 | SDG63V02 | 2249.00 | SDW63V02 | 4356.00 | SDW66V02 | 4791.00 | SDA66V02 | SDA63V02 | 2732.00 |
| 240 | 2 | 240 | 0 | 2 | 30 | SBG63V03 | 1367.00 | SBW63V03 | 2732.00 | SBW66V03 | 3140.00 | SBA66V03 | SBA63V03 | 1709.00 |
| | 3 | | 1 | | 30 | SCG63V03 | 1436.00 | SCW63V03 | 2804.00 | SCW66V03 | 3225.00 | SCA66V03 | SCA63V03 | 1178.00 |
| | 7-1/2 | | 2 | | 60 | SDG63V03 | 2249.00 | SDW63V03 | 4356.00 | SDW66V03 | 4791.00 | SDA66V03 | SDA63V03 | 2732.00 |

★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.

### Table 16.84: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24□△ | — | V01 | No Charge |
| 120□ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

△ 24 V coils are not available on Sizes 4–7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8538SBG32V01S).
□ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8538SCG32V02S).
Note: For voltage codes used with control transformers, see page 16-101. Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

### Full Voltage Type With Melting Alloy Overload Relays

Note that prices shown do not include thermal units. Devices require 3 thermal units, standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.85:**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dustight Enclosure Stainless Steel (304) | | NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Fuse Clip Size (A) | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| **Class 8538 Non-Fusible Disconnect Switch Type—NEMA Size 0–2■□** | | | | | | | | | | |
| 200 (208) | 3 | 0 | N/A | SBG11S8♦ | **1656.00** | SBW11S8♦ | **3738.00** | SBA21S8♦ | SBA11S8♦ | **2285.00** |
| | 7-1/2 | 1 | N/A | SCG11S8♦ | **1728.00** | SCW11S8♦ | **3807.00** | SCA21S8♦ | SCA11S8♦ | **2327.00** |
| | 10 | 2 | N/A | SDG11S8♦ | **2528.00** | SDW11S8♦ | **3564.00** | SDA21S8♦ | SDA11S8♦ | **2178.00** |
| 230 (240) | 3 | 0 | N/A | SBG11S8♦ | **1656.00** | SBW11S8♦ | **3738.00** | SBA21S8♦ | SBA11S8♦ | **2285.00** |
| | 7-1/2 | 1 | N/A | SCG11S8♦ | **1728.00** | SCW11S8♦ | **3807.00** | SCA21S8♦ | SCA11S8♦ | **2327.00** |
| | 15 | 2 | N/A | SDG11S8♦ | **2528.00** | SDW11S8♦ | **3564.00** | SDA21S8♦ | SDA11S8♦ | **2178.00** |
| 460 (480) | 5 | 0 | N/A | SBG11S8♦ | **1656.00** | SBW11S8♦ | **3738.00** | SBA21S8♦ | SBA11S8♦ | **2285.00** |
| | 10 | 1 | N/A | SCG11S8♦ | **1728.00** | SCW11S8♦ | **3807.00** | SCA21S8♦ | SCA11S8♦ | **2327.00** |
| | 25 | 2 | N/A | SDG11S8♦ | **2528.00** | SDW11S8♦ | **3564.00** | SDA21S8♦ | SDA11S8♦ | **2178.00** |
| 575 (600) | 5 | 0 | N/A | SBG11S8♦ | **1656.00** | SBW11S8♦ | **3738.00** | SBA21S8♦ | SBA11S8♦ | **2285.00** |
| | 10 | 1 | N/A | SCG11S8♦ | **1728.00** | SCW11S8♦ | **3807.00** | SCA21S8♦ | SCA11S8♦ | **2327.00** |
| | 25 | 2 | N/A | SDG11S8♦ | **2528.00** | SDW11S8♦ | **3564.00** | SDA21S8♦ | SDA11S8♦ | **2178.00** |
| **Class 8538 Fusible Disconnect Switch Type—NEMA Size 0–2■□** | | | | | | | | | | |
| 200 (208) | 3 | 0 | 30 | SBG12S8♦ | **1700.00** | SBW12S8♦ | **3780.00** | SBA22S8♦ | SBA12S8♦ | **2327.00** |
| | 5 | 1 | 30 | SCG12S8♦ | **1772.00** | SCW12S8♦ | **3851.00** | SCA22S8♦ | SCA12S8♦ | **2370.00** |
| | 7-1/2 | 1 | 60 | SCG13S8♦ | **1800.00** | SCW13S8♦ | **3879.00** | SCA23S8♦ | SCA13S8♦ | **2399.00** |
| | 10 | 2 | 60 | SDG12S8♦ | **2583.00** | SDW12S8♦ | **5403.00** | SDA22S8♦ | SDA12S8♦ | **3324.00** |
| 230 (240) | 3 | 0 | 30 | SBG12S8♦ | **1700.00** | SBW12S8♦ | **3780.00** | SBA22S8♦ | SBA12S8♦ | **2327.00** |
| | 5 | 1 | 30 | SCG12S8♦ | **1772.00** | SCW12S8♦ | **3851.00** | SCA22S8♦ | SCA12S8♦ | **2370.00** |
| | 7-1/2 | 1 | 60 | SCG13S8♦ | **1800.00** | SCW13S8♦ | **3879.00** | SCA23S8♦ | SCA13S8♦ | **2399.00** |
| | 15 | 2 | 60 | SDG12S8♦ | **2583.00** | SDW12S8♦ | **5403.00** | SDA22S8♦ | SDA12S8♦ | **3324.00** |
| 460 (480) | 5 | 0 | 30 | SBG13S8♦ | **1728.00** | SBW13S8♦ | **3807.00** | SBA23S8♦ | SBA13S8♦ | **2357.00** |
| | 10 | 1 | 30 | SCG14S8♦ | **1800.00** | SCW14S8♦ | **3879.00** | SCA24S8♦ | SCA14S8♦ | **2399.00** |
| | 15 | 2 | 30 | SDG16S8♦ | **2597.00** | SDW16S8♦ | **5418.00** | SDA26S8♦ | SDA16S8♦ | **3338.00** |
| | 25 | 2 | 60 | SDG14S8♦ | **2627.00** | SDW14S8♦ | **5445.00** | SDA24S8♦ | SDA14S8♦ | **3366.00** |
| 575 (600) | 5 | 0 | 30 | SBG13S8♦ | **1728.00** | SBW13S8♦ | **3807.00** | SBA23S8♦ | SBA13S8♦ | **2357.00** |
| | 10 | 1 | 30 | SCG14S8♦ | **1800.00** | SCW14S8♦ | **3879.00** | SCA24S8♦ | SCA14S8♦ | **2399.00** |
| | 15 | 2 | 30 | SDG16S8♦ | **2597.00** | SDW16S8♦ | **5418.00** | SDA26S8♦ | SDA16S8♦ | **3338.00** |
| | 25 | 2 | 60 | SDG14S8♦ | **2627.00** | SDW14S8♦ | **5445.00** | SDA24S8♦ | SDA14S8♦ | **3366.00** |
| **Class 8538 Fusible Disconnect Switch Type with Class R Fuse Clips—NEMA Size 0–2■□** | | | | | | | | | | |
| 200 (208) | 3 | 0 | 30 | SBG32S8♦ | **1722.00** | SBW32S8♦ | **3753.00** | SBA42S8♦ | SBA32S8♦ | **2348.00** |
| | 5 | 1 | 30 | SCG32S8♦ | **1794.00** | SCW32S8♦ | **3873.00** | SCA42S8♦ | SCA32S8♦ | **2390.00** |
| | 7-1/2 | 1 | 60 | SCG33S8♦ | **1821.00** | SCW33S8♦ | **3900.00** | SCA43S8♦ | SCA33S8♦ | **2420.00** |
| | 10 | 2 | 60 | SDG32S8♦ | **2604.00** | SDW32S8♦ | **5426.00** | SDA42S8♦ | SDA32S8♦ | **3344.00** |
| 230 (240) | 3 | 0 | 30 | SBG32S8♦ | **1722.00** | SBW32S8♦ | **3753.00** | SBA42S8♦ | SBA32S8♦ | **2348.00** |
| | 5 | 1 | 30 | SCG32S8♦ | **1794.00** | SCW32S8♦ | **3873.00** | SCA42S8♦ | SCA32S8♦ | **2390.00** |
| | 7-1/2 | 1 | 60 | SCG33S8♦ | **1821.00** | SCW33S8♦ | **3900.00** | SCA43S8♦ | SCA33S8♦ | **2420.00** |
| | 15 | 2 | 60 | SDG32S8♦ | **2604.00** | SDW32S8♦ | **5426.00** | SDA42S8♦ | SDA32S8♦ | **3344.00** |
| 460 (480) | 5 | 0 | 30 | SBG33S8♦ | **1751.00** | SBW33S8♦ | **3830.00** | SBA43S8♦ | SBA33S8♦ | **2376.00** |
| | 10 | 1 | 30 | SCG34S8♦ | **1821.00** | SCW34S8♦ | **3900.00** | SCA44S8♦ | SCA34S8♦ | **2420.00** |
| | 15 | 2 | 30 | SDG36S8♦ | **2619.00** | SDW36S8♦ | **5439.00** | SDA46S8♦ | SDA36S8♦ | **3360.00** |
| | 25 | 2 | 60 | SDG34S8♦ | **2646.00** | SDW34S8♦ | **5468.00** | SDA44S8♦ | SDA34S8♦ | **3387.00** |
| 575 (600) | 5 | 0 | 30 | SBG33S8♦ | **1751.00** | SBW33S8♦ | **3830.00** | SBA43S8♦ | SBA33S8♦ | **2376.00** |
| | 10 | 1 | 30 | SCG34S8♦ | **1821.00** | SCW34S8♦ | **3900.00** | SCA44S8♦ | SCA34S8♦ | **2420.00** |
| | 15 | 2 | 30 | SDG36S8♦ | **2619.00** | SDW36S8♦ | **5439.00** | SDA46S8♦ | SDA36S8♦ | **3360.00** |
| | 25 | 2 | 60 | SDG34S8♦ | **2646.00** | SDW34S8♦ | **5468.00** | SDA44S8♦ | SDA34S8♦ | **3387.00** |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ For NEMA Size 3–5 starters in oversized NEMA 1, 4 or 12 enclosures, contact factory for pricing and TAG number.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown to the right.
Note: Some control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

**Table 16.86: Class 8538 Fusible Disconnect Switch Type for Horizontal Mounting□**

| Ratings | | | | NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Fuse Clip Size (A) | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 2 | 1 | 30 | SCA22S1★ | SCA12S1★ | **1754.00** |
| | 7-1/2 | | 60 | SCA23S1★ | SCA13S1★ | **1781.00** |
| 230 (240) | 2 | 1 | 30 | SCA22S1★ | SCA12S1★ | **1754.00** |
| | 7-1/2 | | 60 | SCA23S1★ | SCA13S1★ | **1781.00** |
| 460 (480) | 10 | 1 | 30 | SCA24S1★ | SCA14S1★ | **1781.00** |
| 575 (600) | 10 | 1 | 30 | SCA24S1★ | SCA14S1★ | **1781.00** |

★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection Table 16.87.

**Table 16.87: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24△▼ | — | V01 | No Charge |
| 120△ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

▼ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8538SBG1158V01S).
△ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** supply motor voltage when ordering (i.e., order as 8538SCG1158V02S).
□ Not included in Laser™ Delivery program.
Note: For voltage codes used with control transformers, see page 16-101.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## Electronic Motor Circuit Protector (MCP)
## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.88: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relay**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Hp Range Poly-phase | NEMA Size | Circuit Breaker (See Page 7-32 for Breaker Adjustment Range) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 1/4–3 | 0 | HLL36030M71 | SBG43♦ | **1814.00** | SBW43♦ | **3182.00** | \SBW53♦ | **3653.00** | SBA53♦ | SBA43♦ | **2156.00** |
| | 1/4–5<br>7-1/2 | 1 | HLL36030M71<br>HLL36050M72 | SCG44♦<br>SCG45♦ | **1886.00** | SCW44♦<br>SCW45♦ | **3252.00** | SCW54♦<br>SCW55♦ | **3738.00** | SCA54♦<br>SCA55♦ | SCA44♦<br>SCA45♦ | **2228.00** |
| | 1-1/2–5<br>7-1/2–10 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **2669.00** | SDW42♦<br>SDW43♦ | **4778.00** | SDW52♦<br>SDW53♦ | **5255.00** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **3153.00** |
| | 15–25 | 3 | HLL36100M73 | SEG42♦ | **3879.00** | SEW42♦ | **7554.00** | SEW52♦ | **8310.00** | SEA52♦ | SEA42♦ | **4505.00** |
| | 30–40 | 4 | JLL36250M75 | SFG44♦ | **8508.00** | SFW44♦ | **13208.00** | SFW54♦ | **14534.00** | SFA54♦ | SFA44♦ | **10245.00** |
| | 50–60<br>70 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **19724.00** | SGW44♦<br>SGW45♦ | **31716.00** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **22859.00** |
| | 100<br>125–150 | 6 | LJL36400M36<br>LJL36600M42 | SHG43♦<br>SHG45♦ | **42825.00** | SHW43♦<br>SHW45♦ | **49946.00** | —<br>— | — | SHA53♦<br>SHA55♦ | SHA43♦<br>SHA45♦ | **46670.00** |
| 230 (240) | 1/4–3 | 0 | HLL36030M71 | SBG43♦ | **1814.00** | SBW43♦ | **3182.00** | SBW53♦ | **3653.00** | SBA53♦ | SBA43♦ | **2156.00** |
| | 1/4–7-1/2 | 1 | HLL36030M71 | SCG44♦ | **1886.00** | SCW44♦ | **3182.00** | SCW54♦ | **3738.00** | SCA54♦ | SCA44♦ | **2228.00** |
| | 1-1/2–7-1/2<br>10<br>15 | 2 | HLL36030M71<br>HLL36050M72<br>HLL36100M73 | SDG42♦<br>SDG43♦<br>SDG44♦ | **2669.00** | SDW42♦<br>SDW43♦<br>SDW44♦ | **4778.00** | SDW52♦<br>SDW53♦<br>SDW54♦ | **5255.00** | SDA52♦<br>SDA53♦<br>SDA54♦ | SDA42♦<br>SDA43♦<br>SDA44♦ | **3153.00** |
| | 15–30 | 3 | HLL36100M73 | SEG42♦ | **3879.00** | SEW42♦ | **7554.00** | SEW52♦ | **8310.00** | SEA52♦ | SEA42♦ | **4505.00** |
| | 40–50 | 4 | JLL36250M75 | SFG44♦ | **8508.00** | SFW44♦ | **13208.00** | SFW54♦ | **14534.00** | SFA54♦ | SFA44♦ | **10245.00** |
| | 60<br>75–100 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG46♦ | **19724.00** | SGW44♦<br>SGW45♦ | **31716.00** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **22859.00** |
| | 125–150<br>200 | 6 | LJL36600M42<br>PLL34080M68 | SHG45♦<br>SHG46♦ | **42825.00** | SHW45♦<br>SHW46♦ | **49946.00** | —<br>— | — | SHA55♦<br>SHA56♦ | SHA45♦<br>SHA46♦ | **46670.00** |
| | 250–300 | 7 | PLL36100M69 | SJA43♦ | **57837.00** | SJW43♦ | **64958.00** | — | — | SJA53♦ | — | **61682.00** |

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.89: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . page 16-42
Factory Modifications (Forms). . . . . page 16-100
Replacement Parts (Class 9998) . . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108



NEMA Type 1 Enclosure with 30 mm Operators




Refer to page 16-31 for details.

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## Electronic Motor Circuit Protector (MCP)
## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.90: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Hp Range Poly-phase | NEMA Size | Circuit Breaker (See Page 7-32 for Breaker Adjustment Range) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 460 (480) | 1/4–5 | 0 | HLL36030M71 | SBG43♦ | **1814.** | SBW43♦ | **3182.** | SBW53♦ | **3653.** | SBA53♦ | SBA43♦ | **2156.** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44♦ | **1886.** | SCW44♦ | **3252.** | SCW54♦ | **3738.** | SCA54♦ | SCA44♦ | **2228.** |
| | 5–15<br>20–25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **2669.** | SDW42♦<br>SDW43♦ | **4778.** | SDW52♦<br>SDW53♦ | **5255.** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **3153.** |
| | 20–25<br>30–50 | 3 | HLL36050M72<br>HLL36100M73 | SEG41♦<br>SEG42♦ | **3879.** | SEW41♦<br>SEW42♦ | **7554.** | SEW51♦<br>SEW52♦ | **8310.** | SEA51♦<br>SEA52♦ | SEA41♦<br>SEA42♦ | **4505.** |
| | 60–100 | 4 | JLL36250M75 | SFG44♦ | **8508.** | SFW44♦ | **13208.** | SFW54♦ | **14534.** | SFA54♦ | SFA44♦ | **10245.** |
| | 125<br>150–200 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **19724.** | SGW44♦<br>SGW45♦ | **31716.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **22859.** |
| | 250–350<br>400 | 6 | LJL36600M42<br>PLL34080M68 | SHG45♦<br>SHG46♦ | **42825.** | SHW45♦<br>SHW46♦ | **49946.** | —<br>— | — | SHA55♦<br>SHA56♦ | SHA45♦<br>SHA46♦ | **46670.** |
| | 500<br>600 | 7 | PLL36080M68<br>PLL36100M69 | SJA42♦<br>SJA43♦ | **57837.** | SJW42♦<br>SJW43♦ | **64958.** | —<br>— | — | SJA52♦<br>SJA53♦ | —<br>— | **61682.** |
| 575 (600) | 1/4–5 | 0 | HLL36030M71 | SBG43♦ | **1814.** | SBW43♦ | **3182.** | SBW53♦ | **3653.** | SBA53♦ | SBA43♦ | **2156.** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44♦ | **1886.** | SCW44♦ | **3252.** | SCW54♦ | **3738.** | SCA54♦ | SCA44♦ | **2228.** |
| | 5–20<br>25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **2669.** | SDW42♦<br>SDW43♦ | **4778.** | SDW52♦<br>SDW53♦ | **5255.** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **3153.** |
| | 25–30<br>40–50 | 3 | HLL36050M72<br>HLL36100M73 | SEG41♦<br>SEG42♦ | **3879.** | SEW41♦<br>SEW42♦ | **7554.** | SEW51♦<br>SEW52♦ | **8310.** | SEA51♦<br>SEA52♦ | SEA41♦<br>SEA42♦ | **4505.** |
| | 60–100 | 4 | JLL36250M75 | SFG44♦ | **8508.** | SFW44♦ | **13208.** | SFW54♦ | **14534.** | SFA54♦ | SFA44♦ | **10245.** |
| | 125–150<br>200 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **19724.** | SGW44♦<br>SGW45♦ | **31716.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **22859.** |
| | 250<br>300–400 | 6 | LJL36400M36<br>LJL36600M42 | SHG43♦<br>SHG45♦ | **42825.** | SHW43♦<br>SHW45♦ | **49946.** | —<br>— | — | SHA53♦<br>SHA55♦ | SHA43♦<br>SHA45♦ | **46670.** |
| | 500–600 | 7 | PLL34100M69 | SJG41♦ | **57837.** | SJW41♦ | **64958.** | — | — | SJA51♦ | — | **61682.** |

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.91: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . page 16-42
Factory Modifications (Forms) . . . . . page 16-100
Replacement Parts (Class 9998) . . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.

3 or 5 Days Laser Delivery

Refer to page 16-31 for details.





© 2012 Schneider Electric
All Rights Reserved

## Electronic Motor Circuit Protectors (MCP) in Oversized Enclosure
## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.92: Electronic Motor Circuit Protectors (MCP) in Oversized Enclosure, NEMA Size 0–2■△ Full Voltage Type, Non-Reversing with Melting Alloy Overload Relays**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Hp Range Poly-phase | NEMA Size | Circuit Breaker (See Page 7-32 for Breaker Adjustment Range) | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 1/4–3 | 0 | HLL36030M71 | SBG43S8♦ | **2169.00** | SBW43S8♦ | **4248.00** | SBA53S8♦ | SBA43S8♦ | **2798.00** |
| | 1/4–5<br>71/2 | 1 | HLL36030M71<br>HLL36050M72 | SCG44S8♦<br>SCG45S8♦ | **2241.00** | SCW44S8♦<br>SCW45S8♦ | **4320.00** | SCA54S8♦<br>SCA55S8♦ | SCA44S8♦<br>SCA45S8♦ | **2867.00** |
| | 1-1/2–5<br>71/2–10 | 2 | HLL36030M71<br>HLL36050M72 | SDG42S8♦<br>SDG43S8♦ | **3024.00** | SDW42S8♦<br>SDW43S8♦ | **5844.00** | SDA52S8♦<br>SDA53S8♦ | SDA42S8♦<br>SDA43S8♦ | **3794.00** |
| 230 (240) | 1/4–3 | 0 | HLL36030M71 | SBG43S8♦ | **2169.00** | SBW43S8♦ | **4248.00** | SBA53S8♦ | SBA43S8♦ | **2798.00** |
| | 1/4–7-1/2 | 1 | HLL36030M71 | SCG44S8♦ | **2241.00** | SCW44S8♦ | **4320.00** | SCA54S8♦ | SCA44S8♦ | **3867.00** |
| | 1-1/2–7-1/2<br>10<br>15 | 2 | HLL36030M71<br>HLL36050M72<br>HLL36100M73 | SDG42S8♦<br>SDG43S8♦<br>SDG44S8♦ | **3024.00** | SDW42S8♦<br>SDW43S8♦<br>SDW44S8♦ | **5844.00** | SDA52S8♦<br>SDA53S8♦<br>SDA54S8♦ | SDA42S8♦<br>SDA43S8♦<br>SDA44S8♦ | **3794.00** |
| 460 (480) | 1/4–5 | 0 | HLL36030M71 | SBG43S8♦ | **2169.00** | SBW43S8♦ | **4248.00** | SBA53S8♦ | SBA43S8♦ | **2798.00** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44S8♦ | **2241.00** | SCW44S8♦ | **4320.00** | SCA54S8♦ | SCA44S8♦ | **2867.00** |
| | 5–15<br>20–25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42S8♦<br>SDG43S8♦ | **3024.00** | SDW42S8♦<br>SDW43S8♦ | **5855.00** | SDA52S8♦<br>SDA53S8♦ | SDA42S8♦<br>SDA43S8♦ | **3794.00** |
| 575 (600) | 1/4–5 | 0 | HLL36060M71 | SBG43S8♦ | **2169.00** | SBW43S8♦ | **4248.00** | SBA53S8♦ | SBA43S8♦ | **2798.00** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44S8♦ | **2241.00** | SCW44S8♦ | **4320.00** | SCA54S8♦ | SCA44S8♦ | **3867.00** |
| | 5–20<br>25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42S8♦<br>SDG43S8♦ | **3024.00** | SDW42S8♦<br>SDW43S8♦ | **5844.00** | SDA52S8♦<br>SDA53S8♦ | SDA42S8♦<br>SDA43S8♦ | **3794.00** |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ For NEMA Size 3–5 starters in oversized NEMA 1, 4 or 12 enclosures, contact factory for pricing and TAG number.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.93: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41S8V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG41S8V02S).
△ Not included in Laser™ Delivery program.
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . .page 16-42
Factory Modifications (Forms) . . . . . .page 16-100
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 0-6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.94: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays**

| Ratings | | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Circuit Breaker | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | Type | Ampere Rating | | | | | | | Type | Type | |
| 200 (208) | 2<br>3 | 0 | HLL36015<br>HLL36020 | 15<br>20 | SBG1♦<br>SBG3♦ | **1400.** | SBW1♦<br>SBW3♦ | **2768.** | SBW11♦<br>SBW13♦ | **3182.** | SBA11♦<br>SBA13♦ | SBA1♦<br>SBA3♦ | **1742.** |
| | 5<br>7-1/2 | 1 | HLL36035<br>HLL36050 | 35<br>50 | SCG5♦<br>SCG2♦ | **1472.** | SCW5♦<br>SCW2♦ | **2840.** | SCW15♦<br>SCW12♦ | **3267.** | SCA15♦<br>SCA12♦ | SCA5♦<br>SCA2♦ | **1814.** |
| | 10 | 2 | HLL36060 | 60 | SDG1♦ | **2255.** | SDW1♦ | **4364.** | SDW11♦ | **4805.** | SDA11♦ | SDA1♦ | **2739.** |
| | 15<br>20<br>25 | 3 | HLL36100<br>HLL36125<br>HLL36150 | 100<br>125<br>150 | SEG3♦<br>SEG1♦<br>SEG5♦ | **3879.** | SEW3♦<br>SEW1♦<br>SEW5♦ | **7554.** | SEW13♦<br>SEW11♦<br>SEW15♦ | **8310.** | SEA13♦<br>SEA11♦<br>SEA15♦ | SEA3♦<br>SEA1♦<br>SEA5♦ | **4505.** |
| | 30<br>40 | 4 | JLL36200<br>JLL36250 | 200<br>250 | SFG3♦<br>SFG4♦ | **8508.** | SFW3♦<br>SFW4♦ | **13208.** | SFW13♦<br>SFW14♦ | **14534.** | SFA13♦<br>SFA14♦ | SFA3♦<br>SFA4♦ | **10245.** |
| | 50<br>60–75 | 5 | JLL36250<br>LLL36400E20 | 250<br>400 | SGG6♦<br>SGG4♦ | **19724.** | SGW6♦<br>SGW4♦ | **31716.** | —<br>— | — | SGA16♦<br>SGA14♦ | SGA6♦<br>SGA4♦ | **22859.** |
| | 100–125<br>150 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | **42825.** | SHW4♦<br>SHW5♦ | **49946.** | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | **46670.** |
| 230 (240) | 2<br>3 | 0 | HLL36015<br>HLL36020 | 15<br>20 | SBG1♦<br>SBG3♦ | **1400.** | SBW1♦<br>SBW3♦ | **2768.** | SBW11♦<br>SBW13♦ | **3182.** | SBA11♦<br>SBA13♦ | SBA1♦<br>SBA3♦ | **1742.** |
| | 5<br>7-1/2 | 1 | HLL36035<br>HLL36045 | 35<br>45 | SCG5♦<br>SCG6♦ | **1472.** | SCW5♦<br>SCW6♦ | **2840.** | SCW15♦<br>SCW16♦ | **3267.** | SCA15♦<br>SCA16♦ | SCA1♦<br>SCA6♦ | **1814.** |
| | 10<br>15 | 2 | HLL36060<br>HLL36090 | 60<br>90 | SDG1♦<br>SDG7♦ | **2255.** | SDW1♦<br>SDW7♦ | **4364.** | SDW11♦<br>SDW17♦ | **4805.** | SDA11♦<br>SDA17♦ | SDA1♦<br>SDA7♦ | **2739.** |
| | 20<br>25–30 | 3 | HLL36100<br>HLL36150 | 100<br>150 | SEG3♦<br>SEG5♦ | **3879.** | SEW3♦<br>SEW5♦ | **7554.** | SEW13♦<br>SEW15♦ | **8310.** | SEA13♦<br>SEA15♦ | SEA3♦<br>SEA5♦ | **4505.** |
| | 40<br>50 | 4 | JLL36225<br>JLL36250 | 225<br>250 | SFG1♦<br>SFG4♦ | **8508.** | SFW1♦<br>SFW4♦ | **13208.** | SFW11♦<br>SFW14♦ | **14534.** | SFA11♦<br>SFA14♦ | SFA1♦<br>SFA4♦ | **10245.** |
| | 60<br>75<br>100 | 5 | JLL36250<br>LLL36400E20<br>LLL36600E20 | 250<br>400<br>600 | SGG6♦<br>SGG4♦<br>SGG2♦ | **19724.** | SGW6♦<br>SGW4♦<br>SGW2♦ | **31716.** | —<br>—<br>— | — | SGA16♦<br>SGA14♦<br>SGA12♦ | SGA6♦<br>SGA4♦<br>SGA2♦ | **22859.** |
| | 125<br>150–200 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | **42825.** | SHW4♦<br>SHW5♦ | **49946.** | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | **46670.** |
| | 250–300 | 7 | PKL36100 | 1200 | SJG3♦ | **57837.** | SJW3♦ | **64958.** | — | — | SJA13♦ | — | **61682.** |

▲ NEMA Size 6 & 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

**Table 16.95: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG1V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG5V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions. . . . . page 16-42
Factory Modifications (Forms) . . . . . page 16-100
Replacement Parts (Class 9998). . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.

3 or 5 Days
Laser Delivery

Refer to page 16-31 for details.





© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00-6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.96: Line Voltage Type, Non-Reversing, with Melting Alloy Overload Relays**

| Ratings | | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Circuit Breaker | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | Type | Ampere Rating | | | | | | | Type | Type | |
| 460 (480) | 5 | 0 | HLL36015 | 15 | SBG1♦ | **1814.** | SBW1♦ | **3182.** | SBW11♦ | **3653.** | SBA11♦ | SBA1♦ | **2156.** |
| | 7-1/2 10 | 1 | HLL36025 HLL36030 | 25 30 | SCG3♦ SCG7♦ | **1886.** | SCW3♦ SCW7♦ | **3252.** | SCW13♦ SCW17♦ | **3738.** | SCA13♦ SCA17♦ | SCA3♦ SCA7♦ | **2228.** |
| | 15 20 25 | 2 | HLL36045 HLL36060 HLL36070 | 45 60 70 | SDG3♦ SDG1♦ SDG5♦ | **2669.** | SDW3♦ SDW1♦ SDW5♦ | **4778.** | SDW13♦ SDW11♦ SDW15♦ | **5255.** | SDA13♦ SDA11♦ SDA15♦ | SDA3♦ SDA1♦ SDA5♦ | **3153.** |
| | 30 40 50 | 3 | HLL36080 HLL36100 HLL36150 | 80 100 150 | SEG7♦ SEG3♦ SEG5♦ | **3879.** | SEW7♦ SEW3♦ SEW5♦ | **7554.** | SEW17♦ SEW13♦ SEW15♦ | **8310.** | SEA17♦ SEA13♦ SEA15♦ | SEA7♦ SEA3♦ SEA5♦ | **4505.** |
| | 60 75 100 | 4 | JLL36150 JLL36200 JLL36250 | 150 200 250 | SFG5♦ SFG3♦ SFG4♦ | **8508.** | SFW5♦ SFW3♦ SFW4♦ | **13208.** | SFW15♦ SFW13♦ SFW14♦ | **14534.** | SFA15♦ SFA13♦ SFA14♦ | SFA5♦ SFA3♦ SFA4♦ | **10245.** |
| | 125–150 200 | 5 | LLL36400E20 LLL36600E20 | 400 600 | SGG4♦ SGG2♦ | **19724.** | SGW4♦ SGW2♦ | **31716.** | — — | — | SGA14♦ SGA12♦ | SGA4♦ SGA2♦ | **22859.** |
| | 250 300–400 | 6 | LLL36600E20 MJL36800 | 600 800 | SHG4♦ SHG5♦ | **42825.** | SHW4♦ SHW5♦ | **49946.** | — — | — | SHA14♦ SHA15♦ | SHA4♦ SHA5♦ | **46670.** |
| | 500–600 | 7 | PLL36120 | 1200 | SJG3♦ | **57837.** | SJW3♦ | **64958.** | — | — | SJA13♦ | — | **61682.** |
| 575 (600) | 5 | 0 | HLL36015 | 15 | SBG1♦ | **1814.** | SBW1♦ | **3182.** | SBW11♦ | **3653.** | SBA11♦ | SBA1♦ | **2156.** |
| | 7-1/2 10 | 1 | HLL36020 HLL36025 | 20 25 | SCG8♦ SCG3♦ | **1886.** | SCW8♦ SCW3♦ | **3252.** | SCW18♦ SCW13♦ | **3738.** | SCA18♦ SCA13♦ | SCA8♦ SCA3♦ | **2228.** |
| | 15 20 25 | 2 | HLL36035 HLL36045 HLL36060 | 35 45 60 | SDG8♦ SDG3♦ SDG1♦ | **2669.** | SDW8♦ SDW3♦ SDW1♦ | **4778.** | SDW18♦ SDW13♦ SDW11♦ | **5255.** | SDA18♦ SDA13♦ SDA11♦ | SDA8♦ SDA3♦ SDA1♦ | **3153.** |
| | 30 40 50 | 3 | HLL36070 HLL36090 HLL36100 | 70 90 100 | SEG4♦ SEG6♦ SEG3♦ | **3879.** | SEW4♦ SEW6♦ SEW3♦ | **7554.** | SEW14♦ SEW16♦ SEW13♦ | **8310.** | SEA14♦ SEA16♦ SEA13♦ | SEA4♦ SEA6♦ SEA3♦ | **4505.** |
| | 60–75 100 | 4 | JLL36150 JLL36250 | 150 250 | SFG5♦ SFG4♦ | **8508.** | SFW5♦ SFW4♦ | **13208.** | SFW15♦ SFW14♦ | **14534.** | SFA15♦ SFA14♦ | SFA5♦ SFA4♦ | **10245.** |
| | 125–150 200 | 5 | JLL36250 LLL36400E20 | 250 400 | SGG6♦ SGG4♦ | **19724.** | SGW6♦ SGW4♦ | **31716.** | — — | — | SGA16♦ SGA14♦ | SGA6♦ SGA4♦ | **22859.** |
| | 250–350 400 | 6 | LLL36600E20 MJL36800 | 600 800 | SHG4♦ SHG5♦ | **42825.** | SHW4♦ SHW5♦ | **49946.** | — — | — | SHA14♦ SHA15♦ | SHA4♦ SHA5♦ | **46670.** |
| | 500–600 | 7 | PKL36100 | 1200 | SJG2♦ | **57837.** | SJW2♦ | **64958.** | — | — | SJA12♦ | — | **61682.** |

**Table 16.97: Thermal Magnetic Circuit Breaker Type, Single Phase★▼**

| Motor Voltage | Max. Hp | Coil Voltage | NEMA Size | Poles | Circuit Breaker (Type) | Ampere Rating | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–2) | | NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | With External Reset | Without External Reset | $ Price |
| | | | | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | Type | |
| 120 | 1 2 3 | 120 | 0 1 2 | 2 | HLL26030 HLL26050 HLL26080 | 30 50 80 | SBG72V02 SCG72V02 SDG71V02 | **1400.00 1474.00 2255.00** | SBW72V02 SCW72V02 SDW71V02 | **2768.00 2840.00 4364.00** | SBW75V02 SCW75V02 SDW74V02 | **3182.00 3267.00 4805.00** | SBA75V02 SCA75V02 SDA74V02 | SBA72V02 SCA72V02 SDA71V02 | **1742.00 1814.00 2739.00** |
| 240 | 2 3 7.5 | 240 | 0 1 2 | 2 | HLL26025 HLL26035 HLL26080 | 25 35 80 | SBG71V03 SCG71V03 SDG71V03 | **1400.00 1474.00 2255.00** | SBW71V03 SCW71V03 SDW71V03 | **2768.00 2840.00 4364.00** | SBW74V03 SCW74V03 SDW74V03 | **3182.00 3267.00 4805.00** | SBA74V03 SCA74V03 SDA74V03 | SBA71V03 SCA71V03 SDA71V03 | **1742.00 1814.00 2739.00** |

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-38.
★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

For How to Order Information, see page 16-13.




Refer to page 16-31 for details.



© 2012 Schneider Electric
All Rights Reserved

## Application Data

### Table 16.98: Class 8539—UL Listed Short Circuit Ratings

| Motor Circuit Protector Type | | | |
|---|---|---|---|
| NEMA Size | Enclosure | AIC at 480 Vac (RMS) | AIC at 600 Vac (RMS) |
| 0, 1 | Standard▲ | 100,000 | 35,000 |
| 2 thru 5 | Standard▲ | 100,000 | 50,000 |
| 6 | Standard▲ | 65,000 | 18,000 |
| 7 | Standard▲ | 65,000 | 30,000 |

▲ Standard enclosure includes: NEMAs 1, 4 & 4X stainless and 12/3R.

### Table 16.99: Electronic Motor Circuit Protector (MCP) Selection by HP Ratings of Induction-type Squirrel-Cage Motors

| 3Ø 60 Hz Voltages | | | | Full-Load (A) | Suffix |
|---|---|---|---|---|---|
| 200 Vac | 230 Vac | 460 Vac | 575 Vac | | |
| .5–5 | .5–7.5 | .75–15 | 1–20 | 1.5–25 | M71 |
| 5–10 | 5–15 | 10–30 | 15–40 | 14–42 | M72 |
| 10–25 | 15–30 | 25–60 | 30–75 | 30–80 | M73 |
| 20–40 | 25–50 | 50–100 | 60–125 | 58–130 | M74 |
| 40–60 | 50–75 | 100–150 | 125–200 | 114–217 | M75 |

Note: The MCP adjustable trip range is determined by the suffix of the circuit breaker catalog number. Table 16.99 indicates the trip range which corresponds to a given suffix number. The MCP Motor Circuit Protector should be adjusted to a level just above Locked-Rotor Current of the motor. This setting will provide optimum overcurrent protection for the motor. For more information on MCP instantaneous trip circuit breakers, refer to the MCP circuit breaker section of this Catalog.

### Table 16.100: UL Listed Short Circuit Ratings

| Thermal Magnetic Circuit Breaker Type | | | |
|---|---|---|---|
| NEMA Size | Enclosure | AIC at 480 Vac (RMS) | AIC at 600 Vac (RMS) |
| 0, 1 | Standard■ | 100,000 | 35,000 |
| 2 thru 5 | Standard■ | 100,000 | 50,000 |
| 6 | Standard■ | 65,000 | 18,000 |
| 7 | Standard■ | 65,000 | 30,000 |

■ Standard enclosure includes: NEMAs 1, 4 & 4X stainless and 12/3R.

### Table 16.101: Class 8538—UL Listed Short Circuit Ratings

| NEMA Size | NEMA Fuse Class | Enclosure | Available Amperes RMS Symmetrical |
|---|---|---|---|
| 0–3 | Class H or K | Standard♦ | 5,000 |
| 0–3 | Class R/J | Standard♦ | 100,000 |
| 0–2 | Class H or K | Oversize | 5,000 |
| 0–2 | Class R/J | Standard | 100,000 |
| 4–5 | Class H or K | Standard♦ | 10,000 |
| 4–5 | Class R/J | Standard♦ | 100,000 |
| 6 | Class H or K | Standard♦ | 18,000 |
| 6 | Class R/J | Standard♦ | 100,000 |

♦ Standard enclosure includes non-oversize NEMAs 1, 4 & 4X Stainless, and 12.

### Table 16.102: Table 2: Motor Code Letter Table

| Horsepower | Motor Code Letters |
|---|---|
| 1/2 or less | A-L |
| 3/4–1-1/2 | A-K |
| 2–3 | A-J |
| 5–25 | A-H |
| 30–125 | A-G |
| 150 or more | A-F |

Note: The combination starter selection tables on pages 16-36–16-37 are suitable for motors with Locked-Rotor Current letters per NEC Table 430-7(b) as listed in Table 16.102. For other motors a special thermal magnetic circuit breaker with adjustable magnetic trip settings for the specific motor is required. When ordering for these special applications, specify the motor horsepower, voltage, frequency, full load current and code letter (or locked rotor current) to assure proper protection.

### Table 16.103: Terminals

| NEMA Size | Type | Line Terminals on Disconnect | | | Power Terminals On Magnetic Starter | | | Control Terminals On Magnetic Starter | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Type of Lug | Wire Range | | Type of Lug | Wire Range | Wires Per Terminal | Type of Lug | Wire Range | Wires Per Terminal |
| | | | Switch | Circuit Breaker | | | | | | |
| 0 & 1 | SB & SC | Box Lug | #14–1/0 Cu/Al | (1) 14-3/0 Al or Cu | Pressure Wire | #14–#8 Cu | 1 or 2 | Pressure Wire | #16–#12 Cu | 2 |
| 2 | SD | Box Lug | #14–1/0 Cu/Al | (1) 14-3/0 Al or Cu | Box Lug | #14–#4 Cu | 1 | Pressure Wire | #16–#12 Cu | 2 |
| 3 | SE | Box Lug | #14–1/0 Cu/Al | (1) 14-3/0 Al or Cu | Box Lug | #14–#0 Cu | 1 | Pressure Wire | #16–#12 Cu | 2 |
| 4 | SF | Box Lug | #6–300 MCM Cu/Al | (1) 4-4/0 Al or Cu ( JLL Breaker 150 A - 175 A )<br>(1) 3/0 - 350 MCM Al or Cu<br>( JLL Breaker 200 A - 250 A ) | Box Lug | #8–250 MCM Cu | 1 | Pressure Wire | #16–#12 Cu | 2 |
| 5 | SG | Box Lug | One #4–500 MCM Cu | (1) 2 - 500 MCM Al or (1) 2 - 350 MCM Cu (DJL36400 Breaker)<br>(2) 2/0 - 500 MCM Al or (2) 2/0 - 350 MCM Cu (DLL36600 Breaker)<br>(1) 3/0 - 350 MCM Al or (1) 3/0 - 350 MCM Cu (JLL36250 Breaker) | Box Lug | #4–500 MCM Cu | 1 | Pressure Wire | #16–#12 Cu | 2 |
| 6 | SH | Box Lug | — | (2) 2/0 - 500 MCM Al or (2) 2/0 - 350 MCM Cu (DJL36600 Breaker, DLL Breaker)<br>(1) 2 - 600 MCM Al or (1) 2 - 350 MCM Cu (DJL36400 Breaker)<br>(3) 3/0 - 500 MCM Al or (3) 3/0 - 350 MCM Cu (MJL36800 Breaker )<br>(3) 3/0 - 500 MCM Al or (3) 3/0 - 350 MCM Cu (PLL34080M68 Breaker) | Parallel Groove | 250–500 MCM Cu★ | 1 or 2 | Pressure Wire | #16–#12 Cu▼ | 2 |
| 7 | SJ | Box Lug | — | (4) 3/0 - 300 MCM Al or CU (PJL, PKL, PLL Breaker) | Parallel Groove | 250–500 MCM Cu | 1–4 | Pressure Wire | #16–#12 Cu | 2 |

★ Order Class 9999 Type SCU6 parts kit to convert power terminals to accept sizes 2/0–300 MCM wire.
▼ Terminal block range limited to #16–#14.





© 2012 Schneider Electric
All Rights Reserved

## Accessories

### Interlocks and Control Transformers

A one or two pole electrical interlock can be added to the disconnect switch or circuit breaker. Thus, if a separate control circuit is used, the magnetic starter can be de-energized when the disconnect is switched to the OFF position. See Table 16.104 for proper interlock selection. For electrical ratings of disconnect and circuit breaker interlocks, see Table 16.105 below.

An electrical interlock may also be factory installed in either a disconnect switch or circuit breaker combination starter. Specify **Form Y74** for single pole, or **Form Y75** for two pole interlocks. For pricing see factory modifications (Forms).



**Table 16.104: Disconnect Switch and Breaker Interlocks**

| Class | Type | SPDT (Y74) | | DPDT (Y75) | |
|---|---|---|---|---|---|
| | | Class 9999 Type | $ Price | Class 9999 Type | $ Price |
| 8538 | SB▲, SC▲, SD▲ (Series B) | R6 | 116.00 | R7 | 221.00 |
| 8538 & 8738 | SD (Series C) | R43 | 116.00 | R44 | 221.00 |
| | SB, SC (Series C) | R45 | 107.00 | R46 | 207.00 |
| | SE, SF (Series A) | R8 | 131.00 | R9 | 243.00 |
| | SE (Series B & C) | R41 | 131.00 | R42 | 243.00 |
| | SF (Series B & C) | R39 | 135.00 | R40 | 243.00 |
| | SG | R35 | 435.00 | R36 | 521.00 |
| 8539, 8739 | SB, SC, SD, SE, SF, SG (Series K) | R26 | 131.00 | R27 | 243.00 |
| 8538 | SBA, SCA, SBG, SCG (Series D and above) | TC11 | 120.00 | TC21 | 239.00 |
| 8538 | SBAS8, SCAS8, SBGS8, SCGS8 (Series D and above) | TC10 | 120.00 | TC20 | 239.00 |
| 8738 | SBAS8, SCAS8, SBGS8, SCGS8 (Series E and above) | TC10 | 120.00 | TC20 | 239.00 |
| 8738 | SBA, SCA, SBG, SCG (Series E and above) | TC11 | 120.00 | TC21 | 239.00 |
| 8538 | SDA, SDA▲, SDG, SDG▲ (Series D and above) | TC10 | 120.00 | TC20 | 239.00 |
| 8738 | SDA, SDG (Series E and above) | TC10 | 120.00 | TC20 | 239.00 |
| 8538, 8738 | SEA, SEG (Series D and above) | TC10 | 120.00 | TC20 | 239.00 |

▲ Class 8538 type numbers ending in suffix "S8".

**Table 16.105: Disconnect Switch and Breaker Interlock Electrical Ratings**

| Class 9999 Type R6, 8, 26, 35, 39, 41, 43, 45, TC10, & TC11 | | | | Class 9999 Type R7, 9, 27, 36, 40, 42, 44, 46 & TC 20, 21 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AC—50 or 60 Hz | | | | AC—50 or 60 Hz | | | | | |
| Volts | Maximum Current | | | Volts | Maximum Current | | | | |
| | Make | Break | Continuous Carrying Current (A) | | Make | | Break | | Continuous Carrying Current (A) |
| | (A) | (A) | | | (A) | VA | (A) | VA | |
| 120 | 40 | 15 | 15 | 120 | 30 | 3450 | 3 | 345 | 10 |
| 240 | 20 | 10 | 15 | 240 | 15 | 3450 | 1.5 | 345 | 10 |
| 480 | 10 | 6 | 15 | 480 | 7.5 | 3450 | .75 | 345 | 10 |
| 600 | 8 | 5 | 15 | 600 | 6 | 3450 | .6 | 345 | 10 |

**Table 16.106: Control Transformer Selection**

| NEMA Size | Starter Type | Standard★ Capacity (Form F4T) | 50 VA★ Additional Capacity (Form F4T10) | 100 VA★ Additional Capacity (Form F4T11) | 200 VA★ Additional Capacity (Form F4T12) |
|---|---|---|---|---|---|
| | | Class 9070 Type | Class 9070 Type | Class 9070 Type | Class 9070 Type |
| 0 & 1 | SB & SC | TF100 | TF150 | TF200 | TF300■ |
| 2 | SD | TF100 | TF150 | TF200 | TF300♦ |
| 3 | SE | TF150 | TF200 | TF300 | TF500 |
| 4 | SF | TF300 | TF300 | TF500 | T500 |
| 5 | SG | TF100 and 8501XO20 | TF100 and 8501XO20 | TF150 and 8501XO20 | TF300 and 8501XO20 |
| 6 | SH | EO3S2 is standard | N/A | EO3FS2 and T100 | EO3S2 and TF200 |
| 7 | SJ | EO19S2 is standard | N/A | EO19S2 and TF100 | EO3S2 and TF200 |

Note: 9070TF transformers are now standard in Series K combination starters.

■ Requires oversized enclosure. (Size 2 reversing enclosure.)

♦ Available in standard enclosure with Mag-Gard™ circuit breaker and non-fusible disconnect switch. Requires oversized enclosure with thermal-magnetic circuit breakers and fusible disconnect switches. (Size 2 reversing enclosure.)

★ Complete the contactor or starter Class and Type with Voltage Code, see page 16-101.

**Internal Auxiliary Switch—**Circuit breakers can be supplied with a factory installed auxiliary switch for remote indication of an open and/or tripped or a closed breaker. One (specify **Form Y741**) or two (specify **Form Y751**) auxiliary switches can be supplied. The switches are supplied with normally open and normally closed circuits with a common connection. Contacts must be used on the same polarity and are rated 15 A at 240 Vac. The auxiliary switches are located internally and are furnished with 19-20 inch long leads.

**Alarm Switch—**The alarm switch only operates when the breaker is tripped. It is used to actuate bell alarms and warning lights. The alarm switch is factory installed only (specify **Form Y742**) and consists of a single pole single throw switch which is normally open except when the breaker is tripped. The contacts are rated 4 A at 240 Vac. This switch is located in the breaker and is supplied with 19-20 inch long leads.

**Transformer Selection—**Space and drilling are provided in all disconnect switch and circuit breaker combination starters in NEMA 1, 4 & 4X stainless and polyester, 12 and 7 & 9 bolted enclosures for the field addition (or factory installation) of a Class 9070 control circuit transformer and Class 9999 Type SFR4 fuse holder. This kit can be either panel mounted or side mounted on the Type S starter. For standard control transformer selection in combination starters, see Table 16.106. Consult field office for transformer additions to NEMA 7 & 9 SPIN TOP™ enclosures. For secondary fuse holder order 9080PF1.

**Fuse Block Mounting Brackets—**The standard capacity transformer, Class 9070 Type T100, for the Size 0 and 1 starters mounts to the right of the magnetic starter.

**Standards—**Most combination starters and forms are UL Listed in file E152395, Category NKJH, and CSA File CR 584.



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.107: NEMA 1 Enclosure—Figure 1

| NEMA Size | Class | Type | Dimensions in Inches▲ | | | | | | | | | | | | | | | | Top & Bottom | | Sides | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | W | X | Y | |
| 0–1 | 8538 | SBG SCG | 9-1/2 | 22-1/2 | 8-11/32 | 6-3/8 | 20-1/2 | 14-21/32 | 1-13/16 | 1-11/16 | 3 | 2-5/16 | 1-1/16 | 3-1/4 | 2-3/16 | 1-1/4 | 7/8 | — | 1/2–3/4 | 1/2–3/4 | 1/2 | 38 |
| | 8539 | SBG SCG | 9-1/2 | 22-1/2 | 9-27/32 | 6-3/8 | 20-1/2 | 14-21/32 | 1-13/16 | 1-11/16 | 3 | 2-5/16 | 1-1/16 | 3-1/4 | 2-3/16 | 1-1/4 | 7/8 | — | 1/2–3/4 | 1/2–3/4 | 1/2 | 38 |
| 2 | 8538 & 8539 | SDG | 10-1/2 | 26 | 9-19/32 | 7-3/8 | 24 | 16-29/32 | 2-1/8 | 2 | 4 | 2-5/16 | 1-1/16 | 3-1/4 | 2-3/16 | 1-1/4 | 7/8 | — | 1–1-1/4 | 1/2–3/4 | 1/2 | 54 |

### Table 16.108: NEMA 1 Enclosure—Figure 2

| NEMA Size | Class | Type | Dimensions in Inches▲ | | | | | | | | | | | | | | | | Top & Bottom | | Sides | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | W | X | Y | |
| 3■ | 8538 & 8539 | SEG | 15-1/4 | 42 | 10-19/32 | 9-1/4 | 3 | 22-23/32 | 41 | 1/2 | — | 2-53/64 | 3-17/32 | 5 | 2-11/16 | 5-3/8 | 1-9/32 | 29/32 | 1–1-1/4<br>2–2-1/2 | 1/2–3/4 | 1/2 | 102 |
| 4 | 8538 | SFG | 16 | 52-1/2 | 10-17/32 | 10 | 3 | 23-21/32 | 51-1/2 | 1/2 | — | 2-53/64 | 3-17/32 | 5 | 2-11/16 | 5-3/8 | 1-9/32 | 29/32 | 2-1/2 | 1/2–3/4 | 1/2 | 163 |
| | 8539 | SFG | 16 | 52-1/2 | 10-17/32 | 10 | 3 | 23-21/32 | 51-1/2 | 1/2 | — | 2-53/64 | 3-17/32 | 5 | 2-11/16 | 5-3/8 | 1-9/32 | 29/32 | 2-1/2 | 1/2–3/4 | 1/2 | 163 |
| 5 | 8538 | SGG | 20 | 78 | 15-1/2 | 12 | 4 | 29-13/32 | 77 | 1/2 | — | 3-33/64 | 4-39/64 | 9-1/4 | 3-3/16 | — | — | — | 1/2–3/4♦ | 3 | — | 450 |
| | 8539 | SGG | 20 | 66 | 13-23/32 | 12 | 4 | 29-13/32 | 65 | 1/2 | — | 3-33/64 | 4-39/64 | 5 | 3-3/16 | — | — | — | 1/2–3/4 | 3 | — | 420 |
| 6▼ | 8538 & 8539 | SHG | 36 | 90 | 21-1/32 | — | — | 41-3/8 | — | — | — | — | — | 5 | — | — | — | — | — | — | — | — |

### Table 16.109: NEMA 12/3R Enclosure—Figure 3

| NEMA Size | Class | Type | Dimensions in Inches★ | | | | | | | | | | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | |
| 0–1 | 8538 | SBA SCA | 9-1/2 | 8-11/32 | 24 | 3-1/4 | 2-1/2 | 4-1/2 | 23-1/2 | 19/32 | 4-7/16 | 14-5/16 | 40 |
| | 8539 | SBA SCA | 9-1/2 | 9-27/32 | 24 | 3-1/4 | 2-1/2 | 4-1/2 | 23-1/2 | 19/32 | 4-7/16 | 14-5/16 | 40 |
| 2 | 8538 & 8539 | SDA | 10-1/2 | 9-19/32 | 27-3/4 | 3-1/4 | 2-1/2 | 5-1/2 | 27 | 3/8 | 4-1/8 | 16-9/16 | 55 |
| 3■ | 8538 & 8539 | SEA | 15-1/4 | 10-19/32 | 42 | 5 | 3 | 9-1/4 | 41 | 1/2 | 5-1/16 | 22-5/16 | 111 |
| 4 | 8538 | SFA | 16 | 10-17/32 | 52-1/2 | 5 | 3 | 10 | 51-1/2 | 1/2 | 4-3/16 | 22-31/32 | 170 |
| | 8539 | SFA | 16 | 10-17/32 | 52-1/2 | 5 | 3 | 10 | 51-1/2 | 1/2 | 5-3/16 | 22-31/32 | 170 |
| 5 | 8538 | SGA | 20 | 13-23/32 | 78 | 9-1/4 | 4 | 12 | 77 | 1/2 | 7-25/32 | 29-13/32 | — |
| | 8539 | SGA | 20 | 13-23/32 | 66 | 5 | 4 | 12 | 65 | 1/2 | 7-25/32 | 27-13/32 | 440 |
| 6▼ | 8538 & 8539 | SHA | 36 | 17 | 90 | 5 | — | — | — | — | — | 47-3/8 | — |

### Table 16.110: NEMA 4 and 4X Stainless Steel Enclosures—Figure 4

| NEMA Size | Class | Type | Dimensions in Inches▲ | | | | | | | | | | | | Bottom | Top & Bot. | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | W | X | |
| 0–1 | 8538 | SBW SCW | 9-1/2 | 8-11/32 | 24-1/16 | 3-1/4 | 2-1/2 | 4-1/2 | 23-1/2 | 19/32 | 3-1/32 | 1-5/16 | 2-5/16 | 14-9/32 | 3/4 Hub | 1 Hub | 40 |
| | 8539 | SBW SCW | 9-1/2 | 9-27/32 | 24-1/16 | 3-1/4 | 2-1/2 | 4-1/2 | 23-1/2 | 19/32 | 3-1/32 | 1-5/16 | 2-5/16 | 14-9/32 | 3/4 Hub | 1 Hub | 40 |
| 2 | 8538 & 8539 | SDW | 10-1/2 | 9-19/32 | 27-3/4 | 3-1/4 | 2-1/2 | 5-1/2 | 27 | 19/32 | 3 | 2 | 2-5/8 | 16-17/32 | 3/4 Hub | 1-1/2 Hub | 55 |
| 3■ | 8538 & 8539 | SEW | 15-1/4 | 10-19/32 | 42 | 5 | 3-3/16 | 10-1/4 | 40-1/2 | 19/32 | 3 | 2-9/16 | 3-3/16 | 223/16 | 3/4 Hub | 2-1/2 Hub | 111 |
| 4 | 8538 | SFW | 16 | 10-17/32 | 52-1/2 | 5 | 3-9/16 | 11 | 51 | 19/32 | 3 | 2-9/16 | 3-3/16 | 22-15/32 | 3/4 Hub | 2-1/2 Hub | 158 |
| | 8539 | SFW | 16 | 10-17/32 | 52-1/2 | 3-1/4 | 2-1/2 | 11 | 51 | 19/32 | 3 | 2-9/16 | 3-3/16 | 22-15/32 | 3/4 Hub | 2-1/2 Hub | 120 |
| 5 | 8538 | SGW | 20 | 13-23/32 | 78 | 9-1/4 | 4 | 12 | 77 | 9/16 | 4-1/2 | 3 | 3-1/2 | 29-13/32 | 3/4 Hub | 3-1/2 Hub | — |
| | 8539 | SGW | 20 | 13-23/32 | 66 | 5 | 4 | 12 | 65 | 9/16 | 4-1/2 | 3 | 3-1/2 | 29-13/32 | 3/4 Hub | 3-1/2 Hub | 440 |
| 6▼ | 8538 & 8539 | SHW | 36 | 17 | 90 | — | — | — | — | — | — | — | — | 47-7/8 | — | — | — |

▲ Dimensions also for **Form F4T** (standard control transformer). **Form F4T11** (100 VA extra capacity) and **Form F4T12** (200 VA extra capacity) could require the use of an oversized enclosure. Refer to control transformer selection table on page 16-41.

■ Class 8538 Size 3 devices with 200 A fuse clips use dimensions for Class 8538 Size 4.

♦ Left side only.

★ Dimensions include space for control circuit transformers.

▼ Size 6 enclosures are floor mounting.

Note: Illustrations may not represent the actual enclosure; they are intended for dimensional information only.

△ (4) .31 in (8 mm) dia. mtg. holes for sizes 0, 1, and 2, (4) .44 in (11 mm) dia. mtg. holes for sizes 3 and 4, (4) .56 in (14 mm) dia. mtg. holes located on external flanges for size 5.

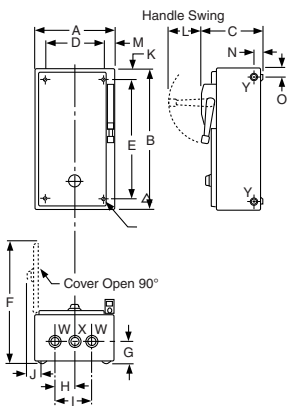



Figure 1
NEMA 1 Enclosure

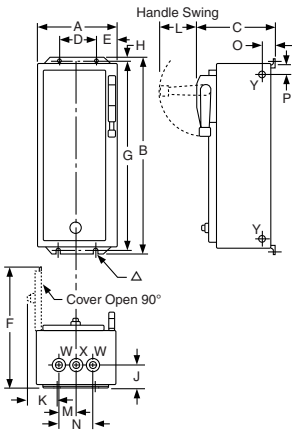



Figure 2
NEMA 1 Enclosure

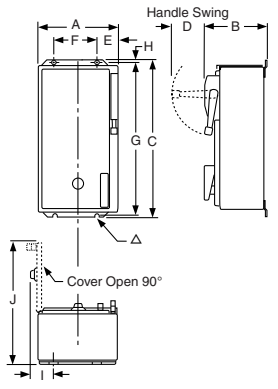



Figure 3
NEMA 12 Enclosure

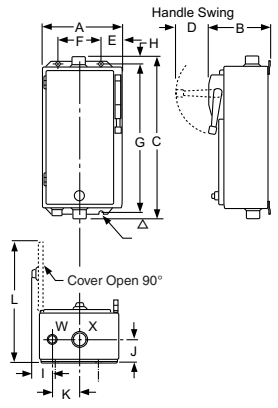



Figure 4
NEMAs 4 and 4X
Stainless Steel Enclosure





© 2012 Schneider Electric
All Rights Reserved

### Table 16.111: NEMA 4X Polyester Enclosure—Figure 1

| NEMA Size | Class | Dimensions in Inches ▲ | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type | A | B | C | E | F |
| 0, 1 | 8538 | SBW SCW SDW | 13.72 | 11.4 | 26.94 | 6.25 | 25.75 |
| 0, 1 | 8539 | | | | | | |
| 0, 1, & 2 | 8738, 8739 | SBW SCW SDW | 25.25 | 11.4 | 27.00 | 17.88 | 25.75 |
| 2 | 8538, 8539 | | | | | | |
| 3–4 | 8538, 8738 8539, 8739 | SEW SFW ■ | 26.31 | 11.4 | 33.50 | 18.50 | 32.25 |

▲ Dimensions also for **Form F4T** (standard control transformer) and **Form F4T10** (50 VA additional capacity). Other control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

■ 8539 Size 4 only.

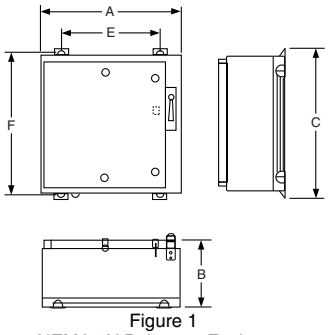



Figure 1
NEMA 4X Polyester Enclosure

### Table 16.112: NEMA 1, 4, 4X Stainless, 12/3R Oversize Enclosure—Figure 2

| NEMA Size | NEMA Type Encl. | Dimensions in Inches | | | | | |
|---|---|---|---|---|---|---|---|
| | | Wide A | High B | Deep C | Handle L | Mounting | |
| | | | | | | D | E |
| 0–2 | 1 | 15 | 28-1/3 | 9-19/32 | 3-1/4 | 11-5/8 | 26-1/4 |
| | 4 | 15 | 30-1/32 | 9-19/32 | 3-1/4 | 10 | 29-3/4 |
| | 12 | 15 | 31 | 10-31/32 | 3-1/4 | 9 | 30-1/4 |

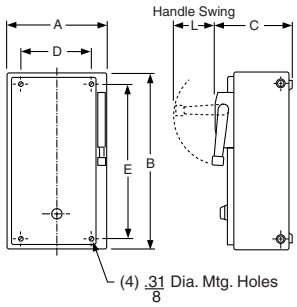



Figure 2
Class 8538 and 8539
in Oversize Enclosures —
NEMA 1, 4 & 4X Stainless and 12

## Information on Hubs

Hubs are supplied with each NEMA Type 4X combination starter as shown in the table below.

Note that hubs are only installed in stainless steel enclosures; they are not installed in polyester enclosures.

### Table 16.113: Hub Sizes

| NEMA Size | Quantity | Hub Size |
|---|---|---|
| 0 & 1 | 1<br>2 | 0.75"<br>1.00" |
| 2 | 1<br>2 | 0.75"<br>1.50" |
| 3 & 4 | 1<br>2 | 0.75"<br>2.50" |

Note: Illustrations may not represent the actual enclosure; they are intended for dimensional information only.

### Table 16.114: Conduit Sizes LOC A, B, C and D

| NEMA Size | Standard |
|---|---|
| 0—1 | 1-1/4 |
| 2 | 1-1/2 |
| 3—4 | 2-1/2 |
| 5 | 4 |



© 2012 Schneider Electric
All Rights Reserved



NEMA 00, 0, 1
Reversing Contactor

Class 8702 Type S reversing magnetic contactors are used for starting, stopping, and reversing AC motors where overload protection is separately provided. Class 8702 reversing contactors consist of two Class 8502 contactors mechanically and electrically interlocked. Open type devices, Sizes 0–5, are available in either horizontal or vertical arrangements. Sizes 00, 6, and 7 are available as horizontal only. Enclosed devices, Size 00–7, use horizontally arranged components. Type S reversing contactors are designed for operation at 600 Vac, 50–60 Hz.

**Table 16.115:**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Sizes 0–5)▲ | | NEMA 7 & 9 ♦ Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F & G | | | | NEMA 12/3R★ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Vertical Type | Horizontal Type | $ Price | Type | $ Price | Type | $ Price | Bolted Type Aluminum | $ Price | SPIN TOP™ Type | $ Price | Type | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | —<br>—<br>—<br>— | SAO4■ | **855.00** | SAG4■ | **917.00** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO12■ | SBO4■ | **1026.00** | SBG4■ | **1088.00** | SBW14■ | **1742.00** | SBT49■ | **3716.00** | SBR9■ | **4649.00** | SBA4■ | **1344.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO7■ | SCO8■ | **1169.00** | SCG8■ | **1259.00** | SCW14■ | **2241.00** | SCT49■ | **3900.00** | SCR9■ | **4877.00** | SCA4■ | **1515.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO1■ | SDO2■ | **2222.00** | SDG2■ | **2456.00** | SDW11■ | **3936.00** | SDT43■ | **6507.00** | SDR3■ | **8139.00** | SDA1■ | **2883.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO1■ | SEO2■ | **3689.00** | SEG2■ | **4094.00** | SEW11■ | **6287.00** | — | — | — | — | SEA1■ | **5034.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO1■ | SFO3■ | **9201.00** | SFG3■ | **9945.00** | SFW11■ | **13820.00** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SFA1■ | **11399.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | SGO1■ | SGO3■ | **16592.00** | SGG3■ | **20885.00** | SGW11■ | **24017.00** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SGA1■ | **24017.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | —<br>—<br>—<br>— | SHO1■ | **41489.00** | SHG1■ | **48614.00** | SHW1■ | **55736.00** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SHA1■ | **52461.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | —<br>—<br>—<br>— | SJO1■ | **59372.00** | SJG1■ | **66816.00** | SJW1■ | **73619.00** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SJA1■ | **70343.00** |

▲ NEMA 4 and 4X stainless steel enclosures (sizes 0–5) have a brushed finish. Sizes 6 and 7 are painted sheet steel and are rated NEMA 4 only.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.
♦ NEMA 7 and 9 bolted are not UL listed.
★ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

**Table 16.116: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼△ | — | V01 | No Charge |
| 120△ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

▼ 24 V coils are not available on Sizes 4-7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8702SAO4V01S).
△ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8702SAO4V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions. . . . . page 16-48
Factory Modifications (Forms) . . . . . page 16-100
Separate Enclosures (Class 9991) . . . . . .page16-93
Replacement Parts (Class 9998). . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

### Table 16.117: 600 Vac Maximum—50–60 Hz

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Type of Motor | Open Type | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 7 & 9 ■ Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F & G | | | | NEMA 12/3R♦ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vertical Type | Horizontal Type | $ Price | Type | $ Price | Type | $ Price | Bolted Type | $ Price | SPIN TOP™ Type | $ Price | Type | $ Price |
| **2-Pole Single Phase** | | | | | | | | | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | Single Phase 3-Wire | —<br>— | SAO1▲ | **827.** | SAG1▲ | **887.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | | SBO9▲ | SBO1▲ | **998.** | SBG1▲ | **1061.** | SBW11▲ | **1715.** | SBT46▲ | **3686.** | SBR6▲ | **4613.** | SBA1▲ | **1314.** |
| 1 | 27 | 115<br>230 | 2<br>3 | | SCO1▲ | SCO2▲ | **1139.** | SCG2▲ | **1229.** | SCW11▲ | **2142.** | SCT46▲ | **3873.** | SCR6▲ | **4841.** | SCA1▲ | **1485.** |
| **3-Pole Single Phase** | | | | | | | | | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | 4-Wire Rep.-Ind. | —<br>— | SAO2▲ | **855.** | SAG2▲ | **917.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| | | 115<br>230 | 1/3<br>1 | 4-Wire Split Ph. | —<br>— | SAO3▲ | **855.** | SAG3▲ | **917.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | 4-Wire Rep.-Ind. | SBO10▲ | SBO2▲ | **1026.** | SBG2▲ | **1088.** | SBW12▲ | **1742.** | SBT47▲ | **3716.** | SBR7▲ | **4649.** | SBA2▲ | **1344.** |
| | | 115<br>230 | 1<br>2 | 4-Wire Split Ph. | SBO11▲ | SBO3▲ | **1026.** | SBG3▲ | **1088.** | SBW13▲ | **1742.** | SBT48▲ | **3716.** | SBR8▲ | **4649.** | SBA3▲ | **1344.** |
| 1 | 27 | 115<br>230 | 2<br>3 | 4-Wire Rep.Ind. | SCO3▲ | SCO4▲ | **1169.** | SCG4▲ | **1259.** | SCW12▲ | **2169.** | SCT47▲ | **3900.** | SCR7▲ | **3227.** | SCA2▲ | **1515.** |
| | | 115<br>230 | 2<br>3 | 4-Wire Split Ph. | SCO5▲ | SCO6▲ | **1169.** | SCG6▲ | **1259.** | SCW13▲ | **2169.** | SCT48▲ | **3900.** | SCR8▲ | **3227.** | SCA3▲ | **1515.** |
| **4-Pole Polyphase** | | | | | | | | | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | 2 Phase 4-Wire | SBO13▲ | SBO5▲ | **1310.** | SBG5▲ | **1368.** | SBW15▲ | **2028.** | Consult Schneider Electric CCC at (1-888-778-2733) | | SBR10▲ | **5040.** | SBA5▲ | **1629.** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | | SCO9▲ | SCO10▲ | **1497.** | SCG10▲ | **1557.** | SCW15▲ | **2469.** | | | SCR10▲ | **5297.** | SCA5▲ | **1814.** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | | —<br>—<br>—<br>— | SDO4▲ | **2820.** | SDG4▲ | **3054.** | SDW12▲ | **4620.** | | | SDR4▲ | **9071.** | SDA2▲ | **3528.** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | | —<br>—<br>—<br>— | SEO4▲ | **4671.** | SEG4▲ | **5103.** | SEW12▲ | **7238.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SEA2▲ | **6017.** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | | —<br>—<br>—<br>— | SFO4▲ | **11879.** | SFG4▲ | **12653.** | SFW12▲ | **16556.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SFA2▲ | **14129.** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table on page 16-44.
■ NEMA 7 and 9 bolted are not UL listed.
♦ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

### Table 16.118: Auxiliary Units—Class 8702, 8736 and 8810

The table below shows the maximum number of auxiliary units **(in addition to the holding circuit and interlocking contacts)** that can be added to either the forward or reverse contactor or starter.

| NEMA Size (Type) | No. of Poles of Basic Contactor | Maximum number of auxiliary units on each contactor, forward or reverse. (In addition to internal holding circuit and interlocking contacts.) |
|---|---|---|
| 00 (SA) | 2 or 3 | 2 single circuit auxiliary contacts (N.O. or N.C.) |
| 0, 1 and 2 (SB, SC and SD) | 2 or 3 | 4 single circuit auxiliary contacts (N.O. or N.C.)★ |
| | 4 | 2 single circuit auxiliary contacts (N.O. or N.C.) |
| 3, 4, 5, 6, and 7 (SE, SF, SG, SH, and SJ) | Any | 2 single circuit auxiliary contacts (N.O. or N.C.) |

★ When adding 4 external auxiliary contacts to one Size 0 or 1 contactor, remove one of the return springs.

Dimensions . . . . . .page 16-48
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991) . . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999) . . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved



NEMA Sizes 00, 0, 1 Reversing Starter (Horizontal Type)

Class 8736 Type S reversing magnetic starters are used for full-voltage starting, stopping, and reversing AC squirrel cage motors. Class 8736 starters consist of one Class 8502 contactor and one Class 8536 starter mechanically and electrically interlocked. Open type devices, Sizes 0–5, are available in either horizontal or vertical arrangements. Sizes 00, 6, and 7 are available as horizontal only. Enclosed devices use horizontally arranged components. Type S starters are designed for operation at 600 Vac, 50–60 Hz.

## Overload Relays

Class 8736 Type S Size 00–6 reversing starters are provided with melting alloy thermal overload relay as standard. Interchangeable thermal units are available in standard trip Sizes 00–6, as are bimetallic overload relays. Ambient compensated and non-compensated versions are supplied with manual or automatic reset, trip current adjustment, and an alarm contact on Sizes 0–2.

Quick trip is available on Sizes 00–4, and slow trip on Sizes 00–3.

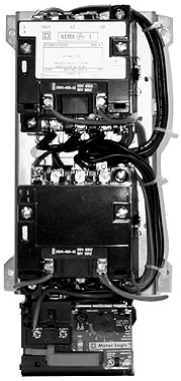
Single phase starters use one thermal unit; three phase starters use three thermal units. See page 16-116 for selection information.

## *New!* Adapted Bimetal (NEMA Sizes 00–1)

The Adapted Bimetal motor starter consists of a specially designed adapter that attaches with bus bars to the NEMA Type S contactor and holds the LRD or LR3D (IEC Style) bimetal overload relay. This starter configuration can be ordered by adding Form E (adapater only) to the standard catalog number. Once the FLA of the motor has been determined, the LRD or LR3D bimetal overload can be purchased separately and installed in the field at a later date. For more information see Table 16.269.

## Solid State Overload Relay Protection (Motor Logic™)

These ambient insensitive overload relays are available on three phase sizes 00 through 6 and standard on size 7. They provide phase loss, phase unbalance protection. To order, add Form **H30** (for selectable trip class 10 or 20 protection). For more information about Motor Logic overload relays, see pages 16-83 and 16-102.



NEMA Sizes 00, 0, 1 Reversing Starter (Vertical Type)

## *New!* TeSys T Motor Management System (NEMA Sizes 1–6)

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T can predict what will happen in the process, as it accurately monitors current, voltage, and power over a wide range. For additional information about TeSys T Motor Management System, see pages 16-84 to 16-88 and page 16-103.

**Table 16.119:**

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Open Type | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Sizes 0–5)▲ | | NEMA 7 & 9 ♦ Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G | | | | NEMA 12/3R★ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Vertical Type | Horizontal Type | $ Price | Type | $ Price | Type | $ Price | Bolted Type | $ Price | SPIN-TOP™ Type | $ Price | Type | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1-1/2<br>1-1/2<br>2<br>2 | —<br>—<br>—<br>— | SAO16■ | **926.** | SAG16■ | **989.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | SBO10■ | SBO4■ | **1097.** | SBG4■ | **1160.** | SBW14■ | **1814.** | SBT49■ | **3794.** | SBR9■ | **4742.** | SBA4■ | **1416.** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | SCO7■ | SCO8■ | **1241.** | SCG8■ | **1331.** | SCW14■ | **2241.** | SCT49■ | **3978.** | SCR9■ | **4976.** | SCA4■ | **1587.** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | SDO1■ | SDO2■ | **2349.** | SDG2■ | **2583.** | SDW11■ | **4064.** | SDT43■ | **6642.** | SDR3■ | **8064.** | SDA1■ | **3011.** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | SEO1■ | SEO2■ | **3902.** | SEG2■ | **4307.** | SEW11■ | **6501.** | — | — | — | — | SEA1■ | **5247.** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | SFO1■ | SFO3■ | **9530.** | SFG3■ | **10274.** | SFW11■ | **14148.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SFA1■ | **11727.** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | SGO1■ | SGO3■ | **18309.** | SGG3■ | **22602.** | SGW11■ | **25734.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SGA1■ | **25734.** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | —<br>—<br>—<br>— | SHO1■ | **43205.** | SHG1■ | **50331.** | SHW1■ | **57452.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SHA1■ | **54176.** |
| 7 | 810 | 200<br>230<br>460<br>575 | –<br>300<br>600<br>600 | —<br>—<br>—<br>— | SJO1■ | **61250.** | SJG1■ | **68736.** | SJW1■ | **75497.** | —<br>—<br>—<br>— | — | —<br>—<br>—<br>— | — | SJA1■ | **72221.** |

▲ NEMA 4 and 4X stainless steel enclosures (sizes 0–5) have a brushed finish. Sizes 6 and 7 are painted sheet steel and are rated NEMA 4 only.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-47.
♦ NEMA 7 and 9 bolted are not UL listed.
★ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.120: 600 Vac Maximum—50–60 Hz**

Note that prices shown do not include thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Continuous Current Ratings | Motor Voltage | Max. Hp | Type of Motor | Open Type | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 7 & 9 ■ Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G | | | | NEMA 12/3R♦ Dusttight & Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vertical Type | Horizontal Type | $ Price | Type | $ Price | Type | $ Price | Bolted Type | $ Price | SPIN TOP™ Type | $ Price | Type | $ Price |
| **2-Pole Single Phase—1 Thermal Unit Required** | | | | | | | | | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | Single Phase 3-Wire | —<br>— | SAO13▲ | **863.** | SAG13▲ | **923.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | | SBO7▲ | SBO1▲ | **1034.** | SBG1▲ | **1094.** | SBW11▲ | **1751.** | SBT46▲ | **3722.** | SBR6▲ | **4656.** | SBA1▲ | **1350.** |
| 1 | 27 | 115<br>230 | 2<br>3 | | SCO1▲ | SCO2▲ | **1175.** | SCG2▲ | **1265.** | SCW11▲ | **2177.** | SCT46▲ | **3909.** | SCR6▲ | **4883.** | SCA1▲ | **1521.** |
| **3-Pole Single Phase—1 Thermal Unit Required** | | | | | | | | | | | | | | | | | |
| 00 | 9 | 115<br>230 | 1/3<br>1 | 4-Wire Rep.-Ind. | —<br>— | SAO14▲ | **891.** | SAG14▲ | **953.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| | | 115<br>230 | 1/3<br>1 | 4-Wire Split Ph. | —<br>— | SAO15▲ | **594.** | SAG15▲ | **635.** | Use Size 0 | | Use Size 0 | | Use Size 0 | | Use Size 0 | |
| 0 | 18 | 115<br>230 | 1<br>2 | 4-Wire Rep.-Ind. | SBO8▲ | SBO2▲ | **1062.** | SBG2▲ | **1124.** | SBW12▲ | **1778.** | SBT47▲ | **3752.** | SBR7▲ | **4692.** | SBA2▲ | **1380.** |
| | | 115<br>230 | 1<br>2 | 4-Wire Split Ph. | SBO9▲ | SBO3▲ | **1062.** | SBG3▲ | **1124.** | SBW13▲ | **1778.** | SBT48▲ | **3752.** | SBR8▲ | **4692.** | SBA3▲ | **1380.** |
| 1 | 27 | 115<br>230 | 2<br>3 | 4-Wire Rep.Ind. | SCO3▲ | SCO4▲ | **1205.** | SCG4▲ | **1295.** | SCW12▲ | **2205.** | SCT47▲ | **3942.** | SCR7▲ | **4932.** | SCA2▲ | **1551.** |
| | | 115<br>230 | 2<br>3 | 4-Wire Split Ph. | SCO5▲ | SCO6▲ | **1205.** | SCG6▲ | **1295.** | SCW13▲ | **2205.** | SCT48▲ | **3942.** | SCR8▲ | **4932.** | SCA3▲ | **1551.** |
| **4-Pole Polyphase—2 Thermal Units Required** | | | | | | | | | | | | | | | | | |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | 2 Phase 4-Wire | SBO11▲ | SBO5▲ | **1382.** | SBG5▲ | **1443.** | SBW15▲ | **2100.** | Consult Schneider Electric CCC at (1-888-778-2733) | | SBR10▲ | **5133.** | SBA5▲ | **1670.** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7-1/2<br>7-1/2<br>10<br>10 | | SCO9▲ | SCO10▲ | **1566.** | SCG10▲ | **1629.** | SCW15▲ | **2541.** | Consult Schneider Electric CCC at (1-888-778-2733) | | SCR10▲ | **5396.** | SCA5▲ | **1886.** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | | — | SDO4▲ | **2948.** | SDG4▲ | **3182.** | SDW12▲ | **4748.** | Consult Schneider Electric CCC at (1-888-778-2733) | | SDR4▲ | **9248.** | SDA2▲ | **3609.** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | | — | SEO4▲ | **4886.** | SEG4▲ | **5318.** | SEW12▲ | **7482.** | — | — | — | — | SEA2▲ | **6228.** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | | — | SFO4▲ | **12207.** | SFG4▲ | **12981.** | SFW12▲ | **16883.** | — | — | — | — | SFA2▲ | **14462.** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

■ NEMA 7 and 9 bolted are not UL listed.

♦ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

**Table 16.121: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8736SCO1U01S).

▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8736SBO7V02S).

Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . .page 16-48
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991). . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . page16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.122: Open Type—2 or 3-Pole Only

| Class | NEMA Size | Type | Mounting | Figure Number | Dimensions—Inches | | | | | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | C | D | E | F | G | H | I | J | K | L | M | |
| 8702 | 00 | SAO | Horizontal | 1 | 7-1/8 | 5 | 5-5/16 | — | — | 3-13/32 | 15/32 | 4-11/32 | 3/16 | 5-1/2 | 29/32 | — | — | 12 |
| | 0, 1 | SBO, SCO | Horizontal<br>Vertical | 1<br>1▲ | 7-1/8<br>5-15/32 | 5<br>9-7/32 | 5-5/16<br>5-5/16 | —<br>5-1/2 | —<br>7/32 | 3-13/32<br>— | 15/32<br>39/64 | 4-11/32<br>8 | 3/16<br>39/64 | 5-1/2<br>5-1/32 | 29/32<br>7/32 | —<br>— | —<br>— | 12<br>12 |
| | 2 | SDO | Horizontal<br>Vertical | 1<br>1▲ | 9<br>6-3/4 | 6-7/8<br>11-3/8 | 6-1/32<br>6-1/32 | —<br>6-1/4 | —<br>1/4 | 4-1/2<br>— | 3/8<br>1/2 | 5-5/8<br>10-3/8 | 1/4<br>1/2 | 6<br>1/4 | 1-1/2<br>1/4 | —<br>— | —<br>— | 16<br>16 |
| | 3 | SEO | Horizontal<br>Vertical | 1<br>1▲ | 12-23/32<br>7-13/64 | 7-31/32<br>19 | 7<br>7 | 11-3/4<br>6-1/4 | 31/64<br>31/64 | —<br>— | 31/64<br>1-1/64 | 7<br>17 | 31/64<br>63/64 | 11-3/4<br>6-1/4 | 31/64<br>31/64 | —<br>— | —<br>— | 35<br>35 |
| | 4 | SFO | Horizontal<br>Vertical | 1<br>1▲ | 14-1/4<br>7-31/32 | 11-11/16<br>23-29/32 | 7<br>7 | 13-1/4<br>7 | 1/2<br>31/64 | —<br>— | 1/2<br>1-13/16 | 8<br>20-1/4 | 1-27/32<br>1-3/16 | 13-1/4<br>7 | 1/2<br>31/64 | —<br>— | —<br>— | 45<br>45 |
| | 5 | SGO | Horizontal<br>Vertical | 1<br>1▲ | 19-5/16<br>10-3/4 | 16-3/16<br>34-13/32 | 9-3/8<br>9-3/8 | 18<br>9-1/2 | 21/32<br>5/8 | —<br>— | 1-1/32<br>1-1/4 | 14<br>32 | 1-5/32<br>1-5/32 | 18<br>9-1/2 | 21/32<br>5/8 | —<br>— | —<br>— | 98<br>98 |
| | 6 | SHO | Horizontal | 1 | 22-3/8 | 28-3/64 | 9-33/64 | 18 | 40/64 | — | 3-53/64 | 21-3/16 | 3-1/32 | 18 | 49/64 | — | — | 195 |
| | 7 | SJO | Horizontal | 1 | 24-1/4 | 37-1/4 | 13-13/16 | 19-3/4 | 1-33/64 | — | — | 30 | — | — | — | — | — | 310 |
| 8736 | 00 | SAO | Horizontal | 2 | 7-1/8 | 6-29/32 | 5-5/16 | — | — | 3-13/32 | 15/32 | 4-11/32 | 6-7/32 | 4-17/32 | 5-1/16 | 21/32 | — | 13 |
| | 0, 1 | SBO, SCO | Horizontal<br>Vertical | 2<br>2▲ | 7-1/8<br>5-15/32 | 6-29/32<br>11-33/64 | 5-5/16<br>5-5/16 | —<br>5-1/32 | —<br>7/32 | 3-13/32<br>— | 15/32<br>39/64 | 4-11/32<br>8 | 6-7/32<br>10-45/64 | 4-17/32<br>2-33/64 | 5-1/16<br>5-1/16 | 21/32<br>7/32 | —<br>5-1/32 | 13<br>13 |
| | 2 | SDO | Horizontal<br>Vertical | 2<br>2▲ | 9<br>6-3/4 | 8-1/2<br>13-31/64 | 6-1/32<br>6-1/32 | —<br>6-1/4 | —<br>1/4 | 4-1/2<br>— | 3/8<br>25/32 | 5-5/8<br>10-3/8 | 7-1/2<br>12-31/32 | 5<br>3-1/8 | 5-5/32<br>5-5/32 | 1-1/2<br>1/4 | —<br>6 | 18<br>18 |
| | 3 | SEO | Horizontal<br>Vertical | 2<br>2▲ | 12-23/32<br>7-5/16 | 11-23/32<br>22-1/4 | 7<br>7 | 11-3/4<br>6-1/4 | 31/64<br>31/64 | —<br>— | 31/64<br>1-1/64 | 10-3/4<br>20-3/4 | 10-3/4<br>— | 11-3/4<br>6-1/4 | 6-1/4<br>6-1/4 | 31/64<br>31/64 | 11-3/4<br>6-1/4 | 38<br>38 |
| | 4 | SFO | Horizontal<br>Vertical | 2<br>2▲ | 14-1/4<br>7-31/32 | 14-19/32<br>26-13/16 | 7<br>7 | 13-1/4<br>7 | 1/2<br>31/64 | —<br>— | 1-27/32<br>1-27/32 | 12-1/4<br>24-1/2 | 12-1/4<br>— | 13-1/4<br>4-3/64 | 6-1/4<br>6-1/4 | 1/2<br>31/64 | 13-1/4<br>7 | 48<br>48 |
| | 5 | SGO | Horizontal<br>Vertical | 2<br>2▲ | 19-5/16<br>10-3/4 | 20-29/32<br>39-5/32 | 9-3/8<br>9-3/8 | 18<br>9-1/2 | 21/32<br>21/32 | —<br>— | 1-9/32<br>1-9/32 | 19<br>371/4 | 19<br>37-1/4 | 18<br>9-1/2 | 6-5/8<br>6-5/8 | 5/8<br>5/8 | 18<br>9-1/2 | 115<br>115 |
| | 6 | SHO | Horizontal | 2 | 22-3/8 | 28-3/64 | 9-33/64 | 18 | 44/64 | — | 3-53/64 | 21-3/16 | 3-1/32 | 18 | 49/64 | — | — | 200 |
| | 7 | SJO | Horizontal | 1 | 24-1/4 | 37-1/4 | 13-13/16 | 19-3/4 | 1-33/64 | — | — | 30 | — | — | — | — | — | 315 |

▲ Vertical type design differs from that shown on the corresponding NEMA size horizontal type figure, but dimensions listed apply to that figure.

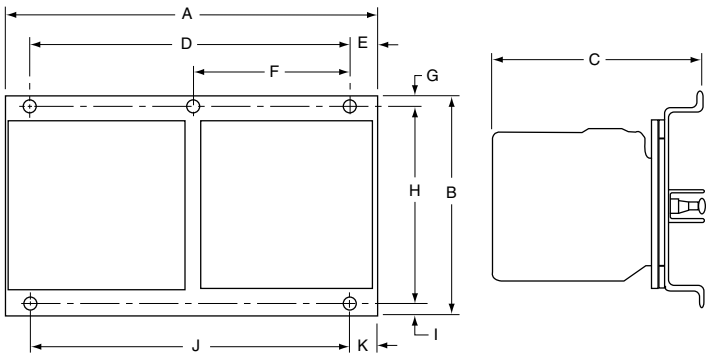



Figure 1 (Class 8702 Open Type)

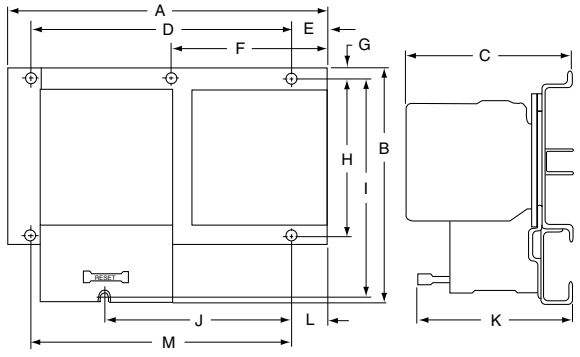



Figure 2 (Class 8736 Open Type)

### Table 16.123: NEMA 1 (Class 8702 and 8736)

| NEMA Size | Dimensions—Inches | | | | | | | | | | Weight (lb) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | | D | E | F | G | H | I | 8702 | 8736 |
| | | | 8702 | 8736 | | | | | | | | |
| 00, 0♦<br>1■ | 11-7/8 | 11-7/8 | 7-13/32 | 7-17/32 | 9-3/4 | 1-1/16 | 1-1/16 | 9-3/4 | 1-1/16 | 5/16 | 16 | 17 |
| 2■ | 14-7/8 | 14-1/8 | 7-9/16 | 7-21/32 | 12-3/4 | 1-1/16 | 1-1/16 | 12 | 1-1/16 | 5/16 | 24 | 25 |
| 3♦<br>4♦ | 18-5/32 | 29-5/32 | 9-1/4 | 9-1/4 | 15-1/2 | 1-21/64 | 1-21/64 | 26-1/2 | 1-21/64 | 7/16 | 95 | 98 |
| 5 | 35-7/32 | 46-7/32 | 12-13/16 | 12-15/16 | 31 | 2-7/64 | 2-7/64 | 42 | 2-7/64 | 9/16 | 298 | 315 |
| 6 | 36-7/32 | 62-7/32 | 19-15/32 | | Floor Mounting. | | | | | | 400 | 405 |
| 7 | 34-1/2 | 93 | 23-1/2 | | | | | | | | — | — |

■ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.

♦ 3-Pole only.

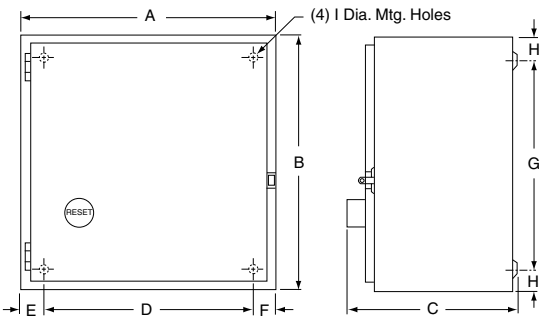



Figure 3—NEMA 1





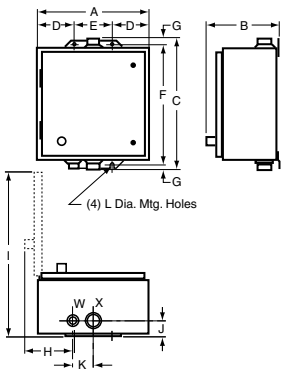
© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.124: NEMA 4 & 4X—Stainless Steel♦

| NEMA Size | Class Number | Dimensions—Inches | | | | | | | | | | | | Hub Dia. | | Weight (lb) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | W Bot. Only | X Top & Bot. | 8702 | 8736 |
| 0▲ 1▲ | 8702 & 8736 | 12-5/8 | 7-13/16 | 14-11/16 | 2-9/16 | 7-1/2 | 13-1/2 | 19/32 | 3-7/8 | 18-13/32 | 1-21/32 | 2-5/16 | 5/16 | 3/4 | 1 | 25 | 26 |
| 2▲ | 8702 & 8736 | 14-7/8 | 8-1/4 | 15-3/4 | 2-9/16 | 9-3/4 | 15 | 3/8 | 3-7/8 | 20-7/8 | 1-23/32 | 2-5/8 | 5/16 | 3/4 | 1-1/2 | 33 | 35 |
| 3■ 4■ | 8702 | 18-5/32 | 8-3/4 | 32-7/32 | 3-5/64 | 12 | 30-1/2 | 7/8 | 3-11/16 | 26-23/32 | 2-9/16 | 3-3/16 | 7/16 | 3/4 | 2-1/2 | 96 | — |
| | 8736 | 18-5/32 | 9-9/16 | 32-7/32 | 3-5/64 | 12 | 30-1/2 | 7/8 | 4-1/2 | 26-23/32 | 2-9/16 | 3-3/16 | 7/16 | 3/4 | 2-1/2 | — | 99 |
| 5 | 8702 | 35-7/32 | 12-1/8 | 49-7/32 | 4-7/64 | 27 | 48 | 5/8 | 4-19/32 | 45-13/16 | 2-31/32 | 3-1/2 | 9/16 | 3/4 | 3-1/2 | 300 | — |
| | 8736 | 35-7/32 | 12-15/16 | 49-7/32 | 4-7/64 | 27 | 48 | 5/8 | 5-13/32 | 45-13/16 | 2-31/32 | 3-1/2 | 9/16 | 3/4 | 3-1/2 | — | 317 |
| 6 | 8702 & 8736 | 36-7/32 | 19-15/32 | 70-1/8 | Floor Mounting | | | | | | | | | | | 500 | 505 |
| 7 | 8702 & 8736 | 34-1/2 | 23-1/2 | 101 | | | | | | | | | | | | — | — |

▲ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.
■ 3-Pole only.
♦ Size 6 & 7 are sheet steel enclosures and are rated NEMA 4 only.



NEMA 4 & 4X
Stainless Steel

### Table 16.125: NEMA 7 and 9 Bolted Enclosure

See page 16-27 for drawing of enclosure.

| NEMA Size | Type | Dimensions—Inches★ | | | | | | | | | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | G | H | J | K | L | N | P | Q, R | S, T, U, V | |
| 0–2 | SBT SCT SDT | 14-1/4 | 27-5/8 | 9-1/2 | 12-1/4 | 19-1/4 | 9-5/8 | 11-1/2 | 2-3/8 | 3-1/8 | 115 |
| 3–4 | SET SFT | 24-1/2 | 45-5/8 | 13-3/4 | 22-1/2 | 27-1/2 | 13-3/4 | 15-3/8 | 3-7/16 | 4 | 180 |

★ Dimensions shown for 2 or 3-Pole devices only.

### Table 16.126: NEMA 7 & 9 SPIN TOP™ Enclosure

See page 16-26 for drawing of enclosure.

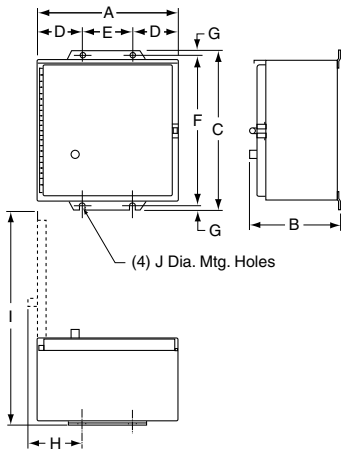
| NEMA Size | Type | Dimensions—Inches | | | | | | | | | | | | | | | | | | | | | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B▼ | B△ | C▼ | C△ | D | E▼ | E△ | F | G▼ | G△ | H▼ | H△ | J▼ | J△ | K | L | M | N | P | R | |
| 0-1 | SBR SCR | 12 | 41-1/16 | 46-1/8 | 68-1/16 | 79-1/8 | 16-3/4 | 7-1/4 | 12-1/4 | 7-11/16 | 26-1/8 | 26-1/8 | 3 | 9 | 24 | 24 | 8-1/2 | 2-1/16 | 9-3/8 | 5-1/4 | 1-1/2 | 3/8 | 70 |
| 2 | SDR | 16-1/8 | 48-1/2 | 50-1/2 | 81-1/2 | 85 | 20-1/4 | 12-1/8 | 9-1/8 | 8-5/8 | 27-3/4 | 32-3/4 | 8 | 4-1/2 | 25 | 30 | 12 | 2-5/8 | 11 | 5-1/2 | 2-1/2 | 3/8 | 100 |
| 3 | SER | Consult Schneider Electric CCC at (1-888-778-2733) | | | | | | | | | | | | | | | | | | | | | |

▼ Without control transformer.
△ With control transformer (**Form F4T**).

### Table 16.127: NEMA 12/3R

| NEMA Size | Class Number | Dimensions—Inches | | | | | | | | | | Weight (lb) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | 8702 | 8736 |
| 0□ 1□ | 8702 & 8736 | 11-7/8 | 7-3/4 | 13-3/4 | 2-9/16 | 6-3/4 | 12-3/4 | 1/2 | 3-21/32 | 18-1/8 | 5/16 | 23 | 24 |
| 2□ | 8702 & 8736 | 14-7/8 | 7-7/8 | 16 | 2-9/16 | 9-3/4 | 15 | 1/2 | 3-21/32 | 21-1/4 | 5/16 | 31 | 32 |
| 3◊ 4◊ | 8702 | 18-5/32 | 9-1/4 | 31-1/2 | 3-5/64 | 12 | 30-1/2 | 1/2 | 3-11/16 | 26-23/32 | 7/16 | 96 | — |
| | 8736 | 18-5/32 | 9-9/16 | 31-1/2 | 3-5/64 | 12 | 30-1/2 | 1/2 | 4-1/2 | 26-23/32 | 7/16 | — | 99 |
| 5 | 8702 | 35-7/32 | 13-1/8 | 49 | 4-1/8 | 27 | 48 | 1/2 | 5-5/16 | 45-7/8 | 9/16 | 302 | — |
| | 8736 | 35-7/32 | 13-15/16 | 49 | 4-1/8 | 27 | 48 | 1/2 | 6-1/8 | 45-7/8 | 9/16 | — | 319 |
| 6 | 8702 & 8736 | 36-7/32 | 19-15/32 | 62-7/32 | Floor Mounting | | | | | | | 490 | 495 |
| 7 | 8702 & 8736 | 34-1/2 | 23-1/2 | 93 | | | | | | | | — | — |

□ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.
◊ 3-Pole only.



NEMA 12



© 2012 Schneider Electric
All Rights Reserved



Class 8702 Type W Reversing Vacuum Contactors are used to switch capacitors, transformers and electric motors where overload protection is separately provided. Type W reversing vacuum contactors are designed for operation at 600 Volts, 50/60 Hz.

**Auxiliary Contacts—**An auxiliary contact block, Class 9999 Type WX11, with one normally open contact and one normally closed contact, is used with Size 4, 5 and 6 vacuum contactors. Additional auxiliary contact units may be added to the Size 4 and 5 reversing contactors in the field. A maximum of 2 units may be added to the Size 4; a maximum of 1 unit may be added to the Size 5.

**Termination Means—**The Size 4 reversing vacuum contactor is supplied with line and load side lugs. The Size 5 and 6 reversing vacuum contactors are supplied without line and load side lugs.

**Table 16.128: Class 8702 Full Voltage Reversing Vacuum Contactors (Horizontal Only) 3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

| NEMA Size | Enclosed Ampere Rating | Motor Voltage | Maximum Horsepower | Open Type | |
|---|---|---|---|---|---|
| | | | | Type | $ Price |
| 4 | 135 | 200<br>230<br>380<br>460<br>575 | 40<br>50<br>75<br>100<br>100 | WFO3▲ | **10659.00** |
| 5 | 270 | 200<br>230<br>380<br>460<br>575 | 75<br>100<br>150<br>200<br>200 | WGO3▲ | **18678.00** |
| 6 | 540 | 200<br>230<br>380<br>460<br>575 | 150<br>200<br>300<br>400<br>400 | WHO3V▲ | **45666.00** |

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-51. Replacement coils are listed on page 16-28.

**Table 16.129: Class 9998—Replacement Coils for Class 8702 Reversing Contactors**

| Size | Type | Poles | Class and Type | Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number) | | | | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | | | 120 Volts 110 Volts | 240 Volts 220 Volts | 480 Volts 440 Volts | 600 Volts 550 Volts | |
| 4 | WF | All | 9998WF | 120 | 240 | 480 | 600 | **732.00** |
| 5 | WG | All | 9998WG | 120 | 240 | 480 | 600 | **1724.00** |
| 6 | WH | All | 9998WH | 120 | 240 | 480 | 600 | **1904.00** |

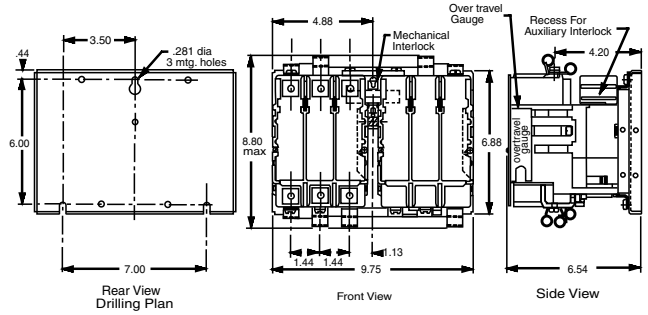
**Table 16.130: Class 9999—Vacuum Starter Kits**

| For Use With | | Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Type | Size | | | |
| WF–WG<br>WH | 4–5<br>6 | Auxiliary Contacts, Non-Convertible<br>1 N.O. & 1 N.C. Isolated Contacts | WX11 | **122.00** |
| WF<br>WG–WH | 4<br>5–6 | Coil Circuit Auxiliary Contacts<br>1 N.O. & 1 N.C. Isolated Contacts, Delayed Break<br>1 N.C. Isolated Contact | WCX11<br>WLX01 | **114.00**<br>**503.00** |
| WG | 5 | Lug Kits<br>(6) lugs included | LUW5 | **275.00** |

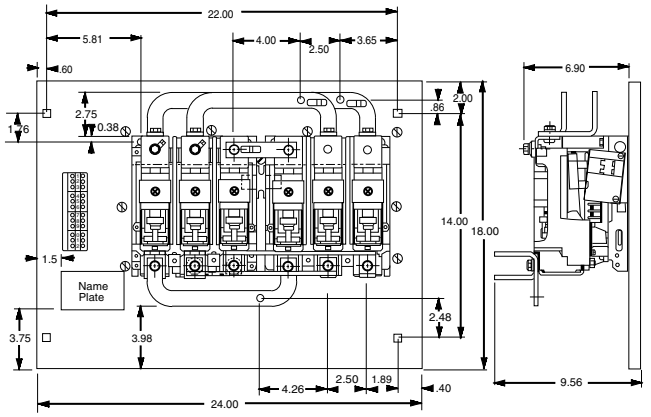
**Table 16.131: Coil Voltage Codes**

| Volts | 110 | 120 | 220 | 240 | 440 | 480 | 550 | 600 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** | V02 | | V03 | | V06 | | V07 | |
| **60 Hz** | | V02 | | V03 | | V06 | | V07 |

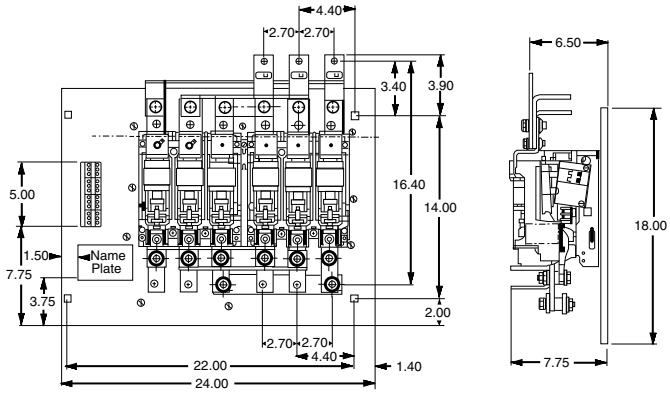
## Approximate Dimensions




Size 4 Reversing Contactor Outline with Lugs
Class 8702 WF




Size 5 Reversing Contactor Outline without Lugs
Class 8702 WG




Size 6 Reversing Contactor Outline without Lugs
Class 8702 WH

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

Class 8738 and 8739 Type S reversing combination starters combine the requirements of motor overload and short circuit protection into one convenient package. Type S reversing combination starters are manufactured in accordance with NEMA standards, and are UL Listed (although some Form numbers may not be listed—contact your nearest Square D/Schneider Electric sales office for further information). Class 8738 and 8739 reversing combination starters are designed to operate at 600 Vac, 50–60 Hz—and are supplied with melting alloy overload relays as standard. For Class J fuses, use form Y1072 (No Charge).

## Class 8738 Fusible Disconnect Switch Type

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each.
See page 16-116 for selection information.

**Table 16.132: Class 8738 Full-Voltage Type, Fusible (With Class H Fuse Clips) Reversing with Melting Alloy Overload Relays—3-Pole Polyphase—600 Vac Maximum—50–60 Hz**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Fuse Clip Size (A) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | | | | | | | | Type | Type | |
| 200 (208) | 3 | 0 | 30 | SBG12■ | 2169.00 | SBW12■ | 3909.00 | SBW22■ | 4491.00 | SBA22■ | SBA12■ | 2654.00 |
| | 5 | 1 | 30 | SCG12■ | 2313.00 | SCW12■ | 4050.00 | SCW22■ | 4656.00 | SCA22■ | SCA12■ | 2798.00 |
| | 7-1/2 | | 60 | SCG13■ | 2340.00 | SCW13■ | 4077.00 | SCW23■ | 4692.00 | SCA23■ | SCA13■ | 2825.00 |
| | 10 | 2 | 60 | SDG12■ | 3851.00 | SDW12■ | 6501.00 | SDW22■ | 7149.00 | SDA22■ | SDA12■ | 4478.00 |
| | 20 | 3 | 100 | SEG15■ | 6357.00 | SEW15■ | 11001.00 | — | — | SEA25■ | SEA15■ | 7182.00 |
| | 40 | 4 | 200 | SFG15■ | 13409.00 | SFW15■ | 19277.00 | — | — | SFA25■ | SFA15■ | 15672.00 |
| | 75 | 5 | 400 | SGG15■ | 25605.00 | SGW15■ | 40589.00 | — | — | SGA25■ | SGA15■ | 30990.00 |
| 230 (240) | 3 | 0 | 30 | SBG12■ | 2169.00 | SBW12■ | 3909.00 | SBW22■ | 4491.00 | SBA22■ | SBA12■ | 2654.00 |
| | 5 | 1 | 30 | SCG12■ | 2313.00 | SCW12■ | 4050.00 | SCW22■ | 4656.00 | SCA22■ | SCA12■ | 2798.00 |
| | 7-1/2 | | 60 | SCG13■ | 2340.00 | SCW13■ | 4077.00 | SCW23■ | 4692.00 | SCA23■ | SCA13■ | 2825.00 |
| | 15 | 2 | 60 | SDG12■ | 3851.00 | SDW12■ | 6501.00 | SDW22■ | 7149.00 | SDA22■ | SDA12■ | 4478.00 |
| | 25 | 3 | 100 | SEG15■ | 6357.00 | SEW15■ | 11001.00 | — | — | SEA25■ | SEA15■ | 7182.00 |
| | 50 | 4 | 200 | SFG15■ | 13409.00 | SFW15■ | 19277.00 | — | — | SFA25■ | SFA15■ | 15672.00 |
| | 100 | 5 | 400 | SGG15■ | 25605.00 | SGW15■ | 40589.00 | — | — | SGA25■ | SGA15■ | 30990.00 |
| 460 (480) | 5 | 0 | 30 | SBG13■ | 2199.00 | SBW13■ | 3936.00 | SBW23■ | 4527.00 | SBA23■ | SBA13■ | 2682.00 |
| | 10 | 1 | 30 | SCG14■ | 2340.00 | SCW14■ | 4077.00 | SCW24■ | 4692.00 | SCA24■ | SCA14■ | 2825.00 |
| | 15 | 2 | 30 | SDG16■ | 3873.00 | SDW16■ | 6515.00 | SDW26■ | 7163.00 | SDA26■ | SDA16■ | 4491.00 |
| | 25 | | 60 | SDG14■ | 3893.00 | SDW14■ | 6543.00 | SDW24■ | 7199.00 | SDA24■ | SDA14■ | 4521.00 |
| | 50 | 3 | 100 | SEG13■ | 6443.00 | SEW13■ | 11087.00 | — | — | SEA23■ | SEA13■ | 7268.00 |
| | 100 | 4 | 200 | SFG13■ | 13464.00 | SFW13■ | 19332.00 | — | — | SFA23■ | SFA13■ | 15728.00 |
| | 200 | 5 | 400 | SGG13■ | 26204.00 | SGW13■ | 41187.00 | — | — | SGA23■ | SGA13■ | 31589.00 |
| 575 (600) | 5 | 0 | 30 | SBG13■ | 2199.00 | SBW13■ | 3936.00 | SBW23■ | 4527.00 | SBA23■ | SBA13■ | 2682.00 |
| | 10 | 1 | 30 | SCG14■ | 2340.00 | SCW14■ | 4077.00 | SCW24■ | 4692.00 | SCA24■ | SCA14■ | 2825.00 |
| | 15 | 2 | 30 | SDG16■ | 3873.00 | SDW16■ | 6515.00 | SDW26■ | 7163.00 | SDA26■ | SDA16■ | 4491.00 |
| | 25 | | 60 | SDG14■ | 3893.00 | SDW14■ | 6543.00 | SDW24■ | 7199.00 | SDA24■ | SDA14■ | 4521.00 |
| | 50 | 3 | 100 | SEG13■ | 6443.00 | SEW13■ | 11087.00 | — | — | SEA23■ | SEA13■ | 7268.00 |
| | 100 | 4 | 200 | SFG13■ | 13464.00 | SFW13■ | 19332.00 | — | — | SFA23■ | SFA13■ | 15728.00 |
| | 200 | 5 | 400 | SGG13■ | 26204.00 | SGW13■ | 41187.00 | — | — | SGA23■ | SGA13■ | 31589.00 |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information. For class J fuse clip, use Form **Y1072** (no charge).

■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

**Table 16.133: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24★♦ | — | V01 | No Charge |
| 120★ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

♦ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8738SBG12V01S).

★ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8738SC13V02S).

Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . page 16-57
Factory Modifications (Forms). . . . . page 16-100
Replacement Parts (Class 9998) . . . . . page 16-105
Type S Accessories (Class 9999). . . . . page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.134: Non-Fusible Disconnect Switch Type—Full-Voltage Type Reversing with Melting Alloy Overload Relays**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-Phase | NEMA Size | Fuse Clip Size (A) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 3 | 0 | None | SBG11■ | 2127.00 | SBW11■ | 3866.00 | SBW21■ | 4442.00 | SBA21■ | SBA11■ | 2613.00 |
| | 7-1/2 | 1 | None | SCG11■ | 2271.00 | SCW11■ | 4008.00 | SCW21■ | 4607.00 | SCA21■ | SCA11■ | 2754.00 |
| | 10 | 2 | None | SDG11■ | 3794.00 | SDW11■ | 6443.00 | SDW21■ | 7083.00 | SDA21■ | SDA11■ | 4419.00 |
| | 25 | 3 | None | SEG11■ | 6287.00 | SEW11■ | 10929.00 | — | — | SEA21■ | SEA11■ | 7113.00 |
| | 40 | 4 | None | SFG11■ | 13166.00 | SFW11■ | 19034.00 | — | — | SFA21■ | SFA11■ | 15431.00 |
| | 75 | 5 | None | SGG11■ | 25691.00 | SGW11■ | 40674.00 | — | — | SGA21■ | SGA11■ | 31076.00 |
| 230 (240) | 3 | 0 | None | SBG11■ | 2127.00 | SBW11■ | 3866.00 | SBW21■ | 4442.00 | SBA21■ | SBA11■ | 2613.00 |
| | 7-1/2 | 1 | None | SCG11■ | 2271.00 | SCW11■ | 4008.00 | SCW21■ | 4607.00 | SCA21■ | SCA11■ | 2754.00 |
| | 15 | 2 | None | SDG11■ | 3794.00 | SDW11■ | 6443.00 | SDW21■ | 7083.00 | SDA21■ | SDA11■ | 4419.00 |
| | 30 | 3 | None | SEG11■ | 6287.00 | SEW11■ | 10929.00 | — | — | SEA21■ | SEA11■ | 7113.00 |
| | 50 | 4 | None | SFG11■ | 13166.00 | SFW11■ | 19034.00 | — | — | SFA21■ | SFA11■ | 15431.00 |
| | 100 | 5 | None | SGG11■ | 25691.00 | SGW11■ | 40674.00 | — | — | SGA21■ | SGA11■ | 31076.00 |
| 460 (480) | 5 | 0 | None | SBG11■ | 2127.00 | SBW11■ | 3866.00 | SBW21■ | 4442.00 | SBA21■ | SBA11■ | 2613.00 |
| | 10 | 1 | None | SCG11■ | 2271.00 | SCW11■ | 4008.00 | SCW21■ | 4607.00 | SCA21■ | SCA11■ | 2754.00 |
| | 25 | 2 | None | SDG11■ | 3794.00 | SDW11■ | 6443.00 | SDW21■ | 7083.00 | SDA21■ | SDA11■ | 4419.00 |
| | 50 | 3 | None | SEG11■ | 6287.00 | SEW11■ | 10929.00 | — | — | SEA21■ | SEA11■ | 7113.00 |
| | 100 | 4 | None | SFG11■ | 13166.00 | SFW11■ | 19034.00 | — | — | SFA21■ | SFA11■ | 15431.00 |
| | 200 | 5 | None | SGG11■ | 25691.00 | SGW11■ | 40674.00 | — | — | SGA21■ | SGA11■ | 31076.00 |
| 575 (600) | 5 | 0 | None | SBG11■ | 2127.00 | SBW11■ | 3866.00 | SBW21■ | 4442.00 | SBA21■ | SBA11■ | 2613.00 |
| | 10 | 1 | None | SCG11■ | 2271.00 | SCW11■ | 4008.00 | SCW21■ | 4607.00 | SCA21■ | SCA11■ | 2754.00 |
| | 25 | 2 | None | SDG11■ | 3794.00 | SDW11■ | 6443.00 | SDW21■ | 7083.00 | SDA21■ | SDA11■ | 4419.00 |
| | 50 | 3 | None | SEG11■ | 6287.00 | SEW11■ | 10929.00 | — | — | SEA21■ | SEA11■ | 7113.00 |
| | 100 | 4 | None | SFG11■ | 13166.00 | SFW11■ | 19034.00 | — | — | SFA21■ | SFA11■ | 15431.00 |
| | 200 | 5 | None | SGG11■ | 25691.00 | SGW11■ | 40674.00 | — | — | SGA21■ | SGA11■ | 31076.00 |

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-53.

**Table 16.135: Fusible Disconnect Switch Type With Class R Fuse Clips—100,000 AIC Rating**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure▼ | | NEMA 12/3R♦ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-Phase | NEMA Size | Fuse Clip Size (A) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 3 | 0 | 30 | SBG32★ | 2192.00 | SBW32★ | 3929.00 | SBW42★ | 4521.00 | SBA42★ | SBA32★ | 2676.00 |
| | 5 | 1 | 30 | SCG32★ | 2334.00 | SCW32★ | 4071.00 | SCW42★ | 4685.00 | SCA42★ | SCA32★ | 2817.00 |
| | 7-1/2 | | 60 | SCG33★ | 2363.00 | SCW33★ | 4100.00 | SCW43★ | 4706.00 | SCA43★ | SCA33★ | 2847.00 |
| | 10 | 2 | 60 | SDG32★ | 3873.00 | SDW32★ | 6521.00 | SDW42★ | 7176.00 | SDA42★ | SDA32★ | 4499.00 |
| | 20 | 3 | 100 | SEG35★ | 6399.00 | SEW35★ | 11043.00 | — | — | SEA45★ | SEA35★ | 7226.00 |
| | 40 | 4 | 200 | SFG35★ | 13451.00 | SFW35★ | 19319.00 | — | — | SFA45★ | SFA35★ | 15714.00 |
| | 75 | 5 | 400 | SGG35★ | 25707.00 | SGW35★ | 40689.00 | — | — | SGA45★ | SGA35★ | 31089.00 |
| 230 (240) | 3 | 0 | 30 | SBG32★ | 2192.00 | SBW32★ | 3929.00 | SBW42★ | 4521.00 | SBA42★ | SBA32★ | 2676.00 |
| | 5 | 1 | 30 | SCG32★ | 2334.00 | SCW32★ | 4071.00 | SCW42★ | 4685.00 | SCA42★ | SCA32★ | 2817.00 |
| | 7-1/2 | | 60 | SCG33★ | 2363.00 | SCW33★ | 4100.00 | SCW43★ | 4706.00 | SCA43★ | SCA33★ | 2847.00 |
| | 15 | 2 | 60 | SDG32★ | 3873.00 | SDW32★ | 6521.00 | SDW42★ | 7176.00 | SDA42★ | SDA32★ | 4499.00 |
| | 25 | 3 | 100 | SEG35★ | 6399.00 | SEW35★ | 11043.00 | — | — | SEA45★ | SEA35★ | 7226.00 |
| | 50 | 4 | 200 | SFG35★ | 13451.00 | SFW35★ | 19319.00 | — | — | SFA45★ | SFA35★ | 15714.00 |
| | 100 | 5 | 400 | SGG35★ | 25707.00 | SGW35★ | 40689.00 | — | — | SGA45★ | SGA35★ | 31089.00 |
| 460 (480) | 5 | 0 | 30 | SBG33★ | 2219.00 | SBW33★ | 3959.00 | SBW43★ | 4548.00 | SBA43★ | SBA33★ | 2705.00 |
| | 10 | 1 | 30 | SCG34★ | 2363.00 | SCW34★ | 4100.00 | SCW44★ | 4712.00 | SCA44★ | SCA34★ | 2847.00 |
| | 15 | 2 | 30 | SDG36★ | 3893.00 | SDW36★ | 6534.00 | SDW46★ | 7191.00 | SDA46★ | SDA36★ | 4514.00 |
| | 25 | | 60 | SDG34★ | 3915.00 | SDW34★ | 6564.00 | SDW44★ | 7433.00 | SDA44★ | SDA34★ | 4541.00 |
| | 50 | 3 | 100 | SEG33★ | 6485.00 | SEW33★ | 11129.00 | — | — | SEA43★ | SEA33★ | 7311.00 |
| | 100 | 4 | 200 | SFG33★ | 13508.00 | SFW33★ | 19376.00 | — | — | SFA43★ | SFA33★ | 15771.00 |
| | 200 | 5 | 400 | SGG33★ | 26303.00 | SGW33★ | 41288.00 | — | — | SGA43★ | SGA33★ | 31688.00 |
| 575 (600) | 5 | 0 | 30 | SBG33★ | 2219.00 | SBW33★ | 3959.00 | SBW43★ | 4548.00 | SBA43★ | SBA33★ | 2705.00 |
| | 10 | 1 | 30 | SCG34★ | 2363.00 | SCW34★ | 4100.00 | SCW44★ | 4712.00 | SCA44★ | SCA34★ | 2847.00 |
| | 15 | 2 | 30 | SDG36★ | 3893.00 | SDW36★ | 6534.00 | SDW46★ | 7191.00 | SDA46★ | SDA36★ | 4514.00 |
| | 25 | | 60 | SDG34★ | 3915.00 | SDW34★ | 6564.00 | SDW44★ | 7433.00 | SDA44★ | SDA34★ | 4541.00 |
| | 50 | 3 | 100 | SEG33★ | 6485.00 | SEW33★ | 11129.00 | — | — | SEA43★ | SEA33★ | 7311.00 |
| | 100 | 4 | 200 | SFG33★ | 13508.00 | SFW33★ | 19376.00 | — | — | SFA43★ | SFA33★ | 15771.00 |
| | 200 | 5 | 400 | SGG33★ | 26303.00 | SGW33★ | 41288.00 | — | — | SGA43★ | SGA33★ | 31688.00 |

♦ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-53.
▼ 5,000 AIC Rating

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

### Table 16.136: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)▲ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Hp Range Poly-phase | NEMA Size | Circuit Breaker (See Page 7-32 for Breaker Adjustment Range) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 200 (208) | 1/4–3 | 0 | HLL36030M71 | SBG43♦ | **2555.** | SBW43♦ | **4292.** | SBW53♦ | **4932.** | SBA53♦ | SBA43♦ | **3038.** |
| | 1/4–5<br>7-1/2 | 1 | HLL36030M71<br>HLL36050M72 | SCG44♦<br>SCG45♦ | **2726.** | SCW44♦<br>SCW45♦ | **4463.** | SCW54♦<br>SCW55♦ | **5133.** | SCA54♦<br>SCA55♦ | SCA44♦<br>SCA45♦ | **3209.** |
| | 1-1/2–5<br>71/2–10 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **4350.** | SDW42♦<br>SDW43♦ | **6998.** | SDW52♦<br>SDW53♦ | **7695.** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **4976.** |
| | 15–25 | 3 | HLL36100M73 | SEG42♦ | **6501.** | SEW42♦ | **11142.** | SEW52♦ | **12254.** | SEA52♦ | SEA42♦ | **7326.** |
| | 30–40 | 4 | JJL36250M75 | SFG44♦ | **14718.** | SFW44♦ | **20586.** | SFW54♦ | **22644.** | SFA54♦ | SFA44♦ | **16982.** |
| | 50–60<br>75 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **29808.** | SGW44♦<br>SGW45♦ | **44792.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **35190.** |
| | 100<br>125–150 | 6 | LJL36400M36<br>LJL36600M42 | SHG43♦<br>SHG45♦ | **64274.** | SHW43♦<br>SHW45♦ | **71396.** | —<br>— | — | SHA53♦<br>SHA55♦ | SHA43♦<br>SHA45♦ | **68120.** |
| 230 (240) | 1/4–3 | 0 | HLL36030M71 | SBG43♦ | **2555.** | SBW43♦ | **4292.** | SBW53♦ | **4932.** | SBA53♦ | SBA43♦ | **3038.** |
| | 1/4–7-1/2 | 1 | HLL36030M71 | SCG44♦ | **2726.** | SCW44♦ | **4463.** | SCW54♦ | **5133.** | SCA54♦ | SCA44♦ | **3209.** |
| | 1-1/2–7-1/2<br>10<br>15 | 2 | HLL36030M71<br>HLL36050M72<br>HLL36100M73 | SDG42♦<br>SDG43♦<br>SDG44♦ | **4350.** | SDW42♦<br>SDW43♦<br>SDW44♦ | **6998.** | SDW52♦<br>SDW53♦<br>SDW54♦ | **7695.** | SDA52♦<br>SDA53♦<br>SDA54♦ | SDA42♦<br>SDA43♦<br>SDA44♦ | **4976.** |
| | 15–30 | 3 | HLL36100M73 | SEG42♦ | **6501.** | SEW42♦ | **11142.** | SEW52♦ | **12254.** | SEA52♦ | SEA42♦ | **7326.** |
| | 40–50 | 4 | JJL36250M75 | SFG44♦ | **14718.** | SFW44♦ | **20586.** | SFW54♦ | **22644.** | SFA54♦ | SFA44♦ | **16982.** |
| | 60<br>75–100 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **29808.** | SGW44♦<br>SGW45♦ | **44792.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **35190.** |
| | 125–150<br>200 | 6 | LJL36600M42<br>PLL34080M68 | SHG45♦<br>SHG46♦ | **64274.** | SHW45♦<br>SHW46♦ | **71396.** | —<br>— | — | SHA55♦<br>SHA56♦ | SHA45♦<br>SHA46♦ | **68120.** |

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

### Table 16.137: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . .page 16-57
Factory Modifications (Forms) . . . . . .page 16-100
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.138: Full-Voltage Type, Reversing with Melting Alloy Overload Relays**

| Ratings | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Hp Range Poly-phase | NEMA Size | Circuit Breaker (See Page 7-32 for Breaker Adjustment Range) | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset Type | Without External Reset Type | $ Price |
| 460 (480) | 1/4–5 | 0 | HLL36030M71 | SBG43♦ | **2555.** | SBW43♦ | **4292.** | SBW53♦ | **4932.** | SBA53♦ | SBA43♦ | **3038.** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44♦ | **2726.** | SCW44♦ | **4463.** | SCW54♦ | **5133.** | SCA54♦ | SCA44♦ | **3209.** |
| | 5–15<br>20–25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **4350.** | SDW42♦<br>SDW43♦ | **6998.** | SDW52♦<br>SDW53♦ | **7695.** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **4976.** |
| | 20–25<br>30–50 | 3 | HLL36050M72<br>HLL36100M73 | SEG41♦<br>SEG42♦ | **6501.** | SEW41♦<br>SEW42♦ | **11142.** | SEW51♦<br>SEW52♦ | **12254.** | SEA51♦<br>SEA52♦ | SEA41♦<br>SEA42♦ | **7326.** |
| | 60–100 | 4 | JLL36250M75 | SFG44♦ | **14718.** | SFW44♦ | **20586.** | SFW54♦ | **22644.** | SFA54♦ | SFA44♦ | **16982.** |
| | 125<br>150–200 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **29808.** | SGW44♦<br>SGW45♦ | **44792.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **35190.** |
| | 250–350<br>400 | 6 | LJL36600M42<br>PLL34080M68 | SHG45♦<br>SHG46♦ | **64274.** | SHW45♦<br>SHW46♦ | **71396.** | —<br>— | — | SHA55♦<br>SHA56♦ | SHA45♦<br>SHA46♦ | **68120.** |
| 575 (600) | 1/4–5 | 0 | HLL36030M71 | SBG43♦ | **2555.** | SBW43♦ | **4292.** | SBW53♦ | **4932.** | SBA53♦ | SBA43♦ | **3038.** |
| | 1/4–10 | 1 | HLL36030M71 | SCG44♦ | **2726.** | SCW44♦ | **4463.** | SCW54♦ | **5133.** | SCA54♦ | SCA44♦ | **3209.** |
| | 5–20<br>25 | 2 | HLL36030M71<br>HLL36050M72 | SDG42♦<br>SDG43♦ | **4350.** | SDW42♦<br>SDW43♦ | **6998.** | SDW52♦<br>SDW53♦ | **7695.** | SDA52♦<br>SDA53♦ | SDA42♦<br>SDA43♦ | **4976.** |
| | 25–30<br>40–50 | 3 | HLL36050M72<br>HLL36100M73 | SEG41♦<br>SEG42♦ | **6501.** | SEW41♦<br>SEW42♦ | **11142.** | SEW51♦<br>SEW52♦ | **12254.** | SEA51♦<br>SEA52♦ | SEA41♦<br>SEA42♦ | **7326.** |
| | 60–100 | 4 | JLL36250M75 | SFG44♦ | **14718.** | SFW44♦ | **20586.** | SFW54♦ | **22644.** | SFA54♦ | SFA44♦ | **16982.** |
| | 125–150<br>200 | 5 | JLL36250M75<br>LJL36400M36 | SGG44♦<br>SGG45♦ | **29808.** | SGW44♦<br>SGW45♦ | **44792.** | —<br>— | — | SGA54♦<br>SGA55♦ | SGA44♦<br>SGA45♦ | **35190.** |
| | 250<br>300–400 | 6 | LJL36400M36<br>LJL36600M42 | SHG43♦<br>SHG45♦ | **64274.** | SHW43♦<br>SHW45♦ | **71396.** | —<br>— | — | SHA53♦<br>SHA55♦ | SHA43♦<br>SHA45♦ | **68120.** |

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

**Table 16.139: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions. . . . . page 16-57
Factory Modifications (Forms) . . . . . page 16-100
Replacement Parts (Class 9998). . . . . page 16-105
Type S Accessories (Class 9999) . . . . . page 16-108

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

### Table 16.140: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

| Ratings | | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)▲ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Circuit Breaker | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | Type | Ampere Rating | | | | | | | Type | Type | |
| 200 (208) | 2<br>3 | 0 | HLL36015<br>HLL36020 | 15<br>20 | SBG1♦<br>SBG3♦ | 2228. | SBW1♦<br>SBW3♦ | 3965. | SBW11♦<br>SBW13♦ | 4563. | SBA11♦<br>SBA13♦ | SBA1♦<br>SBA3♦ | 2712. |
| | 5<br>7-1/2 | 1 | HLL36035<br>HLL36050 | 35<br>50 | SCG5♦<br>SCG2♦ | 2399. | SCW5♦<br>SCW2♦ | 4136. | SCW15♦<br>SCW12♦ | 4761. | SCA15♦<br>SCA12♦ | SCA5♦<br>SCA2♦ | 2883. |
| | 10 | 2 | HLL36060 | 60 | SDG1♦ | 4022. | SDW1♦ | 6672. | SDW11♦ | 7340. | SDA11♦ | SDA1♦ | 4649. |
| | 15<br>20<br>25 | 3 | HLL36100<br>HLL36125<br>HLL36150 | 100<br>125<br>150 | SEG3♦<br>SEG1♦<br>SEG5♦ | 6501. | SEW3♦<br>SEW1♦<br>SEW5♦ | 11142. | SEW13♦<br>SEW11♦<br>SEW15♦ | 12254. | SEA13♦<br>SEA11♦<br>SEA15♦ | SEA3♦<br>SEA1♦<br>SEA5♦ | 7326. |
| | 30<br>40 | 4 | JLL36200<br>JLL36250 | 200<br>250 | SFG3♦<br>SFG4♦ | 14718. | SFW3♦<br>SFW4♦ | 20586. | SFW13♦<br>SFW14♦ | 22644. | SFA13♦<br>SFA14♦ | SFA3♦<br>SFA4♦ | 16982. |
| | 50<br>60–75 | 5 | JLL36250<br>LLL36400E20 | 250<br>400 | SGG6♦<br>SGG4♦ | 29808. | SGW6♦<br>SGW4♦ | 44792. | —<br>— | — | SGA16♦<br>SGA14♦ | SGA6♦<br>SGA4♦ | 35190. |
| | 100–125<br>150 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | 64274. | SHW4♦<br>SHW5♦ | 71396. | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | 68120. |
| 230 (240) | 2<br>3 | 0 | HLL36015<br>HLL36020 | 15<br>20 | SBG1♦<br>SBG3♦ | 2228. | SBW1♦<br>SBW3♦ | 3965. | SBW11♦<br>SBW13♦ | 4563. | SBA11♦<br>SBA13♦ | SBA1♦<br>SBA3♦ | 2712. |
| | 5<br>7-1/2 | 1 | HLL36035<br>HLL36045 | 35<br>45 | SCG5♦<br>SCG6♦ | 2399. | SCW5♦<br>SCW6♦ | 4136. | SCW15♦<br>SCW16♦ | 4761. | SCA15♦<br>SCA16♦ | SCA5♦<br>SCA6♦ | 2883. |
| | 10<br>15 | 2 | HLL36060<br>HLL36090 | 60<br>90 | SDG1♦<br>SDG7♦ | 4022. | SDW1♦<br>SDW7♦ | 6672. | SDW11♦<br>SDW17♦ | 7340. | SDA11♦<br>SDA17♦ | SDA1♦<br>SDA7♦ | 4649. |
| | 20<br>25–30 | 3 | HLL36100<br>HLL36150 | 100<br>150 | SEG3♦<br>SEG5♦ | 6501. | SEW3♦<br>SEW5♦ | 11142. | SEW13♦<br>SEW15♦ | 12254. | SEA13♦<br>SEA15♦ | SEA3♦<br>SEA5♦ | 7326. |
| | 40<br>50 | 4 | JLL36225<br>JLL36250 | 225<br>250 | SFG1♦<br>SFG4♦ | 14718. | SFW1♦<br>SFW4♦ | 20586. | SFW11♦<br>SFW14♦ | 22644. | SFA11♦<br>SFA14♦ | SFA1♦<br>SFA4♦ | 16982. |
| | 60<br>75<br>100 | 5 | JLL36250<br>LLL36400E20<br>LLL36600E20 | 250<br>400<br>600 | SGG6♦<br>SGG4♦<br>SGG2♦ | 29808. | SGW6♦<br>SGW4♦<br>SGW2♦ | 44792. | —<br>—<br>— | — | SGA16♦<br>SGA14♦<br>SGA12♦ | SGA6♦<br>SGA4♦<br>SGA2♦ | 35190. |
| | 125<br>150–200 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | 64274. | SHW4♦<br>SHW5♦ | 71396. | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | 68120. |

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

### Table 16.141: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG1V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG5V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Dimensions . . . . . .page 16-57
Factory Modifications (Forms) . . . . . .page 16-100
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

**Table 16.142: Full-Voltage Type, Reversing with Melting Alloy Overload Relays**

| Ratings | | | | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0 - 5)▲ | | NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure | | NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | NEMA Size | Circuit Breaker | | Type | $ Price | Type | $ Price | Type | $ Price | With External Reset | Without External Reset | $ Price |
| | | | Type | Ampere Rating | | | | | | | Type | Type | |
| 460 (480) | 5 | 0 | HLL36015 | 15 | SBG1♦ | **2555.** | SBW1♦ | **4292.** | SBW11♦ | **4932.** | SBA11♦ | SBA1♦ | **3038.** |
| | 7-1/2<br>10 | 1 | HLL36025<br>HLL36030 | 25<br>30 | SCG3♦<br>SCG7♦ | **2726.** | SCW3♦<br>SCW7♦ | **4463.** | SCW13♦<br>SCW17♦ | **5133.** | SCA13♦<br>SCA17♦ | SCA3♦<br>SCA7♦ | **3209.** |
| | 15<br>20<br>25 | 2 | HLL36045<br>HLL36060<br>HLL36070 | 45<br>60<br>70 | SDG3♦<br>SDG1♦<br>SDG5♦ | **4350.** | SDW3♦<br>SDW1♦<br>SDW5♦ | **6998.** | SDW13♦<br>SDW11♦<br>SDW15♦ | **7695.** | SDA13♦<br>SDA11♦<br>SDA15♦ | SDA3♦<br>SDA1♦<br>SDA5♦ | **4976.** |
| | 30<br>40<br>50 | 3 | HLL36080<br>HLL36100<br>HLL36150 | 80<br>100<br>150 | SEG6♦<br>SEG3♦<br>SEG5♦ | **6501.** | SEW6♦<br>SEW3♦<br>SEW5♦ | **11142.** | SEW16♦<br>SEW13♦<br>SEW15♦ | **12254.** | SEA16♦<br>SEA13♦<br>SEA15♦ | SEA6♦<br>SEA3♦<br>SEA5♦ | **7326.** |
| | 60<br>75<br>100 | 4 | JJL36105<br>JJL36200<br>JJL36250 | 150<br>200<br>250 | SFG5♦<br>SFG3♦<br>SFG4♦ | **14718.** | SFW5♦<br>SFW3♦<br>SFW4♦ | **20586.** | SFW15♦<br>SFW13♦<br>SFW14♦ | **22644.** | SFA15♦<br>SFA13♦<br>SFA14♦ | SFA5♦<br>SFA3♦<br>SFA4♦ | **16982.** |
| | 125–150<br>200 | 5 | LLL36400E20<br>LLL36600E20 | 400<br>600 | SGG4♦<br>SGG2♦ | **29808.** | SGW4♦<br>SGW2♦ | **44792.** | —<br>— | — | SGA14♦<br>SGA12♦ | SGA4♦<br>SGA2♦ | **35190.** |
| | 250<br>300–400 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | **64274.** | SHW4♦<br>SHW5♦ | **71396.** | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | **68120.** |
| 575 (600) | 5 | 0 | HLL36015 | 15 | SBG1♦ | **2555.** | SBW1♦ | **4292.** | SBW11♦ | **4932.** | SBA11♦ | SBA1♦ | **3038.** |
| | 7-1/2<br>10 | 1 | HLL36020<br>HLL36025 | 20<br>25 | SCG8♦<br>SCG3♦ | **2726.** | SCW8♦<br>SCW3♦ | **4463.** | SCW18♦<br>SCW13♦ | **5133.** | SCA18♦<br>SCA13♦ | SCA8♦<br>SCA3♦ | **3209.** |
| | 15<br>20<br>25 | 2 | HLL36035<br>HLL36045<br>HLL36060 | 35<br>45<br>60 | SDG8♦<br>SDG3♦<br>SDG1♦ | **4350.** | SDW8♦<br>SDW3♦<br>SDW1♦ | **6998.** | SDW18♦<br>SDW13♦<br>SDW11♦ | **7695.** | SDA18♦<br>SDA13♦<br>SDA12♦ | SDA8♦<br>SDA3♦<br>SDA1♦ | **4976.** |
| | 30<br>40<br>50 | 3 | HLL36070<br>HLL36090<br>HLL36100 | 70<br>90<br>100 | SEG4♦<br>SEG6♦<br>SEG3♦ | **6501.** | SEW4♦<br>SEW6♦<br>SEW3♦ | **11142.** | SEW14♦<br>SEW16♦<br>SEW13♦ | **12254.** | SEA14♦<br>SEA16♦<br>SEA13♦ | SEA4♦<br>SEA6♦<br>SEA3♦ | **7326.** |
| | 60–75<br>100 | 4 | JLL36150<br>JLL36250 | 150<br>250 | SFG5♦<br>SFG4♦ | **14718.** | SFW5♦<br>SFW4♦ | **20586.** | SFW15♦<br>SFW14♦ | **22644.** | SFA15♦<br>SFA14♦ | SFA5♦<br>SFA4♦ | **16982.** |
| | 125–150<br>200 | 5 | JLL36250<br>LLL36400E20 | 250<br>400 | SGG6♦<br>SGG4♦ | **29808.** | SGW6♦<br>SGW4♦ | **44792.** | —<br>— | — | SGA16♦<br>SGA14♦ | SGA6♦<br>SGA4♦ | **35190.** |
| | 250–350<br>400 | 6 | LLL36600E20<br>MJL36800 | 600<br>800 | SHG4♦<br>SHG5♦ | **64274.** | SHW4♦<br>SHW5♦ | **71396.** | —<br>— | — | SHA14♦<br>SHA15♦ | SHA4♦<br>SHA5♦ | **68120.** |

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

**Table 16.143: Class 8738 UL Listed Short Circuit Ratings**

| NEMA Size | Fuse Clip Type | Enclosure | Ampere Interrupting Capability Rating (AIC) |
|---|---|---|---|
| 0-3 | Standard | Standard★ | 5,000 |
| 0-3 | Class R | Standard★ | 100,000 |
| 4-5 | Standard | Standard★ | 10,000 |
| 4-5 | Class R | Standard★ | 100,000 |

★ Standard enclosure includes: NEMAs 1, 4 & 4X stainless, and 12/3R.

**Table 16.144: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24△▼ | — | V01 | No Charge |
| 120△ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

▼ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG2V01S).
△ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SDG3V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

**Table 16.145: Class 8739 UL Listed Short Circuit Ratings**

| Motor Circuit Protector Type | | | |
|---|---|---|---|
| NEMA Size | Voltage | Enclosure | Ampere Interrupting Capability Rating (AIC) |
| 0, 1 | 480 | Standard□ | 100,000 |
| 0, 1 | 481 – 600 | Standard□ | 35,000 |
| 2, 3, 4, 5 | 480 | Standard□ | 100,000 |
| 2, 3, 4, 5 | 481 – 600 | Standard□ | 50,000 |
| 6 | 480 | Standard□ | 65,000 |
| 6 | 600 | Standard□ | 18,000 |
| **Thermal Magnetic Circuit Breaker Type** | | | |
| 0, 1 | 480 | Standard□ | 100,000 |
| 0, 1 | 481 – 600 | Standard□ | 35,000 |
| 2, 3, 4, 5 | 480 | Standard□ | 100,000 |
| 2, 3, 4, 5 | 481 – 600 | Standard□ | 50,000 |
| 6 | 480 | Standard□ | 65,000 |
| 6 | 600 | Standard□ | 18,000 |

□ Standard enclosure includes: NEMAs 1, 4 & 4X stainless, and 12/3R.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.146: NEMA 1 Enclosure (Size 0–2) Figure 1

| NEMA Size | Class | Type | Dimensions (in inches)♦—see Figure 1 | | | | | | | | | | | | | | | | Top & Bottom | | Sides | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | W | X | Y | |
| 0–1 | 8738 & 8739 | SBG SCG | 13-3/4 | 23 | 8-11/32 | 10-5/8 | 21 | 18-29/32 | 1-7/8 | 1-7/8 | 3-3/4 | 2-5/16 | 1-1/16 | 3-1/4 | 2-3/16 | 1-1/4 | 7/8 | — | 1/2–3/4–1 | 1/2–3/4–1 | 1/2 | 49 |
| 2 | 8738 & 8739 | SDG | 15 | 28-3/4 | 9-19/32 | 11-5/8 | 26-1/4 | 21-15/32 | 2-3/16 | 2 | 4 | 2-9/16 | 1-1/4 | 3-1/4 | 2-3/16 | 1-1/4 | 29/32 | — | 1–1-1/4 | 1–1-1/4 | 1/2 | 80 |

### Table 16.147: NEMA 1 Enclosure (Size 3–6) Figure 2

| NEMA Size | Class | Type | Dimensions (in inches)♦—see Figure 2 | | | | | | | | | | | | | | | | Top & Bottom | | Sides | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | W | X | Y | |
| 3 | 8738 & 8739 | SEG | 18-1/2 | 44 | 10-19/32 | 12-1/2 | 3 | 25-31/32 | 43-1/2 | 1/4 | — | 2-13/16 | 3-1/2 | 5 | 2-11/16 | 5-3/8 | 1-7/32 | 29/32 | 1–1-1/4<br>2–2-1/4 | 1/2–3/4 | 1/2 | 245 |
| 4 | 8738 | SFG | 21 | 51-1/2 | 10-17/32 | 15 | 3 | 30-23/32 | 51 | 1/4 | — | 2-13/16 | 3-1/2 | 5 | 2-11/16 | 5-3/8 | 1-7/32 | 29/32 | 2-1/2 | 1/2–3/4 | 1/2 | — |
| | 8739 | SFG | 18-1/2 | 44 | 10-19/32 | 12-1/2 | 3 | 25-31/32 | 43-1/2 | 1/4 | — | 2-13/16 | 3-1/2 | 5 | 2-11/16 | 5-3/8 | 1-7/32 | 29/32 | 1–1-1/4<br>2–2-1/4 | 1/2–3/4 | 1/2 | — |
| 5 | 8738 | SGG | 30 | 77 | 15-1/2 | 22 | 4 | 39-13/32 | 76 | 1/2 | — | 3-1/2 | 6-9/32 | 9-1/4 | 3-3/16 | — | — | — | 1/2–3/4 | 3 | — | — |
| | 8739 | SGG | 30 | 65 | 13-23/32 | 22 | 4 | 39-13/32 | 64 | 1/2 | — | 3-1/2 | 6-9/32 | 5 | 3-3/16 | — | — | — | 1/2–3/4 | 3 | — | — |
| 6 | 8738 & 8739 | SHG | 36 | 90 | 17-1/32 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

### Table 16.148: NEMA 12/3R Enclosure Figure 3

| NEMA Size | Class | Type | Dimensions (in inches)♦—see Figure 3 | | | | | | | | | | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | |
| 0–1 | 8738 & 8739 | SBA SCA | 13-3/4 | 10-3/32 | 24-3/4 | 3-1/4 | 2-1/2 | 8-3/4 | 24 | 3/8 | 3-3/4 | 20-5/16 | 52 |
| 2 | 8738 & 8739 | SDA | 15 | 10-31/32 | 31 | 3-1/4 | 3 | 9 | 30-1/4 | 3/8 | 3-3/4 | 23-7/16 | 95 |
| 3 | 8738 & 8739 | SEA | 18-1/2 | 10-19/32 | 45 | 5 | 3 | 12-1/2 | 44 | 1/2 | 3-3/4 | 25-19/32 | 255 |
| 4 | 8738 | SFA | 21 | 10-19/32 | 52-1/2 | 5 | 3 | 15 | 51-1/2 | 1/2 | 3-3/4 | 30-11/32 | — |
| | 8739 | SFA | 18-1/2 | 10-19/32 | 45 | 3-1/4 | 3 | 12-1/2 | 44 | 1/2 | 3-3/4 | 25-19/32 | — |
| 5 | 8738 | SGA | 30 | 15-1/2 | 78 | 9-1/4 | 4 | 22 | 77 | 1/2 | 7-1/2 | 39-13/32 | — |
| | 8739 | SGA | 30 | 15-1/2 | 66 | — | 4 | 22 | 65 | 1/2 | 7-1/2 | 37-7/8 | — |
| 6▲ | 8739 | SHA | 36 | 17-1/32 | 90 | — | — | — | — | — | — | — | — |

▲ Size 6 enclosures are floor mounting.

### Table 16.149: NEMA 4X Polyester Enclosure■ Figure 4

| NEMA Size | Class | Dimensions (in inches)♦—see Figure 4 | | | | | |
|---|---|---|---|---|---|---|---|
| | | Type | A | B | C | E | F |
| 0-2 | 8738 & 8739 | SBW SCW SDW | 25.25 | 11.4 | 27.00 | 17.88 | 25.75 |
| 3-4 | 8739 | SEW SFW | 26.31 | 11.4 | 33.50 | 18.50 | 32.25 |

■ See page 16-58 for important information on hubs for NEMA 4X enclosures.

♦ The dimensions shown in all tables above are also for **Form F4T** (standard control transformer), **Form F4T11** (100 VA extra-capacity), and **Form F4T12** (200 VA extra-capacity).

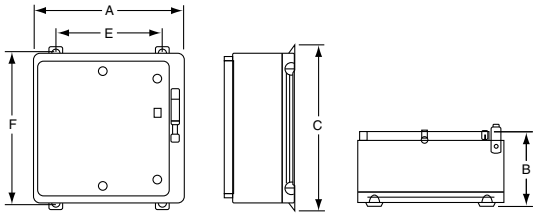



Figure 4: NEMA 4X Polyester Enclosure

***NOTE:*** *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

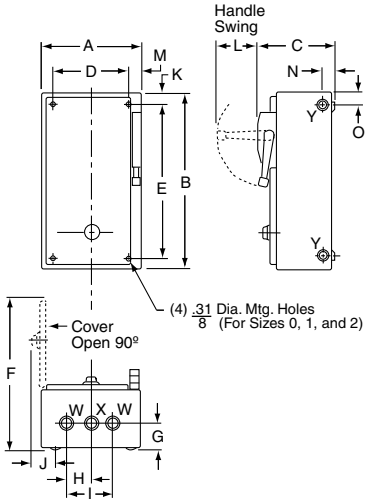



Figure 1:
NEMA 1 Enclosure (Sizes 0–2)

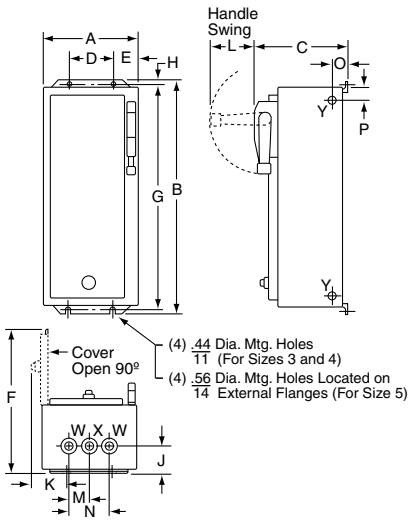



Figure 2:
NEMA 1 Enclosure (Sizes 3–6)

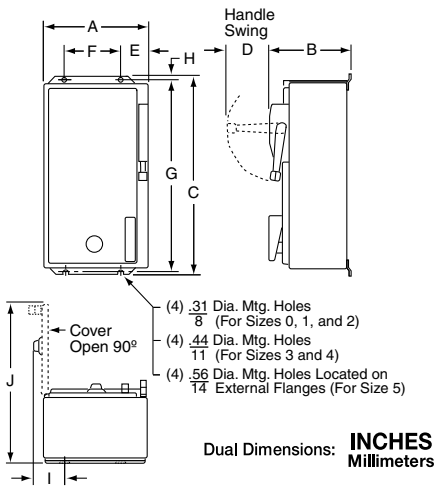



Figure 3:
NEMA 12 Enclosure



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

**Table 16.150: NEMA 4 & 4X Stainless Enclosure Figure 1**

| NEMA Size | Class | Type | Dimensions (in inches)▲—see Figure 1 | | | | | | | | | | | | Bottom | Top & Bot. | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H | I | J | K | L | W | X | |
| 0–1 | 8738 & 8739 | SBW SCW | 13-3/4 | 8-11/32 | 25-3/16 | 3-1/4 | 2-1/2 | 8-3/4 | 24 | 19/32 | 3 | 1-5/8 | 2-5/16 | 18-17/32 | 3/4 Hub | 1 Hub | 52 |
| 2 | 8738 & 8739 | SDW | 15 | 9-19/32 | 30-1/32 | 3-1/4 | 2-1/2 | 10 | 29-3/4 | 5/8 | 3 | 2 | 2-5/8 | 21-1/32 | 3/4 Hub | 1-1/2 Hub | 95 |
| 3 | 8738 & 8739 | SEW | 18-1/2 | 10-9/16 | 45-3/16 | 5 | 3 | 12-1/2 | 44 | 19/32 | 3-1/2 | 2-5/8 | 3-3/16 | 25-1/2 | 3/4 Hub | 2-1/2 Hub | 255 |
| 4 | 8738 | SFW | 21 | 10-17/32 | 52-11/16 | 5 | 3 | 15 | 51-1/2 | 19/32 | 3-1/2 | 2-5/8 | 3-3/16 | 30-1/4 | 3/4 Hub | 2-1/2 Hub | — |
| | 8739 | SFW | 18-1/2 | 10-9/16 | 45-3/16 | 5 | 3 | 12-1/2 | 44 | 19/32 | 3-1/2 | 2-5/8 | 3-3/16 | 25-1/2 | 3/4 Hub | 2-1/2 Hub | — |
| 5 | 8738 | SGW | 30 | 15-1/2 | 78-3/32 | 9-1/4 | 4 | 22 | 77 | 9/16 | 6-3/32 | 3 | 3-1/2 | 39-13/32 | 3/4 Hub | 3-1/2 Hub | — |
| | 8739 | SGW | 30 | 13-57/64 | 66-3/32 | 5 | 4 | 22 | 65 | 9/16 | 6-3/32 | 3 | 3-1/2 | 37-7/8 | 3/4 Hub | 3-1/2 Hub | — |
| 6 | 8739 | SHW | 36 | 17-1/32 | 98 | — | — | — | — | — | — | — | — | — | — | — | — |

▲ Above dimensions also for **Form F4T** (standard control transformer), **Form F4T11** (100 VA extra capacity) and **Form F4T12** (200 VA extra capacity).

***NOTE:*** *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

### Information on Hubs

Hubs are supplied with each NEMA 4X combination starter as shown in the table below.

Note that hubs are only installed in stainless steel enclosures; they are supplied but not installed in polyester enclosures.

**Table 16.151:**

| NEMA Size | Quantity | Hub Size |
|---|---|---|
| 0 & 1 | 1<br>2 | 0.75"<br>1.00" |
| 2 | 1<br>2 | 0.75"<br>1.50" |
| 3 & 4 | 1<br>2 | 0.75"<br>2.50" |

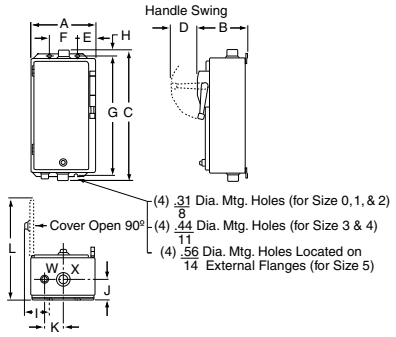



Figure 1:
NEMA 4 & 4X Stainless Enclosure





© 2012 Schneider Electric
All Rights Reserved

# Multipole Lighting Contactors, Type L & LX

## Features

- 30 A fluorescent lighting rating, 20 A tungsten lighting rating
- Electrically and mechanically held
- 2 through 12-pole versions
- Field-convertible contacts with N.O. and N.C. indicators (8 N.C. contacts maximum★)
- Silver-Cadmium-Oxide double break contacts

File E78427 CCN NRNT

File LR60905 Class 3211 07



Type L



Type LX

### Table 16.152: Multipole Lighting Contactors (50–60 Hz)

| Contact Ampere Ratings | No. of Poles | NEMA 1 General Purpose Enclosure | | NEMA 1 Flush Mounting General Purpose Enclosure with Plaster Adjustment | | NEMA 3R Rainproof Enclosure▼ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure | | NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure | | NEMA 12/3R△ Dusttight and Driptight Industrial Use Enclosure | | Open Type■ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ |
| **Electrically Held★** | | | | | | | | | | | | | | | |
| 30♦ | 2 | LG20♦ | **446.00** | LF20♦ | **689.00** | LH20♦ | **860.00** | LWW20♦ | **1146.00** | LW20♦ | **917.00** | LA20♦ | **860.00** | LO20♦ | **404.00** |
| | 3 | LG30♦ | **489.00** | LF30♦ | **732.00** | LH30♦ | **903.00** | LWW30♦ | **1197.00** | LW30♦ | **959.00** | LA30♦ | **903.00** | LO30♦ | **446.00** |
| | 4 | LG40♦ | **617.00** | LF40♦ | **860.00** | LH40♦ | **1031.00** | LWW40♦ | **1358.00** | LW40♦ | **1088.00** | LA40♦ | **1031.00** | LO40♦ | **575.00** |
| | 6 | LG60♦ | **890.00** | LF60♦ | **1031.00** | LH60♦ | **1202.00** | LWW60♦ | **1571.00** | LW60♦ | **1259.00** | LA60♦ | **1202.00** | LO60♦ | **746.00** |
| | 8 | LG80♦ | **1160.00** | LF80♦ | **1301.00** | LH80♦ | **1472.00** | LWW80♦ | **1908.00** | LW80♦ | **1529.00** | LA80♦ | **1472.00** | LO80♦ | **1017.00** |
| | 10 | LG1000♦ | **1331.00** | LF1000♦ | **1472.00** | LH1000♦ | **1643.00** | LWW1000♦ | **2123.00** | LW1000♦ | **1700.00** | LA1000♦ | **1643.00** | LO1000♦ | **1188.00** |
| | 12 | LG1200♦ | **1529.00** | LF1200♦ | **1673.00** | LH1200♦ | **1844.00** | LWW1200♦ | **2372.00** | LW1200♦ | **1899.00** | LA1200♦ | **1844.00** | LO1200♦ | **1386.00** |
| **Mechanically Held▼□** | | | | | | | | | | | | | | | |
| 30♦ | 2 | LXG20♦ | **702.00** | LXF20♦ | **975.00** | — | — | LXWW20♦ | **1728.00** | LXW20♦ | **1728.00** | LXA20♦ | **1017.00** | LXO20♦ | **590.00** |
| | 3 | LXG30♦ | **738.00** | LXF30♦ | **1008.00** | — | — | LXWW30♦ | **1764.00** | LXW30♦ | **1764.00** | LXA30♦ | **1052.00** | LXO30♦ | **624.00** |
| | 4 | LXG40♦ | **761.00** | LXF40♦ | **1031.00** | — | — | LXWW40♦ | **1785.00** | LXW40♦ | **1785.00** | LXA40♦ | **1074.00** | LXO40♦ | **647.00** |
| | 6 | LXG60♦ | **1160.00** | LXF60♦ | **1430.00** | — | — | LXWW60♦ | **2186.00** | LXW60♦ | **2186.00** | LXA60♦ | **1472.00** | LXO60♦ | **1044.00** |
| | 8 | LXG80♦ | **1287.00** | LXF80♦ | **1557.00** | — | — | LXWW80♦ | **2313.00** | LXW80♦ | **2313.00** | LXA80♦ | **1601.00** | LXO80♦ | **1173.00** |
| | 10 | LXG1000♦ | **1430.00** | LXF1000♦ | **1700.00** | — | — | LXWW1000♦ | **2456.00** | LXW1000♦ | **2456.00** | LXA1000♦ | **1742.00** | LXO1000♦ | **1314.00** |
| | 12 | LXG1200♦ | **1580.00** | LXF1200♦ | **1850.00** | — | — | LXWW1200♦ | **2604.00** | LXW1200♦ | **2604.00** | LXA1200♦ | **1893.00** | LXO1200♦ | **1466.00** |

▲ Price does not include holding circuit contact.
■ Separate enclosures are available for these devices. It may be possible to improve delivery by ordering an open type contactor and separate Class 9991 enclosure.
♦ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed below. All lighting contactors are provided with separate control as standard.
★ Factory conversion of N.O. contacts to N.C., order by catalog number and add **$42.80** to price (i.e. For 6 N.O. and 2 N.C. poles on an 8 pole contactor, order as 8903LG62V02). Versions are available from the factory with up to 12 N.C. poles electrically held or 2, 4, 6 and 12 N.C. poles mechanically held. For field conversion, there is a maximum of eight N.C. poles for Type L and a maximum of six N.C. poles for Type LX contactors.

***NOTE:*** *For contactors with more than 8 poles, the catalog number configuration will be the number of normally open contacts followed by a 0 and then the number of normally closed contacts (i.e. for 4 NO and 6 NC on a 10 pole contactor order 8903LG406V02).*

▼ Cannot support control transformer forms.
△ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.
□ When ordering Form C, Form R6 must be included.

### Table 16.153: Power Poles for Type L or LX -

The kits below are used to add 30 Ampere power poles to existing Type L contactors when additional circuits are required. Type L lighting contactors are supplied with mounting brackets, so that adder poles may be mounted from the front by a single captive screw. Adder poles are supplied standard with N.O. contacts which are convertible to N.C.

| Power Pole Adder Kit◊ | | Can Only Be Added to Contactor Type☆ |
|---|---|---|
| Class 8903 Type | $ Price | |
| **Single Pole** | | LO60<br>LXO60<br>LO80<br>LXO80<br>LO1000<br>LXO1000 |
| L1L | **86.00** | |
| L1R | **86.00** | |
| **Double Pole** | | |
| L3L | **171.00** | |
| L3R | **171.00** | |

◊ 8903LO (electrically held) devices can accommodate 10 or 12 N.C. contacts use **only** 120 V 60Hz coils.
☆ LO60 & LXO60—add 1-pole kits only, 1 on each side, for converting to 8-pole. To maintain proper operation, it cannot be converted to greater than 8-pole contactor. LO80 & LXO80—use single-pole kits, 1 on each side, for converting to 10-pole and use two-pole kits, 1 on each side, for converting to 12-pole. LO1000 & LXO1000—remove existing single pole kit and install two-pole kits, 1 on each side, for converting to 12-pole.



Type L3L Type LO80 Type L3R

### Table 16.154: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24 | — | V01 | No Charge |
| 120 | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| Specify | Specify | V99 | 35.60 |

Factory Modifications (Forms). . . . . .page 16-63
Replacement Coils . . . . . .pages 16-105, 16-106
Replacement Contacts . . . . . page 16-107



Type L1L Type LO60 Type L1R

### Table 16.155: How to Order

| To Order Specify: | Catalog Number | | | |
|---|---|---|---|---|
| | Class | Type | Voltage Code | Form(s) |
| • Class Number<br>• Type Number<br>• Voltage Code<br>• Form(s) | 8903 | LXG60 | VO4 | CF4R6 |



© 2012 Schneider Electric
All Rights Reserved

## Features

- Electrically and mechanically held
- 30–800 A lighting ratings
- 2- through 5-pole versions (5-poles through 200 A)
- UL Listed short-circuit rating up to 100,000 Amperes
- Factory wired controls and clearly marked termination points
- Quick ship on most items in 5–7 days



Electrically Held



Mechanically Held

File E78427
CCN NRNT

File LR60905
(Open Devices Only)
Class 3231 01

### Table 16.156: Multipole Lighting Contactors—Type S (50–60 Hz)

| Contact Ampere Ratings | No. of Poles | NEMA 1 General Purpose Enclosure | | NEMA 1 Flush Mounting General Purpose Enclosure with Plaster Adjustment | | NEMA Type 3R Rainproof Enclosure△ | | NEMA 4 & 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure | | NEMA Type 4 & 4X▲ Watertight and Dusttight Enclosure | | NEMA Type 12 / 3R◊ Dusttight and Driptight Industrial Use Enclosure | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Type | $ Price■ | Type | $ Price■ | Type | $ Price■ | Type | $ Price■ | Type | $ Price■ | Type | $ Price■ | Type | $ Price■ |
| **Electrically Held♦** | | | | | | | | | | | | | | | |
| 30 | 2 | SMG1★ | 476. | SMF1★ | 660. | SMH1★ | 647. | SMW21★ | 989. | SMW1★ | 989. | SMA1★ | 647. | SMO1★▼ | 446. |
| | 3 | SMG2★ | 518. | SMF2★ | 689. | SMH2★ | 689. | SMW22★ | 1031. | SMW2★ | 1031. | SMA2★ | 810. | SMO2★▼ | 488. |
| | 4 | SMG3★ | 633. | SMF3★ | 818. | SMH3★ | 804. | SMW23★ | 1146. | SMW3★ | 1146. | SMA3★ | 804. | SMO3★▼ | 603. |
| | 5 | SMG4★ | 831. | SMF4★ | 1017. | SMH4★ | 1002. | SMW24★ | 1344. | SMW4★ | 1344. | SMA4★ | 1002. | SMO4★▼ | 534. |
| 60 | 2 | SPG1★ | 975. | SPF1★ | 1215. | SPH1★ | 1287. | SPW21★ | 1998. | SPW1★ | 1998. | SPA1★ | 1287. | SPO1★▼ | 831. |
| | 3 | SPG2★ | 1031. | SPF2★ | 1272. | SPH2★ | 1344. | SPW22★ | 2057. | SPW2★ | 2057. | SPA2★ | 1344. | SPO2★▼ | 890. |
| | 4 | SPG3★ | 1287. | SPF3★ | 1529. | SPH3★ | 1601. | SPW23★ | 2712. | SPW3★ | 2712. | SPA3★ | 1601. | SPO3★▼ | 1146. |
| | 5 | SPG4★ | 1857. | SPF4★ | 2100. | SPH4★ | 2142. | SPW24★ | 3281. | SPW4★ | 3281. | SPA4★ | 2142. | SPO4★▼ | 1715. |
| 100 | 2 | SQG1★ | 1601. | SQF1★ | 2015. | SQH1★ | 1971. | SQW21★ | 3815. | SQW1★ | 3054. | SQA1★ | 1971. | SQO1★▼ | 1314. |
| | 3 | SQG2★ | 1715. | SQF2★ | 2127. | SQH2★ | 2084. | SQW22★ | 3959. | SQW2★ | 3167. | SQA2★ | 2084. | SQO2★▼ | 1430. |
| | 4 | SQG3★ | 2114. | — | — | SQH3★ | 2484. | — | — | SQW3★ | 3965. | SQA3★ | 2484. | SQO3★▼ | 1827. |
| | 5 | SQG4★ | 3024. | — | — | SQH4★ | 3396. | — | — | SQW4★ | 4877. | SQA4★ | 3396. | SQO4★▼ | 2739. |
| 200 | 2 | SVG1★ | 3765. | — | — | SVH1★ | 4991. | — | — | SVW1★ | 6245. | SVA1★ | 4991. | SVO1★ | 3167. |
| | 3 | SVG2★ | 4022. | — | — | SVH2★ | 5247. | — | — | SVW2★ | 6501. | SVA2★ | 5247. | SVO2★ | 3423. |
| | 4 | SVG3★ | 5285. | — | — | — | — | — | — | SVW3★ | 8864. | SVA3★ | 7011. | SVO3★ | 4761. |
| | 5 | SVG4★ | 7127. | — | — | — | — | — | — | SVW4★ | 10646. | SVA4★ | 8793. | SVO4★ | 6543. |
| 300 | 2 | SXG1★ | 7952. | — | — | — | — | — | — | SXW1★ | 11087. | SXA1★ | 11087. | SXO1★ | 6857. |
| | 3 | SXG2★ | 8550. | — | — | — | — | — | — | SXW2★ | 11685. | SXA2★ | 11685. | SXO2★ | 7455. |
| 400□ | 2 | SYG1★ | 20813. | — | — | — | — | — | — | SYW1★ | 27935. | SYA1★ | 24659. | SYO1★ | 16299. |
| | 3 | SYG2★ | 23534. | — | — | — | — | — | — | SYW2★ | 30654. | SYA2★ | 27378. | SYO2★ | 19020. |
| 600□ | 2 | SZG1★ | 25550. | — | — | — | — | — | — | SZW1★ | 32670. | SZA1★ | 29394. | SZO1★ | 20879. |
| | 3 | SZG2★ | 28704. | — | — | — | — | — | — | SZW2★ | 35825. | SZA2★ | 32549. | SZO2★ | 24026. |
| 800□ | 2 | SJG1★ | 30285. | — | — | — | — | — | — | SJW1★ | 37535. | SJA1★ | 33845. | SJO1★ | 25457. |
| | 3 | SJG2★ | 33875. | — | — | — | — | — | — | SJW2★ | 40995. | SJA2★ | 37719. | SJO2★ | 29033. |
| **Mechanically Held♦** | | | | | | | | | | | | | | | |
| 30 | 2 | SMG10★ | 738. | SMF10★ | 923. | — | — | SMW31★ | 1251. | SMW10★ | 1251. | SMA10★ | 912. | SMO10★▼ | 710. |
| | 3 | SMG11★ | 782. | SMF11★ | 966. | — | — | SMW32★ | 1295. | SMW11★ | 1295. | SMA11★ | 953. | SMO11★▼ | 752. |
| | 4 | SMG12★ | 824. | SMF12★ | 1008. | — | — | SMW33★ | 1337. | SMW12★ | 1337. | SMA12★ | 995. | SMO12★▼ | 795. |
| | 5 | SMG13★ | 1025. | SMF13★ | 1209. | — | — | SMW34★ | 1538. | SMW13★ | 1538. | SMA13★ | 1196. | SMO13★▼ | 995. |
| 60 | 2 | SPG10★ | 1485. | SPF10★ | 1758. | — | — | SPW31★ | 2511. | SPW10★ | 2511. | SPA10★ | 1800. | SPO10★▼ | 1373. |
| | 3 | SPG11★ | 1544. | SPF11★ | 1814. | — | — | SPW32★ | 2570. | SPW11★ | 2570. | SPA11★ | 1857. | SPO11★▼ | 1430. |
| | 4 | SPG12★ | 1827. | SPF12★ | 2100. | — | — | SPW33★ | 3252. | SPW12★ | 3252. | SPA12★ | 2142. | SPO12★▼ | 1715. |
| | 5 | SPG13★ | 2399. | SPF13★ | 2669. | — | — | SPW34★ | 3824. | SPW13★ | 3824. | SPA13★ | 2712. | SPO13★▼ | 2285. |
| 100 | 2 | SQG10★ | 2084. | SQF10★ | 2241. | — | — | SQW31★ | 4419. | SQW10★ | 3537. | SQA10★ | 2456. | SQO10★▼ | 1827. |
| | 3 | SQG11★ | 2199. | SQF11★ | 2357. | — | — | SQW32★ | 4563. | SQW11★ | 3653. | SQA11★ | 2570. | SQO11★▼ | 1943. |
| | 4 | SQG12★ | 2627. | — | — | — | — | — | — | SQW12★ | 4478. | SQA12★ | 2996. | SQO12★▼ | 2370. |
| | 5 | SQG13★ | 3537. | — | — | — | — | — | — | SQW13★ | 5390. | SQA13★ | 3909. | SQO13★▼ | 3281. |
| 200 | 2 | SVG10★ | 5333. | — | — | — | — | — | — | SVW10★ | 7811. | SVA10★ | 6557. | SVO10★ | 4505. |
| | 3 | SVG11★ | 6015. | — | — | — | — | — | — | SVW11★ | 8495. | SVA11★ | 7241. | SVO11★ | 4877. |
| | 4 | SVG12★ | 7353. | — | — | — | — | — | — | SVW12★ | 10859. | SVA12★ | 9008. | SVO12★ | 6215. |
| 300 | 2 | SXG13★ | 9320. | — | — | — | — | — | — | SXW13★ | 12455. | SXA13★ | 12455. | SXO13★ | 7554. |
| | 3 | SXG14★ | 10232. | — | — | — | — | — | — | SXW14★ | 13365. | SXA14★ | 13365. | SXO14★ | 7811. |
| 400 | 2 | SYG16★ | 22593. | — | — | — | — | — | — | SYW16★ | 29714. | SYA16★ | 26441. | SYO16★ | 18080. |
| | 3 | SYG17★ | 25316. | — | — | — | — | — | — | SYW17★ | 32436. | SYA17★ | 29160. | SYO17★ | 20799. |
| 600 | 2 | SZG18★ | 27329. | — | — | — | — | — | — | SZW18★ | 34451. | SZA18★ | 31175. | SZO18★ | 22658. |
| | 3 | SZG19★ | 30483. | — | — | — | — | — | — | SZW19★ | 37605. | SZA19★ | 34329. | SZO19★ | 25806. |

▲ **NEMA 4 & 4X** enclosures are brush finished stainless steel for contactors sized 30 A through 300 A. Sizes 400–800 A are painted sheet steel.
■ Price does not include holding circuit contact.
♦ All lighting contactors are provided with separate control as standard, except electrically held 400, 600 and 800 A devices. Electrically held 400, 600 and 800 A devices are provided with common control.
★ Voltage code must be specified to order this product. Refer to standard voltage codes above left.
▼ Separate enclosures are available for these devices. It may be possible to improve delivery by ordering an open type contactor and separate Class 9991 enclosure from pages 16-93 and 16-94.
△ Cannot support control transformer forms.
□ **Form F4T** is provided as standard; include line voltage when ordering. Control voltage is 120–60. For 400, 600 and 800 ampere devices—must specify line voltage, not coil voltage.
◊ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.

## Poles for Type S Only

A single-pole or double-pole kit can be added to any 2- or 3-pole 30 or 60 A Type S lighting contactor to make a 4- or 5-pole device. Factory assembled 4- and 5-pole contactors utilize the basic 3-pole device with a single or double-pole kit installed. Only one power pole can be added per contactor. Sufficient room is provided in all enclosure styles for the addition of a power pole kit.

For How to Order Information, see page 16-13.

### Table 16.157:

| Coil Voltage Codes♦ | | | |
|---|---|---|---|
| Voltage | | Code | Price Adder |
| 60 Hz | 50 Hz | | |
| 24☆ | — | V01 | N/C |
| 120 | 110 | V02 | N/C |
| 208 | — | V08 | N/C |
| 240 | 220 | V03 | N/C |
| 277 | — | V04 | N/C |
| 480 | 440 | V06 | N/C |
| Specify | Specify | V99 | **35.60** |

☆ 24 volt coils are not available for 200–800 A devices. Contact your nearest Square D/Schneider Electric sales office for additional information.

### Table 16.158:

| Ampere Rating | Description | Class 9999 Type | $ Price |
|---|---|---|---|
| 30 | One N.O. | SB6 | **158.00** |
| | One N.C. | SB7 | **158.00** |
| | One N.O. and One N.C. | SB8 | **365.00** |
| | Two N.O. | SB9 | **365.00** |
| | Two N.C. | SB10 | **365.00** |
| 60 | One N.O. | SB21▽ | **306.00** |
| | One N.C. | SB22▽ | **306.00** |
| | One N.O. and One N.C. | SB23▽ | **656.00** |
| | Two N.O. | SB24▽ | **656.00** |
| | Two N.C. | SB25▽ | **656.00** |

▽ When power pole is added to 60 Ampere contactor, a 4-pole coil is also required. Order from Coil Table page 16-105. 60 A power poles are suitable for use with copper or aluminum wire.

Factory Modifications (Forms) . . . . . page 16-63
Replacement Coils . . . . . pages 16-105, 16-106
Replacement Contacts. . . . . page 16-107





© 2012 Schneider Electric
All Rights Reserved



File E16151
CCN NRNT

## Features

The features include: disconnect switch and circuit breaker versions; rugged flange-mounted handle; easy installation; occupation of less space; increased operator protection; room to spare for modifications; Class R fuse clips standard; electrically and mechanically held; 30–600 Amperes.

It is desirable to install the branch-circuit protective device and lighting contactor, combining switching and over-current protection, in one enclosure. Combination lighting contactors are well suited for industrial, highway and area lighting applications, or where a lighting circuit may have to be disconnected for periodic maintenance. They may also be used for resistance heating loads.

### Table 16.159: Fusible or Non-Fusible Disconnect Switch (3-Pole, 50–60 Hz)

| Contactor Ampere Rating | Fuse Clip Size (A) | Fuse Clip Spacing (V) | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X ■ Watertight and Dusttight Enclosure Stainless Steel | | NEMA 12/3R▼ Dusttight, Oiltight Driptight, Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|
| | | | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ |
| **Electrically Held♦** | | | | | | | | |
| 30 | None<br>30<br>30 | —<br>600<br>250 | SMG60★<br>SMG61★<br>SMG62★ | **1301.00**<br>**1373.00**<br>**1344.00** | SMW60★<br>SMW61★<br>SMW62★ | **2669.00**<br>**2739.00**<br>**2712.00** | SMA60★<br>SMA61★<br>SMA62★ | **1643.00**<br>**1715.00**<br>**1686.00** |
| 60 | None<br>60<br>60 | —<br>600<br>250 | SPG60★<br>SPG61★<br>SPG62★ | **2042.00**<br>**2142.00**<br>**2100.00** | SPW60★<br>SPW61★<br>SPW62★ | **4149.00**<br>**4248.00**<br>**4206.00** | SPA60★<br>SPA61★<br>SPA62★ | **2528.00**<br>**2627.00**<br>**2583.00** |
| 100 | None<br>100<br>100 | —<br>600<br>250 | SQG60★<br>SQG61★<br>SQG62★ | **3396.00**<br>**3609.00**<br>**3537.00** | SQW60★<br>SQW61★<br>SQW62★ | **7070.00**<br>**7284.00**<br>**7212.00** | SQA60★<br>SQA61★<br>SQA62★ | **4022.00**<br>**4235.00**<br>**4163.00** |
| 200 | None<br>200<br>200 | —<br>600<br>250 | SVG60★<br>SVG61★<br>SVG62★ | **6629.00**<br>**6926.00**<br>**6870.00** | SVW60★<br>SVW61★<br>SVW62★ | **11327.00**<br>**11627.00**<br>**11570.00** | SVA60★<br>SVA61★<br>SVA62★ | **8366.00**<br>**8585.00**<br>**8607.00** |
| 300 | None<br>400<br>400 | —<br>600<br>250 | SXG60★<br>SXG61★<br>SXG62★ | **13905.00**<br>**14418.00**<br>**14418.00** | SXW60★<br>SXW61★<br>SXW62★ | **25898.00**<br>**26411.00**<br>**26411.00** | SXA60★<br>SXA61★<br>SXA62★ | **18122.00**<br>**18635.00**<br>**18635.00** |
| **Mechanically Held♦** | | | | | | | | |
| 30 | None<br>30<br>30 | —<br>600<br>250 | SMG70★<br>SMG71★<br>SMG72★ | **1458.00**<br>**1529.00**<br>**1502.00** | SMW70★<br>SMW71★<br>SMW72★ | **2825.00**<br>**2897.00**<br>**2867.00** | SMA70★<br>SMA71★<br>SMA72★ | **1800.00**<br>**1871.00**<br>**1844.00** |
| 60 | None<br>60<br>60 | —<br>600<br>250 | SPG70★<br>SPG71★<br>SPG72★ | **2583.00**<br>**2682.00**<br>**2640.00** | SPW70★<br>SPW71★<br>SPW72★ | **4692.00**<br>**4791.00**<br>**4748.00** | SPA70★<br>SPA71★<br>SPA72★ | **3068.00**<br>**3167.00**<br>**3123.00** |
| 100 | None<br>100<br>100 | —<br>600<br>250 | SQG70★<br>SQG71★<br>SQG72★ | **3909.00**<br>**4121.00**<br>**4050.00** | SQW70★<br>SQW71★<br>SQW72★ | **7583.00**<br>**7797.00**<br>**7725.00** | SQA70★<br>SQA71★<br>SQA72★ | **4535.00**<br>**4748.00**<br>**4676.00** |
| 200 | None<br>200<br>200 | —<br>600<br>250 | SVG70★<br>SVG71★<br>SVG72★ | **8081.00**<br>**8379.00**<br>**8324.00** | SVW70★<br>SVW71★<br>SVW72★ | **12780.00**<br>**13080.00**<br>**13023.00** | SVA70★<br>SVA71★<br>SVA72★ | **9818.00**<br>**10116.00**<br>**10061.00** |
| 300 | None<br>400<br>400 | —<br>600<br>250 | SXG70★<br>SXG71★<br>SXG72★ | **14261.00**<br>**14774.00**<br>**14774.00** | SXW70★<br>SXW71★<br>SXW72★ | **26253.00**<br>**26766.00**<br>**26766.00** | SXA70★<br>SXA71★<br>SXA72★ | **18477.00**<br>**18990.00**<br>**18990.00** |

### Table 16.160: Circuit Breaker (3-Pole, 50–60 Hz)

| Contactor Ampere Rating | Circuit Breaker | | NEMA 1 General Purpose Enclosure | | NEMA 4 & 4X■ Watertight and Dusttight Enclosure Stainless Steel (30-300 A) | | NEMA 12/3R▼ Dusttight, Oiltight, Driptight, Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|
| | Ampere Rating | Maximum Volts | Type | $ Price▲ | Type | $ Price▲ | Type | $ Price▲ |
| **Electrically Held♦** | | | | | | | | |
| 30 | 30 | 600 | SMG81★ | **1814.00** | SMW81★ | **3182.00** | SMA81★ | **2156.00** |
| 60 | 60 | 600 | SPG81★ | **2541.00** | SPW81★ | **4649.00** | SPA81★ | **3024.00** |
| 100 | 100 | 600 | SQG81★ | **3666.00** | SQW81★ | **7340.00** | SQA81★ | **4292.00** |
| 200 | 200 | 600 | SVG81★ | **8181.00** | SVW81★ | **12879.00** | SVA81★ | **9918.00** |
| 300 | 300 | 600 | SXG81★ | **18023.00** | SXW81★ | **30014.00** | SXA81★ | **21155.00** |
| 400 | 400 | 600 | SYG81★ | **40085.00** | SYW81★ | **47205.00** | SYA81★ | **43929.00** |
| 600 | 600 | 600 | SZG81★ | **45090.00** | SZW81★ | **52212.00** | SZA81★ | **48936.00** |
| **Mechanically Held♦** | | | | | | | | |
| 30 | 30 | 600 | SMG91★ | **1971.00** | SMW91★ | **3338.00** | SMA91★ | **2313.00** |
| 60 | 60 | 600 | SPG91★ | **3081.00** | SPW91★ | **5189.00** | SPA91★ | **3567.00** |
| 100 | 100 | 600 | SQG91★ | **4179.00** | SQW91★ | **7853.00** | SQA91★ | **4805.00** |
| 200 | 200 | 600 | SVG91★ | **9633.00** | SVW91★ | **14333.00** | SVA91★ | **11970.00** |
| 300 | 300 | 600 | SXG91★ | **18378.00** | SXW91★ | **30371.00** | SXA91★ | **21510.00** |
| 400 | 400 | 600 | SYG91★ | **41864.00** | SYW91★ | **48986.00** | SYA91★ | **45710.00** |
| 600 | 600 | 600 | SZG91★ | **46728.00** | SZW91★ | **53991.00** | SZA91★ | **50715.00** |

▲ Price does not include holding circuit contact.
■ For **NEMA 4 & 4X** Watertight, Dusttight and Corrosion-Resistant Glass-Polyester enclosure pricing, multiply stainless steel enclosed price by 1.25 and add **Form G18** (limited to 100 A max.). 400 & 600 A enclosures are painted sheet steel **(NEMA Type 4 & 4X).**
♦ Control/coil voltage must be specified.
★ Coil voltage codes must be specified to order this product. Refer to standard voltage codes shown on page 16-60.
▼ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.

### Table 16.161: Coil Voltage Codes♦

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24△ | — | V01 | N/C |
| 120 | 110 | V02 | N/C |
| 208 | — | V08 | N/C |
| 240 | 220 | V03 | N/C |
| 277 | — | V04 | N/C |
| 480 | 440 | V06 | N/C |
| Specify | Specify | V99 | 35.60 |

△ 24 volt coils are not available for 200 A or larger devices. Contact Schneider Electric CCC for additional information.

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

# NIGHT-MASTER® Combination Lighting Contactors

Class **8903** / Refer to Catalog **8903CT9701**



NIGHT-MASTER Outdoor Combination Lighting Contactors offer disconnecting means, overcurrent protection and a lighting contactor in one NEMA 3R Rainproof enclosure. These combination units satisfy requirements of the National Electrical Code and UL 508 for service entrance equipment.



Long Version



Short Version

**UL Approved for Service Entrance**

File E16151
CCN NRNT

## Features:

- Solid neutral standard
- Grounding lug standard
- Padlocking provisions
- Short and long versions available
- Electrically held Type S lighting contactor
- Eliminates the need for separate mounted safety switches
- Additional panel space eliminates the need for external mounting of time clocks

**Table 16.162: Disconnect Switch Type ■ (3-Pole)**

| Contactor Ampere Rating | Fuse Clip Size (A) | Fuse Clip Spacing (V) | Short Version | | | | Long Version | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Class 8903 Type 3R | $ Price▲ | Class 8903 Type 3R Stainless Steel | $ Price▲ | Class 8903 Type 3R | $ Price▲ | Class 8903 Type 3R Stainless Steel | $ Price ▲ |
| 30 | 30<br>30 | 600<br>250 | SMC61♦<br>SMC62♦ | **2015.00**<br>**1956.00** | SMH61♦<br>SMH62♦ | **3263.00**<br>**3150.00** | SMC63♦<br>SMC64♦ | **2199.00**<br>**2177.00** | SMH63♦<br>SMH64♦ | **3600.00**<br>**3488.00** |
| 60 | 60<br>60 | 600<br>250 | SPC61♦<br>SPC62♦ | **2664.00**<br>**2505.00** | SPH61♦<br>SPH62♦ | **4275.00**<br>**4050.00** | SPC63♦<br>SPC64♦ | **2933.00**<br>**2825.00** | SPH63♦<br>SPH64♦ | **4725.00**<br>**4500.00** |
| 100 | 100<br>100 | 600<br>250 | SQC61♦<br>SQC62♦ | **4571.00**<br>**4454.00** | SQH61♦<br>SQH62♦ | **7425.00**<br>**7200.00** | SQC63♦<br>SQC64♦ | **4797.00**<br>**4626.00** | SQH63♦<br>SQH64♦ | **7875.00**<br>**7650.00** |
| 200 | 200<br>200 | 600<br>250 | SVC61♦<br>SVC62♦ | **8171.00**<br>**7986.00** | SVH61♦<br>SVH62♦ | **12525.00**<br>**12825.00** | SVC63♦<br>SVC64♦ | **8949.00**<br>**8868.00** | SVH63♦<br>SVH64♦ | **13725.00**<br>**13725.00** |

**Table 16.163: Circuit Breaker Type■ (3-Pole)**

| Contactor Ampere Rating | Circuit Breaker | | Short Version | | | | Long Version | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ampere Rating | Maximum Volts | Class 8903 Type 3R | $ Price▲ | Class 8903 Type 3R Stainless Steel | $ Price▲ | Class 8903 Type 3R | $ Price▲ | Class 8903 Type 3R Stainless Steel | $ Price ▲ |
| 30 | 30 | 600 | SMC81♦ | **2475.00** | SMH81♦ | **4050.00** | SMC83♦ | **2807.00** | SMH83♦ | **4500.00** |
| 60 | 60 | 600 | SPC81♦ | **3159.00** | SPH81♦ | **5175.00** | SPC83♦ | **3320.00** | SPH83♦ | **5625.00** |
| 100 | 100 | 600 | SQC81♦ | **4544.00** | SQH81♦ | **7425.00** | SQC83♦ | **4841.00** | SQH83♦ | **7875.00** |
| 200 | 200 | 600 | SVC81♦ | **8711.00** | SVH81♦ | **14175.00** | SVC83♦ | **9909.00** | SVH83♦ | **14625.00** |

▲ Price does not include holding circuit contact.
■ All lighting contactors are provided with separate control as standard.
♦ Coil voltage codes must be specified to order this product. Refer to standard voltage codes listed below.

## NIGHT-MASTER Combination Lighting Contactors

The Class 8903 NIGHT-MASTER Outdoor Combination Lighting Contactor is the only product on the market that is UL Listed for Service Entrance. This allows the contactor to be pole mounted when used to control lighting in remote locations such as parks, monuments, group sports facilities, and streets and highways.

Factory modifications such as photocells, time switches, key operated selector switches, and the combination of photocells and time switches (photocell on, time switch off) allow the NIGHT-MASTER to be located in applications where manual operation of lights is not practical.

NIGHT-MASTER comes in long and short versions in sizes 30 through 200 Amperes. Most common modifications can be provided from the factory, or added in the field to the pre-drilled and pre-tapped panels.

**Table 16.164: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24★ | — | V01 | No Charge |
| 120 | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| 277 | — | V04 | No Charge |
| 480 | 440 | V06 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 volt coils are not available for 200 A devices. Contact your nearest Schneider Electric sales office for additional information.

For How to Order Information, see page 16-13.







© 2012 Schneider Electric
All Rights Reserved

**Standard Equipment dimensions and enclosure construction may not apply when certain special features are added. Such cases should be referred to the factory with complete description when accurate dimensions are required.**

***NOTE:*** *If UL label is required, consult Schneider Electric CCC at (1-888-778-2733). Some Forms* ***are not*** *UL Listed.*

**Table 16.165:**

| Description | Form Letter | NEMA Enclosure Type | Used On: Std. Elec. Held | Std. Mech. Held | Combo Elec. Held | Combo Mech. Held | NIGHT-MASTER ▲ | Type L 30 A | 30 A | 60 A | 100 A | 200 A | 300 A | 400, 600, 800 A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "ON-OFF" (momentary contact) push button | A3 | 1 | | Y | | Y | | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| | A3 | 3R, 4, 12 | | Y | | Y | | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| "ON-OFF" push button (with holding circuit interlock) | A12 | Any | Y | | Y | | Y | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| "HAND–OFF–AUTO" selector switch. To substitute a key operated selector switch, use Form C33 and specify positions, legend marking, and key removal. This form must be used with another selector switch form (example: CC33). Add **$266.** (C33) **+ $224.** (C) = **$490.** | C | 1 | Y | Y▽ | Y | Y▽ | | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| | C | 3R, 4, 12 | Y | Y▽ | Y | Y▽ | Y | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| "ON-OFF" selector switch. To substitute a key operated selector switch, use Form C33 and specify positions, legend marking, and key removal. This form must be used with another selector switch form (example: C33C6). Add **$266.** (C33) + **$224.** (C6) = **$490.** | C6 | 1 | Y | Y | Y | Y | | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| | C6 | 3R, 4, 12 | Y | Y | Y | Y | Y | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| Control circuit fuse (1 fuse) | F | Any | Y | Y | Y | Y | Y | 314. | 314. | 314. | 314. | 314. | 314. | 314. |
| Control circuit fuses (2 fuses) | F4 | Any | Y | Y | Y | Y | Y | 314. | 314. | 314. | 314. | 314. | 314. | 314. |
| Control circuit transformer standard capacity 50/60 Hz | | | | | | | | | | | | | | |
| Fuses: Primary | Fuses: Secondary | Transformer capacity | | | | | | | | | | | | |
| 2 ■ | 0 | Std. | F4T | 1, 4, 12 | Y | Y | Y | Y | Y | 386. | 386. | 543. | 797. | 968. | 1097. ☆ | 1097. ♦ |
| 2 | 1 | Std. | FF4T | 1, 4, 12 | Y | Y | Y | Y | Y | 698. | 698. | 855. | 1112. | 1283. | 1412. ☆ | 1412. ♦ |
| 2 | 1 | 100 VA Add. | FF4T11 | 1, 4, 12 | Y | Y | Y | Y | Y | 975. | 975. | 1197. | 1425. | 1566. ☆ | 1710. ☆ | 1710. ♦ |
| 2 | 1 | 200 VA Add | FF4T12 | 1, 4, 12 | Y | Y | Y | Y | Y | 1241. | 1241. | 1467. | 1695. ☆ | 1839. ☆ | 1839. ☆ | 1839. ♦ |
| 2 | 1 | 300 VA Add | FF4T13 | 1, 4, 12 | Y | Y | Y | Y | Y | 1481. ☆ | 1481. ☆ | 1737. ☆ | 1967. ☆ | 2109. ☆ | 2109. ☆ | 2109. ♦ |
| Noise reduced enclosure and shock mounted panel | G4 | Any | | Y | | | | 1389. | 1389. | 1596. | 1674. | 2307. | 2921. | 3924. |
| Addition of photoelectric receptacle | G10 | 1★, 3R, 12 | Y | | Y | | Y | 185. | 185. | 185. | 185. | 185. | 185. | 185. |
| Addition of photoelectric receptacle with photo-cell | G101 | 1★, 3R, 12 | Y | | Y | | Y | 399. | 399. | 399. | 399. | 399. | 399. | 399. |
| Addition of photoelectric receptacle and relay (R6)▼ | G10R6 | 1★, 12 | | Y | | Y | | 549. | 912. | 912. | 912. | 1326. | 1467. | 1467. |
| With photo-cell installed ▼ | G101R6 | 1★, 12 | | Y | | Y | | 509. | 750. | 750. | 750. | 1026. | 1121. | 1121. |
| Addition of terminal blocks (other than standard). "xx" Represents the number of terminals needed. Available in multiples of 5 only. | | | | | | | | | | | | | | |
| (PER TERMINAL PRICE) WIRED | G56xx | Any | Y | Y | Y | Y | Y | 116. | 116. | 116. | 116. | 116. | 116. | 116. |
| (PER TERMINAL PRICE) UNWIRED | G50xx | Any | Y | Y | Y | Y | Y | 57. | 57. | 57. | 57. | 57. | 57. | 57. |
| Addition of 24 hour time clock (120-277 V only) | K14 | 1, 4, 12 | Y | Y | Y | Y | | 1197. | 1197. | 1197. | 1197. | 1197. | 1197. | 1197. |
| Addition of 24 hour time clock w/day omission (120-277 V) | K141 | 1, 4, 12 | Y | Y | Y | Y | | 1197. | 1197. | 1197. | 1197. | 1197. | 1197. | 1197. |
| Addition of 7 day time clock (120-277 V) | K142 | 1, 4, 12 | Y | Y | Y | Y | | 1368. | 1368. | 1368. | 1368. | 1368. | 1368. | 1368. |
| Addition of 24 hour time clock (120-277 V only) | K14 | 3R | | | | | Y | N/A | 783. | 783. | 783. | 783. | N/A | N/A |
| Addition of 24 hr time clock w/skip day (120-277 V) | K141 | 3R | | | | | Y | N/A | 783. | 783. | 783. | 783. | N/A | N/A |
| Addition of 7 day time clock (120-277 V) | K142 | 3R | | | | | Y | N/A | 954. | 954. | 954. | 954. | N/A | N/A |
| Addition of solid neutral terminal block | N | 1, 4, 12 | Y | Y | Y | Y | Std. | 116. | 116. | 116. | 171. | 342. | 714. | 855. |
| Red Pilot Light | P1 | Any | Y | Y | Y | Y | Y | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| Two or more lights △ (each) | P | Any | Y | Y | Y | Y | Y | 336. | 336. | 336. | 336. | 336. | 336. | 336. |
| Red Push-To-Test Pilot Light | P21 | Any | Y | Y | Y | Y | Y | 435. | 435. | 435. | 435. | 435. | 435. | 435. |
| Interlock necessary for pilot light one needed for each additional pilot light | □ | Any | Y | Y | Y | Y | Y | ◊ | 158. | 158. | 158. | 158. | 158. | 158. |
| Two Wire Interface for Mechanically Held ▼ | R6 | Any | | Y | | Y | | 363. | 728. | 728. | 728. | 1139. | 1283. | 1283. |
| Addition of under and overvoltage relay | R46 | Any | Y | Y | Y | Y | Y | 1463. | 1463. | 1463. | 1463. | 1463. | 1463. | 1463. |
| Three wire control for long distance applications▼ | R62 | Any | | Y | | Y | | 728. | 1454. | 1454. | 1454. | 2280. | 2564. | 2564. |
| Auxiliary contacts (specify number of N.O. + N.C.) | X | Any | Y | Y | Y | Y | Y | ◊ | 158. | 158. | 158. | 158. | 158. | 158. |
| Addition of DC coil to Type L (7 poles max) | Y48 | Any | Y | | | | | 243. | N/A | N/A | N/A | N/A | N/A | N/A |
| Auxiliary electrical interlock installed on disconnect switch or circuit breaker operating mechanism | Y74 | Any | | | Y | Y | Y | N/A | 158. | 158. | 158. | 158. | 414. | 414. |
| Coil Transient suppressor (120 Vac Only) | Y145 | Any | Y | | Y | | Y | 158. | 158. | 158. | 158. | 158. | 158. | N/A |
| Coil Transient suppressor (120 Vac Only) | Y145 | Any | | Y | | Y | | 314. | 314. | 314. | 314. | 314. | 314. | 314. |
| Addition of lightning arrestor | Y1532 | Any | Y | Y | Y | Y | Y | 570. | 570. | 570. | 570. | 570. | 570. | 570. |
| Substitute copper only lugs for standard | Y157 | Any | Y | Y | Y | Y | Y | N/A | N/A | N/C | N/C | N/C | N/C | N/C |

▲ NIGHT-MASTER maximum 200 A, minimum 30 A.
■ Transformer Voltage Codes.
♦ Mechanically held only. Electrically held device has a control circuit requiring a 120 V secondary, therefore, a transformer is supplied. The transformer comes wired to L1 and L2 unless Form S is called for. It is supplied with two primary and one secondary fuse.
★ Photocell mounted on a NEMA 1 enclosure is designed for indoor areas which rely on natural light. Addition of the photocell does not make the enclosure suitable for outdoor (NEMA Type 3R) installations.
▼ Available for 24 V, 120 V, 240 V, 277 V and 480 V applications only.
△ For electrically held enclosed devices, the first pilot is wired in parallel with the coil. Operating interlocks are required for all additional pilot lights. Mechanically held devices require operating interlocks for all pilot lights.
□ DO NOT use Form X for any interlock which is wired in series with pilot light, but DO specify how pilot light and interlock are to be wired into the circuit.
◊ Electrically held 20 A multipole contactors cannot add interlocks. Additional poles can be used for the same function, however. Mechanically held (Type LX) provide one double throw auxiliary (or status) contact as standard.
☆ Single primary voltage must be specified using the codes shown below:
▽ Form R6 must be used with Form C on mechanically held devices.

| Voltage 60 Hz | Code |
|---|---|
| 120–24 | V89 |
| 208–120 | V84 |
| 240–24 | V82 |
| 240–120 | V80 |
| 277–120 | V85 |
| 480–24 | V83 |
| 480–120 | V81 |
| 480–240 | V87 |
| 600–120 | V86 |

## Order Example

You have previously selected a Class 8903SMG2V02.

V02 means that you need a coil voltage of 120-60/110-50 wired for separate control. You would like to add form FF4T with the transformer voltages being 480 volt primary, 120 volt secondary.
The new and complete Class, Type, Voltage Code and Form number:

| Class | Type | Voltage Code | Form◒ |
|---|---|---|---|
| 8903 | SMG2 | V81 | FF4T |

◒ Form numbers should always be shown in alphabetical order.



© 2012 Schneider Electric
All Rights Reserved

**Table 16.166:**

| Description | Types L & LX | | Type S | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30 A | | 30 A | | 60 A | | 100 A | | 200 A | | 300 A | | 400, 600, 800 A | | Form No. |
| | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | |
| **Auxiliary Contacts** | | | | | | | | | | | | | | | |
| 1 N.O. LH or RH Mounting | — | — | 9999SX6 | **86.00** | 9999SX6 | **86.00** | 9999SX6 | **86.00** | 9999SX6 | **86.00** | 9999SX6 | **86.00** | 9999SX6 | **86.00** | |
| 1 N.C. LH or RH Mounting | — | — | 9999SX7 | **86.00** | 9999SX7 | **86.00** | 9999SX7 | **86.00** | 9999SX7 | **86.00** | 9999SX7 | **86.00** | 9999SX7 | **86.00** | |
| 1 N.C. & 1 N.O. Isolated LH or RH | — | — | 9999SX8 | **116.00** | 9999SX8 | **116.00** | 9999SX8 | **116.00** | 9999SX8 | **116.00** | 9999SX8 | **116.00** | 9999SX8 | **116.00** | X |
| 1 N.O. Overlapping LH or RH | — | — | 9999SX9 | **116.00** | 9999SX9 | **116.00** | 9999SX9 | **116.00** | 9999SX9 | **116.00** | 9999SX9 | **116.00** | 9999SX9 | **116.00** | |
| 1 N.C. Overlapping LH or RH | — | — | 9999SX10 | **116.00** | 9999SX10 | **116.00** | 9999SX10 | **116.00** | 9999SX10 | **116.00** | 9999SX10 | **116.00** | 9999SX10 | **116.00** | |
| **Control Circuit Fuse Holder** | | | | | | | | | | | | | | | |
| Single Fuse Unit | 9999LLX and 9999SFR3 | **23.70** **42.80** | 9999SFR3 | **64.00** | 9999SFR3 | **64.00** | 9999SFR3 | **64.00** | 9999SFR3 | **64.00** | 9999SFR3 | **64.00** | 9999SFR3 | **64.00** | F |
| Two Fuse Unit | 9999LLX and 9999SFR4 | **23.70** **57.00** | 9999SFR4 | **86.00** | 9999SFR4 | **86.00** | 9999SFR4 | **86.00** | 9999SFR4 | **86.00** | 9999SFR4 | **86.00** | 9999SFR4 | **86.00** | F4 |
| **Transformers** (For Prices See Class 9070 Section) | 9070T50 | — | 9070T100 | — | 9070T100 | — | 9070T150 | — | 9070T300 | — | 9070T500 | — | 9070T750 | — | T |
| **Oversized Enclosures (Non-Combo)** | | | | | | | | | | | | | | | |
| NEMA 1 | 9991SDG3 | **266.00** | 9991SDG3 | **339.00** | 9991SDG3 | **339.00** | — | — | — | — | — | — | — | — | — |
| NEMA 4 | 9991SDW3 | **779.00** | 9991SDW3 | **1169.00** | 9991SDW3 | **1169.00** | — | — | — | — | — | — | — | — | — |
| NEMA 12 | 9991SDA3 | **456.00** | 9991SDA3 | **684.00** | 9991SDA3 | **684.00** | — | — | — | — | — | — | — | — | — |
| **Standard Enclosures** | | | | | | | | | | | | | | | |
| NEMA 1–Surface Mount | 9991LXG1 | **95.00** | 9991SCG7▲ | **57.00** | 9991SDG7▲ | **143.00** | 9991SFG8 | **599.00** | 9991SFG4 | **1259.00** | 9991SGG8 | **1241.00** | — | — | — |
| NEMA 3R | 9991SDH1 | **323.00** | 9991SCH2 | **372.00** | 9991SDH1 | **485.00** | 9991SEH1 | **684.00** | 9991SFH1 | **1853.00** | — | — | — | — | — |
| NEMA 4–Standard | 9991SDW1 | **779.00** | 9991SCW1 | **684.00** | 9991SDW1 | **1169.00** | — | — | — | — | — | — | — | — | — |
| NEMA 4–With 2 Cvr Mtd. Clsng Plts | 9991SDW11 | **798.00** | 9991SCW11 | **714.00** | 9991SDW11 | **1197.00** | 9991SEW11 | **1767.00** | — | — | — | — | — | — | — |
| NEMA 4X–Glass Polyester | 9991SDW20 | **779.00** | 9991SCW20 | **684.00** | 9991SDW20 | **1169.00** | — | — | — | — | — | — | — | — | — |
| NEMA 12 | 9991SDA11 | **323.00** | 9991SCA11 | **372.00** | 9991SDA11 | **485.00** | 9991SEA11 | **684.00** | — | — | — | — | — | — | — |
| NEMA 1–Flushmount–Complete | — | — | — | — | — | — | 9991SEF11 | **882.00** | — | — | — | — | — | — | — |
| NEMA 1–Flush Mount Parts | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| FLUSH PARTS | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Standard–Elec. held | 9991SDF13 | **114.00** | 9991SCF11 | **57.00** | 9991SDF11 | **171.00** | — | — | — | — | — | — | — | — | — |
| –Mech. held | 9991SDF13 | **114.00** | 9991SCF13 | **201.00** | 9991SDF13 | **171.00** | — | — | — | — | — | — | — | — | — |
| Mounting Strap | 9991SDF2 | **66.00** | 9991SCF2 | **71.00** | 9991SDF2 | **99.00** | — | — | — | — | — | — | — | — | — |
| Pull Box | 9991SDF1 | **77.00** | 9991SCF1 | **86.00** | 9991SDF1 | **116.00** | — | — | — | — | — | — | — | — | — |
| Internal Operator Mounting Bracket | 3010215901 | **26.10** | 3010215901 | **39.20** | 3010215901 | **39.20** | 3010215901 | **39.20** | 3010215901 | **39.20** | 3010215901 | **39.20** | 3010215901 | **39.20** | G53 |
| Solid Neutral | 9999SN1 | **89.00** | 9999SN1 | **134.00** | 9999SN1 | **134.00** | 9999SN1 | **134.00** | 9999SN2 | **392.00** | 9999SN2 | **392.00** | 9999SN3■ | **624.00** | N |
| **Combination Lighting Contactor Disconnect Interlock Kit** | | | | | | | | | | | | | | | |
| Breaker Type | | | | | | | | | | | | | | | |
| 1-Pole | — | — | 9999R26 | **131.00** | 9999R26 | **131.00** | 9999R26 | **131.00** | 9999R26 | **131.00** | 9999R26 | **131.00** | 9999R26 | **131.00** | |
| 2-Pole | — | — | 9999R27 | **243.00** | 9999R27 | **243.00** | 9999R27 | **243.00** | 9999R27 | **243.00** | 9999R27 | **243.00** | 9999R27 | **243.00** | |
| Disconnect Type | | | | | | | | | | | | | | | |
| 1-Pole | — | — | 9999TC11 | **120.00** | 9999TC10 | **116.00** | 9999TC10 | **120.00** | 9999R8 | **131.00** | 9999R35 | **435.00** | 9999R26 | **131.00** | |
| 2-Pole | — | — | 9999TC21 | **239.00** | 9999TC20 | **221.00** | 9999TC20 | **239.00** | 9999R9 | **243.00** | 9999R36 | **521.00** | 9999R27 | **243.00** | Y74 |
| **Lightning Arrestor** | | | | | | | | | | | | | | | |
| 175 Vac to Ground Max 2 or 3 wire Grounded | SDSA1175 | **92.00** | SDSA1175 | **92.00** | SDSA1175 | **92.00** | SDSA1175 | **92.00** | SDSA1175 | **92.00** | SDSA1175 | **92.00** | SDSA1175 | **92.00** | Y1532 |
| 650 Vac to Ground Max 3 or 4 wire Grounded | SDSA3650 | **248.00** | SDSA3650 | **248.00** | SDSA3650 | **248.00** | SDSA3650 | **248.00** | SDSA3650 | **248.00** | SDSA3650 | **248.00** | SDSA3650 | **248.00** | |

▲ For electrically held only.

■ Limited to 400 and 600 A versions. 800 A is a factory modification only.





© 2012 Schneider Electric
All Rights Reserved

### Table 16.167: Mechanically Held

| Description | Form No. | TYPE LX | | TYPE S | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 30 A | | 30 A | | 60 A | | 100 A | | 200 A | | 300 A | | 400, 600, 800 A | |
| | | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price |
| **PUSH BUTTON (ON-OFF)** NEMA 1 Enclosure | A3 | 9999BLX 9999LXPB | **35.60 116.00** | ▲ | — | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** | 9001KA2 9999SA3■ | **21.50 215.00** |
| **SELECTOR SWITCH (2 POSITION)** NEMA 1 Enclosure | C6 | 9999BLX 9999LXS | **35.60 116.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** |
| **SELECTOR SWITCH (3 POSITION)** NEMA 1 Enclosure (MUST INCLUDE TWO WIRE CONTROL RELAY, Form R6 | C | 9999BLX 9999SC2 | **35.60 116.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** | 9001KN260 9001KS46BH2 | **4.40 138.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9001KN260 9001KS46BH2 | **4.40 138.00** | | | | | | | | | | | | |
| **TWO WIRE CONTROL RELAY** (Form R6)△ | R6 | 9999RLX CA2SK11□ | **35.60 95.00** | 8501XO11 | **201.00** | 8501XO11 | **201.00** | 8501XO11 | **201.00** | 8501XO11 | **201.00** | 8501XO11 | **201.00** | 8501XO11 | **201.00** |

### Table 16.168: Electrically Held

| Description | Form No. | TYPE L | | TYPE S | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 30 A | | 30 A | | 60 A | | 100 A | | 200 A | | 300 A | | 400, 600, 800 A | |
| | | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price | Kit | $ Price |
| **PILOT LIGHTS (RED and GREEN)** NEMA 1 Enclosure NEMA 3R, 4 or 12 Enclosure | P1 | 9999SP28R | **215.00** | 9999SP2R 9999SP28R | **215.00 215.00** | 9999SP3R 9999SP28R | **215.00 215.00** | ♦ 9999SP14R 9999SP28R | **215.00 215.00** | ★ 9999SP28R 9999SP28R | **215.00 215.00** | ★ 9999SP28R 9999SP28R | **215.00 215.00** | 9999SP28R 9999SP28R | **215.00 215.00** |
| **PUSH BUTTONS▼** NEMA 1 Enclosure | A12 | 9999BLX 9999SA10 | **35.60 116.00** | 9999SA10 | **116.00** | 9999SA10 | **116.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** | 9999SA3 | **215.00** |
| **SELECTOR SWITCH (2 POSITION)** NEMA 1 Enclosure | C6 | 9999BLX 9999SC22 | **35.60 116.00** | 9999SC22 | **116.00** | 9999SC22 | **116.00** | 9999SC22 | **116.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BM1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** | 9001KN244 9001KS11BH1 | **4.40 96.00** |
| **SELECTOR SWITCH (3 POSITION)** NEMA 1 Enclosure | C | 9999BLX 9999SC2 | **35.60 116.00** | 9999SC2 | **116.00** | 9999SC2 | **116.00** | 9999SC2 | **116.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** |
| NEMA 3R, 4 or 12 Enclosure | | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** | 9999SC8 | **215.00** |

▲ No field installed kit available.
■ Mechanically held contactors need two distinct signals to operate. An N.O. contact block must be added to the Class 9999 Type SA3 push button kit.
♦ Selection for 2- or 3-Pole only; for 4- or 5-Pole use Class 9999SP15R **$215.**
★ The coil voltage must be the same as the pilot light rating. Kit contains one (1) Class 9001, Type KP1R6 120 V/60 Hz red pilot light control unit. For other voltages, refer to the Class 9001, Type KP Control Section.
▼ Requires holding circuit interlock for Type S or additional power pole on Type L devices.
△ Form R6 available for 24 V, 120 V, 240 V and 277 V only.
□ Insert CA2SK11( ) voltage code from page 23-21.



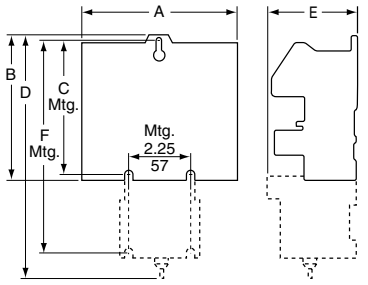
© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

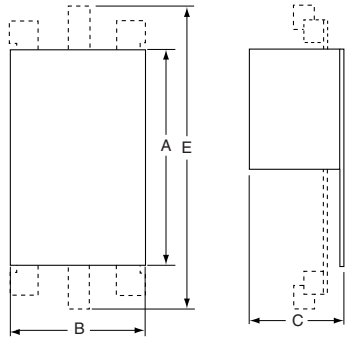
### Table 16.169: Open Type

| Electrically Held | | | | | | | Mechanically Held | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ampere Rating | Type | Number of Poles | Dimensions | | | | Type | Dimensions | | | | | |
| | | | A | B | C | E | | A | B | C | D | E | F |
| 30 | LO | 2–4 | **2.88** 73 | **5** 127 | **4.62** 117 | **3.12** 79 | LXO | **2.88** 73 | — | — | **8.81** 224 | **3.25** 83 | **7.70** 196 |
| | | 6 | **4.25** 108 | **5** 127 | **4.62** 117 | **3.12** 79 | | **4.25** 108 | — | — | **8.81** 224 | **3.25** 83 | **7.70** 196 |
| | | 8–12 | **5.63** 143 | **5** 127 | **4.62** 117 | **3.12** 79 | | **5.63** 143 | — | — | **8.81** 224 | **3.25** 83 | **7.70** 196 |
| 30 | SMO | 2–3 | **4.34** 110 | **3.22** 82 | **4.22** 107 | **3.50** 89 | — | **7.15** 182 | **3.79** 96 | **4.68** 119 | — | **6.04** 153 | — |
| | | 4–5 | **4.34** 110 | **4.25** 108 | **4.22** 107 | **3.50** 89 | — | **7.15** 182 | **4.54** 115 | **4.68** 119 | — | **6.04** 153 | — |
| 60 | SPO | 2–3 | **5.33** 135 | **4.31** 110 | **4.94** 125 | **5.50** 140 | — | **8.25** 210 | **4.61** 117 | **5.23** 133 | — | **7.81** 198 | — |
| | | 4–5 | **6.22** 158 | **5.61** 142 | **4.94** 125 | **5.50** 140 | — | **8.70** 221 | **5.90** 150 | **5.23** 133 | — | **7.81** 198 | — |
| 100 | SQO | 2–3 | **7.09** 180 | **5.45** 138 | **6.50** 165 | **7.26** 184 | — | **10.13** 257 | **5.94** 151 | **6.72** 171 | — | **7.26** 184 | — |
| | | 4–5 | **7.82** 199 | **9.75** 248 | **6.50** 165 | **7.26** 184 | — | **10.56** 268 | **9.75** 248 | **6.72** 171 | — | **7.26** 184 | — |
| 200 | SVO | 2–3 | **9.14** 232 | **6.00** 152 | **6.50** 165 | **9.14** 232 | SVO | **11.35** 288 | **6.00** 152 | **6.72** 171 | — | **9.14** 232 | — |
| | | 4 & 5▲ | **9.14** 232 | **9.75** 248 | **6.50** 165 | **9.14** 232 | | **11.55** 293 | **9.75** 248 | **6.72** 171 | — | **9.14** 232 | — |
| 300 | SXO | 2–3 | **12.31** 313 | **8.66** 220 | **8.74** 222 | **12.25** 311 | SXO | **12.31** 313 | **8.66** 220 | **10.50** 267 | — | **12.31** 313 | — |
| 400 | SYO | 2–3 | — | **12.33** 313 | **9.00** 229 | **27.78** 706 | SYO | — | **8.66** 220 | **10.50** 267 | — | **21.00** 533 | — |
| 600 | SZO | | | | | | SZO | | | | | | |
| 800 | SJO | 2–3 | — | **12.33** 313 | **11.94** 303 | **42.70** 1085 | — | — | — | — | — | — | — |

▲ 5-Pole, electrically held only.



Open Type L & LX



Open Type S

### Table 16.170: NEMA 1 Enclosure (Non-Combination) Electrically and Mechanically Held

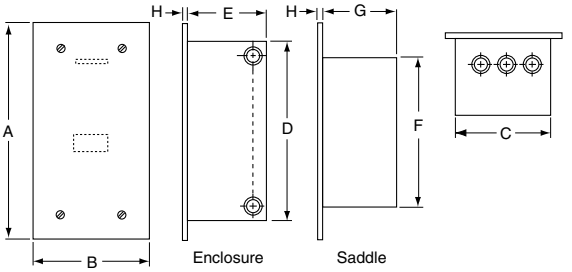
| Ampere Rating | Type | Number of Poles | Form(s) | | Dimensions | | |
|---|---|---|---|---|---|---|---|
| | | | | | Width | Height | Depth |
| 30 | LG, LXG | Any | Standard, A3, A12, C, C6, F, R6, Y48 | | **7.81** 198 | **12.69** 322 | **6.03** 153 |
| | | | P, T | | **11.88** 302 | **11.88** 302 | **7.44** 189 |
| 30 | | | K14, K141, K142 | | **16.00** 406 | **22.00** 559 | **7.13** 181 |
| 30 | SMG | 2–5 | Electrically Held | Std., A12, C, C6, P, X | **6.00** 152 | **10.00** 254 | **5.28** 134 |
| | | | Mechanically Held | Std., X | | | |
| | | | Electrically Held | T | **6.34** 161 | **15.88** 403 | **5.19** 132 |
| | | | | N | **14.88** 378 | **14.12** 359 | **7.56** 192 |
| | | | Mechanically Held | T, N, R6 | | | |
| | | | | A3, C, C6, P | **8.12** 206 | **14.12** 359 | **9.73** 247 |
| 60 | SPG | 2–5 | Electrically Held | Std., A12, C, C6, P, X | **7.81** 198 | **12.69** 322 | **6.03** 153 |
| | | 2–5 | Electrically Held & Mechanically Held | T, N, R6 | **14.88** 378 | **14.12** 359 | **7.56** 192 |
| | | 2–5 | Mechanically Held | Std., A3, C, C6, P, X | **8.12** 206 | **14.12** 359 | **9.73** 247 |
| 100 | SQG | 2 & 3 | Electrically Held | Std., A12, C, C6, F, P, X, T | **11.25** 286 | **25.15** 639 | **8.99** 228 |
| | | | Mechanically Held | Std., F, X, T | | | |
| | | | Electrically Held | N, R6, T, T10-T13,■ | **18.15** 461 | **29.15** 740 | **9.24** 235 |
| | | | Mechanically Held | A3, C, C6, N, R6, T, T10-T13,■ | | | |
| | | 4 & 5 | Electrically Held | Std., A12, C, C6, F, P, X | **11.25** 286 | **25.15** 639 | **8.99** 228 |
| | | | Mechanically Held | Std., F, X | | | |
| | | | Electrically Held | ■ | **18.15** 461 | **29.15** 740 | **9.24** 235 |
| | | | Mechanically Held | A3, C, C6, ■ | | | |
| | | | Electrically Held | N, R6, T, T10-T13 | **22.15** 563 | **39.15** 994 | **10.24** 260 |
| | | | Mechanically Held | N, R6, T, T10-T13 | | | |
| 200 | SVG | All | Electrically and Mechanically Held | Standard and All Forms | **22.15** 563 | **39.15** 994 | **10.24** 260 |
| 300 | SXG | All | Electrically and Mechanically Held | Standard and All Forms | **17.21** 437 | **44.21** 1123 | **12.83** 326 |
| 400 and 600 | SYG & SZG | All | Electrically and Mechanically Held | Standard and All Forms | **20.21** 513 | **65.75** 1670 | **13.10** 333 |
| 800 | SJG | 2–3 | With or without any Forms | | **34.50** 876 | **93.00** 2362 | **23.50** 597 |

■ All Type K Forms.

Dual Dimensions: **INCHES** Millimeters

### Table 16.171: NEMA 1 Flush Mounted

| Ampere Rating | Type | Form(s) | | Dimensions | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G |
| 30 | LF LXF | Standard, F, Y48, R6 | | **15.19** 386 | **8.94** 227 | **7.63** 194 | **12.88** 327 | **5.44** 138 | **10.94** 278 | **5.13** 130 |
| | | A3, A12, C, C6, T, P | | **24.00** 610 | **17.50** 445 | **15.00** 381 | **19.25** 489 | **7.12** 181 | — | — |
| 30 | SMF | Electrically Held | Std., A12, C, C6, P, X | **13.44** 341 | **7.19** 183 | **5.88** 149 | **11.13** 283 | **4.75** 121 | **9.19** 233 | **4.50** 114 |
| | | Mechanically Held | Std., X | | | | | | | |
| | | Electrically Held | T, N | **24.00** 610 | **17.50** 445 | **15.00** 381 | **19.25** 489 | **5.75** 146 | — | — |
| | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | |
| 60 | SPF | Electrically Held | Std., A12, C, C6, P, X | **15.19** 386 | **8.94** 227 | **7.63** 194 | **12.88** 327 | **5.44** 138 | **10.94** 278 | **5.13** 130 |
| | | Mechanically Held | Std., X | | | | | | | |
| | | Electrically Held | T, N | **24.00** 610 | **17.50** 445 | **15.00** 381 | **19.25** 489 | **5.75** 146 | — | — |
| | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | |
| 100 | SQF | With or without any Forms | | **31.00** 787 | **16.75** 425 | **14.25** 362 | **26.25** 667 | **8.00** 203 | — | — |



NEMA 1 Flush Mounted





© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

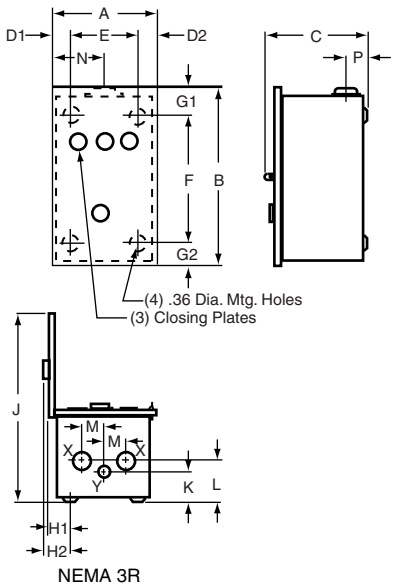
### Table 16.172: NEMA 3R

| Ampere Rating | Type | Number of Poles | A | B | C | D1 | D2 | E | F | G1 | G2 | H1 | H2 | J | K | L | M | N | P | K.O. X | K.O. Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | SMH | All | 8.83<br>224 | 12.30<br>312 | 7.12<br>181 | 1.39<br>35 | 1.44<br>37 | 6.00<br>152 | 7.50<br>191 | 2.64<br>67 | 2.16<br>55 | 2.08<br>53 | 2.62<br>66 | 14.28<br>363 | 1.37<br>35 | 1.37<br>35 | 1.88<br>48 | 4.38<br>111 | 1.83<br>46 | 1/2<br>3/4<br>1 | 1/2<br>3/4<br>1 |
| 30<br>60 | LH<br>SPH | All | 9.83<br>250 | 16.30<br>414 | 8.62<br>219 | 1.39<br>35 | 1.44<br>37 | 7.00<br>178 | 11.50<br>292 | 2.64<br>67 | 2.16<br>55 | 2.08<br>53 | 2.62<br>66 | 16.78<br>426 | 1.31<br>33 | 1.75<br>44 | 2.13<br>54 | 4.88<br>124 | 1.83<br>46 | 1<br>1 1/4<br>1 1/2 | 1/2<br>3/4 |
| 100 | SQH | All | 12.83<br>326 | 25.30<br>643 | 8.62<br>219 | 1.39<br>35 | 1.44<br>37 | 10.00<br>254 | 20.50<br>521 | 2.64<br>67 | 2.16<br>55 | 2.08<br>53 | 2.62<br>66 | 19.78<br>502 | 1.31<br>33 | 1.94<br>49 | 2.44<br>62 | 6.38<br>162 | 1.83<br>46 | 1<br>1 1/4<br>2<br>2 1/2 | 1/2<br>3/4 |
| 200 | SVH | All | 12.83<br>326 | 40.30<br>1024 | 9.12<br>232 | 1.39<br>35 | 1.44<br>37 | 10.00<br>254 | 35.50<br>902 | 2.64<br>67 | 2.16<br>55 | 2.08<br>53 | 2.62<br>66 | 20.28<br>515 | 1.31<br>33 | 2.31<br>59 | 2.69<br>68 | 6.38<br>162 | 1.83<br>46 | 1<br>1 1/4<br>2<br>2 1/2 | 1/2<br>3/4 |

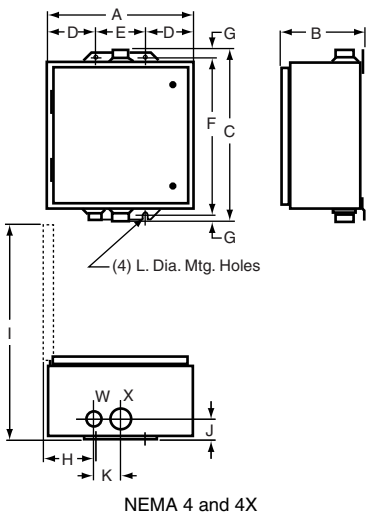
### Table 16.173: NEMA 4 and 4X Stainless Steel Only♦

| Ampere Rating | Type | Number of Poles | Form(s) | | Dimensions for Stainless Steel Enclosures For Glass Polyester (through 100 A), see Size 2 NEMA 4/4X dimensions on page 16-25. | | | | | | | | | | | | Bottom Hub Only | Top & Bottom Hub |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | C | D | E | F | G | H | I | J | K | L | W | X |
| 30 | LW<br>LXW | Any | Standard, F, R6, Y48 | | 8.13<br>206 | 7.88<br>200 | 16.19<br>411 | 1.56<br>40 | 5.00<br>127 | 15.00<br>381 | .60<br>15 | 1.94<br>49 | 14.75<br>375 | 2.00<br>51 | 2.63<br>67 | .31<br>8 | 3/4" | 1 1/2" |
| | | | A3, A12, C, C6, P, T | | 12.62<br>321 | 7.81<br>198 | 14.69<br>373 | 2.56<br>65 | 7.50<br>191 | 13.50<br>343 | .63<br>16 | 3.38<br>86 | 18.44<br>468 | 1.69<br>43 | 2.31<br>59 | .31<br>8 | 3/4" | 1" |
| 30 | SMW | 2–5 | Electrically Held | Std., A12, C, C6, P, X | 6.38<br>162 | 7.13<br>181 | 13.19<br>335 | 1.56<br>40 | 3.25<br>83 | 12.00<br>305 | .63<br>16 | 1.19<br>30 | 11.81<br>300 | 1.63<br>41 | 2.31<br>59 | .31<br>8 | 3/4" | 1" |
| | | | Mechanically Held | Std., F, X | | | | | | | | | | | | | | |
| | | | Electrically Held | T | 12.63<br>321 | 7.11<br>181 | 14.69<br>373 | 2.56<br>65 | 7.50<br>191 | 13.50<br>343 | .63<br>16 | 3.19<br>81 | 18.50<br>470 | 1.64<br>42 | 2.31<br>59 | .31<br>8 | 3/4" | 1" |
| | | | Electrically Held | N, R6 | 14.88<br>378 | 7.25<br>184 | 16.31<br>414 | 2.56<br>65 | 9.75<br>248 | 15.00<br>381 | .63<br>16 | 3.19<br>81 | 20.88<br>530 | 2.06<br>52 | 2.63<br>67 | .31<br>8 | 3/4" | 1 1/2" |
| | | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | | | | | | | | |
| 60 | SPW | 2–5 | Electrically Held | Std., A12, C, C6, P, X | 8.13<br>206 | 7.88<br>200 | 16.19<br>411 | 1.56<br>40 | 5.00<br>127 | 15.00<br>381 | .60<br>15 | 1.94<br>49 | 14.75<br>375 | 2.00<br>51 | 2.63<br>67 | .31<br>8 | 3/4" | 1 1/2" |
| | | | Mechanically Held | Std., A3, C, C6, P, X | | | | | | | | | | | | | | |
| | | | Electrically Held | T, N, R6 | 14.88<br>378 | 7.25<br>184 | 16.31<br>414 | 2.56<br>65 | 9.75<br>248 | 15.00<br>381 | .63<br>16 | 3.88<br>98 | 20.88<br>530 | 2.06<br>52 | 2.63<br>67 | .31<br>8 | 3/4" | 1 1/2" |
| | | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | | | | | | | | |
| 100 | SQW | 2 & 3 | Electrically Held | Std., A12, C, C6, F, N, R6, P, T, T10-13, X | 18.15<br>461 | 8.77<br>223 | 32.21<br>818 | 3.08<br>78 | 12.00<br>305 | 30.50<br>775 | .61<br>15 | 3.67<br>93 | 26.71<br>678 | 2.58<br>66 | 3.19<br>81 | .44<br>11 | 3/4" | 2 1/2" |
| | | | Mechanically Held | Std., A3, C, C6, F, N, P, R6, T, T10-13, X | | | | | | | | | | | | | | |
| | | 4 & 5 | Electrically Held | Std., A12, C, C6, F, P, ■ | 18.15<br>461 | 8.77<br>223 | 32.21<br>818 | 3.08<br>78 | 12.00<br>305 | 30.50<br>775 | .61<br>15 | 3.67<br>93 | 26.71<br>678 | 2.58<br>66 | 3.19<br>81 | .44<br>11 | 3/4" | 2 1/2" |
| | | | Mechanically Held | Std., A3, C, C6, P, ■ | | | | | | | | | | | | | | |
| | | | Electrically Held | N, R6, T, T10-13 | 22.15<br>563 | 9.77<br>248 | 42.21<br>1072 | 3.08<br>78 | 16.00<br>406 | 40.50<br>1029 | .61<br>15 | 3.67<br>93 | 31.71<br>805 | 2.33<br>59 | 2.88<br>73 | .44<br>11 | 3/4" | 2 1/2" |
| | | | Mechanically Held | N, R6, T, T10-13 | | | | | | | | | | | | | | |
| 200 | SVW | All | Electrically and Mechanically Held | Standard and All Forms | 22.15<br>563 | 9.77<br>248 | 42.21<br>1072 | 3.08<br>78 | 16.00<br>406 | 40.50<br>1029 | .61<br>15 | 3.67<br>93 | 31.71<br>805 | 2.33<br>59 | 2.88<br>73 | .44<br>11 | 3/4" | 2 1/2" |
| 300 | SXW | All | Electrically and Mechanically Held | Standard and All Forms | 17.21<br>437 | 12.63<br>321 | 47.21<br>1199 | 4.11<br>104 | 9.00<br>229 | 46.00<br>1168 | .61<br>15 | 4.59<br>117 | 28.32<br>719 | 3.11<br>79 | 5.75<br>146 | .56<br>14 | 3/4" | 3 1/2" |
| 400 & 600 | SYW & SZW | All | Electrically and Mechanically Held | Standard and All Forms | 20.21<br>513 | 12.13<br>308 | 65.21<br>1656 | 4.11<br>104 | 12.00<br>305 | 64.00<br>1626 | .61<br>15 | 4.59<br>117 | 30.82<br>783 | 2.67<br>68 | 4.50<br>114 | .56<br>14 | 3/4"<br>▲ | Two<br>3"▲ |
| 800 | SJW | 2–3 | With or without any Forms | | 34.50<br>876 | 23.50<br>597 | 101.00<br>2565 | Floor Mounting | | | | | | | | | | |

▲ X hub is 1/4" left of center. W hub shown is another X hub. K dimension is distance between two X hubs. Actual W hub is located 3-3/16" to the right of X hub shown.
■ All "K" forms.
♦ For glass polyester (through 100A), see Size 2 NEMA 4/4X dimensions on page 16-25.



NEMA 3R



NEMA 4 and 4X

Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.174: NEMA 12/3R

| Ampere Rating | Type | Number of Poles | Form(s) | | Dimensions▲ A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | LA LXA | Any | Standard, F, R6, Y48 | | **8.13** 206 | **8.50** 216 | **15.75** 400 | **1.56** 40 | **5.00** 127 | **15.00** 381 | **.31** 8 | **2.13** 54 | **14.75** 375 | **.31** 8 |
| | | | A3, A12, C, C6, P, T | | **11.88** 302 | **7.75** 197 | **13.50** 343 | **3.81** 97 | **4.25** 108 | **12.75** 324 | **.38** 10 | **4.94** 125 | **18.12** 460 | **.31** 8 |
| 30 | SMA | 2-5 | Electrically Held | Std., A12, C, C6, P, X | **6.38** 162 | **8.53** 217 | **12.75** 324 | **1.56** 40 | **3.25** 83 | **12.00** 305 | **.38** 10 | **3.56** 90 | **12.50** 318 | **.31** 8 |
| | | | Mechanically Held | Std., F, P, X | | | | | | | | | | |
| | | | Electrically Held | T | **11.88** 302 | **7.75** 197 | **13.50** 343 | **2.56** 65 | **6.75** 171 | **12.75** 324 | **.38** 10 | **3.66** 93 | **18.12** 460 | **.31** 8 |
| | | | Electrically Held | N, R6 | **14.88** 378 | **7.88** 200 | **16.00** 406 | **2.56** 65 | **9.75** 248 | **15.00** 381 | **.50** 13 | **3.66** 93 | **21.25** 540 | **.31** 8 |
| | | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | | | | |
| 60 | SPA | 2-5 | Electrically Held | Std., A12, C, C6, P, X | **8.13** 206 | **9.28** 236 | **16.00** 406 | **1.56** 40 | **5.00** 127 | **15.00** 381 | **.50** 13 | **3.66** 93 | **15.38** 391 | **.31** 8 |
| | | | Mechanically Held | Std., A3, C, C6, P, X | | | | | | | | | | |
| | | | Electrically Held | T, N, R6 | **14.88** 378 | **7.88** 200 | **15.75** 400 | **2.56** 65 | **9.75** 248 | **15.00** 381 | **.38** 10 | **3.66** 93 | **21.25** 540 | **.31** 8 |
| | | | Mechanically Held | A3, C, C6, T, N, P, R6 | | | | | | | | | | |
| 100 | SQA | 2 & 3 | Electrically Held | Std., A12, C, C6, F, N, R6, P, T, T10-13, X | **18.15** 461 | **9.24** 235 | **31.50** 800 | **3.08** 78 | **12.00** 305 | **30.50** 775 | **.50** 13 | **3.67** 93 | **26.71** 678 | **.44** 11 |
| | | | Mechanically Held | Std., A3, C, C6, F, N, P, R6, T, T10-13, X | | | | | | | | | | |
| | | 4 & 5 | Electrically Held | Std., A12, C, C6, F, N, P, ■ | | | | | | | | | | |
| | | | Mechanically Held | Std., A3, C, C6, P, ■ | | | | | | | | | | |
| | | | Electrically Held | N, R6, T, T10-13, ■ | **22.15** 563 | **10.24** 260 | **41.50** 1054 | **3.08** 78 | **16.00** 406 | **40.50** 1029 | **.50** 13 | **3.67** 93 | **31.71** 805 | **.44** 11 |
| | | | Mechanically Held | N, R6, T, T10-13, ■ | | | | | | | | | | |
| 200 | SVA | All | Electrically and Mechanically Held | Standard and All Forms | **22.15** 563 | **10.24** 260 | **41.50** 1054 | **3.08** 78 | **16.00** 406 | **40.50** 1029 | **.50** 13 | **3.67** 93 | **31.71** 805 | **.44** 11 |
| 300 | SXA | All | Electrically and Mechanically Held | Standard and All Forms | **17.21** 437 | **13.33** 339 | **47.00** 1194 | **4.11** 104 | **9.00** 229 | **46.00** 1168 | **.50** 13 | **4.59** 117 | **28.32** 719 | **.56** 14 |
| 400 & 600 | SYA & SZA | All | Electrically and Mechanically Held | Standard and All Forms | **20.21** 513 | **13.00** 330 | **65.00** 1651 | **4.11** 104 | **12.00** 305 | **64.00** 1626 | **.50** 13 | **5.31** 135 | **30.87** 784 | **.69** 18 |
| 800 | SJA | 2-3 | With or without any Forms | | **93.00** 2362 | **34.50** 876 | **23.50** 597 | Floor Mounting | | | | | | |

▲ See Figure 1 for all dimensions except 800 A; for 800 A dimensions, see Figure 2.
■ All Type "K" Forms using Class 9001 Type K Control Units.

### Table 16.175: NIGHT-MASTER® Outdoor Lighting Contactors (Short Version)—NEMA 3R

| Ampere Rating | Description | Type Number | A | B | C | D | E | F | G | H | J♦ | K | L | M | Knockouts N | P | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Disconnect Switch & Circuit Breaker Types | SMC61, 62 & 81 | **23.50** 597 | **15.00** 381 | **8.42** 214 | **10.50** 267 | **19.00** 483 | **22.38** 568 | **7.00** 178 | **2.18** 55 | 1.50 38 | **2.13** 54 | **2.13** 54 | **2.13** 54 | .50–.75 | 1.–1.25 1.50 | .50–.75 |
| 60 | Disconnect Switch & Circuit Breaker Types | SPC61, 62 & 81 | | | | | | | | | | | | | | | |
| 100 | Disconnect Switch & Circuit Breaker Types | SQC61, 62 & 81 | **34.53** 877 | **20.00** 508 | **8.42** 214 | **10.50** 267 | **30.04** 763 | **33.41** 849 | **7.00** 178 | **2.18** 55 | **2.0** 51 | **2.68** 68 | **2.68** 68 | **3.44** 87 | .50–.75 | 1.–1.25 2.-2.50 | 1.–1.25 1.5-2.0 |
| 200 | Disconnect Switch Type Circuit Breaker Type | SVC61 & 62 SVC81 | **48.37** 1229 | **19.00** 483 | **9.12** 232 | **10.53** 267 | **44.00** 1118 | **47.25** 1200 | **7.00** 178 | **2.18** 55 | 2.50 64 | **2.68** 68 | **2.68** 68 | **3.44** 87 | .50–.75 | 1.–1.25 2.–2.50 | 1.–1.25 1.5–2.0 |

### Table 16.176: NIGHT-MASTER® Outdoor Lighting Contactors (Long Version)—NEMA 3R

| Ampere Rating | Description | Type Number | A | B | C | D | E | F | G | H | J♦ | K | L | M | Knockouts N | P | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Disconnect Switch & Circuit Breaker Types | SMC63, 64 & 83 | **38.88** 987 | **15.00** 381 | **8.42** 214 | **10.42** 265 | **34.38** 873 | **37.76** 959 | **7.00** 178 | **2.18** 55 | 1.50 38 | **2.13** 54 | **2.13** 54 | **2.13** 54 | .50–.75 | 1.–1.25 1.50 | .50–.75 |
| 60 | Disconnect Switch & Circuit Breaker Types | SPC63, 64 & 83 | | | | | | | | | | | | | | | |
| 100 | Disconnect Switch & Circuit Breaker Types | SQC63, 64 & 83 | **42.53** 1080 | **20.00** 508 | **8.42** 214 | **10.42** 265 | **38.04** 966 | **41.41** 1052 | **7.00** 178 | **2.18** 55 | **2.0** 51 | **2.68** 68 | **2.68** 68 | **3.44** 87 | .50–.75 | 1.–1.25 2.–2.50 | 1.–1.25 1.5–2.0 |
| 200 | Disconnect Switch Type Circuit Breaker Type | SVC63 & 64 SVC83 | **56.37** 1432 | **19.00** 483 | **9.12** 232 | **10.53** 267 | **52.00** 1321 | **55.25** 1403 | **7.00** 178 | **2.18** 55 | 2.50 64 | **2.68** 68 | **2.69** 68 | **3.44** 87 | .50–.75 | 1.–1.25 2.–2.50 | 1.–1.25 1.5–2.0 |

♦ Conduit size.

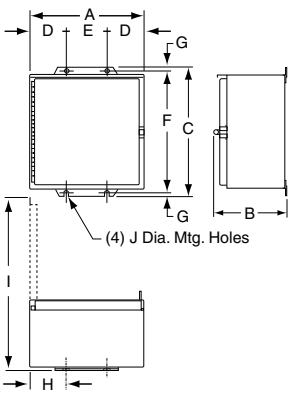



Figure 1: NEMA 12 (30–600 A)

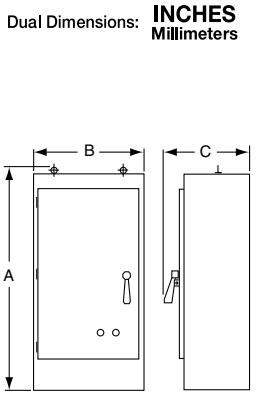



Figure 2: NEMA 12 (800 A)

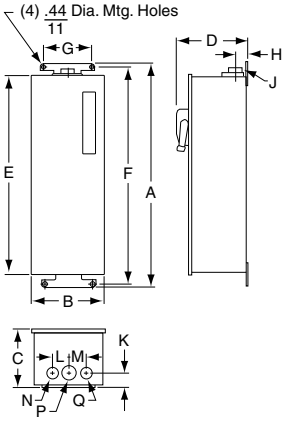



Figure 3: NIGHT-MASTER





© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.177: Combination Lighting Contactors—NEMA 1 Enclosure

| Ampere Rating | Type | Dimensions▲ (see Figure 1) | | | | | | | | | | | | | | | Top & Bot. | | Sides |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | W | X | Y |
| 30 | SMG6– & 8– | **9.50** 241 | **22.50** 572 | **8.37** 213 | **6.38** 162 | **20.50** 521 | **14.68** 373 | **1.81** 46 | **1.69** 43 | **3.37** 86 | **3.38** 86 | **1.06** 27 | **3.25** 83 | **2.18** 55 | **1.25** 32 | **.87** 22 | .50-.75 | .50-.75 | .50 |
| | SMG7– & 9– | **13.75** 349 | **23.00** 584 | **8.36** 212 | **10.63** 270 | **21.00** 533 | **20.07** 510 | **1.87** 47 | **1.88** 48 | **3.76** 96 | **2.06** 52 | **1.06** 27 | **3.25** 83 | **2.18** 55 | **1.25** 32 | **.87** 22 | .50-.75-1.0 | .50-.75-1.0 | .50 |
| 60 | SPG6– & 8– | **10.50** 267 | **26.00** 660 | **9.62** 244 | **7.37** 187 | **24.00** 610 | **17.00** 432 | **2.12** 54 | **2.00** 51 | **4.00** 102 | **2.06** 52 | **1.06** 27 | **3.25** 83 | **2.18** 55 | **1.25** 32 | **.87** 22 | 1.0-1.25 | .50-.75 | .50 |
| | SPG7– & 9– | **15.00** 381 | **28.75** 730 | **9.62** 244 | **11.62** 295 | **26.25** 667 | **21.50** 546 | **2.18** 55 | **2.00** 51 | **4.00** 102 | **2.56** 65 | **1.31** 33 | **3.25** 83 | **2.18** 55 | **1.25** 32 | **.87** 22 | 1.0-1.25 | .50-.75 | .50 |

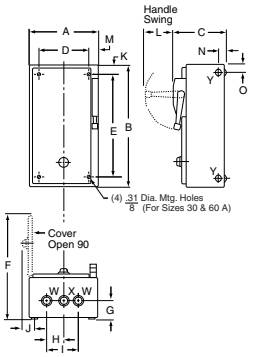



Figure 1
NEMA 1 Enclosure
Combination Devices

### Table 16.178: NEMA 1 Enclosure

| Ampere Rating | Type | Dimensions▲ (see Figure 2) | | | | | | | | | | | | | | | Top & Bot. | | Sides |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | W | X | Y |
| 100 | SQG6– & 7–<br>SQG81 & 91 | **15.25** 387 | **39.50** 1003 | **10.60** 269 | **9.25** 235 | **3.00** 76 | **22.68** 576 | **41.00** 1041 | **2.69** 68 | **5.38** 137 | **2.83** 72 | **3.74** 95 | **5.00** 127 | — | **1.21** 31 | **.90** 23 | 1.-1.25<br>2.-2.50 | .50-.75 | .50 |
| 200 | SVG6– & 7–<br>SVG81 & 91 | **16.00** 406 | **50.00** 1270 | **10.68** 271 | **10.00** 254 | **3.00** 76 | **23.68** 601 | **51.50** 1308 | **2.69** 68 | **5.38** 137 | **2.83** 72 | **3.74** 95 | **5.00** 127 | — | **1.21** 31 | **.90** 23 | 2.50 | .50-.75 | .50 |
| 300 | SXG6– & 7– | **20.00** 508 | **75.00** 1905 | **14.37** 365 | **12.00** 305 | **4.00** 102 | **29.43** 748 | **77.00** 1956 | **3.19** 81 | — | **3.52** 89 | **7.00** 178 | **9.25** 235 | — | — | — | .50-.75 | 3.00 | — |
| | SXG81 & 91 | **20.00** 508 | **63.00** 1600 | **14.37** 365 | **12.00** 305 | **4.00** 102 | **27.43** 697 | **65.00** 1651 | **3.19** 81 | — | **3.52** 89 | **7.00** 178 | **5.00** 127 | — | — | — | .50-.75 | 3.00 | — |
| 400 | SYG81 & 91 | **36.00** 914 | **90.00** 2286 | **17.00** 432 | Floor Mounting Enclosure | | | | | | | | | | | | — | — | — |
| 600 | SZG81 & 91 | | | | | | | | | | | | | | | | | | |

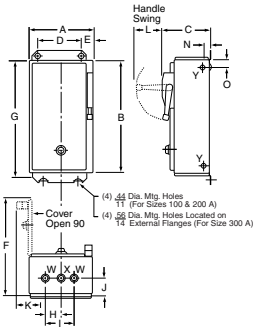



Figure 2
NEMA 1 Enclosure

### Table 16.179: NEMA 4 & 4X Enclosure

| Ampere Rating | Type | Dimensions▲ (see Figure 3) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | W | X |
| 30 | SMW6–& 8– | **9.50** 241 | **8.36** 212 | **24.76** 629 | **3.25** 83 | **2.50** 64 | **4.50** 114 | **23.50** 597 | **.63** 16 | **3.00** 76 | **1.62** 41 | **2.31** 59 | **14.31** 363 | .75 Hub | 1.0 Hub |
| | SMW7– & 9– | **13.75** 349 | **8.36** 212 | **25.26** 642 | **3.25** 83 | **4.75** 121 | **4.25** 108 | **24.00** 610 | **.63** 16 | **5.25** 133 | **1.62** 41 | **2.31** 59 | **20.14** 512 | .75 Hub | 1.0 Hub |
| 60 | SPW6– & 8– | **10.50** 267 | **9.61** 244 | **28.26** 718 | **3.25** 83 | **2.50** 64 | **5.50** 140 | **27.00** 686 | **.63** 16 | **3.00** 76 | **2.00** 51 | **2.63** 67 | **16.56** 421 | .75 Hub | 1.50 Hub |
| | SPW7– & 9– | **15.00** 381 | **9.61** 244 | **31.01** 788 | **3.25** 83 | **5.38** 137 | **4.25** 108 | **29.75** 756 | **.63** 16 | **5.88** 149 | **2.00** 51 | **2.63** 67 | **21.06** 535 | .75 Hub | 1.50 Hub |
| 100 | SQW6– & 7–<br>SQW81 & 91 | **15.25** 387 | **10.60** 269 | **41.76** 1061 | **5.00** 127 | **2.50** 64 | **10.25** 260 | **40.50** 1029 | **.63** 16 | **3.24** 82 | **2.61** 66 | **3.19** 81 | **22.18** 563 | .75 Hub | 2.50 Hub |
| 200 | SVW6– & 7–<br>SVW81 & 91 | **16.00** 406 | **10.56** 268 | **52.26** 1327 | **5.00** 127 | **2.50** 64 | **11.00** 279 | **51.00** 1295 | **.63** 16 | **3.24** 82 | **2.61** 66 | **3.19** 81 | **23.00** 584 | .75 Hub | 2.50 Hub |
| 300 | SXW6– & 7– | **20.00** 508 | **14.21** 361 | **78.12** 1984 | **9.25** 235 | **4.00** 102 | **12.00** 305 | **77.00** 1956 | **.56** 14 | **4.77** 121 | **2.96** 75 | **3.50** 89 | **29.43** 748 | .75 Hub | 3.50 Hub |
| | SXW81 & 91 | **20.00** 508 | **14.21** 361 | **66.12** 1679 | **5.00** 127 | **4.00** 102 | **12.00** 305 | **65.00** 1651 | **.56** 14 | **4.77** 121 | **2.96** 75 | **3.50** 89 | **27.43** 697 | .75 Hub | 3.50 Hub |
| 400 | SYW81 & 91 | **36.00** 914 | **17.71** 450 | **98.00** 2489 | Floor Mounting Enclosure | | | | | | | | | — | — |
| 600 | SZW81 & 91 | | | | | | | | | | | | | | |

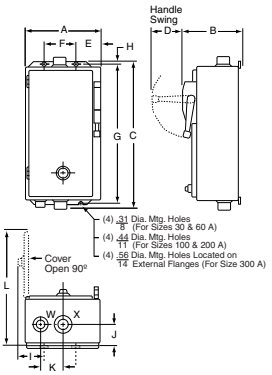



Figure 3
NEMA 4 & 4X Enclosure

### Table 16.180: NEMA 12/3R Enclosure

| Ampere Rating | Type | Dimensions▲ (see Figure 4) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J |
| 30 | SMA6– & 8– | **9.50** 241 | **8.36** 212 | **24.26** 616 | **3.25** 83 | **2.50** 64 | **4.50** 114 | **23.50** 597 | **.38** 10 | **3.25** 83 | **14.31** 363 |
| | SMA7– & 9– | **13.75** 349 | **10.10** 257 | **24.76** 629 | **3.25** 83 | **4.75** 121 | **4.25** 108 | **24.00** 610 | **.38** 10 | **5.50** 140 | **22.00** 559 |
| 60 | SPA6– & 8– | **10.50** 267 | **9.61** 244 | **27.76** 705 | **3.25** 83 | **2.50** 64 | **5.50** 140 | **27.00** 686 | **.38** 10 | **3.25** 83 | **16.56** 421 |
| | SPA7– & 9– | **15.00** 381 | **10.98** 279 | **30.51** 775 | **3.25** 83 | **5.38** 137 | **4.25** 108 | **29.75** 756 | **.38** 10 | **6.13** 156 | **23.43** 595 |
| 100 | SQA6– & 7–<br>SQA81 & 91 | **15.25** 387 | **10.59** 269 | **42.00** 1067 | **5.00** 127 | **3.00** 76 | **9.25** 235 | **41.00** 1041 | **.50** 13 | **3.75** 95 | **22.31** 567 |
| 200 | SVA6– & 7–<br>SVA81 & 91 | **16.00** 406 | **10.52** 267 | **52.50** 1334 | **5.00** 127 | **3.00** 76 | **10.00** 254 | **51.50** 1308 | **.50** 13 | **3.75** 95 | **23.00** 584 |
| 300 | SXA6– & 7– | **20.00** 508 | **14.21** 361 | **78.00** 1981 | **9.25** 235 | **4.00** 102 | **12.00** 305 | **77.00** 1956 | **.50** 13 | **7.75** 197 | **29.43** 748 |
| | SXA81 & 91 | **20.00** 508 | **14.21** 361 | **66.00** 1676 | **5.00** 127 | **4.00** 102 | **12.00** 305 | **65.00** 1651 | **.50** 13 | **7.75** 197 | **27.43** 697 |
| 400 | SYA81 & 91 | **36.00** 914 | **17.71** 450 | **90.00** 2286 | Floor Mounting Enclosure | | | | | | |
| 600 | SZA81 & 91 | | | | | | | | | | |

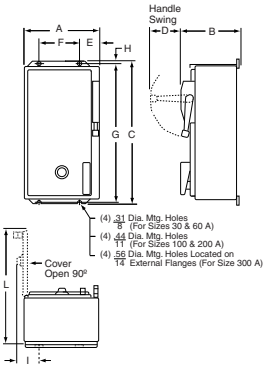



Figure 4
NEMA 12/3R Enclosure

▲ Dimensions are the same for Form F4T (standard control transformer), Form F4T11 (100 VA extra capacity) and Form F4T12 (200 VA extra capacity).

Dual Dimensions: **INCHES** / **Millimeters**



© 2012 Schneider Electric
All Rights Reserved

- Compact Design
- Industry Standard Mounting
- Double Break Contacts
- Low Coil VA
- Straight-Through Wiring
- Low Cost

Definite purpose contactors are ideal for heating, air conditioning, refrigeration, data processing, and food service equipment. New compact 1 and 2-Pole contactors are available along with standard size 2, 3, and 4-Pole devices.

They feature quick connect terminals and binder head screws for easy wiring. Box lugs are standard on 40 A contactors and larger. An exclusive DIN track mounting option may reduce installation costs. Coils can be changed on the Type DPA contactors (50 to 90 A) quickly without a tool. Auxiliary contact modules snap on either side of the Type DPA contactors.



8910DP22V09
Definite Purpose Contactor

**Table 16.181: Compact 1-Pole Contactors—600 Vac Maximum**

| Full Load (A) | Locked Rotor (A) | | | Resistive Load (A) | N.O. Poles | Type | $ Price |
|---|---|---|---|---|---|---|---|
| | 277 V | 460 V | 575 V | | | | |
| 20 | 120 | 100 | 80 | 30 | 1 | DP11♦ | **32.80** |
| 25 | 150 | 125 | 100 | 35 | 1 | DP21♦ | **38.20** |
| 30 | 150 | 125 | 100 | 40 | 1 | DP31♦ | **45.90** |
| 40 | 240 | 200 | 160 | 50▲ | 1 | DP41♦ | **54.00** |



8910DP42V14
Definite Purpose Contactor

**Table 16.182: Compact 2-Pole Contactors—600 Vac Maximum■**

| Full Load (A) | Locked Rotor (A) | | | Resistive Load (A) | N.O. Poles | Type | $ Price |
|---|---|---|---|---|---|---|---|
| | 277 V | 460 V | 575 V | | | | |
| 20 | 120 | 100 | 80 | 30 | 2 | DP12♦ | **38.20** |
| 25 | 150 | 125 | 100 | 35 | 2 | DP22♦ | **50.00** |
| 30 | 150 | 125 | 100 | 40 | 2 | DP32♦ | **55.00** |
| 40 | 240 | 200 | 160 | 50 | 2 | DP42♦ | **65.00** |



8910DPA33V04
Definite Purpose Contactor

**Table 16.183: 2, 3, and 4-Pole Contactors—600 Vac Maximum■**

| Full Load (A) | Locked Rotor (A) | | | Resistive Load (A) | Horsepower Ratings | | | | N.O. Poles | Type | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 230 V | 460 V | 575 V | | 115 V 1Ø | 230 V 1Ø | 230 V 3Ø | 460/575 V 3Ø | | | |
| 20 | 120 | 100 | 80 | 30 | 1.5 | 3 | 7-1/2 | 7-1/2 | 2<br>3<br>4 | DPA12♦<br>DPA13♦<br>DPA14♦ | **53.00**<br>**61.00**<br>**76.00** |
| 25 | 150 | 125 | 100 | 35 | 2 | 5 | 10 | 15/20 | 2<br>3<br>4 | DPA22♦<br>DPA23♦<br>DPA24♦ | **58.00**<br>**67.00**<br>**86.00** |
| 30 | 180 | 150 | 120 | 40 | 2 | 5 | 10 | 15/20 | 2<br>3<br>4 | DPA32♦<br>DPA33♦<br>DPA34♦ | **71.00**<br>**75.00**<br>**99.00** |
| 40 | 240 | 200 | 160 | 50 | 3 | 7-1/2 | 10 | 20/25 | 2<br>3<br>4 | DPA42♦<br>DPA43♦<br>DPA44♦ | **79.00**<br>**88.00**<br>**114.00** |
| 50 | 300 | 250 | 200 | 65 | 3 | 10 | 15 | 30 | 2<br>3 | DPA52♦<br>DPA53♦ | **164.00**<br>**174.00** |
| 60 | 360 | 300 | 240 | 75 | 5 | 10 | 25 | 30 | 2<br>3 | DPA62♦<br>DPA63♦ | **185.00**<br>**193.00** |
| 75 | 450 | 375 | 300 | 94 | 5 | 15 | 25 | 40 | 2<br>3 | DPA72♦<br>DPA73♦ | **221.00**<br>**247.00** |
| 90 | 540 | 450 | 360 | 120 | 7-1/2 | 20 | 30 | 50 | 2<br>3 | DPA92♦<br>DPA93♦ | **286.00**<br>**311.00** |

▲ 50 A Resistive, maximum 277 V. All others rated 40 A Resistive (above 277 V).
■ Above 240 V, all lines must be switched.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

**Table 16.184: Coil Voltage Codes**

| Voltage | | Code Type DP, DPA |
|---|---|---|
| 60 Hz | 50 Hz | |
| 24 | 24 | V14 |
| 24 | — | — |
| 120 | 110 | V02 |
| 208 | — | — |
| 208-240 | 220 | V09 |
| 230-240 | 220 | — |
| 277 | — | V04 |
| 480 | 440 | V06★ |
| 600 | 550 | V07▼ |

★ Not available for Type DP11 through DP31 single-pole devices.
▼ Not available for Type DP one- and two-pole devices.





© 2012 Schneider Electric
All Rights Reserved

# Types DP, DPA Application Data

### Table 16.185: 2 Normally Open & 2 Normally Closed 4-Pole Contactors—600 Vac Maximum

| Full Load (A) | Resistive Load (A) | N.O. Poles | N.C. Poles■ | Class 8910 | | $ Price |
|---|---|---|---|---|---|---|
| | | | | Type | Form | |
| 20 | 25 | 2 | 2 | DPA14▲ | Y392 | **148.00** |
| 25 | 35 | 2 | 2 | DPA24▲ | Y392 | **159.00** |
| 30 | 40 | 2 | 2 | DPA34▲ | Y392 | **171.00** |

▲ Voltage code must be specified to order this product. Refer to standard voltage codes below.
■ Above 240 volts, all lines must be switched.
Note: N.C. poles on outside. N.C. poles open before N.O. poles close.

### Table 16.186: Auxiliary Contacts, 5 A, 600 Vac Rated

| For Use With Class 8910 Type | Contact Arrangement | Class 9999 Type | | $ Price |
|---|---|---|---|---|
| | | 20–40 A | 50–90 A | |
| DPA | 1 N.O. | DD10 | D10 | **16.40** |
| | 1 N.C. | DD01 | D01 | **16.40** |
| | 1 N.O. & 1 N.C. | DD11 | D11 | **29.50** |
| | 2 N.O. | DD20 | D20 | **29.50** |

### Table 16.187: NEMA 1 General Purpose Enclosures for Type DP, DPA Contactors

| Class 8910 Type | Full Load (A) | Poles | Class 9991 Type | $ Price ♦ |
|---|---|---|---|---|
| DP | 20–40 | 1 & 2 | DPG1 | **78.00** |
| DPA | 20–40 | 2 & 3 | DPG1 | **78.00** |
| DPA | 50 | 2 & 3 | DPG2 | **99.00** |
| | 20–40 | 4 | | |
| DPA | 60–75 | 2 & 3 | DPG3 | **143.00** |
| DPA | 90 | 2 & 3 | DPG4 | **287.00** |

♦ CP1 discount schedule.

### Table 16.188: Application Data

| | |
|---|---|
| Mechanical Life: | 500,000 operations |
| Electrical Life: | |
| Type DP | 100,000 operations |
| Type DPA | 200,000 operations |
| Duty Cycle: | Continuous |
| Approvals: | |
| UL Component Recognized | |
| UL Listed (Form U1) | File E3190, CCN NLDX2 |
| CSA Certified | File E3190, CCN NLDX |
| DPA is CE marked | File LR25490, Class 321104 |

Note: See page 16-107 for replacement contacts.

## Coil Replacement



No tools required (DPA50–60A)

### Table 16.189: Class 8910 Type DPA Replacement Coils

| Full Load (A) | Poles | Class 9998 Type | Volt-Amperes▼ | | $ Price△ |
|---|---|---|---|---|---|
| | | | Inrush | Sealed | |
| 50–60 A | 2 & 3 | DA2★ | 109 | 10 | **92.00** |
| 75–90 A | 2 & 3 | DA3★ | 214 | 19 | **114.00** |

★ Replace diamond with suffix from DPA Coil Table 16.193. Example: Coil for Class 8910 DPA53V02 120 V 60 Hz would be a Class 9998 Type DA2V02.
▼ For Types DP11 through DP32: Inrush 30 VA; Sealed 5 VA.
△ CP10 Discount Schedule, not CP1.

### Table 16.190: Terminals

| Full Load (A) | Power Terminals | |
|---|---|---|
| | Type of Lug | Wire Range□ |
| 20–30 A | Binder Head | #14–#8 |
| 40 A | Box Lug | #14–#6 |
| 50–60 A | Box Lug | #14–#2 |
| 75–90 A | Box Lug | #14–#I/O |

□ Solid or stranded copper wire only.

### Table 16.191: Miscellaneous Parts

| Description | Class 9999 Type | $ Price |
|---|---|---|
| DIN mounting bracket attachment (Type DPA, 20 A to 60 A only) | DMB1 | **15.00** |
| Type DP Series B Cover | DPC1 | **2.10** |

### Table 16.192: Factory Modifications

Auxiliary contacts can be factory installed along with a DIN mounting bracket option. Special terminations are also available.

| Modification | Type | Form | $ Price |
|---|---|---|---|
| Factory installed auxiliary contacts | — | ◊ | ◊ |
| Pressure wire connectors (20–30 A) | DPA | Y122 | **1.70 per pole** |
| Box lugs (20–30 A) | DP | Y124 | **3.30 per pole** |
| | DPA | | |
| DIN mounting bracket attached (35 mm style)☆ | DP | Y135 | **3.30** |
| | DPA | | **8.70** |
| Contact cover for Type DP Series B | — | Y248 | **2.10** |
| UL Listed label on device | DP | U1 | **No Charge** |

◊ Contact your nearest Schneider Electric sales office.
☆ Available for 20 through 60 A only.

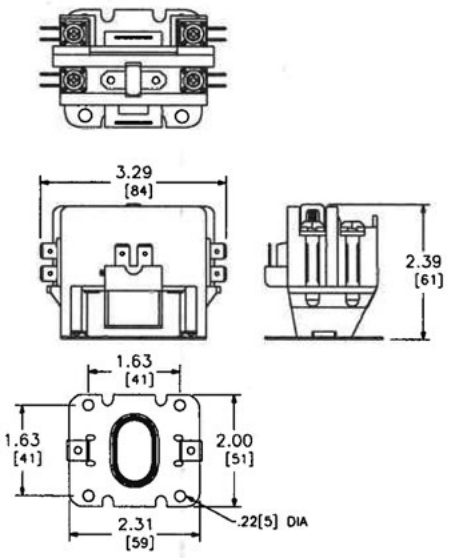
### Table 16.193: Type DPA Coil Voltage Codes

| Voltage, 60 Hz | Voltage, 50 Hz | Voltage Code |
|---|---|---|
| 24 | 24 | V14 |
| 120 | 110 | V02 |
| 208–240 | 220 | V09 |
| 277 | — | V04 |
| 480 | 440 | V06▽ |
| 600 | 550 | V07▽ |

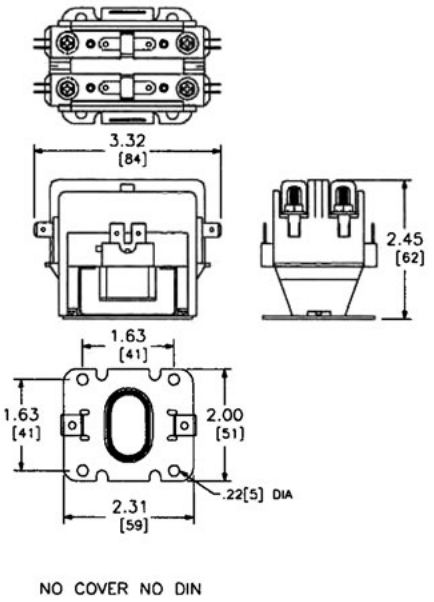
▽ Available for Type DPA contactors only.



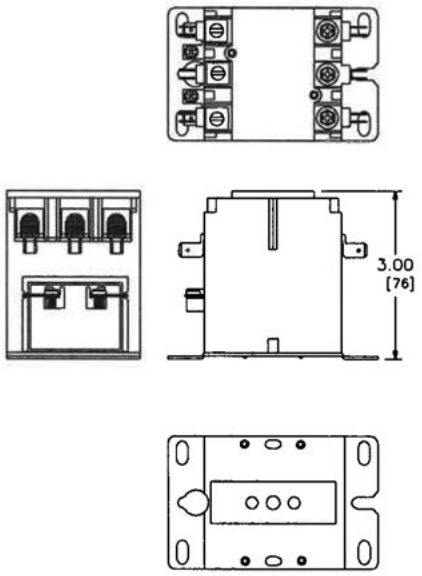
© 2012 Schneider Electric
All Rights Reserved



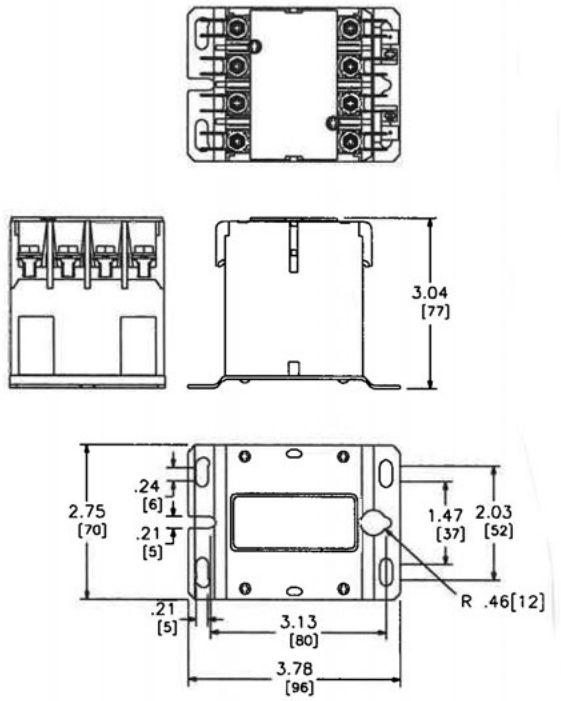

Type DP—1-Pole
20 through 40 Full Load Amperes




Type DP—2-Pole
20 through 40 Full Load Amperes




Type DPA—2 and 3-Pole
20 through 40 Full Load Amperes



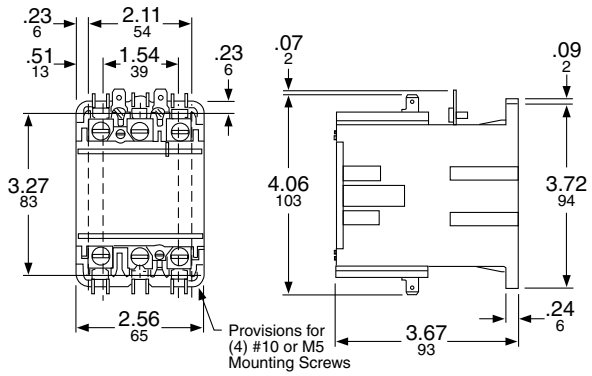

Type DPA—4-Pole
20 through 40 Full Load Amperes

Dual Dimensions: INCHES Millimeters

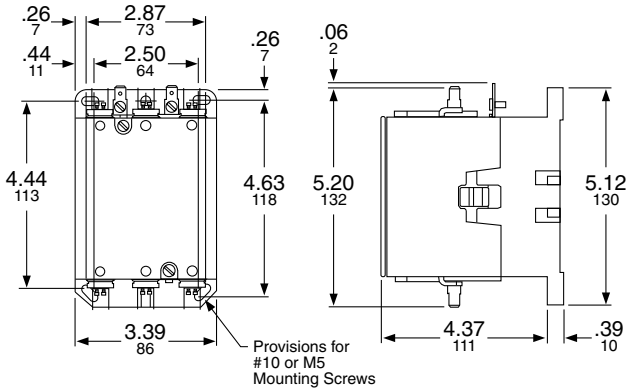




© 2012 Schneider Electric
All Rights Reserved




Type DPA—2 and 3-Pole
50 and 60 Full Load Amperes

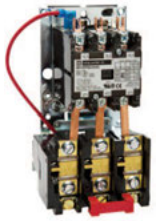



Type DPA—2 and 3-Pole
75 and 90 Full Load Amperes

Dual Dimensions: INCHES Millimeters



© 2012 Schneider Electric
All Rights Reserved



8911DPSO33V09
Definite Purpose Starter



Type DPSG23V02

Class 8911 definite purpose starters are inexpensive starters for applications with relatively low duty cycles. Typical applications include air compressors, agricultural equipment, pumps, and HVAC equipment. Definite purpose starters offer:

- Low cost
- Small size
- Melting alloy overload block
- Trip-free reset mechanism
- Open type or enclosed
- 500,000 mechanical operations

### Table 16.194: 2- and 3-Pole Starters—600 Vac Maximum

| No. of Poles | Full Load (A) | Horsepower Ratings 115 V 1Ø | 230 V 1Ø | 230 V 3Ø | 460/575 V 3Ø | Open Type Type■ | Open Type $ Price▲ | NEMA 1 Enclosed Type■ | NEMA 1 Enclosed $ Price▲ | No. of Thermal Units▲ |
|---|---|---|---|---|---|---|---|---|---|---|
| 2-Pole Single Phase | 20 | 1 1/2 | 3 | — | — | DPSO12♦ | **270.00** | DPSG12♦ | **332.00** | 1 |
| | 25 | 2 | 5 | — | — | DPSO22♦ | **296.00** | DPSG22♦ | **354.00** | |
| | 30 | 2 | 5 | — | — | DPSO32♦ | **333.00** | DPSG32♦ | **392.00** | |
| | 40 | 3 | 7 1/2 | — | — | DPSO42♦ | **365.00** | DPSG42♦ | **426.00** | |
| | 50 | 3 | 10 | — | — | DPSO52♦ | **482.00** | DPSG52♦ | **539.00** | |
| 3-Pole Poly-Phase | 20 | 1 1/2 | 3 | 7 1/2 | 7 1/2 | DPSO13♦ | **297.00** | DPSG13♦ | **356.00** | 3 |
| | 25 | 2 | 5 | 10 | 15/20 | DPSO23♦ | **320.00** | DPSG23♦ | **381.00** | |
| | 30 | 2 | 5 | 10 | 15/20 | DPSO33♦ | **363.00** | DPSG33♦ | **423.00** | |
| | 40 | 3 | 7 1/2 | 10 | 20/25 | DPSO43♦ | **399.00** | DPSG43♦ | **459.00** | |
| | 50 | 3 | 10 | 15 | 30 | DPSO53♦ | **638.00** | DPSG53♦ | **696.00** | |

▲ **Prices do not include thermal units.** Standard trip thermal units are priced at **$21.50** each. See page 16-116 for selection information.
■ Holding circuit contacts are not provided as standard; refer to table below for kit.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

### Table 16.195: Cross Reference Existing/Replacement Class 8911

| Existing Device | Replacement Device |
|---|---|
| HO33 | DPSO13 |
| HG33 | DPSG13 |
| JO33 | DPSO23 |
| JG33 | DPSG23 |
| KO33 | DPSO33 |
| KG33 | DPSG33 |
| KO43 | ★ |
| KG43 | ★ |
| LO33 | DPSO43 |
| LG33 | DPSG43 |
| MO33 | DPSO53 |
| MG33 | DPSG53 |
| MO43 | ★ |
| MG43 | ★ |

★ Type DPS 4-Pole starter not available. Suggest 3-Pole device with auxiliary contact.

### Table 16.196: Miscellaneous Parts and Kits

| Description | Class & Type | $ Price |
|---|---|---|
| Start-Stop push button kit▼△ | 8911DPB1 | **134.00** |
| Hand-Off-Auto selector switch kit▼ | 8911DSS1 | **134.00** |
| Standard N.C. overload relay contact | 9998SO1 | **42.80** |
| N.C. and N.O. isolated overload relay alarm contacts | 9999SO4 | **116.00** |
| Overload relay jumper strap | 9998SO31 | **14.30** |

▼ Use for 20 to 40 A starters. For 50 A starters, use the 9999BLX bracket.
△ Does not include holding circuit interlock—order auxiliary contact.

### Table 16.197: Class 8911 Type DPS Replacement Parts

| Full Load (A) | Poles | Class 9998 Type | Volt A Inrush | Volt A Sealed | $ Price□ |
|---|---|---|---|---|---|
| 50 A | 2 & 3 | DA2◊ | 109 | 10 | **92.00** |

See page 16-107 for replacement contacts for DPS devices.

□ CP10 Discount Schedule, not CP1.
◊ Replace with Voltage Code from the Coil Table shown below.

### Table 16.198: Coil Voltage Codes

| Voltage, 60 Hz | Voltage, 50 Hz | Voltage Code |
|---|---|---|
| 24 | 24 | V14 |
| 120 | 110 | V02 |
| 208–240 | 220 | V09 |
| 277 | — | V04 |
| 480 | 440 | V06 |
| 600 | 550 | V07 |

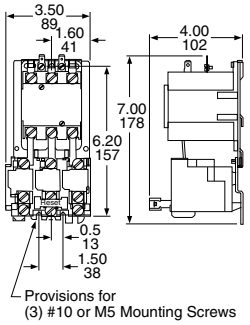
### Table 16.199: Auxiliary Contacts For Type DPS Starters

| Description | 20–40 A Class 9999 Type | 50 A Class 9999 Type | $ Price☆ |
|---|---|---|---|
| 1 N.O. | DD10 | D10 | **16.40** |
| 1 N.C. | DD01 | D01 | **16.40** |
| 1 N.O./1 N.C. | DD11 | D11 | **29.50** |
| 2 N.O. | DD20 | D20 | **29.50** |

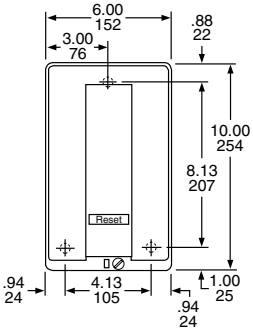
☆ CP1B discount schedule.

***NOTE:*** *Auxiliary contacts must be field installed.*

**Approximate Dimensions**




Type DPSO—2 and 3-Pole and DSO 20–50 Full Load Amperes




Type DPSG—2 and 3-Pole 20–40 Full Load Amperes

### Table 16.200: Ratings—Overload Contacts and Auxiliary Contacts

| Device | Volts AC | Pilot Duty – AC Only (35% Power Factor) Make | Carry and Break | Continuous Current Rating |
|---|---|---|---|---|
| 9998 SO1<br>9999 SO4<br>9999 R20 & R21<br>9999 D10, D01, D11 & D20 | 120 or Less | 30 A | 3 A | 5 A |
| | 120–600 | 3600 VA | 360 VA | 5 A |

### Table 16.201: How to Order

| To Order Specify: | Catalog Number Class | Typse | Coil Voltage Code | Form(s) |
|---|---|---|---|---|
| • Class Number<br>• Type Number<br>• Voltage Code<br>• Form(s) | 8911 | DPSG33 | V02 | |





© 2012 Schneider Electric
All Rights Reserved

***NOTE:*** *Motor Logic™SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.*

Class 8940 Type NS, SS, and XS panels in NEMA 3R enclosures are specifically designed for pumping applications. Extra space is provided for field installation of auxiliary equipment.



Type SSD4030



Type SSE4050

- Type S Contactor provided as standard
- Approved for submersible pump applications
- Motor Logic™ Class 10/20 (Selectable) SSOLR through 200 hp–480 V, 100 hp–240 V, Type SS only (Includes rubber boot.)
- All prices include a START push button and a HAND-OFF-AUTO selector switch
- Adjustable trip current
- Phase failure sensitive through 200 hp–480 V, 100 hp–240 V, Type SS only
- Ambient temperature compensated overload
- All devices are UL Listed, and marked "SUITABLE FOR USE AS SERVICE EQUIPMENT"

***NOTE:*** *Class 10 Motor Logic SSOLR does not protect for phase imbalance.*

**Table 16.202: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)—Fusible or Thermal Magnetic Breaker▲**

| Volts | Maximum Hp Polyphase | Coil Voltage | Fuse Clip (A)♦ | Type | $ Price |
|---|---|---|---|---|---|
| 240 | 3, 5, 7-1/2 | 240–60 | 30 | SSC2007★ | **2003.00** |
| | 10, 15 | | 60 | SSD2015★ | **2480.00** |
| | 20, 25, 30 | | 100 | SSE2030★ | **4194.00** |
| | 40, 50 | | 200 | SSF2050★ | **7718.00** |
| | 75 | 220–50 | LLL36400E20▼ | XSG2075■ | **19890.00** |
| | 100 | | 400 | SSG2100★ | **16286.00** |
| | 100 | | LLL36600E20▼ | XSG2100■ | **19890.00** |
| | 200 | | MJL36800▼ | XSH2200■ | **43133.00** |
| | 250, 300 | | PLL34120▼ | XSJ2300■ | **58145.00** |
| 480 | 3, 5, 7-1/2, 10 | 480–60 | 30 | SSC4010★ | **2003.00** |
| | 15, 20, 25 | | 60 | SSD4025★ | **2480.00** |
| | 30 | | 60 | SSD4030★ | **3338.00** |
| | 40, 50 | | 100 | SSE4050★ | **4194.00** |
| | 60, 75, 100 | | 200 | SSF4100★ | **7718.00** |
| | 150 | 440–50 | LLL36400E20▼ | XSG4150■ | **19890.00** |
| | 200 | | 400 | SSG4200★ | **16286.00** |
| | 200 | | LLL36600E20▼ | XSG4200■ | **19890.00** |
| | 300, 350, 400 | | MJL36800▼ | XSH4400■ | **4313300** |
| | 500, 600 | | PLL34120▼ | XSJ4600■ | **58145.00** |

**Table 16.203: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)—Electronic Motor Circuit Protector (MCP)**

| Volts | Max. Hp Polyphase | Coil Voltage■ | Circuit Breaker△ | Type | $ Price |
|---|---|---|---|---|---|
| 240 | 30 | 240–60 220–50 | HLL36100M73 | XSE2030V03 | **4599.00** |
| | 40 | | JLL36250M75 | XSE2040V03 | **7650.00** |
| | 50 | | JLL36250M75 | XSF2050V03 | **8258.00** |
| 480 | 40 | 480–60 440–50 | HLL36100M73 | XSE4040V06 | **4599.00** |
| | 50 | | | XSE4050V06 | **4599.00** |
| | 75 | | JLL36250M75 | XSE4075V06 | **7650.00** |
| | 100 | | JLL36250M75 | XSF4100V06 | **8258.00** |

▲ To substitute an IEC ambient compensated bimetallic overload relay (up to size 5) for the Motor Logic SSOLR, request Form B12 and state motor hp (no charge). This applies to the above (SSx) devices only.
■ See page 16-76 for coil voltage codes and pricing.
♦ Fuse clips are sized for use with dual-element time-delay fuses.
★ Voltage code not required for 240 V or 480 V common control with 8940SS controllers.
▼ Circuit breaker disconnect supplied. (See page 7-32 for circuit breaker adjustment range.)
△ See page 7-32 for circuit breaker adjustment range.

**Table 16.204: Class 8940—UL Listed Short Circuit Ratings**

| Thermal Magnetic Circuit Breaker Type | | | |
|---|---|---|---|
| NEMA Size | Voltage | Enclosure | Available Amperes RMS Symmetrical |
| 0-5 | 0-480 | Standard | 100,000 |
| 6, 7 | 0-480 | Standard | 65,000 |

□ Standard enclosure includes non-oversize NEMAs 1, 4 & 4X Stainless, and 12.

**Table 16.205: Class 10 Pump Panel Replacement Motor Logic SSOLR (with rubber boot)**

| Description | Catalog Number | $ Price |
|---|---|---|
| Pump Panel SSOLR 27A Special | 3116154764 (Size 1) | **$192.00** |
| Pump Panel SSOLR 45A Special | 3116154883 (Size 2) | **270.00** |
| Pump Panel SSOLR 90A Special | 3116155158 (Size 3) | **329.00** |
| Pump Panel SSOLR 135A Special | 3116155368 (Size 4) | **477.00** |
| Pump Panel SSOLR 270A Special | 3116118474 (Size 5) | **221.00** |
| Pump Panel SSOLR 540A Special | 3116118476 (Size 6) | **221.00** |
| Pump Panel SSOLR 810A Special | 3116118477 (Size 7) | **221.00** |
| Replacement Boot Size 1 & 2 | 9999MRB12 (5 boots) | **50.00** |
| Replacement Boot Size 3 & 4 | 9999MRB34 (5 boots) | **50.00** |

**Table 16.206: Class 8940—UL Listed Short Circuit Ratings**

| NEMA Size | NEMA Fuse Class | Enclosure | Available Amperes RMS Symmetrical |
|---|---|---|---|
| 0–3 | Class H or K | Standard | 5,000 |
| 0–3 | Class R | Standard | 100,000 |
| 0–2 | Class H or K | Standard | 5,000 |
| 0–2 | Class R | Standard | 100,000 |
| 4–5 | Class H or K | Standard | 10,000 |
| 4–5 | Class R | Standard | 100,000 |
| 6 | Class H or K | Standard | 18,000 |
| 6 | Class R | Standard | 100,000 |

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

Class 8940 "S2" Pumping Plant Panels in NEMA 3R enclosures are specifically designed for oil field applications. All panels are supplied with an Electonic Motor Circuit Protector (MCP) or a visible blade, fused, disconnect switch. This line of pumping plant panels features:

- Rugged spring latches for easy access without a tool
- Side mounted control units for convenient operation
- Door retainer available for windy areas
- Price includes Hand-Off-Auto selector switch
- UL Listed for use as service equipment for motors
- Extra panel space for additional electrical controls
- All devices are UL Listed, and marked "SUITABLE ONLY FOR USE AS SERVICE EQUIPMENT"

Thermal units must be ordered separately at **$21.50** each. See page 16-116 for selection information.

***NOTE:*** *Overload relays are ambient temperature compensated.*



Type WC3S2V06



Type XE3S2V02B12S

**Table 16.202: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)**

| Volts | Max. Hp Polyphase | Coil▲ Voltage | NEMA Size | Fusible Disconnect Type | | | Circuit Breaker Type | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Fuse Clip (A)■ | Type | $ Price | Frame Size | Type | $ Price |
| 240 | 7-1/2 | 240–60 220–50 | 1 | 30 | WC1S2V03 | **2109.00** | HLL36030M71 | XC1S2V03 | **2228.00** |
| | 10 | | 2 | 60 | WD1S2V03 | **2880.00** | HLL36050M72 | XD1S2V03 | **2997.00** |
| | 15 | | | | | | HLL36100M73 | XD2S2V03 | **2997.00** |
| | 30 | | 3 | 100 | WE1S2V03 | **4649.00** | HLL36100M73 | XE1S2V03 | **4886.00** |
| | 50 | | 4 | 200 | WF1S2V03 | **8724.00** | JLL36250M75 | XF2S2V03 | **8963.00** |
| 480 | 10 | 480–60 440–50 | 1 | 30 | WC3S2V06 | **2109.00** | HLL36030M71 | XC4S2V06 | **2262.00** |
| | 15 | | 2 | 60 | WD3S2V06 | **2919.00** | HLL36030M71 | XD3S2V06 | **3036.00** |
| | 25 | | 2 | | | | HLL36050M72 | XD4S2V06 | **3036.00** |
| | 50 | | 3 | 100 | WE3S2V06 | **4748.00** | HLL36100M73 | XE3S2V06 | **4986.00** |
| | 100 | | 4 | 200 | WF3S2V06 | **8801.00** | JLL36250M75 | XF4S2V06 | **9036.00** |

▲ Coil voltage code must be supplied to order this product. See Coil Voltage Codes table to the left for codes.
■ Fuse clips are sized for use with dual-element time-delay fuses.

**Table 16.203: Factory Modifications (Forms)**

| Description | Form Letter | $ Price |
|---|---|---|
| Substitute Class 10 IEC overload relay – state motor hp (NEMA Sizes 0–4 only) | B12 | **No Charge** |
| Control transformer with fused primary:<br>Types:<br>NPD, NPE, NPF, SSC, WC, XC (50 VA)<br>NPG, SSD, XD, WD (100 VA)<br>NPJ, SSE, XE, WE (150 VA)<br>SSF, XF, WF (300 VA)<br>SSG, NSG, XSG (50 VA and an interposing control relay) | F4T | <br><br>**386.00**<br>**539.00**<br>**797.00**<br>**968.00**<br>**1097.00** |
| Factory installed door wind latch assembly in a standard 8940NPD, NPE, NPF, NPG, NPJ, SSC, SSD, SSE and SSF | G45 | **113.00** |
| Elapsed time meter | G97 | **827.00** |
| Substitute Class 10 Motor Logic™ SSOLR▼ | H10 | **64.00** |
| ON Delay Timer | K25 | **1197.00** |
| OFF Delay Timer | K26 | **1197.00** |
| Program timer with day omission feature | K141 | **1197.00** |
| Backspin timer (time delay upon energization) | K15 | **1112.00** |
| Start Pushbutton (S2 panels only) | A28 | **No Charge** |
| "Slim" panel (Types WC, WD, WE, XC, XD, XE only) | L8 | **No Charge** |
| "Short" panel (Types SSE, SSF, XE-S2 and XF-S2 only) | L9 | **No Charge** |
| Pilot light (specify lens color). Does not include auxiliary contact. | P♦ | **336.00** |
| Separate control | S | **No Charge** |
| Auxiliary contacts (specify N.O. or N.C.) | X★ | **158.00** |
| Special UL panel label for modified UL Listed devices on non-standard panels, requires approval by manufacturing plant | Y1 | **267.00** |
| Lightning arrestor | Y1532 | **570.00** |
| Phase failure, phase reversal relay with time delay including under and over voltage protection | R44 | **1463.00** |
| Substitute standard trip melting alloy overload relays | Y61 | **No Charge** |
| Substitute quick-trip melting alloy overload relay (Sizes 1 and 2 only) – Not available on IEC style contactors | Y611 | **No Charge** |
| Substitution of Class R rejection fuse clips for standard fuse clip. (8940 RD, RE, RF, RG, MD, ME, MF, MG, SSC, SSD, SSE, SSF, SSG, WC, WD, WE and WF) | Y1071 | **No Charge** |

♦ Indicate pilot light color as **Form P1** (red) or **Form P2** (green). See page 16-100, footnote △ for more selections.
★ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form," refer to tables in the Class 8536 section.
▼ Motor Logic SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload, phase unbalance and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.

**Table 16.204: Coil Voltage Codes**

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24△□ | — | V01 | N/C |
| 120□ | 110□ | V02 | N/C |
| 208□ | — | V08 | N/C |
| 240 | 220 | V03 | N/C |
| — | 380 | V05 | N/C |
| 480 | 440 | V06 | N/C |
| 600□ | 550□ | V07 | N/C |
| Specify | Specify | V99 | 35.60 |

△ 24 V coils are not available on Size 4 starters. On Size 1–3, 24 V coils are available. **Form S** must be used.
□ **Form S** required for separate control.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.205: Replacement Overload Relay for Square D Class 8940 Pump Panel with IEC Style Bi-metallic Overload Relays Mounted on Current Transformers**

| AMP Range | Number of Poles | Form | Series | Type◊ | $ Price |
|---|---|---|---|---|---|
| 40A-63A | 3 | B12 | B | TJF40 | **428.00** |
| 63A-100A | 3 | B12 | B | TJF63 | **428.00** |
| 100A-160A | 3 | B12 | B | TJF100 | **468.00** |
| 160A-250A | 3 | B12 | B | TJF160 | **468.00** |

◊ A retro-fit reset kit is required for pre-series B pump panels. See page 16-92 for selection.

## Approximate Dimensions

**Table 16.206:**

| Type | Fig. | A | | B | | C | | D | | E | | F | | G | | H | | J | | K | | L | M | | Knockouts | | | V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | IN | mm | Conduit | IN | mm | R | S | T | IN | mm |
| NPD/E/F SSC SSD | 1 | 39.05 | 992 | 13.73 | 349 | 6.67 | 169 | 9.70 | 246 | 33.05 | 839 | 37.93 | 963 | 7.00 | 178 | 2.41 | 61 | 3.00 | 76 | 3.00 | 76 | 2-1/2 | 2.41 | 61 | 1/2–3/4 | 1-1/4–1-1/2 | 1/2–3/4 | 1.41 | 36 |
| NPG/J SSE/F XSE/F | 1 | 49.00 | 1245 | 19.15 | 486 | 8.81 | 224 | 10.37 | 263 | 44.07 | 1119 | 47.88 | 1216 | 7.00 | 178 | 2.17 | 55 | 2.69 | 68 | 3.44 | 87 | 2-1/2 | 2.57 | 65 | 1/2–3/4 | 1–1-1/4 1–2-1/2 | 1–1-1/4 1-1/2–2 | 1.41 | 36 |
| WC—S2 WD—S2 XC—S2 XD—S2 | 1 | 38.50 | 978 | 19.00 | 483 | 7.29 | 185 | 9.39 | 239 | 34.00 | 864 | 37.38 | 949 | 7.00 | 178 | 2.18 | 55 | 2.13 | 54 | 2.13 | 54 | 1-1/2 | 2.12 | 54 | 1/2–3/4 | 1–1-1/4 1-1/2 | 1/2–3/4 | — | — |
| WE—S2 WF—S2 XE—S2 XF—S2 | 1 | 56.50 | 1435 | 23.00 | 584 | 8.23 | 209 | 10.33 | 262 | 52.00 | 1321 | 55.38 | 1407 | 7.00 | 178 | 2.18 | 55 | 2.69 | 68 | 3.44 | 87 | 2 | 2.68 | 68 | 1/2–3/4 | 1–1-1/4 2–2-1/2 | 1–1-1/4 1-1/2–2 | 1.50 | 38 |
| SSG XSG | 1 | 75.50 | 1892 | 22.00 | 559 | 13.80 | 351 | 17.55 | 446 | 73.00 | 1854 | 74.50 | 13 | 14.00 | 356 | N/A | N/A | .56 | 14 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.50 | 38 |
| XSH | 2 | 82.50 | 2096 | 36.00 | 914 | 20.00 | 508 | 23.25 | 591 | 80.00 | 2032 | 33.75 | 857 | 16.50 | 419 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| XSJ | 2 | 92.50 | 2350 | 34.00 | 864 | 20.00 | 508 | 23.25 | 591 | 90.00 | 2286 | 31.75 | 806 | 16.50 | 419 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

***NOTE:*** *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

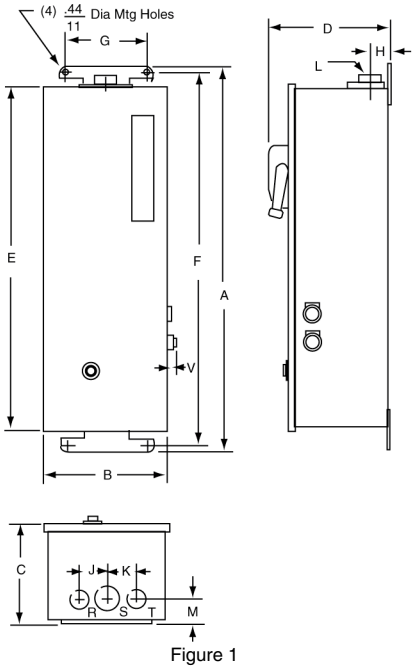



Figure 1

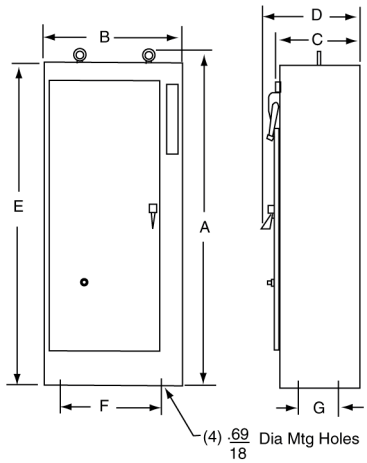



Figure 2

Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved



Duplex Motor Controllers are used to control two motors, and consist of two starters in a common enclosure. Two separate disconnect switches or circuit breakers with operators are included with all combination devices. Unless **Form Y68** is specified, an alternation circuit (a Class 8501 Type XO40 relay) is included, which alternately operates first one motor and then the other on each successive closing of a pilot device. Both motors will be energized should a second pilot device close. All devices incorporate a terminal block to simplify wiring of pilot devices A and B. Typical applications include pump motors where a second pump is required for peak demand periods yet alternation is desirable to equalize pump wear.

**Table 16.207: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz)**
**Non-Combination Type—Without Disconnect—With Electric Alternation**

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| NEMA Size | Maximum Rating Each Motor | | NEMA 1 General Purpose Enclosure | | NEMA 4/4X Watertight and Dusttight Enclosure Stainless Steel | | NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Voltage | Hp Polyphase | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 0 | 200–230<br>460–575 | 3<br>5 | NBG10■ | **2322.00** | NBW10■ | **3105.00** | NBA10■ | **2564.00** | NBO10■ | **2138.00** |
| 1 | 200–230<br>460–575 | 7-1/2<br>10 | NCG20■ | **2478.00** | NCW20■ | **3290.00** | NCA20■ | **2721.00** | NCO20■ | **2294.00** |
| 2 | 200<br>230<br>460–575 | 10<br>15<br>25 | NDG30■ | **3731.00** | NDW30■ | **5427.00** | NDA30■ | **4359.00** | NDO30■ | **3290.00** |
| 3 | 200<br>230<br>460–575 | 25<br>30<br>50 | NEG40■ | **5112.00** | NEW40■ | **8303.00** | NEA40■ | **5925.00** | NEO40■ | **4487.00** |
| 4 | 200<br>230<br>460–575 | 40<br>50<br>100 | NFG50■ | **10440.00** | NFW50■ | **15881.00** | NFA50■ | **13131.00** | NFO50■ | **9116.00** |

**Table 16.208: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz)**
**Combination Thermal Magnetic Circuit Breaker Type—With Electric Alternation**

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| Motor Starter Voltage | Max. Hp Poly-phase | Coil Voltage ■ | NEMA Size | Circuit Breaker | | NEMA 1 General Purpose Enclosure | | NEMA 4/4X Watertight and Dusttight Stainless Steel Enclosure | | NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Frame Size | Ampere Rating | Type | $ Price | Type | $ Price | Type | $ Price |
| 200 (208) | 2<br>3 | 208–60 | 0 | HLL36015<br>HLL36020 | 15<br>20 | CBG06■<br>CBG08■ | **3945.00** | CBW06■<br>CBW08■ | **6951.00** | CBA06■<br>CBA08■ | **4701.00** |
| | 5<br>7-1/2 | | 1 | HLL36035<br>HLL36050 | 35<br>50 | CCG12■<br>CCG15■ | **4103.00** | CCW12■<br>CCW15■ | **7109.00** | CCA12■<br>CCA15■ | **4859.00** |
| | 10 | | 2 | HLL36060 | 60 | CDG22■ | **5826.00** | CDW22■ | **10470.00** | CDA22■ | **6894.00** |
| | 15<br>20<br>25 | | 3 | HLL36100<br>HLL36125<br>HLL36150 | 100<br>125<br>150 | CEG32■<br>CEG36■<br>CEG38■ | **9401.00** | CEW32■<br>CEW36■<br>CEW38■ | **17490.00** | CEA32■<br>CEA36■<br>CEA38■ | **10782.00** |
| | 30<br>40 | | 4 | JLL36200<br>JLL36250 | 200<br>250 | CFG41■<br>CFG44■ | **19584.00** | CFW41■<br>CFW44■ | **29924.00** | CFA41■<br>CFA44 ■ | **23400.00** |
| 230 (240) | 2<br>3 | 240–60<br>220–50 | 0 | HLL36015<br>HLL36020 | 15<br>20 | CBG06■<br>CBG08■ | **3945.00** | CBW06■<br>CBW08■ | **6951.00** | CBA06■<br>CBA08■ | **4701.00** |
| | 5<br>7-1/2 | | 1 | HLL36035<br>HLL36045 | 35<br>45 | CCG14■<br>CCG16■ | **4103.00** | CCW14■<br>CCW16■ | **7109.00** | CCA14■<br>CCA16■ | **4859.00** |
| | 10<br>15 | | 2 | HLL36060<br>HLL36090 | 60<br>90 | CDG22■<br>CDG24■ | **5826.00** | CDW22■<br>CDW24■ | **10470.00** | CDA22■<br>CDA24■ | **6894.00** |
| | 25<br>30 | | 3 | HLL36150 | 150 | CEG38■ | **9401.00** | CEW38■ | **17490.00** | CEA38■ | **10782.00** |
| | 40<br>50 | | 4 | JLL36225<br>JLL36250 | 225<br>250 | CFG43■<br>CFG44■ | **19584.00** | CFW43■<br>CFW44■ | **29924.00** | CFA43■<br>CFA44■ | **23400.00** |
| 460 (480) | 5 | 480–60<br>440–50 | 0 | HLL36015 | 15 | CBG10■ | **4859.00** | CBW10■ | **7862.00** | CBA10■ | **5612.00** |
| | 7-1/2<br>10 | | 1 | HLL36025<br>HLL36030 | 25<br>30 | CCG18■<br>CCG20■ | **5013.00** | CCW18■<br>CCW20■ | **8019.00** | CCA18■<br>CCA20■ | **5769.00** |
| | 15<br>20<br>25 | | 2 | HLL36045<br>HLL36060<br>HLL36070 | 45<br>60<br>70 | CDG26■<br>CDG28■<br>CDG30■ | **6737.00** | CDW26■<br>CDW28■<br>CDW30■ | **12881.00** | CDA26■<br>CDA28■<br>CDA30■ | **7806.00** |
| | 30<br>50 | | 3 | HLL36080<br>HLL36150 | 80<br>150 | CEG39■<br>CEG40■ | **9401.00** | CEW39■<br>CEW40■ | **17490.00** | CEA39■<br>CEA40■ | **10782.00** |
| | 75<br>100 | | 4 | JLL36200<br>JLL36250 | 200<br>250 | CFG45■<br>CFG47■ | **19584.00** | CFW45■<br>CFW47■ | **29924.00** | CFA45■<br>CFA47■ | **23400.00** |

▲ NEMA 12 enclosures may be field modified for outdoor applications. For details refer to Class 9991, page 16-95.
■ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed on page 16-80.
Note: For voltage codes used with control transformers, see page 16-101.

For How to Order Information, see page 16-13.





© 2012 Schneider Electric
All Rights Reserved

## Table 16.209: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz) Combination Disconnect Switch Type—With Electric Alternation

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

| Motor Voltage (Starter Voltage) | Max. Hp Poly-phase | Coil Voltage ♦ | NEMA Size | Fuse Clip Size (A)■ | NEMA 1 General Purpose Enclosure | | NEMA 4/4X Watertight and Dusttight Enclosure Stainless Steel | | NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Type | $ Price | Type | $ Price | Type | $ Price |
| 200 (208) | 3 | 208-60 | 0 | None<br>30 | UBG10♦<br>DBG08♦ | **3731.00**<br>**3816.00** | UBW10♦<br>DBW08♦ | **6737.00**<br>**6822.00** | UBA10♦<br>DBA08♦ | **4487.00**<br>**4572.00** |
| | 7-1/2 | | 1 | None<br>60 | UCG20♦<br>DCG18♦ | **3888.00**<br>**3974.00** | UCW20♦<br>DCW18♦ | **6894.00**<br>**6980.00** | UCA20♦<br>DCA18♦ | **4644.00**<br>**4730.00** |
| | 10 | | 2 | None<br>60 | UDG30♦<br>DDG28♦ | **5642.00**<br>**5754.00** | UDW30♦<br>DDW28♦ | **10283.00**<br>**10398.00** | UDA30♦<br>DDA28♦ | **6708.00**<br>**6822.00** |
| | 25 | | 3 | None<br>200 | UEG40♦<br>DEG38♦ | **8798.00**<br>**9072.00** | UEW40♦<br>DEW38♦ | **16892.00**<br>**17163.00** | UEA40♦<br>DEA38♦ | **10184.00**<br>**10454.00** |
| 230 (240) | 3 | 240-60<br>220-50 | 0 | None<br>30 | UBG10♦<br>DBG08♦ | **3731.00**<br>**3816.00** | UBW10♦<br>DBW08♦ | **6737.00**<br>**6822.00** | UBA10♦<br>DBA08♦ | **4487.00**<br>**4572.00** |
| | 7-1/2 | | 1 | None<br>60 | UCG20♦<br>DCG18♦ | **3888.00**<br>**3974.00** | UCW20♦<br>DCW18♦ | **6894.00**<br>**6980.00** | UCA20♦<br>DCA18♦ | **4644.00**<br>**4730.00** |
| | 15 | | 2 | None<br>60 | UDG30♦<br>DDG28♦ | **5642.00**<br>**5754.00** | UDW30♦<br>DDW28♦ | **10283.00**<br>**10398.00** | UDA30♦<br>DDA28♦ | **6708.00**<br>**6822.00** |
| | 30 | | 3 | None<br>200 | UEG40♦<br>DEG38♦ | **8802.00**<br>**9072.00** | UEW40♦<br>DEW38♦ | **16892.00**<br>**17163.00** | UEA40♦<br>DEA38♦ | **10184.00**<br>**10454.00** |
| 460 (480) | 5 | 480-60<br>440-50<br>575<br>(600) | 0 | None<br>30 | UBG10♦<br>DBG10♦ | **3731.00**<br>**3833.00** | UBW10♦<br>DBW10♦ | **6737.00**<br>**6836.00** | UBA10♦<br>DBA10♦ | **4487.00**<br>**4586.00** |
| | 10 | | 1 | None<br>30 | UCG20♦<br>DCG20♦ | **3888.00**<br>**3987.00** | UCW20♦<br>DCW20♦ | **6894.00**<br>**6993.00** | UCA20♦<br>DCA20♦ | **4644.00**<br>**4743.00** |
| | 25 | | 2 | None<br>60 | UDG30♦<br>DDG30♦ | **5642.00**<br>**5796.00** | UDW30♦<br>DDW30♦ | **10283.00**<br>**10440.00** | UDA30♦<br>DDA30♦ | **6708.00**<br>**6866.00** |
| | 50 | | 3 | None<br>100 | UEG40♦<br>DEG40♦ | **8802.00**<br>**9230.00** | UEW40♦<br>DEW40♦ | **16892.00**<br>**17319.00** | UEA40♦<br>DEA40♦ | **10184.00**<br>**10611.00** |

▲ NEMA 12 enclosures may be field modified for outdoor applications. For details refer to Class 9991, page 16-95.
■ Hp rating applies only when dual element time delay fuses are used.
♦ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed on page 16-80.
Note: For voltage codes used with control transformers, see page 16-101.

## Table 16.210: Factory Modifications (Forms)

| Description◊ | Enclosure Type | Form | Price/NEMA Size | | | |
|---|---|---|---|---|---|---|
| | | | 0–1 | 2 | 3 | 4 |
| **PILOT DEVICES IN COVER★**<br>"START-STOP" push buttons—one supplied for each motor.<br>(**Form C** or **Form Y68** required.) | 1, 4, 12 | A | **671.00** | **671.00** | **671.00** | **671.00** |
| "HAND-OFF-AUTO" selector switch—one supplied for each motor. | 1, 4,12 | C | **671.00** | **671.00** | **671.00** | **671.00** |
| "NO. 1 LEAD—NO. 2 LEAD" selector switch for manual selection of lead pump.<br>(**Form Y68** required.)<br>Red "ON" pilot light—one supplied for each motor. | Any<br><br>1, 4, 12 | C13<br>P1 | **513.00**<br>**671.00** | **513.00**<br>**671.00** | **513.00**<br>**671.00** | **513.00**<br>**671.00** |
| Push-to-test red "ON" pilot light—one supplied for each motor.<br>Non-standard markings for pilot devices.<br>"TEST" push button for each starter. | 1, 4, 12<br>Any<br>Any | P21<br>G12<br>Y29 | **869.00**<br>**28.70**<br>**671.00** | **869.00**<br>**28.70**<br>**671.00** | **869.00**<br>**28.70**<br>**671.00** | **869.00**<br>**28.70**<br>**671.00** |
| **CONTROL CIRCUIT MODIFICATIONS**<br>Fused control circuit without transformer<br>One fuse<br>Two fuses<br>Fused control circuit transformer, two fuses in primary, with 600, 480, 240 or 208 V primary and 120 V secondary –one supplied for each starter. | <br><br>Any<br>Any<br><br>Any | <br><br>F<br>F4<br><br>F4T | <br><br>**627.00**<br>**627.00**<br><br>**770.00** | <br><br>**627.00**<br>**627.00**<br><br>**1083.00** | <br><br>**627.00**<br>**627.00**<br><br>**1596.00** | <br><br>**627.00**<br>**627.00**<br><br>**1938.00** |
| Fused control circuit transformer, two fuses in primary, one fuse in secondary—one supplied for each starter.<br>100 VA additional capacity<br>200 VA additional capacity | Any<br>Any<br>Any | FF4T<br>FF4T11<br>FF4T12 | **1395.00**<br>**1994.00**<br>**2478.00** | **1710.00**<br>**2393.00**<br>**2934.00** | **2222.00**<br>**2849.00**<br>**3392.00** □ | **2564.00**<br>**3135.00** □<br>**3675.00** □ |
| Extra capacity control circuit transformer—two fuses in primary—one supplied for each starter (See Table 16.211)<br>100 VA additional capacity<br>200 VA additional capacity<br>Elapsed time meter for each starter | <br>Any<br>Any<br>Any | <br>F4T11<br>F4T12<br>G97 | <br>**1446.00**<br>**1853.00**<br>**1652.00** | <br>**1767.00**<br>**2303.00**<br>**1652.00** | <br>**2222.00**<br>**2763.00**<br>**1652.00** | <br>— △<br>— △<br>**1652.00** |
| Pressure switch for each starter (Square D pressure switch 9012GAW25)<br>Addition of 2 relays to modify controller for operation with single pole pilot devices.<br>Addition of 3 relays to modify controller for operation with single pole mercury float switches. | Any<br>Any<br>Any | D<br>R7<br>R8 | **755.00**<br>**1454.00**<br>**2178.00** | **755.00**<br>**1454.00**<br>**2178.00** | **755.00**<br>**1454.00**<br>**2178.00** | **755.00**<br>**1454.00**<br>**2178.00** |
| Control circuit wired for separate 120 V source. | Any | S | **No Charge** | **No Charge** | **No Charge** | **No Charge** |
| Addition of 1 N.O. unwired interlock per starter for use by customer.<br>(1 N.O. unwired interlock per starter is supplied as standard.)<br>Addition of 1 N.C. unwired interlock per starter for customer use. | <br>Any<br>Any | <br>X10<br>X01 | <br>**315.00**<br>**315.00** | <br>**315.00**<br>**315.00** | <br>**315.00**<br>**315.00** | <br>**315.00**<br>**315.00** |
| Modified wiring for use with double pole mercury float switches.<br>**Deduct** for omission of electrical alternating circuit.<br>Additional Control circuit terminals—per wired terminal.<br>(5 point terminal block is standard)<br>Unwired | <br>Any<br>Any<br>Any<br>Any | <br>Y24<br>Y68<br>G56▼<br>G50▼ | <br>**314.00**<br>**869.00**<br>**116.00**<br>**57.00** | <br>**314.00**<br>**869.00**<br>**116.00**<br>**57.00** | <br>**314.00**<br>**869.00**<br>**116.00**<br>**57.00** | <br>**314.00**<br>**869.00**<br>**116.00**<br>**57.00** |

★ Not available on open style devices.
▼ Addition of terminal block 9080CA or 9080GR6 only. 5 point terminal block is provided as standard for custom connection. A wiring diagram must be supplied for factory wiring.
△ Not available on this size. Use **Form FF4T_ _.**
□ Single primary voltage must be specified.
◊ These Forms are most commonly used. Other Forms may be available. Consult Schneider Electric CCC at (1-888-778-2733) for additional information.

## Table 16.211:

| NEMA Size | Standard Capacity (Form F4T) | 100 VA Additional Capacity (Form F4T11) | 200 VA Additional Capacity (Form F4T12) |
|---|---|---|---|
| | Class 9070 Type | Class 9070 Type | Class 9070 Type |
| 0 & 1 | T100 | T200 | T300 |
| 2 | T100 | T200 | T300 |
| 3 | T150 | T300 | T500 |
| 4 | T300 | T500 | T500 |

For How to Order Information, see page 16-13.



© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.212: NEMA 1 Enclosure—Non-Combination (Figure 1)

| Starter Size | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 | 20-1/2 | 24-1/8 | 8-11/16 | 17-7/8 | 21-1/2 | 1-5/16 | 1-5/16 | 5/16 Dia. |
| 3 or 4 | 22-1/8 | 34 | 9-3/4 | 16 | 35-1/2 | 3-1/16 | 3/4 | 7/16 Dia. |

### Table 16.213: NEMA 1 Enclosure—Combination (Figure 2)

| Starter Size | A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 (For FAL Circuit Breaker and 30 A & 60 A Disconnect Switch) | 20-3/8 | 35 | 9-5/8 | 17 | 32-1/2 | 3-5/16 | 1-1/4 | 1-1/4 | 1-1/4 | 7/16 Dia. |
| 3 or 4 (For FAL & KAL Circuit Breaker and 100 A Disconnect Switch) | 32 | 44 | 10-3/4 | 24 | 46 | ▲ | 1 | 2-1/2 | 2-1/2 | 9/16 Dia. |

▲ For FAL & KAL Circuit Breaker. Dimension F=3-5/16. For 100 A Disconnect Switch Dimension F=4-7/8

### Table 16.214: NEMA 4 Enclosure—Non-Combination (Figure 3)

| Starter Size | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 | 20-1/2 | 24 | 8 | 25 | 15-3/8 | 26 | 2-9/16 | 1/2 | 5/16 |
| 3 or 4 | 22 | 34 | 9-1/8 | 35 | 17 | 36 | 2-1/2 | 1/2 | 9/16 |

### Table 16.215: NEMA 4 Enclosure—Combination (Figure 4)

| Starter Size | A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 (For FA Circuit Breaker and 30 A & 60 A Disconnect Switch) | 20-1/2 | 35 | 9-9/16 | 36 | 15-3/8 | 37 | 2-9/16 | 1/2 | 5/16 | 3-5/16 |
| 3 or 4 (For FA and KA Circuit Breaker and 100 A Disconnect Switch) | 32 | 44 | 10-11/16 | 46 | 26 | 47 | 3 | 1/2 | 9/16 | ■ |

■ For FA or KA Circuit Breaker K = 3-1/16. For 100 A Disconnect Switch K = 4-7/8

### Table 16.216: NEMA 12/3R Enclosure—Non-Combination (Figure 3)

| Starter Size | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 | 20-1/2 | 24-1/4 | 8 | 25-1/2 | 14-3/8 | 26-1/2 | 3-1/16 | 1/2 | 7/16 |
| 3 or 4 | 22 | 34 | 9-1/8 | 35-1/2 | 16 | 36-1/2 | 3 | 1/2 | 7/16 |

### Table 16.217: NEMA 12/3R Enclosure—Combination (Figure 4)

| Starter Size | A | B | C | D | E | F | G | H | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| 0, 1, or 2 (For FA Circuit Breaker and 30 A & 60 A Disconnect Switch) | 20-1/2 | 35 | 9-9/16 | 36-1/2 | 14-3/8 | 37-1/2 | 3 | 1/2 | 7/16 | 3-5/16 |
| 3 or 4 (For FA and KA Circuit Breaker and 100 A Disconnect Switch) | 32-1/4 | 44-1/4 | 10-11/16 | 46 | 24 | 47 | 4-1/8 | 1/2 | 9/16 | ♦ |

♦ For FA or KA Circuit Breaker K = 3-5/16. For 100 A Disconnect Switch K = 4-7/8

### Table 16.218: Coil Voltage Codes

| Voltage | | Code | $ Price Adder |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 24▼★ | — | V01 | No Charge |
| 120▼ | 110 | V02 | No Charge |
| 208 | — | V08 | No Charge |
| 240 | 220 | V03 | No Charge |
| — | 380 | V05 | No Charge |
| 480 | 440 | V06 | No Charge |
| 600 | 550 | V07 | No Charge |
| Specify | Specify | V99 | 35.60 |

★ 24 V coil is not available on Size 4. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified.

▼ These voltage codes must include **Form S** (No additional charge).

***NOTE:*** *Illustrations may not represent the actual enclosure; they are intended for dimensional information only. Dimensions are in inches.*

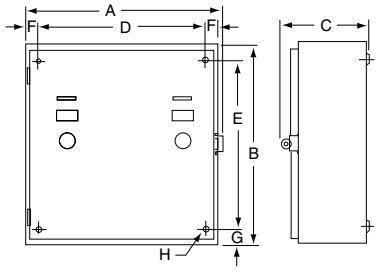


Figure 1

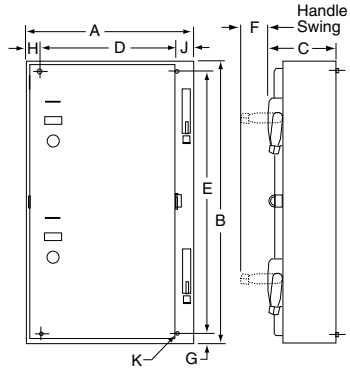


Figure 2

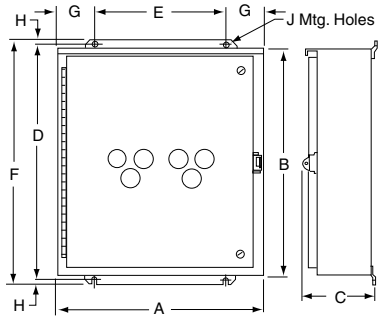


Figure 3

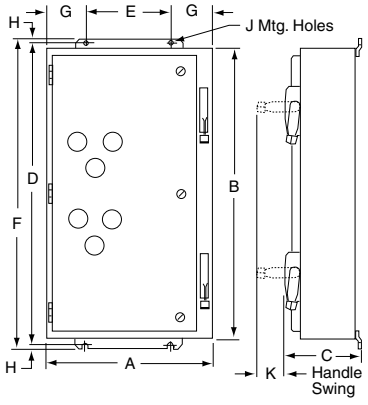
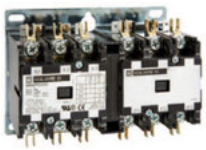


Figure 4





© 2012 Schneider Electric
All Rights Reserved



8965DPR33V02
Hoist Contactor
600 Vac, 25 A
DPR, Angled

Class 8965 Type DPR reversing/hoist contactors are designed for the control of motors in hoists, overhead doors, small elevators, commercial laundry equipment, and other related products which use reversing motors. They are rated to perform in the short periods of jogging experienced in hoist service.

The coils are designed to operate on line voltages of 85% to 110% of rated voltage, and are for applications at 50 or 60 Hz only. Coils are easily replaced with external base removed.

Auxiliary contacts may be easily field–added to any Class 8965 reversing contactor. Type DPR contactors accept one auxiliary contact module with up to two isolated circuits per side (two modules per device). When auxiliary contacts are ordered separately, two modules are normally used for each device; one for forward, one for reverse.

**Table 16.219: Reversing/Hoist Contactors—600 Vac Maximum**

| No. of Poles | Horsepower Ratings▲ 115 V 1Ø | 230 V 1Ø | 230 V 3Ø | 460/575 V 3Ø | Open Type Type | $ Price | Replacement Coil Class 9998 Type | $ Price■ |
|---|---|---|---|---|---|---|---|---|
| 3-Pole Poly-Phase | 1 | 2 | 5 | 7-1/2 | DPR13♦ | **998.00** | DA1♦ | **68.00** |
| | 2 | 3 | 7-1/2 | 10 | DPR23♦ | **1139.00** | DA1♦ | **68.00** |
| | 2 | 5 | 10 | 15 | DPR33♦ | **1283.00** | DA1♦ | **68.00** |
| | 3 | 7-1/2 | 15 | 20 | DPR43♦ | **1425.00** | DA1♦ | **68.00** |
| 4-Pole Poly-Phase | 1 | 2 | 5 | 7-1/2 | DPR14♦ | **1070.00** | DA2♦ | **92.00** |
| | 2 | 3 | 7-1/2 | 10 | DPR24♦ | **1211.00** | DA2♦ | **92.00** |
| | 2 | 5 | 10 | 15 | DPR34♦ | **1353.00** | DA2♦ | **92.00** |
| | 3 | 7-1/2 | 10 | 20 | DPR44♦ | **1497.00** | DA2♦ | **92.00** |

▲ For rapid operation (jogging duty), use the next larger size contactor.
■ CP10 Discount Schedule, not CP1.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

**Table 16.220: Auxiliary Contacts Separate Module★**

| Description | Class 9999 Type | $ Price |
|---|---|---|
| 1 N.O. | DD10 | **35.60** |
| 1 N.C. | DD01 | **24.60** |
| 1 N.O.–1 N.C. | DD11 | **64.00** |
| 2 N.O. | DD20 | **44.30** |

★ Order two modules for Type DPR, one for each side.

**Table 16.221: Factory Installed**

| Description | Form | $ Price |
|---|---|---|
| 1 N.O. Each Side | X1010 | **95.00** |
| 1 N.C. Each Side | X0101 | **95.00** |
| 1 N.O.–1 N.C. Each Side | X1111 | **153.00** |
| 2 N.O. Each Side | X2020 | **153.00** |

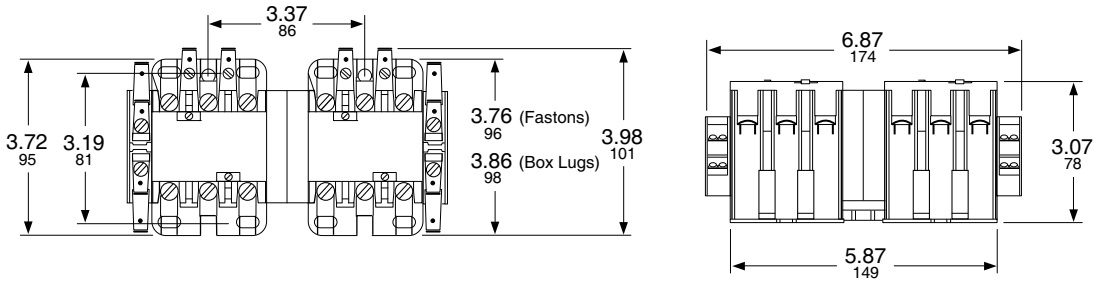
**Table 16.222: Coil Voltage Codes**

| Volts, 60 Hz | Volts, 50 Hz | Voltage Code |
|---|---|---|
| 24 | 24 | V14 |
| 120 | 110 | V02 |
| 208–240 | 220 | V09 |
| 277 | — | V04 |
| 480 | 440 | V06 |
| 600 | 550 | V07 |

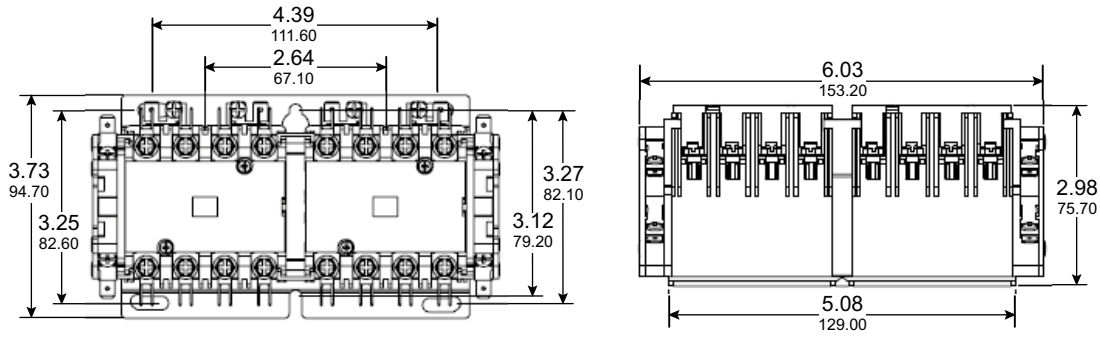
## Approvals

UL Component Recognized—File E42240, CCN NLDX
CSA Certified—File LR25490, Class 3211 04

## Approximate Dimensions




Type DPR13 through DPR43




Type DPR14 through DPR44



© 2012 Schneider Electric
All Rights Reserved



Type CO1R

NEMA-styled Thermal Overload Relays feature:

- Exclusive One-Piece Thermal Unit
- Inverse Time Delay Trip
- Trip Free Reset Mechanism on Types G & S
- Replaceable Contact Units on Types G & S

Note that the prices shown on this page do not include thermal units. Standard trip thermal units are **$21.50** each. Slow trip (Class 30) and quick trip (Class 10) melting alloy thermal units are available for all Size 1, 2, 5 and 6, and some Size 3 and 4 applications.

### Table 16.223: For Separate Mounting—Melting Alloy—600 Volts Maximum, AC or DC▲

| NEMA Size | Maximum Full Load Current (A) | Open Type for Separate Panel Mounting | | | For Terminal Block Channel Mounting Order Open Type Relay and Bracket Kit Below | |
|---|---|---|---|---|---|---|
| | | Left Hand Type | Right Hand Type | $ Price | Type | $ Price |
| **Single Pole Construction (One N.C. Contact)—1 Thermal Unit Required** | | | | | | |
| 1 | 25 | CO1■ | CO1R■ | **64.00** | — | — |
| 2 | 45 | TO1■ | TO1■ | **100.00** | — | — |
| 3 | 86 | UO1■ | UO1■ | **122.00** | — | — |
| **Three Pole Construction (One Common N.C. Contact on Type S Only)—3 Thermal Units Required** | | | | | | |
| 1 | 25 | SEO5 | | **129.00** | SM2 | **35.60** |
| 2 | 45 | SEO8 | | **185.00** | SM2 | **35.60** |
| 3 | 86 | SEO12 | | **243.00** | — | — |
| 4 | 133 | SEO15 | | **386.00** | — | — |
| 5 | 266 | Use 3 Type GO11R Relays Listed Above | | | — | — |

▲ Maximum power circuit rating for separate mounting overload relays, Types C, F, G, T and U, is 600 Vac or Vdc; Type S is 600 Vac only. Maximum control circuit contact rating for Types C, F, G, T, U and SDO18 is 600 Vac and 250 Vdc; the remaining Type S versions are 600 Vac only

■ Not UL listed.



Type SE05

### Table 16.224: Replacement Melting Alloy Overload Relays for Square D Class 8536 Starters

| Locate Class 8536 Starter in this Column | | | | Order Class 9065 Overload Relay from this Column | | |
|---|---|---|---|---|---|---|
| NEMA Size | Type | Series | Number of Poles | Type | $ Price | Number of Thermal Units Required |
| 00 | SA | A & B | 2<br>3 | SDO4<br>SDO5 | **86.00**<br>**149.00** | 1<br>3 |
| 0 | SB | A | 2<br>3–5 | SDO4<br>SDO5 | **86.00**<br>**149.00** | 1<br>3♦ |
| 1 | SC | A | 2<br>3–5 | SDO4<br>SDO5 | **86.00**<br>**149.00** | 1<br>3♦ |
| 1P | SC | A | 2 | SDO10 | **116.00** | 1 |
| 2 | SD | A | 2<br>3–5 | SDO7<br>SDO8 | **116.00**<br>**207.00** | 1<br>3♦ |
| 3 | SE | A | 2<br>3<br>4<br>5 | SDO11<br>SDO12<br>SDO13<br>SDO14 | **143.00**<br>**264.00**<br>**264.00**<br>**264.00** | 1<br>3<br>2<br>3 |
| 4 | SF | A | 3<br>4<br>5 | SDO15<br>SDO16<br>SDO17 | **414.00**<br>**414.00**<br>**414.00** | 3<br>2<br>3 |
| 5 | SG | A | 3 | Form Y500 and Series B use SEO5 | **129.00** | 3 |
| 6 | SH | A & B | 3 | SEO5 | **129.00** | 3 |

♦ For 4-pole starters used on two phase systems order two thermal units plus one Class 9998 Type SO31 jumper strap kit for every two starters. Each kit includes two jumper straps.

### Table 16.225: Special Features for Melting Alloy Types

| | Form | $ Price |
|---|---|---|
| Substitute 1-N.O. isolated alarm contact and 1-N.C. contact per relay. (Type S starters only)▼ | Y342▼ | **179.00** |
| Substitute 2-N.C. contacts for standard N.C. contact per relay. (Type S starters only) | Y344▼ | **179.00** |
| Modify Type SDO12 relays to accept Type FB quick trip or SB slow trip thermal units, and Type F and Type SDO15 relays to accept Type FB quick trip thermal units. (Rejects Type CC standard trip units) | Y81★ | **No Charge** |

★ This form cannot be field modified.

▼ Field modification possible. Order 9999S04 (for **Form Y342**) or 9999S05 (for **Form Y344**).





© 2012 Schneider Electric
All Rights Reserved

## Motor Logic

**Solid State Overload relays** feature: 3 to 1 adjustment for trip current; phase loss and unbalance protection; direct replacement for Type S melting alloy. They are ambient insensitive and self–powered. Switch selectable trip class; Class II ground fault detection; and direct replacement for Type S melting alloy. Electrical remote reset is also available.

***NOTE:*** *Motor Logic SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload, phase unbalance and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.*

**Table 16.226: Class 10/20 (Selectable): For Separate Mounting Solid State Overload Relay 600 Vac Maximum**

| NEMA Size□ (3-Pole) | Full Load Current Range (A) | Open Type Trip Class 10/20 | $ Price |
|---|---|---|---|
| 00B | 1.5–4.5△ | SFB20 | **221.00** |
| 00C | 3–9△ | SFC20 | **221.00** |
| 0 | 6–18△ | SF020 | **221.00** |
| 1 | 9–27△ | SF120 | **221.00** |
| 2 | 15–45 | SF220 | **309.00** |
| 3 | 30–90 | SF320 | **378.00** |
| 4 | 45–135 | SF420 | **545.00** |

△ Size 00B, 00C, 0, and 1 are supplied without lugs. Lower amperage loads can be protected by looping of power wires. Lugs are available. See page 16-111.

□ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA Size 00 Motor Logic Solid State Overload Relay.

**Table 16.227: Class 10/20 (Selectable): Replacement SSOLR for Retrofit of Square D Type S Starter Solid State Overload Relay 600 Vac Maximum**

| Locate 8536 Starter in this column | | Order Class 9065 Overload Relay from this column | |
|---|---|---|---|
| NEMA Size◒ | Full Load Current Range (A) | Open Type Trip Class 10/20 | $ Price |
| 00B◊ | 1.5–4.5 | SFB20 | **221.00** |
| 00C◊ | 3–9 | SFC20 | **221.00** |
| 0◊ | 6–18 | SF020 | **221.00** |
| 1◊ | 9–27 | SF120 | **221.00** |
| 2 | 15–45 | ST220 | **288.00** |
| 3 | 30–90 | ST320 | **351.00** |
| 4 | 45–135 | ST420 | **516.00** |
| 5☆ | 90–270 | ST520 | **221.00** |
| 5▽ | 90–270 | SF520 | **1074.00** |
| 6☆ | 180–540 | ST620 | **221.00** |
| 7☆ | 270–810 | ST720 | **221.00** |

◊ Size 00B, 00C, 0, and 1 are supplied without lugs. Lower amperage loads can be protected by looping of power wires.

☆ Size 5, 6 and 7 Replacement Overloads are only for existing NEMA S starters with Motor Logic overload relay. External CTs and additional components are not included.

▽ Size 5 is a complete drop-in replacement for Square D NEMA S melting alloy, bimetallic, and Y500 overload relays **only**.

◒ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA Size 00 Motor Logic Solid State Overload Relay.



© 2012 Schneider Electric
All Rights Reserved

# TeSys™ T Motor Management System



TeSys T is a motor management system that provides full motor monitoring, control, and protection when used with short circuit protection and a contactor. TeSys T manages most critical processes while reducing downtime and increasing productivity.

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T predicts what will happen in the process, as it accurately monitors current, voltage, and power over a wide range.

TeSys T is a green motor management system with unique power monitoring capabilities for better energy management.

TeSys T carries all appropriate and necessary third party certifications.

To get detailed information about TeSys T, visit our website at www.schneider-electric.us.com.

## TeSys T detailed functionalities and possible configuration:

### Communication:

TeSys T is a flexible motor management system that supports five major communication protocols: Modbus, CANopen, DeviceNet, Profibus, and Ethernet Modbus TCP.

These communication protocols allow the TeSys T controller to integrate seamlessly into your automation systems.

Ethernet Modbus TCP provides Faulty Device Replacement to reduce maintenance time to a minimum.



### Protection functions:

- thermal overload
- phase imbalance and phase failure
- thermal motor protection via PTC probes
- phase reversal
- ground fault detection
- long starting times and motor stalling
- automatic load shedding and restarting
- load fluctuations (current, voltage, power)
- variations of Cos φ (power factor)

### Metering functions:

- Measurements (rms values):
  - current on the 3 phases
  - voltage on the 3 phases (shedding)
  - motor temperature
  - ground fault sensing
- Values calculated:
  - average current
  - frequency
  - Power factor, power, power consumption

### Motor control functions:

A motor managed by a TeSys T controller can be controlled:

- locally, using the logic inputs present on the product, or via the human machine interface (HMI)
- remotely, via the network

### Motor control modes:

10 predefined motor control modes are incorporated in the controller. Each listed mode is available as 2 or 3 wire control.

- overload mode: monitoring of motors whose control is not managed by the controller
- independent mode: starting of full voltage non-reversing motors
- reverser mode: starting of full voltage reversing motors
- 2-step mode: 2-step starting of motors (star-delta, by autotransformer and by resistor)
- 2-speed mode: 2-speed starting of motors (Dahlander, pole changer)

A custom mode is available to allow the user to create a specific motor control mode that is not predefined in the controller.

Custom Logic has the basic functions of a small programmable logic controller (PLC). Programming can be done in Structured Text mode or in Block Diagrams through PowerSuite V2.6 software. To ensure consistency, the same software used to commission the TeSys T controller is used for Custom Logic programming.

### Statistical and diagnostic functions:

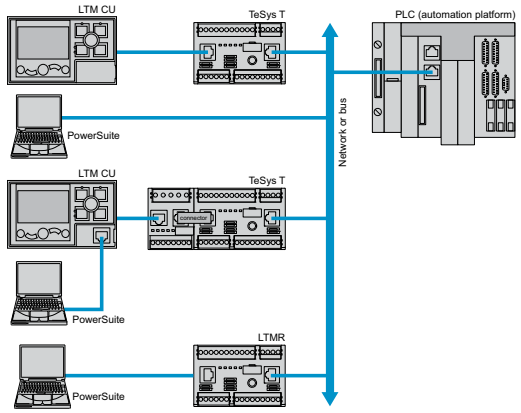
- history of the last five detected faults
- motor statistics
- controller operations
- warning of pending faults

### Standards and Certifications

| Product Type | LTMR Controllers | LTMEV40 Expansion Modules |
|---|---|---|
| Conforming to standards | IEC/EN 60947-4-1, UL 508, UL E164353 NKCR, CSA 22-2 n°14, CSA LR43364 Class 3211 03, IACS E10 | |
| Product certifications | UL, CSA, BV, LROS, DNV, GL, RINA, ABS, RMRos, NOM, CCC, C-TIC'K, ATEX, GOST, KERI | |

### Possible Configurations:

TeSys T controller is a flexible motor management system using PowerSuite V2.6 commissioning tool. PowerSuite is the configuration software for the TeSys T controllers. See page 16-86 for details.










© 2012 Schneider Electric
All Rights Reserved

## LTMR Controller:

The controller is the central component in the motor management system. It manages the basic functions such as:

- measurement of 3-phase current via integral current transformers from 0.4 to 100 A (up to 1000 A by external current transformers)
- measurement of ground current internally or external ground sensors
- measurement of motor temperature
- inputs and outputs for the various motor control modes, detected fault management, and other functions


LTMR27EBD

## Characteristics

As standard, the controller manages the following:

### Control Modes

- overload mode
- independent mode
- reverser mode
- 2-speed mode
- 2-step mode
- Custom mode

### Inputs/Outputs

- 6 discrete logic inputs
- 3 relay logic outputs (1 N.O. contact each)
- 1 relay output for detected fault signalling (1 N.O. + 1 N.C.) overload relay

### Measurements

- connection for a thermistor probe
- connections for a ground sensor

**Table 16.228: Controllers**

| Setting Range (A) | Control Voltage (V) | Current Range (A) | Catalog Number | $ Price |
|---|---|---|---|---|
| **For Modbus®** | | | | |
| 8 | 24 Vdc | 0.4–8 | LTMR08MBD | **675.00** |
| | 100–240 Vac | 0.4–8 | LTMR08MFM | **675.00** |
| 27 | 24 Vdc | 1.35–27 | LTMR27MBD | **675.00** |
| | 100–240 Vac | 1.35–27 | LTMR27MFM | **675.00** |
| 100 | 24 Vdc | 5–100 | LTMR100MBD | **765.00** |
| | 100–240 Vac | 5–100 | LTMR100MFM | **765.00** |
| **For EtherNet Modbus TCP** | | | | |
| 8 | 24 Vdc | 0.4–8 | LTMR08EBD | **825.00** |
| | 100–240 Vac | 0.4–8 | LTMR08EFM | **825.00** |
| 27 | 24 Vdc | 1.35–27 | LTMR27EBD | **825.00** |
| | 100–240 Vac | 1.35–27 | LTMR27EFM | **825.00** |
| 100 | 24 Vdc | 5–100 | LTMR100EBD | **935.00** |
| | 100–240 Vac | 5–100 | LTMR100EFM | **935.00** |
| **For CANopen** | | | | |
| 8 | 24 Vdc | 0.4–8 | LTMR08CBD | **750.00** |
| | 100–240 Vac | 0.4–8 | LTMR08CFM | **750.00** |
| 27 | 24 Vdc | 1.35–27 | LTMR27CBD | **750.00** |
| | 100–240 Vac | 1.35–27 | LTMR27CFM | **750.00** |
| 100 | 24 Vdc | 5–100 | LTMR100CBD | **850.00** |
| | 100–240 Vac | 5–100 | LTMR100CFM | **850.00** |
| **For DeviceNet** | | | | |
| 8 | 24 Vdc | 0.4–8 | LTMR08DBD | **750.00** |
| | 100–240 Vac | 0.4–8 | LTMR08DFM | **750.00** |
| 27 | 24 Vdc | 1.35–27 | LTMR27DBD | **750.00** |
| | 100–240 Vac | 1.35–27 | LTMR27DFM | **750.00** |
| 100 | 24 Vdc | 5–100 | LTMR100DBD | **850.00** |
| | 100–240 Vac | 5–100 | LTMR100DFM | **850.00** |
| **For Probibus DP** | | | | |
| 8 | 24 Vdc | 0.4–8 | LTMR08PBD | **750.00** |
| | 100–240 Vac | 0.4–8 | LTMR08PFM | **750.00** |
| 27 | 24 Vdc | 1.35–27 | LTMR27PBD | **750.00** |
| | 100–240 Vac | 1.35–27 | LTMR27PFM | **750.00** |
| 100 | 24 Vdc | 5–100 | LTMR100PBD | **850.00** |
| | 100–240 Vac | 5–100 | LTMR100PFM | **850.00** |

## LTME Expansion Module:

The expansion module adds the following functionalities to the TeSys T controller:

- voltage measurement between phases up to 690 V nominal
- 4 additional inputs


LTMEV40FM

### Inputs

- 4 discrete logic inputs (isolated)
- 2 types of power for the inputs: 24 Vdc and 100 to 240 Vac
  - — A 24 Vdc LTMR controller can be assembled with a 240 Vac expansion module and vice versa

The LTMVE must be connected to the LTMR controller by a connecting cable.

**Table 16.229: Expansion Module**

| Input Control Voltage | Number of Inputs | Supply to the Electronics | Catalog Number | $ Price |
|---|---|---|---|---|
| 24 Vdc | 4 | via the LTMR controller | LTMEV40BD | **300.00** |
| 100–240 Vac | 4 | | LTMEV40FM | **300.00** |

## HMI — Human Machine Interface:

Depending on the application, two types of HMI can be used with the motor management system.

- The LTMCU operator control unit:
  - — Control/monitoring of a 1 to 1 LTMR controller
- A Magelis XBTN410 terminal
  - — Control/monitoring of 1 to 8 LTMR controllers

## LTMCU Compact Display:

New!

- Configure the parameters
- Display information
- Monitor the alarms and detected faults
- Local control of the motor via the local control interface (keys can be customized)
- Three different languages can be loaded into the LTMCU controller at the same time: English, French, Spanish are the defaults.


LTM9KCU
(Holder Only)


LTMCU

A language download utility (LangTool), together with all the other languages, are available on the website www.schneider-electric.com.

This tool allows the languages present in the LTMCU control until to be adapted.

The LTMCU HMI control unit has an additional front panel RJ45 port, protected by a flexible cover.

## Magelis Display:




Two applications have been predefined for the TeSys T controller. Depending on the application loaded, the HMI terminal makes it possible to:

- Configure and monitor a motor starter (LTM_1T1_V1.dop)
- Monitor and modify certain parameters up to 8 motor starters (LTM_1T8_X_V1.dop)

Vijeo Designer programming software is needed for loading applications into the XBT HMI terminal.

**Table 16.230: HMI Modules and Software**

| Description | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|
| Operator Control unit | via the LTMR controller | LTMCU | **265.00** |
| Holder for LTMCU (with magnetic back) | | LTM9KCU | **30.00** |
| Magelis compact display | 24 Vdc | XBTN410 | **300.00** |
| Configuration software Windows 99, 2000, XP | | VJD SND TMS V13M | **161.00** |



© 2012 Schneider Electric
All Rights Reserved

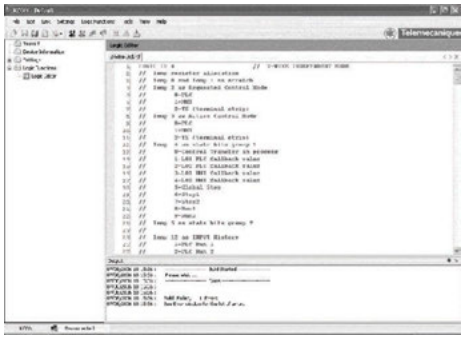


LT6CT4001



DA1TT••







### Table 16.231: Current Transformers

| Current Transformer Ratio ▲ | Catalog Number | $ Price |
|---|---|---|
| 100:1 | LT6CT1001 | **300.00** |
| 200:1 | LT6CT2001 | **300.00** |
| 400:1 | LT6CT4001 | **700.00** |
| 800:1 | LT6CT8001 | **1000.00** |

▲ For use with LTMR08•• controllers. Three current transformers are required for 3-phase applications.

### Table 16.232: Ground Fault Sensors

| Rated Operational Current Ie (A) | Internal Toroid Ø (mm) | Catalog Number | $ Price |
|---|---|---|---|
| **Closed Toroids, Type A** | | | |
| 65 | 30 | 50437 | **250.00** |
| 85 | 50 | 50438 | **325.00** |
| 160 | 80 | 50439 | **410.00** |
| 250 | 120 | 50440 | **555.00** |
| 400 | 200 | 50441 | **835.00** |
| 630 | 300 | 50442 | **1530.00** |
| **Split Toroids, Type QA** | | | |
| 85 | 46 | 50485 | **1145.00** |
| 250 | 110 | 50486 | **2010.00** |

Note: Dimensional drawings are in catalog DIA1ED2061002EN-US.

### Table 16.233: PTC Thermistor Probes ■

| Description | Nominal Operating Temperature (NOT) °C | Color | Catalog Number ♦ | $ Price Each |
|---|---|---|---|---|
| Triple Probes | 90 | Green/green | DA1TT090 | **3.30** |
| | 110 | Brown/brown | DA1TT110 | **3.30** |
| | 120 | Grey/grey | DA1TT120 | **3.30** |
| | 130 | Blue/blue | DA1TT130 | **3.30** |
| | 140 | White/blue | DA1TT140 | **3.30** |
| | 150 | Black/black | DA1TT150 | **3.30** |
| | 160 | Blue/red | DA1TT160 | **3.30** |
| | 170 | White/green | DA1TT170 | **3.30** |

■ PTC: Positive Temperature Coefficient.
♦ Sold in lots of 10.

### Configuration with PowerSuite

The TeSys T configurator is incorporated in the PowerSuite software application, versions 2.6 and higher.

PowerSuite software allows configuration, commissioning and maintenance of motor starters protected by a TeSys T controller.

A library containing predefined motor control mode functions is available in order to:

- allow standardization
- avoid errors
- reduce motor starter setup times

By using logic functions, a custom mode makes it possible to:

- easily adapt these predefined motor control mode functions to the specific needs of your applications
- create new functions

The functions thus defined can be saved and used to build your function library for future applications.

To create special functions, a logic editor is incorporated in the configurator and allows a choice of 2 programming languages:

- function block
- structured text

### Table 16.234: Configuration Tools

| Description | Composition | Catalog Number | $ Price |
|---|---|---|---|
| Connection kit for PC serial port for Modbus® PLC multidrop connection | 1 x 3 m length cable with two RJ45 connectors | VW3A8106 | |
| | 1 RS232/RS485 converter with one 9-pin female SUB-D connector and one RJ45 connector. | | **75.00** |
| USB serial port adapter★ for connecting a TeSys T controller to your PC | 1 USB / serial port adapter★ | TSXCUSB485 | **250.00** |
| USB serial port cable for connecting a TeSys T controller to your PC | 1 USB / serial port cable | TCSMCNAM3M002P | **52.00** |

★ Modbus (RS485) cable required, not included.

### TeSys T and SMS PowerLogic:

TeSys T is integrated in PowerLogic SMS Version 4.0. and will address energy management needs by fully utilizing the TeSys T power/energy management features. For more information on PowerLogic products, see Power Monitor Control Section 4.




© 2012 Schneider Electric
All Rights Reserved

New!



8536SCO3V02H626

### Table 16.235: Connecting Cables

| Description | Number and type of connectors | Length m (ft) | Catalog Number | $ Price |
|---|---|---|---|---|
| LTMCU control unit | 2 x RJ45 | 1 (3) | VW3A1104R10 | 35.00 |
| | | 3 (10) | VW3A1104R30 | 35.00 |
| | | 5 (16) | VW3A1104R50 | 35.00 |
| XBTN410 | SUB-D 25-pin female to RJ45 | 2.5 (8) | XBTZ938 | 30.00 |
| LTME expansion module | 2 x RJ45 | 0.04 (0.13) | LTMCC004 | 125.00 |
| | | 0.3 (1) | LU9R03 | 20.00 |
| | | 1 (3) | LU9R10 | 25.00 |
| 180 degree Ethernet external connector | 1 x RJ45 | – | LTM9CE180T | 20.00 |

### Table 16.236: Connection Accessories

| Description | | Length m (ft) | Catalog Number | $ Price |
|---|---|---|---|---|
| **For EtherNet (Modbus TCP) connection** | | | | |
| Shielded twisted pair cables to standard EIA/TIA568 | | | | |
| Cables fitted with 2 x RJ45 connectors for connection to terminal equipment | Straight | 2 (7) | 490NTW00002 | 48.60 |
| | | 5 (16) | 490NTW00005 | 58.00 |
| | | 12 (39) | 490NTW00012 | 77.00 |
| | | 40 (131) | 490NTW00040 | 150.00 |
| | | 80 (263) | 490NTW00080 | 266.00 |
| Shielded twisted pair cables, UL and CA 22.1 approved | | | | |
| Cables fitted with 2 x RJ45 connectors for connection to terminal equipment | Straight | 2 (7) | 490NTW00002U | 48.00 |
| | | 5 (16) | 490NTW00005U | 57.00 |
| | | 12 (39) | 490NTW00012U | 75.00 |
| | | 40 (131) | 490NTW00040U | 159.00 |
| | | 80 (263) | 490NTW00080U | 258.00 |
| **For Modbus® PLC connection** | | | | |
| Cables fitted with 2 x RJ45 connectors | | 0.3 (1) | VW3A8306R03 | 20.00 |
| | | 1 (3) | VW3A8306R10 | 25.00 |
| | | 3 (10) | VW3A8306R30 | 30.00 |
| T-junctions | | 0.3 (1) | VW3A8306TF03 | 75.00 |
| | | 1 (3) | VW3A8306TF10 | 85.00 |
| RS485 line terminator | | — | VW3A8306R | N/A |
| **For CANopen connection** | | | | |
| Cables | | 50 (164) | TSXCANCA50 | 112.00 |
| | | 100 (328) | TSXCANCA100 | 467.00 |
| | | 300 (984) | TSXCANCA300 | 1323.00 |
| IP20 connectors SUB-D 9-pin female Line end adapter switch | Elbowed (90°) | — | TSXCANKCDF90T | 52.00 |
| | Straight | — | TSXCANKCDF180T | 52.00 |
| | Elbowed (90°) SUB-D 9-pin connector for connection to PC or diagnostic tool | — | TSXCANKCDF90TP | 78.00 |
| **For DeviceNet connection** | | | | |
| Cables | | 50 (164) | TSXCANCA50 | 112.00 |
| | | 100 (328) | TSXCANCA100 | 467.00 |
| | | 300 (984) | TSXCANCA300 | 1323.00 |
| **For Profibus DP connection** | | | | |
| Cables | | 100 (328) | TSXPBSCA100 | 826.00 |
| | | 400 (1313) | TSXPBSCA400 | 2990.00 |
| Connectors | With line terminator | — | 490NAD01103 | 73.00 |
| | Without line terminator | — | 490NAD01104 | 62.00 |
| | With line terminator and terminal port | — | 490NAD01105 | 101.00 |

### Table 16.237: Marking Accessories

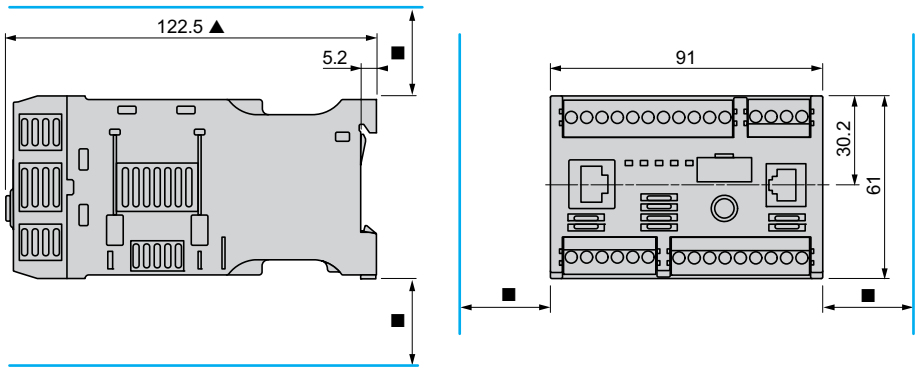
| Description | Composition | Sold in lots of | Catalog Number | $ Price Each |
|---|---|---|---|---|
| Clip-in markers (maximum of 5 per unit) | Strips of 10 identical numbers (0 to 9) | 25 | AB1R•▲ | 0.52 |
| | Strips of 10 identical capital letters (A to Z) | 25 | AB1G•▲ | 0.52 |

▲ When ordering replace the • in the catalog number with the number or letter required.

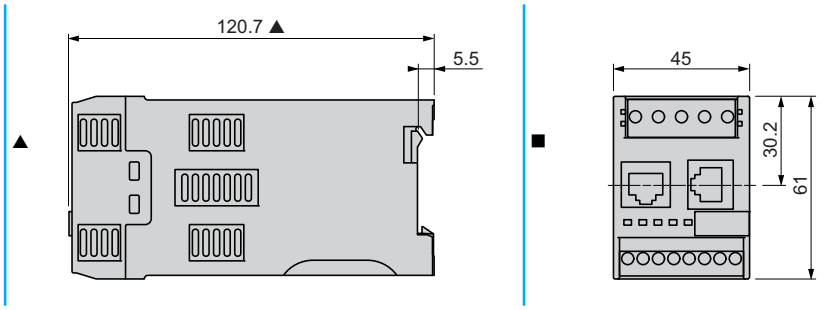


© 2012 Schneider Electric
All Rights Reserved

**LTMR•• controllers**

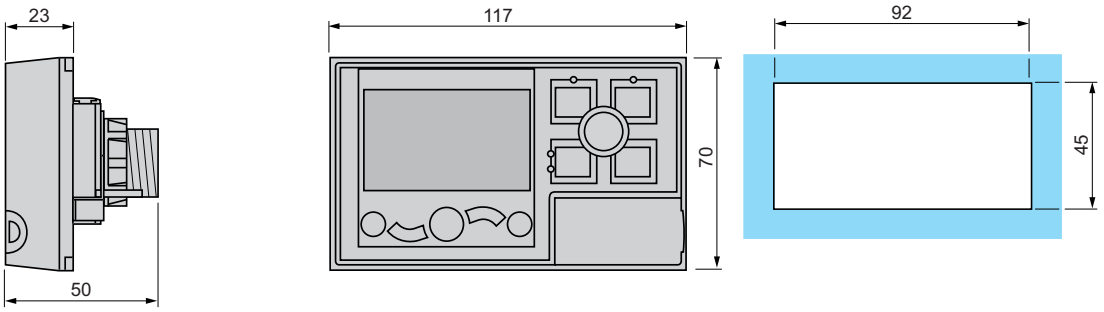



**LTMEV40••** expansion modules



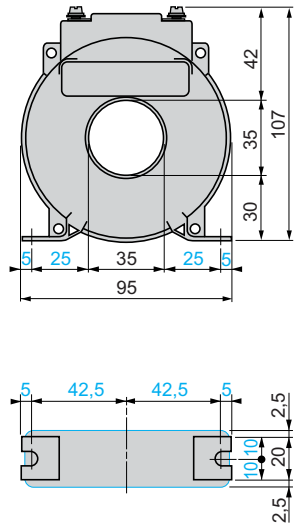

**LTMCU operator control unit**

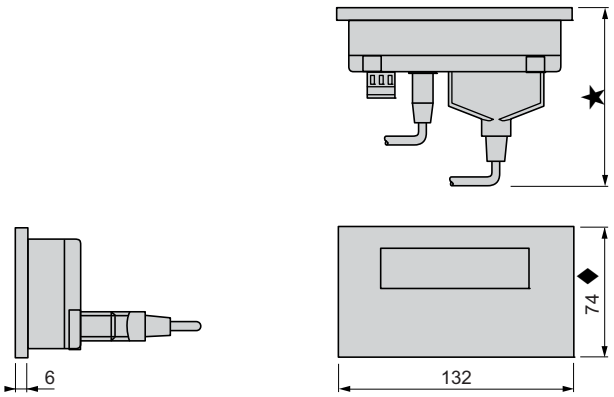
Panel mounting, cut-out




▲ 140 mm with RJ45 connector for connection to expansion module and to network, 166 mm with Profibus DP/CANopen connector.
■ Leave a gap around the device of: 9 mm at 45 °C, 9 to 40 mm from 45 to 50 °C, 40 mm at 60 °C.

| Current Transformers | HMI Terminal |
|---|---|
| LT6CT | XBTN410 |




♦ 104 mm with mounting clips (supplied with the product).
★ 58 mm with SUB-D 25-pin elbowed cable **XBTZ9680** for Twido®, TSX Micro™ and Premium™ PLCs or **XBTZ998** for Advantys™ STB distributed I/O system.
104 mm with SUB-D 25-pin cable **XBTZ68/Z9681** for Twido®, TSX Micro™ and Premium™ PLCs




© 2012 Schneider Electric
All Rights Reserved



Class 9065
Type SEO6B2
Three Pole Construction
Non-Compensated

Bimetallic thermal overload relays feature Class 20 protection with automatic reset or hand reset and a trip-free mechanism. There are ambient temperature-compensated versions. Note that thermal units are not included in the shown prices. Standard trip thermal units are **$21.50** each.

**Table 16.238: For Separate Mounting—Bimetallic—600 V Maximum AC or DC▲**

| Description | Size | Maximum Full Load Current (A) | Open Type | $ Price | Bracket Kit for Terminal Block Channel Mounting | | Number of Thermal Units Required |
|---|---|---|---|---|---|---|---|
| | | | | | Type | $ Price | |
| **Single Pole Construction (One N.C. Contact)** | | | | | | | |
| Compensated | 00, 0, 1 | 25 | DA2 | **107.00** | — | — | 1 |
| | 2 | 60 | GA2 | **149.00** | — | — | |
| | 3 | 100 | HA2 | **261.00** | — | — | |
| | 4 | 180 | JA2 | **306.00** | — | — | |
| **Three Pole Construction (One Common SPDT Contact on Type S)** | | | | | | | |
| Non-Compensated | 1 | 26 | SEO6B2 | **392.00** | SM2 | **35.60** | 3 |
| | 2 | 45 | SEO9B2 | **441.00** | SM2 | **35.60** | |
| Ambient Temperature-Compensated | 1 | 26 | SEO6B | **441.00** | SM2 | **35.60** | 3 |
| | 2 | 45 | SEO9B | **441.00** | SM2 | **35.60** | |
| | For additional selections see International Control Products. | | | | | | |

▲ Maximum power contact rating for separate mounting overload relays. Maximum control circuit contact rating for Type S versions is 600 Vac only.

**Table 16.239: Replacement Overload Relay for Square D Class 8536 Bimetallic Overload Relay on an Existing Starter**

| Locate Class 8536 Starter in this Column | | | | | Order Class 9065 Overload Relay from this Column | | |
|---|---|---|---|---|---|---|---|
| NEMA Size | Type | Series | Number of Poles | Form | Type | $ Price | Number of Thermal Units Required |
| 0 | SB | A & B | Any | B■ | SDO6B | **441.00** | 3 |
| | | | | B1■ | SDO5B1 | **392.00** | 2 |
| | | | | B2■ | SDO6B2 | **392.00** | 3 |
| 1 | SC | A & B | Any | B■ | SDO6B | **441.00** | 3 |
| | | | | B1■ | SDO5B1 | **392.00** | 2 |
| | | | | B2■ | SDO6B2 | **392.00** | 3 |
| 2 | SD | A | Any | B■ | SDO9B | **512.00** | 3 |
| | | | | B1■ | SDO8B1 | **464.00** | 2 |
| | | | | B2■ | SDO9B2 | **464.00** | 3 |
| 3▼ | SE | A | 3 | Y59♦ | 26005-11000 | **243.00** | 1 |
| | | A | 3 | | SHA01Y59 | **1089.00** | 3 |
| | | B | | | | | |
| 4▼ | SF | A | 3 | Y59♦ | 26005-11500 | **306.00** | 1 |
| | | A | 3 | | SJA01Y59 | **1431.00** | 3 |
| | | B | | | | | |
| 5 | SG | A & B | 3 | B2★ | SEO6B2 | **392.00** | 3 |
| | | | | B★ | SEO6B | **441.00** | 3 |
| 6 | SH | A & B | 3 | B | SEO6B | **441.00** | 3 |
| | | | | B2 | SEO6B2 | **392.00** | 3 |

■ B indicates ambient temperature-compensated bimetallic overload relay.
B1 indicates single phase non-ambient temperature compensated bimetallic overload relay.
B2 indicates polyphase non-ambient temperature compensated bimetallic overload relay.

♦ Y59 indicates single phase ambient temperature compensated bimetallic overload relay.

★ B2Y500 indicates bimetallic overload relay with current transformer sensing. BY500 indicates ambient temperature compensated bimetallic overload relay with current transformer sensing. This part number does not include the current transformer assembly.

▼ Non-compensated Size 3 & 4 OLRs are no longer available. Select an ambient compensated OLR from appropriate table above.

## *New!* Adapted Bimetal Overload Relay Adapter (NEMA Sizes 00–1)

The adapted bimetallic Type S starter incorporates a mounting bracket for use with a self-contained adjustable bimetal overload relay. A separate mount version of the bracket is also available for use with contactors that do not offer the same terminal configuration as the Type S or for applications with height restraints that demand mounting mext to the contactor rather than directly below as is typical for most starter configurations.

The bimetallic thermal overload relays feature Class 10 or Class 20 protection with automatic and hand reset and a trip-free mechanism. These overloads are ambient temperature compensated and are available with or without phase imbalance protection. The component is available as a replacement on a starter or as a separately mounted overload relay adapter. The overload relay (LRD or LR3D) can be purchased separately and installed in the field at a later date. For more information see Table 16.269.

**Table 16.240: Replacement**

| Description | Sizes | Maximum Full Load Current (A) of Overload Relay | Catalog Number | List $ Price |
|---|---|---|---|---|
| Two Pole | 00, 0, 1 | 27 | SADR751 | **89.00** |
| Three Pole | 00, 0, 1 | 27 | SADR75 | **89.00** |

**Table 16.241: Stand Alone**

| Description | Sizes | Maximum Full Load Current (A) of Overload Relay | Catalog Number | List $ Price |
|---|---|---|---|---|
| Two Pole | 00, 0, 1 | 27 | SAD751 | **89.00** |
| Three Pole | 00, 0, 1 | 27 | SAD75 | **89.00** |

***NOTE:*** *The LRD or LR3D bimetal overload relay must be purchased separately.*

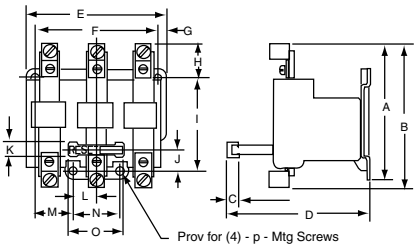


© 2012 Schneider Electric
All Rights Reserved

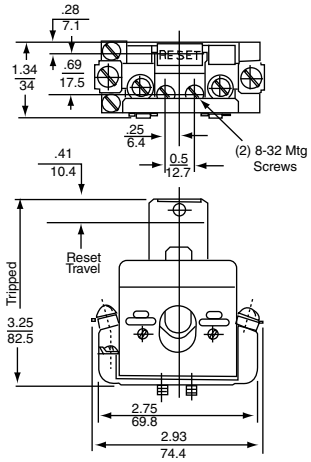
## Approximate Dimensions

### Table 16.242: Melting Alloy Type NEMA Style

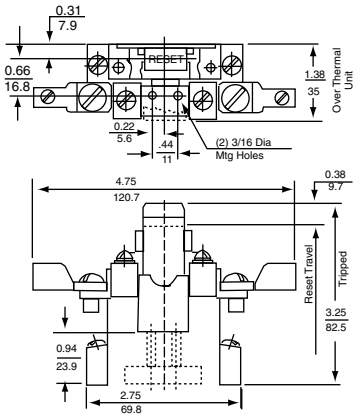
| Type | Dimensions (IN) | | | | | | | | | | | | | | | | Shipping Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | |
| SEO5 | 3-5/16 | — | 15/32 | 3-31/32 | 3-17/32 | 2-13/16 | 7/32 | 11/16 | 2-5/16 | 1/2 | 1/2 | 1/2 | 27/32 | 1 | 1-3/8 | #10 | 1 |
| SEO8 | 3-5/16 | — | 15/32 | 3-31/32 | 3-1/2 | 2-13/16 | 3/16 | 11/16 | 2-5/16 | 1/2 | 1/2 | 1/8 | 27/32 | 1 | 1-3/8 | #10 | 1-1/4 |
| SEO12 | — | 5-19/32 | 9/16 | 5-3/4 | 5-5/16 | 4-3/4 | 9/32 | 1-7/16 | 3-9/16 | 3/4 | 9/16 | 7/8 | 1-1/2 | 1-3/4 | 2 | #1/4 | 3 |
| SEO15 | — | 6-31/32 | 9/16 | 5-3/4 | 5-5/16 | 4-3/4 | 9/32 | 2-1/8 | 3-9/16 | 3/4 | 9/16 | 7/8 | 1-1/2 | 1-3/4 | 2 | #1/4 | 4 |



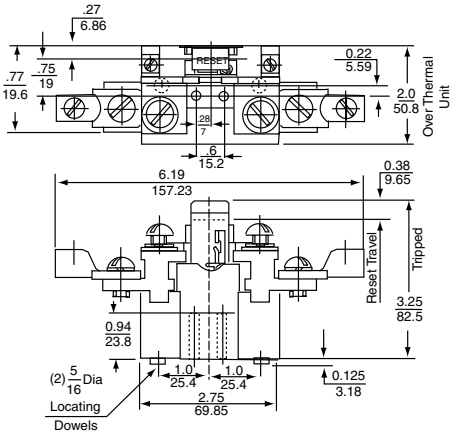

Type SEO




Type CO1
Weight–$1\frac{1}{2}$ lb

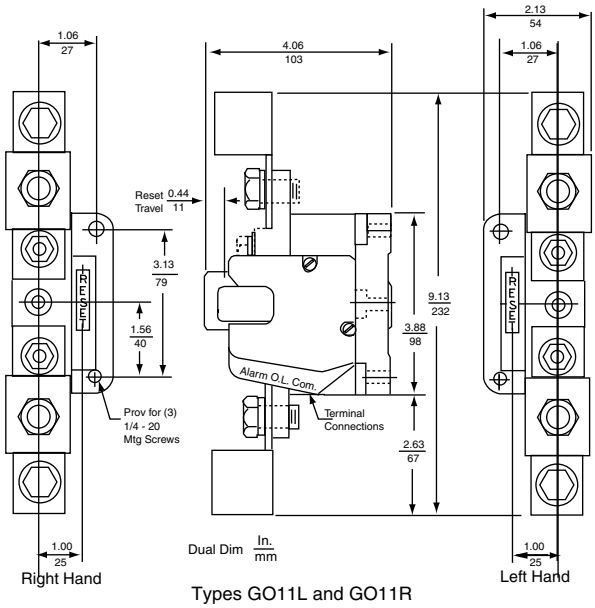



Type TO1▲
Weight–$1\frac{1}{2}$ lb

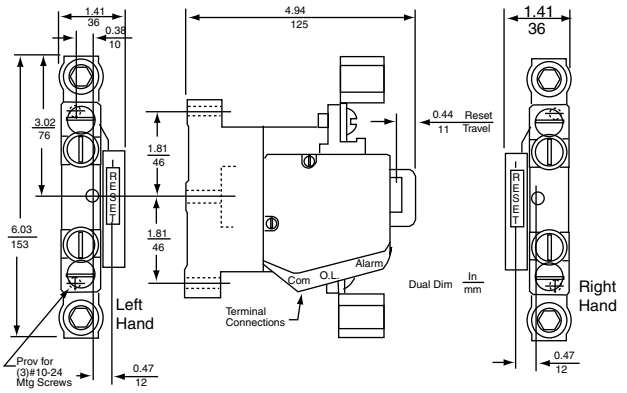



Type UO1▲
Weight–$1\frac{1}{2}$ lb

▲ Dimensions shown for Types TO1 and UO1 do not apply when Form Y342 or Y34 is supplied.




Types GO11L and GO11R
Weight–5 lb




Types FO1L and FO1R
Weight–2 lb

Dual Dimensions: **INCHES** Millimeters

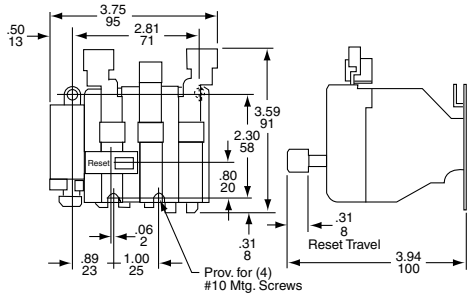




© 2012 Schneider Electric
All Rights Reserved

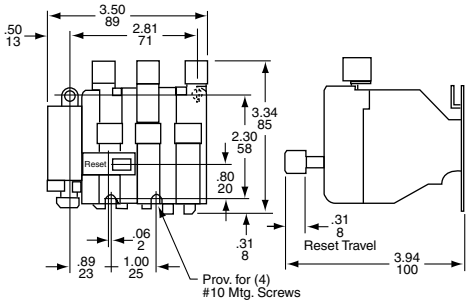
# Approximate Dimensions

## Bimetallic Overload Relays




Types SEO6B and SEO6B2
Weight—1lb

Dual Dimensions: **INCHES** / **Millimeters**

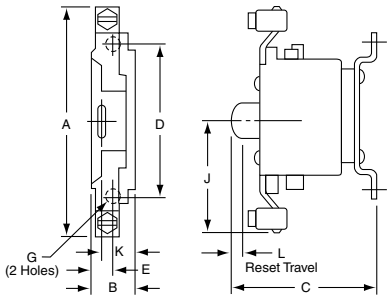



Types SEO9B and SEO9B2
Weight—1 1/4 lb

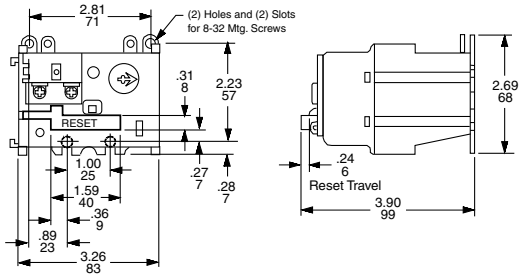
**Table 16.243:**

| Class 9065 | Ampere Rating | Outline Dimensions | | | Mounting Dimensions | | Reset Dimensions | | Mounting Screw | Maximum Wire Size | Approximate Shipping Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | K | L | G | | |
| DA | 25 | 3-1/2 | 7/8 | 3-3/16 | 3 | 1/2 | 3/8 | 1/8 | 10 | 8 | 2 |
| GA | 60 | 4-7/8 | 7/8 | 3-3/16 | 3 | 1/2 | 3/8 | 1/8 | 10 | 1 | 2 |
| HA | 100 | 4-7/8 | 1-1/4 | 3-3/16 | 3-1/2 | 1/16 | 1/2 | 1/8 | 10 | 00 | 3 |
| JA | 180 | 5-15/16 | 1-1/4 | 3-3/16 | 3-1/2 | 1/2 | 3/16 | 1/8 | 10 | 250 MCM | 4 |

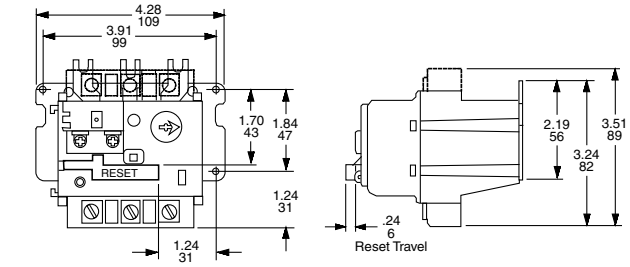
***NOTE:*** *Dimensions shown in inches.*



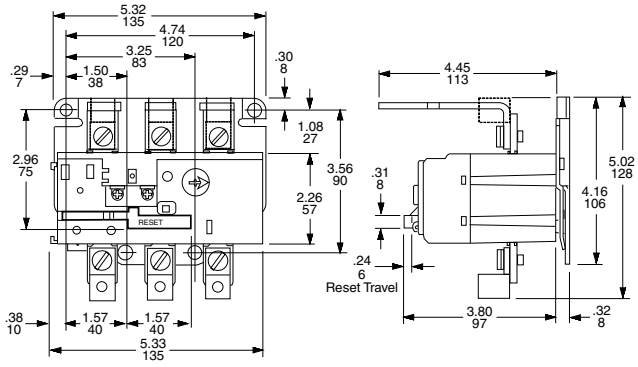

## Motor Logic™ Solid State Overload Relay



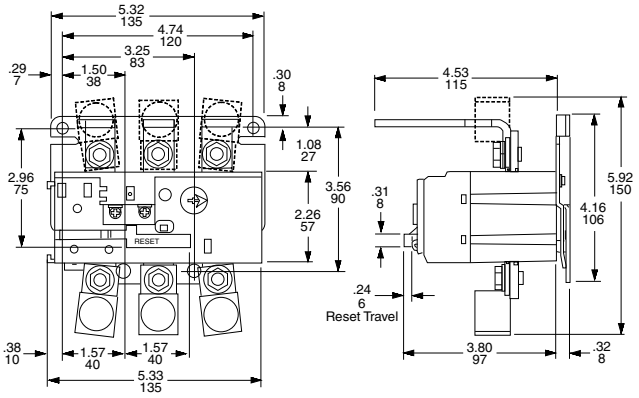

NEMA Size 00B, 00C, 0, and 1 Devices
Note: NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA size 00 Motor Logic Solid State Overload Relay.




Size 2 Devices




Size 3 Devices




Size 4 Devices



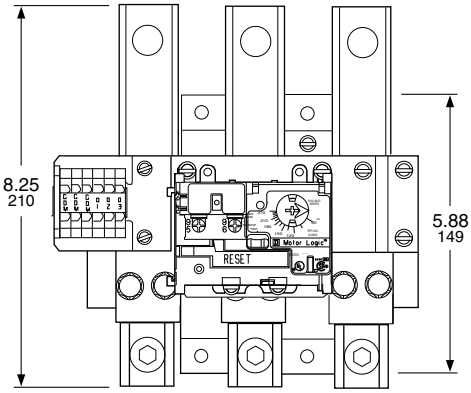
© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

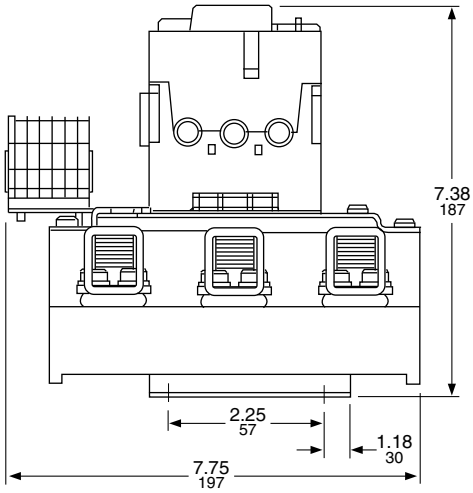
Class **9065** / Refer to Catalog **9065CT9701**



**Note:** The dimensions are for reference only.




**NEMA Size 5 Type S Device**




## External Reset Mechanisms

### Class 9066



Type RB1



Type W1



Type RA2 Series B




Type SC1

**Type RA** kits provide a convenient external means for resetting overload relays mounted in control enclosures of almost any depth. Designed for use on NEMA 1, 4 or 12 enclosures, they can be used with any Square D open type magnetic starter or Class 9065 overload relay. All kits are individually packaged for easy stocking and include complete installation instructions.

Only a single mounting hole is required in the enclosure door. Each kit contains one or more threaded reset rods, grooved at intervals of 3/4" so they can be cut to the approximate length required without thread damage. Final adjustment is easily made after installation by rotating a plunger and tightening the lock nut. Mechanisms with more than one reset rod include a steel cross bar with mounting holes located at 1/2" intervals, providing a choice of rod locations to suit any application. All steel parts are electrically isolated from the enclosure and the operator.

**Type RB** kits make it possible to field install external reset mechanisms to Type S combination starters in NEMA 12 enclosures. They may also be used to replace external reset mechanisms on Type S combination starters in NEMA 1, 4 and 12 enclosures.

**Table 16.244:**

| Where Used | Type of Enclosure | Reset Mechanism Kit | | |
|---|---|---|---|---|
| | | Description | Type | $ Price |
| OEM Kit<br>for commercial enclosures | NEMA<br>1, 12 | With 1 Rod<br>With 2 Rods<br>With 3 Rods | RA1<br>RA2<br>RA3 | **57.00**<br>**71.00**<br>**86.00** |
| Replacement on<br>8538, 8539 starters | NEMA<br>1, 12 | Size 0 and 1<br>Size 2 | RB1<br>RB2 | **42.80**<br>**42.80** |
| On commercial enclosures or<br>Type S combination starters | NEMA<br>4 | W1 is a boot only and must be used<br>with RA or RB Kit listed above | W1 | **28.70** |
| Replacement on<br>Class 8536 Type S starters | NEMA 1<br>with slip-on covers | Size 00, 0 and 1<br>Size 2<br>Size 3 | SC1<br>SD1<br>SE1 | **7.20**<br>**12.00**<br>**14.30** |
| Retro-fit kit Class 8940 Pump Panel | NEMA 3R | Reset for use with 9065TJF Series B OLR | RTJF | **42.80** |







© 2012 Schneider Electric
All Rights Reserved



Type SCW21
NEMA 4X
Enclosure



Type SCA11
NEMA 12
Enclosure



Type SCW11
NEMA 4
Enclosure



Type SCH2
NEMA 3R
Enclosure

Separate enclosures can be used with open style devices for field assembly of enclosed controls. These enclosures, plus the open style components, are equivalent to a factory-assembled device. Separate enclosures are to be used only with the equipment listed below:

- **NEMA 4 and 12** Class 9991 separate enclosures for Type S devices are supplied as standard with closing plates. See selection chart below for specific number of closing plates on Various enclosures. For applications requiring enclosures without closing plates, contact your nearest Schneider Electric sales office.
- **NEMA 3R** enclosures for field assembly of equipment for outdoor applications are provided with three closing plates, a reset mechanism and predrilled panel as standard. For conduit connection to the top of these enclosures, select watertight hubs from listing on Digest page 3-10 in accordance with applicable code requirements. Square D's NEMA 12 enclosures can also be modified for outdoor use. For details, refer to NEMA 12 enclosure modification information on page 16-95. **NOTE: Not for use in high-corrosive outdoor locations or sea coast environments.**
- **NEMA 4X** enclosures for Type S devices, Sizes 0–2 and 30–60 Ampere, are provided as standard without closing plates. Cover mounted control units for NEMA 4X separate enclosures are available as a factory modification only.

When closing plates are removed from NEMAs 4, 12 & 3R enclosure covers, the openings can be used for easy installation of Class 9001 Type K or Type SK cover mounted control units. Convenient Class 9999 modification kits containing Class 9001 Type K control kits can be found on page 16-109.

**Table 16.245:**

| For Use With | | Enclosure Classification | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NEMA Size or Ampere Rating | NEMA 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester | | NEMA 4★ Watertight and Dusttight Stainless Steel | | | NEMA 12/3R Dusttight and Driptight | | | NEMA 3R Rainproof, Sleet Resistant, Outdoor Use | |
| Class | Types (All Pole Arrangements) | | Type | $ Price | Type | $ Price | Number of Closing Plates | Type | $ Price | Number of Closing Plates | Type | $ Price |
| **Manual Starters** | | | | | | | | | | | | |
| 2510 | MBO, MCO | MO<br>M1<br>M1P | MW1▼ | **485.00** | MW11 | **485.00** | — | MA1 | **129.00** | — | — | — |
| **Magnetic Contactors** | | | | | | | | | | | | |
| 8502▲ | SAO, SBO, SCO | 00, 0, 1 | SCW20 | **684.00** | SCW11 | **714.00** | 2 | SCA11△ | **372.00** | 3 | SCH2 | **372.00** |
| | SDO | 2 | SDW20 | **1169.00** | SDW11 | **1197.00** | 2 | SDA11△ | **485.00** | 3 | SDH1 | **485.00** |
| | SEO | 3 | — | — | SEW11 | **1767.00** | 3 | SEA11△ | **684.00** | 3 | SEH1 | **684.00** |
| | SFO | 4 | — | — | SFW11 | **3119.00** | 3 | SFA11△ | **1853.00** | 3 | SFH1 | **1853.00** |
| **Magnetic Starters** | | | | | | | | | | | | |
| 8536 | SAO, SBO, SCO | 00, 0, 1 | SCW21 | **684.00** | SCW11 | **714.00** | 2 | SCA11△ | **372.00** | 3 | SCH2 | **372.00** |
| | SDO | 2 | SDW21 | **1169.00** | SDW11 | **1197.00** | 2 | SDA11△ | **485.00** | 3 | SDH1 | **485.00** |
| | SEO | 3 | — | — | SEW11♦ | **1767.00** | 3 | SEA11♦△ | **684.00** | 3 | SEH1 | **684.00** |
| | SFO | 4 | — | — | SFW11♦ | **3119.00** | 3 | SFA11♦△ | **1853.00** | 3 | SFH1 | **1853.00** |
| **Lighting Contactors, Non-Combination, Electrically and Mechanically Held** | | | | | | | | | | | | |
| 8903▲ | LO, LXO | 20 Amp | SDW20 | **1107.00** | SDW11 | **1197.00** | 2 | SDA11△ | **485.00** | 3 | SDH1 | **485.00** |
| | SMO | 30 Amp | SCW20■ | **684.00** | SCW11 | **714.00** | 2 | SCA11△ | **372.00** | 3 | SCH2 | **372.00** |
| | SPO | 60 Amp | SCW20■ | **1169.00** | SDW11 | **1197.00** | 2 | SDA11△ | **485.00** | 3 | SDH1 | **485.00** |
| | SQO | 100 Amp | — | — | SEW11♦ | **1767.00** | 3 | SEA11♦△ | **684.00** | 3 | SEH1 | **684.00** |
| | SVO | 200 Amp | — | — | — | — | — | — | — | — | SFH1 | **1853.00** |
| **Reversing and Two Speed Horizontally Arranged Contactors and Starters** | | | | | | | | | | | | |
| 8702▲<br>8736 | SBO, SCO<br>SDO | 0, 1<br>2 | — | — | SCW12<br>SDW12 | **1182.00**<br>**1754.00** | 3 | SCA12△<br>SDA12△ | **527.00**<br>**728.00** | 3 | —<br>— | —<br>— |
| 8810 | SBO & SCO | 0, 1 | — | — | SCW13 | **1610.00** | 3 | SCA13△ | **714.00** | 3 | — | — |

▲ For contactors, replace reset assembly with proper closing plate; for NEMA 4 use Class 9001 Type K52, for NEMAs 3R and 12 use Class 9001 Type K51. Class 9991 Types SCW20 and SDW20 are designed for contactors only, reset closing plates not required.
■ For electrically held devices only.
♦ Enclosure suitable for starter with melting alloy and solid state overload relays **only**.
★ The standard cabinet has a brushed finish.
▼ Type MBO, Size MO only.
△ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.

**Table 16.246: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9991 | SCW11 |



© 2012 Schneider Electric
All Rights Reserved

# NEMA Type 1 and Flush Mounting

## Flush Mounting Selection Table

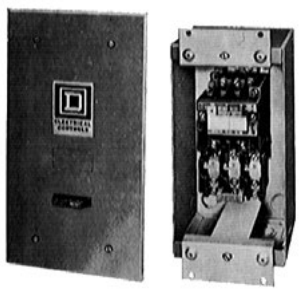
**Flush Mounting General Purpose** separate enclosures for Type S Sizes 0–2, 30–60 ampere are provided with knock-outs in the cover for field assembly of one Class 9999 push button or selector switch kit and one Class 9999 pilot light kit. (Refer to Class 9999 for selection.) For Type S Size 3, 100 ampere, three closing plates are provided for installation of Class 9001 Type K oiltight control units. For enclosure dimensions, refer to page 16-96.

**Table 16.247:**

| For Use With | | NEMA Size or Ampere Rating | Flush Mounting General Purpose (Components) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Flush Plates | | | | Mounting Strap | | Pull Box | |
| | | | Standard | | Stainless Steel■ | | | | | |
| Class | Types (All Pole Arrangements) | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 2510 | MBO & MCO | MO M1 M1P | MF1 | **215.00** | (with pullbox and plaster adjustment) | | | | | |
| | | | MF2 | **129.00** | (without pullbox but with mounting strap) | | | | | |
| **Magnetic Contactors** | | | | | | | | | | |
| 8502▲ | SBO & SCO | 0, 1 | SCF11 | **57.00** | SCF12 | **201.00** | SCF2 | **71.00** | SCF1 | **86.00** |
| | SDO | 2 | SDF11 | **171.00** | SDF12 | **386.00** | SDF2 | **99.00** | SDF1 | **116.00** |
| | SEO | 3 | SEF11 | **882.00** | (Enclosure Complete) | | | | | |
| **Magnetic Starters** | | | | | | | | | | |
| 8536 | SBO & SCO | 0, 1 | SCF11 | **57.00** | SCF12 | **201.00** | SCF2 | **71.00** | SCF1 | **86.00** |
| | SDO | 2 | SDF11 | **171.00** | SDF12 | **386.00** | SDF2 | **99.00** | SDF1 | **86.00** |
| **Lighting Contactors Non-Combination Electrically and Mechanically Held** | | | | | | | | | | |
| 8903▲ | LO, LXO | 20 A | SDF13 | **171.00** | — | — | SDF2 | **99.00** | SDF1 | **86.00** |
| | SMO 1–4 | 30 A | SCF11 | **57.00** | — | — | SCF2 | **71.00** | SCF1 | **86.00** |
| | SMO 10–13 | 30 A | SCF13 | **201.00** | — | — | SCF2 | **71.00** | SCF1 | **86.00** |
| | SPO 1–4 | 60 A | SDF11 | **171.00** | — | — | SDF2 | **99.00** | SDF1 | **86.00** |
| | SPO 10–13 | 60 A | SDF13 | **171.00** | — | — | SDF2 | **99.00** | SDF1 | **86.00** |
| | SQO 1–13 | 100 A | SEF11 | **882.00** | (Enclosure Complete) | | | | | |

▲ For contactors, replace reset assembly with proper closing plate. For Flush Mounting use Class 9999 Type SG2 except for Class 9991 Type SDF11 which requires a Class 9001 Type K51 or K11 closing plate. Class 9991 Types SEF11 and LF1 are designed for contactors only, reset closing plates not required.

■ The standard cabinet has a brushed finish.



Flush Mounting Starter With Pull Box and Mounting Strap Having Plaster Adjustment Feature



Type SCG8 NEMA 1 Enclosure

## NEMA 1 Selection Table

The **NEMA 1 General Purpose** separate enclosures listed below, when used with open style components, are equivalent to a standard factory assembled control device.

**Table 16.248:**

| For Use With | | | NEMA 1 General Purpose Enclosure Class 9991 | |
|---|---|---|---|---|
| Class | Type | No. of Poles | Type | $ Price |
| 2510 | F and K | All | EN1 | **29.30** |
| | M–Sizes M0 and M1 | All | MG1 | **57.00** |
| | M–Size M1P | All | MG2 | **57.00** |
| 8501 | CO | All | UE1♦ | **39.40** |
| | XO | 2–12, 2–4 w/Attachments | UE7 | **99.00** |
| | XDO | 2–8 w/o Attachments | | |
| 8502 | SAO, SBO, SCO | 2–4 | SCG7 | **57.00** |
| | SDO | 2–4 | SDG7 | **143.00** |
| | SEO | 2–4 | SEG7 | **287.00** |
| | SFO | 2–4 | SFG8 | **599.00** |
| 8536 | SAO, SBO, SCO | 2–4 | SCG8 | **57.00** |
| | SDO | 2–4 | SDG8 | **143.00** |
| | SEO | 2–4 | SEG8★ | **287.00** |
| | SFO | 2–4 | SFG8★ | **599.00** |
| | SGO | 3 | SGG8★□ | **1241.00** |
| 8702, 8736 | SAO, SBO, SCO | All | SCG9▼ | **171.00** |
| | SDO | All | SDG9▼ | **372.00** |
| 8903 | LO, LXO | All | LXG1◊ | **143.00** |
| | SMO | All | SCG7△ | **57.00** |
| | SPO | All | SDG7△ | **143.00** |
| | SQO | All | SFG8 | **599.00** |
| | SVO | All | SFG4 | **1259.00** |
| 8910 | DP | 1–2 | DPG1 | **78.00** |
| | DPA12, 13, 22, 23, 32, 33, 42, 43 | 2–3 | DPG1 | **78.00** |
| | DPA14, 24, 34, 44, 52, 53 | 2–4 | DPG2 | **99.00** |
| | DPA62, 63 | 2–3 | DPG3 | **143.00** |
| | DPA72, 73, 92, 93, 122, 123 | 2–3 | DPG4 | **287.00** |
| | H, J, K, L & M | All | UE6 | **99.00** |
| 8911 | DPSO13, 23, 33, 43 | 3 | DPSG1 | **59.00** |
| | DPSO53 | 3 | DPSG2 | **102.00** |
| | DPSO63, 73, 93 | 3 | SEG8 | **287.00** |
| 9050 | AO (Single Head) | All | UE6 | **99.00** |
| | HO | All | UE6 | **99.00** |
| 9070 | EO51, EO61, EO71, K750, K1000 | — | SDG4 | **458.00** |
| | EO2, EO3, EO4, EO15, EO16 EO18, EO19, T75, T100, T150, T200, T250, T300, T350, T500 | — | LG1 | **143.00** |
| | EO1, EO17, T50 | — | UE7 | **99.00** |

♦ CP2 Discount Schedule, not CP1.

★ Enclosure suitable for starter with melting alloy or solid state overload relay **only**.

▼ For horizontally arranged Class 8702 contactors replace reset assembly with a Class 9001 Type K51 closing plate.

△ For electrically held contactors only. See page 16-95 for mechanically held contactors.

□ Series B starter enclosure.

◊ If cover mounted control units are required, select oversized enclosure listed on page 16-95.





© 2012 Schneider Electric
All Rights Reserved



Type SCW4
NEMA 4 Enclosure



Type SCG1
With Starter, Transformer and Fuse Block Installed



Type SCA11
NEMA 12 Enclosure

## NEMA 1, 4 and Oversized

### For Addition of Control Circuit Transformer

The Class 9991 enclosures listed below accept an open type Class 8502 or 8536 Type S, NEMA Size 0, 1, 1P, or 2 contactor or starter along with a fused control circuit transformer (Form F4T) to allow field assembly of enclosed controllers. In the cover of the Class 9991 Type SCG1 enclosure, knock-outs are provided for field addition of Class 9999 cover-mounted control units. All other Class 8502 & 8536 enclosures include a panel with space and drilling for an open-type device and a fused control circuit transformer. In addition, three closing plates are included in each cover for easy installation of Class 9001 Type K or SK control units.

Oversized enclosures for open type Class 8903 Type L & LX, 20 A and Type S, 30 and 60 A electrically and mechanically held lighting contactors include a panel with space and drilling for an open- type contactor and fused control circuit transformer (Form F4T) and/or an auxiliary relay for use with single pole pilot devices (Form R6). When an auxiliary relay is required, use a Class 8501 Type XO11 relay. Three closing plates are provided as standard for easy installation of Class 9001 Type K or SK control units. **Note:** A Class 9991 Type SCG1 NEMA 1 separate enclosure can also be used for Class 8903 Type SMO, 30 A electrically held lighting contactor if Form F4T (control transformer), with or without cover control units is required.

**Table 16.249:**

| For Use With | | | | Class 9991 Enclosure | | | | | | Recommended Class 9070♦ Transformer Selection | | | | | Fuse Block |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Type | NEMA Size or Ampere Rating | No. of Poles | General Purpose NEMA 1 | | Watertight and Dusttight Stainless Steel NEMA 4▼ | | Dusttight and Driptight Industrial Use NEMA 12■ | | Standard | | Extra Capacity | | | |
| | | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | VA | 100 VA Type | 150 VA Type | 300 VA Type | |
| **Magnetic Contactors and Starters** | | | | | | | | | | | | | | | |
| ★ 8502 & 8536 | SAO, SBO & SCO | 00, 0 & 1 | 1–3 | SCG1 | **270.00** | SCW4 | **827.00** | SCA4 | **485.00** | T50 | 50 VA | T100▲ | T150▲ | — | Class 9999 Type SFR4 |
| | | | 4–5 | | | | | | | T100▲ | 100 VA | — | T150▲ | — | |
| | SDO | 2 | 2–5 | SDG4 | **458.00** | SDW4 | **1488.00** | SDA4 | **705.00** | T100 | 100 VA | — | T150 | T300 | |
| **Lighting Contactors, Non-Combination** | | | | | | | | | | | | | | | |
| 8903 | LO, LXO | 20 A | All | SDG3 | **399.00** | SDW3 | **1169.00** | SDA3 | **684.00** | T50 | 50 VA | — | — | — | |
| | | | | | | | | | | T50 | 50 VA | T100▲ | T150▲ | — | |
| | SMO△ | 30 A | 1–3 | | | | | | | T100▲ | 100 VA | — | T150▲ | — | |
| | | | 4–5 | | | | | | | T100 | 100 VA | — | T150 | T300 | |
| | SPO△ | 60 A | 2–5 | | | | | | | | | | | | |

▲ For mounting in SCG1 enclosure, a Class 9991 Type S1 adapter bracket is also required — **$44.00**
■ NEMA 12 modified for outdoor use (see below).
♦ For price list and complete description, see the Class 9070 section. **Note:** Class 9991 Type SCG1 enclosure is provided with a Class 9999 Type SF4 fuse block as standard.
★ For contactors (Class 8502), a separate closing plate is provided with each enclosure to replace the reset mechanism with the exception of Class 9991 Type SCG1 which requires a separate reset closing plate.
Class 9999 Type SG2 — **$14.30**
▼ The standard cabinet has a brushed finish.
△ Mechanically held.

## NEMA 12/3R Enclosures Modified for Outdoor Applications (not to be used in salt air or corrosive environments)

**Field Modifications for NEMA 3** dusttight, raintight and sleet resistant outdoor applications are as follows: Watertight conduit hubs or equivalent provision for watertight connection at the conduit entrance shall be used.

**Field Modifications for NEMA 3R** rainproof and sleet resistant outdoor applications are as follows:

1. Watertight conduit hubs or equivalent provision for watertight connection at the conduit entrance, when the conduit enters at a level higher than the lowest live part, shall be used.
2. Drain holes of 1/8 inch diameter shall be added to the bottom of the enclosure.

Class 9001 Type K oiltight/watertight control units can be easily installed in NEMAs 4, 12, and oversized NEMA 1 separate enclosures provided with closing plates. When installing control units simply remove the closing plates and install the proper Class 9001 Type K components. Convenient control unit kits complete with assembled and pre-wired operators for quick installation are available as Class 9999 user modification kits. See Table 16.250 for contents of each control unit kit. Class 9001 Type SK NEMA 4X corrosion resistant control units may be used as an alternate.

**Table 16.250: Control Unit Selection Table**

| Class 9999 Type | Control Function | Kit Contents | |
|---|---|---|---|
| | | Class and Type | Description |
| SA3 | Start-Stop Pushbutton | 1-9001 KR1B<br>1-9001 KR1R<br>1-9001 KN201<br>1-9001 KN202<br>2-9001 KA1 | Start Operator<br>Stop Operator<br>Start Legend Plate<br>Stop Legend Plate<br>Contact Block |
| SC8 | Hand-Off-Auto Selector Switch | 1-9001 KS43B<br>1-9001 KN260<br>1-9001 KA1 | Selector Operator Switch<br>Hand-Off-Auto Legend Plate<br>Contact Block |
| SP28R | Pilot Light (120 V) | 1-9001 KP1R31 | Red Pilot Light |



© 2012 Schneider Electric
All Rights Reserved

### Table 16.251: NEMA 1—General Purpose Enclosures (Standard)

| Class 9991 Type | For Use With | | | | Dimensions (inches/millimeters) | | | | | | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | Fig. No. | Mounting Screws (in.) | A | B | C | D | E | F | G | H | I | J | K | L | |
| LXG1 | 8903 | LO, LXO | 20 A | 2–12 | 1 | — | 7.81<br>198 | 12.69<br>322 | 6.03<br>153 | — | 1.09<br>28 | 10.50<br>267 | 1.09<br>28 | 1.09<br>28 | 5.63<br>143 | 5.75<br>146 | 1.09<br>28 | 5.63<br>143 | 8 |
| DPG1 | 8910 | DP | 20–40 A | 1–2 | 1 | (4)#10 | 4.85<br>123 | 8.5<br>216 | 4.03<br>102 | 2.42<br>62 | .109<br>3 | 5.75<br>146 | .531<br>13 | .92<br>23 | 3.00<br>76 | 3.75<br>95 | — | — | 2 |
| | | DPA | | 1–3 | | | | | | | | | | | | | | | |
| SCG7 | 8903 | SMO (E.H.) | 30 A | All | 1 | (3)#10 | 6.00<br>152 | 10.00<br>254 | 5.28<br>134 | 3.00<br>76 | .88<br>22 | 8.13<br>206 | 1.00<br>25 | .94<br>24 | 4.13<br>105 | 5.00<br>127 | — | — | 4 |
| | 8502 | SAO | 00 | 2–3 | | | | | | | | | | | | | | | |
| | | SBO<br>SCO | 0<br>1 | All | | | | | | | | | | | | | | | |
| SCG8 | 8536 | SAO | 00 | 2–3 | | | | | 5.56<br>141 | | | | | | | | | | |
| | | SBO<br>SCO | 0<br>1 | All | | | | | | | | | | | | | | | |
| DPG2 | 8910 | DPA | — | — | | | | | | | | | | | | | | | |
| DPSG1 | 8911 | DPS | — | — | | | | | | | | | | | | | | | |
| SDG7 | 8903 | SPO (E.H.) | 60 A | 2–12 | 1 | (4)1/4 | 7.81<br>198 | 12.69<br>322 | 6.03<br>153 | — | 1.09<br>28 | 10.50<br>267 | 1.09<br>28 | 1.09<br>28 | 5.63<br>143 | 5.75<br>146 | 1.09<br>28 | 5.63<br>143 | 8 |
| | 8502 | SDO | 2 | All | | | | | | | | | | | | | | | |
| SDG8 | 8536 | SDO | 2 | All | | | | | 6.31<br>160 | | | | | | | | | | |
| DPG3 | 8910 | DPA | — | — | | | | | | | | | | | | | | | |
| DPSG2 | 8911 | DPS | — | — | | | | | | | | | | | | | | | |
| SEG7 | 8502 | SEO | 3 | All | 1 | (4)3/8 | 11.44<br>291 | 21.81<br>554 | 8.00<br>203 | — | 1.53<br>39 | 18.75<br>476 | 1.53<br>39 | 1.53<br>39 | 8.38<br>213 | 7.75<br>197 | 1.53<br>39 | 8.38<br>213 | 23 |
| SEG8 | 8536 | SEO | 3 | All | | | | | | | | | | | | | | | |
| | 8911 | DPSG63 to 93 | — | All | | | | | | | | | | | | | | | |
| DPG4 | 8910 | DPA | — | — | | | | | 8.38<br>213 | | | | | | | | | | |
| SFG8 | 8502 | SFO | 4 | All | 2 | (4)7/16 | 11.25<br>286 | 25.15<br>639 | 8.99<br>228 | 8.60<br>218 | 1.25<br>32 | 1.25<br>32 | 22.31<br>567 | 1.42<br>36 | .44<br>11 | — | — | — | 34 |
| | 8536 | SFO | 4 | All | | | | | | | | | | | | | | | |
| | 8903 | SQO<br>(E.H. & M.H.) | 100 A | All | | | | | | | | | | | | | | | |
| SCG9 | 8702▲ | SBO,<br>SCO | 0 & 1 | All | 2 | (4)5/16 | 11.88<br>302 | 11.88<br>302 | 7.41<br>188 | 9.75<br>248 | 1.06<br>27 | 1.06<br>27 | 9.75<br>248 | 1.06<br>27 | .31<br>8 | — | — | — | 16 |
| | 8922 | ETBC20,<br>ETBC36 | — | | | | | | | | | | | | | | | | |
| SDG9 | 8702▲ | SCO | 2 | All | 2 | (4)5/16 | 14.88<br>378 | 14.13<br>359 | 7.56<br>192 | 12.75<br>324 | 1.06<br>27 | 1.06<br>27 | 12.00<br>305 | 1.06<br>27 | .31<br>8 | — | — | — | 24 |
| | 8922 | ETBC60 | — | | | | | | | | | | | | | | | | |

▲ Standard enclosure has space for a fused control transformer, Form F4T, on Sizes 0–2.

### Table 16.252: NEMA 1—General Purpose Enclosures (Oversize)

| Class 9991 Type | For Use With | | | | Fig. No. | Mounting Screws (in.) | A | B | C | D | E | F | G | H | I | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | | | | | | | | | | | | |
| SDG3 | 8903 | LO, LXO<br>SMO (M.H.)<br>SPO<br>(Form F4T) | 20 A<br>30 A<br>60 A | All | 2 | (4)5/16 | 14.88<br>378 | 14.13<br>359 | 7.56<br>192 | 12.75<br>324 | 1.06<br>27 | 1.06<br>27 | 12.00<br>305 | 1.06<br>27 | .31<br>8 | 15 |
| SDG4 | 8502 | SDO<br>(Form F4T) | 2 | All | | | | | | | | | | | | 21 |
| | 8536 | SDO<br>(Form F4T) | 2 | All | | | | | 7.66<br>194 | | | | | | | |
| | 9070 | EO51, EO61,<br>EO71, T750,<br>T1000 | — | — | | | | | 7.56<br>192 | | | | | | | |
| SCG1 | 8502 | SBO, SCO<br>(Form F4T) | 0, 1 | All | 3 | (4)9/32 | 6.34<br>161 | 15.88<br>403 | 5.19<br>132 | 4.66<br>118 | .84<br>21 | 14.38<br>365 | .75<br>19 | .28<br>7 | .35<br>9 | 8 |
| | 8536 | SBO, SCO<br>(Form F4T) | 0, 1 | All | | | | | | | | | | | | |
| | 8903 | SMO (E.H.)<br>(Form F4T) | 30 A | All | | | | | | | | | | | | |

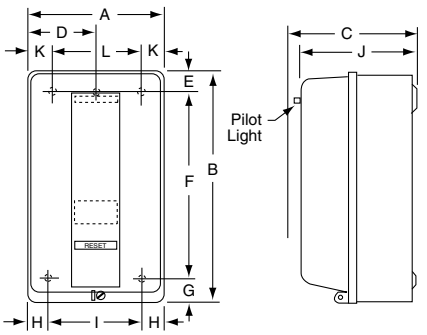



Figure 1

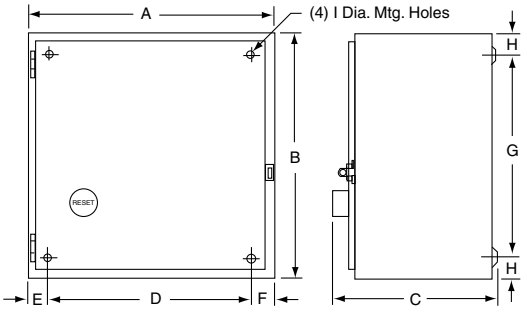



Figure 2

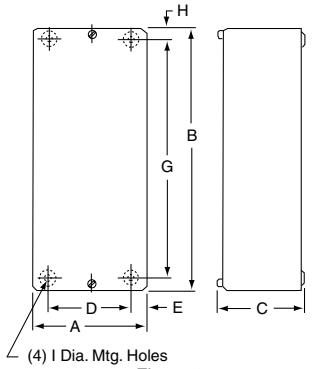



Figure 3

Dual Dimensions: **INCHES** Millimeters





© 2012 Schneider Electric
All Rights Reserved

### Table 16.253: NEMA 1—General Purpose Enclosures

| Class 9991 Type | For Use With | | | Dimensions (See Figure 4) | | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | No. of Poles | A | B | C | D | E | F | G | H | J | L | |
| UE1 | 8501 | CO | All | 3.63<br>92 | 5.28<br>134 | 3.31<br>84 | 1.88<br>48 | 3.63<br>92 | 1.06<br>27 | 1.50<br>38 | 1/4 in.▲ | 1/2–3/4 in. | | 2 |
| UE6 | 8910 | H, J, K<br>L & M | All | 4.91<br>125 | 5.75<br>146 | 5.53<br>140 | 3.50<br>89 | 4.38<br>111 | 1.56<br>40 | 2.00<br>51 | 9/32 in. | 1/2–3/4 in.<br>1–1-1/4 in. | 1/2–3/4 in. | 2 |
| | 9050 | AO<br>(Single Head) | All | | | | | | | | | | | |
| | | HO | All | | | | | | | | | | | |
| UE7 | 8501 | XO | 2–12, 2–4<br>w/Attachments | 4.87<br>124 | 7.79<br>198 | 7.53<br>191 | 3.50<br>89 | 6.38<br>162 | 1.31<br>33 | 1.88<br>48 | #10 | 1/2–3/4 in. | | 4 |
| | | XDO | 2–8 | | | | | | | | | | | |
| | 9070 | EO1, EO17<br>T25, & T50 | — | | | | | | | | | | | |
| LG1 | 9070 | EO2, EO3, EO4, EO15, EO16, EO18, EO19 T75, T100, T150, T200, T250, T300, T350, & T500 | — | 7.53<br>191 | 9.78<br>248 | 5.91<br>150 | 6.13<br>156 | 8.38<br>213 | 1.31<br>33 | 1.88<br>48 | 9/32 in. | 1/2–3/4–1 in. ■ | | 10 |

▲ Class 9991 UE1 has only (3) -H diameter mounting holes; 2 in the bottom as shown and 1 centered at the top.
■ Class 9999 LG1 has three knockouts, top and bottom.

### Table 16.254: NEMA 3R—Rainproof and Sleet-Resistant Enclosures

| Class 9991 Type | For Use With | | | | Dimensions (see Figure 5) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D1 | D2 | E | F | G1 | G2 | H1 | H2 | J | K | L | M | N | P | K.O. X | K.O. Y |
| SCH2 | 8502<br>8536 | SBO,<br>SCO | 0, 1 | All | 8.83<br>224 | 12.30<br>312 | 7.12<br>181 | 1.39<br>35 | 1.44<br>37 | 6.00<br>152 | 7.50<br>191 | 2.61<br>66 | 2.19<br>56 | 2.08<br>53 | 2.62<br>66 | 14.28<br>363 | 1.37<br>35 | 1.37<br>35 | 1.88<br>48 | 4.38<br>111 | 1.83<br>46 | 1/2<br>3/4<br>1 | 1/2<br>3/4<br>1 |
| | 8903 | SMO | 30 A | | | | | | | | | | | | | | | | | | | | |
| SDH1 | 8502<br>8536 | SDO | 2 | All | 9.83<br>250 | 16.30<br>414 | 8.62<br>219 | 1.39<br>35 | 1.44<br>37 | 7.00<br>178 | 11.50<br>292 | 2.61<br>66 | 2.19<br>56 | 2.08<br>53 | 2.62<br>66 | 16.78<br>426 | 1.31<br>33 | 1.75<br>44 | 2.13<br>54 | 4.88<br>124 | 1.83<br>46 | 1<br>1-1/4<br>1-1/2 | 1/2<br>3/4 |
| | 8903 | LO<br>LXO | 20 A | | | | | | | | | | | | | | | | | | | | |
| | 8903 | SPO | 60 A | | | | | | | | | | | | | | | | | | | | |
| SEH1 | 8502<br>8536 | SEO | 3 | All | 12.63<br>321 | 25.30<br>643 | 8.62<br>219 | 1.39<br>35 | 1.44<br>37 | 10.00<br>254 | 20.60<br>523 | 2.61<br>66 | 2.19<br>56 | 2.08<br>53 | 2.62<br>66 | 19.78<br>502 | 1.31<br>33 | 2.31<br>59 | 2.69<br>68 | 6.38<br>162 | 1.83<br>46 | 1<br>1-1/4<br>2<br>2-1/2 | 1/2<br>3/4 |
| | 8903 | SQO | 100 A | | | | | | | | | | | | | | | | | | | | |
| SFH1 | 8502<br>8536 | SFO | 4 | All | 12.63<br>321 | 40.30<br>1024 | 9.12<br>232 | 1.39<br>35 | 1.44<br>37 | 10.00<br>254 | 35.50<br>902 | 2.61<br>66 | 2.19<br>56 | 2.08<br>53 | 2.62<br>66 | 20.28<br>515 | 1.31<br>33 | 2.31<br>59 | 2.69<br>68 | 6.38<br>162 | 1.83<br>46 | 1<br>1-1/4<br>2<br>2-1/2 | 1/2<br>3/4 |
| | 8903 | SVO | 200 A | 2-3 | | | | | | | | | | | | | | | | | | | |

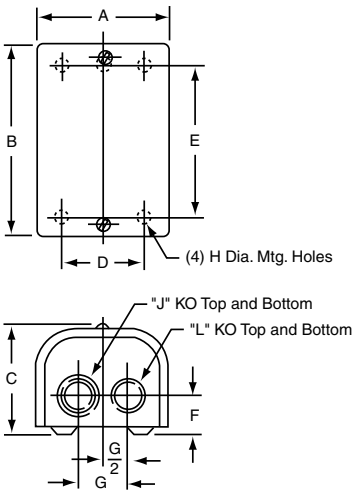


Figure 4

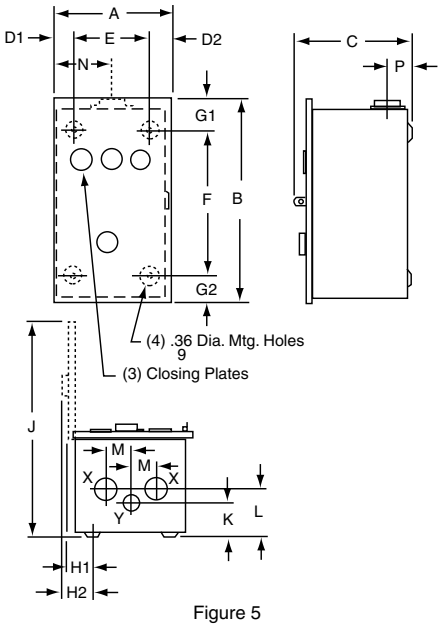


Figure 5

Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved

### Table 16.255: NEMA 4X—Watertight and Corrosion Resistant Enclosures

| Class 9991 Type | For Use With | | | | Dimensions (see Figure 6) | | | | | | | | | | | | Hub Dia. | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | I | J | K | L | Bot. Only W | Top & Bot. X | |
| SCW20 | 8903 | SMO (E.H.) | 30 A | All | 6.50 165 | 6.44 164 | 12.13 308 | .75 19 | 5.00 127 | 8.25 210 | 1.69 43 | 3.34 85 | 10.06 256 | 1.31 33 | 2.13 54 | .31 8 | 3/4 in. | 1 in. | 7 |
| | 8502 | SBO, SCO | 0, 1 | All | | | | | | | | | | | | | | | |
| SCW21 | 8536 | SBO, SCO | 0, 1 | All | | | | | | | | | | | | | | | |
| SDW20 | 8903 | LO, LXO | 20 A | All | 8.50 216 | 7.06 179 | 13.88 352 | .75 19 | 7.00 178 | 10.50 267 | 1.69 43 | 3.91 99 | 11.94 303 | 1.63 41 | 2.38 60 | .31 8 | 3/4 in. | 1-1/2 in. | 13 |
| | 8903 | SPO (E.H.) | 60 A | All | | | | | | | | | | | | | | | |
| | 8502 | SDO | 2 | All | | | | | | | | | | | | | | | |
| SDW21 | 8536 | SDO | 2 | All | | | | | | | | | | | | | | | |

### Table 16.256: NEMA 4—Watertight Enclosures (Standard)

| Class 9991 Type | For Use With | | | | Dimensions (see Figure 6) | | | | | | | | | | | | Hub Dia. | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | I | J | K | L | Bot. Only W | Top & Bot. X | |
| SCW11 | 8903 | SMO | 30 A | All | 6.38 162 | 7.13 181 | 13.19 335 | 1.56 40 | 3.25 83 | 12.00 305 | .59 15 | 1.88 48 | 11.78 299 | 1.63 41 | 2.31 59 | .31 8 | 3/4 in. | 1 in. | 12 |
| | 8502 | SBO, SCO | 0, 1 | All | | | | | | | | | | | | | | | |
| | 8536 | SBO, SCO | 0, 1 | All | 6.38 162 | 7.81 198 | 13.19 335 | 1.56 40 | 3.25 83 | 12.00 305 | .59 15 | 1.88 48 | 11.78 299 | 1.63 41 | 2.31 59 | .31 8 | | | |
| SDW11 | 8903 | LO, LXO | 20 A | All | 8.13 206 | 7.88 200 | 16.19 411 | 1.56 40 | 5.00 127 | 15.00 381 | 1.09 28 | 1.94 49 | 14.75 375 | 2.00 51 | 2.63 67 | .31 8 | 3/4 in. | 1-1/2 in. | 18 |
| | 8903 | SPO | 60 A | All | | | | | | | | | | | | | | | |
| | 8502 | SDO | 2 | All | | | | | | | | | | | | | | | |
| | 8536 | SDO | 2 | All | 8.13 206 | 8.56 217 | 16.19 411 | 1.56 40 | 5.00 127 | 15.00 381 | 1.09 28 | 2.88 73 | 14.75 375 | 2.00 51 | 2.63 67 | .31 8 | | | |
| SEW11 | 8903 | SQO | 100 A | All | 18.15 461 | 8.77 223 | 32.21 818 | 3.08 78 | 12.00 305 | 30.50 775 | .86 22 | 3.67 93 | 26.71 678 | 2.58 66 | 3.19 81 | .44 11 | 3/4 in. | 2-1/2 in. | 51 |
| | 8502 | SEO | 3 | All | | | | | | | | | | | | | | | |
| | 8536 | SEO | 3 | All | 18.15 461 | 9.58 243 | 32.21 818 | 3.08 78 | 12.00 305 | 30.50 775 | .86 22 | 4.48 114 | 26.71 678 | 2.58 66 | 3.19 81 | .44 11 | | | |
| SFW11 | 8536 | SFO | 4 | All | | | | | | | | | | | | | | | |
| | 8502 | SFO | 4 | All | 18.15 461 | 8.77 223 | 32.21 818 | 3.08 78 | 12.00 305 | 30.50 775 | .86 22 | 3.67 93 | 26.71 678 | 2.58 66 | 3.19 81 | .44 11 | | | |

### Table 16.257: NEMA 4—Watertight Enclosures (Oversize)

| Class 9991 Type | For Use With | | | | Dimensions (see Figure 7) | | | | | | | | | | | | Hub Dia. | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | I | J | K | L | Bot. Only W | Top & Bot. X | |
| SCW2 | 8702 8736 | SCO | 1 | All | 12.63 321 | 7.81 198 | 14.69 373 | 2.56 65 | 7.50 191 | 13.50 343 | .59 15 | 3.88 98 | 18.41 468 | 1.66 42 | 2.31 59 | .31 8 | 3/4 in. | 1 in. | 23 |
| SCW3 | 8810 | SBO SCO | 0 1 | All | | | | | | | | | | | | | | | 19 |
| SCW4 | 8502 8536 | SBO, SCO (Form F4T) | 0, 1 | All | | | | | | | | | | | | | | | 24 |
| SDW2 | 8702 8736 | SDO | 2 | All | 14.88 378 | 7.25 184 | 16.19 411 | 2.56 65 | 9.75 248 | 15.00 381 | .38 10 | 3.88 98 | 20.88 530 | 1.72 44 | 2.63 67 | .31 8 | 3/4 in. | 1-1/2 in. | 25 |
| SDW3 | 8903 | LO, LXO SMO, SPO (Form F4T) | 20 A 30 A 60 A | All | | | | | | | | | | | | | | | 29 |
| SDW4 | 8502 8536 | SDO (Form F4T) | 2 | All | | | | | | | | | | | | | | | 28 |

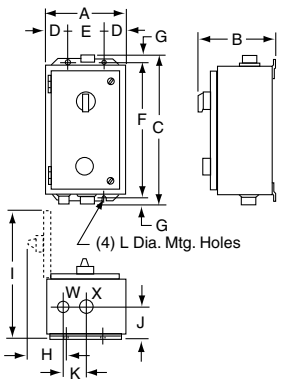



Figure 6

Dual Dimensions: **INCHES** Millimeters

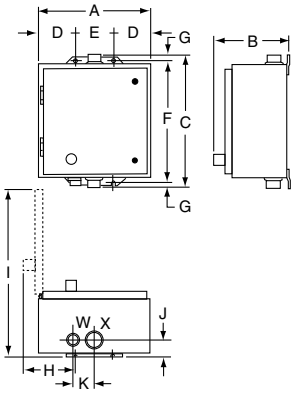



Figure 7





© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions

### Table 16.258: NEMA 12/3R—Dusttight and Driptight Enclosures (Standard)

| Class 9991 Type | For Use With | | | Dimensions (see Figure 8) | | | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | I | J | |
| SCA11 | 8502 | SBO, SCO | 0, 1 | All | 6.38 162 | 8.53 217 | 12.75 324 | 1.56 40 | 3.25 83 | 12.00 305 | .38 10 | 3.56 90 | 12.50 318 | .31 8 | 10 |
| | 8536 | SBO, SCO | 0, 1 | All | | | | | | | | | | | |
| | 8903 | SMO | 30 A | All | | | | | | | | | | | |
| SDA11 | 8502 | SDO | 2 | All | 8.13 206 | 9.28 236 | 16.00 406 | 1.56 40 | 5.00 127 | 15.00 381 | .50 13 | 3.56 90 | 15.38 391 | .31 8 | 15 |
| | 8536 | SDO | 2 | All | | | | | | | | | | | |
| | 8903 | LO, LXO | 20 A | All | | | | | | | | | | | |
| | 8903 | SPO | 60 A | All | | | | | | | | | | | |
| SEA11 | 8903 | SQO | 100 A | All | 18.15 461 | 9.24 235 | 31.50 800 | 3.08 78 | 12.0 305 | 30.50 775 | .50 13 | 3.67 93 | 26.71 678 | .44 11 | 51 |
| | 8502 | SEO | 3 | All | | | | | | | | | | | |
| | 8536 | SEO | 3 | All | 18.15 461 | 9.58 243 | 31.50 800 | 3.08 78 | 12.0 305 | 30.50 775 | .50 13 | 4.48 114 | 26.71 678 | .44 11 | |
| SFA11 | 8536 | SFO | 4 | All | | | | | | | | | | | |
| | 8502 | SFO | 4 | All | 18.15 461 | 9.24 235 | 31.50 800 | 3.08 78 | 12.0 305 | 30.50 775 | .50 13 | 3.67 93 | 26.71 678 | .44 11 | |

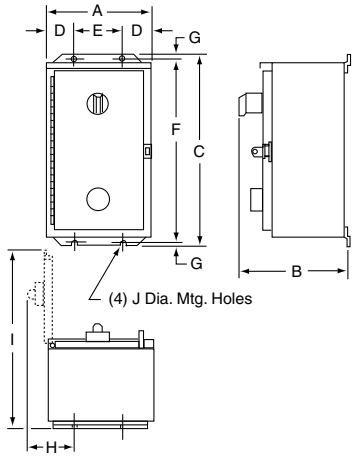


Figure 8

### Table 16.259: NEMA 12/3R—Dusttight and Driptight Enclosures (Oversized)

| Class 9991 Type | For Use With | | | Dimensions (see Figure 9) | | | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | I | J | |
| SCA2 | 8702 8736 | SCO | 1 | All | 11.88 302 | 7.75 197 | 13.5 343 | 2.56 65 | 6.75 171 | 12.75 324 | .38 10 | 3.66 93 | 18.13 460 | .31 8 | 17 |
| SCA3 | 8810 | SBO SCO | 0 1 | All | | | | | | | | | | | 18 |
| SCA4 | 8502 8536 | SBO, SCO (Form F4T) | 0, 1 | All | | | | | | | | | | | 19 |
| SDA2 | 8702 8736 | SDO | 2 | All | 14.88 378 | 7.88 200 | 16.00 406 | 2.56 65 | 9.75 248 | 15.00 381 | .50 13 | 3.66 93 | 21.25 540 | .31 8 | 24 |
| SDA3 | 8903 | LO, LXO SMO, SPO (**Form F4T**) | 20 A 30 A 60 A | All | | | | | | | | | | | 27 |
| SDA4 | 8502 8536 | SDO (**Form F4T**) | 2 | All | | | | | | | | | | | 27 |

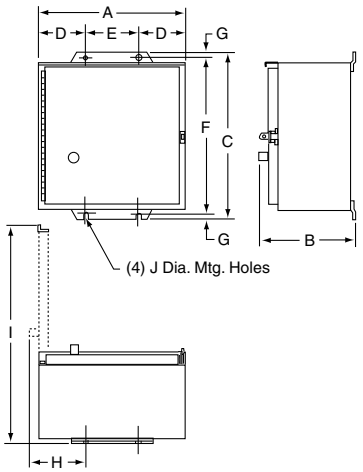


Figure 9

### Table 16.260: Flush Mounting General Purpose Enclosures

| Class 9991 Type | For Use With | | | Dimensions (see Figure 10) | | | | | | | | | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | Size | No. of Poles | A | B | C | D | E | F | G | H | |
| SDF13 (w/SDF1 & SDF2) | 8903 | LO, LXO | 20 A | All | 15.19 386 | 8.94 227 | 7.63 194 | 12.88 327 | 5.44 138 | 10.94 278 | 5.13 130 | .38 10 | 17 |
| SCF11 (w/SDF1 & SDF2) | 8502 | SBO, SCO | 0, 1 | All | 13.44 341 | 7.19 183 | 5.88 149 | 11.13 283 | 4.75 121 | 9.19 233 | 4.50 114 | .38 10 | 10 |
| | 8536 | SBO, SCO | 0, 1 | All | | | | | | | | | |
| | 8903 | SMO (E.H.) | 30 A | All | | | | | | | | | |
| SDF11 (w/SDF1 & SDF2) | 8502 | SDO | 2 | All | 15.19 386 | 8.94 227 | 7.63 194 | 12.88 327 | 5.44 138 | 10.94 278 | 5.13 130 | .38 10 | 17 |
| | 8536 | SDO | 2 | All | | | | | | | | | |
| | 8903 | SPO (E.H.) | 60 A | All | | | | | | | | | |
| SEF11 | 8502 | SEO | 3 | All | 31.00 787 | 16.75 425 | 14.25 362 | 26.25 667 | 8.00 203 | — | — | .18 5 | 48 |
| | 8903 | SQO | 100 A | All | | | | | | | | | |

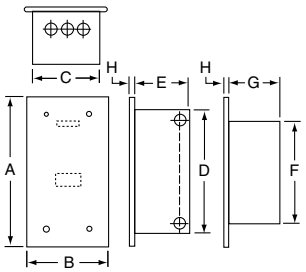


Figure 10



© 2012 Schneider Electric
All Rights Reserved

Factory installed modifications are available for the classes of control equipment listed in the respective tables. Prices shown are **additions** to standard equipment prices and are **not** to be used as separate selling prices. Kits are also available for many field modifications and normal parts replacement on most control items. Refer to Classes 9998 and 9999 for complete listings.

**Standard equipment dimensions and enclosure construction may not apply when certain special features are added. Such cases should be referred to the factory with complete description when accurate dimensions are required.**

***NOTE:*** *If UL label is required, consult Schneider Electric CCC at (1-888-778-2733). Some Forms **are not** UL Listed.*

### Table 16.261: Full Voltage Starters

| | Factory Modifications | Enclosure Type | Form | NEMA Size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| PILOT DEVICES IN COVER Full Voltage Non-Reversing Controllers Only Classes 8502 8536 8538 8539 | **Push Buttons ▲** | | | | | | | | | | | |
| | Start-Stop | 1□, 3R, 4, 4X, 12 7 & 9 | A<br>A | —<br>— | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | Start-Stop (maintained contact)▼ | 1□, 3R, 4, 4X, 12 | A16 | — | 378.00 | 378.00 | 378.00 | 378.00 | 378.00 | 378.00 | 378.00 | 378.00 |
| | Start-Stop push button and Hand-Off-Auto selector switch | 1□, 3R, 4, 4X, 12 | AC | — | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 |
| | On-Off | 1□, 3R, 4, 4X, 12 | A3 | — | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | Single Oiltight Pushbutton (specify marking) | 1, 3R, 4, 4X, 12 | A11 | — | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | **Selector Switches** | | | | | | | | | | | |
| | Hand-Off-Auto | 1□, 3R, 4, 4X, 12 7 & 9 | C<br>C | —<br>— | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | On-Off | 1□, 3R, 4, 4X, 12 7 & 9 | C6<br>C6 | —<br>— | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | NON-STANDARD markings for Pilot Devices | 1, 3R, 4, 12 | G12★ | — | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| | Addition of padlock attachment to Class 9001 operators | 1, 3R, 4, 12 | G122 | — | 44.00 | 44.00 | 44.00 | 44.00 | 44.00 | 44.00 | 44.00 | 44.00 |
| | Pilot Lights (specify color/type) ■ See Table 16.262 below. | | | | | | | | | | | |
| | With Operating Interlock: Add price of each interlock per light | 1, 3R, 4, 4X, 12 | X△ | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 |
| PILOT DEVICES IN COVER Full Voltage Reversing and Multi-Speed Controllers Only Classes 8702 8736 8738 8739 8810 8811 8812 | **Push Buttons ▲** | | | | | | | | | | | |
| | Forward-Reverse-Stop | 1, 4, 4X, 12 7, 9 | A1<br>A1 | —<br>— | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 | 570.00<br>1017.00 |
| | High-Low-Stop | 1, 4, 12 | A2 | — | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 |
| | Fast-Off-Slow | 1, 4, 12 | A9 | — | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 | 570.00 |
| | High-Low push button and Hand-Off-Auto selector | 1, 4, 12 | A10C | — | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 |
| | Single Oiltight Pushbutton (specify marking) | 1, 4, 4X, 12 | A11 | — | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | **Selector Switches** | | | | | | | | | | | |
| | Hand-Off-Auto | 1□, 4, 4X, 12 7 & 9 | C<br>C | —<br>— | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | On-Off | 1□, 4, 4X 7 & 9 | C6<br>C6 | —<br>— | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | High-Off-Low | 1, 4, 12 | C7 | 224.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | Forward-Off-Reverse | 1, 4, 4X, 12 7 & 9 | C14 | — | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 | 336.00<br>599.00 |
| | High-Low and Hand-Off-Auto | 1, 4, 12 | CC17 | — | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 |
| | Slow-Fast | 1, 4, 4X, 12 | C19 | — | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | Forward-Reverse | 1, 4, 4X, 12 | C20 | — | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 | 336.00 |
| | High-Low-Off-Auto | 1, 4, 12 | C25 | — | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 | 671.00 |
| | NON-STANDARD markings for Pilot Devices | Any | G12★ | — | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| | Pilot Lights ■ With Operating Interlock: Add price of each interlock per light | 1, 4, 4X, 12 | X△ | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 |

▲ All push buttons are momentary contact unless specified otherwise.

■ Indicate pilot light color as **Form P1** (red) or **Form P2** (green), etc. as shown in the table below. Unless otherwise requested, standard practice is to wire red pilot light to indicate device is energized. No additional auxiliary contact is required. Also, standard practice is to wire green pilot light to indicate device is de-energized. An additional normally closed auxiliary contact is supplied. A wiring diagram must be supplied for other pilot light colors and/or arrangements.

♦ Pilot lights available at 120 to 600 V only.

★ Specify marking and/or Class 9001 Type KN or Type SKN legend plate required.

▼ Specify appropriate Class 9001 Type K or SK operator required.

△ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form", refer to the tables in the Class 8536 section on page 16-15 (for non-reversing single-speed devices) or the Class 8736 section on page 16-52 (for reversing or two-speed devices). For Class 8600 Reduced Voltage controllers, consult Schneider Electric CCC at (1-888-778-2733).

□ Various form combinations selected may force the use of a larger enclosure.

### Table 16.262: Pilot Light Forms

| | Standard | | | Push-to-Test | | | LED | | | LED-Push-to-Test | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Form | Ty 1/4/12 | Ty 7/9 | Form | Ty 1/4/12 | Ty 7/9 | Form | Ty 1/4/12 | Ty 7/9 | Form | Ty 1/4/12 | Ty 7/9 |
| Red ON | P1 | 336.00 | 599.00 | P21 | 435.00 | 599.00 | P51 | 383.00 | 599.00 | P42 | 482.00 | 599.00 |
| Red OFF | P71 | 336.00 | 599.00 | P81 | 435.00 | 599.00 | P91 | 383.00 | 599.00 | P43 | 482.00 | 599.00 |
| Red Unwired | P38 | 336.00 | 599.00 | P28 | 435.00 | 599.00 | P58 | 383.00 | 599.00 | P44 | 482.00 | 599.00 |
| Green ON | P72 | 336.00 | 599.00 | P82 | 435.00 | 599.00 | P92 | 383.00 | 599.00 | P45 | 482.00 | 599.00 |
| Green OFF | P2 | 336.00 | 599.00 | P22 | 435.00 | 599.00 | P52 | 383.00 | 599.00 | P46 | 482.00 | 599.00 |
| Green Unwired | P39 | 336.00 | 599.00 | P29 | 435.00 | 599.00 | P59 | 383.00 | 599.00 | P47 | 482.00 | 599.00 |
| Amber | P3 | 336.00 | 599.00 | P23 | 435.00 | 599.00 | P53 | 383.00 | 599.00 | P63 | 482.00 | 599.00 |
| Clear | P4 | 336.00 | 599.00 | P24 | 435.00 | 599.00 | P54 | 383.00 | 599.00 | P64 | 482.00 | 599.00 |
| Yellow | P35 | 336.00 | 599.00 | P25 | 435.00 | 599.00 | P55 | 383.00 | 599.00 | P48 | 482.00 | 599.00 |
| Blue | P36 | 336.00 | 599.00 | P26 | 435.00 | 599.00 | P56 | 383.00 | 599.00 | P66 | 482.00 | 599.00 |
| White | P37 | 336.00 | 599.00 | P27 | 435.00 | 599.00 | P57 | 383.00 | 599.00 | P67 | 482.00 | 599.00 |
| Red LOW - Green HI | P73 | 672.00 | 1197.00 | P83 | 870.00 | 1197.00 | P93 | 765.00 | 1197.00 | P77 | 963.00 | 1197.00 |
| Green LOW - Red HI | P74 | 672.00 | 1197.00 | P84 | 870.00 | 1197.00 | P94 | 765.00 | 1197.00 | P78 | 963.00 | 1197.00 |
| Red OFF - Green FWD/REV | P75 | 1008.00 | 1796.00 | P85 | 1305.00 | 1796.00 | P95 | 1184.00 | 1796.00 | P79 | 1445.00 | 1796.00 |
| Green OFF - Red FWD/REV | P76 | 1008.00 | 1796.00 | P86 | 1305.00 | 1796.00 | P96 | 1184.00 | 1796.00 | P80 | 1445.00 | 1796.00 |





© 2012 Schneider Electric
All Rights Reserved

# For Full Voltage Contactors and Starters

## Table 16.263: Full Voltage Controllers Only

| Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Factory Modifications | | Enclosure Type | Form | NEMA SIZE | | | | | | | | | |
| | | | | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| CONTROL CIRCUIT Full Voltage and Multi-Speed Controllers Only Classes 8502 8536 8538 8539 8702 8736 8738 8739 8810 8811 8812 | Separate Control Circuit—(specify voltage and frequency) | Any | S▲ | | No Charge | No Charge | No Charge | No Charge | No Charge | No Charge | No Charge | No Charge |
| | Fused Control Circuit (without control transformer) | | | | | | | | | | | |
| | One fuse | 1, 3R, 4, 4X, 12 | F | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | — | — |
| | Two fuses | 1, 3R, 4, 4X, 7, 9, 12 | F4 | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | 314.00 | — | — |
| | **Control Circuit Transformers■—Standard capacity (50 or 60 Hz) Note: All orders requesting Form FT will be supplied as Form F4T.** | | | | | | | | | | | |
| | FUSES: Primary / Secondary | | | | | | | | | | | |
| | 2 / 1 | 1, 4, 4X, 12 | FF4T | 698.00 | 698.00 | 698.00 | 855.00 | 1112.00 | 1283.00 | 1412.00 ♦ | 1412.00 | 1412.00 |
| | 2 / 1 | 7 & 9 | FF4T | 755.00 | 755.00 | 755.00 | 1053.00 | 1353.00 | 1640.00 | 1839.00 ♦ | 1839.00 | 1839.00 |
| | 2 / 2 | 1, 4, 4X, 12 | F4F10T | 698.00 | 698.00 | 698.00 | 855.00 | 1112.00 | 1283.00 | 1412.00 ♦ | — | — |
| | **Additional Capacity (50 or 60 Hz)** | | | | | | | | | | | |
| | Two fuses in primary and one fuse in secondary | | | | | | | | | | | |
| | 100 VA additional capacity | 1, 4, 4X, 12 | FF4T11 | 998.00 | 998.00 | 998.00 | 1197.00 | 1425.00 | 1566.00 ♦ | 1710.00 ♦ | 1710.00 | 1710.00 |
| | 100 VA additional capacity | 7 & 9 | FF4T11 | 1053.00 | 1053.00 | 1053.00 | 1395.00 | 1668.00 | 1925.00 ♦ | 2138.00 ♦ | — | — |
| | 200 VA additional capacity | 1, 4, 4X, 12 | FF4T12 | 1241.00 | 1241.00 | 1241.00 | 1467.00 | 1695.00 ♦ | 1839.00 ♦ | 1839.00 ♦ | 1839.00 | 1839.00 |
| | 300 VA additional capacity | 1, 4, 4X, 12 | FF4T13 | 1481.00 | 1481.00 ♦ | 1481.00 ♦ | 1737.00 ♦ | 1967.00 ♦ | 2109.00 ♦ | 2109.00 ♦ | 2109.00 | 2109.00 |
| | 400 VA additional capacity | 1, 4, 4X, 12 | FF4T14 | 1967.00 | 1967.00 ♦ | 1967.00 ♦ | 2280.00 ♦ | 2507.00 ♦ | 2793.00 ♦ | 2793.00 ♦ | 2793.00 ♦ | 2793.00 ♦ |
| | 500 VA additional capacity | 1, 4, 4X, 12 | FF4T15 | 2250.00 | 2250.00 ♦ | 2250.00 ♦ | 2564.00 ♦ | 2793.00 ♦ | 3077.00 ♦ | 3077.00 ♦ | 3077.00 ♦ | 3077.00 ♦ |

▲ All combination style devices such as 8538, 8539, 8738, 8739, that use **Form S** should also use **Form Y74** (auxiliary contact installed on disconnect switch) per NEC Article 430-74.
■ Table 16.266 at right.
♦ **Single** primary voltage must be specified.

## Table 16.264: Marine Control

| Class | Factory Modification | Enclosure Type | Form | $ Price |
|---|---|---|---|---|
| 8502 8536 8538 8539 8702 8736 8738 8739 8810 8941 | Modification of standard device for use as marine control per UL508 | 12/3R 4/4X (S.S. only) | M10 | See Below |

## Table 16.265:

| Form | NEMA Size★ | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 00▼ | 0▼ | 1 | 2 | 3 | 4 | 5 | 6 |
| M10 | — | — | 338.00 | 450.00 | 720.00 | 1260.00 | 3015.00 | 4725.00 |

★ Not available for NEMA Size 7.
▼ Cannot be used with Marine controls.

## ■Selection of Control Circuit Transformers

The standard primary/secondary voltages for control circuit transformers are indicated in the following table.

### Table 16.266:

| AC-OPERATED DEVICES With Control Transformers | |
|---|---|
| Voltage 60 Hz (Primary–Secondary) | Code |
| 120–12△ | V88 |
| 120–24△ | V89 |
| 208–120 | V84 |
| 240–24△ | V82 |
| 240–120 | V80 |
| 277–120 | V85 |
| 480–24△ | V83 |
| 480–120 | V81 |
| 480–240 | V87 |
| 600–120 | V86 |
| Specify | V99 |

△ 12 V coils are not available on Sizes 3–7.
24 V coils are not available on Sizes 4–7.

To order, select the desired device with the appropriate transformer Form designation. Then convert the previously selected voltage code (V••) to reflect the desired primary/secondary voltage for the transformer. The secondary voltage should equal the previously selected coil voltage of the device.

**Example:**

You have previously selected a Class 8536SDG1V02S. V02S means that you need a coil voltage of 120-60/110-50 wired for separate control. You would like to add **Form FF4T** with the transformer voltages being 480 volt primary, 120 volt secondary with Solid State Overload Relay Protection Class 20 Trip Class (H20).

The new and complete class, type, voltage code and form number will be:

| Class | Type | Voltage Code | Form □ |
|---|---|---|---|
| 8536 | SDG1 | V81 | FF4H20T |

□ Form numbers should always be shown in alphabetical order. Each letter indicates the beginning of a new form and may be followed by one or more numbers.



© 2012 Schneider Electric
All Rights Reserved

## Solid State Overload Relay Factory Modifications (Forms)

The solid state overload relay is available on NEMA Size 00–7.
For Class 8536, 8538, 8539, 8736, 8738, 8739 and 8810 devices.

H # # #

**Form Description**

Type S Starter with MOTOR LOGIC™
Solid State Overload Relay
3—MOTOR LOGIC, Class 10/20 (Selectable)

0—No additional modifications
1—N.O. Auxiliary Contact (Field Convertible to N.C.)

Special Overload/Contactor Size Combinations (Base Unit & Feature Units):
(Must Be Specified On Size 00 Starter Orders)
Blank -Overload Matched to Starter Size (i.e., Size 1 contactor & 9-27 A overload)
0—A 6–18 A overload on a starter size as indicated by the Starter Catalog Number
1—A 9–27 A overload on a starter size as indicated by the Starter Catalog Number
2—A 15–45 A overload on a starter size as indicated by the Starter Catalog Number
3—A 30–90 A overload on a starter size as indicated by the Starter Catalog Number
4—A 45–135 A overload on a starter size as indicated by the Starter Catalog Number
8—A 1.5–4.5 A overload on a starter size as indicated by the Starter Catalog Number (only offered on Feature Units)
9—A 3–9 A overload on a starter size as indicated by the Starter Catalog Number

SPECIAL NOTE for Class 8810 devices:
You MUST SPECIFY TWO SEPARATE FORM NUMBERS TO GET MOTOR LOGIC OVERLOADS ON TWO SPEED STARTERS. The catalog number will be alphanumeric.
EXAMPLE: Open Style, Size 4 Two Speed Starter with MOTOR LOGIC Overload Relays Required.
Single Winding, 460 V, Constant or Variable Torque
High Speed FLA = 96 A
Low Speed FLA = 27 A (use Size 2 Overload)
Catalog Number to Order: 8810SF01V02H20H202S
Where: Form H20 is a Size 4 Contactor with a 45-135 A MOTOR LOGIC Overload Relay for the High Speed and form H202 is a 15–45 A MOTOR LOGIC Overload Relay on the low speed contactor.

### Table 16.267: Classes 8536, 8538, 8539, 8736, 8738, 8739 and 8810

| Factory Modifications | | Form | NEMA Size (Overload Current Range) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | 3–9 A | 6–18 A | 9–27 A | 15–45 A | 30–90 A | 45–135 A | 90–270 A | 180–540 A | 270–810 A |
| Motor Logic Solid State Overload Relay | Class 10/20 (Selectable) | H30 | **93.00** | **93.00** | **93.00** | **102.00** | **116.00** | **131.00** | **215.00** | **215.00** | **Std.** |
| Motor Logic Solid State Overload Relay with Auxiliary Contact | Class 10/20 (Selectable) | H31 | **149.00** | **149.00** | **149.00** | **161.00** | **171.00** | **188.00** | **270.00** | **270.00** | **56.00** |

### Table 16.268: Special Starter Combinations with Motor Logic Overload Relay Protection

| NEMA Contactor Size | Solid State Overload Relay Size | | | | | | |
|---|---|---|---|---|---|---|---|
| | $00_B$ | $00_C$ | 0 | 1 | 2 | 3 | 4 |
| 00 | ◊ | Std | | | | | |
| 0 | ◊ | ◊ | Std | | | | |
| 1 | ◊ | ◊ | ◊ | Std | | | |

| NEMA Contactor Size | Solid State Overload Relay Size | | | | | | |
|---|---|---|---|---|---|---|---|
| | $00_B$ | $00_C$ | 0 | 1 | 2 | 3 | 4 |
| 2 | ◊ | ◊ | ◊ | ◊ | Std | | |
| 3 | n/a | n/a | n/a | n/a | n/a | Std | |
| 4 | n/a | n/a | n/a | n/a | n/a | ◊ | Std |

◊ Possible factory starter combinations available.

### Table 16.269: *New!* Adapted Bimetal Overload Relay for NEMA Type S Starter

This bimetallic overload relay is available on NEMA Sizes 00, 0 & 1 for Class 8536, 8538, 8539, 8736, 8738 and 8739 devices. To order a astarter with the adapter ONLY add Form E to the catalog number (8536SBG2V02ES). When ordering with the adapter and bimetallic overload relay installed, please use the Q2C product configurator.

E X YY Z

**Form Description**

Bimetal Overload Relay

1—Class 10 Balanced Loads
2—Class 20 Balanced Loads
3—Class 10 Unbalanced Loads (single phase)
4—Class 20 Unbalanced Loads (single phase)

YY—Numbers (suffix from O/L table below
i.e. 4 to 6 FLA use suffix 10

Z—0 for Screw Terminal and 6 for Ring Tongue Terminals

Sample Catalog Number: 8536SCO3V02E2160S
NEMA Size 1 Starter controlling a 7.5 hp motor (FA 11)
Bimetal would be: LRD16L (9 to 13 FLA)

### Table 16.270: TeSys N Size 5–7, Non-Reversing and Reversing Starters

| Current Setting Range Amperes | Class 20 with Single Phase Sensitivity W/O Lugs | Class 20 without Single Phase Sensitivity W/O Lugs | Class 20 with Single Phase Sensitivity With Lugs | Class 20 without Single Phase Sensitivity With Lugs | Adder CP1 List $ Price | Factory Installed Catalog Number Suffix |
|---|---|---|---|---|---|---|
| 0.40 to 0.63 | LRD04L | LR3D04L | LRD04L6 | LR3D04L6 | **85.28** | 04 |
| 0.63 to 1 | LRD05L | LR3D05L | LRD05L6 | LR3D05L6 | **85.28** | 05 |
| 1 to 1.6 | LRD06L | LR3D06L | LRD06L6 | LR3D06L6 | **85.28** | 06 |
| 1.6 to 2.5 | LRD07L | LR3D07L | LRD07L6 | LR3D07L6 | **85.28** | 07 |
| 2.5 to 4 | LRD08L | LR3D08L | LRD08L6 | LR3D08L6 | **85.28** | 08 |
| 4 to 6 | LRD10L | LR3D10L | LRD10L6 | LR3D10L6 | **85.28** | 10 |
| 5.5 to 8 | LRD12L | LR3D12L | LRD12L6 | LR3D12L6 | **87.46** | 12 |
| 7 to 10 | LRD14L | LR3D14L | LRD14L6 | LR3D14L6 | **87.46** | 14 |
| 9 to 13 | LRD16L | LR3D16L | LRD16L6 | LR3D16L6 | **87.46** | 16 |
| 12 to 18 | LRD21L | LR3D21L | LRD21L6 | LR3D21L6 | **87.46** | 21 |
| 17 to 24 | LRD22L | LR3D22L | LRD22L6 | LR3D22L6 | **87.46** | 22 |
| 23 to 32 | LRD32L | LR3D32L | LRD32L6 | LR3D32L6 | **87.46** | 32 |





© 2012 Schneider Electric
All Rights Reserved

## Table 16.271: TeSys T Motor Management System Modifications - H6xx or H7xx for use with Class 8536 and 8736 (Open Starters)

***NOTE:*** *Product Configurator Must Be Used To Order TeSys T Open Starters.*

| Used on Size | Range | Control Voltage 100-240 Vac Form | | Control Voltage 24 Vdc Form |
|---|---|---|---|---|
| 00, 0, 1 | 0.4–8 A | H61X▲ | | H71X▲ |
| 0, 1 | 1.35–27 A | H62X▲ | | H72X▲ |
| 2, 3 | 5.0–100 A | H63X▲ | or | H73X▲ |
| 4 | 8–160 (CT 300:5 3 turns) | H65X▲ | | H75X▲ |
| 5 | 24–480 A (CT 300:5 1 turn) | H66X▲ | | H76X▲ |
| 6 | 48–960 A (CT 600:5 1 turn) | H67X▲ | | H77X▲ |

▲ Where X is the communication option per table (i.e.H612)

| Code | Communication Type | List Price Adder |
|---|---|---|
| 2 | Modbus | **$2,295.00** |
| 3 | ProfiBus | **$2,550.00** |
| 4 | CANopen | **$2,550.00** |
| 5 | DeviceNet | **$2,550.00** |
| 6 | Ethernet | **$2,805.00** |

***NOTE:*** *Auxiliary contact for control of starter coil has a maximum rating of 240V AC.*

## Table 16.272: Full Voltage Controllers Only

| Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Factory Modifications | | Enclosure Type | Form | NEMA Size | | | | | | | | | |
| | | | | 00 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Power Poles | Addition of one NEMA Size 1, 30 A single pole N.O. unit | Any | Y428 | — | **287.00** | **287.00** | **287.00** ■ | **287.00** | **287.00** | **287.00** | **287.00** | **287.00** |
| | Addition of one NEMA Size 1, 30 A single pole N.C. unit | Any | Y429 | — | **287.00** | **287.00** | **287.00** ■ | **287.00** | **287.00** | **287.00** | **287.00** | **287.00** |
| | Addition of one NEMA Size 1, 30 A double pole N.O./N.O. unit | Any | Y430 | — | **441.00** | **441.00** | **441.00** ■ | **441.00** | **441.00** | **441.00** | **441.00** | **441.00** |
| | Addition of one NEMA Size 1, 30 A double pole N.C./N.C. unit | Any | Y434 | — | **441.00** | **441.00** | **441.00** ■ | **441.00** | **441.00** | **441.00** | **441.00** | **441.00** |
| | Addition of one NEMA Size 1, 30 A double pole N.O./N.C. unit | Any | Y435 | — | **441.00** | **441.00** | **441.00** ■ | **441.00** | **441.00** | **441.00** | **441.00** | **441.00** |
| | Addition of one NEMA Size 2 single pole N.O. unit | Any | Y436 | — | — | — | **414.00** ■ | **414.00** | **414.00** | **414.00** | **414.00** | **414.00** |
| | Addition of one NEMA Size 2 single pole N.C. unit | Any | Y437 | — | — | — | **414.00** ■ | **414.00** | **414.00** | **414.00** | **414.00** | **414.00** |
| | Addition of one NEMA Size 2 double pole N.O./N.O. unit | Any | Y438 | — | — | — | **698.00** ■ | **698.00** | **698.00** | **698.00** | **698.00** | **698.00** |
| | Addition of one NEMA Size 2 double pole N.C./N.C. unit | Any | Y439 | — | — | — | **698.00** ■ | **698.00** | **698.00** | **698.00** | **698.00** | **698.00** |
| | Addition of one NEMA Size 2 double pole N.O./N.C. unit | Any | Y440 | — | — | — | **698.00** ■ | **698.00** | **698.00** | **698.00** | **698.00** | **698.00** |
| Miscellaneous | Coil transient suppressor (120 Volt only). Per Coil. | Any | Y145 | **158.00** | **158.00** | **158.00** | **158.00** | **158.00** | **158.00** | **158.00** | **158.00** | **158.00** |
| | Addition of terminal blocks (specify wired or unwired). | | | | | | | | | | | |
| | Wired, per terminal. Each | 1, 4, 12 | G56▲ | — | **116.00** | **116.00** | **116.00** | **116.00** | **116.00** | **116.00** | **116.00** | **116.00** |
| | Unwired, per terminal. Each | 1, 4, 12 | G50▲ | — | **57.00** | **57.00** | **57.00** | **57.00** | **57.00** | **57.00** | **57.00** | **57.00** |

▲ Addition of terminal block type 9080CA or 9080GR6 only. Number of circuits is same as ending of form number. (Ex.: G505 is 5 un-wired terminal block.) Available in groups of 5 only.
■ When adding a power pole to a Size 2 device, also specify **Form Y118** and add **$140.00.**

## Table 16.273: Reversing Full Voltage Starters Only♦

| Class 8810 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Factory Modifications | | Enclosure Type | Form | NEMA Size | | | | | | |
| | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Circuit Breaker or Disconnect Switch | Molded case circuit breaker | 1 | Y791 | **2010.00** | **2010.00** | **2451.00** | **2664.00** | **4872.00** | **9471.00** | **13944.00** | **19328.00** |
| | | 4, 7★, 9★ | Y791 | **2862.00** | **2862.00** | **3533.00** | **4886.00** | **7092.00** | **11808.00** | **18216.00** | **23601.00** |
| | | 12 | Y791 | **2037.00** | **2037.00** | **2564.00** | **2862.00** | **5079.00** | **10839.00** | **14990.00** | **20397.00** |
| | Non–fusible disconnect switch | 1 | Y792 | **1340.00** | **1340.00** | **1710.00** | **2165.00** | **2165.00** | **5355.00** | — | — |
| | | 4, 9★ | Y792 | **2172.00** | **2172.00** | **2646.00** | **4388.00** | **5327.00** | **7691.00** | — | — |
| | | 12 | Y792 | **1368.00** | **1368.00** | **1823.00** | **2366.00** | **4815.00** | **5925.00** | — | — |
| | Fusible switch with 30 A fuse clips | 1 | Y793 | **1566.00** | **1566.00** | — | — | — | — | — | — |
| | | 4 | Y793 | **2421.00** | **2421.00** | — | — | — | — | — | — |
| | | 12 | Y793 | **1596.00** | **1596.00** | — | — | — | — | — | — |
| | Fusible switch with 60 A fuse clips | 1 | Y794 | — | **1566.00** | **1823.00** | — | — | — | — | — |
| | | 4 | Y794 | — | **2421.00** | **2885.00** | — | — | — | — | — |
| | | 12 | Y794 | — | **1596.00** | **1938.00** | — | — | — | — | — |
| | Fusible switch with 100 A fuse clips | 1 | Y795 | — | — | — | **1336.00** | — | — | — | — |
| | | 4 | Y795 | — | — | — | **4559.00** | — | — | — | — |
| | | 12 | Y795 | — | — | — | **2537.00** | — | — | — | — |
| | Fusible switch with 200 A fuse clips | 1 | Y796 | — | — | — | **2885.00** | **3596.00** | — | — | — |
| | | 4 | Y796 | — | — | — | **5129.00** | **5840.00** | — | — | — |
| | | 12 | Y796 | — | — | — | **3105.00** | **5327.00** | — | — | — |
| | Fusible switch with 400 A fuse clips | 1 | Y797 | — | — | — | — | — | **5868.00** | **11039.00** | — |
| | | 4 | Y797 | — | — | — | — | — | **8204.00** | **15354.00** | — |
| | | 12 | Y797 | — | — | — | — | — | **6438.00** | **12861.00** | — |
| | Automatic molded case switch with 600 A fuse clips | 1 | Y798 | — | — | — | — | — | — | **13802.00** | — |
| | | 4 | Y798 | — | — | — | — | — | — | **18075.00** | — |
| | | 12 | Y798 | — | — | — | — | — | — | **14871.00** | — |
| | Automatic molded case switch with 1200 A or less fuse clips | 1 | Y799 | — | — | — | — | — | — | **15425.00** | **15425.00** |
| | | 4 | Y799 | — | — | — | — | — | — | **19697.00** | **19697.00** |
| | | 12 | Y799 | — | — | — | — | — | — | **17562.00** | **17562.00** |
| | Automatic molded case switch | 1 | Y7910 | — | — | — | — | — | — | **12293.00** | **13004.00** |
| | | 4 | Y7910 | — | — | — | — | — | — | **16565.00** | **17276.00** |
| | | 12 | Y7910 | — | — | — | — | — | — | **13361.00** | **14072.00** |

♦ For non-reversing 2-speed starters with disconnect switch or circuit breaker, see pages 16-60–16-64.
★ NEMA 7 & 9 adders apply to 8810 non-reversing devices Sizes 0, 1 and 2 only.



© 2012 Schneider Electric
All Rights Reserved

## For Full Voltage Contactors & Starters

### Table 16.274: Full Voltage Controllers△

| Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, and 8810 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Factory Modifications | | Enclosure Type | Form | NEMA Size | | | | | | | |
| | | | | 0 | 1<br>1 PW<br>1 YD | 2<br>2 PW<br>2 YD | 3<br>3 PW<br>3 YD | 4<br>4 PW<br>4 YD | 5<br>5 PW<br>5 YD | 6<br>6 PW<br>6 YD | 7<br>7 PW<br>7 YD |
| Auxiliary Relays | Control relay (4 & 8 poles) | 1, 12 | R174 | $ 485.00 | $ 485.00 | $ 485.00 | $ 485.00 | $ 485.00 | $ 485.00 | $ 485.00 | $ 485.00 |
| | | 4, 4X■ | R174 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 |
| | | 7, 9 | R174 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | — | — |
| | | 1, 12 | R178 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 | 741.00 |
| | | 4, 4X■ | R178 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 |
| | | 7, 9 | R178 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | 1112.00 | — | — |
| | **Pneumatic Timing Relay – specify Class 9050 Type A or B** | | | | | | | | | | |
| | 0.1 seconds to 1.0 minute—On delay | 1 | K25 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 |
| | | 3R, 4, 4X■, 12 | K25 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 |
| | | 7, 9 | K25 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | — | — |
| | 0.1 seconds to 1.0 minute—Off delay | 1 | K26 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 |
| | | 3R, 4, 4X■, 12 | K26 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 |
| | | 7, 9 | K26 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | 1566.00 | — | — |
| | 1.0 to 3.0 minute—On delay | 1, 3R, 4, 12 | K37 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 |
| | | 4X■, 7, 9 | K37 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | — | — |
| | 1.0 to 3.0 minute—Off delay | 1, 3R, 4, 12 | K38 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 |
| | | 4X■, 7, 9 | K38 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | 1197.00 | — | — |
| | Solid State Timing Relay (specify timing range) and timer (120 V control required) | 1, 4, 4X, 7, 9, 12 | K1070 | 449.00 | 449.00 | 449.00 | 449.00 | 449.00 | 449.00 | 449.00 | 449.00 |
| | Motor driven timing relay▲♦ | 1, 4, 12 | K5 | 2507.00 | 2507.00 | 2507.00 | 2507.00 | 2507.00 | 2507.00 | 2507.00 | 2507.00 |
| | Phase failure and phase reversal relay with time delay option including under and over voltage protection. Addition of a protective relay with options of Phase Failure with Time Delay, Phase Reversal and Under/ Over Voltage Protection. (RM3TR1). Both motor voltage and control voltage (V8• voltage code) must be specified with device even if Form S is specified. Form replaces Forms Y444, Y445, Y447, Y448 and Y449. | 1, 3R, 4, 4X, 7/9, 12 | R44 | 1463.00 | 1463.00 | 1463.00 | 1463.00 | 1463.00 | 1463.00 | 1463.00 | 1463.00 |
| | For multispeed controllers:<br>Compelling relay (requires motor to be started in low speed) | 1, 4, 7, 9, 12 | R1 | 941.00 | 941.00 | 941.00 | 941.00 | 941.00 | 941.00 | 941.00 | 941.00 |
| | Accelerating relay (provides timed acceleration to selected speed): | | | | | | | | | | |
| | For Class 8810 | 1, 4, 7, 9, 12 | R2 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 |
| | For Class 8811 | 1, 4, 7, 9, 12 | R2 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 |
| | For Class 8812 | 1, 4, 7, 9, 12 | R2 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 |
| | Decelerating relay (imposes a timing delay during transfer from a higher to a lower speed): | | | | | | | | | | |
| | For Class 8810 | 1, 4, 7, 9, 12 | R3 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 | 2195.00 |
| | For Class 8811 | 1, 4, 7, 9, 12 | R3 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 | 4388.00 |
| | For Class 8812 | 1, 4, 7, 9, 12 | R3 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 | 6579.00 |
| | Antiplugging timers and relays | 1, 4, 7, 9, 12 | R10 | 3846.00 | 3846.00 | 3846.00 | 3846.00 | 3846.00 | 3846.00 | 3846.00 | 3846.00 |
| ★ Meters and Metering | Ammeter in cover (includes current transformer if required) | 1, 12 | G91 | 1994.00 | 1994.00 | 1994.00 | 1994.00 | 2820.00 | 2820.00 | 2820.00 | 2820.00 |
| | Ammeter and switch with two current transformers | 1, 12 | G92 | — | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 |
| | Ammeter and switch with three current transformers | 1, 12 | G93 | — | 5270.00 | 5270.00 | 5270.00 | 5270.00 | 5270.00 | 5270.00 | 5270.00 |
| | Voltmeter mounted | 1, 12 | G94 | — | 2820.00 | 2820.00 | 2820.00 | 2820.00 | 2820.00 | 2820.00 | 2820.00 |
| | Voltmeter and switch mounted | 1, 12 | G95 | — | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 | 4274.00 |
| | Elapsed time meter | 1, 12 | G97 | 827.00 | 827.00 | 827.00 | 827.00 | 827.00 | 827.00 | 827.00 | 827.00 |
| | Operation counter | 1, 12 | G99 | 1425.00 | 1425.00 | 1425.00 | 1425.00 | 1425.00 | 1425.00 | 1425.00 | 1425.00 |
| Auxiliary Contacts | Additional starter (contactor) auxiliary contacts (Specify number of additional N.O. or N.C. contacts required per contactor.) Each will be X_ _ (2 digits) i.e. X01 | Any | X▼ | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 | 158.00 |
| | Auxiliary contacts installed on disconnect switch or circuit breaker operating mechanism. | | | | | | | | | | |
| | SPDT | 1, 4, 4X, 12 | Y74 | 192.00 | 192.00 | 192.00 | 221.00 | 221.00 | 413.00 | 413.00 | 413.00 |
| | DPDT | 1, 4, 4X, 12 | Y75 | 386.00 | 386.00 | 386.00 | 441.00 | 441.00 | 570.00 | 570.00 | 570.00 |
| | (**Note:** Above contacts do not switch with automatic tripping of circuit breaker. If such operation is required, consult your nearest Schneider Electric Sales Office.) | | | | | | | | | | |
| Enclosures | Space heater with N.C. auxiliary contact | 1, 4, 4X, 12 | G51 | 386.00 | 386.00 | 684.00 | 1097.00 | 1767.00 | 2622.00 | 3987.00 | 3987.00 |
| | Function identification plate, with marking as specified | Any | G11 | 42.80 | 42.80 | 42.80 | 42.80 | 42.80 | 42.80 | 42.80 | 42.80 |
| | Drain and breather installed | 7 & 9□ | Y41 | 372.00 | 372.00 | 372.00 | 372.00 | 372.00 | 372.00 | 372.00 | — |
| | Cover gaskets added to NEMA 1 enclosures: | | | | | | | | | | |
| | For Classes 8538 and 8539 | 1 | Y47 | 143.00 | 143.00 | Std. | Std. | Std. | Std. | — | — |
| | For Classes 8738 and 8739 | 1 | Y47 | Std. | Std. | Std. | Std. | Std. | Std. | — | — |
| | For other full voltage controllers | 1 | Y47 | 143.00 | 143.00 | 215.00 | 320.00 | 534.00 | 1070.00 | 1710.00 | 1710.00 |
| | For reduced voltage controllers | 1 | Y47 | 143.00 | 143.00 | 215.00 | 320.00 | 534.00 | 1070.00 | 1710.00 | 1710.00 |
| | Brushed stainless steel watertight device (add to catalog price of sheet steel watertight device): | | | | | | | | | | |
| | Class 8606 | — | Y56 | — | — | 1710.00 | 2138.00 | 3419.00 | 4773.00 | 8546.00 | 8546.00 |
| | Classes 8630 and 8640 | — | Y56 | — | Std. | Std. | Std. | Std. | 4773.00 | 8546.00 | 8546.00 |

▲ If controller has a control transformer, price that transformer with additional capacity for the relay provided.
■ This adder, used with a NEMA 4X enclosure, applies only to Classes 8538, 8539, 8738, 8739 and 8810 non-reversing.
♦ Specify control and line voltage.
★ Motor hp and voltage required when placing order. Meters will be panel mounted in NEMA 12 enclosures.
▼ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form", refer to the tables in the Class 8536 section on page 16-15 (for non-reversing single-speed devices) or the Class 8736 section on page 16-45 (for reversing or two-speed devices). For Class 8600 Reduced Voltage controllers, consult Schneider Electric CCC at (1-888-778-2733).
△ NEMA Type 7 & 9 enclosures not available with Class 8600 devices.
□ Available only on SPIN TOP™ and cast aluminum NEMA 7/9 enclosures.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.275: Replacement AC Magnet Coils for Magnetic Contactors and Starters**
**(Refer to Table 16.277 on page 16-106 for listing of mechanically held unlatch coils.)**

| Equipment To Be Serviced | | | | Coil Prefix or Class and Type | Hz | Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number.) | | | | | | | | | | | | Coil VA | | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device | Size | Type | Poles | | | 24 V | 110-115 V | 120 V | 208 V | 220 V | 240 V | 277 V | 380 V | 440 V | 480 V | 550 V | 600 V | In-rush | Sealed | |
| Coils for Present Design Magnetic Contactors and Starters Classes 8502, 8536, 8538, 8539, 8606, 8630, 8640, 8647, 8650, 8651, 8702, 8736, 8738, 8739, 8810, 8811, 8812, 8903, 8910♦ and 8940 (except NP) | 30 A | L | 2–6 | 9998L | 60<br>50 | 23<br>24 | —<br>44 | 44<br>45 | 50<br>52 | ▲<br>53 | 53<br>54 | 55<br>— | —<br>60 | —<br>62 | 62<br>63 | —<br>65 | 65<br>66 | 150<br>140 | 30<br>30 | **85.00** |
| | | | 8–12 | 9998LH | 60<br>50 | 23<br>24 | —<br>44 | 44<br>45 | 50<br>— | ▲<br>53 | 53<br>54 | 55<br>— | —<br>60 | —<br>62 | 62<br>— | —<br>65 | 65<br>— | 180<br>170 | 35<br>35 | **85.00** |
| | | LX (Latch) | 2–4 | 9998L | 60<br>50 | 23<br>24 | —<br>44 | 44<br>45 | 50<br>52 | —<br>53 | 53<br>54 | 55<br>— | —<br>60 | —<br>62 | 62<br>63 | —<br>65 | 65<br>66 | 150<br>140 | —<br>— | **85.00** |
| | | | 6–12 | 9998LH | 60<br>50 | 23<br>24 | —<br>44 | 44<br>45 | 50<br>— | —<br>53 | 53<br>54 | 55<br>— | —<br>60 | —<br>62 | 62<br>— | —<br>65 | 65<br>— | 180<br>170 | —<br>— | **85.00** |
| | 00 | SA■ (Series B) | All | 9998SAC | 60<br>50 | 23<br>— | ▲<br>45 | 45<br>— | 52<br>— | ▲<br>54 | 54<br>— | 55<br>— | 59<br>— | ▲<br>62 | 62<br>— | ▲<br>65 | 65<br>— | 165<br>— | 33<br>— | **85.00** |
| | 00<br>0, 1,<br>1–P & 30 A | SA (Series A)<br>SB, SC & SM | All | 31041-400 | 60<br>50 | 20<br>22 | ▲<br>42 | 42<br>43 | 48<br>— | ▲<br>51 | 51<br>53 | 52<br>— | 56<br>57 | 58<br>60 | 60<br>▲ | 61<br>62 | 62<br>64 | 245<br>232 | 27<br>26 | **98.00** |
| | 2 & 60 A | SD & SP | 2 & 3 | 31063-409 | 60<br>50 | 16<br>17 | ▲<br>38 | 38<br>39 | 44<br>— | ▲<br>47 | 47<br>48 | 49<br>— | 53<br>54 | ▲<br>57 | 57<br>— | ▲<br>60 | 60<br>61 | 311<br>296 | 37<br>36 | **128.00** |
| | | | 4 & 5 | 31063-400 | 60<br>50 | 16<br>17 | ▲<br>38 | 38<br>39 | 44<br>— | ▲<br>47 | 47<br>48 | 49<br>— | 53<br>54 | ▲<br>57 | 57<br>— | ▲<br>60 | 60<br>61 | 438<br>429 | 38<br>37 | **128.00** |
| | 3 & 100 A | DPA12_,<br>SE, SQ & SYD138 | 2 & 3 | 31074-400 | 60<br>50 | 16<br>17 | ▲<br>38 | 38<br>39 | 44<br>— | ▲<br>47 | 47<br>48 | 49<br>— | 53<br>54 | ▲<br>57 | 57<br>— | ▲<br>60 | 60<br>61 | 700<br>678 | 46<br>47 | **254.00** |
| | | | 4 & 5 | 31091-400 | 60<br>50 | —<br>— | ▲<br>38 | 38<br>39 | 44<br>— | ▲<br>47 | 47<br>48 | 49<br>— | 53<br>54 | ▲<br>57 | 57<br>58 | ▲<br>60 | 60<br>61 | 1185<br>1260 | 85<br>89 | **254.00** |
| | 4 & 200 A | SF, SV &<br>SYD230 | All | 31091-400 | 60<br>50 | —<br>— | ▲<br>38 | 38<br>39 | 44<br>— | ▲<br>47 | 47<br>48 | 49<br>— | 53<br>54 | ▲<br>57 | 57<br>58 | ▲<br>60 | 60<br>61 | 1185<br>1260 | 85<br>89 | **254.00** |
| | 5 & 300 A | SG, SX &<br>SYD368 Series A | All | 31096-400 | 60<br>50 | —<br>— | ▲<br>09 | 09<br>10 | 15<br>— | ▲<br>18 | 18<br>— | 19<br>— | 21<br>22 | ▲<br>24 | 24<br>— | ▲<br>29 | 29<br>30 | 2970<br>2970 | 212<br>250 | **354.00** |
| | | SG, SX &<br>SYD368 Series B | All | 31096-320 | 60<br>50 | —<br>— | 50<br>50 | 50<br>50 | 51<br>— | 52<br>52 | 52<br>52 | 53<br>— | 54<br>54 | 55<br>55 | 55<br>55 | —<br>— | —<br>— | 1300<br>— | 14<br>— | **600.00** |
| | 6 & 7 | SH & SJ | 2–3 | Coil Part Number 3110440050 (All System Voltages) | | | | | | | | | | | | | | 1780 | 48 | **860.00** |
| | 400, 600 & 800 A | SY, SZ, SJ (Elect. Held) | | | | | | | | | | | | | | | | 1960 | 59 | |
| | | SY, SZ, SJ (Mech. Held) | 2–3 | 31104-418 | 60<br>50 | —<br>— | ▲<br>09 | 09<br>— | 15<br>— | ▲<br>18 | 18<br>— | 19<br>— | —<br>— | ▲<br>24 | 24<br>— | ▲<br>29 | 29<br>— | 1530<br>1250 | —<br>— | **860.00** |

▲ Use next higher voltage, 60 Hz coil.
■ Use on Type S Series B devices only.
♦ For 8910DPA1x to DPA9x, see page 16-71.

## NEMA S Size 5 E-Coil Modification Kit

Classes 8502, 8536, 8538, 8539, 8606, 8630, 8640, 8647, 8650, 8651, 8702, 8736, 8738, 8739, 8810, 8811, 8812, 8910 and 8903

Consisting of:

- E-Coil
- Armature
- 15 A, 600 V Fuse and Holder (Class 9999SFR)
- Bottom Magnet
- Instruction Material

**Table 16.276:**

| Catalog Number | Description | $ Price |
|---|---|---|
| 9998SG120 | Coil Modification Kit 120 V | **1506.00** |
| 9998SG480 | Coil Modification Kit 480 V | **1506.00** |
| 9998SG277 | Coil Modification Kit 277 V | **1506.00** |
| 9998SG208 | Coil Modification Kit 208 V | **1506.00** |
| 9998SG240 | Coil Modification Kit 240 V | **1506.00** |
| 9998SG380 | Coil Modification Kit 380 V | **1506.00** |



© 2012 Schneider Electric
All Rights Reserved

## Table 16.277: Replacement AC Magnet Coils for Relays, Timers and Contactors

| Equipment To Be Serviced | | | Coil Prefix or Class and Type | Hz | Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number) | | | | | | | | | | | | Coil VA | | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device | Type | Poles | | | 24 V | 110–115 V | 120 V | 208 V | 220 V | 240 V | 277 V | 380 V | 440 V | 480 V | 550 V | 600 V | In-rush | Sealed | |
| **Classes 8501 and 9050** | | | | | | | | | | | | | | | | | | | |
| 8501 (Relays) | X | All | 9998-X▲ | 60<br>50 | 23<br>24 | —<br>44 | 44<br>— | 51<br>52 | 52<br>53 | 53<br>— | 55<br>— | —<br>— | —<br>62 | 62<br>— | —<br>65 | 65<br>— | 148<br>143 | 23<br>25 | **69.00** |
| 9050 (Timer) | A | All | 2959-S49- | 60<br>50 | W25A<br>W25B | W31B<br>W32A | W32A<br>W32B | W34A<br>W34B | W34B<br>W35A | W35A<br>W35B | W35B<br>W36A | —<br>— | W37B<br>W38A | W38A<br>W38B | W38B<br>W39A | W39A<br>W39B | 74<br>68 | 17<br>17 | **132.00** |
| | B■ | All | 31017-400- | 60<br>50 | 33<br>34 | —<br>— | 54<br>55 | 61<br>— | 61<br>63 | 63<br>64 | 65<br>— | —<br>— | 70<br>72 | 72<br>73 | 73<br>75 | 75<br>76 | 165<br>155 | 27<br>27 | **98.00** |
| **Mechanically Held *Unlatch* Coils—Classes 8508 and 8903**<br>Note: A *latch* coil is also used with mechanically held devices. For selection of latch coils for mechanically held relays, refer to page 16-105. | | | | | | | | | | | | | | | | | | | |
| 8903 (Lighting Contactors) | LX | All | 9998LX | 60<br>50 | 23<br>— | —<br>44 | 44<br>— | 51<br>— | —<br>53 | 53<br>— | 55<br>— | —<br>— | —<br>62 | 62<br>— | —<br>65 | 65<br>— | 25<br>— | —<br>— | **118.00** |
| | SM, SP | All | 2959-S13 | 60<br>50 | W23B<br>W24B | ♦<br>W30B | W30B<br>W31B | W33A<br>— | ♦<br>W33B | W33B<br>W34B | W34A<br>— | —<br>W36A | ♦<br>W36B | W36B<br>— | ♦<br>W37B | W37B<br>— | 80<br>— | —<br>— | **202.00** |
| | SQ, SV, SX, SY, SZ | All | 31096-416 | 60<br>50 | 03<br>— | ♦<br>09 | 09<br>— | 15<br>— | ♦<br>18 | 18<br>— | 20<br>— | —<br>22 | ♦<br>24 | 24<br>— | ♦<br>28 | 28<br>— | 550<br>— | —<br>— | **202.00** |
| | SJ | All | 31123-403 | 60<br>50 | 03<br>— | ♦<br>09 | 09<br>— | 15<br>— | ♦<br>18 | 18<br>— | 20<br>— | —<br>22 | ♦<br>24 | 24<br>— | ♦<br>28 | 28<br>— | 2100<br>— | —<br>— | **202.00** |

## Table 16.278: Replacement DC Magnet Coils for Magnetic Relays and Timers

| Equipment To Be Serviced | | | Coil Prefix or Class and Type | Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number.) | | | | | | | | | | | | | Coil Burden Watts | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Type | Poles | | 6 V | 12 V | 18 V | 24 V | 32 V | 48 V | 64 V | 72 V | 90 V | 110 V | 115/ 125 V | 220 V | 230/ 250 V | | |
| 8501 (Relays) | XD | All | 9998 XD | 19 | 28 | 34 | 37 | 40 | 46 | 49 | 52 | 55 | — | 58 | — | 67 | 18 | **168.00** |
| | XDL | — | 9998 XDL | 19 | 28 | 34B | 37B | 40B | 46B | 49B | 52B | 55B | — | 58B | — | 67B | 50 | **216.00** |
| | XUD | All | 9998 XUD | 19 | 28 | — | 37 | — | 46 | — | — | — | — | 58★ | — | 67★ | 16 | **168.00** |
| 9050 (Timers) | C | | 31018-400- | 22 | 31 | — | 40 | — | 49 | — | — | — | — | 61 | — | 70 | 14 | **312.00** |
| | H | | 4491S1 | W21 | W24 | — | W27 | — | W30 | — | — | — | — | W34 | — | W37 | 14 | **210.00** |

## Table 16.279: Replacement Coil for 8903 Panel Board Lighting Contactors

| Class | Type | Replacement Solenoid | Catalog Number | $ Price ▼ |
|---|---|---|---|---|
| 8903 | PB | 120 V | 9998PBV02 | **428.00** |
| | | 208 V | 9998PBV08 | **428.00** |
| | | 240/277 V | 9998PBV39 | **428.00** |
| | | 480 V | 9998PBV28 | **428.00** |

▲ To order an unlatch coil add the letter "L" to the type number and the letter "B" to the suffix number.
Example: For a 120 V 60 Hz unlatch coil order a Class 9998 Type X**L**44**B**.
Price for the 9998 Type XL coil series is **$114.00**.

■ Series C (Double Pole) and Series E (Single Pole).

♦ Use next higher voltage, 60 Hz coil.

★ Not dual rated. 125 Vdc or 250 Vdc only.

▼ CP1 discount schedule.





© 2012 Schneider Electric
All Rights Reserved

Class 9998 replacement parts kits are available for servicing Square D relays, contactors, and starters as well as pressure, vacuum, and float switches. Each kit contains the necessary movable and stationary contacts, contact springs (when required—NEMA Size 3 and above do not include contact springs, and springs are not available), and additional hardware required to service the devices listed below. When servicing devices having more poles than contained in the corresponding kit, it may be necessary to order an additional kit.



### Table 16.280: Magnetic Contactor and Starter Contact Kits for Present Designs

| Equipment To Be Serviced | | | No. of Poles in Kit | Class 9998 Parts Kit Type No. | $ Price |
|---|---|---|---|---|---|
| Class | Type | NEMA Size or Ampere Rating | | | |
| 8502<br>8536<br>8538<br>8539<br>8547<br>8549<br>8606<br>8630<br>8640<br>8647<br>8702<br>8736<br>8738<br>8739<br>8810<br>8811<br>8812<br>8940 | SA-, (Series B) | 00 | 3 | SJ1 | **90.00** |
| | SB- | 0 | 3<br>4 | SL2<br>SL12 | **130.00**<br>**176.00** |
| | SB-, SC-(Power Pole Adder) | 0 & 1 | 1 | SL22 | **63.00** |
| | SC- | 1 & 1P<br>1 | 3<br>4 | SL3<br>SL13 | **188.00**<br>**246.00** |
| | SD- | 2 | 3<br>4 | SL4<br>SL14 | **370.00**<br>**494.00** |
| | SD-(Power Pole Adder) | 2 | 1 | SL24 | **124.00** |
| | SE- | 3 | 2<br>3 | SL6<br>SL7 | **442.00**<br>**662.00** |
| | SF- | 4 | 2<br>3 | SL8<br>SL9 | **848.00**<br>**1270.00** |
| | SG- | 5 | 2<br>3 | SL10<br>SL11 | **2104.00**<br>**3120.00** |
| | SH- | 6 | 2<br>3 | SL25<br>SL26 | **3762.00**<br>**5606.00** |
| | SJ- | 7 | 2<br>3 | SL30<br>SL31 | **5454.00**<br>**8162.00** |
| 8903 | L (Series C) &<br>LX (Series B) | 30 A | 4 | RA5B | **174.00** |
| | SM- | 30 A | 3<br>4 | SL3<br>SL13 | **188.00**<br>**246.00** |
| | SP- | 60 A | 3<br>4 | SL4<br>SL14 | **370.00**<br>**494.00** |
| | SQ- | 100 A | 2<br>3 | SL6<br>SL7 | **442.00**<br>**662.00** |
| | SV- | 200 A | 2<br>3 | SL8<br>SL9 | **848.00**<br>**1270.00** |
| | SX- | 300 A | 2<br>3 | SL10<br>SL11 | **2104.00**<br>**3120.00** |
| | SY- | 400 A | 2<br>3 | SL25<br>SL26 | **3762.00**<br>**5606.00** |
| | SZ- | 600 A | 2<br>3 | SL32<br>SL33 | **3762.00**<br>**5606.00** |
| | SJ- | 800 A | 2<br>3 | SL30<br>SL31 | **5454.00**<br>**8162.00** |
| | PBM, PBP | 30, 60 A | 2 | PB2 | **520.00** |
| | PBN, PBQ | 75, 100 A | | | |
| | PBM, PBP | 30, 60 A | 3 | PB3 | **780.00** |
| | PBN, PBQ | 75, 100 A | | | |
| | PBR, PBV, PBW | 150, 200, 225 A | 2 | PB14 | **850.00** |
| | PBR, PBV, PBW | 150, 200, 225 A | 3 | PB15 | **1276.00** |

### Table 16.281: Magnetic Contactor and Starter Contact Kits for Obsolete Designs

| Equipment To Be Serviced | | | No. of Poles in Kit | Class 9998 Parts Kit Type No. | $ Price |
|---|---|---|---|---|---|
| Class | Type | NEMA Size | | | |
| 8502 &<br>8536▲ | SA-, (Series A) | 00 | 3<br>4 | SL2<br>SL12 | **130.00**<br>**176.00** |
| 8903 | LL, L (Series A, B) &<br>LX (Series A) | 20 A | 4 | RA5 | **174.00** |

▲ Includes reversing, two speed and similar devices. Select coil based on NEMA size of basic starter or contactor.

### Table 16.282: Class 8965 Replacement Contact Kits

| Device Type | Device Series | Class 9998 Kit Type | Device Series | Class 9998 Kit Type | $ Price |
|---|---|---|---|---|---|
| DPR53<br>DPR63 | A<br>A | DRC5■<br>DRC6■ | — | — | **52.00**<br>**59.00** |
| RO10 | A & B | RA10 | C | RA14 | **202.00** |
| RO11 | A & B | RA11 | C | RA15 | **202.00** |
| RO12 | A & B | RA12 | C | RA16 | **236.00** |
| RO13 | A & B | RA13 | C | RA17 | **236.00** |

■ Single pole kits.

### Table 16.283: Manual Starter Contact Kits

| Equipment To Be Serviced | | | No. of Poles in Kit | Class 9998 Parts Kit Type No. | $ Price |
|---|---|---|---|---|---|
| Class | Type | NEMA Size | | | |
| 2510 Manual Starters | M-, T- | M-0 | 3 | ML1 | **90.00** |
| | | M-1 & M-1P | 3 | ML2 | **106.00** |

### Table 16.284: Replacement Control Transformers (150 VA) Class 8502, 8536 Type S Size 6

| Voltage | | Part Number | $ Price |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 240/480–120 | 220/440–110 | 3110451250 | |
| 208–120 | — | 3110451252 | |
| 277–120 | — | 3110451253 | |
| — | 380–110 | 3110451254 | **188.00** |
| 600–120 | 550–110 | 3110451251 | |
| 120–120 | 110–110 | 3110451255 | |
| 240–120 | 220–110 | 3110451256 | |

### Table 16.285: Replacement Control Transformers (200 VA) Class 8502, 8536 Type S Size 7

| Voltage | | Part Number | $ Price |
|---|---|---|---|
| 60 Hz | 50 Hz | | |
| 240/480–120 | 220/440–110 | 3112350150 | |
| 208–120 | — | 3112350152 | |
| 277–120 | — | 3112350153 | |
| — | 380–110 | 3112350154 | **236.00** |
| 600–120 | 550–110 | 3112350151 | |
| 120–120 | 110–110 | 3112350155 | |
| 240–120 | 220–110 | 3112350156 | |

### Table 16.286: Class 8910, 8911 & 8965 Replacement Contact Kits

| Device To Be Serviced | | | Class 9998 | | $ Price |
|---|---|---|---|---|---|
| Class 8910 Type | Class 8911 Type | Series | 1-Pole Type | 3-Pole Type | |
| SYD138<br>SYD230<br>SYD368 | —<br>—<br>— | —<br>—<br>— | —<br>—<br>— | SL27<br>SL28<br>SL29 | **662.00**<br>**1270.00**<br>**3120.00** |
| DPA_50A<br>DPA_60A<br>DPA_75A<br>DPA_90A | DPSO5_<br>—<br>—<br>— | A, B<br>A, B<br>A<br>A | DRC5<br>DRC6<br>DRC7<br>DRC9 | —<br>—<br>—<br>— | **52.00**<br>**59.00**<br>**100.00**<br>**132.00** |

### Table 16.287: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9998 | SL6 |



© 2012 Schneider Electric
All Rights Reserved



Class 9998 Type SO1

## Contact Units for Melting Alloy Type Overload Relays

One normally closed contact, Class 9998 Type SO1, is provided in each overload relay block on Type S starters Sizes 00-6. The Class 9998 Type SO1 contact unit listed below is provided as standard in each Class 9065 melting alloy overload relay. Contact modules can be easily replaced and are identified in the table below. Isolated overload relay alarm circuit contacts are available as an optional feature. A pilot light or alarm bell can be wired in series with this contact to indicate that the overload relay has tripped. For further information on isolated alarm contacts refer to Class 9999 Types SO4 and SO5 (page 16-113).

**Table 16.288:**

| Magnetic Starter | | | Description ▲ | Parts Kit Number | $ Price |
|---|---|---|---|---|---|
| NEMA Size | Type | Series | | | |
| 00–4 & 6 | SA–SF SH | A & B | Standard N.C. contact unit | Class 9998 Type SO1 ■ | **39.40** |
| 5 | SG | A | Standard N.C. contact unit | 3110251450 | **134.00** |
| | | | N.C. and N.O. alarm (three point) contact unit | 3110251451 | **196.00** |

▲ Refer to page 16-110 for contact ratings.
■ The Type SO1 is also the replacement contact unit for Class 9065 Type M melting alloy overload relays.



Overload Contact Unit
Part No. 31102-514-50.
Used on Size 5 Starter
(8536SGO) with Melting
Alloy Overload Relay.

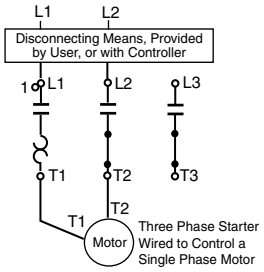
## Class 9998 Type UB Universal Baseplate

A universal baseplate may be used to retrofit a Square D Type S NEMA starter into an application which is currently using a competitive NEMA starter. The universal baseplate is a metal plate which attaches to the panel in the location of the starter to be replaced. The Type S starter then mounts to the baseplate. It is available for NEMA Sizes 00 through 4, and mounting screws are provided with each plate.

The universal baseplate adapter allows the Type S starter to replace the following competitive starters:

**Table 16.289:**

| Competitor Starter | NEMA Size | Baseplate | NEMA Size | Baseplate | NEMA Size | Baseplate | NEMA Size | Baseplate | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| Allen Bradley 509 | 0, 1 | UB01 | 2 | UB02 | 3 | UB03 | 4 | UB04 | No charge |
| Allen Bradley 709 | 1 | | 2 | | 3 | | 4 | | |
| Cutler Hammer Freedom Series | 00, 0, 1 | | 2 | | 3 | | 4 | | |
| Furnas ESP100 | 0, 1 | | 2 | | 3 | | 4 | | |
| Furnas INNOVA | 0, 1 | | 2 | | 3 | | 4 | | |
| General Electric CR306 | 00, 0, 1 | | 2 | | 3 | | 4 | | |
| Telemecanique "A" Line and Pre-type "S" | 0, 1 | UB11 | 2 | UB12 | 3 | UB13 | 4 | UB14 | |




Melting Alloy Overload Relay
Jumper Strap Kits

## Melting Alloy Overload Relay Jumper Strap Kits

Jumper strap kits are for use on three-phase manual or magnetic starters with melting alloy overload relays only, where a three-phase starter is used to control a single-phase motor. These kits will include two jumper straps, a wiring diagram showing how to wire a three-phase starter to control a single-phase motor, and single-phase (one thermal unit) selection tables.

**Table 16.290: Melting Alloy Overload Relay Jumper Strap Kits**

| Class | For Starter | | Class 9998 Kit Type | $ Price ♦ |
|---|---|---|---|---|
| | Size | Type | | |
| ALL | 00, 0, 1, 2 and M0 & M1 | SA, SB, SC, SD and M & T (Manual) | SO31 | **14.30** |
| | 3,4 | SE, SF | SO32 | **50.00** |
| | 5 | SG | None Available | |

♦ CP1 discount schedule.

## How to Order

**Table 16.291: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number<br>• Type Number | Class | Type |
| | 9998 | UB01 |





© 2012 Schneider Electric
All Rights Reserved

## Cover-Mounted Control Units

Class 9999 push button, selector switch and pilot light cover-mounted control unit kits can be easily field installed in a NEMA 1, 3R, 4 or 12 Type S contactor or starter enclosure cover. Knockouts or removable closing plates are furnished with many enclosure covers for convenient field installation of control units. Kits are supplied with leads and clearly illustrated instructions. The Class 9999 cover mounted control unit kits are identical to the units which are factory installed.

**Table 16.292:**

| For Use With | | | | | NEMA 1 Kit 8538, 8539 and 8903 Pre-Series K Description | | | | | | | | | NEMAs 1, 3R & 12 Kit 8538, 8539 and 8903 Series K and Later Description★ | | | | NEMA 4/4X Kit (Stainless) Description★ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Class | Type | NEMA Size or Ampere Rating | No. of Poles | Voltage | Red or Green Pilot Light■ | | | | Push Button | | Selector Switch | | $ Price | Red or Green Pilot Light | Push Button | Selector Switch | $ Price | Red or Green Pilot Light | Push Button | Selector Switch | $ Price |
| | | | | | With Control Transformer (Form F4T) | | Standard | | Start-Stop | On-Off | Hand-Off-Auto | On-Off | | 120 V 60 Hz | Start-Stop or On-Off | Hand-Off-Auto | | 120 V 60 Hz | Start-Stop or On-Off | Hand-Off-Auto | |
| | | | | | Type | Price | Type | Price | Type | Type | Type | Type | | Type | Type | Type | | Type | Type | Type | |
| 8502 & 8536 | SA, SB & SC | 00, 0, 1 & 1P | All | 6–600 Volts 50–60 Hz | SP28R♦ | 215. | SP2R | 215. | SA2 | SA10 | SC2 | SC22 | 116. | SP28R♦■ (incandescent) SPL28R (LED–Red) SPL28G (LED–Green) | SA3▲ | SC8 | 215. | SP29R♦■ (incandescent) SPL29R (LED–Red) SPL29G (LED–Green) | SA13 | SC9 | 215. |
| | SD | 2 | All | | SP28R♦ | 215. | SP3R | 215. | | | | | | | | | | | | | |
| | SE | 3 | 2–3 | | SP28R♦ | 215. | SP4R | 215. | | | | | | | | | | | | | |
| | | | 4–5 | | SP28R♦ | 215. | SP5R | 215. | | | | | | | | | | | | | |
| | SF | 4 | All | | SP28R♦ | 215. | SP28R♦ | 215. | SA3 | SA3 | SC8 | — | 215. | | | | | | | | |
| | SG–SJ | 5–7 | All | | SP28R♦ | 215. | SP28R♦ | 215. | | | | | | | | | | | | | |
| 8538 8539 8702 8736 | SB & SC | 0 & 1 | All | | SP12R | 215. | SP12R | 215. | SA2 | SA10 | SC2 | SC22 | 116. | | | | | | | | |
| | SD | 2 | All | | SP13R | 215. | SP13R | 215. | | | | | | | | | | | | | |
| | SE | 3 | All | | SP14R | 215. | SP14R | 215. | | | | | | | | | | | | | |
| | SF | 4 | All | | SP15R | 215. | SP15R | 215. | | | | | | | | | | | | | |
| | SG–SJ | 5–7 | All | | SP28R♦ | 215. | SP28R♦ | 215. | SA3 | SA3 | SC8 | — | 215. | | | | | | | | |
| △ 8903 (Electrically Held) | L | 20 A | All | | SP28R♦ | 215. | — | — | — | SA10▼ | — | SC22 ▼ | 116. | | | | | | | | |
| | SM | 30 A | All | | SP28R♦ | 215. | SP2R | 215. | SA2▲ | SA10▲ | SC2 | SC22 | 116. | | | | | | | | |
| | SP | 60 A | All | | SP28R♦ | 215. | SP3R | 215. | | | | | | | | | | | | | |
| | SQ | 100 A | All | | SP28R♦ | 215. | SP28R♦ | 215. | SA3▲ | SA3▲ | SC8 | — | 215. | | | | | | | | |
| | SJ, SV, SX SY, SZ | 200–800 A | All | | SP28R♦ | 215. | SP28R♦ | 215. | SA3▲ | SA3▲ | SC8 | — | 215. | | | | | | | | |

▲ Also requires N.O. auxiliary contact for holding circuit contact when used on Class 8903 electrically held lighting contactors.
■ Each pilot light kit contains 1 red and 1green lens cap.
♦ The coil voltage must be the same as the pilot light rating. Kit contains one Class 9001 Type KP1R31120V, 60 Hz red pilot light control unit. For other voltages, refer to Class 9001 Type KP.
★ User made openings are required in order to field install these modification kits on standard 8502, 8536 Type S Sizes 0–2, and 8903 Sizes 30–60 A NEMAs 4 and 12 enclosures.
▼ To mount control unit in a NEMA 1 enclosure, a Class 9999 Type BLX bracket is also required, **$35.60**.
△ For Class 8903 (mechanically held contactor) control unit kits, refer to the Class 8903 section, page 16-65.
Note: There are no field modification kits available for the polyester enclosures.

**Table 16.293: NEMA 1 Enclosure Closing Plates**

| For Use With | | | Description | Type | $ Price |
|---|---|---|---|---|---|
| Class | Type | NEMA Size or Ampere Rating | | | |
| 8502, 8536, 8903 | SA–SE or SM–SP | 00–3 or 30–60A | For Pilot Light or Reset—Slip-on Cover NEMA 1 Enclosure | SG2 | **29.00** |
| | | | For Push Button or Selector Switch—Slip-on Cover NEMA 1 Enclosure | SG3 | **29.00** |
| 8538 & 8539 Pre-series "K" | SB–SF | 0–4 | For Push Button or Selector Switch—Hinged Cover NEMA 1 Enclosure | SG1 | **29.00** |
| | | | For Pilot Light—Hinged Cover NEMA 1 Enclosure | SG2 | **14.30** |
| 8538 & 8539 Series J and later | SB–SF | 0–4 | Pushbutton or Pilog Light NEMA Combination Starter | 9001K51 | **14.30** |
| 8903 | SM–SV | 30–400 A | Combination Lighting Contactor | 9001K51 | **14.30** |

**Table 16.294: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number<br>• Type Number | Class | Type |
| | 9999 | SP29R |


Class 9999 Type SP2R
Pilot Light Kit


Class 9999 Type SA2
Push Button Kit


Class 9999 Type SC2
Selector Switch Kit


Class 9999 Type SA3
Push Button Kit



© 2012 Schneider Electric
All Rights Reserved

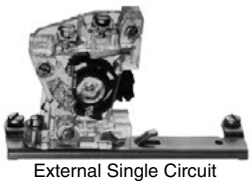
# Auxiliary Contacts for Manual and Magnetic Contactors and Starters

## Internal Contacts


Internal Auxiliary Contact

Class 9999 Type SX11 internal contact kit is a replacement unit for the N.O. holding circuit contact supplied as standard on Type S Sizes 00–2 three phase starters and contactors. The Class 9999 Type SX12 is a replacement unit for the N.C. electrical contact which is furnished as standard on Type S, Sizes 00–2 mechanically interlocked devices (e.g., Class 8736 reversing starters). Internal contacts are also used on Class 2510 Types M & T manual starters. The internal contacts can be used for other applications as long as the electrical rating is not exceeded. See table below for electrical ratings.

## External Contacts


External Single Circuit Auxiliary Contact

Class 9999 Type SX6 external auxiliary contact is supplied as standard for the N.O. holding circuit contact on Type S Sizes 3–7 starters and contactors. Additional auxiliary contacts can be added to Type S contactors, starters and lighting contactors. These contacts mount on either side of the basic contactor and are available with convertible or non-convertible contacts. The contacts of the convertible version can be changed from N.O. to N.C. or vice versa in the field. The non-convertible version has fixed contacts, either N.O. or N.C.

To determine the number of auxiliary contacts which can be added to each Type S contactor or starter, refer to the Class 8536 or Class 8736 section.

See table below for electrical ratings.

**Table 16.295: Maximum Ratings for Type S Auxiliary Contacts and Timers**

| Class 9999 Type | Contact Ratings | | | | Class 9999 Type | Contact Ratings | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Volts AC | AC Only (35% Power Factor) | | Continuous | | Volts AC | AC Only (35% Power Factor) | | Continuous |
| | | Make | Break | | | | Make | Break | |
| SX11, SX12 | 120 or Less | 30 A | 3 A | 3 A | SX6-SX10 SX13-SX17 | 120 or Less | 60 A | 6 A | 10 A |
| | 120-600 | 3600 VA | 360 VA | 3 A | | 120–600 | 7200 VA | 720 VA | 10 A |

**Table 16.296: Class 8502, 8536 and 8903 Type S**

| For Use With | | Kit Description | Ordering Information | |
|---|---|---|---|---|
| | | | Class 9999 | |
| Type | NEMA Size | | Type | $ Price |
| **External—Field Convertible** | | | | |
| SA-SJ | 00–7 | 1-N.O. Contact | SX6 | **86.00** |
| | | 1-N.C. Contact | SX7 | **86.00** |
| | | 1-N.O. and 1-N.C. Isolated Contacts | SX8 | **116.00** |
| | | 1-N.O. Overlapping Contact | SX9▲ | **116.00** |
| | | 1-N.C. Overlapping Contact | SX10▲ | **116.00** |
| **External—Non-Convertible** | | | | |
| SA-SJ | 00–7 | 1-N.O. Contact | SX13 | **99.00** |
| | | 1-N.C. Contact | SX14 | **99.00** |
| | | 1-N.O. & 1 N.C. Isolated Contacts | SX15 | **134.00** |
| | | 1-N.O. Overlapping Contact | SX16▲ | **134.00** |
| | | 1-N.C. Overlapping Contact | SX17▲ | **134.00** |
| **Internal—Non-Convertible** | | | | |
| SA-SD | 00–2 | 1-N.O. Contact | SX11■ | **99.00** |
| | | 1-N.C. Contact | SX12■ | **99.00** |

▲ Types SX9 and SX10 or Types SX16 and SX17 must be used together and mounted on the same side of the contactor. They are suitable for applications where it is necessary for a normally open contact to overlap a normally closed contact.

■ Types SX11 and SX12 are not applicable for use on NEMA Sizes 3 or larger. Internal contacts can also be used on Class 2510 Types M and T manual starters.

**Table 16.297: Class 8910 and 8911 Definite Purpose Contactors and Starters – Auxiliary Contacts**

| Device To Be Serviced | Auxiliary Contact Kit | | | |
|---|---|---|---|---|
| Class 8910 or 8911 Type | Contact Arrangement | Class 9999 | | $ Price Each |
| | | Series B (20-90 A) | Series C (20-40 A) | |
| DPA DPS | 1 N.O. | D10 | DD10 | **24.60** |
| | 1 N.C. | D01 | DD01 | |
| | 1 N.O./1 N.C. | D11 | DD11 | **44.30** |
| | 2 N.O. | D20 | DD20 | |

**Table 16.298: Class 8965 Reversing/Hoist Contactors –Auxiliary Contacts**

| Device To Be Serviced | Auxiliary Contact Kit | | | |
|---|---|---|---|---|
| Class 8965 Type | Contact Arrangement | Type of Connector | Class 9999 Type | $ Price Each |
| DPR | 1 N.O. | Screw/ Quick-Connect | D10 | **35.60** |
| | 1 N.C. | | D01 | |
| | 1 N.O./1 N.C. | | D11 | **64.00** |
| | 2 N.O. | | D20 | |
| RO2 & RG2 RO10 Form X1 RO11 Form X1 | 1 N.O. each side | Slip-on | R10 | **50.00** |
| RO3 & RG3 RO10 Form X2 RO11 Form X2 | 1 N.C. each side | | R11 | **75.00** |
| RO5 & RG5 RO12 Form X1 RO13 Form X1 | 1 N.O. each side | Screw | R12 | **50.00** |
| RO6 & RG6 RO12 Form X2 RO13 Form X2 | 1 N.C. each side | | R13 | **75.00** |

**Table 16.299: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number<br>• Type Number | Class | Type |
| | 9999 | SX6 |





© 2012 Schneider Electric
All Rights Reserved

## Motor Logic—Class 9999

### Isolated Auxiliary Contacts for Motor Logic Overload Relays

Overload relay auxiliary contacts are available factory installed or in kit form for field installation on Motor Logic overload relays. These contacts may be used for isolated alarm contact applications.

**Table 16.300:**

| For Use With | | Parts Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Class & Type | NEMA Size♦ | | | |
| 8536 SA-SJ | 00B through 7 | N.O. or N.C. Auxiliary Contact (Field Convertible) | AC04 | **57.00** |
| 9065 SS, SR, SF, ST | 00B through 7 | | | |

### DIN Adapter

The DIN adapter provides a method to mount the Motor Logic overload relay to a 35 mm DIN rail.

**Table 16.301:**

| For Use With | | Parts Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Class & Type | NEMA Size♦ | | | |
| 9065 SS or SF | 00B, 00C, 0, and 1 | DIN Adapter | DA01 | **23.90** |

### Lug-Lug and Lug-Extender Kits

A Class 9999 LL0 Lug-Lug Kit can be field installed on separately mounted overload relays. The standard Size 00B, 00C, 0, and 1 Class 9065 Type SS and SF overload relays are supplied without lugs. A Class 9999 LB0 Lug-Extender Kit is designed for Size 00B, 00C, 0, and 1 Retrofit Starter Applications. This kit allows the lugs to be in the same location as the Class 9065 melting alloy overload relay, eliminating the need for additional wire length.

**Table 16.302:**

| For Use With | | Parts Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Class & Type | NEMA Size♦ | | | |
| 9065 SS or SF | 00B, 00C, 0, and 1 | Lug-Lug Kit for separate mounting | LL0 | **42.80** |
| 9065 SS or SF | 00B, 00C, 0, and 1 | Lug-Extender Kit for retrofitting existing NEMA S starters | LB0 | **35.60** |

### Remote Reset Module

The Remote Reset Module can be easily field installed on solid state overload relays. This module will allow the overload relay to be reset from a remote location.

**Table 16.303:**

| For Use With | | Parts Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| Class and Type | NEMA Size♦ | | | |
| 536 SA-SJ | 00B through 7 | Remote Reset Module | RR04■ | **162.00** |
| 9065 SS, SR, SF, ST | 00B through 7 | | | |
| 8536 SE-SF | 3 and 4 | Top Mounting Bracket | RB34▲■ | **100.00** |
| 9065 SS, SR, SF, ST | 3 and 4 | | | |

▲ To be used to mount the remote reset module on the top of the overload relay.
■ 120 Vac power required.
♦ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA size 00 Motor Logic Solid State Overload Relay.



© 2012 Schneider Electric
All Rights Reserved



Class 9999 Type SB9 Double Power Pole Adder



Class 9999 Type SB9 Double Power Pole Adder



Class 9999 Type SB6 Single Power Pole Adder

## Power Pole Adders

One single or double circuit power pole kit may be field added to a basic 2 or 3-Pole Type S contactor or starter Sizes 0, 1 and 2, or 30–60 A lighting contactors. See table below for selection. The ratings for these power pole adders correspond to the NEMA contact ratings found on page 16-105. A two or three pole contactor or starter accepts only one single or double circuit unit. A power pole cannot be used on four or five pole devices or devices which are mechanically interlocked.

To add a power pole to a Size 0 and 1 device, remove return springs.

When adding a power pole to a Size 2 or 60 A device, a coil change is required. Select a 4- and 5-Pole coil from the coil selection table on page 16-105, or specify Form Y118 as noted in the footnote below.

When adding Sizes 0–2 power pole kits to a Size 3–7 or 100–800 A device, an adapter bracket (9999 SBT1) is required. The Class 9999 Types SB6 through SB15 power pole kits are suitable for copper wire only. Types SB21 through 25 are supplied with lugs suitable for copper and aluminum wire.

**Table 16.304:**

| For Use With | | Power Pole Adder Kit | | |
|---|---|---|---|---|
| Type | Size | Description | Class 9999 Type | $ Price |
| SB, SC & SM | 0, 1 & 30 A | One N.O. power pole adder | SB6 | 158.00 |
| SD | 2 | | SB11▲ | 287.00 |
| SP | 60 A | | SB21▲ | |
| SB, SC & SM | 0, 1 & 30 A | One N.C. power pole adder | SB7 | 158.00 |
| SD | 2 | | SB12▲ | 287.00 |
| SP | 60 A | | SB22▲ | |
| SB, SC & SM | 0, 1 & 30 A | One N.O. and one N.C. power pole adder | SB8 | 365.00 |
| SD | 2 | | SB13▲ | 656.00 |
| SP | 60 A | | SB23▲ | |
| SB, SC & SM | 0, 1 & 30 A | Two N.O. power pole adders | SB9 | 365.00 |
| SD | 2 | | SB14▲ | 656.00 |
| SP | 60 A | | SB24▲ | |
| SB, SC & SM | 0, 1 & 30 A | Two N.C. power pole adders | SB10 | 365.00 |
| SD | 2 | | SB15▲ | 656.00 |
| SP | 60 A | | SB25▲ | |
| SE-SJ & SQ-SZ & SJ | 3-7 & 100-800 A | Adapter Bracket | SBT1 | 100.00 |

▲ To order a Size 2 or 60 A power pole kit complete with a new starter coil, specify **Form Y118,** voltage and frequency and add **$140.00** to the price of the kit (e.g., Class 9999 Type SB11 **Form Y118,** 120 volts, 60 cycles. Priced at **$426.00**).

## Control Circuit Fuse Holder

The control circuit fuse holder is designed to be used on Type S contactors and starters, Sizes 00–7, when either one or two control circuit fuses, 600 V maximum, are required. The Type SF3 and SF4 fuse holders will accept standard 600 V Bussmann Type KTK or equivalent fuses (13/32" x 1-1/2"); 6 A maximum. The SFR3 and SFR4 will accept Class CC 600 V Bussmann Type KTK-R or equivalent fuses only.

**Table 16.305:**

| Description ■ | Class 9999 | |
|---|---|---|
| | Type | $ Price |
| Single Fuse Unit | SF3 | 64.00 |
| Single Fuse Unit for Class CC Fuse | SFR3 | 64.00 |
| Two Fuse Unit | SF4 | 86.00 |
| Two Fuse Unit for Class CC Fuses | SFR4 | 86.00 |

■ Fuses not included.



Class 9999 Type SF4 Fuse Kit

## Transient Suppression Module

The transient suppression module is designed to be used where the transient voltage, generated when opening the coil circuit, interferes with the proper operation of nearby integrated or solid state control circuits. The module consists of an RC circuit and is designed to suppress the coil voltage transients to approximately 200% of peak coil supply voltage. The module is wired across the coil for Type S, Sizes 00–5 and is designed for coil voltages of 120 volts only.

**Table 16.306:**

| Description | Class 9999 | |
|---|---|---|
| | Type | $ Price |
| For Sizes 00-2 | ST1 | 62.00 |
| For Sizes 3-5 | ST2 | 62.00 |



Class 9999 Type ST1 Transient Suppression Module

**Table 16.307: How to Order**

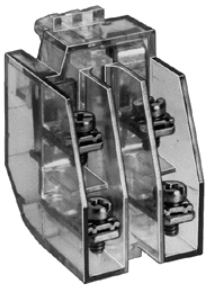
| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number<br>• Type Number | Class | Type |
| | 9999 | SM1 |





© 2012 Schneider Electric
All Rights Reserved

## Isolated Alarm Contacts For Melting Alloy Overload Relays



Type SO4

Isolated overload relay alarm contacts are available factory installed or in kit form for field installation in Type S, NEMA Size 00–6▲ starters and Class 9065 Types M and S melting alloy overload relays. Type S, NEMA Size 7, utilizes a solid state overload relay which has isolated alarm contacts as a standard feature. The alarm contacts allow the starter to be used in applications which require isolated contacts, such as inputs to a computer.

Class 9999 Types SO4 and SO5 modules are interchangeable with the standard module (Class 9998 Type SO1) and may be installed on starters already in service. The case is made of clear plastic (polycarbonate) to allow for visual inspection of contacts.

**Table 16.308: Contact Unit For Melting Alloy Overload Relays**

| Magnetic Starter | | Parts Kit Description | Class 9999 Type | $ Price |
|---|---|---|---|---|
| NEMA Size | Type | | | |
| 00-6▲ | SA-SH | N.O. Isolated Alarm Contact Plus Standard N.C. Overload Contact | SO4 | **116.00** |
| | | N.C. Isolated Alarm Contact Plus Standard N.C. Overload Contact | SO5 | |

▲ Isolated alarm contacts **cannot** be added in the field to the Type S Size 5 starter. Current transformers and a Size 1 overload block must be used. For factory installation specify **Form Y342.**

## Solid Neutral

The Class 9999 Type SN kit can be used on Class 8903 Type S lighting contactors and other controllers where field addition of a solid neutral is required. Each kit has lugs suitable for both copper and aluminum wire, and mounts with two screws.

**Table 16.309:**

| Number of Lugs | Wire Capacity Per Lug (Cu/Al) | Class 9999 | |
|---|---|---|---|
| | | Type | $ Price |
| 4 | 14–2/0 | SN1 | **134.00** |
| 3 | (1) 4–600 MCM or (2) 1/0–250 MCM | SN2 | **392.00** |
| 3 (Dual) | (2) 2–600 MCM | SN3 | **624.00** |
| 2 (Dual) | (2) 6–350 MCM | SN4 | **392.00** |

## Tie Point Terminal Block



Tie Point Terminal Block

The tie point terminal block provides easy wiring of a Hand-Off-Auto selector switch or Start-Stop push buttons with separate control. The T7 terminal block requires no panel space. It simply snaps on Type S Sizes 00–4 contactors and starters by two tabs and is secured to the left hand coil terminal.

**Table 16.310:**

| Magnetic Contactor or Starter | | Class 9999 Type | $ Price |
|---|---|---|---|
| NEMA Size | Type | | |
| 00–4 | SA-SF | T7 | **33.30** |

**Table 16.311: How to Order**

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9999 | SO4 |



© 2012 Schneider Electric
All Rights Reserved

## Mechanical Interlock



Type SM1

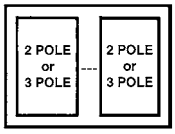
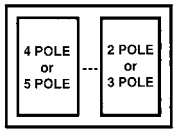
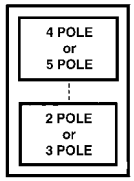
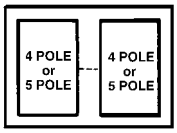
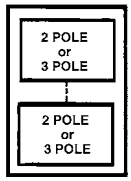
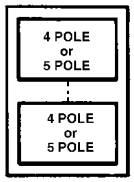
**General:** Type S contactors or starters can be mechanically interlocked so that only one device is energized at a time. The mechanical interlock is an interference (non-jamming) type, locking at the beginning of the stroke of any starter or contactor.

**Type S Sizes 00, 0, 1 and 2—**The mechanical interlock is mounted on the underside of the reversing baseplate. Two pins extend from the mechanical interlock through openings in the baseplate and engage the contact carrier of each contactor. Two styles of mechanical interlocks are used: one version for three pole contactors, a different version for four or five pole contactors. **When adding a power pole to the left-hand side of an existing Size 0, 1, or 2 three-pole reversing contactor, a new mechanical interlock must also be installed. When added to the right-hand side only, the power pole will not be mechanically interlocked with the left-hand contactor.**

**Type S Sizes 3 and 4—**The mechanical interlock is separate from the mounting pan on Sizes 3 and 4. Cams on the mechanical interlocks are operated by the contact carrier of each contactor. The mechanical interlock is attached to the underside of the two contactor baseplates on Sizes 3 and 4.

### Table 16.312: Mechanical Interlock for Two Contactors

The following mechanical interlock kits can be used to interlock 2–5 pole contactors. Mechanical interlocks for horizontal and vertical arrangement are listed in Various pole arrangements.

| | Contactor NEMA Size | Class 9999 Type | $ Price |
|---|---|---|---|
|  Horizontal<br>Type SM1 for Size 00–1<br>Type SM6 for Size 2<br>Type SM12 for Sizes 3 & 4 | 00, 0, 1 | SM1 | **116.00** |
|  Horizontal<br>Type SM2 for Size 0 or 1▲<br>Type SM7 for Size 2<br>Type SM12 for Sizes 3 & 4 | 0, 1 | SM2 | **116.00** |
|  Vertical<br>Type SM2 for Size 0 or 1▲<br>Type SM10 for Size 2<br>Type SM11 for Size 3<br>Type SM13 for Size 4 | 0, 1 | SM3 | **116.00** |
| | 0, 1 | SM4 | **116.00** |
| | 0, 1 | SM5 | **116.00** |
|  Horizontal<br>Type SM3 for Size 0 or 1<br>Type SM8 for Size 2<br>Type SM12 for Sizes 3 & 4 | 2 | SM6 | **257.00** |
|  Vertical<br>Type SM4 for Size 0 or 1<br>Type SM9 for Size 2<br>Type SM11 for Size 3<br>Type SM13 for Size 4 | 2 | SM7 | **257.00** |
|  Vertical<br>Type SM5 for Size 0 or 1<br>Type SM11 for Size 3<br>Type SM13 for Size 4 | 2 | SM8 | **257.00** |
| | 2 | SM9 | **257.00** |
| | 2 | SM10 | **257.00** |
| | 3 | SM11 | **257.00** |
| | 3, 4 | SM12 | **257.00** |
| | 4 | SM13 | **257.00** |

▲ The Type SM2 interlock is factory assembled for horizontal mounting, but can easily be converted to vertical mounting. Conversion instructions are included.



Overload Relay Mounting Bracket

### Table 16.313: Overload Relay Mounting Bracket

Mechanical interlock Types SM1 through SM10 for Sizes 00-2 devices use overload relay mounting brackets to support the overload relay portion of the starter.

| Kit Description | Class 9999 Type | $ Price |
|---|---|---|
| Bracket for one overload relay used with horizontal mechanical interlocks, Types SM1 through SM10 | SO11 | **14.30** |
| Bracket for two overload relays used with vertical mechanical interlocks, Types SM2, SM4, SM5, SM9 and SM10 | SO12 | **42.80** |



Type SM12

### Table 16.314: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9999 | SM1 |





© 2012 Schneider Electric
All Rights Reserved



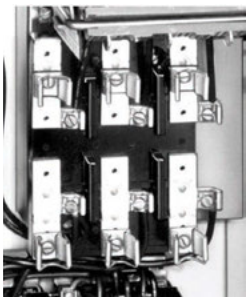
Class 9422 TC33
Fuse Block

Class 8538 (Series D and newer), Class 8738 (Series E and newer), and Class 8903 (Series C and newer) Type S non-fusible combination starters and lighting contactors (sizes 0–2, 30 to 60 A) can be converted to the fusible type by installing a Class 9422 Fuse Clip Kit. Both fusible and non-fusible combination devices have the same size enclosure in NEMAs 1, 4, and 12 construction, which permits this conversion. The 9422 Fuse Clip Kits contain line and load fuse clips, load base, and fuse pullers.

### Table 16.315: Class 9422 Replacement Fuse Clip Kits

| Device Used on | Disconnect Ampere Rating | NEMA Class H, K, J, R Fuses | | | $ Price | Class R Fuse Clip Kits | $ Price |
|---|---|---|---|---|---|---|---|
| | | Fuse Clip Ratings (A) | | Class & Type | | | |
| Size or Ampere Rating | | 250 V Max. | 600 V Max. | | | | |
| 0, 1 & 30 A | 30 | 0–30 | — | 9422TC30▲ | **42.80** | RFK03■ | **32.60** |
| 0, 1 & 30 A | 30 | 31–60 | 0–30 | 9422TC33▲ | **71.00** | RFK06■ | **34.00** |
| 2 & 60 A | 60 | 31–60 | 0–30 | 9422TC33 | **71.00** | RFK06■ | **36.50** |
| 2 & 60 A | 60 | — | 31–60 | 9422TD63 | **99.00** | RFK06H■ | **34.00** |

▲ When using with a 9422FTCN or FTCF disconnect switch in 8538 or 8738 combination starters, remove and discard metal base plate.
■ No Class Number required Discount Schedule DE1.



Class 9999 Type S2
Interchangeable Fuse Clips

### Table 16.316: Class 9999 Replacement Fuse Clip Kits (8538 Pre-Series D, 8738 Pre-Series E)

| Device Used on | Disconnect Ampere Rating | NEMA Class H Fuses | | | | NEMA Class R Fuses | | | | NEMA Class J Fuses | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Fuse Clip Ratings (A) | | Type | $ Price | Fuse Clip Ratings (A) | | Type | $ Price | Fuse Clip Ratings (A) 600 V Max. | Type | $ Price |
| Size or Ampere Rating | | 250 V Max. | 600 V Max. | | | 250 V Max. | 600 V Max. | | | | | |
| 0, 1 & 30 A | 30 | 0–30<br>—<br>31–60 | —<br>0–30<br>0–30 | S1<br>S2<br>S2 | **35.60**<br>**35.60**<br>**35.60** | 0–30<br>—<br>31–60 | —<br>0–30<br>0–30 | SR1<br>SR2<br>SR2 | **35.60**<br>**47.60**<br>**47.60** | —<br>0–30<br>0–30 | —<br>SJ2<br>SJ2 | —<br>**105.00**<br>**105.00** |
| 2 & 60 A | 60 | 31–60<br>— | 0–30<br>31–60 | S2<br>S3 | **35.60**<br>**50.00** | 31–60<br>— | 0–30<br>31–60 | SR2<br>SR3 | **47.60**<br>**64.00** | 0–30<br>31–60 | SJ2<br>SJ3 | **105.00**<br>**125.00** |
| 3 & 100 A | 100 | 61–100<br>101–200 | 61–100<br>— | S4★<br>S5★ | **144.00**<br>**270.00** | 61–100<br>101–200 | 61–100<br>— | SR4♦<br>SR4♦ | **47.60**<br>**47.60** | 61–100<br>— | SJ4<br>— | **201.00**<br>— |
| 4 & 200 A | 200 | 101–200 | 101–200 | S5★ | **270.00** | 101–200 | 101–200 | SR4♦ | **47.60** | — | — | — |
| 5 & 300 A | 400 | — | — | — | — | 201–400 | 201–400 | SR5♦ | **107.00** | — | — | — |
| 6 & 400, 600 A | 600 | — | — | — | — | 401–600 | 401–600 | SR5♦ | **107.00** | — | — | — |

♦ Fuse clips are not provided in the Type SR4 and SR5 kits. On new installations Class 9999 Type S fuse clips must also be purchased. Three non-removable pins are supplied and can be installed only in the latest production devices, which have a hole in the lower fuse clips.
★ Cannot be used in Series B or newer 8538 devices.



Class 9999 Type TC10

### Table 16.317: Class 9999 Auxiliary Contact Kits for Disconnect Switches and Circuit Breakers

| Class | Type | SPDT | | DPDT | |
|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price |
| 8538, 8738 | SB, SC (Series C) | R45 | **71.00** | R46 | **207.00** |
| 8539, 8739 | SB, SC, SD, SE, SF, SG | R26 | **131.00** | R27 | **243.00** |
| 8538 | SBA, SCA, SBG, SCG (Series K) | TC11 | **120.00** | TC21 | **239.00** |
| 8738 | SBA, SCA, SBG, SCG (Series K) | TC10 | **120.00** | TC20 | **239.00** |
| 8538 | SB▼, SC▼, SD▼ (Series B) | R6 | **113.00** | R7 | **221.00** |
| 8538 | SBAS8, SCAS8, SBGS8, SCGS8, (Series K) | TC10 | **120.00** | TC20 | **239.00** |
| 8538, 8738 | SD (Series C) | R43 | **116.00** | R44 | **221.00** |
| 8538 | SDA, SDA▼, SDG, SDG▼ (Series K) | TC10 | **120.00** | TC20 | **239.00** |
| 8738 | SDA, SDG (Series K) | TC10 | **120.00** | TC20 | **239.00** |
| 8538, 8738 | SE (Series B & C) | R41 | **131.00** | R42 | **243.00** |
| 8538, 8738 | SE, SF (Series A) | R8 | **131.00** | R9 | **243.00** |
| 8538, 8738 | SF (Series B & C) | R39 | **135.00** | R40 | **243.00** |
| 8538, 8738 | SG | R35 | **435.00** | R36 | **521.00** |

▼ Class 8538 type numbers ending in suffix "S8".

| Class | Type | SPDT | | DPDT | |
|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price |
| **Disconnect Switches** | | | | | |
| 9422 | BTCF, BTCN, BTDF, BTEF, BTEN | TC11 | **120.00** | TC21 | **239.00** |
| 9422 | TCF, TCN, TDF, TDN, TEF, TEN | TC10 | **120.00** | TC11 | **239.00** |
| 9422 | TF | R8 | **87.00** | R9 | **243.00** |
| **Circuit Breaker Operating Mechanisms** | | | | | |
| 9421 | LF, LK, LL, LM, LN, LP, LR, LT, LW | R47 | **131.00** | R48 | **221.00** |
| 9422 | RM, RN, RP, RQ, RR, RT | R26 | **131.00** | R27 | **243.00** |
| 9422 | CFA, CKA, CLA, CSF, CMP | R26 | **131.00** | R27 | **243.00** |

### Table 16.318: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| • Class Number<br>• Type Number | Class | Type |
| | 9999 | R6 |



© 2012 Schneider Electric
All Rights Reserved

## General

All tables are based on the operation of the motor and controller in the same ambient temperature, 40°C (104°F) or less. Always be certain the correct thermal units are installed in the starter before operating the motor. Each thermal unit shall be installed such that its catalog number is visible. See page 16-120, Figure 1 for complete thermal unit installation instructions. On melting alloy thermal units the ratchet wheel must engage the pawl assembly.

### Selection Procedure

1. Determine motor data:
   - a. Full load current rating
   - b. Service factor

   ***NOTE:*** *If motor full load current (FLC) is not known, a tentative thermal unit selection could be made, based on horsepower and voltage. Refer to page 16-120.*
2. Motor and controller in *same ambient temperature:*
   - a. All starter classes, except Class 8198:
     1. For 1.15 to 1.25 service factor motors use 100% of motor FLC for thermal unit selection.
     2. For 1.0 service factor motors use 90% of motor FLC for thermal unit selection.
   - b. Class 8198 only:
     1. For 1.0 service factor motors use 100% of motor FLC for thermal unit selection.
     2. For 1.15 to 1.25 service factor motors use 110% of motor FLC for thermal unit selection.
3. Motor and controller in *different ambient temperatures:*
   - a. Multiply motor FLC by the multiplier in Table A. Use the resultant full load current for thermal unit selection.
4. Locate proper selection table from index, pages 16-117 and 16-118.
   - a. The proper thermal unit number will be found adjacent, to the right of the range of full load currents in which the motor FLC or resultant full load current falls.
5. See page 16-119 for calculation of trip current rating.

## Slow Trip Thermal Unit Selection

To select Type SB slow trip thermal units, the selection table for a standard Type B thermal unit may be used with the following modifications: For continuous rated motors having service factors of 1.15 to 1.25, select thermal units from the standard Type B table using 93% (102% for Class 8198) of the full load current shown on the motor nameplate and then substitute an SB for the B in the thermal unit type number.

Example: A motor with a full load current of 12 A controlled by an 8536SCG3 would require B22 thermal units for standard trip applications and SB19.5 thermal units for slow trip applications. The SB is selected by multiplying 12 A times 93% for 11.16 A and using this value to select B19.5. Then add the S prefix to arrive at SB19.5.

For continuous rated motors having a service factor of 1.0, select thermal units in the same manner using 84% (93% for Class 8198) of full load current shown on the motor nameplate.

***NOTE:*** *SB thermal units are used on Size 0, 1, 2 and only some Size 3 applications. Check thermal unit tables for current ranges.*

**Table A: Selection of Thermal Units for Special Applications**

| Class of Controller | Continuous Duty Motor Service Factor | Melting Alloy and Non-Compensated Bimetallic Relays | | | Ambient Temp.-Comp. Relays |
|---|---|---|---|---|---|
| | | Ambient Temperature of Motor | | | |
| | | Same as Controller Ambient | Constant 10°C (18°F) Higher Than Controller Ambient | Constant 10° C (18°F) Lower Than Controller Ambient | Constant 40°C (104°F) or less, for Any Controller Ambient |
| | | Full Load Current Multiplier | | | |
| All Classes, Except 8198 | 1.15 to 1.25 | 1.0 | 0.9 | 1.05 | 1.0 |
| | 1.0 | 0.9 | 0.8 | .95 | 0.9 |
| Class 8198 | 1.15 to 1.25 | 1.1 | 1.0 | 1.15 | 1.1 |
| | 1.0 | 1.0 | 0.9 | 1.05 | 1.0 |

**Table 16.382: Thermal Unit Prices**

| Melting Alloy | | | Bimetallic | | |
|---|---|---|---|---|---|
| Type of Trip | Thermal Unit Type | $ Price | Type of Trip | Thermal Unit Type | $ Price |
| Standard | A | **21.50** | Standard | AR | **21.50** |
| | B | **21.50** | | AF | **21.50** |
| | C | **21.50** | | AU | **21.50** |
| | CC | **21.50** | | E | **21.50** |
| | DD | **21.50** | | | |
| Quick | FB | **35.60** | | | |
| Slow | SB | **57.00** | | | |







© 2012 Schneider Electric
All Rights Reserved

***NOTE:*** *For thermal unit selection tables for other devices including obsolete devices, consult Schneider Electric CCC at (1-888-778-2733).*

**Table 16.383: Thermal Unit Selection**

| Controller | | | | | Thermal Unit Selection Table Number | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Hand Reset Melting Alloy | | | Bimetallic | |
| Starter Type | Class | Type | Series▲ | Size | Standard Trip (20) | Quick Trip (10) | Slow Trip (30) | Non-Compensated | Compensated |
| Manual Starters FHP | 2510 2512 8908 | F | A | FHP | 43◊ | — | — | — | — |
| Manual Starters (Small Enclosure) | 2510 | M, T | A | M–0<br>M–1<br>M–1P | 1<br>1<br>1 | 72<br>72<br>72 | ▽<br>▽<br>▽ | —<br>—<br>— | —<br>—<br>— |
| Manual Starters (Large Enclosure) | 2510 2511 2512 8925 | M, T | A | M–0<br>M–1<br>M–1P | 2<br>2<br>2 | 73<br>73<br>73 | ▽<br>▽<br>▽ | —<br>—<br>— | —<br>—<br>— |
| DC Magnetic Starters EC & M Crane Control Product | 7135 7136 7735 7736 | C, D | — | 1, 2 | 65 | — | ▽ | — | — |
| | | E | — | 3 | 9 | — | — | — | — |
| | | F | — | 4 | 10 | — | — | — | — |
| | | G | — | 5 | 12 | — | — | — | — |
| AC Magnetic Starters (Small Enclosure) | 8536 8904■ (Starter In Own Enclosure) | A (8536 only) | B, C | 00 | 17◊ | — | — | — | — |
| | | SA | A, B | 00 | 13 | — | ▽ | — | — |
| | | SB | A | 0 | 13 | 74 | ▽ | 8 | 33 |
| | 8933 | SC | A | 1 | 13 | 74 | ▽ | 8 | 33 |
| | | | A | 1P | 41 | — | ▽ | — | — |
| | 8998 8999 (Model 3 Control Center) I-LINE® and QMB Motor Starter Centers | SD | A | 2 | 56 | 75 | ▽ | 62 | 70 |
| | | SE | A | 3 | 18 | 76☆ | 134☆▽ | 63 | 37□ |
| | | | B | 3 | — | — | — | 142□ | — |
| | | SF | A | 4 | 54 | 77☆ | — | 11 | 29□ |
| | | | B | 4 | — | — | — | 144□ | — |
| | | SG | A | 5 | 49 | — | — | 38 | 46 |
| | | | B✱ | 5 | 59 | 83 | — | 23 | 42 |
| | | SH | A, B | 6 | 21 | — | — | 39 | 47 |
| | 8998 8999 (Model 4 Control Center) | SC | A | 1 Fusible | 66 | 74 | — | 64 | 33 |
| | | | | 1 Circuit Breaker | 15 | 74 | — | | |
| | | SD | A | 2 Fusible | 67 | 75 | — | 57 | 70 |
| | | | | 2 Circuit Breaker | 58△ | 75 | — | | |
| | | SE | A | 3 Small Enclosure | 16 | 76☆ | 134☆▽ | 51 | 37□ |
| | | | | 3 Large Enclosure | 68△ | 76☆ | 133☆▽ | | |
| | | | B | 3 | — | — | — | 141□ | — |
| | | SF | A | 4 | 61 | 77☆ | — | 35 | 29△ |
| | | | B | 4 | — | — | — | 143□ | — |
| | | SG | A | 5 | 24 | — | — | 52 | 46 |
| | | SH | A | 6 | 20 | — | — | 48 | 47 |
| | 8998 (Model 5 and Model 6 MCCs) | SC◒ | A | 1 | 109 | — | — | — | 97 |
| | | | | 1 COMPAC 6 | 104 | — | — | — | — |
| | | SD◒ | A | 2 | 110 | — | — | — | 98 |
| | | SE◒ | A | 3 | 111 | — | — | — | 99□ |
| | | SF◒ | A | 4 | 112 | — | — | — | 100□ |
| | | SG◒ | A | 5 | 113 | — | — | — | 101 |
| | | | B | 5 CT | 103 | — | — | — | — |
| | | SH◒ | A | 6 | 114 | — | — | — | 102 |
| | 8911 | DPSG | C | 20–30 A | 135 | — | — | — | — |
| | | | | 40 A | 145 | — | — | — | — |
| | | | A | 50 A | 146 | — | — | — | — |

Table continued on the next page; see page 16-118 for Footnotes.

***NOTE:*** *For thermal unit selection tables for other devices including obsolete devices, consult Schneider Electric CCC at (1-888-778-2733).*

**Thermal Unit Prices . . . . . .page 16-116.**



© 2012 Schneider Electric
All Rights Reserved

## Table 16.384: Thermal Unit Selection

| Controller | | | | | Thermal Unit Selection Table Number | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Hand Reset Melting Alloy | | | Bimetallic | |
| Starter Type | Class | Type | Series▲ | Size | Standard Trip (20) | Quick Trip (10) | Slow Trip (30) | Non-Compensated | Compensated |
| AC Magnetic Starters (Large Enclosure) | 8198 | G, S | — | — | 5 | — | ▽ | — | 6 |
| | 8536 (Starter Used in Multi-Motor Panel) 8538 8904▼ 8539 8906 8606 8907 8630♦ 8920 8640★ 8922 9089 8924 8647 8925 8650 8930 8736 8941 8738 8739 | A (8536 only) | B, C | 00 | 14◊ | — | — | — | — |
| | | SA | A, B | 00 | 53 | — | ▽ | 55 | 25 |
| | | SB, NB | A | 0 | 15 | 78 | ▽ | 64 | 33 |
| | | SC, NC | A | 1 | 15 | 78 | ▽ | 64 | 33 |
| | | SD, ND | A | 2 | 58 | 79 | ▽ | 57 | 70 |
| | | SE, NE | A | 3 | 16 | 80☆ | 133☆▽ | 51 | 37□ |
| | | | B | 3 | — | — | — | 141□ | — |
| | | SF, NF | A | 4 | 61 | 81☆ | — | 35 | 29□ |
| | | | B | 4 | — | — | — | 143□ | — |
| | | SG | A | 5 | 24 | — | — | 52 | 46 |
| | | | B✱ | 5 | 59 | 83 | — | 23 | 42 |
| | | SH | A, B | 6 | 20 | — | ▽ | 48 | 47 |
| | 8810 8811 8812 | CB, DB, SB, UB | A | 0 | 15 | 78 | ▽ | 64 | 33 |
| | | CC, DC, SC, UC | A | 1 | 15 | 78 | ▽ | 64 | 33 |
| | | CD, DD, SD, UD | A | 2 | 58 | 79 | ▽ | 57 | 70 |
| | | CE, DE, SE, UE | A | 3 | 16 | 80☆ | 133☆▽ | 51 | 37□ |
| | | CF, DF, SF, UF | A | 4 | 61 | 81☆ | — | 35 | 29□ |
| | | SE | B | 3 | — | — | — | 141□ | — |
| | | SF | B | 4 | — | — | — | 143□ | — |
| | | CG, DG, SG, UG | A | 5 | 24 | — | — | 52 | 46 |
| | | | B✱ | 5 | 59 | 83 | — | 23 | 42 |
| | | CH, DH, SH, UH | A | 6 | 20 | — | ▽ | 48 | 47 |
| | 8940 WELL-GUARD™ Control | WC, XC | A | 1 | 13 | 78 | — | — | 33 |
| | | WD, XD, MD, RD, | A | 2 | 56 | 79 | — | — | 70 |
| | | WE, XE, ME, RE, | A | 3 | 18 | 80☆ | — | — | 37□ |
| | | PF, WF, XF, MF, | A | 4 | 54 | 81☆ | — | — | 29□ |
| | | XSG, NSG, MG,RG, VG◊ | A | 5 | — | — | — | — | 46 |
| | | | B✱ | 5 | — | — | — | — | 42 |
| | | XSH, VH | A | 6 | — | — | — | — | 47 |
| | 8911 | DPSO | C | 20–30 A | 136 | — | — | — | — |
| | | | | 40 A | 147 | — | — | — | — |
| | | | A | 50 A | 148 | — | — | — | — |
| AC Magnetic Part-Winding | 8998 (Model 5 and Model 6 MCCs) | SC◒ | A | 1 | 127 | — | — | — | 121 |
| | | SD◒ | A | 2 | 128 | — | — | — | 122 |
| | | SE◒ | A | 3 | 129 | — | — | — | 123□ |
| | | SF | A | 4 | 105 | — | — | — | 117□ |
| | | SG | A | 5 | 115 | — | — | — | 118 |
| | | | B✱ | 5 CT | 116 | — | — | — | — |
| Separately Mounted Overload Relays | 9065 | AF | B | 4(133 A) | — | — | — | 30 | — |
| | | AG | A | 5(266 A) | — | — | — | 36 | — |
| | | AR | A | 1(25 A) | — | — | — | 32 | — |
| | | AT | A | 2(45 A) | — | — | — | 60 | — |
| | | AU | — | 3(86 A) | — | — | — | 50 | — |
| | | DA2 | A | 1(25 A) | — | — | — | — | 140□ |
| | | GA2 | A | 2(60 A) | — | — | — | — | 139□ |
| | | HA2 | A | 3(100 A) | — | — | — | — | 138□ |
| | | JA2 | A | 4(180 A) | — | — | — | — | 137□ |
| | | C | A | 1(25 A) | 44 | 82 | ▽ | — | — |
| | | F | B | 4(133 A) | 19 | 85☆ | — | — | — |
| | | G | A | 5(266 A) | 22 | — | — | — | — |
| | | MEO | A | (32 A) | 86 | — | — | — | — |
| | | S | A | 1(26 A) | 59 | 83 | ▽ | 23 | 42 |
| | | | | 2(45 A) | 69 | 84 | ▽ | 27 | 71 |
| | | | | 3(86 A) | 34 | — | — | — | — |
| | | | | 4(133 A) | 28 | — | — | — | — |
| | | T | A | 2(45 A) | 31 | — | ▽ | — | — |
| | | U | — | 3(86 A) | 40 | — | — | — | — |

▲ Series letters listed refer to the marking on the nameplate of the basic open type starter. When the starter is supplied in a controller containing other devices, the controller may have a different series letter marked on the enclosure nameplate.

■ Small enclosure tables apply for **Class 8904** non-combination and non-reversing starters. For combination and reversing **Class 8904** starters refer to the large enclosure selections, index above.

♦ For **Class 8630** starters divide the delta connected motor full load current by 1.73, and use this quotient to select thermal units.

★ For **Class 8640** and **Class 8940** (MD, PD, ME, PE, MF, PF, MG and PG) starters use the full load current of each motor winding as a basis for thermal unit selection—normally one-half total motor current.

▼ Large enclosure tables apply for **Class 8904** combination and reversing starters. For non-combination and non-reversing **Class 8904** starters refer to small enclosure selections, page 16-117.

△ Use for Autotransformer Starters (Fusible and Circuit Breaker).

□ Order Type E thermal units by number from Schneider Electric, Furnas Electric Company, Batavia, Illinois or a Furnas distributor at **$13.50** each, subject to motor control discounts.

◊ Type A thermal units for full load currents lower than those listed in this table are available. For complete information, consult Schneider Electric CCC at (1-888-778-2733).

☆ Form Y81 must be specified to use quick trip (Class 10) or slow trip (Class 30) thermal units on Size 3 starters and quick trip (Class 10) thermal units on Size 4 starters.

▽ This device will accept Type SB slow trip (Class 30) thermal units. For selection, see page 16-116.

◒ Refers to type number of starter in MCC, not actual type number of MCC.

✱ Divide the motor FLC by 60 and use this quotient to select the appropriate thermal units.





© 2012 Schneider Electric
All Rights Reserved

## Calculation of Trip Current Rating

**Trip Current Rating—**Trip current rating is a nominal value which approximates the minimum current to trip an overload relay in an ambient temperature, outside of the enclosure, of 40°C (104°F). In all selection tables except Class 8198, the trip current rating is 1.25 times the minimum full load current shown for the thermal unit selected. For Class 8198, the trip current rating is 1.15 times the minimum full load current. This applies to bimetallic overload relays with the trip adjustment set at 100 percent.

### Calculation Procedure

1. Use the selection table for the specific controller involved.
2. Find the minimum motor full load current listed for the thermal unit in question.
3. Multiply that current by 1.25 (1.15 for Class 8198). The result is the trip current rating.

**Example 1:** Determine the thermal unit selection and trip current rating for thermal units in a Class 8536 Type SCG3 Size 1 magnetic starter used to control a three-phase, 1.15 service factor motor with a full load current of 17.0 Amperes, where the motor and controller are both located in a 40°C (104°F) ambient temperature.

1. From Table 13 the proper selection is B32.
2. The minimum motor full load current is 16. 0 Amperes.
3. Trip current rating is 16.0 x 1.25= 20.0 Amperes.

**Protection Level** is the relationship between trip current rating and full load current. Protection level, in percent, is the trip current rating divided by the motor full load current times 100. In Example 1 the protection level for the B32 thermal unit is: 20.0/17.0 x 100=118%.

National Electrical Code, Section 430-32, allows a maximum protection level of 125% for the motor in the above example.

**Minimum Trip Current** (also called ultimate current) may vary from the trip current rating value, since ratings are established under standardized test conditions. Factors which influence variations include: the number of thermal units installed, enclosure size, proximity to heat producing devices, size of conductors installed, ambient (room) temperature, and others.

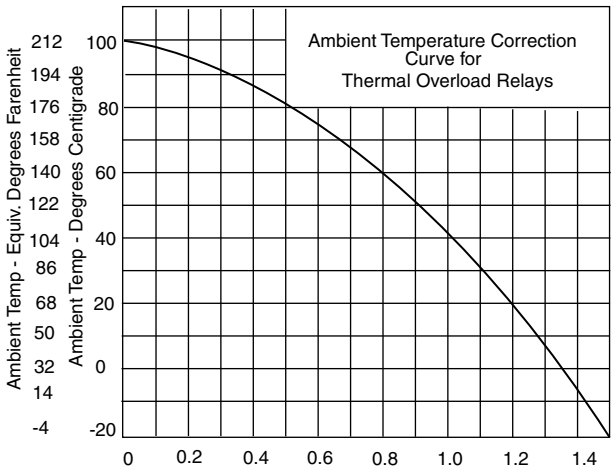
Except for ambient temperature-compensated overload relays, an ambient temperature higher than 40°C would lower the trip current, and a lower temperature would increase it. This variation is not a factor in selecting thermal units for the average application, since most motor ratings are based on an ambient temperature of 40°C, and motor capacity varies with temperature in about the same proportion as the change in trip current. Temperature-compensated relays maintain a nearly constant trip current over a wide range of ambient temperature, and are intended for use where the relay, because of its location, cannot sense changes in the motor ambient temperature.

## Calculation of Trip Current For Ambient Temperatures Other Than 40°C

For a controller ambient temperature other than 40°C (104°F) trip current can be calculated by applying a correction factor from the curve in Figure 1. The approximate trip current for a particular ambient temperature is the product of (1) the multiplier M corresponding to the temperature and (2) the 40°C trip current rating.

***NOTE:*** *Ambient temperature is the temperature surrounding the starter enclosure. Normal temperature rise inside the enclosure has been taken into account in preparing the thermal unit selection tables.*

**Example 2:** Determine the trip current for the motor and controller in Example 1, except the controller is in a 30°C (86°F) ambient temperature. From the curve in Figure 1 the multiplier M is 1.1 at 30°C. Approximate Trip Current is 16.0 x 1.25 x 1.1=22 Amperes






© 2012 Schneider Electric
All Rights Reserved

## Approximate Thermal Unit Selection Based On Horsepower and Voltage

**General—**Thermal units selected using approximate full load currents from the table below will provide a trip current between 101% and 125% of full load current for many 4-pole, single speed, normal torque, 60 Hz motors. Since full load current rating of different makes and types of motors vary so widely, these selections may not be suitable.

Thermal units should be selected on the basis of motor nameplate full load current and service factor. Thermal unit sizes originally selected on an approximate basis should always be rechecked and corrected at the time of installation if required.

### Instructions:

1. Locate motor horsepower and voltage.
2. Determine approximate full load current from the table below.
3. Use approximate full load current in place of actual nameplate full load current and follow instructions on page 16-116.

### Only Use This Table When Motor Full Load Current Is Not Known

**Table 16.385:**

| Motor Horsepower | Motor Full Load Current | | | | | |
|---|---|---|---|---|---|---|
| | Three Ø | | | | Single Ø | |
| | 200 V | 230 V | 460 V | 575 V | 115 V | 230 V |
| 1/6 | — | — | — | — | 4.4 | 2.2 |
| 1/4 | — | — | — | — | 5.8 | 2.9 |
| 1/3 | — | — | — | — | 7.2 | 3.6 |
| 1/2 | 2.5 | 2.2 | 1.1 | 0.9 | 9.8 | 4.9 |
| 3/4 | 3.7 | 3.2 | 1.6 | 1.3 | 13.8 | 6.9 |
| 1 | 4.8 | 4.2 | 2.1 | 1.7 | 16 | 8 |
| 1-1/2 | 6.9 | 6.0 | 3.0 | 2.4 | 20 | 10 |
| 2 | 7.8 | 6.8 | 3.4 | 2.7 | 24 | 12 |
| 3 | 11.0 | 9.6 | 4.8 | 3.9 | 34 | 17 |
| 5 | 17.5 | 15.2 | 7.6 | 6.1 | 56 | 28 |
| 7-1/2 | 25.3 | 22 | 11 | 9 | 80 | 40 |
| 10 | 32.2 | 28 | 14 | 11 | — | 50 |
| 15 | 48.3 | 42 | 21 | 17 | — | — |
| 20 | 62.1 | 54 | 27 | 22 | — | — |
| 25 | 78.2 | 68 | 34 | 27 | — | — |
| 30 | 92 | 80 | 40 | 32 | — | — |
| 40 | 120 | 104 | 52 | 41 | — | — |
| 50 | 150 | 130 | 65 | 52 | — | — |
| 60 | 177 | 154 | 77 | 62 | — | — |
| 75 | 221 | 192 | 96 | 77 | — | — |
| 100 | 285 | 248 | 124 | 99 | — | — |
| 125 | 359 | 312 | 156 | 125 | — | — |
| 150 | 414 | 360 | 180 | 144 | — | — |
| 200 | 552 | 480 | 240 | 192 | — | — |

***NOTE:*** *These currents should not be used for selection of fuses, circuit breakers or wire sizes. See NEC tables 430-248 through 430-250. For motors rated 208-220 volts, use 230 V column. For motors rated 440 to 550 volts, use 460 and 575 V columns, respectively.*

## Mounting Thermal Units




Figure 1

Always be certain the correct thermal units are installed in the starter before operating the motor. Thermal units should always be mounted so that their type designation can be read from the front of the starter (see Figure 1). Melting alloy thermal units should be mounted so that the tooth of the pawl assembly can engage the teeth of the ratchet wheel when the reset button is pushed.

Mounting surfaces of starter and thermal units should be clean and care should be taken to insure that thermal unit mounting screws are fastened securely.





© 2012 Schneider Electric
All Rights Reserved

## Table 1

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 0.33–0.36 | 0.29–0.32 | B 0.44 |
| 0.37–0.40 | 0.33–0.36 | B 0.51 |
| 0.41–0.45 | 0.37–0.39 | B 0.57 |
| 0.46–0.52 | 0.40–0.47 | B 0.63 |
| 0.53–0.59 | 0.48–0.56 | B 0.71 |
| 0.60–0.66 | 0.57–0.63 | B 0.81 |
| 0.67–0.73 | 0.64–0.69 | B 0.92 |
| 0.74–0.81 | 0.70–0.77 | B 1.03 |
| 0.82–0.91 | 0.78–0.86 | B 1.16 |
| 0.92–1.02 | 0.87–0.96 | B 1.30 |
| 1.03–1.14 | 0.97–1.11 | B 1.45 |
| 1.15–1.29 | 1.12–1.23 | B 1.67 |
| 1.20–1.42 | 1.24–1.37 | B 1.88 |
| 1.43–1.64 | 1.38–1.55 | B 2.10 |
| 1.65–1.80 | 1.56–1.75 | B 2.40 |
| 1.81–2.10 | 1.76–1.92 | B 2.65 |
| 2.11–2.30 | 1.93–2.16 | B 3.00 |
| 2.31–2.61 | 2.17–2.50 | B 3.30 |
| 2.62–2.99 | 2.51–2.81 | B 3.70 |
| 3.00–3.37 | 2.82–3.16 | B 4.15 |
| 3.38–3.94 | 3.17–3.40 | B 4.85 |
| 3.95–4.24 | 3.41–3.76 | B 5.50 |
| 4.25–4.54 | 3.77–4.00 | B 6.25 |
| 4.55–5.29 | 4.01–4.68 | B 6.90 |
| 5.30–5.73 | 4.69–5.18 | B 7.70 |
| 5.74–6.35 | 5.19–5.51 | B 8.20 |
| 6.36–7.08 | 5.52–6.19 | B 9.10 |
| 7.09–7.83 | 6.20–7.12 | B 10.2 |
| 7.84–8.47 | 7.13–8.15 | B 11.5 |
| 8.48–9.83 | 8.16–8.60 | B 12.8 |
| 9.84–10.5 | 8.61–9.21 | B 14.0 |
| 10.6–11.4 | 9.22–10.1 | B 15.5 |
| 11.5–12.8 | 10.2–11.2 | B 17.5 |
| 12.9–13.9 | 11.3–12.0 | B 19.5 |
| 14.0–16.1 | — | B 22.0 |
| 16.2–18.0 | — | B 25.0 |
| Following Selections for Size M-1 & M-1P Only. | | |
| — | 11.3–12.1 | B 19.5 |
| — | 12.2–13.6 | B 22.0 |
| 16.2–17.6 | 13.7–15.3 | B 25.0 |
| 17.7–20.6 | 15.4–17.3 | B 28.0 |
| 20.7–23.1 | 17.4–19.1 | B 32.0 |
| 23.2–26.0 | 19.2–21.7 | B 36.0 |
| — | 21.8–24.2 | B 40.0 |
| — | 24.3–26.0 | B 45.0 |
| Following Selections for Size M-1P Only | | |
| 23.2–27.1 | — | B 36.0 |
| 27.2–29.2 | — | B 40.0 |
| 29.3–33.0 | — | B 45.0 |
| 33.1–36.0 | — | B 50.0 |

## Table 2

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 0.35–0.38 | 0.30–0.32 | B 0.44 |
| 0.39–0.43 | 0.33–0.37 | B 0.51 |
| 0.44–0.48 | 0.38–0.39 | B 0.57 |
| 0.49–0.56 | 0.40–0.48 | B 0.63 |
| 0.57–0.63 | 0.49–0.57 | B 0.71 |
| 0.64–0.71 | 0.58–0.64 | B 0.81 |
| 0.72–0.78 | 0.65–0.70 | B 0.92 |
| 0.79–0.88 | 0.71–0.78 | B 1.03 |
| 0.89–0.99 | 0.79–0.87 | B 1.16 |
| 1.00–1.15 | 0.88–0.98 | B 1.30 |
| 1.16–1.23 | 0.99–1.13 | B 1.45 |
| 1.24–1.43 | 1.14–1.25 | B 1.67 |
| 1.44–1.51 | 1.26–1.40 | B 1.88 |
| 1.52–1.75 | 1.41–1.58 | B 2.10 |
| 1.76–1.93 | 1.59–1.79 | B 2.40 |
| 1.94–2.25 | 1.80–1.91 | B 2.65 |
| 2.26–2.47 | 1.92–2.20 | B 3.00 |
| 2.48–2.81 | 2.21–2.55 | B 3.30 |
| 2.82–3.20 | 2.56–2.87 | B 3.70 |
| 3.21–3.63 | 2.88–3.24 | B 4.15 |
| 3.64–4.19 | 3.25–3.48 | B 4.85 |
| 4.20–4.53 | 3.49–3.85 | B 5.50 |
| 4.54–4.89 | 3.86–4.10 | B 6.25 |
| 4.90–5.68 | 4.11–4.79 | B 6.90 |
| 5.69–6.27 | 4.80–5.31 | B 7.70 |
| 6.28–6.85 | 5.32–5.65 | B 8.20 |
| 6.86–7.73 | 5.66–6.35 | B 9.10 |
| 7.74–8.50 | 6.36–7.31 | B 10.2 |
| 8.51–9.29 | 7.32–8.34 | B 11.5 |
| 9.30–10.4 | 8.35–8.84 | B 12.8 |
| 10.5–11.3 | 8.85–9.47 | B 14.0 |
| 11.4–12.3 | 9.48–10.4 | B 15.5 |
| 12.4–13.9 | 10.5–11.5 | B 17.5 |
| 14.0–15.0 | 11.6–12.0 | B 19.5 |
| 15.1–18.0 | — | B 22.0 |
| Following Selections for Size M-1 & M-1P Only. | | |
| — | 11.6–12.4 | B 19.5 |
| 15.1–17.4 | 12.5–14.0 | B 22.0 |
| 17.5–19.2 | 14.1–15.8 | B 25.0 |
| 19.3–22.0 | 15.9–17.8 | B 28.0 |
| 22.1–24.6 | 17.9–19.7 | B 32.0 |
| 24.7–26.0 | 19.8–22.4 | B 36.0 |
| — | 22.5–25.1 | B 40.0 |
| — | 25.1–26.0 | B 45.0 |
| Following Selections for Size M-1P Only. | | |
| 24.7–29.1 | — | B 36.0 |
| 29.2–31.7 | — | B 40.0 |
| 31.8–36.0 | — | B 45.0 |

## Table 3

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 0.29–0.31 | 0.28–0.29 | B 0.44 |
| 0.32–0.36 | 0.30–0.33 | B 0.51 |
| 0.37–0.39 | 0.34–0.36 | B 0.57 |
| 0.40–0.47 | 0.37–0.44 | B 0.63 |
| 0.48–0.56 | 0.45–0.52 | B 0.71 |
| 0.57–0.63 | 0.53–0.59 | B 0.81 |
| 0.64–0.69 | 0.60–0.64 | B 0.92 |
| 0.70–0.77 | 0.65–0.71 | B 1.03 |
| 0.78–0.86 | 0.72–0.80 | B 1.16 |
| 0.87–0.97 | 0.81–0.90 | B 1.30 |
| 0.98–1.12 | 0.91–1.03 | B 1.45 |
| 1.13–1.24 | 1.04–1.14 | B 1.67 |
| 1.25–1.39 | 1.15–1.27 | B 1.88 |
| 1.40–1.57 | 1.28–1.44 | B 2.10 |
| 1.58–1.78 | 1.45–1.63 | B 2.40 |
| 1.79–1.96 | 1.64–1.79 | B 2.65 |
| 1.97–2.20 | 1.80–2.01 | B 3.00 |
| 2.21–2.41 | 2.02–2.19 | B 3.30 |
| 2.42–2.75 | 2.20–2.52 | B 3.70 |
| 2.76–3.25 | 2.53–2.95 | B 4.15 |
| 3.26–3.50 | 2.96–3.17 | B 4.85 |
| 3.51–3.87 | 3.18–3.50 | B 5.50 |
| 3.88–4.13 | 3.51–3.73 | B 6.25 |
| 4.14–4.69 | 3.74–4.22 | B 6.90 |
| 4.70–5.20 | 4.23–4.68 | B 7.70 |
| 5.21–5.53 | 4.69–4.98 | B 8.20 |
| 5.54–6.23 | 4.99–5.59 | B 9.10 |
| 6.24–7.18 | 5.60–6.43 | B 10.2 |
| 7.19–8.20 | 6.44–7.41 | B 11.5 |
| 8.21–8.98 | 7.42–8.02 | B 12.8 |
| 8.99–9.63 | 8.03–8.59 | B 14.0 |
| 9.64–10.6 | 8.60–9.52 | B 15.5 |
| 10.7–11.8 | 9.53–10.5 | B 17.5 |
| 11.9–12.7 | 10.6–11.2 | B 19.5 |
| 12.8–14.3 | 11.3–12.0 | B 22.0 |
| 14.4–16.1 | — | B 25.0 |
| 16.2–18.0 | — | B 28.0 |
| Following Selections for Size M-1 & M-1P Only. | | |
| — | 11.3–12.7 | B 22.0 |
| — | 12.8–14.3 | B 25.0 |
| 16.2–18.3 | 14.4–16.1 | B 28.0 |
| 18.4–20.2 | 16.2–17.8 | B 32.0 |
| 20.3–23.0 | 17.9–20.1 | B 36.0 |
| 23.1–26.0 | 20.2–22.6 | B 40.0 |
| — | 22.7–25.5 | B 45.0 |
| — | 25.6–26.0 | B 50.0 |
| Following Selections for Size M-1P Only | | |
| 25.9–29.0 | — | B 45.0 |
| 29.1–30.8 | — | B 50.0 |
| 30.9–32.7 | — | B 56.0 |
| 32.8–36.0 | — | B 62.0 |

## Table 4

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 0.32–0.33 | 0.29–0.30 | B 0.44 |
| 0.34–0.38 | 0.31–0.35 | B 0.51 |
| 0.39–0.41 | 0.36–0.37 | B 0.57 |
| 0.42–0.50 | 0.38–0.45 | B 0.63 |
| 0.51–0.61 | 0.46–0.54 | B 0.71 |
| 0.62–0.68 | 0.55–0.61 | B 0.81 |
| 0.69–0.74 | 0.62–0.66 | B 0.92 |
| 0.75–0.83 | 0.67–0.74 | B 1.03 |
| 0.84–0.93 | 0.75–0.83 | B 1.16 |
| 0.94–1.05 | 0.84–0.93 | B 1.30 |
| 1.06–1.21 | 0.94–1.07 | B 1.45 |
| 1.22–1.34 | 1.08–1.19 | B 1.67 |
| 1.35–1.50 | 1.20–1.33 | B 1.88 |
| 1.51–1.70 | 1.34–1.51 | B 2.10 |
| 1.71–1.93 | 1.52–1.70 | B 2.40 |
| 1.94–2.12 | 1.71–1.87 | B 2.65 |
| 2.13–2.38 | 1.88–2.10 | B 3.00 |
| 2.39–2.61 | 2.11–2.29 | B 3.30 |
| 2.62–2.99 | 2.30–2.63 | B 3.70 |
| 3.00–3.53 | 2.64–3.09 | B 4.15 |
| 3.54–3.80 | 3.10–3.32 | B 4.85 |
| 3.81–4.21 | 3.33–3.67 | B 5.50 |
| 4.22–4.49 | 3.68–3.91 | B 6.25 |
| 4.50–5.10 | 3.92–4.43 | B 6.90 |
| 5.11–5.66 | 4.44–4.91 | B 7.70 |
| 5.67–6.03 | 4.92–5.23 | B 8.20 |
| 6.04–6.79 | 5.24–5.88 | B 9.10 |
| 6.80–7.84 | 5.89–6.77 | B 10.2 |
| 7.85–8.96 | 6.78–7.90 | B 11.5 |
| 8.97–9.82 | 7.91–8.44 | B 12.8 |
| 9.83–10.4 | 8.45–9.05 | B 14.0 |
| 10.5–11.6 | 9.06–9.99 | B 15.5 |
| 11.7–12.9 | 10.0–11.0 | B 17.5 |
| 13.0–13.9 | 11.1–11.9 | B 19.5 |
| 14.0–15.7 | 12.0–12.0 | B 22.0 |
| 15.8–18.0 | — | B 25.0 |
| Following Selections for Size M-1 & M-1P Only. | | |
| — | 12.0–13.4 | B 22.0 |
| — | 13.5–15.1 | B 25.0 |
| 17.8–20.1 | 15.2–17.0 | B 28.0 |
| 20.2–22.2 | 17.1–18.9 | B 32.0 |
| 22.3–25.3 | 19.0–21.4 | B 36.0 |
| 25.4–26.0 | 21.5–24.0 | B 40.0 |
| — | 24.1–26.0 | B 45.0 |
| Following Selections for Size M-1P Only. | | |
| 25.4–28.4 | — | B 40.0 |
| 28.5–33.1 | — | B 45.0 |
| 33.2–36.0 | — | B 50.0 |

## Table 5

| Current Transformer Ratio | | | | | | | | | | Thermal Unit Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 25/5 | 50/5 | 75/5 | 100/5 | 150/5 | 200/5 | 250/5 | 300/5 | 400/5 | 500/5 | |
| Motor FLC | | | | | | | | | | |
| 10.6–11.7 | 21.1–23.6 | 31.7–35.4 | 42.3–47.2 | 63.4–70.9 | 84.5–94.6 | 106.–117. | 127.–141. | 169.–188. | 211.–236. | B 3.00 |
| 11.8–13.2 | 23.7–26.5 | 35.5–39.8 | 47.3–53.1 | 71.0–79.7 | 94.7–105. | 118.–132. | 142.–159. | 189.–212. | 237.–265. | B 3.30 |
| 13.3–14.8 | 26.6–29.6 | 39.9–44.5 | 53.2–59.4 | 79.8–89.1 | 106.–118. | 133.–148. | 160.–177. | 213.–237. | 266.–296. | B 3.70 |
| 14.9–17.2 | 29.7–34.5 | 44.6–51.8 | 59.5–69.2 | 89.2–103. | 119.–138. | 149.–172. | 178.–207. | 238.–276. | 297.–345. | B 4.15 |
| 17.3–19.6 | 34.6–39.2 | 51.9–58.9 | 69.3–78.6 | 104.–117. | 139.–156. | 173.–196. | 208.–235. | 277.–314. | 346.–360. | B 4.85 |
| 19.7–22.3 | 39.3–44.6 | 59.0–67.0 | 78.7–89.3 | 118.–133. | 157.–178. | 197.–223. | 236.–267. | 315.–357. | — | B 5.50 |

## Table 6

| Current Transformer Ratio | | | | | | | | | | Thermal Unit Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 25/5 | 50/5 | 75/5 | 100/5 | 150/5 | 200/5 | 250/5 | 300/5 | 400/5 | 500/5 | |
| Motor FLC | | | | | | | | | | |
| 10.6–11.9 | 21.2–23.9 | 31.8–35.9 | 42.4–47.9 | 63.6–72.0 | 84.8–96.0 | 106.–119. | 127.–143. | 170.–191. | 212.–239. | AR 3.62 |
| 12.0–13.4 | 24.0–26.9 | 36.0–40.3 | 48.0–53.8 | 72.1–80.8 | 96.1–107. | 120.–134. | 144.–161. | 192.–215. | 240.–269. | AR 3.98 |
| 13.5–15.0 | 27.0–30.0 | 40.4–45.1 | 53.9–60.1 | 80.9–90.2 | 108.–119. | 135.–150. | 162.–180. | 216.–240. | 270.–300. | AR 4.37 |
| 15.1–16.6 | 30.1–33.4 | 45.2–50.1 | 60.2–66.9 | 90.3–99.9 | 120.–133. | 151.–166. | 181.–200. | 241.–267. | 301.–334. | AR 4.80 |
| 16.7–18.7 | 33.5–37.5 | 50.2–56.3 | 67.0–75.1 | 100.–112. | 134.–149. | 167.–187. | 201.–225. | 268.–300. | 335.–360. | AR 5.3 |
| 18.8–20.7 | 37.6–41.4 | 56.4–62.2 | 75.2–82.9 | 113.–124. | 150.–165. | 188.–207. | 226.–248. | 301.–331. | — | AR 5.8 |
| 20.8–22.8 | 41.5–45.7 | 62.3–68.5 | 83.0–91.4 | 125.–136. | 166.–182. | 208.–228. | 249.–274. | 332.–365. | — | AR 6.4 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

## Table 8

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 2.T.U.1Ø | 2 T.U.2Ø | 3 T.U. | |
| 0.37–0.39 | 0.37–0.39 | 0.30–0.31 | AR .45 |
| 0.40–0.42 | 0.40–0.42 | 0.32–0.34 | AR .49 |
| 0.43–0.46 | 0.43–0.46 | 0.35–0.37 | AR .54 |
| 0.47–0.50 | 0.47–0.50 | 0.38–0.41 | AR .59 |
| 0.51–0.54 | 0.51–0.54 | 0.42–0.45 | AR .65 |
| 0.55–0.59 | 0.55–0.59 | 0.46–0.49 | AR .71 |
| 0.60–0.65 | 0.60–0.65 | 0.50–0.54 | AR .78 |
| 0.66–0.71 | 0.66–0.71 | 0.55–0.56 | AR .86 |
| 0.72–0.78 | 0.72–0.78 | 0.57–0.62 | AR .95 |
| 0.79–0.86 | 0.79–0.86 | 0.63–0.68 | AR 1.05 |
| 0.87–0.94 | 0.87–0.94 | 0.69–0.75 | AR 1.15 |
| 0.95–1.04 | 0.95–1.04 | 0.76–0.82 | AR 1.26 |
| 1.05–1.14 | 1.05–1.14 | 0.83–0.91 | AR 1.39 |
| 1.15–1.25 | 1.15–1.25 | 0.92–1.00 | AR 1.53 |
| 1.26–1.42 | 1.26–1.42 | 1.01–1.18 | AR 1.68 |
| 1.43–1.62 | 1.43–1.62 | 1.19–1.30 | AR 1.85 |
| 1.63–1.75 | 1.63–1.75 | 1.31–1.41 | AR 2.04 |
| 1.76–1.91 | 1.76–1.91 | 1.42–1.53 | AR 2.24 |
| 1.92–2.07 | 1.92–2.07 | 1.54–1.69 | AR 2.46 |
| 2.08–2.25 | 2.08–2.25 | 1.70–1.79 | AR 2.71 |
| 2.26–2.47 | 2.26–2.47 | 1.80–2.02 | AR 2.98 |
| 2.48–2.73 | 2.48–2.73 | 2.03–2.19 | AR 3.28 |
| 2.74–2.99 | 2.74–2.99 | 2.20–2.43 | AR 3.62 |
| 3.00–3.31 | 3.00–3.31 | 2.44–2.81 | AR 3.98 |
| 3.32–3.71 | 3.32–3.71 | 2.82–3.12 | AR 4.37 |
| 3.72–4.15 | 3.72–4.15 | 3.13–3.47 | AR 4.80 |
| 4.16–4.65 | 4.16–4.65 | 3.48–3.89 | AR 5.3 |
| 4.66–5.11 | 4.66–5.11 | 3.90–4.30 | AR 5.8 |
| 5.12–5.68 | 5.12–5.68 | 4.31–4.69 | AR 6.4 |
| 5.69–6.24 | 5.69–6.24 | 4.70–5.19 | AR 7.0 |
| 6.25–7.15 | 6.25–7.15 | 5.20–5.93 | AR 7.7 |
| 7.16–7.84 | 7.16–7.84 | 5.94–6.45 | AR 8.5 |
| 7.85–8.56 | 7.85–8.56 | 6.46–7.08 | AR 9.3 |
| 8.57–9.40 | 8.57–9.40 | 7.09–7.71 | AR 10.2 |
| 9.41–10.2 | 9.41–10.2 | 7.72–8.39 | AR 11.2 |
| 10.3–10.7 | 10.3–10.7 | 8.40–8.64 | AR 12.4 |
| 10.8–12.2 | 10.8–12.2 | 8.65–9.74 | AR 13.6 |
| 12.3–14.1 | — | 9.75–11.0 | AR 15.4 |
| 14.2–15.9 | — | 11.1–12.0 | AR 17.6 |
| 16.0–18.0 | — | — | AR 20.5 |
| Following Selections for Size 1 Only | | | |
| — | 10.8–12.2 | — | AR 13.6 |
| — | 12.3–14.1 | — | AR 15.4 |
| — | 14.2–15.9 | 11.1–12.4 | AR 17.6 |
| 16.0–18.1 | 16.0–18.1 | 12.5–13.9 | AR 20.5 |
| 18.2–20.8 | 18.2–20.8 | 14.0–15.9 | AR 23.0 |
| 20.9–23.6 | 20.9–23.6 | 16.0–17.7 | AR 27.0 |
| 23.7–26.0 | 23.7–26.0 | 17.8–20.3 | AR 30.0 |
| — | — | 20.4–22.8 | AR 35.0 |
| — | — | 22.9–26.0 | AR 40.0 |

## Table 9

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 15.3–16.7 | C 20.0 |
| 16.8–19.8 | C 22.0 |
| 19.9–22.8 | C 26.0 |
| 22.9–25.8 | C 30.0 |
| 25.9–30.4 | C 34.0 |
| 30.5–31.9 | C 40.0 |
| 32.0–34.2 | C 42.0 |
| 34.3–38.8 | C 45.0 |
| 38.9–44.2 | C 51.0 |
| 44.3–50.2 | C 58.0 |
| 50.3–57.1 | C 66.0 |
| 57.2–63.2 | C 75.0 |
| 63.3–68.6 | C 83.0 |
| 68.7–78.6 | C 90.0 |
| 78.7–86.9 | C 103.0 |
| 87.0–100.0 | C 114.0 |

## Table 10

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 43.6–47.3 | CC 54.5 |
| 47.4–51.3 | CC 59.4 |
| 51.4–54.6 | CC 64.3 |
| 54.7–59.7 | CC 68.5 |
| 59.8–65.1 | CC 74.6 |
| 65.2–70.1 | CC 81.5 |
| 70.2–75.1 | CC 87.7 |
| 75.2–82.2 | CC 94.0 |
| 82.3–89.2 | CC 103.0 |
| 89.3–96.5 | CC 112.0 |
| 96.6–104. | CC 121.0 |
| 105.–113. | CC 132.0 |
| 114.–123. | CC 143.0 |
| 124.–132. | CC 156.0 |
| 133.–150. | CC 167.0 |

## Table 11

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T.U. | 3 T.U. | |
| 33.0–36.1 | 30.5–33.4 | AU 44.0 |
| 36.2–40.2 | 33.5–37.1 | AU 50.0 |
| 40.3–44.5 | 37.2–42.0 | AU 56.0 |
| 45.6–51.3 | 42.1–47.0 | AU 64.0 |
| 51.4–58.5 | 47.1–53.5 | AU 72.0 |
| 58.6–62.6 | 53.6–57.5 | AU 81.0 |
| 62.7–71.3 | 57.6–64.4 | AU 88.0 |
| 71.4–77.1 | 64.5–69.4 | AU 99.0 |
| 77.2–86.9 | 69.5–77.4 | AU 110.0 |
| 87.0–93.3 | 77.5–83.6 | AU 123.0 |
| 93.4–102. | 83.7–92.9 | AU 135.0 |
| 103.–107. | 93.0–100. | AU 152.0 |
| 108.–112. | 101.–104. | AU 169.0 |
| 113.–121. | 105.–115. | AU 183.0 |
| 122.–123. | 116.–119. | AU 198.0 |
| 124.–133. | 120.–123. | AU 217.0 |
| ——— | 124.–133. | AU 235.0 |

## Table 12

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 92.–100. | DD 112.0 |
| 101.–109. | DD 121.0 |
| 110.–119. | DD 128.0 |
| 120.–131. | DD 140.0 |
| 132.–139. | DD 150.0 |
| 140.–156. | DD 160.0 |
| 157.–166. | DD 185.0 |
| 167.–180. | DD 213.0 |
| 181.–189. | DD 220.0 |
| 190.–209. | DD 230.0 |
| 210.–225. | DD 250.0 |
| 226.–238. | DD 265.0 |
| 239.–263. | DD 280.0 |
| 264.–300. | DD 300.0 |





© 2012 Schneider Electric
All Rights Reserved

## Table 13

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 0.29–0.31 | 0.29–0.31 | 0.28–0.30 | B 0.44 |
| 0.32–0.34 | 0.32–0.34 | 0.31–0.34 | B 0.51 |
| 0.35–0.38 | 0.35–0.38 | 0.35–0.37 | B 0.57 |
| 0.39–0.45 | 0.39–0.45 | 0.38–0.44 | B 0.63 |
| 0.46–0.54 | 0.46–0.54 | 0.45–0.53 | B 0.71 |
| 0.55–0.61 | 0.55–0.61 | 0.54–0.59 | B 0.81 |
| 0.62–0.66 | 0.62–0.66 | 0.60–0.64 | B 0.92 |
| 0.67–0.73 | 0.67–0.73 | 0.65–0.72 | B 1.03 |
| 0.74–0.81 | 0.74–0.81 | 0.73–0.80 | B 1.16 |
| 0.82–0.94 | 0.82–0.94 | 0.81–0.90 | B 1.30 |
| 0.95–1.05 | 0.95–1.05 | 0.91–1.03 | B 1.45 |
| 1.06–1.22 | 1.06–1.22 | 1.04–1.14 | B 1.67 |
| 1.23–1.34 | 1.23–1.34 | 1.15–1.27 | B 1.88 |
| 1.35–1.51 | 1.35–1.51 | 1.28–1.43 | B 2.10 |
| 1.52–1.71 | 1.52–1.71 | 1.44–1.62 | B 2.40 |
| 1.72–1.93 | 1.72–1.93 | 1.63–1.77 | B 2.65 |
| 1.94–2.14 | 1.94–2.14 | 1.78–1.97 | B 3.00 |
| 2.15–2.40 | 2.15–2.40 | 1.98–2.32 | B 3.30 |
| 2.41–2.72 | 2.41–2.72 | 2.33–2.51 | B 3.70 |
| 2.73–3.15 | 2.73–3.15 | 2.52–2.99 | B 4.15 |
| 3.16–3.55 | 3.16–3.55 | 3.00–3.42 | B 4.85 |
| 3.56–4.00 | 3.56–4.00 | 3.43–3.75 | B 5.50 |
| 4.01–4.40 | 4.01–4.40 | 3.76–3.98 | B 6.25 |
| 4.41–4.88 | 4.41–4.88 | 3.99–4.48 | B 6.90 |
| 4.89–5.19 | 4.89–5.19 | 4.49–4.93 | B 7.70 |
| 5.20–5.73 | 5.20–5.73 | 4.94–5.21 | B 8.20 |
| 5.74–6.39 | 5.74–6.39 | 5.22–5.84 | B 9.10 |
| 6.40–7.13 | 6.40–7.13 | 5.85–6.67 | B 10.2 |
| 7.14–7.90 | 7.14–7.90 | 6.68–7.54 | B 11.5 |
| 7.91–8.55 | 7.91–8.55 | 7.55–8.14 | B 12.8 |
| 8.56–9.53 | 8.56–9.53 | 8.15–8.72 | B 14.0 |
| 9.54–10.6 | 9.54–10.6 | 8.73–9.66 | B 15.5 |
| 10.7–11.8 | 10.7–11.8 | 9.67–10.5 | B 17.5 |
| 11.9–13.2 | 11.9–12.0 | 10.6–11.3 | B 19.5 |
| 13.3–14.9 | — | 11.4–12.0 | B 22.0 |
| 15.0–16.6 | — | — | B 25.0 |
| 16.7–18.0 | — | — | B 28.0 |
| Following Selections for Size 1 Only | | | |
| — | 11.9–13.2 | — | B 19.5 |
| — | 13.3–14.9 | 11.4–12.7 | B 22.0 |
| — | 15.0–16.6 | 12.8–14.1 | B 25.0 |
| 16.7–18.9 | 16.7–18.9 | 14.2–15.9 | B 28.0 |
| 19.0–21.2 | 19.0–21.2 | 16.0–17.5 | B 32.0 |
| 21.3–23.0 | 21.3–23.0 | 17.6–19.7 | B 36.0 |
| 23.1–25.5 | 23.1–25.5 | 19.8–21.9 | B 40.0 |
| 25.6–26.0 | 25.6–26.0 | 22.0–24.4 | B 45.0 |
| — | — | 24.5–26.0 | B 50.0 |

## Table 14

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 0.43–0.47 | 0.41–0.45 | 0.40–0.41 | A .49 |
| 0.48–0.51 | 0.46–0.50 | 0.42–0.46 | A .54 |
| 0.52–0.56 | 0.51–0.55 | 0.47–0.51 | A .59 |
| 0.57–0.64 | 0.56–0.62 | 0.52–0.57 | A .65 |
| 0.65–0.69 | 0.63–0.67 | 0.58–0.62 | A .71 |
| 0.70–0.76 | 0.68–0.72 | 0.63–0.67 | A .78 |
| 0.77–0.84 | 0.73–0.81 | 0.68–0.75 | A .86 |
| 0.85–0.91 | 0.82–0.88 | 0.76–0.80 | A .95 |
| 0.92–1.01 | 0.89–0.97 | 0.81–0.89 | A 1.02 |
| 1.02–1.15 | 0.98–1.08 | 0.90–1.02 | A 1.16 |
| 1.16–1.23 | 1.09–1.18 | 1.03–1.09 | A 1.25 |
| 1.24–1.37 | 1.19–1.32 | 1.10–1.21 | A 1.39 |
| 1.38–1.45 | 1.33–1.40 | 1.22–1.29 | A 1.54 |
| 1.46–1.56 | 1.41–1.48 | 1.30–1.37 | A 1.63 |
| 1.57–1.67 | 1.49–1.60 | 1.38–1.48 | A 1.75 |
| 1.68–1.77 | 1.61–1.72 | 1.49–1.58 | A 1.86 |
| 1.78–1.92 | 1.73–1.84 | 1.59–1.72 | A 1.99 |
| 1.93–2.09 | 1.85–2.00 | 1.73–1.85 | A 2.15 |
| 2.10–2.31 | 2.01–2.22 | 1.86–2.05 | A 2.31 |
| 2.32–2.56 | 2.23–2.45 | 2.06–2.29 | A 2.57 |
| 2.57–2.92 | 2.46–2.82 | 2.30–2.62 | A 2.81 |
| 2.93–3.16 | 2.83–3.08 | 2.63–2.84 | A 3.61 |
| 3.17–3.48 | 3.09–3.39 | 2.85–3.10 | A 3.95 |
| 3.49–3.83 | 3.40–3.75 | 3.11–3.46 | A 4.32 |
| 3.84–4.24 | 3.76–4.16 | 3.47–3.85 | A 4.79 |
| 4.25–4.62 | 4.17–4.51 | 3.86–4.16 | A 5.30 |
| 4.63–4.92 | 4.52–4.83 | 4.17–4.46 | A 5.78 |
| 4.93–5.61 | 4.84–5.49 | 4.47–5.08 | A 6.20 |
| 5.62–5.85 | 5.50–5.67 | 5.09–5.35 | A 6.99 |
| 5.86–6.36 | 5.68–6.16 | 5.36–5.82 | A 7.65 |
| 6.37–6.99 | 6.17–6.75 | 5.83–6.34 | A 8.38 |
| 7.00–7.67 | 6.76–7.00 | 6.35–6.95 | A 9.25 |
| 7.68–8.15 | — | 6.96–7.00 | A 9.85 |
| 8.16–9.00 | — | — | A 11.0 |

## Table 15

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 0.31–0.33 | 0.31–0.33 | 0.29–0.31 | B 0.44 |
| 0.34–0.36 | 0.34–0.36 | 0.32–0.36 | B 0.51 |
| 0.37–0.40 | 0.37–0.40 | 0.37–0.38 | B 0.57 |
| 0.41–0.48 | 0.41–0.48 | 0.39–0.46 | B 0.63 |
| 0.49–0.57 | 0.49–0.57 | 0.47–0.55 | B 0.71 |
| 0.58–0.64 | 0.58–0.64 | 0.56–0.61 | B 0.81 |
| 0.65–0.70 | 0.65–0.70 | 0.62–0.66 | B 0.92 |
| 0.71–0.77 | 0.71–0.77 | 0.67–0.75 | B 1.03 |
| 0.78–0.85 | 0.78–0.85 | 0.76–0.83 | B 1.16 |
| 0.86–0.99 | 0.86–0.99 | 0.84–0.93 | B 1.30 |
| 1.00–1.10 | 1.00–1.10 | 0.94–1.06 | B 1.45 |
| 1.11–1.28 | 1.11–1.28 | 1.07–1.18 | B 1.67 |
| 1.29–1.41 | 1.29–1.41 | 1.19–1.31 | B 1.88 |
| 1.42–1.58 | 1.42–1.58 | 1.32–1.47 | B 2.10 |
| 1.59–1.80 | 1.59–1.80 | 1.48–1.67 | B 2.40 |
| 1.81–2.03 | 1.81–2.03 | 1.68–1.83 | B 2.65 |
| 2.04–2.25 | 2.04–2.25 | 1.84–2.04 | B 3.00 |
| 2.26–2.51 | 2.26–2.51 | 2.05–2.38 | B 3.30 |
| 2.52–2.83 | 2.52–2.83 | 2.39–2.60 | B 3.70 |
| 2.84–3.29 | 2.84–3.29 | 2.61–3.13 | B 4.15 |
| 3.30–3.75 | 3.30–3.75 | 3.14–3.59 | B 4.85 |
| 3.76–4.22 | 3.76–4.22 | 3.60–3.94 | B 5.50 |
| 4.23–4.65 | 4.23–4.65 | 3.95–4.19 | B 6.25 |
| 4.66–5.16 | 4.66–5.16 | 4.20–4.72 | B 6.90 |
| 5.17–5.53 | 5.17–5.53 | 4.73–5.21 | B 7.70 |
| 5.54–6.09 | 5.54–6.09 | 5.22–5.51 | B 8.20 |
| 6.10–6.80 | 6.10–6.80 | 5.52–6.17 | B 9.10 |
| 6.81–7.60 | 6.81–7.60 | 6.18–7.07 | B 10.2 |
| 7.61–8.35 | 7.61–8.35 | 7.08–8.05 | B 11.5 |
| 8.36–9.04 | 8.36–9.04 | 8.06–8.69 | B 12.8 |
| 9.05–9.99 | 9.05–9.99 | 8.70–9.32 | B 14.0 |
| 10.0–11.1 | 10.0–11.1 | 9.33–10.2 | B 15.5 |
| 11.2–12.3 | 11.2–12.0 | 10.3–11.3 | B 17.5 |
| 12.4–13.7 | — | 11.4–12.0 | B 19.5 |
| 13.8–15.4 | — | — | B 22.0 |
| 15.5–18.0 | — | — | B 25.0 |
| Following Selections for Size 1 Only | | | |
| — | 11.2–12.3 | — | B 17.5 |
| — | 12.4–13.7 | 11.4–12.1 | B 19.5 |
| — | 13.8–15.4 | 12.2–13.7 | B 22.0 |
| 15.5–17.2 | 15.5–17.2 | 13.8–15.2 | B 25.0 |
| 17.3–19.4 | 17.3–19.4 | 15.3–17.2 | B 28.0 |
| 19.5–21.7 | 19.5–21.7 | 17.3–18.9 | B 32.0 |
| 21.8–23.9 | 21.8–23.9 | 19.0–21.4 | B 36.0 |
| 24.0–26.0 | 24.0–26.0 | 21.5–23.7 | B 40.0 |
| — | — | 23.8–26.0 | B 45.0 |

## Table 16

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 16.2–17.5 | 15.1–16.2 | 14.3–15.4 | CC 20.9 |
| 17.6–18.8 | 16.3–17.3 | 15.5–16.4 | CC 22.8 |
| 18.9–20.5 | 17.4–19.5 | 16.5–18.5 | CC 24.6 |
| 20.6–22.2 | 19.6–20.7 | 18.6–19.6 | CC 26.3 |
| 22.3–23.7 | 20.8–22.3 | 19.7–21.1 | CC 28.8 |
| 23.8–25.4 | 22.4–24.0 | 21.2–22.7 | CC 31.0 |
| 25.5–27.3 | 24.1–25.7 | 22.8–24.4 | CC 33.3 |
| 27.4–29.3 | 25.8–27.5 | 24.5–26.1 | CC 36.4 |
| 29.4–31.5 | 27.6–29.6 | 26.2–28.1 | CC 39.6 |
| 31.6–33.9 | 29.7–31.7 | 28.2–30.0 | CC 42.7 |
| 34.0–36.2 | 31.8–33.9 | 30.1–32.1 | CC 46.6 |
| 36.3–39.3 | 34.0–36.6 | 32.2–34.7 | CC 50.1 |
| 39.4–42.3 | 36.7–39.3 | 34.8–37.3 | CC 54.5 |
| 42.4–45.3 | 39.4–42.3 | 37.4–40.1 | CC 59.4 |
| 45.4–48.3 | 42.4–44.9 | 40.2–42.6 | CC 64.3 |
| 48.4–52.0 | 45.0–48.3 | 42.7–45.8 | CC 68.5 |
| 52.1–54.9 | 48.4–50.9 | 45.9–48.3 | CC 74.6 |
| 55.0–59.7 | 51.0–55.5 | 48.4–52.6 | CC 81.5 |
| 59.8–65.4 | 55.6–59.9 | 52.7–56.8 | CC 87.7 |
| 65.5–69.6 | 60.0–64.2 | 56.9–60.9 | CC 94.0 |
| 69.7–74.8 | 64.3–68.7 | 61.0–65.1 | CC 103.0 |
| 74.9–79.7 | 68.8–71.4 | 65.2–67.7 | CC 112.0 |
| 79.8–83.1 | 71.5–74.8 | 67.8–70.9 | CC 121.0 |
| 83.2–86.0 | 74.9–78.0 | 71.0–73.9 | CC 132.0 |
| — | 78.1–80.7 | 74.0–76.5 | CC 143.0 |
| — | 80.8–86.0 | 76.6–80.2 | CC 156.0 |
| — | — | 80.3–83.1 | CC 167.0 |
| — | — | 83.2–86.0 | CC 180.0 |

## Table 17

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 0.42–0.46 | 0.39–0.43 | 0.38–0.40 | A .49 |
| 0.47–0.50 | 0.44–0.47 | 0.41–0.44 | A .54 |
| 0.51–0.55 | 0.48–0.52 | 0.45–0.49 | A .59 |
| 0.56–0.62 | 0.53–0.58 | 0.50–0.55 | A .65 |
| 0.63–0.67 | 0.59–0.64 | 0.56–0.60 | A .71 |
| 0.68–0.73 | 0.65–0.68 | 0.61–0.65 | A .78 |
| 0.74–0.81 | 0.69–0.77 | 0.66–0.72 | A .86 |
| 0.82–0.89 | 0.78–0.84 | 0.73–0.79 | A .95 |
| 0.90–0.98 | 0.85–0.93 | 0.80–0.88 | A 1.02 |
| 0.99–1.12 | 0.94–1.05 | 0.89–0.98 | A 1.16 |
| 1.13–1.20 | 1.06–1.13 | 0.99–1.07 | A 1.25 |
| 1.21–1.34 | 1.14–1.25 | 1.08–1.17 | A 1.39 |
| 1.35–1.41 | 1.26–1.33 | 1.18–1.25 | A 1.54 |
| 1.42–1.51 | 1.34–1.42 | 1.26–1.33 | A 1.63 |
| 1.52–1.62 | 1.43–1.52 | 1.34–1.44 | A 1.75 |
| 1.63–1.73 | 1.53–1.63 | 1.45–1.53 | A 1.86 |
| 1.74–1.86 | 1.64–1.75 | 1.54–1.65 | A 1.99 |
| 1.87–2.02 | 1.76–1.90 | 1.66–1.79 | A 2.15 |
| 2.03–2.25 | 1.91–2.13 | 1.80–1.99 | A 2.31 |
| 2.26–2.46 | 2.14–2.33 | 2.00–2.18 | A 2.57 |
| 2.47–2.77 | 2.34–2.73 | 2.19–2.45 | A 2.81 |
| 2.78–2.99 | 2.74–2.86 | 2.46–2.65 | A 3.61 |
| 3.00–3.26 | 2.87–3.14 | 2.66–2.90 | A 3.95 |
| 3.27–3.59 | 3.15–3.47 | 2.91–3.19 | A 4.32 |
| 3.60–3.99 | 3.48–3.83 | 3.20–3.56 | A 4.79 |
| 4.00–4.42 | 3.84–4.16 | 3.57–3.83 | A 5.30 |
| 4.43–4.61 | 4.17–4.43 | 3.84–4.08 | A 5.78 |
| 4.62–5.23 | 4.44–5.00 | 4.09–4.64 | A 6.20 |
| 5.24–5.39 | 5.01–5.16 | 4.65–5.00 | A 6.99 |
| 5.40–5.88 | 5.17–5.56 | 5.01–5.36 | A 7.65 |
| 5.89–6.56 | 5.57–6.22 | 5.37–5.87 | A 8.38 |
| 6.57–7.18 | 6.23–6.89 | 5.88–6.43 | A 9.25 |
| 7.19–7.80 | 6.90–7.00 | 6.44–6.79 | A 9.85 |
| 7.81–9.00 | — | 6.80–7.00 | A 11.0 |

## Table 18

| Motor FLC (A) | | | Thermal Unit Number |
|---|---|---|---|
| 1.T.U. | 2 T.U. | 3 T.U. | |
| 15.5–16.4 | 14.4–15.3 | 13.6–14.5 | CC 20.9 |
| 16.5–17.6 | 15.4–16.4 | 14.6–15.5 | CC 22.8 |
| 17.7–19.1 | 16.5–18.4 | 15.6–17.4 | CC 24.6 |
| 19.2–20.4 | 18.5–19.6 | 17.5–18.5 | CC 26.3 |
| 20.5–22.1 | 19.7–21.0 | 18.6–19.9 | CC 28.8 |
| 22.2–23.4 | 21.1–22.7 | 20.0–21.5 | CC 31.0 |
| 23.5–25.6 | 22.8–24.2 | 21.6–22.9 | CC 33.3 |
| 25.7–27.3 | 24.3–25.9 | 23.0–24.5 | CC 36.4 |
| 27.4–29.4 | 26.0–27.8 | 24.6–26.3 | CC 39.6 |
| 29.5–31.5 | 27.9–29.8 | 26.4–28.2 | CC 42.7 |
| 31.6–33.7 | 29.9–31.7 | 28.3–30.0 | CC 46.6 |
| 33.8–36.5 | 31.8–34.2 | 30.1–32.3 | CC 50.1 |
| 36.6–39.1 | 34.3–36.9 | 32.4–34.9 | CC 54.5 |
| 39.2–41.7 | 37.0–39.8 | 35.0–37.6 | CC 59.4 |
| 41.8–44.8 | 39.9–42.3 | 37.7–40.0 | CC 64.3 |
| 44.9–48.0 | 42.4–45.3 | 40.1–42.8 | CC 68.5 |
| 48.1–50.7 | 45.4–47.9 | 42.9–45.3 | CC 74.6 |
| 50.8–54.9 | 48.0–51.9 | 45.4–49.1 | CC 81.5 |
| 55.0–59.9 | 52.0–56.5 | 49.2–53.4 | CC 87.7 |
| 60.0–63.3 | 56.6–60.7 | 53.5–57.4 | CC 94.0 |
| 63.4–67.2 | 60.8–64.8 | 57.5–61.3 | CC 103.0 |
| 67.3–72.4 | 64.9–67.1 | 61.4–63.5 | CC 112.0 |
| 72.5–74.9 | 67.2–70.1 | 63.6–66.3 | CC 121.0 |
| 75.0–77.4 | 70.2–72.9 | 66.4–69.0 | CC 132.0 |
| 77.5–80.7 | 73.0–74.9 | 69.1–70.9 | CC 143.0 |
| 80.8–83.1 | 75.0–77.9 | 71.0–73.7 | CC 156.0 |
| 83.2–86.0 | 78.0–80.9 | 73.8–76.5 | CC 167.0 |
| — | 81.0–82.9 | 76.6–78.4 | CC 180.0 |
| — | 83.0–86.0 | 78.5–86.0 | CC 196.0 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

## Table 19

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 43.6–47.3 | CC 54.5 |
| 47.4–51.3 | CC 59.4 |
| 51.4–54.6 | CC 64.3 |
| 54.7–59.7 | CC 68.5 |
| 59.8–65.1 | CC 74.6 |
| 65.2–70.1 | CC 81.5 |
| 70.2–75.1 | CC 87.7 |
| 75.2–82.2 | CC 94.0 |
| 82.3–89.2 | CC 103.0 |
| 89.3–96.5 | CC 112.0 |
| 96.6–104. | CC 121.0 |
| 105.–113. | CC 132.0 |
| 114.–123. | CC 143.0 |
| 124.–133. | CC 156.0 |

## Table 20

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 133.–148. | B 1.30 |
| 149.–174. | B 1.45 |
| 175.–195. | B 1.67 |
| 196.–219. | B 1.88 |
| 220.–239. | B 2.10 |
| 240.–271. | B 2.40 |
| 272.–308. | B 2.65 |
| 309.–348. | B 3.00 |
| 349.–397. | B 3.30 |
| 398.–429. | B 3.70 |
| 430.–495. | B 4.15 |
| 496.–520. | B 4.85 |

## Table 21

| Motor FLC (A) | Thermal Unit Load |
|---|---|
| 128.–140. | B 1.30 |
| 141.–163. | B 1.45 |
| 164.–179. | B 1.67 |
| 180.–201. | B 1.88 |
| 202.–227. | B 2.10 |
| 228.–251. | B 2.40 |
| 252.–278. | B 2.65 |
| 279.–308. | B 3.00 |
| 309.–346. | B 3.30 |
| 347.–380. | B 3.70 |
| 381.–426. | B 4.15 |
| 427.–454. | B 4.85 |
| 455.–489. | B 5.50 |
| 490.–520. | B 6.25 |

## Table 22

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 92.0–100. | DD 112.0 |
| 101.–109. | DD 121.0 |
| 110.–119. | DD 128.0 |
| 120.–131. | DD 140.0 |
| 132.–139. | DD 150.0 |
| 140.–156. | DD 160.0 |
| 157.–166. | DD 185.0 |
| 167.–180. | DD 213.0 |
| 181.–189. | DD 220.0 |
| 190.–209. | DD 230.0 |
| 210.–225. | DD 250.0 |
| 226.–238. | DD 265.0 |
| 239.–266. | DD 280.0 |

## Table 23

| Motor FLC (A) 2 or 3 T.U. | | Thermal Unit Number |
|---|---|---|
| Large Enclosure | Small Enclosure | |
| 0.31–0.32 | 0.29–0.30 | AR .45 |
| 0.33–0.36 | 0.31–0.33 | AR .49 |
| 0.37–0.39 | 0.34–0.37 | AR .54 |
| 0.40–0.43 | 0.38–0.41 | AR .59 |
| 0.44–0.47 | 0.42–0.45 | AR .65 |
| 0.48–0.52 | 0.46–0.50 | AR .71 |
| 0.53–0.58 | 0.51–0.55 | AR .78 |
| 0.59–0.60 | 0.56–0.57 | AR .86 |
| 0.61–0.62 | 0.58–0.60 | AR .95 |
| 0.63–0.69 | 0.61–0.66 | AR 1.05 |
| 0.70–0.76 | 0.67–0.73 | AR 1.15 |
| 0.77–0.84 | 0.74–0.81 | AR 1.26 |
| 0.85–0.93 | 0.82–0.90 | AR 1.39 |
| 0.94–1.03 | 0.91–0.99 | AR 1.53 |
| 1.04–1.23 | 1.00–1.18 | AR 1.68 |
| 1.24–1.35 | 1.19–1.30 | AR 1.85 |
| 1.36–1.47 | 1.31–1.42 | AR 2.04 |
| 1.48–1.61 | 1.43–1.49 | AR 2.24 |
| 1.62–1.76 | 1.50–1.69 | AR 2.46 |
| 1.77–1.93 | 1.70–1.85 | AR 2.71 |
| 1.94–2.12 | 1.86–2.03 | AR 2.98 |
| 2.13–2.35 | 2.04–2.25 | AR 3.28 |
| 2.36–2.61 | 2.26–2.50 | AR 3.62 |
| 2.62–2.79 | 2.51–2.68 | AR 3.98 |
| 2.80–3.14 | 2.69–3.01 | AR 4.37 |
| 3.15–3.48 | 3.02–3.35 | AR 4.80 |
| 3.49–3.89 | 3.36–3.74 | AR 5.3 |
| 3.90–4.30 | 3.75–4.14 | AR 5.8 |
| 4.31–4.73 | 4.15–4.57 | AR 6.4 |
| 4.74–5.20 | 4.58–5.03 | AR 7.0 |
| 5.21–5.95 | 5.04–5.76 | AR 7.7 |
| 5.96–6.49 | 5.77–6.29 | AR 8.5 |
| 6.50–7.08 | 6.30–6.87 | AR 9.3 |
| 7.09–7.77 | 6.88–7.54 | AR 10.2 |
| 7.78–8.48 | 7.55–8.25 | AR 11.2 |
| 8.49–9.15 | 8.26–8.60 | AR 12.4 |
| 9.16–10.3 | 8.61–9.63 | AR 13.6 |
| 10.4–11.9 | 9.64–11.1 | AR 15.4 |
| 12.0–13.4 | 11.2–12.5 | AR 17.6 |
| 13.5–15.4 | 12.6–14.3 | AR 20.5 |
| 15.5–17.5 | 14.4–16.1 | AR 23.0 |
| 17.6–19.8 | 16.2–18.2 | AR 27.0 |
| 19.9–22.5 | 18.3–20.6 | AR 30.0 |
| 22.6–26.0 | 20.7–23.4 | AR 35.0 |
| — | 23.5–26.0 | AR 40.0 |

## Table 24

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 88.2–95.1 | DD 112.0 |
| 95.2–101. | DD 121.0 |
| 102.–111. | DD 128.0 |
| 112.–119. | DD 140.0 |
| 120.–131. | DD 150.0 |
| 132.–149. | DD 160.0 |
| 150.–170. | DD 185.0 |
| 171.–180. | DD 220.0 |
| 181.–197. | DD 240.0 |
| 198.–204. | DD 250.0 |
| 205.–213. | DD 265.0 |
| 214.–237. | DD 280.0 |
| 238.–243. | DD 300.0 |
| 244.–266. | DD 320.0 |

## Table 25

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.28–0.30 | AR .45 |
| 0.31–0.33 | AR .49 |
| 0.34–0.36 | AR .54 |
| 0.37–0.39 | AR .59 |
| 0.40–0.42 | AR .65 |
| 0.43–0.46 | AR .71 |
| 0.47–0.50 | AR .78 |
| 0.51–0.52 | AR .86 |
| 0.53–0.56 | AR .95 |
| 0.57–0.60 | AR 1.05 |
| 0.61–0.66 | AR 1.15 |
| 0.67–0.73 | AR 1.26 |
| 0.74–0.81 | AR 1.39 |
| 0.82–0.90 | AR 1.53 |
| 0.91–1.05 | AR 1.68 |
| 1.06–1.15 | AR 1.85 |
| 1.16–1.25 | AR 2.04 |
| 1.26–1.35 | AR 2.24 |
| 1.36–1.47 | AR 2.46 |
| 1.48–1.58 | AR 2.71 |
| 1.59–1.74 | AR 2.98 |
| 1.75–1.94 | AR 3.28 |
| 1.95–2.20 | AR 3.62 |
| 2.21–2.47 | AR 3.98 |
| 2.48–2.76 | AR 4.37 |
| 2.77–3.07 | AR 4.80 |
| 3.08–3.45 | AR 5.3 |
| 3.46–3.81 | AR 5.8 |
| 3.82–4.20 | AR 6.4 |
| 4.21–4.65 | AR 7.0 |
| 4.66–5.29 | AR 7.7 |
| 5.30–5.84 | AR 8.5 |
| 5.85–6.27 | AR 9.3 |
| 6.28–7.00 | AR 10.2 |

## Table 26

| Size 7 Type J | Size 8 Type K | Thermal Unit Number |
|---|---|---|
| Current Transformer Ratio | | |
| 120/5 | 2000/5 | |
| Motor FLC | | |
| 166.–187. | 277.–312. | B 1.03 |
| 188.–211. | 313.–352. | B 1.16 |
| 212.–232. | 353.–388. | B 1.30 |
| 233.–267. | 389.–445. | B 1.45 |
| 268.–301. | 446.–503. | B 1.67 |
| 302.–336. | 504.–561. | B 1.88 |
| 337.–383. | 562.–640. | B 2.10 |
| 384.–425. | 641.–708. | B 2.40 |
| 426.–466. | 709.–777. | B 2.65 |
| 467.–522. | 778.–870. | B 3.00 |
| 523.–587. | 871.–978. | B 3.30 |
| 588.–656. | 979.–1093. | B 3.70 |
| 657.–764. | 1094.–1215. | B 4.15 |

## Table 27

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 or 3 T.U. | | |
| Large Enclosure | Small Enclosure | |
| 4.32–4.93 | 4.14–4.71 | AR 8.5 |
| 4.94–5.40 | 4.72–5.18 | AR 9.3 |
| 5.41–5.95 | 5.19–5.74 | AR 10.2 |
| 5.96–6.13 | 5.75–5.98 | AR 11.2 |
| 6.14–6.81 | 5.99–6.47 | AR 12.4 |
| 6.82–7.84 | 6.48–7.42 | AR 13.6 |
| 7.85–8.97 | 7.43–8.46 | AR 15.4 |
| 8.98–10.1 | 8.47–9.56 | AR 17.6 |
| 10.2–11.6 | 9.57–10.9 | AR 20.5 |
| 11.7–13.2 | 11.0–12.3 | AR 23.0 |
| 13.3–15.0 | 12.4–14.0 | AR 27.0 |
| 15.1–17.1 | 14.1–15.9 | AR 30.0 |
| 17.2–19.6 | 16.0–18.1 | AR 35.0 |
| 19.7–21.9 | 18.2–20.3 | AR 40.0 |
| 22.0–23.8 | 20.4–22.0 | AR 44.0 |
| 23.9–25.6 | 22.1–23.6 | AR 47.0 |
| 25.7–27.9 | 23.7–25.5 | AR 51.0 |
| 28.0–30.5 | 25.6–27.8 | AR 55.0 |
| 30.6–33.0 | 27.9–30.0 | AR 60.0 |
| 33.1–35.7 | 30.1–32.4 | AR 66.0 |
| 35.8–39.5 | 32.5–35.7 | AR 72.0 |
| 39.6–41.5 | 35.8–38.3 | AR 79.0 |
| 41.6–45.0 | 38.4–40.9 | AR 86.0 |
| — | 41.0–45.0 | AR 94.0 |





© 2012 Schneider Electric
All Rights Reserved

## Table 28

| Motor FLC (A) 2 or 3 T.U. | | Thermal Unit Number |
|---|---|---|
| Large Enclosure | Small Enclosure | |
| 45.3–48.2 | 40.3–42.8 | CC 64.3 |
| 48.3–52.4 | 42.9–46.2 | CC 68.5 |
| 52.5–56.4 | 46.3–49.8 | CC 74.6 |
| 56.5–61.2 | 49.9–54.9 | CC 81.5 |
| 61.3–66.1 | 55.0–57.9 | CC 87.7 |
| 66.2–71.4 | 58.0–62.5 | CC 94.0 |
| 71.5–77.0 | 62.6–67.3 | CC 103.0 |
| 77.1–80.7 | 67.4–73.4 | CC 112.0 |
| 80.8–87.7 | 73.5–78.9 | CC 121.0 |
| 87.8–94.9 | 79.0–84.9 | CC 132.0 |
| 95.0–102. | 85.0–91.0 | CC 143.0 |
| 103.–110. | 91.1–97.2 | CC 156.0 |
| 111.–117. | 97.3–104. | CC 167.0 |
| 118.–133. | 105.–121. | CC 180.0 |
| — | 122.–133. | CC 196.0 |

## Table 29

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 50.0–55.9 | E 88 |
| 56.0–60.9 | E 89 |
| 61.0–65.9 | E 91 |
| 66.0–69.9 | E 92 |
| 70.0–75.9 | E 93 |
| 76.0–81.9 | E 94 |
| 82.0–86.9 | E 96 |
| 87.0–92.9 | E 97 |
| 93.0–97.9 | E 98 |
| 98.0–107.9 | E 99 |
| 108.0–113.9 | E 101 |
| 114.0–125.9 | E 102 |

## Table 30

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| Large Enclosure | Small Enclosure | |
| 39.0–42.9 | 37.0–40.8 | AU 44.0 |
| 43.0–48.0 | 40.9–45.6 | AU 50.0 |
| 48.1–54.7 | 45.7–51.8 | AU 56.0 |
| 54.8–62.2 | 51.9–58.8 | AU 64.0 |
| 62.3–71.3 | 58.9–67.4 | AU 72.0 |
| 71.4–76.0 | 67.5–70.4 | AU 81.0 |
| 76.1–85.5 | 70.5–79.4 | AU 88.0 |
| 85.6–92.4 | 79.5–86.3 | AU 99.0 |
| 92.5–103. | 86.4–96.7 | AU 110.0 |
| 104.–111. | 96.8–105. | AU 123.0 |
| 112.–123. | 106.–117. | AU 135.0 |
| 124.–133. | 118.–133. | AU 152.0 |

## Table 31

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.31–0.35 | B 0.44 |
| 0.36–0.39 | B 0.51 |
| 0.40–0.44 | B 0.57 |
| 0.45–0.50 | B 0.63 |
| 0.51–0.61 | B 0.71 |
| 0.62–0.68 | B 0.81 |
| 0.69–0.73 | B 0.92 |
| 0.74–0.82 | B 1.03 |
| 0.83–0.92 | B 1.16 |
| 0.93–1.03 | B 1.30 |
| 1.04–1.19 | B 1.45 |
| 1.20–1.34 | B 1.67 |
| 1.35–1.50 | B 1.88 |
| 1.51–1.74 | B 2.10 |
| 1.75–1.97 | B 2.40 |
| 1.98–2.14 | B 2.65 |
| 2.15–2.47 | B 3.00 |
| 2.48–2.91 | B 3.30 |
| 2.92–3.31 | B 3.70 |
| 3.32–3.75 | B 4.15 |
| 3.76–4.05 | B 4.85 |
| 4.06–4.94 | B 6.25 |
| 4.95–5.52 | B 6.90 |
| 5.53–6.11 | B 7.70 |
| 6.12–6.52 | B 8.20 |
| 6.53–7.31 | B 9.10 |
| 7.32–8.43 | B 10.2 |
| 8.44–9.83 | B 11.5 |
| 9.84–10.7 | B 12.8 |
| 10.8–11.6 | B 14.0 |
| 11.7–12.9 | B 15.5 |
| 13.0–14.3 | B 17.5 |
| 14.4–15.7 | B 19.5 |
| 15.8–17.8 | B 22.0 |
| 17.9–20.3 | B 25.0 |
| 20.4–23.3 | B 28.0 |
| 23.4–26.6 | B 32.0 |
| 26.7–30.3 | B 36.0 |
| 30.4–35.3 | B 40.0 |
| 35.4–41.5 | B 45.0 |
| 41.6–45 | B 50.0 |

## Table 32

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.33–0.35 | AR .45 |
| 0.36–0.39 | AR .49 |
| 0.40–0.42 | AR .54 |
| 0.43–0.46 | AR .59 |
| 0.47–0.51 | AR .65 |
| 0.52–0.56 | AR .71 |
| 0.57–0.62 | AR .78 |
| 0.63–0.68 | AR .86 |
| 0.69–0.75 | AR .95 |
| 0.76–0.83 | AR 1.05 |
| 0.84–0.91 | AR 1.15 |
| 0.92–1.00 | AR 1.26 |
| 1.01–1.10 | AR 1.39 |
| 1.11–1.21 | AR 1.53 |
| 1.22–1.33 | AR 1.68 |
| 1.34–1.47 | AR 1.85 |
| 1.48–1.62 | AR 2.04 |
| 1.63–1.77 | AR 2.24 |
| 1.78–1.96 | AR 2.46 |
| 1.97–2.16 | AR 2.71 |
| 2.17–2.37 | AR 2.98 |
| 2.38–2.62 | AR 3.28 |
| 2.63–2.88 | AR 3.62 |
| 2.89–3.17 | AR 3.98 |
| 3.18–3.48 | AR 4.37 |
| 3.49–3.83 | AR 4.80 |
| 3.84–4.20 | AR 5.3 |
| 4.21–4.62 | AR 5.8 |
| 4.63–5.08 | AR 6.4 |
| 5.09–5.57 | AR 7.0 |
| 5.58–6.13 | AR 7.7 |
| 6.14–6.83 | AR 8.5 |
| 6.84–7.41 | AR 9.3 |
| 7.42–8.05 | AR 10.2 |
| 8.06–8.98 | AR 11.2 |
| 8.99–9.93 | AR 12.4 |
| 9.94–10.9 | AR 13.6 |
| 11.0–12.4 | AR 15.4 |
| 12.5–14.3 | AR 17.6 |
| 14.4–15.8 | AR 20.5 |
| 15.9–17.9 | AR 23.0 |
| 18.0–20.0 | AR 27.0 |
| 20.1–22.4 | AR 30.0 |
| 22.5–25.0 | AR 35.0 |

## Table 33

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.28–0.30 | AR .45 |
| 0.31–0.33 | AR .49 |
| 0.34–0.36 | AR .54 |
| 0.37–0.39 | AR .59 |
| 0.40–0.42 | AR .65 |
| 0.43–0.46 | AR .71 |
| 0.47–0.50 | AR .78 |
| 0.51–0.52 | AR .86 |
| 0.53–0.56 | AR .95 |
| 0.57–0.60 | AR 1.05 |
| 0.61–0.66 | AR 1.15 |
| 0.67–0.73 | AR 1.26 |
| 0.74–0.81 | AR 1.39 |
| 0.82–0.90 | AR 1.53 |
| 0.91–1.05 | AR 1.68 |
| 1.06–1.15 | AR 1.85 |
| 1.16–1.25 | AR 2.04 |
| 1.26–1.35 | AR 2.24 |
| 1.36–1.47 | AR 2.46 |
| 1.48–1.58 | AR 2.71 |
| 1.59–1.74 | AR 2.98 |
| 1.75–1.94 | AR 3.28 |
| 1.95–2.20 | AR 3.62 |
| 2.21–2.47 | AR 3.98 |
| 2.48–2.76 | AR 4.37 |
| 2.77–3.07 | AR 4.80 |
| 3.08–3.45 | AR 5.3 |
| 3.46–3.81 | AR 5.8 |
| 3.82–4.20 | AR 6.4 |
| 4.21–4.65 | AR 7.0 |
| 4.66–5.29 | AR 7.7 |
| 5.30–5.84 | AR 8.5 |
| 5.85–6.27 | AR 9.3 |
| 6.28–6.97 | AR 10.2 |
| 6.98–7.59 | AR 11.2 |
| 7.60–7.89 | AR 12.4 |
| 7.90–8.95 | AR 13.6 |
| 8.96–10.3 | AR 15.4 |
| 10.4–11.7 | AR 17.6 |
| 11.8–12.0 | AR 20.5 |
| Following Selections for Size 1 Only | |
| 11.8–13.3 | AR 20.5 |
| 13.4–15.2 | AR 23.0 |
| 15.3–17.2 | AR 27.0 |
| 17.3–19.7 | AR 30.0 |
| 19.8–22.4 | AR 35.0 |
| 22.5–26.0 | AR 40.0 |

## Table 34

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 15.1–16.2 | CC 20.9 |
| 16.3–17.5 | CC 22.8 |
| 17.6–19.1 | CC 24.6 |
| 19.2–20.7 | CC 26.3 |
| 20.8–22.2 | CC 28.8 |
| 22.3–24.0 | CC 31.0 |
| 24.1–25.7 | CC 33.3 |
| 25.8–27.8 | CC 36.4 |
| 27.9–30.1 | CC 39.6 |
| 30.2–32.5 | CC 42.7 |
| 32.6–35.1 | CC 46.6 |
| 35.2–38.0 | CC 50.1 |
| 38.1–41.1 | CC 54.5 |
| 41.2–44.0 | CC 59.4 |
| 44.1–47.2 | CC 64.3 |
| 47.3–51.1 | CC 68.5 |
| 51.2–55.8 | CC 74.6 |
| 55.9–59.5 | CC 81.5 |
| 59.6–64.5 | CC 87.7 |
| 64.6–69.5 | CC 94.0 |
| 69.6–75.0 | CC 103.0 |
| 75.1–78.1 | CC 112.0 |
| 78.2–82.3 | CC 121.0 |
| 82.4–86.0 | CC 132.0 |

## Table 35

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T.U. | 3 T.U. | |
| 36.3–39.9 | 34.7–37.1 | AU 44.0 |
| 40.0–44.1 | 37.2–41.5 | AU 50.0 |
| 44.2–50.0 | 41.6–47.1 | AU 56.0 |
| 50.1–56.4 | 47.2–53.4 | AU 64.0 |
| 56.5–64.4 | 53.5–60.7 | AU 72.0 |
| 64.5–68.4 | 60.8–64.9 | AU 81.0 |
| 68.5–77.7 | 65.0–73.4 | AU 88.0 |
| 77.8–84.2 | 73.5–79.5 | AU 99.0 |
| 84.3–94.8 | 79.6–89.0 | AU 110.0 |
| 94.9–101. | 89.1–96.9 | AU 123.0 |
| 102.–115. | 97.0–108. | AU 135.0 |
| 116.–122. | 109.–115. | AU 152.0 |
| 123.–133. | 116.–120. | AU 169.0 |
| — | 121.–133. | AU 183.0 |

## Table 36

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 90.6–97.4 | AF 110.0 |
| 97.5–111. | AF 123.0 |
| 112.–129. | AF 135.0 |
| 130.–149. | AF 150.0 |
| 150.–163. | AF 159.0 |
| 164.–189. | AF 168.0 |
| 190.–213. | AF 188.0 |
| 214.–240. | AF 205.0 |
| 241.–266. | AF 220.0 |

## Table 37

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 27.1–30.0 | E 67 |
| 30.1–33.2 | E 69 |
| 33.3–35.7 | E 70 |
| 35.8–39.4 | E 71 |
| 39.5–43.4 | E 72 |
| 43.5–46.9 | E 73 |
| 47.0–51.5 | E 74 |
| 51.6–57.0 | E 76 |
| 57.1–62.8 | E 77 |
| 62.9–69.1 | E 78 |
| 69.2–75.0 | E 79 |
| 75.1–83.3 | E 80 |

## Table 38

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 85.0–95.9 | AF 123.0 |
| 96.0–108. | AF 135.0 |
| 109.–127. | AF 150.0 |
| 128.–136. | AF 159.0 |
| 137.–147. | AF 168.0 |
| 148.–162. | AF 188.0 |
| 163.–185. | AF 205.0 |
| 186.–202. | AF 220.0 |
| 203.–219. | AF 240.0 |
| 220.–233. | AF 260.0 |
| 234.–266. | AF 308.0 |

## Table 39

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 148.–173. | AR 1.68 |
| 174.–189. | AR 1.85 |
| 190.–205. | AR 2.04 |
| 206.–222. | AR 2.24 |
| 223.–243. | AR 2.46 |
| 244.–261. | AR 2.71 |
| 262.–289. | AR 2.98 |
| 290.–324. | AR 3.28 |
| 325.–367. | AR 3.62 |
| 368.–389. | AR 3.98 |
| 390.–404. | AR 4.37 |
| 405.–451. | AR 4.80 |
| 452.–495. | AR 5.3 |
| 496.–520. | AR 5.8 |

## Table 40

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 15.3–16.7 | C 20.0 |
| 16.8–19.8 | C 22.0 |
| 19.9–22.8 | C 26.0 |
| 22.9–25.8 | C 30.0 |
| 25.9–30.4 | C 34.0 |
| 30.5–31.9 | C 40.0 |
| 32.0–34.2 | C 42.0 |
| 34.3–38.8 | C 45.0 |
| 38.9–44.2 | C 51.0 |
| 44.3–50.2 | C 58.0 |
| 50.3–57.1 | C 66.0 |
| 57.2–63.2 | C 75.0 |
| 63.3–68.6 | C 83.0 |
| 68.7–78.6 | C 90.0 |
| 78.7–86.0 | C 103.0 |

## Table 41

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.81–0.92 | B 1.16 |
| 0.93–1.07 | B 1.30 |
| 1.08–1.14 | B 1.45 |
| 1.15–1.26 | B 1.67 |
| 1.27–1.49 | B 1.88 |
| 1.50–1.73 | B 2.10 |
| 1.74–1.89 | B 2.40 |
| 1.90–2.16 | B 2.65 |
| 2.17–2.37 | B 3.00 |
| 2.38–2.66 | B 3.30 |
| 2.67–2.99 | B 3.70 |
| 3.00–3.40 | B 4.15 |
| 3.41–3.94 | B 4.85 |
| 3.95–4.15 | B 5.50 |
| 4.16–4.49 | B 6.25 |
| 4.50–5.15 | B 6.90 |
| 5.16–5.77 | B 7.70 |
| 5.78–6.61 | B 8.20 |
| 6.62–7.14 | B 9.10 |
| 7.15–7.97 | B 10.2 |
| 7.98–8.15 | B 11.5 |
| 8.16–9.32 | B 12.8 |
| 9.33–9.97 | B 14.0 |
| 9.98–10.7 | B 15.5 |
| 10.8–12.0 | B 17.5 |
| 12.1–13.9 | B 19.5 |
| 14.0–15.7 | B 22.0 |
| 15.8–18.4 | B 25.0 |
| 18.5–21.6 | B 28.0 |
| 21.7–24.0 | B 32.0 |
| 24.1–28.6 | B 36.0 |
| 28.7–30.7 | B 40.0 |
| 30.8–33.5 | B 45.0 |
| 33.6–36.0 | B 50.0 |

## Table 42

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.28–0.30 | AR .45 |
| 0.31–0.33 | AR .49 |
| 0.34–0.36 | AR .54 |
| 0.37–0.39 | AR .59 |
| 0.40–0.42 | AR .65 |
| 0.43–0.46 | AR .71 |
| 0.47–0.50 | AR .78 |
| 0.51–0.52 | AR .86 |
| 0.53–0.56 | AR .95 |
| 0.57–0.60 | AR 1.05 |
| 0.61–0.66 | AR 1.15 |
| 0.67–0.73 | AR 1.26 |
| 0.74–0.81 | AR 1.39 |
| 0.82–0.90 | AR 1.53 |
| 0.91–1.05 | AR 1.68 |
| 1.06–1.15 | AR 1.85 |
| 1.16–1.25 | AR 2.04 |
| 1.26–1.35 | AR 2.24 |
| 1.36–1.47 | AR 2.46 |
| 1.48–1.58 | AR 2.71 |
| 1.59–1.74 | AR 2.98 |
| 1.75–1.94 | AR 3.28 |
| 1.95–2.20 | AR 3.62 |
| 2.21–2.47 | AR 3.98 |
| 2.48–2.76 | AR 4.37 |
| 2.77–3.07 | AR 4.80 |
| 3.08–3.45 | AR 5.3 |
| 3.46–3.81 | AR 5.8 |
| 3.82–4.20 | AR 6.4 |
| 4.21–4.65 | AR 7.0 |
| 4.66–5.29 | AR 7.7 |
| 5.30–5.84 | AR 8.5 |
| 5.85–6.27 | AR 9.3 |
| 6.28–6.97 | AR 10.2 |
| 6.98–7.59 | AR 11.2 |
| 7.60–7.89 | AR 12.4 |
| 7.90–8.95 | AR 13.6 |
| 8.96–10.3 | AR 15.4 |
| 10.4–11.7 | AR 17.6 |
| 11.8–13.3 | AR 20.5 |
| 13.4–15.2 | AR 23.0 |
| 15.3–17.2 | AR 27.0 |
| 17.3–19.7 | AR 30.0 |
| 19.8–22.4 | AR 35.0 |
| 22.5–26.0 | AR 40.0 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

## Table 43

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.41–0.44 | A .49 |
| 0.45–0.49 | A .54 |
| 0.50–0.53 | A .59 |
| 0.54–0.58 | A .65 |
| 0.59–0.65 | A .71 |
| 0.66–0.71 | A .78 |
| 0.72–0.78 | A .86 |
| 0.79–0.85 | A .95 |
| 0.86–0.96 | A 1.02 |
| 0.97–1.04 | A 1.16 |
| 1.05–1.16 | A 1.25 |
| 1.17–1.29 | A 1.39 |
| 1.30–1.37 | A 1.54 |
| 1.38–1.47 | A 1.63 |
| 1.48–1.56 | A 1.75 |
| 1.57–1.65 | A 1.86 |
| 1.66–1.79 | A 1.99 |
| 1.80–1.95 | A 2.15 |
| 1.96–2.15 | A 2.31 |
| 2.16–2.38 | A 2.57 |
| 2.39–2.75 | A 2.81 |
| 2.76–2.84 | A 3.61 |
| 2.85–3.06 | A 3.95 |
| 3.07–3.45 | A 4.32 |
| 3.46–3.70 | A 4.79 |
| 3.71–4.07 | A 5.30 |
| 4.08–4.32 | A 5.78 |
| 4.33–4.90 | A 6.20 |
| 4.91–5.35 | A 6.99 |
| 5.36–5.85 | A 7.65 |
| 5.86–6.41 | A 8.38 |
| 6.42–6.79 | A 9.25 |
| 6.80–7.57 | A 9.85 |
| 7.58–8.15 | A 11.0 |
| 8.16–8.98 | A 11.9 |
| 8.99–9.67 | A 13.2 |
| 9.68–9.95 | A 14.1 |
| 9.96–10.8 | A 14.8 |
| 10.9–12.1 | A 16.2 |
| 12.2–13.1 | A 17.9 |
| 13.2–13.9 | A 19.8 |
| 14.0–15.0 | A 21.3 |
| 15.1–16.0 | A 25.2 |

## Table 44

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.34–0.38 | B 0.44 |
| 0.39–0.43 | B 0.51 |
| 0.44–0.48 | B 0.57 |
| 0.49–0.53 | B 0.65 |
| 0.54–0.62 | B 0.71 |
| 0.63–0.69 | B 0.81 |
| 0.70–0.78 | B 0.92 |
| 0.79–0.88 | B 1.03 |
| 0.89–0.99 | B 1.16 |
| 1.00–1.10 | B 1.30 |
| 1.11–1.26 | B 1.45 |
| 1.27–1.43 | B 1.67 |
| 1.44–1.59 | B 1.88 |
| 1.60–1.81 | B 2.10 |
| 1.82–2.00 | B 2.40 |
| 2.01–2.28 | B 2.65 |
| 2.29–2.52 | B 3.00 |
| 2.53–2.87 | B 3.30 |
| 2.88–3.28 | B 3.70 |
| 3.29–3.75 | B 4.15 |
| 3.76–4.27 | B 4.85 |
| 4.28–4.77 | B 5.50 |
| 4.78–5.27 | B 6.25 |
| 5.28–5.91 | B 6.90 |
| 5.92–6.25 | B 7.70 |
| 6.26–6.83 | B 8.20 |
| 6.84–7.65 | B 9.10 |
| 7.66–8.55 | B 10.2 |
| 8.56–9.56 | B 11.5 |
| 9.57–10.3 | B 12.8 |
| 10.4–11.3 | B 14.0 |
| 11.4–12.4 | B 15.5 |
| 12.5–14.1 | B 17.5 |
| 14.2–15.7 | B 19.5 |
| 15.8–17.9 | B 22.0 |
| 18.0–20.1 | B 25.0 |
| 20.2–22.5 | B 28.0 |
| 22.6–25.0 | B 32.0 |

## Table 45

| Size 7 | Size 8 | Thermal Unit Number |
|---|---|---|
| Type J | Type K | |
| Current Transformer Ratio | | |
| 1200/5 | 2000/5 | |
| Motor FLC (A) | | |
| **Non-Compensated** | | |
| 136.–150. | 227.–251. | AR 1.05 |
| 151.–165. | 252.–276. | AR 1.15 |
| 166.–183. | 277.–305. | AR 1.26 |
| 184.–202. | 306.–337. | AR 1.39 |
| 203.–224. | 338.–373. | AR 1.53 |
| 225.–267. | 374.–445. | AR 1.68 |
| 268.–293. | 446.–489. | AR 1.85 |
| 294.–319. | 490.–532. | AR 2.04 |
| 320.–349. | 533.–582. | AR 2.24 |
| 350.–381. | 583.–636. | AR 2.46 |
| 382.–418. | 637.–697. | AR 2.71 |
| 419.–459. | 698.–766. | AR 2.98 |
| 460.–509. | 767.–849. | AR 3.28 |
| 510.–565. | 850.–942. | AR 3.62 |
| 566.–604. | 943.–1007. | AR 3.98 |
| 605.–697. | 1008.–1133. | AR 4.37 |
| 698.–753. | — | AR 4.80 |
| **Compensated** | | |
| 161.–177. | 268.–295. | AR 1.26 |
| 178.–196. | 296.–327. | AR 1.39 |
| 197.–217. | 328.–363. | AR 1.53 |
| 218.–253. | 364.–423. | AR 1.68 |
| 254.–277. | 424.–463. | AR 1.85 |
| 278.–301. | 464.–503. | AR 2.04 |
| 302.–325. | 504.–543. | AR 2.24 |
| 326.–354. | 544.–592. | AR 2.46 |
| 355.–381. | 592.–635. | AR 2.71 |
| 382.–419. | 636.–699. | AR 2.98 |
| 420.–467. | 700.–779. | AR 3.28 |
| 468.–529. | 780.–883. | AR 3.62 |
| 530.–594. | 884.–991. | AR 3.98 |
| 595.–664. | 992.–1107. | AR 4.37 |
| 665.–738. | 1108.–1231. | AR 4.80 |
| 739.–829. | — | AR 5.3 |

## Table 46

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 105.–116. | AR 3.28 |
| 117.–132. | AR 3.62 |
| 133.–148. | AR 3.98 |
| 149.–165. | AR 4.37 |
| 166.–184. | AR 4.80 |
| 185.–207. | AR 5.3 |
| 208.–229. | AR 5.8 |
| 230.–266. | AR 6.4 |

## Table 47

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 146.–169. | AR 1.68 |
| 170.–185. | AR 1.85 |
| 186.–201. | AR 2.04 |
| 202.–217. | AR 2.24 |
| 218.–236. | AR 2.46 |
| 237.–253. | AR 2.71 |
| 254.–279. | AR 2.98 |
| 280.–311. | AR 3.28 |
| 312.–353. | AR 3.62 |
| 354.–396. | AR 3.98 |
| 397.–442. | AR 4.37 |
| 443.–492. | AR 4.80 |
| 493.–520. | AR 5.3 |

## Table 48

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 158.–187. | AR 1.68 |
| 188.–206. | AR 1.85 |
| 207.–224. | AR 2.04 |
| 225.–244. | AR 2.24 |
| 245.–267. | AR 2.46 |
| 268.–289. | AR 2.71 |
| 290.–324. | AR 2.98 |
| 325.–361. | AR 3.28 |
| 362.–406. | AR 3.62 |
| 407.–445. | AR 3.98 |
| 446.–463. | AR 4.37 |
| 464.–520. | AR 4.80 |

## Table 49

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 82.5–88.2 | DD 112.0 |
| 88.3–95.9 | DD 121.0 |
| 96.0–102. | DD 128.0 |
| 103.–109. | DD 140.0 |
| 110.–121. | DD 150.0 |
| 122.–139. | DD 160.0 |
| 140.–154. | DD 185.0 |
| 155.–163. | DD 220.0 |
| 164.–175. | DD 240.0 |
| 176.–184. | DD 250.0 |
| 185.–195. | DD 265.0 |
| 196.–215. | DD 280.0 |
| 216.–224. | DD 300.0 |
| 225.–243. | DD 320.0 |
| 244.–266. | DD 340.0 |

## Table 50

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 14.4–16.1 | AU 20.0 |
| 16.2–18.6 | AU 23.0 |
| 18.7–20.5 | AU 26.0 |
| 20.6–23.4 | AU 29.0 |
| 23.5–26.9 | AU 33.0 |
| 27.0–28.3 | AU 38.0 |
| 28.4–30.8 | AU 40.0 |
| 30.9–35.0 | AU 44.0 |
| 35.1–38.8 | AU 50.0 |
| 38.9–44.3 | AU 56.0 |
| 44.4–49.3 | AU 64.0 |
| 49.4–55.5 | AU 72.0 |
| 55.6–61.0 | AU 81.0 |
| 61.1–68.6 | AU 88.0 |
| 68.7–76.3 | AU 99.0 |
| 76.4–86.0 | AU 110.0 |

## Table 51

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 15.7–17.7 | AU 20.0 |
| 17.8–19.9 | AU 23.0 |
| 20.0–22.7 | AU 26.0 |
| 22.8–25.7 | AU 29.0 |
| 25.8–29.1 | AU 33.0 |
| 29.2–30.8 | AU 38.0 |
| 30.9–34.3 | AU 40.0 |
| 34.4–38.3 | AU 44.0 |
| 38.4–42.3 | AU 50.0 |
| 42.4–47.5 | AU 56.0 |
| 47.6–53.0 | AU 64.0 |
| 53.1–60.5 | AU 72.0 |
| 60.6–64.9 | AU 81.0 |
| 65.0–71.5 | AU 88.0 |
| 71.6–77.3 | AU 99.0 |
| 77.4–86.0 | AU 110.0 |

## Table 52

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 92.0–103. | AF 123.0 |
| 104.–116. | AF 135.0 |
| 117.–139. | AF 150.0 |
| 140.–150. | AF 159.0 |
| 151.–167. | AF 168.0 |
| 168.–177. | AF 188.0 |
| 178.–205. | AF 205.0 |
| 206.–222. | AF 220.0 |
| 223.–232. | AF 240.0 |
| 233.–247. | AF 260.0 |
| 248.–266. | AF 308.0 |

## Table 53

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 0.31–0.33 | 0.29–0.31 | B 0.44 |
| 0.34–0.36 | 0.32–0.36 | B 0.51 |
| 0.37–0.40 | 0.37–0.38 | B 0.57 |
| 0.41–0.48 | 0.39–0.46 | B 0.63 |
| 0.49–0.57 | 0.47–0.55 | B 0.71 |
| 0.58–0.64 | 0.56–0.61 | B 0.81 |
| 0.65–0.70 | 0.62–0.66 | B 0.92 |
| 0.71–0.77 | 0.67–0.75 | B 1.03 |
| 0.78–0.85 | 0.76–0.83 | B 1.16 |
| 0.86–0.99 | 0.84–0.93 | B 1.30 |
| 1.00–1.10 | 0.94–1.06 | B 1.45 |
| 1.11–1.28 | 1.07–1.18 | B 1.67 |
| 1.29–1.41 | 1.19–1.31 | B 1.88 |
| 1.42–1.58 | 1.32–1.47 | B 2.10 |
| 1.59–1.80 | 1.48–1.67 | B 2.40 |
| 1.81–2.03 | 1.68–1.83 | B 2.65 |
| 2.04–2.25 | 1.84–2.04 | B 3.00 |
| 2.26–2.51 | 2.05–2.38 | B 3.30 |
| 2.52–2.83 | 2.39–2.60 | B 3.70 |
| 2.84–3.29 | 2.61–3.13 | B 4.15 |
| 3.30–3.75 | 3.14–3.59 | B 4.85 |
| 3.76–4.22 | 3.60–3.94 | B 5.50 |
| 4.23–4.65 | 3.95–4.19 | B 6.25 |
| 4.66–5.16 | 4.20–4.72 | B 6.90 |
| 5.17–5.53 | 4.73–5.21 | B 7.70 |
| 5.54–6.09 | 5.22–5.51 | B 8.20 |
| 6.10–6.80 | 5.52–6.17 | B 9.10 |
| 6.81–7.60 | 6.18–7.00 | B 10.2 |
| 7.61–8.35 | — | B 11.5 |
| 8.36–9.00 | — | B 12.8 |

## Table 54

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T. U. | 3 T. U. | |
| 43.6–45.5 | 41.1–43.5 | CC 64.3 |
| 45.6–49.6 | 43.6–46.8 | CC 68.5 |
| 49.7–53.1 | 46.9–50.0 | CC 74.6 |
| 53.2–57.6 | 50.1–54.9 | CC 81.5 |
| 57.7–62.4 | 55.0–57.5 | CC 87.7 |
| 62.5–67.5 | 57.6–61.8 | CC 94.0 |
| 67.6–71.1 | 61.9–66.2 | CC 103.0 |
| 71.2–75.9 | 66.3–72.4 | CC 112.0 |
| 76.0–81.9 | 72.5–78.1 | CC 121.0 |
| 82.0–84.6 | 78.2–80.7 | CC 132.0 |
| 84.7–90.7 | 80.8–86.5 | CC 143.0 |
| 90.8–98.4 | 86.6–93.9 | CC 156.0 |
| 98.5–105. | 94.0–100. | CC 167.0 |
| 106.–117. | 101.–112. | CC 180.0 |
| 118.–123. | 113.–117. | CC 196.0 |
| 124.–133. | 118.–123. | CC 208.0 |
| — | 124.–133. | CC 219.0 |

## Table 55

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T. U. | 3 T. U. | |
| 0.38–0.40 | 0.31–0.33 | AR .45 |
| 0.41–0.43 | 0.34–0.36 | AR .49 |
| 0.44–0.48 | 0.37–0.39 | AR .54 |
| 0.49–0.52 | 0.40–0.43 | AR .59 |
| 0.53–0.56 | 0.44–0.47 | AR .65 |
| 0.57–0.61 | 0.48–0.51 | AR .71 |
| 0.62–0.67 | 0.52–0.56 | AR .78 |
| 0.68–0.73 | 0.57–0.58 | AR .86 |
| 0.74–0.81 | 0.59–0.64 | AR .95 |
| 0.82–0.89 | 0.65–0.70 | AR 1.05 |
| 0.90–0.97 | 0.71–0.77 | AR 1.15 |
| 0.98–1.07 | 0.78–0.85 | AR 1.26 |
| 1.08–1.17 | 0.86–0.94 | AR 1.39 |
| 1.18–1.31 | 0.95–1.03 | AR 1.53 |
| 1.32–1.49 | 1.04–1.22 | AR 1.68 |
| 1.50–1.69 | 1.23–1.34 | AR 1.85 |
| 1.70–1.83 | 1.35–1.46 | AR 2.04 |
| 1.84–2.00 | 1.47–1.58 | AR 2.24 |
| 2.01–2.17 | 1.59–1.76 | AR 2.46 |
| 2.18–2.35 | 1.77–1.85 | AR 2.71 |
| 2.36–2.60 | 1.86–2.08 | AR 2.98 |
| 2.61–2.87 | 2.09–2.27 | AR 3.28 |
| 2.88–3.14 | 2.28–2.51 | AR 3.62 |
| 3.15–3.47 | 2.52–2.90 | AR 3.98 |
| 3.48–3.90 | 2.91–3.23 | AR 4.37 |
| 3.91–4.36 | 3.24–3.58 | AR 4.80 |
| 4.37–4.88 | 3.59–4.02 | AR 5.3 |
| 4.89–5.37 | 4.03–4.43 | AR 5.8 |
| 5.38–5.97 | 4.44–4.86 | AR 6.4 |
| 5.98–6.55 | 4.87–5.37 | AR 7.0 |
| 6.56–7.50 | 5.38–6.12 | AR 7.7 |
| 7.51–8.23 | 6.13–6.65 | AR 8.5 |
| 8.24–9.00 | 6.66–7.00 | AR 9.3 |

## Table 56

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 or 2 T. U. | 3 T. U. | |
| 3.29–3.74 | 3.18–3.40 | B 4.85 |
| 3.75–4.23 | 3.41–3.76 | B 5.50 |
| 4.24–4.68 | 3.77–4.00 | B 6.25 |
| 4.69–5.22 | 4.01–4.57 | B 6.90 |
| 5.23–5.67 | 4.58–5.03 | B 7.70 |
| 5.68–6.13 | 5.04–5.32 | B 8.20 |
| 6.14–6.91 | 5.33–5.97 | B 9.10 |
| 6.92–7.70 | 5.98–6.88 | B 10.2 |
| 7.71–8.56 | 6.89–7.82 | B 11.5 |
| 8.57–9.39 | 7.83–8.47 | B 12.8 |
| 9.40–10.4 | 8.48–9.15 | B 14.0 |
| 10.5–11.6 | 9.16–10.1 | B 15.5 |
| 11.7–12.9 | 10.2–11.2 | B 17.5 |
| 13.0–14.6 | 11.3–12.0 | B 19.5 |
| 14.7–16.5 | 12.1–13.6 | B 22.0 |
| 16.6–18.5 | 13.7–15.2 | B 25.0 |
| 18.6–21.0 | 15.3–17.1 | B 28.0 |
| 21.1–23.6 | 17.2–19.0 | B 32.0 |
| 23.7–26.3 | 19.1–21.5 | B 36.0 |
| 26.4–29.3 | 21.6–24.1 | B 40.0 |
| 29.4–35.1 | 24.2–27.0 | B 45.0 |
| 35.2–36.1 | 27.1–28.7 | B 50.0 |
| 36.2–39.1 | 28.8–30.4 | B 56.0 |
| 39.2–41.5 | 30.5–32.2 | B 62.0 |
| 41.6–45.0 | 32.3–35.4 | B 70.0 |
| — | 35.5–38.2 | B 79.0 |
| — | 38.3–45.0 | B 88.0 |

## Table 57

| Motor FLC (A)) | | Thermal Unit Number |
|---|---|---|
| 2 T. U. | 3 T. U. | |
| 5.09–5.59 | 5.15–5.97 | AR 8.5 |
| 5.60–6.11 | 5.98–6.50 | AR 9.3 |
| 6.12–6.72 | 6.51–7.04 | AR 10.2 |
| 6.73–7.37 | 7.05–7.59 | AR 11.2 |
| 7.38–7.67 | 7.60–7.93 | AR 12.4 |
| 7.68–8.68 | 7.94–9.04 | AR 13.6 |
| 8.69–9.94 | 9.05–10.2 | AR 15.4 |
| 9.95–11.1 | 10.3–11.5 | AR 17.6 |
| 11.2–12.9 | 11.6–13.2 | AR 20.5 |
| 13.0–14.7 | 13.3–14.9 | AR 23.0 |
| 14.8–16.9 | 15.0–16.9 | AR 27.0 |
| 17.0–19.2 | 17.0–19.3 | AR 30.0 |
| 19.3–21.9 | 19.4–21.7 | AR 35.0 |
| 22.0–24.4 | 21.8–25.0 | AR 40.0 |
| 24.5–26.3 | 25.1–27.0 | AR 44.0 |
| 26.4–28.0 | 27.1–29.1 | AR 47.0 |
| 28.1–30.3 | 29.2–30.8 | AR 51.0 |
| 30.4–32.2 | 30.9–32.9 | AR 55.0 |
| 32.3–34.4 | 33.0–35.0 | AR 60.0 |
| 34.5–36.6 | 35.1–37.1 | AR 66.0 |
| 36.7–39.5 | 37.2–39.1 | AR 72.0 |
| 39.6–45.0 | 39.2–41.5 | AR 79.0 |
| — | 41.6–45.0 | AR 86.0 |

## Table 58

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 or 2 T. U. | 3 T. U. | |
| 3.37–3.82 | 3.28–3.51 | B 4.85 |
| 3.83–4.33 | 3.52–3.89 | B 5.50 |
| 4.34–4.79 | 3.90–4.14 | B 6.25 |
| 4.80–5.33 | 4.15–4.73 | B 6.90 |
| 5.34–5.79 | 4.74–5.22 | B 7.70 |
| 5.80–6.27 | 5.23–5.53 | B 8.20 |
| 6.28–7.03 | 5.54–6.21 | B 9.10 |
| 7.04–7.88 | 6.22–7.17 | B 10.2 |
| 7.89–8.73 | 7.18–8.19 | B 11.5 |
| 8.74–9.55 | 8.20–8.90 | B 12.8 |
| 9.56–10.6 | 8.91–9.57 | B 14.0 |
| 10.7–11.8 | 9.58–10.6 | B 15.5 |
| 11.9–13.1 | 10.7–11.8 | B 17.5 |
| 13.2–14.9 | 11.9–12.7 | B 19.5 |
| 15.0–16.9 | 12.8–14.4 | B 22.0 |
| 17.0–18.8 | 14.5–16.1 | B 25.0 |
| 18.9–21.5 | 16.2–18.2 | B 28.0 |
| 21.6–24.1 | 18.3–20.2 | B 32.0 |
| 24.2–26.8 | 20.3–22.8 | B 36.0 |
| 26.9–29.9 | 22.9–25.6 | B 40.0 |
| 30.0–35.5 | 25.7–28.8 | B 45.0 |
| 35.6–36.5 | 28.9–30.6 | B 50.0 |
| 36.6–39.6 | 30.7–32.4 | B 56.0 |
| 39.7–41.5 | 32.5–34.6 | B 62.0 |
| 41.6–45.0 | 34.7–38.6 | B 70.0 |
| — | 38.7–45.0 | B 79.0 |





© 2012 Schneider Electric
All Rights Reserved

## Table 59

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 or 2 T. U. | 3 T. U. | |
| 0.34–0.38 | 0.29–0.31 | B 0.44 |
| 0.39–0.43 | 0.32–0.35 | B 0.51 |
| 0.44–0.47 | 0.36–0.38 | B 0.57 |
| 0.48–0.53 | 0.39–0.46 | B 0.63 |
| 0.54–0.60 | 0.47–0.55 | B 0.71 |
| 0.61–0.68 | 0.56–0.62 | B 0.81 |
| 0.69–0.76 | 0.63–0.67 | B 0.92 |
| 0.77–0.86 | 0.68–0.75 | B 1.03 |
| 0.87–0.97 | 0.76–0.84 | B 1.16 |
| 0.98–1.07 | 0.85–0.95 | B 1.30 |
| 1.08–1.23 | 0.96–1.09 | B 1.45 |
| 1.24–1.39 | 1.10–1.21 | B 1.67 |
| 1.40–1.55 | 1.22–1.35 | B 1.88 |
| 1.56–1.77 | 1.36–1.53 | B 2.10 |
| 1.78–1.96 | 1.54–1.73 | B 2.40 |
| 1.97–2.15 | 1.74–1.90 | B 2.65 |
| 2.16–2.41 | 1.91–2.14 | B 3.00 |
| 2.42–2.71 | 2.15–2.34 | B 3.30 |
| 2.72–3.03 | 2.35–2.67 | B 3.70 |
| 3.04–3.53 | 2.68–3.22 | B 4.15 |
| 3.54–4.01 | 3.23–3.48 | B 4.85 |
| 4.02–4.56 | 3.49–3.87 | B 5.50 |
| 4.57–5.03 | 3.88–4.14 | B 6.25 |
| 5.04–5.59 | 4.15–4.73 | B 6.90 |
| 5.60–5.95 | 4.74–5.28 | B 7.70 |
| 5.96–6.58 | 5.29–5.64 | B 8.20 |
| 6.59–7.31 | 5.65–6.39 | B 9.10 |
| 7.32–8.15 | 6.40–7.43 | B 10.2 |
| 8.16–9.13 | 7.44–8.55 | B 11.5 |
| 9.14–9.91 | 8.56–9.40 | B 12.8 |
| 9.92–10.7 | 9.41–10.0 | B 14.0 |
| 10.8–12.1 | 10.1–11.2 | B 15.5 |
| 12.2–13.5 | 11.3–12.5 | B 17.5 |
| 13.6–15.1 | 12.6–13.5 | B 19.5 |
| 15.2–17.0 | 13.6–15.4 | B 22.0 |
| 17.1–18.9 | 15.5–17.5 | B 25.0 |
| 19.0–21.5 | 17.6–19.9 | B 28.0 |
| 21.6–24.0 | 20.0–22.2 | B 32.0 |
| 24.1–26.0 | 22.3–25.5 | B 36.0 |
| — | 25.6–26.0 | B 40.0 |

## Table 60

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 6.84–7.49 | AR 9.3 |
| 7.50–8.05 | AR 10.2 |
| 8.06–9.10 | AR 11.2 |
| 9.11–9.99 | AR 12.4 |
| 10.0–11.1 | AR 13.6 |
| 11.2–12.7 | AR 15.4 |
| 12.8–14.8 | AR 17.6 |
| 14.9–16.6 | AR 20.5 |
| 16.7–19.3 | AR 23.0 |
| 19.4–21.4 | AR 27.0 |
| 21.5–25.1 | AR 30.0 |
| 25.2–28.3 | AR 35.0 |
| 28.4–31.2 | AR 40.0 |
| 31.3–33.3 | AR 44.0 |
| 33.4–35.7 | AR 47.0 |
| 35.8–38.5 | AR 51.0 |
| 38.6–41.5 | AR 55.0 |
| 41.6–45.0 | AR 60.0 |

## Table 61

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T. U. | 3 T. U. | |
| 46.8–50.0 | 45.3–48.2 | CC 64.3 |
| 50.1–54.2 | 48.3–52.4 | CC 68.5 |
| 54.3–58.3 | 52.5–56.4 | CC 74.6 |
| 58.4–63.6 | 56.5–61.2 | CC 81.5 |
| 63.7–68.5 | 61.3–66.1 | CC 87.7 |
| 68.6–74.0 | 66.2–71.4 | CC 94.0 |
| 74.1–79.8 | 71.5–77.0 | CC 103.0 |
| 79.9–83.0 | 77.1–79.0 | CC 112.0 |
| 83.1–88.9 | 79.1–84.7 | CC 121.0 |
| 89.0–95.6 | 84.8–91.1 | CC 132.0 |
| 95.7–102. | 91.2–98.1 | CC 143.0 |
| 103.–109. | 98.2–104. | CC 156.0 |
| 110.–119. | 105.–113. | CC 167.0 |
| 120.–133. | 114.–123. | CC 180.0 |
| — | 124.–133. | CC 196.0 |

## Table 62

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 2 T. U. | 3 T. U. | |
| 4.83–5.33 | 4.90–5.68 | AR 8.5 |
| 5.34–5.84 | 5.69–6.19 | AR 9.3 |
| 5.85–6.43 | 6.20–6.71 | AR 10.2 |
| 6.44–7.03 | 6.72–7.14 | AR 11.2 |
| 7.04–7.30 | 7.15–7.49 | AR 12.4 |
| 7.31–8.29 | 7.50–8.48 | AR 13.6 |
| 8.30–9.49 | 8.49–9.66 | AR 15.4 |
| 9.50–10.7 | 9.67–10.8 | AR 17.6 |
| 10.8–12.3 | 10.9–12.4 | AR 20.5 |
| 12.4–14.0 | 12.5–13.9 | AR 23.0 |
| 14.1–16.0 | 14.0–15.7 | AR 27.0 |
| 16.1–18.4 | 15.8–18.1 | AR 30.0 |
| 18.5–21.0 | 18.2–20.3 | AR 35.0 |
| 21.1–23.0 | 20.4–23.0 | AR 40.0 |
| 23.1–25.5 | 23.1–25.2 | AR 44.0 |
| 25.6–26.7 | 25.3–26.6 | AR 47.0 |
| 26.8–28.3 | 26.7–28.2 | AR 51.0 |
| 28.4–30.3 | 28.3–30.2 | AR 55.0 |
| 30.4–32.5 | 30.3–32.3 | AR 60.0 |
| 32.6–34.5 | 32.4–34.3 | AR 66.0 |
| 34.6–37.6 | 34.4–36.7 | AR 72.0 |
| 37.7–39.7 | 36.8–39.3 | AR 79.0 |
| 39.8–41.4 | 39.4–45.0 | AR 86.0 |
| 41.5–45.0 | — | AR 94.0 |

## Table 63

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 1 or 2 T. U. | 3 T. U. |
| 15.1–17.0 | AU 20.0 |
| 17.1–19.1 | AU 23.0 |
| 19.2–21.8 | AU 26.0 |
| 21.9–24.5 | AU 29.0 |
| 24.6–27.9 | AU 33.0 |
| 28.0–29.5 | AU 38.0 |
| 29.6–32.9 | AU 40.0 |
| 33.0–36.6 | AU 44.0 |
| 36.7–40.3 | AU 50.0 |
| 40.4–45.1 | AU 56.0 |
| 45.2–50.4 | AU 64.0 |
| 50.5–57.3 | AU 72.0 |
| 57.4–62.4 | AU 81.0 |
| 62.5–68.3 | AU 88.0 |
| 68.4–73.9 | AU 99.0 |
| 74.0–80.6 | AU 110.0 |
| 80.7–86.0 | AU 123.0 |

## Table 64

| Motor FLC (A) | | | Thermal Unit No. |
|---|---|---|---|
| 2 T. U. 1Ø | 2 T. U. 2Ø | 3 T. U. | |
| 0.38–0.40 | 0.38–0.40 | 0.31–0.33 | AR .45 |
| 0.41–0.43 | 0.41–0.43 | 0.34–0.36 | AR .49 |
| 0.44–0.48 | 0.44–0.48 | 0.37–0.39 | AR .54 |
| 0.49–0.52 | 0.49–0.52 | 0.40–0.43 | AR .59 |
| 0.53–0.56 | 0.53–0.56 | 0.44–0.47 | AR .65 |
| 0.57–0.61 | 0.57–0.61 | 0.48–0.51 | AR .71 |
| 0.62–0.67 | 0.62–0.67 | 0.52–0.56 | AR .78 |
| 0.68–0.73 | 0.68–0.73 | 0.57–0.58 | AR .86 |
| 0.74–0.81 | 0.74–0.81 | 0.59–0.64 | AR .95 |
| 0.82–0.89 | 0.82–0.89 | 0.65–0.70 | AR 1.05 |
| 0.90–0.97 | 0.90–0.97 | 0.71–0.77 | AR 1.15 |
| 0.98–1.07 | 0.98–1.07 | 0.78–0.85 | AR 1.26 |
| 1.08–1.17 | 1.08–1.17 | 0.86–0.94 | AR 1.39 |
| 1.18–1.31 | 1.18–1.31 | 0.95–1.03 | AR 1.53 |
| 1.32–1.49 | 1.32–1.49 | 1.04–1.22 | AR 1.68 |
| 1.50–1.69 | 1.50–1.69 | 1.23–1.34 | AR 1.85 |
| 1.70–1.83 | 1.70–1.83 | 1.35–1.46 | AR 2.04 |
| 1.84–2.00 | 1.84–2.00 | 1.47–1.58 | AR 2.24 |
| 2.01–2.17 | 2.01–2.17 | 1.59–1.76 | AR 2.46 |
| 2.18–2.35 | 2.18–2.35 | 1.77–1.85 | AR 2.71 |
| 2.36–2.60 | 2.36–2.60 | 1.86–2.08 | AR 2.98 |
| 2.61–2.87 | 2.61–2.87 | 2.09–2.27 | AR 3.28 |
| 2.88–3.14 | 2.88–3.14 | 2.28–2.51 | AR 3.62 |
| 3.15–3.47 | 3.15–3.47 | 2.52–2.90 | AR 3.98 |
| 3.48–3.90 | 3.48–3.90 | 2.91–3.23 | AR 4.37 |
| 3.91–4.36 | 3.91–4.36 | 3.24–3.58 | AR 4.80 |
| 4.37–4.88 | 4.37–4.88 | 3.59–4.02 | AR 5.3 |
| 4.89–5.37 | 4.89–5.37 | 4.03–4.43 | AR 5.8 |
| 5.38–5.97 | 5.38–5.97 | 4.44–4.86 | AR 6.4 |
| 5.98–6.55 | 5.98–6.55 | 4.87–5.37 | AR 7.0 |
| 6.56–7.50 | 6.56–7.50 | 5.38–6.12 | AR 7.7 |
| 7.51–8.23 | 7.51–8.23 | 6.13–6.65 | AR 8.5 |
| 8.24–8.99 | 8.24–8.99 | 6.66–7.31 | AR 9.3 |
| 9.00–9.86 | 9.00–9.86 | 7.32–7.96 | AR 10.2 |
| 9.87–10.7 | 9.87–10.7 | 7.97–8.69 | AR 11.2 |
| 10.8–11.2 | 10.8–11.2 | 8.70–8.99 | AR 12.4 |
| 11.3–12.8 | 11.3–12.0 | 9.00–10.1 | AR 13.6 |
| 12.9–14.8 | — | 10.2–11.5 | AR 15.4 |
| 14.9–16.7 | — | 11.6–12.0 | AR 17.6 |
| 16.8–18.0 | — | — | AR 20.5 |
| Following Selections for Size 1 Only. | | | |
| — | 11.3–12.8 | — | AR 13.6 |
| — | 12.9–14.8 | — | AR 15.4 |
| — | 14.9–16.7 | 11.6–13.0 | AR 17.6 |
| 16.8–19.0 | 16.8–19.0 | 13.1–14.6 | AR 20.5 |
| 19.1–22.0 | 19.1–22.0 | 14.7–16.5 | AR 23.0 |
| 22.1–24.9 | 22.1–24.9 | 16.6–18.5 | AR 27.0 |
| 25.0–26.0 | 25.0–26.0 | 18.6–21.0 | AR 30.0 |
| — | — | 21.1–23.6 | AR 35.0 |
| — | — | 23.7–26.0 | AR 40.0 |

## Table 65

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.31–0.35 | B 0.44 |
| 0.36–0.39 | B 0.51 |
| 0.40–0.44 | B 0.57 |
| 0.45–0.50 | B 0.63 |
| 0.51–0.58 | B 0.71 |
| 0.59–0.65 | B 0.81 |
| 0.66–0.73 | B 0.92 |
| 0.74–0.82 | B 1.03 |
| 0.83–0.92 | B 1.16 |
| 0.93–1.03 | B 1.30 |
| 1.04–1.19 | B 1.45 |
| 1.20–1.34 | B 1.67 |
| 1.35–1.50 | B 1.88 |
| 1.51–1.67 | B 2.10 |
| 1.68–1.89 | B 2.40 |
| 1.90–2.14 | B 2.65 |
| 2.15–2.36 | B 3.00 |
| 2.37–2.65 | B 3.30 |
| 2.66–2.97 | B 3.70 |
| 2.98–3.47 | B 4.15 |
| 3.48–3.94 | B 4.85 |
| 3.95–4.44 | B 5.50 |
| 4.45–4.94 | B 6.25 |
| 4.95–5.52 | B 6.90 |
| 5.53–5.88 | B 7.70 |
| 5.89–6.52 | B 8.20 |
| 6.53–7.31 | B 9.10 |
| 7.32–8.21 | B 10.2 |
| 8.22–9.18 | B 11.5 |
| 9.19–9.90 | B 12.8 |
| 10.0–11.0 | B 14.0 |
| 11.1–12.4 | B 15.5 |
| 12.5–13.9 | B 17.5 |
| 14.0–15.7 | B 19.5 |
| 15.8–17.8 | B 22.0 |
| 17.9–20.0 | B 25.0 |
| 20.1–22.9 | B 28.0 |
| 23.0–25.0 | B 32.0 |
| Following Selections for Size 2 Only. | |
| 23.0–25.7 | B 32.0 |
| 25.8–28.6 | B 36.0 |
| 28.7–32.2 | B 40.0 |
| 32.3–35.8 | B 45.0 |
| 35.9–40.1 | B 50.0 |
| 40.2–44.4 | B 56.0 |
| 44.5–50.0 | B 62.0 |

## Table 66

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.31–0.32 | B 0.44 |
| 0.33–0.36 | B 0.51 |
| 0.37–0.41 | B 0.57 |
| 0.42–0.49 | B 0.63 |
| 0.50–0.54 | B 0.71 |
| 0.55–0.61 | B 0.81 |
| 0.62–0.67 | B 0.92 |
| 0.68–0.76 | B 1.03 |
| 0.77–0.87 | B 1.16 |
| 0.88–0.98 | B 1.30 |
| 0.99–1.05 | B 1.45 |
| 1.06–1.25 | B 1.67 |
| 1.26–1.33 | B 1.88 |
| 1.34–1.56 | B 2.10 |
| 1.57–1.71 | B 2.40 |
| 1.72–1.97 | B 2.65 |
| 1.98–2.15 | B 3.00 |
| 2.16–2.42 | B 3.30 |
| 2.43–2.78 | B 3.70 |
| 2.79–3.28 | B 4.15 |
| 3.29–3.88 | B 4.85 |
| 3.89–4.13 | B 5.5 |
| 4.14–4.43 | B 6.25 |
| 4.44–4.96 | B 6.90 |
| 4.97–5.35 | B 7.70 |
| 5.36–5.91 | B 8.20 |
| 5.92–6.79 | B 9.10 |
| 6.80–7.56 | B 10.2 |
| 7.57–7.83 | B 11.5 |
| 7.84–8.09 | B 12.8 |
| 8.10–9.51 | B 14.0 |
| 9.52–10.1 | B 15.5 |
| 10.2–11.3 | B 17.5 |
| 11.4–13.1 | B 19.5 |
| 13.2–14.9 | B 22.0 |
| 15.0–16.1 | B 25.0 |
| 16.2–17.8 | B 28.0 |
| 17.9–19.1 | B 32.0 |
| 19.2–22.4 | B 36.0 |
| 22.5–23.5 | B 40.0 |
| 23.6–26.0 | B 45.0 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

### Table 67

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.79–4.14 | B 5.50 |
| 4.15–4.44 | B 6.25 |
| 4.45–5.22 | B 6.90 |
| 5.23–5.29 | B 7.70 |
| 5.30–5.99 | B 8.20 |
| 6.00–6.82 | B 9.10 |
| 6.83–7.68 | B 10.2 |
| 7.69–7.92 | B 11.5 |
| 7.93–8.47 | B 12.8 |
| 8.48–9.99 | B 14.0 |
| 10.0–10.8 | B 15.5 |
| 10.9–12.3 | B 17.5 |
| 12.4–12.9 | B 19.5 |
| 13.0–15.1 | B 22.0 |
| 15.2–16.7 | B 25.0 |
| 16.8–17.9 | B 28.0 |
| 18.0–20.1 | B 32.0 |
| 20.2–23.8 | B 36.0 |
| 23.9–25.8 | B 40.0 |
| 25.9–28.3 | B 45.0 |
| 28.4–29.6 | B 50.0 |
| 29.7–32.1 | B 56.0 |
| 32.2–34.4 | B 62.0 |
| 34.5–38.3 | B 70.0 |
| 38.4–39.9 | B 79.0 |
| 40.0–45.0 | B 88.0 |

### Table 68

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 14.9–16.1 | CC 20.9 |
| 16.2–17.3 | CC 22.8 |
| 17.4–19.5 | CC 24.6 |
| 19.6–20.7 | CC 26.3 |
| 20.8–22.4 | CC 28.8 |
| 22.5–23.9 | CC 31.0 |
| 24.0–25.8 | CC 33.3 |
| 25.9–27.6 | CC 36.4 |
| 27.7–29.7 | CC 39.6 |
| 29.8–31.8 | CC 42.7 |
| 31.9–34.2 | CC 46.6 |
| 34.3–37.0 | CC 50.1 |
| 37.1–39.6 | CC 54.5 |
| 39.7–42.5 | CC 59.4 |
| 42.6–45.0 | CC 64.3 |
| 45.1–48.6 | CC 68.5 |
| 48.7–51.2 | CC 74.6 |
| 51.3–56.0 | CC 81.5 |
| 56.1–60.1 | CC 87.7 |
| 60.2–64.3 | CC 94.0 |
| 64.4–68.9 | CC 103.0 |
| 69.0–71.9 | CC 112.0 |
| 72.0–75.4 | CC 121.0 |
| 75.5–78.9 | CC 132.0 |
| 79.0–82.1 | CC 143.0 |
| 82.2–86.0 | CC 156.0 |

### Table 69

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 or 2 T. U. | 3 T. U. | |
| 3.46–3.90 | 3.38–3.65 | B 4.85 |
| 3.91–4.44 | 3.66–4.07 | B 5.50 |
| 4.45–4.91 | 4.08–4.36 | B 6.25 |
| 4.92–5.51 | 4.37–5.19 | B 6.90 |
| 5.52–5.84 | 5.20–5.59 | B 7.70 |
| 5.85–6.54 | 5.60–5.98 | B 8.20 |
| 6.55–7.33 | 5.99–6.78 | B 9.10 |
| 7.34–8.31 | 6.79–7.91 | B 10.2 |
| 8.32–9.22 | 7.92–9.12 | B 11.5 |
| 9.23–10.0 | 9.13–10.0 | B 12.8 |
| 10.1–11.2 | 10.1–10.7 | B 14.0 |
| 11.3–12.5 | 10.8–12.0 | B 15.5 |
| 12.6–14.2 | 12.1–13.5 | B 17.5 |
| 14.3–16.1 | 13.6–14.6 | B 19.5 |
| 16.2–18.4 | 14.7–16.7 | B 22.0 |
| 18.5–20.5 | 16.8–18.9 | B 25.0 |
| 20.6–23.2 | 19.0–21.6 | B 28.0 |
| 23.3–26.6 | 21.7–24.1 | B 32.0 |
| 26.7–29.6 | 24.2–27.6 | B 36.0 |
| 29.7–33.5 | 27.7–31.2 | B 40.0 |
| 33.6–37.2 | 31.3–35.5 | B 45.0 |
| 37.3–41.5 | 35.6–37.8 | B 50.0 |
| 41.6–45.0 | 37.9–41.5 | B 56.0 |
| — | 41.6–45.0 | B 62.0 |

### Table 70

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.24–4.62 | AR 8.5 |
| 4.63–5.05 | AR 9.3 |
| 5.06–5.54 | AR 10.2 |
| 5.55–6.13 | AR 11.2 |
| 6.14–6.44 | AR 12.4 |
| 6.45–7.48 | AR 13.6 |
| 7.49–8.55 | AR 15.4 |
| 8.56–9.74 | AR 17.6 |
| 9.75–11.1 | AR 20.5 |
| 11.2–12.7 | AR 23.0 |
| 12.8–14.4 | AR 27.0 |
| 14.5–16.4 | AR 30.0 |
| 16.5–18.9 | AR 35.0 |
| 19.0–21.6 | AR 40.0 |
| 21.7–23.3 | AR 44.0 |
| 23.4–24.9 | AR 47.0 |
| 25.0–26.9 | AR 51.0 |
| 27.0–29.1 | AR 55.0 |
| 29.2–31.3 | AR 60.0 |
| 31.4–33.5 | AR 66.0 |
| 33.6–36.9 | AR 72.0 |
| 37.0–39.1 | AR 79.0 |
| 39.2–40.9 | AR 86.0 |
| 41.0–45.0 | AR 94.0 |

### Table 71

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.98–4.53 | AR 8.5 |
| 4.54–5.03 | AR 9.3 |
| 5.04–5.46 | AR 10.2 |
| 5.47–6.01 | AR 11.2 |
| 6.02–6.31 | AR 12.4 |
| 6.32–7.19 | AR 13.6 |
| 7.20–8.29 | AR 15.4 |
| 8.30–9.49 | AR 17.6 |
| 9.50–11.0 | AR 20.5 |
| 11.1–12.6 | AR 23.0 |
| 12.7–14.3 | AR 27.0 |
| 14.4–16.5 | AR 30.0 |
| 16.6–19.2 | AR 35.0 |
| 19.3–21.9 | AR 40.0 |
| 22.0–23.8 | AR 44.0 |
| 23.9–25.5 | AR 47.0 |
| 25.6–27.7 | AR 51.0 |
| 27.8–30.1 | AR 55.0 |
| 30.2–32.5 | AR 60.0 |
| 32.6–34.8 | AR 66.0 |
| 34.9–38.5 | AR 72.0 |
| 38.6–41.5 | AR 79.0 |
| 41.6–45.0 | AR 86.0 |

### Table 72

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 2.38–2.62 | 2.38–2.62 | FB 3.33 |
| 2.63–2.94 | 2.63–2.94 | FB 3.71 |
| 2.95–3.31 | 2.95–3.31 | FB 4.1 |
| 3.32–3.43 | 3.32–3.43 | FB 4.5 |
| 3.44–3.81 | 3.44–3.81 | FB 4.75 |
| 3.82–4.32 | 3.82–4.32 | FB 5.3 |
| 4.33–4.75 | 4.33–4.75 | FB 6.1 |
| 4.76–5.38 | 4.76–5.38 | FB 6.75 |
| 5.39–5.75 | 5.39–5.75 | FB 7.45 |
| 5.76–5.97 | 5.76–5.97 | FB 7.8 |
| 5.98–6.30 | 5.98–6.30 | FB 8.21 |
| 6.31–6.55 | 6.31–6.55 | FB 8.6 |
| 6.56–6.89 | 6.56–6.89 | FB 9.0 |
| 6.90–7.14 | 6.90–7.14 | FB 9.5 |
| 7.15–7.36 | 7.15–7.36 | FB 10.0 |
| 7.37–8.30 | 7.37–8.30 | FB 10.6 |
| 8.31–8.59 | 8.31–8.59 | FB 11.2 |
| 8.60–9.01 | 8.60–9.01 | FB 12.1 |
| 9.02–9.68 | 9.02–9.68 | FB 13.1 |
| 9.69–9.99 | 9.69–9.99 | FB 13.9 |
| 10.0–10.9 | 10.0–10.9 | FB 14.8 |
| 11.0–11.3 | 11.0–11.3 | FB 15.6 |
| 11.4–12.4 | 11.4–12.0 | FB 16.4 |
| 12.5–12.9 | — | FB 17.6 |
| 13.0–14.0 | — | FB 18.4 |
| 14.1–14.5 | — | FB 19.4 |
| 14.6–15.7 | — | FB 21.1 |
| 15.8–16.6 | — | FB 22.6 |
| 16.7–18.0 | — | FB 23.6 |
| Following Selections for Size M–1 & M–1P Only. | | |
| — | 11.4–12.4 | FB 16.4 |
| — | 12.5–12.9 | FB 17.6 |
| — | 13.0–14.0 | FB 18.4 |
| — | 14.1–14.5 | FB 19.4 |
| — | 14.6–15.7 | FB 21.1 |
| — | 15.8–16.6 | FB 22.6 |
| 16.7–17.6 | 16.7–17.6 | FB 23.6 |
| 17.7–18.3 | 17.7–18.3 | FB 24.8 |
| 18.4–19.4 | 18.4–19.4 | FB 26.7 |
| 19.5–20.5 | 19.5–20.5 | FB 28.3 |
| 20.6–21.7 | 20.6–21.7 | FB 29.6 |
| 21.8–22.8 | 21.8–22.8 | FB 30.5 |
| 22.9–24.3 | 22.9–24.3 | FB 32.5 |
| 24.4–24.7 | 24.4–24.7 | FB 34.1 |
| 24.8–25.4 | 24.8–25.4 | FB 35.0 |
| 25.5–26.0 | 25.5–26.0 | FB 36.6 |
| Following Selections for Size M–1P Only. | | |
| 26.1–27.7 | — | FB 38.3 |
| 27.8–28.9 | — | FB 40.2 |
| 29.0–30.6 | — | FB 42.0 |
| 30.7–32.5 | — | FB 44.0 |
| 32.6–36.0 | — | FB 46.0 |

### Table 73

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 2.42–2.67 | 2.42–2.67 | FB 3.33 |
| 2.68–3.00 | 2.68–3.00 | FB 3.71 |
| 3.01–3.36 | 3.01–3.36 | FB 4.1 |
| 3.37–3.53 | 3.37–3.53 | FB 4.5 |
| 3.54–3.91 | 3.54–3.91 | FB 4.75 |
| 3.92–4.41 | 3.92–4.41 | FB 5.3 |
| 4.42–4.83 | 4.42–4.83 | FB 6.1 |
| 4.84–5.45 | 4.84–5.45 | FB 6.75 |
| 5.46–5.89 | 5.46–5.89 | FB 7.45 |
| 5.90–6.04 | 5.90–6.04 | FB 7.8 |
| 6.05–6.55 | 6.05–6.55 | FB 8.21 |
| 6.56–6.72 | 6.56–6.72 | FB 8.6 |
| 6.73–7.00 | 6.73–7.00 | FB 9.0 |
| 7.01–7.39 | 7.01–7.39 | FB 9.5 |
| 7.40–7.54 | 7.40–7.54 | FB 10.0 |
| 7.55–8.41 | 7.55–8.41 | FB 10.6 |
| 8.42–8.91 | 8.42–8.91 | FB 11.2 |
| 8.92–9.16 | 8.92–9.16 | FB 12.1 |
| 9.17–10.0 | 9.17–10.0 | FB 13.1 |
| 10.1–10.3 | 10.1–10.3 | FB 13.9 |
| 10.4–11.4 | 10.4–11.4 | FB 14.8 |
| 11.5–11.8 | 11.5–11.8 | FB 15.6 |
| 11.9–12.9 | 11.9–12.9 | FB 16.4 |
| 13.0–13.4 | — | FB 17.6 |
| 13.5–14.2 | — | FB 18.4 |
| 14.3–15.1 | — | FB 19.4 |
| 15.2–18.0 | — | FB 21.1 |
| Following Selections for Size M–1 & M–1P Only. | | |
| — | 11.5–11.8 | FB 15.6 |
| — | 11.9–12.9 | FB 16.4 |
| — | 13.0–13.4 | FB 17.6 |
| — | 13.5–14.2 | FB 18.4 |
| — | 14.3–15.1 | FB 19.4 |
| 15.2–17.1 | 15.2–17.1 | FB 21.1 |
| 17.2–18.0 | 17.2–18.0 | FB 22.6 |
| 18.1–18.9 | 18.1–18.9 | FB 23.6 |
| 19.0–19.7 | 19.0–19.7 | FB 24.8 |
| 19.8–20.9 | 19.8–20.9 | FB 26.7 |
| 21.0–21.9 | 21.0–21.9 | FB 28.3 |
| 22.0–23.1 | 22.0–23.1 | FB 29.6 |
| 23.2–24.3 | 23.2–24.3 | FB 30.5 |
| 24.4–25.5 | 24.4–25.5 | FB 32.6 |
| 25.6–26.0 | 25.6–26.0 | FB 34.1 |
| Following Selections for Size M–1P Only. | | |
| 26.1–26.8 | — | FB 35.0 |
| 26.9–27.3 | — | FB 36.6 |
| 27.4–28.7 | — | FB 38.3 |
| 28.8–30.2 | — | FB 40.2 |
| 30.3–31.9 | — | FB 42.0 |
| 32.0–36.0 | — | FB 44.0 |





© 2012 Schneider Electric
All Rights Reserved

## Table 74

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 2.23–2.47 | 2.23–2.47 | FB 3.33 |
| 2.48–2.76 | 2.48–2.76 | FB 3.71 |
| 2.77–3.04 | 2.77–3.04 | FB 4.1 |
| 3.05–3.24 | 3.05–3.24 | FB 4.5 |
| 3.25–3.61 | 3.25–3.61 | FB 4.75 |
| 3.62–4.19 | 3.62–4.19 | FB 5.3 |
| 4.20–4.62 | 4.20–4.62 | FB 6.1 |
| 4.63–5.14 | 4.63–5.14 | FB 6.75 |
| 5.15–5.39 | 5.15–5.39 | FB 7.45 |
| 5.40–5.69 | 5.40–5.69 | FB 7.8 |
| 5.70–5.99 | 5.70–5.99 | FB 8.21 |
| 6.00–6.29 | 6.00–6.29 | FB 8.6 |
| 6.30–6.64 | 6.30–6.64 | FB 9.0 |
| 6.65–6.99 | 6.65–6.99 | FB 9.5 |
| 7.00–7.39 | 7.00–7.39 | FB 10.0 |
| 7.40–7.79 | 7.40–7.79 | FB 10.6 |
| 7.80–7.94 | 7.80–7.94 | FB 11.2 |
| 7.95–8.49 | 7.95–8.49 | FB 12.1 |
| 8.50–8.99 | 8.50–8.99 | FB 13.1 |
| 9.00–9.59 | 9.00–9.59 | FB 13.9 |
| 9.60–10.1 | 9.60–10.1 | FB 14.8 |
| 10.2–10.6 | 10.2–10.6 | FB 15.6 |
| 10.7–11.3 | 10.7–11.3 | FB 16.4 |
| 11.4–12.0 | 11.4–12.0 | FB 17.6 |
| 12.0–12.6 | — | FB 18.4 |
| 12.7–13.8 | — | FB 19.4 |
| 13.9–14.7 | — | FB 21.1 |
| 14.8–15.2 | — | FB 22.6 |
| 15.3–16.2 | — | FB 23.6 |
| 16.3–18.0 | — | FB 24.8 |
| Following Selections for Size 1 Only. | | |
| — | 12.0–12.6 | FB 18.4 |
| — | 12.7–13.8 | FB 19.4 |
| 13.9–14.7 | 13.9–14.7 | FB 21.1 |
| 14.8–15.2 | 14.8–15.2 | FB 22.6 |
| 15.3–16.2 | 15.3–16.2 | FB 23.6 |
| 16.3–17.4 | 16.3–17.4 | FB 24.8 |
| 17.5–18.5 | 17.5–18.5 | FB 26.7 |
| 18.6–19.6 | 18.6–19.6 | FB 28.3 |
| 19.7–20.2 | 19.7–20.2 | FB 29.6 |
| 20.3–21.5 | 20.3–21.5 | FB 30.5 |
| 21.6–22.4 | 21.6–22.4 | FB 32.6 |
| 22.5–23.2 | 22.5–23.2 | FB 34.1 |
| 23.3–24.3 | 23.3–24.3 | FB 35.0 |
| 24.4–25.4 | 24.4–25.4 | FB 36.6 |
| 25.5–26.0 | 25.5–26.0 | FB 38.3 |

## Table 75

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.22–3.57 | FB 4.75 |
| 3.58–4.14 | FB 5.3 |
| 4.15–4.56 | FB 6.1 |
| 4.57–5.10 | FB 6.75 |
| 5.11–5.39 | FB 7.45 |
| 5.40–5.64 | FB 7.8 |
| 5.65–5.96 | FB 8.21 |
| 5.97–6.25 | FB 8.6 |
| 6.26–6.58 | FB 9.0 |
| 6.59–6.91 | FB 9.5 |
| 6.92–7.41 | FB 10.0 |
| 7.42–7.82 | FB 10.6 |
| 7.83–8.32 | FB 11.2 |
| 8.33–8.89 | FB 12.1 |
| 8.90–9.47 | FB 13.1 |
| 9.48–10.0 | FB 13.9 |
| 10.1–10.5 | FB 14.8 |
| 10.6–11.1 | FB 15.6 |
| 11.2–12.0 | FB 16.4 |
| 12.1–12.7 | FB 17.6 |
| 12.8–13.5 | FB 18.4 |
| 13.6–14.6 | FB 19.4 |
| 14.7–15.7 | FB 21.1 |
| 15.8–16.5 | FB 22.6 |
| 16.6–17.4 | FB 23.6 |
| 17.5–18.8 | FB 24.8 |
| 18.9–20.1 | FB 26.7 |
| 20.2–21.0 | FB 28.3 |
| 21.1–21.6 | FB 29.6 |
| 21.7–23.3 | FB 30.5 |
| 23.4–24.3 | FB 32.6 |
| 24.4–25.0 | FB 34.1 |
| 25.1–26.3 | FB 35.0 |
| 26.4–27.6 | FB 36.6 |
| 27.7–29.1 | FB 38.3 |
| 29.2–30.4 | FB 40.2 |
| 30.5–32.0 | FB 42.0 |
| 32.1–33.3 | FB 44.0 |
| 33.4–35.2 | FB 46.0 |
| 35.3–37.0 | FB 48.0 |
| 37.1–38.5 | FB 50.5 |
| 38.6–40.7 | FB 52.5 |
| 40.8–45.0 | FB 55.5 |

## Table 76

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 19.9–20.8 | FB 26.7 |
| 20.9–22.2 | FB 28.3 |
| 22.3–23.8 | FB 29.6 |
| 23.9–25.4 | FB 30.5 |
| 25.5–27.2 | FB 32.6 |
| 27.3–29.2 | FB 34.1 |
| 29.3–31.9 | FB 38.3 |
| 32.0–33.8 | FB 40.2 |
| 33.9–36.1 | FB 42.0 |
| 36.2–38.5 | FB 44.0 |
| 38.6–41.4 | FB 46.0 |
| 41.5–43.6 | FB 48.0 |
| 43.7–45.9 | FB 50.5 |
| 46.0–48.2 | FB 52.5 |
| 48.3–50.7 | FB 55.5 |
| 50.8–53.9 | FB 58.0 |
| 54.0–56.7 | FB 60.0 |
| 56.8–60.8 | FB 63.5 |
| 60.9–67.6 | FB 69.0 |
| 67.7–73.6 | FB 77.0 |
| 73.7–82.9 | FB 84.0 |
| 83.0–86.0 | FB 92.0 |

## Table 77

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 48.0–50.9 | FB 50.5 |
| 51.0–53.7 | FB 52.5 |
| 53.8–57.0 | FB 55.5 |
| 57.1–60.4 | FB 58.0 |
| 60.5–64.0 | FB 60.0 |
| 64.1–71.9 | FB 63.5 |
| 72.0–83.9 | FB 69.0 |
| 84.0–93.1 | FB 77.0 |
| 93.2–104 | FB 84.0 |
| 105–109 | FB 92.0 |
| 110–123 | FB 105.0 |
| 124–133 | FB 115.0 |

## Table 78

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 2 T. U. or 3 T. U. | |
| 2.26–2.51 | 2.26–2.51 | FB 3.33 |
| 2.52–2.82 | 2.52–2.82 | FB 3.71 |
| 2.83–3.09 | 2.83–3.09 | FB 4.1 |
| 3.10–3.30 | 3.10–3.30 | FB 4.5 |
| 3.31–3.69 | 3.31–3.69 | FB 4.75 |
| 3.70–4.27 | 3.70–4.27 | FB 5.3 |
| 4.28–4.72 | 4.28–4.72 | FB 6.1 |
| 4.73–5.25 | 4.73–5.25 | FB 6.75 |
| 5.26–5.53 | 5.26–5.53 | FB 7.45 |
| 5.54–5.81 | 5.54–5.81 | FB 7.8 |
| 5.82–6.14 | 5.82–6.14 | FB 8.21 |
| 6.15–6.44 | 6.15–6.44 | FB 8.6 |
| 6.45–6.81 | 6.45–6.81 | FB 9.0 |
| 6.82–7.19 | 6.82–7.19 | FB 9.5 |
| 7.20–7.59 | 7.20–7.59 | FB 10.0 |
| 7.60–7.99 | 7.60–7.99 | FB 10.6 |
| 8.00–8.17 | 8.00–8.17 | FB 11.2 |
| 8.18–8.74 | 8.18–8.74 | FB 12.1 |
| 8.75–9.31 | 8.75–9.31 | FB 13.1 |
| 9.32–9.94 | 9.32–9.94 | FB 13.9 |
| 9.95–10.5 | 9.95–10.5 | FB 14.8 |
| 10.6–11.1 | 10.6–11.1 | FB 15.6 |
| 11.2–11.9 | 11.2–12.0 | FB 16.4 |
| 12.0–12.4 | — | FB 17.6 |
| 12.5–13.1 | — | FB 18.4 |
| 13.2–14.3 | — | FB 19.4 |
| 14.4–15.3 | — | FB 21.1 |
| 15.4–15.9 | — | FB 22.6 |
| 16.0–18.0 | — | FB 23.6 |
| Following Selections for Size 1 Only. | | |
| — | 12.0–12.4 | FB 17.6 |
| — | 12.5–13.1 | FB 18.4 |
| — | 13.2–14.3 | FB 19.4 |
| 14.4–15.3 | 14.4–15.3 | FB 21.1 |
| 15.4–15.9 | 15.4–15.9 | FB 22.6 |
| 16.0–16.9 | 16.0–16.9 | FB 23.6 |
| 17.0–18.3 | 17.0–18.3 | FB 24.8 |
| 18.4–19.5 | 18.4–19.5 | FB 26.7 |
| 19.6–20.5 | 19.6–20.5 | FB 28.3 |
| 20.6–21.1 | 20.6–21.1 | FB 29.6 |
| 21.2–22.6 | 21.2–22.6 | FB 30.5 |
| 22.7–23.7 | 22.7–23.7 | FB 32.6 |
| 23.8–24.3 | 23.8–24.3 | FB 35.0 |
| 24.4–26.0 | 24.4–26.0 | |

## Table 79

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.31–3.67 | FB 4.75 |
| 3.68–4.23 | FB 5.3 |
| 4.24–4.69 | FB 6.1 |
| 4.70–5.21 | FB 6.75 |
| 5.22–5.49 | FB 7.45 |
| 5.50–5.74 | FB 7.8 |
| 5.75–6.07 | FB 8.21 |
| 6.08–6.35 | FB 8.6 |
| 6.36–6.71 | FB 9.0 |
| 6.72–7.03 | FB 9.5 |
| 7.04–7.53 | FB 10.0 |
| 7.54–7.91 | FB 10.6 |
| 7.92–8.53 | FB 11.2 |
| 8.54–9.14 | FB 12.1 |
| 9.15–9.71 | FB 13.1 |
| 9.72–10.2 | FB 13.9 |
| 10.3–10.8 | FB 14.8 |
| 10.9–11.5 | FB 15.6 |
| 11.6–12.3 | FB 16.4 |
| 12.4–13.0 | FB 17.6 |
| 13.1–13.9 | FB 18.4 |
| 14.0–15.1 | FB 19.4 |
| 15.2–16.1 | FB 21.1 |
| 16.2–16.9 | FB 22.6 |
| 17.0–17.9 | FB 23.6 |
| 18.0–19.4 | FB 24.8 |
| 19.5–20.7 | FB 26.7 |
| 20.8–21.7 | FB 28.3 |
| 21.8–22.3 | FB 29.6 |
| 22.4–23.9 | FB 30.5 |
| 24.0–25.1 | FB 32.6 |
| 25.2–25.9 | FB 34.1 |
| 26.0–27.1 | FB 35.0 |
| 27.2–28.6 | FB 36.6 |
| 28.7–30.1 | FB 38.3 |
| 30.2–31.7 | FB 40.2 |
| 31.8–33.3 | FB 42.0 |
| 33.4–34.5 | FB 44.0 |
| 34.6–36.5 | FB 46.0 |
| 36.6–38.5 | FB 48.0 |
| 38.6–39.9 | FB 50.5 |
| 40.0–45.0 | FB 52.5 |

## Table 80

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 20.5–21.7 | FB 26.7 |
| 21.8–23.1 | FB 28.3 |
| 23.2–24.8 | FB 29.6 |
| 24.9–26.5 | FB 30.5 |
| 26.6–28.4 | FB 32.6 |
| 28.5–30.4 | FB 34.1 |
| 30.5–32.8 | FB 38.3 |
| 32.9–34.9 | FB 40.2 |
| 35.0–37.3 | FB 42.0 |
| 37.4–39.8 | FB 44.0 |
| 39.9–42.5 | FB 46.0 |
| 42.6–45.8 | FB 48.0 |
| 45.9–48.2 | FB 50.5 |
| 48.3–50.6 | FB 52.5 |
| 50.7–53.1 | FB 55.5 |
| 53.2–56.5 | FB 58.0 |
| 56.6–59.4 | FB 60.0 |
| 59.5–63.4 | FB 63.5 |
| 63.5–71.0 | FB 69.0 |
| 71.1–78.8 | FB 77.0 |
| 78.9–86.0 | FB 84.0 |

## Table 81

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 52.2–55.6 | FB 50.5 |
| 55.7–58.8 | FB 52.5 |
| 58.9–62.5 | FB 55.5 |
| 62.6–66.0 | FB 58.0 |
| 66.1–70.1 | FB 60.0 |
| 70.2–78.6 | FB 63.5 |
| 78.7–92.0 | FB 69.0 |
| 92.1–102 | FB 77.0 |
| 103–114 | FB 84.0 |
| 115–123 | FB 92.0 |
| 124–133 | FB 105.0 |

## Table 82

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 2.36–2.63 | FB 3.33 |
| 2.64–2.96 | FB 3.71 |
| 2.97–3.23 | FB 4.1 |
| 3.24–3.45 | FB 4.5 |
| 3.46–3.86 | FB 4.75 |
| 3.87–4.44 | FB 5.3 |
| 4.45–4.95 | FB 6.1 |
| 4.96–5.47 | FB 6.75 |
| 5.48–5.75 | FB 7.45 |
| 5.76–6.09 | FB 7.8 |
| 6.10–6.42 | FB 8.21 |
| 6.43–6.75 | FB 8.6 |
| 6.76–7.16 | FB 9.0 |
| 7.17–7.43 | FB 9.5 |
| 7.44–7.99 | FB 10.0 |
| 8.00–8.46 | FB 10.6 |
| 8.47–9.19 | FB 11.2 |
| 9.20–9.74 | FB 12.1 |
| 9.75–10.3 | FB 13.1 |
| 10.4–10.8 | FB 13.9 |
| 10.9–11.6 | FB 14.8 |
| 11.7–12.2 | FB 15.6 |
| 12.3–13.1 | FB 16.4 |
| 13.2–13.7 | FB 17.6 |
| 13.8–14.3 | FB 18.4 |
| 14.4–15.5 | FB 19.4 |
| 15.6–16.7 | FB 21.1 |
| 16.8–17.6 | FB 22.6 |
| 17.7–18.6 | FB 23.6 |
| 18.7–19.9 | FB 24.8 |
| 20.0–21.1 | FB 92.0 |
| 21.2–25.0 | FB 105.0 |

## Table 83

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 2.30–2.60 | FB 3.33 |
| 2.61–2.87 | FB 3.71 |
| 2.88–3.17 | FB 4.1 |
| 3.18–3.37 | FB 4.5 |
| 3.38–3.76 | FB 4.75 |
| 3.77–4.29 | FB 5.3 |
| 4.30–4.75 | FB 6.1 |
| 4.76–5.26 | FB 6.75 |
| 5.27–5.51 | FB 7.45 |
| 5.52–5.78 | FB 7.8 |
| 5.79–6.13 | FB 8.21 |
| 6.14–6.41 | FB 8.6 |
| 6.42–6.75 | FB 9.0 |
| 6.76–7.09 | FB 9.5 |
| 7.10–7.57 | FB 10.0 |
| 7.58–7.90 | FB 10.6 |
| 7.91–8.81 | FB 11.2 |
| 8.82–9.47 | FB 12.1 |
| 9.48–10.0 | FB 13.1 |
| 10.1–10.7 | FB 13.9 |
| 10.8–11.4 | FB 14.8 |
| 11.5–12.1 | FB 15.6 |
| 12.2–13.1 | FB 16.4 |
| 13.2–13.7 | FB 17.6 |
| 13.8–14.7 | FB 18.4 |
| 14.8–16.0 | FB 19.4 |
| 16.1–17.3 | FB 21.1 |
| 17.4–18.2 | FB 22.6 |
| 18.3–19.4 | FB 23.6 |
| 19.5–20.7 | FB 24.8 |
| 20.8–22.3 | FB 26.7 |
| 22.4–23.5 | FB 28.3 |
| 23.6–24.2 | FB 29.6 |
| 24.3–26.0 | FB 30.5 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

### Table 84

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.38–3.78 | FB 4.75 |
| 3.79–4.37 | FB 5.3 |
| 4.38–4.87 | FB 6.1 |
| 4.88–5.51 | FB 6.75 |
| 5.52–5.73 | FB 7.45 |
| 5.74–6.09 | FB 7.8 |
| 6.10–6.44 | FB 8.21 |
| 6.45–6.75 | FB 8.6 |
| 6.76–7.15 | FB 9.0 |
| 7.16–7.57 | FB 9.5 |
| 7.58–8.07 | FB 10.0 |
| 8.08–8.47 | FB 10.6 |
| 8.48–8.81 | FB 11.2 |
| 8.82–9.46 | FB 12.1 |
| 9.47–10.1 | FB 13.1 |
| 10.2–10.8 | FB 13.9 |
| 10.9–11.4 | FB 14.8 |
| 11.5–12.1 | FB 15.6 |
| 12.2–13.1 | FB 16.4 |
| 13.2–13.8 | FB 17.6 |
| 13.9–14.8 | FB 18.4 |
| 14.9–16.1 | FB 19.4 |
| 16.2–17.4 | FB 21.1 |
| 17.5–18.3 | FB 22.6 |
| 18.4–19.5 | FB 23.6 |
| 19.6–21.0 | FB 24.8 |
| 21.1–22.5 | FB 26.7 |
| 22.6–23.7 | FB 28.3 |
| 23.8–24.5 | FB 29.6 |
| 24.6–26.4 | FB 30.5 |
| 26.5–27.7 | FB 32.6 |
| 27.8–28.7 | FB 34.1 |
| 28.8–29.9 | FB 35.0 |
| 30.0–31.8 | FB 36.6 |
| 31.9–33.5 | FB 38.3 |
| 33.6–35.1 | FB 40.2 |
| 35.2–37.1 | FB 42.0 |
| 37.2–38.8 | FB 44.0 |
| 38.9–41.1 | FB 46.0 |
| 41.2–45.0 | FB 48.0 |

### Table 85

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 42.9–45.4 | FB 44.0 |
| 45.6–48.3 | FB 46.0 |
| 48.4–52.4 | FB 48.0 |
| 52.5–55.9 | FB 50.5 |
| 56.0–59.8 | FB 52.5 |
| 59.9–63.8 | FB 55.5 |
| 63.9–67.9 | FB 58.0 |
| 68.0–72.6 | FB 60.0 |
| 72.7–83.2 | FB 63.5 |
| 83.3–94.7 | FB 69.0 |
| 94.8–105 | FB 77.0 |
| 106–116 | FB 84.0 |
| 117–121 | FB 92.0 |
| 122–133 | FB 105.0 |

### Table 86

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.43–0.44 | A .49 |
| 0.45–0.47 | A .54 |
| 0.48–0.53 | A .59 |
| 0.54–0.61 | A .65 |
| 0.62–0.65 | A .71 |
| 0.66–0.71 | A .78 |
| 0.72–0.79 | A .86 |
| 0.80–0.86 | A .95 |
| 0.87–0.96 | A 1.02 |
| 0.97–1.04 | A 1.16 |
| 1.05–1.17 | A 1.25 |
| 1.18–1.31 | A 1.39 |
| 1.32–1.38 | A 1.54 |
| 1.39–1.47 | A 1.63 |
| 1.48–1.57 | A 1.75 |
| 1.58–1.65 | A 1.86 |
| 1.66–1.77 | A 1.99 |
| 1.78–1.93 | A 2.15 |
| 1.94–2.18 | A 2.31 |
| 2.19–2.46 | A 2.57 |
| 2.47–2.68 | A 2.81 |
| 2.69–2.87 | A 3.61 |
| 2.88–3.07 | A 3.95 |
| 3.08–3.59 | A 4.32 |
| 3.60–3.79 | A 4.79 |
| 3.80–4.27 | A 5.30 |
| 4.28–4.59 | A 5.78 |
| 4.60–4.90 | A 6.20 |
| 4.91–5.06 | A 6.99 |
| 5.07–5.44 | A 7.65 |
| 5.45–6.24 | A 8.38 |
| 6.25–7.21 | A 9.25 |
| 7.22–7.69 | A 9.85 |
| 7.70–8.24 | A 11.0 |
| 8.25–8.81 | A 11.9 |
| 8.82–9.32 | A 132 |
| 9.33–9.99 | A 14.1 |
| 10.0–10.5 | A 14.8 |
| 10.6–11.5 | A 16.2 |
| 11.6–12.2 | A 17.9 |
| 12.3–13.3 | A 21.3 |
| 13.4–15.8 | A 25.2 |
| 15.9–18.4 | A 27.1 |
| 18.5–20.5 | A 29.5 |
| 20.6–21.5 | A 31.9 |
| 21.6–23.9 | A 33.8 |
| 24.0–26.8 | A 35.9 |
| 26.9–28.2 | A 40.0 |
| 28.3–29.8 | A 42.3 |
| 29.9–32.0 | A 44.7 |

### Table 87

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.40–0.41 | A .49 |
| 0.42–0.45 | A .54 |
| 0.46–0.51 | A .59 |
| 0.52–0.58 | A .65 |
| 0.59–0.63 | A .71 |
| 0.64–0.68 | A .78 |
| 0.69–0.76 | A .86 |
| 0.77–0.83 | A .95 |
| 0.84–0.93 | A 1.02 |
| 0.94–1.01 | A 1.16 |
| 1.02–1.14 | A 1.25 |
| 1.15–1.28 | A 1.39 |
| 1.29–1.34 | A 1.54 |
| 1.35–1.44 | A 1.63 |
| 1.45–1.55 | A 1.75 |
| 1.56–1.61 | A 1.86 |
| 1.62–1.71 | A 1.99 |
| 1.72–1.85 | A 2.15 |
| 1.86–2.04 | A 2.31 |
| 2.05–2.38 | A 2.57 |
| 2.39–2.60 | A 2.81 |
| 2.61–2.77 | A 3.61 |
| 2.78–2.98 | A 3.95 |
| 2.99–3.40 | A 4.32 |
| 3.41–3.64 | A 4.79 |
| 3.65–4.08 | A 5.30 |
| 4.09–4.38 | A 5.78 |
| 4.39–4.68 | A 6.20 |
| 4.69–4.79 | A 6.99 |
| 4.80–5.11 | A 7.65 |
| 5.12–5.84 | A 8.38 |
| 5.85–6.70 | A 9.25 |
| 6.71–7.18 | A 9.85 |
| 7.19–7.70 | A 11.0 |
| 7.71–8.14 | A 11.9 |
| 8.15–8.56 | A 13.2 |
| 8.57–9.15 | A 14.1 |
| 9.16–9.80 | A 14.8 |
| 9.81–10.6 | A 16.2 |
| 10.7–11.0 | A 17.9 |

### Table 88

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.39–0.40 | A .49 |
| 0.41–0.44 | A .54 |
| 0.45–0.49 | A .59 |
| 0.50–0.57 | A .65 |
| 0.58–0.61 | A .71 |
| 0.62–0.66 | A .78 |
| 0.67–0.73 | A .86 |
| 0.74–0.80 | A .95 |
| 0.81–0.90 | A 1.02 |
| 0.91–0.97 | A 1.16 |
| 0.98–1.09 | A 1.25 |
| 1.10–1.23 | A 1.39 |
| 1.24–1.57 | A 1.86 |
| 1.58–1.66 | A 1.99 |
| 1.67–1.79 | A 2.15 |
| 1.80–1.99 | A 2.31 |
| 2.00–2.31 | A 2.57 |
| 2.32–2.50 | A 2.81 |
| 2.51–2.66 | A 3.61 |
| 2.67–2.85 | A 3.95 |
| 2.86–3.26 | A 4.32 |
| 3.27–3.49 | A 4.79 |
| 3.50–3.92 | A 5.30 |
| 3.93–4.20 | A 5.78 |
| 4.21–4.49 | A 6.20 |
| 4.50–4.64 | A 6.99 |
| 4.65–4.94 | A 7.65 |
| 4.95–5.62 | A 8.38 |
| 5.63–6.39 | A 9.25 |
| 6.40–6.82 | A 9.85 |
| 6.83–7.27 | A 11.0 |
| 7.28–7.71 | A 11.9 |
| 7.72–8.13 | A 13.2 |
| 8.14–8.64 | A 14.1 |
| 8.65–9.15 | A 14.8 |
| 9.16–9.97 | A 16.2 |
| 9.98–11.0 | A 17.9 |

### Table 89

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 10.0–11.1 | B 17.5 |
| 11.2–12.0 | B 19.5 |
| 12.1–13.3 | B 22.0 |
| 13.4–15.1 | B 25.0 |
| 15.2–17.1 | B 28.0 |
| 17.2–18.6 | B 32.0 |
| 18.7–21.4 | B 36.0 |
| 21.5–25.7 | B 40.0 |
| 25.8–28.2 | B 45.0 |
| 28.3–29.7 | B 50.0 |
| 29.8–31.2 | B 56.0 |
| 31.3–32.1 | B 62.0 |
| 32.2–35.7 | B 70.0 |
| 35.8–40.7 | B 79.0 |
| 40.8–48.0 | B 88.0 |

### Table 90

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.88–5.13 | A 7.65 |
| 5.14–5.85 | A 8.38 |
| 5.86–6.67 | A 9.25 |
| 6.68–7.09 | A 9.85 |
| 7.10–7.62 | A 11.0 |
| 7.63–8.04 | A 11.9 |
| 8.05–8.46 | A 13.2 |
| 8.47–9.11 | A 14.1 |
| 9.12–9.69 | A 14.8 |
| 9.70–10.5 | A 16.2 |
| 10.6–11.6 | A 17.9 |
| 11.7–12.3 | A 21.3 |
| 12.4–14.6 | A 25.2 |
| 14.7–16.8 | A 27.1 |
| 16.9–17.9 | A 29.5 |
| 18.0–18.7 | A 31.9 |
| 18.8–19.8 | A 33.8 |
| 19.9–21.4 | A 35.9 |
| 21.5–22.8 | A 40.0 |
| 22.9–23.8 | A 42.3 |
| 23.9–26.0 | A 44.7 |

### Table 91

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.80–5.07 | A 7.65 |
| 5.08–5.73 | A 8.38 |
| 5.74–6.48 | A 9.25 |
| 6.49–6.90 | A 9.85 |
| 6.91–7.25 | A 11.0 |
| 7.26–7.81 | A 11.9 |
| 7.82–8.29 | A 13.2 |
| 8.30–8.81 | A 14.1 |
| 8.82–9.40 | A 14.8 |
| 9.41–10.0 | A 16.2 |
| 10.1–11.1 | A 17.9 |
| 11.2–11.7 | A 21.3 |
| 11.8–13.7 | A 25.2 |
| 13.8–16.0 | A 27.1 |
| 16.1–16.9 | A 29.5 |
| 17.0–17.7 | A 31.9 |
| 17.8–18.7 | A 33.8 |
| 18.8–20.2 | A 35.9 |
| 20.3–21.4 | A 40.0 |
| 21.5–22.5 | A 42.3 |
| 22.6–23.8 | A 44.7 |
| 23.9–26.0 | A 48.0 |

### Table 92

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 10.5–11.7 | B 17.5 |
| 11.8–12.5 | B 19.5 |
| 12.6–14.0 | B 22.0 |
| 14.1–15.8 | B 25.0 |
| 15.9–18.0 | B 28.0 |
| 18.1–19.6 | B 32.0 |
| 19.7–23.5 | B 36.0 |
| 23.6–27.4 | B 40.0 |
| 27.5–30.5 | B 45.0 |
| 30.6–32.2 | B 50.0 |
| 32.3–34.0 | B 56.0 |
| 34.1–35.2 | B 62.0 |
| 35.3–39.5 | B 70.0 |
| 39.6–43.9 | B 79.0 |
| 44.0–48.0 | B 88.0 |

### Table 93

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 23.8–25.2 | CC 36.4 |
| 25.3–26.8 | CC 39.6 |
| 26.9–28.4 | CC 42.7 |
| 28.5–30.3 | CC 46.6 |
| 30.4–32.1 | CC 50.1 |
| 32.2–34.2 | CC 54.5 |
| 34.3–36.3 | CC 59.4 |
| 36.4–40.2 | CC 64.3 |
| 40.3–43.1 | CC 68.5 |
| 43.2–45.9 | CC 74.6 |
| 46.0–49.2 | CC 81.5 |
| 49.3–51.6 | CC 87.7 |
| 51.7–54.2 | CC 94.0 |
| 54.3–55.7 | CC 103.0 |
| 55.8–60.3 | CC 112.0 |
| 60.4–63.5 | CC 121.0 |
| 63.6–67.1 | CC 132.0 |
| 67.2–70.3 | CC 143.0 |
| 70.4–74.1 | CC 156.0 |
| 74.2–78.3 | CC 167.0 |
| 78.4–83.3 | CC 180.0 |
| 83.4–86.0 | CC 196.0 |





© 2012 Schneider Electric
All Rights Reserved

### Table 94

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 25.8–27.5 | CC 36.4 |
| 27.6–29.4 | CC 39.6 |
| 29.5–31.4 | CC 42.7 |
| 31.5–33.2 | CC 46.6 |
| 33.3–36.2 | CC 50.1 |
| 36.3–38.8 | CC 54.5 |
| 38.9–41.6 | CC 59.4 |
| 41.7–44.7 | CC 64.3 |
| 44.8–47.9 | CC 68.5 |
| 48.0–50.9 | CC 74.6 |
| 51.0–54.4 | CC 81.5 |
| 54.5–57.4 | CC 87.7 |
| 57.5–60.6 | CC 94.0 |
| 60.7–63.9 | CC 103.0 |
| 64.0–68.4 | CC 112.0 |
| 68.5–73.4 | CC 121.0 |
| 73.5–78.7 | CC 132.0 |
| 78.8–83.8 | CC 143.0 |
| 83.9–86.0 | CC 156.0 |

### Table 95

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 42.5–44.7 | CC 64.3 |
| 44.8–47.9 | CC 68.5 |
| 48.0–51.2 | CC 74.6 |
| 51.3–55.2 | CC 81.5 |
| 55.3–59.4 | CC 87.7 |
| 59.5–63.8 | CC 94.0 |
| 63.9–68.8 | CC 103.0 |
| 68.9–73.8 | CC 112.0 |
| 73.9–77.7 | CC 121.0 |
| 77.8–82.5 | CC 132.0 |
| 82.6–86.6 | CC 143.0 |
| 86.7–91.9 | CC 156.0 |
| 92.0–97.2 | CC 167.0 |
| 97.3–104 | CC 180.0 |
| 105–114 | CC 196.0 |
| 115–123 | CC 208.0 |
| 124–150 | CC 219.0 |

### Table 96

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 49.5–52.0 | CC 64.3 |
| 52.1–54.8 | CC 68.5 |
| 54.9–58.7 | CC 74.6 |
| 58.8–63.3 | CC 81.5 |
| 63.4–68.3 | CC 87.7 |
| 68.4–73.6 | CC 94.0 |
| 73.7–79.4 | CC 103.0 |
| 79.5–85.5 | CC 112.0 |
| 85.6–89.7 | CC 121.0 |
| 89.8–94.8 | CC 132.0 |
| 94.9–99.9 | CC 143.0 |
| 100–105 | CC 156.0 |
| 106–111 | CC 167.0 |
| 112–126 | CC 180.0 |
| 127–131 | CC 196.0 |
| 132–141 | CC 208.0 |
| 142–150 | CC 219.0 |

### Table 97

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.57–0.60 | AR 1.05 |
| 0.61–0.66 | AR 1.15 |
| 0.67–0.73 | AR 1.26 |
| 0.74–0.81 | AR 1.39 |
| 0.82–0.90 | AR 1.53 |
| 0.91–1.05 | AR 1.68 |
| 1.06–1.15 | AR 1.85 |
| 1.16–1.25 | AR 2.04 |
| 1.26–1.35 | AR 2.24 |
| 1.36–1.47 | AR 2.46 |
| 1.48–1.58 | AR 2.71 |
| 1.59–1.74 | AR 2.98 |
| 1.75–1.94 | AR 3.28 |
| 1.95–2.20 | AR 3.62 |
| 2.21–2.47 | AR 3.98 |
| 2.48–2.76 | AR 4.37 |
| 2.77–3.07 | AR 4.80 |
| 3.08–3.45 | AR 5.3 |
| 3.46–3.81 | AR 5.8 |
| 3.82–4.20 | AR 6.4 |
| 4.21–4.65 | AR 7.0 |
| 4.66–5.29 | AR 7.7 |
| 5.30–5.84 | AR 8.5 |
| 5.85–6.27 | AR 9.3 |
| 6.28–6.97 | AR 10.2 |
| 6.98–7.59 | AR 11.2 |
| 7.60–7.89 | AR 12.4 |
| 7.90–8.95 | AR 13.6 |
| 8.96–10.3 | AR 15.4 |
| 10.4–11.7 | AR 17.6 |
| 11.8–13.3 | AR 20.5 |
| 13.4–15.2 | AR 23.0 |
| 15.3–17.2 | AR 27.0 |
| 17.3–19.7 | AR 30.0 |
| 19.8–22.4 | AR 35.0 |
| 22.5–26.0 | AR 40.0 |

### Table 98

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.24–4.62 | AR 8.5 |
| 4.63–5.05 | AR 9.3 |
| 5.06–5.54 | AR 10.2 |
| 5.55–6.13 | AR 11.2 |
| 6.14–6.44 | AR 12.4 |
| 6.45–7.48 | AR 13.6 |
| 7.49–8.55 | AR 15.4 |
| 8.56–9.74 | AR 17.6 |
| 9.75–11.1 | AR 20.5 |
| 11.2–12.7 | AR 23.0 |
| 12.8–14.4 | AR 27.0 |
| 14.5–16.4 | AR 30.0 |
| 16.5–18.9 | AR 35.0 |
| 19.0–21.6 | AR 40.0 |
| 21.7–23.3 | AR 44.0 |
| 23.4–24.9 | AR 47.0 |
| 25.0–26.9 | AR 51.0 |
| 27.0–29.1 | AR 55.0 |
| 29.2–31.3 | AR 60.0 |
| 31.4–33.5 | AR 66.0 |
| 33.6–36.9 | AR 72.0 |
| 37.0–39.1 | AR 79.0 |
| 39.2–40.9 | AR 86.0 |
| 41.0–45.0 | AR 94.0 |

### Table 99

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 27.1–30.0 | E 67 |
| 30.1–33.2 | E 69 |
| 33.3–35.7 | E 70 |
| 35.8–39.4 | E 71 |
| 39.5–43.4 | E 72 |
| 43.5–46.9 | E 73 |
| 47.0–51.5 | E 74 |
| 51.6–57.0 | E 76 |
| 57.1–62.8 | E 77 |
| 62.9–69.1 | E 78 |
| 69.2–75.0 | E 79 |
| 75.1–83.3 | E 80 |

### Table 100

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 50–55.9 | E 88 |
| 56–60.9 | E 89 |
| 91–65.9 | E 91 |
| 66–69.9 | E 92 |
| 70–75.9 | E 93 |
| 76–81.9 | E 94 |
| 82–86.9 | E 96 |
| 87–92.9 | E 97 |
| 93–97.9 | E 98 |
| 98–107.9 | E 99 |
| 108–113.9 | E 101 |
| 114–125.9 | E 102 |

### Table 101

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 105–116 | AR 3.28 |
| 117–132 | AR 3.62 |
| 133–148 | AR 3.98 |
| 149–165 | AR 4.37 |
| 166–184 | AR 4.80 |
| 185–207 | AR 5.3 |
| 208–229 | AR 5.8 |
| 230–266 | AR 6.4 |

### Table 102

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 146–169 | AR 1.68 |
| 170–185 | AR 1.85 |
| 186–201 | AR 2.04 |
| 202–217 | AR 2.24 |
| 218–236 | AR 2.46 |
| 237–253 | AR 2.71 |
| 254–279 | AR 2.98 |
| 280–311 | AR 3.28 |
| 312–353 | AR 3.62 |
| 354–396 | AR 3.98 |
| 397–442 | AR 4.37 |
| 443–492 | AR 4.80 |
| 493–520 | AR 5.3 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

### Table 103

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 40.8–45.5 | B 1.03 |
| 45.6–49.9 | B 1.16 |
| 51.0–57.5 | B 1.30 |
| 57.6–65.9 | B 1.45 |
| 66.0–73.1 | B 1.67 |
| 73.2–81.5 | B 1.88 |
| 81.6–92.3 | B 2.10 |
| 92.4–104 | B 2.40 |
| 105–114 | B 2.65 |
| 115–128 | B 3.00 |
| 129–140 | B 3.30 |
| 141–160 | B 3.70 |
| 161–193 | B 4.15 |
| 194–209 | B 4.85 |
| 210–232 | B 5.50 |
| 233–248 | B 6.25 |
| 249–266 | B 6.90 |

### Table 104

| Motor FLC (A) | Thermal Unit Number | Max. Fuse Rating (A) | |
|---|---|---|---|
| | | 600 V Max. | 250 V Max. |
| 0.65–0.73 | B 1.03 | 1.50 | |
| 0.74–0.82 | B 1.16 | 1.50 | |
| 0.93–0.91 | B 1.30 | 1.60 | |
| 0.92–1.04 | B 1.45 | 2.00 | |
| 1.05–1.16 | B 1.67 | 2.00 | |
| 1.17–1.26 | B 1.88 | 2.25 | |
| 1.27–1.47 | B 2.10 | 2.60 | |
| 1.48–1.65 | B 2.40 | 3.00 | |
| 1.66–1.89 | B 2.65 | 3.50 | |
| 1.90–2.17 | B 3.00 | 4.00 | |
| 2.18–2.49 | B 3.30 | 4.50 | |
| 2.50–2.79 | B 3.70 | 5.00 | |
| 2.80–3.13 | B 4.15 | 5.60 | |
| 3.14–3.36 | B 4.85 | 6.00 | |
| 3.37–3.69 | B 5.50 | 7.00 | |
| 3.70–3.92 | B 6.25 | 7.00 | |
| 3.93–4.42 | B 6.90 | 8.00 | |
| 4.43–4.99 | B 7.70 | 9.00 | |
| 5.00–5.27 | B 8.20 | 10.0 | |
| 5.28–5.84 | B 9.10 | 12.0 | |
| 5.85–6.61 | B 10.2 | 12.0 | |
| 6.62–7.42 | B 11.5 | 15.0 | |
| 7.43–8.02 | B 12.8 | 15.0 | |
| 8.03–8.53 | B 14.0 | 15.0 | |
| 8.54–9.34 | B 15.5 | 17.5 | |
| 9.35–10.1 | B 17.5 | 17.5 | |
| 10.2–10.8 | B 19.5 | 20.0 | |
| 10.9–12.0 | B 22.0 | 25.0 | |
| 12.1–13.0 | B 25.0 | 25.0 | |
| 13.1–15.5 | B 28.0 | 30.0 | |
| 15.6–17.9 | B 32.0 | 30 | 30 |
| 18.0–21.4 | B 36.0 | 30 | 40 |
| 21.5–25.1 | B 40.0 | 30 | 40 |
| 25.2–27.0 | B 45.0 | 30 | 40 |

### Table 105

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 105–112 | CC 74.6 |
| 113–122 | CC 81.5 |
| 123–131 | CC 87.7 |
| 132–142 | CC 94.0 |
| 143–153 | CC 103.0 |
| 154–157 | CC 112.0 |
| 158–169 | CC 121.0 |
| 170–181 | CC 132.0 |
| 182–195 | CC 143.0 |
| 196–209 | CC 156.0 |
| 210–227 | CC 167.0 |
| 228–247 | CC 180.0 |
| 248–266 | CC 196.0 |

### Table 109

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.56–0.63 | B 0.81 |
| 0.64–0.68 | B 0.92 |
| 0.69–0.77 | B 1.03 |
| 0.78–0.85 | B 1.16 |
| 0.86–0.97 | B 1.30 |
| 0.98–1.09 | B 1.45 |
| 1.10–1.21 | B 1.67 |
| 1.22–1.33 | B 1.88 |
| 1.34–1.53 | B 2.10 |
| 1.54–1.73 | B 2.40 |
| 1.74–1.89 | B 2.65 |
| 1.90–2.17 | B 3.00 |
| 2.18–2.53 | B 3.30 |
| 2.54–2.87 | B 3.70 |
| 2.88–3.22 | B 4.15 |
| 3.23–3.49 | B 4.85 |
| 3.50–3.85 | B 5.50 |
| 3.86–4.11 | B 6.25 |
| 4.12–4.70 | B 6.90 |
| 4.71–5.21 | B 7.70 |
| 5.22–5.53 | B 8.20 |
| 5.54–6.17 | B 9.10 |
| 6.18–7.02 | B 10.2 |
| 7.03–7.92 | B 11.5 |
| 7.93–8.61 | B 12.8 |
| 8.62–9.17 | B 14.0 |
| 9.18–10.0 | B 15.5 |
| 10.1–11.0 | B 17.5 |
| 11.1–11.8 | B 19.5 |
| 11.9–13.5 | B 22.0 |
| 13.6–15.3 | B 25.0 |
| 15.4–17.4 | B 28.0 |
| 17.5–19.4 | B 32.0 |
| 19.5–22.2 | B 36.0 |
| 22.3–25.1 | B 40.0 |
| 25.2–27.0 | B 45.0 |

### Table 110

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 3.94–4.45 | B 6.90 |
| 4.46–4.97 | B 7.70 |
| 4.98–5.28 | B 8.20 |
| 5.29–5.97 | B 9.10 |
| 5.98–6.89 | B 10.2 |
| 6.90–7.92 | B 11.5 |
| 7.93–8.71 | B 12.8 |
| 8.72–9.27 | B 14.0 |
| 9.28–10.2 | B 15.5 |
| 10.3–11.4 | B 17.5 |
| 11.5–12.3 | B 19.5 |
| 12.4–13.9 | B 22.0 |
| 14.0–15.8 | B 25.0 |
| 15.9–17.9 | B 28.0 |
| 18.0–19.9 | B 32.0 |
| 20.0–22.8 | B 36.0 |
| 22.9–25.4 | B 40.0 |
| 25.5–28.9 | B 45.0 |
| 29.0–30.8 | B 50.0 |
| 30.9–32.5 | B 56.0 |
| 32.6–34.9 | B 62.0 |
| 35.0–39.7 | B 70.0 |
| 39.8–44.7 | B 79.0 |





© 2012 Schneider Electric
All Rights Reserved

### Table 111

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 14.0–14.9 | CC 20.9 |
| 15.0–16.2 | CC 22.8 |
| 16.3–17.2 | CC 24.6 |
| 17.3–18.7 | CC 26.3 |
| 18.8–20.2 | CC 28.8 |
| 20.3–21.7 | CC 31.0 |
| 21.8–23.3 | CC 33.3 |
| 23.4–25.2 | CC 36.4 |
| 25.3–27.1 | CC 39.6 |
| 27.2–29.4 | CC 42.7 |
| 29.5–31.6 | CC 46.6 |
| 31.7–34.0 | CC 50.1 |
| 34.1–36.8 | CC 54.5 |
| 36.9–39.8 | CC 59.4 |
| 39.9–42.3 | CC 64.3 |
| 42.4–45.7 | CC 68.5 |
| 45.8–49.2 | CC 74.6 |
| 49.3–52.8 | CC 81.5 |
| 52.9–56.8 | CC 87.7 |
| 56.9–61.2 | CC 94.0 |
| 61.3–66.1 | CC 103.0 |
| 66.2–71.2 | CC 112.0 |
| 71.3–76.7 | CC 121.0 |
| 76.8–82.9 | CC 132.0 |
| 83.0–90.0 | CC 143.0 |

### Table 112

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 44.0–46.8 | CC 64.3 |
| 46.9–50.6 | CC 68.5 |
| 50.7–54.5 | CC 74.6 |
| 54.6–58.4 | CC 81.5 |
| 58.5–62.9 | CC 87.7 |
| 63.0–67.7 | CC 94.0 |
| 67.8–72.9 | CC 103.0 |
| 73.0–78.1 | CC 112.0 |
| 78.2–83.9 | CC 121.0 |
| 84.0–91.1 | CC 132.0 |
| 91.2–97.5 | CC 143.0 |
| 97.6–104 | CC 156.0 |
| 105–113 | CC 167.0 |
| 114–133 | CC 180.0 |

### Table 113

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 88.2–95.1 | DD 112.0 |
| 95.2–101 | DD 121.0 |
| 102–111 | DD 128.0 |
| 112–119 | DD 140.0 |
| 120–131 | DD 150.0 |
| 132–149 | DD 160.0 |
| 150–170 | DD 185.0 |
| 171–180 | DD 220.0 |
| 181–197 | DD 240.0 |
| 198–204 | DD 250.0 |
| 205–213 | DD 265.0 |
| 214–237 | DD 280.0 |
| 238–243 | DD 300.0 |
| 244–266 | DD 320.0 |

### Table 114

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 133–148 | B 1.30 |
| 149–174 | B 1.45 |
| 175–195 | B 1.67 |
| 196–219 | B 1.88 |
| 220–239 | B 2.10 |
| 240–271 | B 2.40 |
| 272–308 | B 2.65 |
| 309–348 | B 3.00 |
| 349–397 | B 3.30 |
| 398–429 | B 3.70 |
| 430–495 | B 4.15 |
| 496–520 | B 4.85 |

### Table 115

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 176–190 | DD 112.0 |
| 191–203 | DD 121.0 |
| 203–223 | DD 128.0 |
| 224–239 | DD 140.0 |
| 240–253 | DD 150.0 |
| 254–299 | DD 160.0 |
| 300–341 | DD 185.0 |
| 342–361 | DD 220.0 |
| 362–395 | DD 240.0 |
| 396–409 | DD 250.0 |
| 410–427 | DD 265.0 |
| 428–475 | DD 289.0 |
| 476–487 | DD 300.0 |
| 488–532 | DD 320.0 |

### Table 116

| Motor FLC (A)) | Thermal Unit Number |
|---|---|
| 81.6–91.1 | B 1.03 |
| 91.2–101 | B 1.16 |
| 102–115 | B 1.30 |
| 116–131 | B 1.45 |
| 132–146 | B 1.67 |
| 147–163 | B 1.88 |
| 164–184 | B 2.10 |
| 185–209 | B 2.40 |
| 210–229 | B 2.65 |
| 230–257 | B 3.00 |
| 258–281 | B 3.30 |
| 282–321 | B 3.70 |
| 322–387 | B 4.15 |
| 388–419 | B 4.35 |
| 420–465 | B 5.60 |
| 466–497 | B 6.25 |
| 496–532 | B 6.90 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

### Table 117

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 100–111.9 | E 88 |
| 112–121.9 | E 89 |
| 122–131.9 | E 91 |
| 132–139.9 | E 92 |
| 140–151.9 | E 93 |
| 152–163.9 | E 94 |
| 164–173.9 | E 96 |
| 174–185.9 | E 97 |
| 186–195.9 | E 98 |
| 196–215.9 | E 99 |
| 216–227.9 | E 101 |
| 228–251.9 | E 102 |

### Table 118

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 210–233 | AR 3.28 |
| 234–265 | AR 3.62 |
| 266–297 | AR 3.98 |
| 298–331 | AR 4.37 |
| 332–369 | AR 4.8 |
| 370–415 | AR 5.3 |
| 416–459 | AR 5.8 |
| 460–532 | AR 6.4 |

### Table 121

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 1.14–1.21 | AR 1.05 |
| 1.22–1.33 | AR 1.15 |
| 1.34–1.47 | AR 1.26 |
| 1.48–1.63 | AR 1.39 |
| 1.64–1.81 | AR 1.53 |
| 1.82–2.11 | AR 1.68 |
| 2.12–2.31 | AR 1.85 |
| 2.32–2.51 | AR 2.04 |
| 2.52–2.71 | AR 2.24 |
| 2.72–2.95 | AR 2.46 |
| 2.96–3.17 | AR 2.71 |
| 3.18–3.49 | AR 2.98 |
| 3.50–3.89 | AR 3.28 |
| 3.90–4.41 | AR 3.62 |
| 4.42–4.95 | AR 3.98 |
| 4.96–5.53 | AR 4.37 |
| 5.54–6.15 | AR 4.80 |
| 6.16–6.91 | AR 5.3 |
| 6.92–7.63 | AR 5.8 |
| 7.64–8.41 | AR 6.4 |
| 8.42–9.31 | AR 7.0 |
| 9.32–10.59 | AR 7.7 |
| 10.60–11.69 | AR 8.5 |
| 11.70–12.55 | AR 9.3 |
| 12.56–13.95 | AR 10.2 |
| 13.96–15.19 | AR 11.2 |
| 15.20–15.79 | AR 12.4 |
| 15.80–17.91 | AR 13.6 |
| 17.92–20.7 | AR 15.4 |
| 20.8–23.5 | AR 17.6 |
| 23.6–26.7 | AR 20.5 |
| 26.8–30.5 | AR 23.0 |
| 30.6–34.5 | AR 27.0 |
| 34.6–39.5 | AR 30.0 |
| 39.6–44.9 | AR 35.0 |
| 45.0–52.0 | AR 40.0 |

### Table 122

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 8.48–9.25 | AR 8.5 |
| 9.26–10.11 | AR 9.3 |
| 10.12–11.09 | AR 10.2 |
| 11.10–12.27 | AR 11.2 |
| 12.28–12.89 | AR 12.4 |
| 12.90–14.97 | AR 13.6 |
| 14.98–17.11 | AR 15.4 |
| 17.12–19.49 | AR 17.6 |
| 19.50–22.3 | AR 20.5 |
| 22.4–22.5 | AR 23.0 |
| 22.6–28.9 | AR 27.0 |
| 29.0–32.9 | AR 30.0 |
| 33.0–37.9 | AR 35.0 |
| 38.0–43.3 | AR 40.0 |
| 43.4–46.7 | AR 44.0 |
| 46.8–49.9 | AR 47.0 |
| 50.0–53.9 | AR 51.0 |
| 54.0–58.3 | AR 55.0 |
| 58.4–62.7 | AR 60.0 |
| 62.8–67.1 | AR 66.0 |
| 67.2–73.8 | AR 72.0 |
| 74.0–78.3 | AR 79.0 |
| 78.4–81.9 | AR 86.0 |
| 82.0–90.0 | AR 94.0 |

### Table 123

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 54.2–60.1 | E 67 |
| 60.2–66.5 | E 69 |
| 66.6–71.5 | E 70 |
| 71.6–78.9 | E 71 |
| 79.0–86.9 | E 72 |
| 87.0–93.9 | E 73 |
| 94.0–103.1 | E 74 |
| 103.2–114.1 | E 76 |
| 114.2–125.7 | E 77 |
| 125.8–138.3 | E 78 |
| 138.4–150.1 | E 79 |
| 150.2–166.6 | E 80 |

### Table 127

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 1.12–1.27 | B 0.81 |
| 1.28–1.37 | B 0.92 |
| 1.38–1.55 | B 1.03 |
| 1.56–1.71 | B 1.16 |
| 1.72–1.95 | B 1.30 |
| 1.96–2.19 | B 1.45 |
| 2.20–2.43 | B 1.67 |
| 2.44–2.67 | B 1.88 |
| 2.68–3.07 | B 2.10 |
| 3.08–3.47 | B 2.40 |
| 3.48–3.79 | B 2.65 |
| 3.80–4.35 | B 3.00 |
| 4.36–5.07 | B 3.30 |
| 5.08–5.75 | B 3.70 |
| 5.76–6.45 | B 4.15 |
| 6.46–6.99 | B 4.85 |
| 7.00–7.71 | B 5.50 |
| 7.72–8.23 | B 6.25 |
| 8.24–9.41 | B 6.90 |
| 9.42–10.43 | B 7.70 |
| 10.44–11.07 | B 8.20 |
| 11.08–12.35 | B 9.10 |
| 12.36–14.05 | B 10.2 |
| 14.06–15.85 | B 11.5 |
| 15.86–17.23 | B 12.8 |
| 17.24–18.35 | B 14.0 |
| 18.36–20.1 | B 15.5 |
| 20.2–22.1 | B 17.5 |
| 22.2–23.7 | B 19.5 |
| 23.8–27.1 | B 22.0 |
| 27.2–30.7 | B 25.0 |
| 30.8–34.9 | B 28.0 |
| 35.0–38.9 | B 32.0 |
| 39.0–44.5 | B 36.0 |
| 44.6–50.3 | B 40.0 |
| 50.4–54.0 | B 45.0 |





© 2012 Schneider Electric
All Rights Reserved

### Table 128

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 7.88–8.91 | B 6.90 |
| 8.92–9.95 | B 7.70 |
| 9.96–10.57 | B 8.20 |
| 10.58–11.95 | B 9.10 |
| 11.96–13.79 | B 10.2 |
| 13.80–15.85 | B 11.5 |
| 15.86–17.43 | B 12.8 |
| 17.44–18.55 | B 14.0 |
| 18.56–20.5 | B 15.5 |
| 20.6–22.9 | B 17.5 |
| 23.0–24.7 | B 19.5 |
| 24.8–27.9 | B 22.0 |
| 28.0–31.7 | B 25.0 |
| 31.8–35.9 | B 28.0 |
| 36.0–39.9 | B 32.0 |
| 40.0–45.7 | B 36.0 |
| 45.8–50.9 | B 40.0 |
| 51.0–61.7 | B 45.0 |
| 61.8–65.1 | B 50.0 |
| 65.2–69.9 | B 56.0 |
| 70.0–79.5 | B 62.0 |
| 79.6–89.4 | B 70.0 |

### Table 129

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 28.0–29.9 | CC 20.9 |
| 30.0–32.5 | CC 22.8 |
| 32.6–34.5 | CC 24.6 |
| 34.6–37.5 | CC 26.3 |
| 37.6–40.5 | CC 28.8 |
| 40.6–43.5 | CC 31.0 |
| 43.6–46.7 | CC 33.3 |
| 46.8–50.5 | CC 36.4 |
| 50.6–54.3 | CC 39.6 |
| 54.4–58.9 | CC 42.7 |
| 59.0–63.3 | CC 46.6 |
| 63.4–68.1 | CC 50.1 |
| 68.2–73.7 | CC 54.5 |
| 73.8–79.7 | CC 59.4 |
| 79.8–84.7 | CC 64.5 |
| 84.8–91.5 | CC 68.5 |
| 91.6–98.5 | CC 74.6 |
| 98.6–105.7 | CC 81.5 |
| 105.8–113.7 | CC 87.7 |
| 113.8–122.5 | CC 94.0 |
| 122.6–132.3 | CC 103.0 |
| 132.4–142.5 | CC 112.0 |
| 142.6–153.5 | CC 121.0 |
| 153.6–165.9 | CC 132.0 |
| 166.0–180.0 | CC 143.0 |

### Table 133

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.60–5.23 | B 6.90 |
| 5.24–5.86 | B 7.70 |
| 5.87–6.25 | B 8.20 |
| 6.26–7.09 | B 9.10 |
| 7.10–8.25 | B 10.2 |
| 8.26–9.49 | B 11.5 |
| 9.50–10.3 | B 12.8 |
| 10.4–11.2 | B 14.0 |
| 11.3–12.5 | B 15.5 |
| 12.6–13.8 | B 17.5 |
| 13.9–15.0 | B 19.5 |
| 15.1–16.9 | B 22.0 |
| 17.0–19.1 | B 25.0 |
| 19.2–22.0 | B 28.0 |
| 22.1–24.4 | B 32.0 |
| 24.5–28.0 | B 36.0 |
| 28.1–31.8 | B 40.0 |
| 31.9–36.0 | B 45.0 |
| 36.1–38.5 | B 50.0 |
| 38.6–41.2 | B 56.0 |
| 41.3–44.4 | B 62.0 |
| 44.5–50.3 | B 70.0 |
| 50.4–56.9 | B 79.0 |
| 57.0–59.0 | B 88.0 |

### Table 134

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 4.30–4.98 | B 6.90 |
| 4.99–5.57 | B 7.70 |
| 5.58–5.94 | B 8.20 |
| 5.95–6.71 | B 9.10 |
| 6.72–7.79 | B 10.2 |
| 7.80–8.93 | B 11.5 |
| 8.94–9.77 | B 12.8 |
| 9.78–10.5 | B 14.0 |
| 10.6–11.7 | B 15.5 |
| 11.8–13.0 | B 17.5 |
| 13.1–14.0 | B 19.5 |
| 14.1–15.0 | B 22.0 |
| 15.1–17.2 | B 25.0 |
| 17.3–19.9 | B 28.0 |
| 20.0–22.3 | B 32.0 |
| 22.4–26.0 | B 36.0 |
| 26.1–29.8 | B 40.0 |
| 29.9–34.0 | B 45.0 |
| 34.1–36.7 | B 50.0 |
| 36.8–39.5 | B 56.0 |
| 39.6–42.1 | B 62.0 |
| 42.2–46.6 | B 70.0 |
| 46.7–51.5 | B 79.0 |
| 51.6–54.0 | B 88.0 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

## Table 135

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 0.77–0.88 | 0.85–0.95 | B 1.30 |
| 0.89–1.02 | 0.96–1.09 | B 1.45 |
| 1.03–1.19 | 1.10–1.21 | B 1.67 |
| 1.20–1.37 | 1.22–1.35 | B 1.88 |
| 1.38–1.62 | 1.36–1.56 | B 2.10 |
| 1.63–1.90 | 1.57–1.76 | B 2.40 |
| 1.91–2.12 | 1.77–1.94 | B 2.65 |
| 2.13–2.46 | 1.95–2.22 | B 3.00 |
| 2.47–2.83 | 2.23–2.57 | B 3.30 |
| 2.84–3.19 | 2.58–2.87 | B 3.70 |
| 3.20–3.61 | 2.88–3.21 | B 4.15 |
| 3.62–3.89 | 3.22–3.50 | B 4.85 |
| 3.90–4.32 | 3.51–3.79 | B 5.50 |
| 4.33–4.57 | 3.80–4.04 | B 6.25 |
| 4.58–5.19 | 4.05–4.53 | B 6.90 |
| 5.20–5.79 | 4.54–5.03 | B 7.70 |
| 5.80–6.16 | 5.04–5.36 | B 8.20 |
| 6.17–6.94 | 5.37–5.97 | B 9.10 |
| 6.95–7.99 | 5.98–6.89 | B 10.2 |
| 7.80–8.99 | 6.90–7.79 | B 11.5 |
| 9.00–9.98 | 7.80–8.53 | B 12.8 |
| 9.99–10.6 | 8.54–9.09 | B 14.0 |
| 10.7–11.6 | 9.10–9.99 | B 15.5 |
| 11.7–13.1 | 10.0–10.9 | B 17.5 |
| 13.2–14.2 | 11.0–11.7 | B 19.5 |
| 14.3–15.4 | 11.8–13.4 | B 22.0 |
| 15.5–17.6 | 13.5–15.4 | B 25.0 |
| 17.7–20.0 | 15.5–17.9 | B 28.0 |
| – | 18.0–20.0 | B 32.0 |
| For Type DPSG12 & DPSG13, 20 A Starter. Select Thermal Units from above. | | |
| 20.1–22.7 | 18.0–20.2 | B 32.0 |
| 22.8–25.0 | 20.3–23.2 | B 36.0 |
| – | 23.3–25.0 | B 40.0 |
| For Type DPSG22 & DPSG23, 25 A Starter. Select any of the Thermal Units from above. | | |
| 22.8–26.1 | – | B 36.0 |
| 26.2–29.6 | 23.3–25.8 | B 40.0 |
| 29.7–30.0 | 25.9–28.6 | B 45.0 |
| For Type DPSG32 & DPSG33, 30 A Starter. Select any of the Thermal Units from above. | | |

## Table 136

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T. U. | 3 T. U. | |
| 0.98–1.09 | 0.88–0.98 | B 1.30 |
| 1.10–1.24 | 0.99–1.13 | B 1.45 |
| 1.25–1.41 | 1.14–1.26 | B 1.67 |
| 1.42–1.59 | 1.27–1.38 | B 1.88 |
| 1.60–1.81 | 1.39–1.62 | B 2.10 |
| 1.82–2.04 | 1.63–1.82 | B 2.40 |
| 2.05–2.19 | 1.83–2.04 | B 2.65 |
| 2.20–2.52 | 2.05–2.36 | B 3.00 |
| 2.53–2.90 | 2.37–2.72 | B 3.30 |
| 2.91–3.29 | 2.73–3.07 | B 3.70 |
| 3.30–3.69 | 3.08–3.44 | B 4.15 |
| 3.70–3.99 | 3.45–3.69 | B 4.85 |
| 4.00–4.42 | 3.70–4.11 | B 5.50 |
| 4.43–4.69 | 4.12–4.34 | B 6.25 |
| 4.70–5.37 | 4.35–4.89 | B 6.90 |
| 5.38–5.94 | 4.90–5.44 | B 7.70 |
| 5.95–6.34 | 5.45–5.80 | B 8.20 |
| 6.35–7.05 | 5.81–6.47 | B 9.10 |
| 7.06–8.14 | 6.48–7.45 | B 10.2 |
| 8.15–9.39 | 7.46–8.49 | B 11.5 |
| 9.40–10.3 | 8.50–9.29 | B 12.8 |
| 10.4–11.1 | 9.30–9.99 | B 14.0 |
| 11.2–12.2 | 10.0–10.8 | B 15.5 |
| 12.3–13.5 | 10.9–12.1 | B 17.5 |
| 13.6–14.7 | 12.2–13.1 | B 19.5 |
| 14.8–16.1 | 13.2–14.6 | B 22.0 |
| 16.2–18.3 | 14.7–16.4 | B 25.0 |
| 18.4–20.0 | 16.5–18.9 | B 28.0 |
| – | 19.0–20.0 | B 32.0 |
| For Type DPSO12 & DPSO13, 20 A Starter. Select Thermal Units from above. | | |
| 18.4–20.9 | – | B 28.0 |
| 21.0–23.6 | 19.0–20.9 | B 32.0 |
| 23.7–25.0 | 21.0–24.1 | B 36.0 |
| – | 24.2–25.0 | B 40.0 |
| For Type DPSO22 & DPSO23, 25 A Starter. Select any of the Thermal Units from above. | | |
| 23.7–27.2 | – | B 36.0 |
| 27.3–30.0 | 24.2–27.2 | B 40.0 |
| | 27.3–30.0 | B 45.0 |
| For Type DPSO32 & DPSO33, 30 A Starter. Select any of the Thermal Units from above. | | |

## Table 137

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 50–55.9 | E 88 |
| 56–60.9 | E 89 |
| 61–65.9 | E 91 |
| 66–69.9 | E 92 |
| 70–75.9 | E 93 |
| 76–81.9 | E 94 |
| 82–86.9 | E 96 |
| 87–92.9 | E 97 |
| 93–97.9 | E 98 |
| 98–107 | E 99 |
| 108–113 | E 101 |
| 114–125 | E 102 |
| 126–138 | E 103 |
| 139–153 | E 104 |
| 154–163 | E 106 |
| 164–180 | E 107 |

## Table 138

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 22.6–25.5 | E 62 |
| 25.6–26.4 | E 65 |
| 26.5–28.9 | E 66 |
| 29.0–31.9 | E 67 |
| 32.0–34.5 | E 69 |
| 34.6–36.9 | E 70 |
| 37.0–40.6 | E 71 |
| 40.7–44.0 | E 72 |
| 44.1–47.4 | E 73 |
| 47.5–53.1 | E 74 |
| 53.2–58.3 | E 76 |
| 58.4–63.5 | E 77 |
| 63.6–69.9 | E 78 |
| 70.0–77.1 | E 79 |
| 77.2–83.3 | E 80 |
| 83.4–86.9 | E 96 |
| 87.0–92.9 | E 97 |
| 93.0–100 | E 98 |

## Table 139

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 13.7–15.2 | E 57 |
| 15.3–16.8 | E 59 |
| 16.9–18.7 | E 60 |
| 18.8–20.0 | E 61 |
| 20.1–22.5 | E 62 |
| 22.6–23.3 | E 65 |
| 23.4–25.5 | E 66 |
| 25.6–27.9 | E 67 |
| 28.0–30.8 | E 69 |
| 30.9–33.2 | E 70 |
| 33.3–36.6 | E 71 |
| 36.7–38.9 | E 72 |
| 39.0–43.1 | E 73 |
| 43.2–47.4 | E 74 |
| 47.5–50.0 | E 76 |
| 50.1–55.2 | E 77 |
| 55.3–60.0 | E 78 |





© 2012 Schneider Electric
All Rights Reserved

## Table 140

| Motor FLC (A) | Thermal Unit Number |
|---|---|
| 0.34–0.36 | E 3 |
| 0.37–0.40 | E 4 |
| 0.41–0.43 | E 5 |
| 0.44–0.47 | E 6 |
| 0.48–0.51 | E 7 |
| 0.52–0.56 | E 8 |
| 0.57–0.62 | E 9 |
| 0.63–0.67 | E 11 |
| 0.68–0.73 | E 12 |
| 0.74–0.77 | E 13 |
| 0.78–0.84 | E 14 |
| 0.85–0.93 | E 16 |
| 0.94–1.00 | E 17 |
| 1.01–1.08 | E 18 |
| 1.09–1.15 | E 19 |
| 1.16–1.27 | E 23 |
| 1.28–1.45 | E 24 |
| 1.46–1.61 | E 26 |
| 1.62–1.81 | E 27 |
| 1.82–2.00 | E 28 |
| 2.01–2.12 | E 29 |
| 2.13–2.29 | E 31 |
| 2.30–2.43 | E 32 |
| 2.44–2.66 | E 33 |
| 2.67–2.98 | E 34 |
| 2.99–3.16 | E 36 |
| 3.17–3.39 | E 37 |
| 3.40–3.69 | E 38 |
| 3.70–4.00 | E 39 |
| 4.01–4.48 | E 41 |
| 4.49–5.00 | E 42 |
| 5.01–5.44 | E 44 |
| 5.45–5.99 | E 46 |
| 6.00–6.60 | E 47 |
| 6.61–6.96 | E 48 |
| 6.97–7.26 | E 49 |
| 7.27–7.99 | E 50 |
| 8.00–8.89 | E 51 |
| 8.90–9.74 | E 52 |
| 9.75–10.50 | E 53 |
| 10.6–11.5 | E 54 |
| 11.6–12.3 | E 55 |
| 12.4–13.4 | E 56 |
| 13.5–15.2 | E 57 |
| 15.3–17.2 | E 60 |
| 17.3–18.4 | E 61 |
| 18.5–20.6 | E 62 |
| 20.7–21.3 | E 65 |
| 21.4–23.4 | E 66 |
| 23.5–24.0 | E 67 |

## Table 141

| Motor FLC (A) | Thermal Unit Number | Max. Fuse Rating (A) | |
|---|---|---|---|
| 12.2–14.4 | E56 | 25 | |
| 14.5–17.8 | E57 | 30 | |
| 17.9–18.8 | E60 | 40 | |
| 18.9–21.4 | E61 | 40 | |
| 21.5–23.0 | E62 | 45 | |
| 23.1–25.7 | E65 | 50 | |
| 25.8–28.0 | E66 | 50 | |
| 28.1–31.0 | E67 | 60 | |
| 31.1–32.7 | E69 | 60 | |
| 32.8–35.5 | E70 | 70 | |
| 35.6–38.2 | E71 | 80 | |
| 38.3–43.3 | E73 | 80 | |
| 43.4–46.9 | E73A | 90 | |
| 47.0–50.1 | E74 | 100 | |
| | | **600 V Max.** | **250 V Max.** |
| 50.2–54.0 | E76 | 100 | 110 |
| 54.1–58.0 | E77 | 100 | 110 |
| 58.1–60.0 | E78 | 100 | 125 |
| 60.1–67.0 | E79 | 100 | 125 |
| 67.1–70.5 | E80 | 100 | 125 |
| 70.6–75.9 | E94 | 100 | 125 |
| 76.0–82.0 | E96 | 100 | 125 |
| 82.1–86.0 | E97 | 100 | 125 |

## Table 142

| Motor FLC (A) | Thermal Unit Number | Max. Fuse Rating (A) | |
|---|---|---|---|
| 11.7–13.5 | E56 | 25 | |
| 13.6–16.7 | E57 | 30 | |
| 16.8–18.1 | E60 | 35 | |
| 18.2–20.0 | E61 | 40 | |
| 20.1–21.9 | E62 | 40 | |
| 22.0–24.2 | E65 | 45 | |
| 24.3–26.2 | E66 | 50 | |
| 26.3–29.2 | E67 | 50 | |
| 29.3–32.0 | E69 | 60 | |
| 32.1–34.3 | E70 | 70 | |
| 34.4–36.2 | E71 | 70 | |
| 36.3–39.9 | E73 | 80 | |
| 40.0–43.8 | E73A | 90 | |
| 43.9–46.2 | E74 | 90 | |
| 46.3–50.0 | E76 | 100 | |
| | | **600 V Max.** | **250 V Max.** |
| 50.1–53.9 | E77 | 100 | 110 |
| 54.0–56.0 | E78 | 100 | 110 |
| 56.1–61.0 | E79 | 100 | 125 |
| 61.1–65.9 | E80 | 100 | 125 |
| 66.0–72.0 | E94 | 100 | 125 |
| 72.1–75.9 | E96 | 100 | 125 |
| 76.0–79.9 | E98 | 100 | 125 |
| 80.0–86.0 | E101 | 100 | 125 |

## Table 143

| Motor FLC (A) | Thermal Unit Number | Max. Fuse Rating (A) |
|---|---|---|
| 18.9–20.0 | E60 | 40 |
| 20.1–22.8 | E61 | 45 |
| 22.9–24.7 | E62 | 50 |
| 24.8–26.9 | E65 | 50 |
| 27.0–29.2 | E66 | 60 |
| 29.3–32.8 | E67 | 60 |
| 32.9–34.9 | E69 | 70 |
| 35.0–37.5 | E70 | 70 |
| 37.6–39.6 | E72 | 80 |
| 39.7–46.1 | E73 | 80 |
| 46.2–49.9 | E73A | 100 |
| 50.0–56.3 | E74 | 110 |
| 56.4–61.0 | E76 | 125 |
| 61.1–64.0 | E77 | 125 |
| 64.1–66.0 | E78 | 125 |
| 66.1–72.4 | E79 | 125 |
| 72.5–78.2 | E80 | 150 |
| 78.3–83.9 | E94 | 175 |
| 84.0–86.0 | E96 | 175 |
| 86.1–92.8 | E97 | 175 |
| 92.9–97.9 | E98 | 200 |
| 98.0–105.0 | E101 | 200 |
| 105.1–117.0 | E102 | 200 |
| 117.1–133.0 | E103 | 200 |



© 2012 Schneider Electric
All Rights Reserved

Index and Instructions: pages 16-116—16-120

### Table 144

| Motor FLC (A) | Thermal Unit Number | Max. Fuse Rating (A) |
|---|---|---|
| 18.2–19.1 | E60 | 40 |
| 19.2–22.1 | E61 | 40 |
| 22.2–23.1 | E62 | 45 |
| 23.2–25.7 | E65 | 50 |
| 25.8–27.7 | E66 | 50 |
| 27.8–31.3 | E67 | 60 |
| 31.4–33.3 | E69 | 70 |
| 33.4–35.9 | E70 | 70 |
| 36.0–38.4 | E71 | 80 |
| 38.5–44.2 | E73 | 80 |
| 44.3–46.8 | E73A | 90 |
| 46.9–52.6 | E74 | 100 |
| 52.7–56.0 | E76 | 110 |
| 56.1–58.4 | E77 | 125 |
| 58.5–61.9 | E78 | 125 |
| 62.0–67.1 | E79 | 125 |
| 67.2–72.3 | E80 | 150 |
| 72.4–75.9 | E94 | 150 |
| 76.0–85.6 | E96 | 150 |
| 85.7–91.2 | E98 | 175 |
| 91.3–100.0 | E101 | 200 |
| 100.1–108.9 | E102 | 200 |
| 109.0–119.9 | E103 | 200 |
| 120.0–133.0 | E104 | 200 |

### Table 145

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 1.00–1.11 | 0.91–1.02 | B1.30 |
| 1.12–1.27 | 1.03–1.15 | B1.45 |
| 1.28–1.36 | 1.16–1.27 | B1.67 |
| 1.37–1.53 | 1.28–1.39 | B1.88 |
| 1.54–1.78 | 1.40–1.61 | B2.10 |
| 1.79–2.02 | 1.62–1.84 | B2.40 |
| 2.03–2.20 | 1.85–2.03 | B2.65 |
| 2.21–2.52 | 2.04–2.34 | B3.00 |
| 2.53–2.94 | 2.35–2.69 | B3.30 |
| 2.95–3.30 | 2.70–3.02 | B3.70 |
| 3.31–3.70 | 3.03–3.39 | B4.15 |
| 3.71–4.02 | 3.40–3.65 | B4.85 |
| 4.03–4.46 | 3.66–4.04 | B5.50 |
| 4.47–4.69 | 4.05–4.28 | B6.25 |
| 4.70–5.37 | 4.29–4.85 | B6.90 |
| 5.38–5.94 | 4.86–5.38 | B7.70 |
| 5.95–6.34 | 5.39–5.71 | B8.20 |
| 6.35–7.09 | 5.72–6.39 | B9.10 |
| 7.10–8.46 | 6.40–7.53 | B10.2 |
| 8.47–9.32 | 7.54–8.34 | B11.5 |
| 9.33–10.2 | 8.35–9.14 | B12.8 |
| 10.3–10.9 | 9.15–9.74 | B14.0 |
| 11.0–12.1 | 9.75–10.7 | B15.5 |
| 12.2–13.4 | 10.8–11.8 | B17.5 |
| 13.5–14.2 | 11.9–12.2 | B19.5 |
| 14.3–16.0 | 12.3–14.4 | B22.0 |
| 16.1–18.1 | 14.5–16.4 | B25.0 |
| 18.2–20.5 | 16.5–18.9 | B28.0 |
| 20.6–23.5 | 19.0–21.3 | B32.0 |
| 23.6–27.2 | 21.4–23.3 | B36.0 |
| 27.3–30.8 | 23.4–27.9 | B40.0 |
| 30.9–35.0 | 28.0–31.4 | B45.0 |
| 35.1–37.2 | | B50.0 |
| 37.3–40.0 | | B56.0 |

For Type DPSG42 & DPSG43, 40 A Starter.
Select any of the Thermal Units from above.

### Table 146

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 3.90–4.22 | 3.60–3.89 | B5.50 |
| 4.23–4.49 | 3.90–4.15 | B6.25 |
| 4.50–5.14 | 4.16–4.76 | B6.90 |
| 5.15–5.78 | 4.77–5.30 | B7.70 |
| 5.79–6.23 | 5.31–5.70 | B8.20 |
| 6.24–7.03 | 5.71–6.46 | B9.10 |
| 7.04–8.23 | 6.47–7.65 | B10.2 |
| 8.24–9.31 | 7.66–8.55 | B11.5 |
| 9.32–10.1 | 8.56–9.36 | B12.8 |
| 10.2–10.7 | 9.37–9.9 | B14.0 |
| 10.8–11.9 | 10.0–10.9 | B15.5 |
| 12.0–13.1 | 11.0–12.0 | B17.5 |
| 13.2–13.9 | 12.1–12.8 | B19.5 |
| 14.0–15.9 | 12.9–14.2 | B22.0 |
| 16.0–18.0 | 14.3–16.0 | B25.0 |
| 18.1–20.8 | 16.1–18.5 | B28.0 |
| 20.9–23.1 | 18.6–21.2 | B32.0 |
| 23.2–26.9 | 21.3–24.9 | B36.0 |
| 27.0–31.4 | 25.0–28.0 | B40.0 |
| 31.5–36.0 | 28.1–31.7 | B45.0 |
| 36.1–38.8 | 31.8–34.6 | B50.0 |
| 38.9–41.7 | 34.7–37.4 | B56.0 |
| 41.8–46.3 | 37.5–40.0 | B62.0 |
| 46.4–50.0 | 40.1–46.4 | B70.0 |
| — | 46.5–50.0 | B79.0 |

For Type DPSG52 & DPSG53, 50 A Starter.
Select any of the Thermal Units from above.

### Table 147

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 1.04–1.14 | 0.93–1.04 | B1.30 |
| 1.15–1.29 | 1.05–1.18 | B1.45 |
| 1.30–1.43 | 1.19–1.33 | B1.67 |
| 1.44–1.56 | 1.34–1.43 | B1.88 |
| 1.57–1.79 | 1.44–1.67 | B2.10 |
| 1.80–2.03 | 1.68–1.88 | B2.40 |
| 2.04–2.26 | 1.89–2.09 | B2.65 |
| 2.27–2.51 | 2.10–2.41 | B3.00 |
| 2.52–3.03 | 2.42–2.79 | B3.30 |
| 3.04–3.31 | 2.80–3.15 | B3.70 |
| 3.32–3.73 | 3.16–3.54 | B4.15 |
| 3.74–4.07 | 3.55–3.75 | B4.85 |
| 4.08–4.49 | 3.76–4.22 | B5.50 |
| 4.50–4.76 | 4.23–4.46 | B5.25 |
| 4.77–5.44 | 4.47–5.09 | B6.90 |
| 5.45–6.04 | 5.10–5.61 | B7.70 |
| 6.05–6.46 | 5.62–5.99 | B8.20 |
| 6.47–7.24 | 6.00–6.70 | B9.10 |
| 7.25–8.64 | 6.71–8.19 | B10.20 |
| 8.65–9.59 | 8.20–8.79 | B11.5 |
| 9.60–10.5 | 8.80–9.66 | B12.8 |
| 10.6–11.3 | 9.67–10.2 | B14.0 |
| 11.4–12.6 | 10.3–11.4 | B15.5 |
| 12.7–13.9 | 11.5–12.6 | B17.5 |
| 14.0–14.9 | 12.7–13.5 | B19.5 |
| 15.0–16.5 | 13.6–15.1 | B22.0 |
| 16.6–18.9 | 15.2–17.2 | B25.0 |
| 19.0–22.2 | 17.3–19.9 | B28.0 |
| 22.3–24.6 | 20.0–22.5 | B32.0 |
| 24.7–28.6 | 22.6–26.2 | B36.0 |
| 28.7–32.4 | 26.3–29.9 | B40.0 |
| 32.5–37.3 | | B45.0 |
| 37.4–39.5 | | B50.0 |
| 39.6–40.0 | | B56.0 |

For Type DPSO42 & DPSO43, 40 A Starter.
Select any of the Thermal Units from above.

### Table 148

| Motor FLC (A) | | Thermal Unit Number |
|---|---|---|
| 1 T.U. | 3 T.U. | |
| 4.14–4.45 | 3.70–4.09 | B5.50 |
| 4.46–4.88 | 4.10–4.35 | B6.25 |
| 4.89–5.44 | 4.36–5.07 | B6.90 |
| 5.45–6.08 | 5.08–5.79 | B7.70 |
| 6.09–6.42 | 5.80–6.27 | B8.20 |
| 6.43–7.28 | 6.28–7.16 | B9.10 |
| 7.29–8.42 | 7.17–8.58 | B10.2 |
| 8.43–9.64 | 8.59–9.55 | B11.5 |
| 9.65–10.4 | 9.56–10.2 | B12.8 |
| 10.5–11.2 | 10.3–10.9 | B14.0 |
| 11.3–12.3 | 11.0–11.9 | B15.5 |
| 12.4–13.7 | 12.0–13.1 | B17.5 |
| 13.8–14.8 | 13.2–14.0 | B19.5 |
| 14.9–16.5 | 14.1–14.8 | B22.0 |
| 16.6–18.7 | 14.9–17.0 | B25.0 |
| 18.8–21.4 | 17.1–19.6 | B28.0 |
| 21.5–24.3 | 19.7–22.1 | B32.0 |
| 24.4–28.0 | 22.2–26.0 | B36.0 |
| 28.1–33.3 | 26.1–29.4 | B40.0 |
| 33.4–37.6 | 29.5–34.0 | B45.0 |
| 37.7–41.1 | 34.1–36.4 | B50.0 |
| 41.2–44.1 | 36.5–39.2 | B56.0 |
| 44.2–47.8 | 39.3–42.4 | B62.0 |
| 47.9–50.0 | 42.5–49.3 | B70.0 |
| — | 49.4–50.0 | B79.0 |

For Type DPSO52 & DPSO53, 50 A Starter.
Select any of the Thermal Units from above.





© 2012 Schneider Electric
All Rights Reserved

**Table 16.386: TeSys N Catalog Numbering System**

| T | 40 | C | A | 1 | 3 | V80 | M | Forms |
|---|---|---|---|---|---|---|---|---|

**Product Family**

T — TeSys N

**Device Type**

02 — Contactor
36 — Starter
40 — Self-Protected Combination Starter

**NEMA Size**

| T02 and T36 devices | T40 devices (only) |
|---|---|
| A — Size 00 | A — Size 00 |
| B — Size 0 | B — Size 0 |
| C — Size 1 | C — Size 1 |
| D — Size 2 | |
| E — Size 3 | |
| F — Size 4 | |
| G — Size 5 | |
| H — Size 6▲ | |
| J — Size 7▲ | |

▲ Not available for reversing type T36 devices

**Enclosure Type**

| T02 and T36 devices | T40 devices (only) |
|---|---|
| N—No enclosure | A — NEMA Type 12/3R Industrial Use |
| | G — NEMA Type 1 General Purpose Surface Mounting |
| | W — NEMA Type 4/4X Stainless Steel |

**Direction**

1 — Non-reversing
2 — Reversing

**Numerals**

Used to define specific, physical arrangements such as number of poles for devices type T02 or protection type for devices type T36 and T40. Numbering varies with type of device. Consult Digest listings for specific device numbers.

**Most Common Forms**

S — Separate control circuit
P51 — Red LED Light ON
P52 — Green LED Light OFF
A — Start-Stop pushbutton
C — Hand-Off-Auto selector switch
CP1 — Abbreviated Forms: Form C + Form P51♦
AP1 — Abbreviated Forms: Form A + Form P51♦

This is only a partial listing. Consult Digest pages for more information.

When more than one form is applied to a single device, arrange forms in alphabetical order.

♦ Abbreviated Forms cannot be used with other forms (with the exception of Form S). To use other forms, non-abbreviated forms must be used. E.g: CP51P68

**Communication Code**

Mandatory for T40 devices
This field is not applicable to T02 and T36 devices

M — Modbus
C — CANopen
D — DeviceNet
P — Profibus
N — No communication

This only a partial listing. Consult Digest pages for more information.

**Voltage Code**

B7 — 24 Vac, 50/60 Hz
G7 — 120 Vac, 50/60 Hz
LE7 — 208 Vac, 50/60 Hz
U7 — 240 Vac, 50/60 Hz
T7 — 480 Vac, 50/60 Hz
BD — 24 Vdc coil
V81 — 480/120 Vac Control Power Transformer
V83 — 480/24 Vac Control Power Transformer
V89 — 120/24 Vac Control Power Transformer
BD4 — 480 Vac/24 Vdc Power Supply

CPT includes fuse protection on primary and secondary as standard. This is only a partial listing. Consult Digest pages for more information.



© 2012 Schneider Electric
All Rights Reserved



TeSys N non-reversing contactor, Size 1



TeSys N non-reversing contactor, Size 3

## TeSys N Contactors

TeSys N contactors are used to switch heating loads, capacitors, transformers and electric motors where overload protection is provided separately. TeSys N contactors are available in NEMA Sizes 00 through 7. Target market segments include Hospitals, Retail, Food & Beverage, Marine, Oil & Gas and Mining, Metals & Minerals.

**Table 16.387: TeSys N Non-Reversing Contactors, 3-Pole Polyphase, 600 Vac Max.**

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1.5<br>1.5<br>2<br>2 | T02AN13▲ | **296.00** |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | T02BN13▲ | **373.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7.5<br>7.5<br>10<br>10 | T02CN13▲ | **437.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | T02DN13▲ | **795.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | T02EN13▲■ | **1285.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | T02FN13▲■ | **3080.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | T02GN13▲■ | **6705.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | T02HN13▲■ | **18305.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | T02JN13▲■ | **26125.00** |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.
■ Lugs ordered separately. See Table 16.410 on page 16-146.

**Table 16.388: TeSys N Non-Reversing Contactors, 3-Pole Single Phase, 600 Vac Max.**

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 115<br>230 | 1/3<br>1 | T02AN13▲ | **296.00** |
| 0 | 18 | 115<br>230 | 1<br>2 | T02BN13▲ | **373.00** |
| 1 | 27 | 115<br>230 | 2<br>3 | T02CN13▲ | **437.00** |
| 2 | 45 | 115<br>230 | 3<br>7.5 | T02DN13▲ | **795.00** |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.

**Table 16.389: TeSys N Coil Voltage Codes**

| Voltage | Voltage Code by NEMA Size | | | | | | | | | $ Price Adder |
|---|---|---|---|---|---|---|---|---|---|---|
| | Size 00 | Size 0 | Size 1 | Size 2 | Size 3 | Size 4 | Size 5 | Size 6 | Size 7 | |
| 24 Vac | B7 | B7 | B7 | B7 | B6 | B6 | n/a | | | No Charge |
| 24 Vdc | BD | BD | BD | BD | BD | BD | n/a | | | No Charge |
| 120 Vac | G7 | G7 | G7 | G7 | G6 | G6 | G7 | F7 | F7 | No Charge |
| 208 Vac | LE7 | LE7 | LE7 | LE7 | L6 | L6 | L7 | L7 | L7 | No Charge |
| 240 Vac | U7 | U7 | U7 | U7 | U6 | U6 | U7 | U7 | U7 | No Charge |
| 480 Vac | T7 | T7 | T7 | T7 | Q5 | Q5 | S7 | N7 | N7 | No Charge |

Dimensions . . . . . pages 16-147 to 16-151
TeSys N Accessories . . . . . pages 16-144 to 16-146
Lugs . . . . . page 16-146





© 2012 Schneider Electric
All Rights Reserved



TeSys N reversing contactor, Size 00



TeSys N reversing contactor, Size 4

## TeSys N Reversing Contactors

TeSys N reversing contactors are used for starting, stopping and reversing AC motors where overload protection is provided separately. TeSys N reversing contactors are mechanically and electrically interlocked and are available in NEMA Sizes 00 through 7. Target market segments include Hospitals, Retail, Food & Beverage, Marine, Oil & Gas and Mining, Metals & Minerals.

**Table 16.390: TeSys N Reversing Contactors, 3-Pole Polyphase, 600 Vac Max.**

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1.5<br>1.5<br>2<br>2 | T02AN23▲ | **770.00** |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | T02BN23▲ | **923.00** |
| 1 | 27 | 200<br>230<br>460<br>575 | 7.5<br>7.5<br>10<br>10 | T02CN23▲ | **1052.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | T02DN23▲ | **2000.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | T02EN23▲■ | **3320.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | T02FN23▲■ | **8280.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | T02GN23▲■ | **14935.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | T02HN23▲■ | **37340.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | T02JN23▲■ | **53435.00** |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.
■ Lugs ordered separately. See Table 16.410 on page 16-146.

**Table 16.391: TeSys N Reversing Contactors, 3-Pole Single Phase, 600 Vac Max.**

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 115 | 1/3 | T02AN23▲ | **770.00** |
| | | 230 | 1 | | |
| 0 | 18 | 115 | 1 | T02BN23▲ | **923.00** |
| | | 230 | 2 | | |
| 1 | 27 | 115 | 2 | T02CN23▲ | **1052.00** |
| | | 230 | 3 | | |
| 2 | 45 | 115 | 3 | T02DN23▲ | **2000.00** |
| | | 230 | 7.5 | | |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.

**Table 16.392: TeSys N Coil Voltage Codes**

| Voltage | Voltage Code by NEMA Size | | | | | | | | | $ Price Adder |
|---|---|---|---|---|---|---|---|---|---|---|
| | Size 00 | Size 0 | Size 1 | Size 2 | Size 3 | Size 4 | Size 5 | Size 6 | Size 7 | |
| 24 Vac | B7 | B7 | B7 | B7 | B6 | B6 | n/a | | | No Charge |
| 24 Vdc | BD | BD | BD | BD | BD | BD | n/a | | | No Charge |
| 120 Vac | G7 | G7 | G7 | G7 | G6 | G6 | G7 | F7 | F7 | No Charge |
| 208 Vac | LE7 | LE7 | LE7 | LE7 | L6 | L6 | L7 | L7 | L7 | No Charge |
| 240 Vac | U7 | U7 | U7 | U7 | U6 | U6 | U7 | U7 | U7 | No Charge |
| 480 Vac | T7 | T7 | T7 | T7 | Q5 | Q5 | S7 | N7 | N7 | No Charge |

Dimensions . . . . . pages 16-147 to 16-151
TeSys N Accessories . . . . . pages 16-144 to 16-146
Lugs . . . . . page 16-146



© 2012 Schneider Electric
All Rights Reserved



TeSys N non-reversing starter, Size 1



TeSys N non-reversing starter, Size 3



TeSys N Size 1 Contactor + TeSys D Bimetal Overload Relay

## TeSys N Starters

TeSys N starters are used for full-voltage starting and stopping of AC squirrel cage motors. Starters are available in NEMA Sizes 00 through 7 and come standard with Motor Logic Class 10/20 selectable solid state overload relays. Starters with bimetal overload protection can be assembled from TeSys N contactors and TeSys D overload relays. For more information on TeSys D relays, see Table 16.395 below.

### Table 16.393: TeSys N Non-Reversing Starters, 3-Pole Polyphase, 600 Vac Max.

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1.5<br>1.5<br>2<br>2 | T36AN13▲ | **431.00** |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | T36BN13▲ | **520.00** |
| 1■ | 27 | 200<br>230<br>460<br>575 | 7.5<br>7.5<br>10<br>10 | T36CN13▲ | **585.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | T36DN13▲ | **1005.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | T36EN13▲ | **1580.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | T36FN13▲ | **3490.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | T36GN13▲ | **8430.00** |
| 6 | 540 | 200<br>230<br>460<br>575 | 150<br>200<br>400<br>400 | T36HN13▲ | **19775.00** |
| 7 | 810 | 200<br>230<br>460<br>575 | —<br>300<br>600<br>600 | T36JN13▲ | **28130.00** |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.

■ Special contactor/Motor Logic overload relay size combinations available: Add '0' to catalog number before coil voltage for Size 0 overload (6–18 A), '9' for Size 00C overload (3–9 A), and '8' for Size 00B overload (1.5–4.5 A). (i.e. T36CN130G7).

### Table 16.394: TeSys N Coil Voltage Codes

| Voltage | Voltage Code by NEMA Size | | | | | | | | | $ Price Adder |
|---|---|---|---|---|---|---|---|---|---|---|
| | Size 00 | Size 0 | Size 1 | Size 2 | Size 3 | Size 4 | Size 5 | Size 6 | Size 7 | |
| 24 Vac■ | B7 | B7 | B7 | B7 | B6 | B6 | n/a | | | No Charge |
| 24 Vdc▲ | BD | BD | BD | BD | BD | BD | n/a | | | No Charge |
| 120 Vac■ | G7 | G7 | G7 | G7 | G6 | G6 | G7 | F7 | F7 | No Charge |
| 208 Vac | LE7 | LE7 | LE7 | LE7 | L6 | L6 | L7 | L7 | L7 | No Charge |
| 240 Vac | U7 | U7 | U7 | U7 | U6 | U6 | U7 | U7 | U7 | No Charge |
| 480 Vac | T7 | T7 | T7 | T7 | Q5 | Q5 | S7 | N7 | N7 | No Charge |

▲ 24 Vdc coil requires separate control, add Form S to catalog number (ie. T36AN13BDS).

■ 24 and 120 Vac coils available with optional separate control, add Form S to catalog number (ie. T36AN13B7S).

### Table 16.395: TeSys D Overload Relays—Ambient Compensated, Bimetallic, Direct Mounting

| Current Setting Range (A) | For Direct Mounting to TeSys N contactors | Class 10 with Single-Phase Sensitivity | Class 10 without Single-Phase Sensitivity | Class 20 with Single-Phase Sensitivity | Class 20 without Single-Phase Sensitivity | $ Price |
|---|---|---|---|---|---|---|
| 0.10–0.16 | Size 00–1 | LRD01 | LR3D01 | — | — | **60.00** |
| 0.16–0.25 | | LRD02 | LR3D02 | — | — | |
| 0.25–0.40 | | LRD03 | LR3D03 | — | — | |
| 0.40–0.63 | | LRD04 | LR3D04 | — | — | |
| 0.63–1 | | LRD05 | LR3D05 | — | — | |
| 1–1.6 | | LRD06 | LR3D06 | — | — | |
| 1.6–2.5 | | LRD07 | LR3D07 | — | — | |
| 2.5–4 | | LRD08 | LR3D08 | LRD1508 | LR3D1508A1 | |
| 4–6 | | LRD10 | LR3D10 | LRD1510 | LR3D1510A1 | |
| 5.5–8 | Size 00–1 | LRD12 | LR3D12 | LRD1512 | LR3D1512A1 | **62.00** |
| 7–10 | Size 00–1 | LRD14 | LR3D14 | LRD1514 | LR3D1514A1 | |
| 9–13 | Size 0–1 | LRD16 | LR3D16 | LRD1516 | LR3D1516A1 | |
| 12–18 | Size 0–1 | LRD21 | LR3D21 | LRD1521 | LR3D1521A1 | |
| 16–24 | Size 0–1 | LRD22 | LR3D22 | — | — | |
| 17–25 | Size 0–1 | — | — | LRD1522 | LR3D1522A1 | |
| 23–32 | Size 1 | LRD32 | LR3D32 | — | — | **73.00** |
| 23–28 | | — | — | LRD1530 | LR3D1530A1 | |
| 25–32 | | — | — | LRD1532 | LR3D1532A1 | |
| 9-13 | Size 2 | LRD313 | LR3D313 | LRD313L | — | **107.00** |
| 12-18 | | LRD318 | LR3D318 | LRD318L | — | |
| 16-25 | | LRD325 | LR3D325 | LRD325L | — | |
| 23-32 | | LRD332 | LR3D332 | LRD332L | — | |
| 30-40 | | LRD340 | LR3D340 | LRD340L | — | |
| 37-50 | | LRD350 | LR3D350 | LRD350L | — | |

Dimensions . . . . . pages 16-147 to 16-151
TeSys N Accessories . . . . . pages 16-144 to 16-146





© 2012 Schneider Electric
All Rights Reserved



TeSys N reversing starter, Size 00



TeSys N reversing starter, Size 4

## TeSys N Reversing Starters

TeSys N reversing starters are used for full-voltage starting, stopping and reversing of AC squirrel cage motors. Reversing starters are mechanically and electrically interlocked and are available in NEMA Sizes 00 through 5. Starters come standard with Motor Logic Class 10/20 selectable solid state overload relays. Reversing starters with bimetal overload protection can be assembled from TeSys N reversing contactors and TeSys D overload relays. For more information on TeSys D relays, see Table 16.395 on page 16-142.

**Table 16.396: TeSys N Reversing Starters, 3-Pole Polyphase, 600 Vac Max.**

| NEMA Size | Continuous Current Rating (A) | Motor Voltage | Max HP | Open | |
|---|---|---|---|---|---|
| | | | | Catalog Number | $ Price |
| 00 | 9 | 200<br>230<br>460<br>575 | 1.5<br>1.5<br>2<br>2 | T36AN23▲ | **1019.00** |
| 0 | 18 | 200<br>230<br>460<br>575 | 3<br>3<br>5<br>5 | T36BN23▲ | **1190.00** |
| 1■ | 27 | 200<br>230<br>460<br>575 | 7.5<br>7.5<br>10<br>10 | T36CN23▲ | **1335.00** |
| 2 | 45 | 200<br>230<br>460<br>575 | 10<br>15<br>25<br>25 | T36DN23▲ | **2450.00** |
| 3 | 90 | 200<br>230<br>460<br>575 | 25<br>30<br>50<br>50 | T36EN23▲ | **4020.00** |
| 4 | 135 | 200<br>230<br>460<br>575 | 40<br>50<br>100<br>100 | T36FN23▲ | **9660.00** |
| 5 | 270 | 200<br>230<br>460<br>575 | 75<br>100<br>200<br>200 | T36GN23▲ | **18525.00** |

▲ Coil voltage code must be specified to order this product. Refer to voltage codes shown below.
■ Special contactor/Motor Logic overload relay size combinations available: Add '0' to catalog number before coil voltage for Size 0 overload (6–18 A), '9' for Size 00C overload (3–9 A), and '8' for Size 00B overload (1.5–4.5 A). (i.e. T36CN230G7).

**Table 16.397: TeSys N Coil Voltage Codes**

| Voltage | Voltage Code by NEMA Size | | | | | | | $ Price Adder |
|---|---|---|---|---|---|---|---|---|
| | Size 00 | Size 0 | Size 1 | Size 2 | Size 3 | Size 4 | Size 5 | |
| 24 Vac■ | B7 | B7 | B7 | B7 | B6 | B6 | n/a | No Charge |
| 24 Vdc▲ | BD | BD | BD | BD | BD | BD | n/a | No Charge |
| 120 Vac■ | G7 | G7 | G7 | G7 | G6 | G6 | G7 | No Charge |
| 208 Vac | LE7 | LE7 | LE7 | LE7 | L6 | L6 | L7 | No Charge |
| 240 Vac | U7 | U7 | U7 | U7 | U6 | U6 | U7 | No Charge |
| 480 Vac | T7 | T7 | T7 | T7 | Q5 | Q5 | S7 | No Charge |

▲ 24 Vdc coil requires separate control, add Form S to catalog number (ie. T36AN23BDS).
■ 24 and 120 Vac coils available with optional separate control, add Form S to catalog number (ie. T36AN13B7S).

Dimensions . . . . . pages 16-147 to 16-151
TeSys N Accessories . . . . . page 16-144 to 16-146

E164862
CCN NLDX

LR43364
Class 3211 04

© 2012 Schneider Electric
All Rights Reserved




Front Mounted
Auxiliary Blocks

### Table 16.398: Standard, Instantaneous Auxiliary Contact Blocks

| Snap-On Mounting | Number of Contacts | Composition N.O. | Composition N.C. | Catalog Number | $ Price |
|---|---|---|---|---|---|
| **To front of** Size 00–2 or **To right side of** Size 3–7 | 4 | 2 | 2 | LADN22 ▲ | **41.50** |
| | | 1 | 3 | LADN13 ▲ | **41.50** |
| | | 4 | 0 | LADN40 ▲ | **41.50** |
| | | 0 | 4 | LADN04 ▲ | **41.50** |
| | | 3 | 1 | LADN31 ▲ | **41.50** |
| | | 2 ■ | 2 ■ | LADC22 ▲■ | **41.50** |
| | 2 | 1 | 1 | LADN11 ▲ | **20.70** |
| | | 2 | 0 | LADN20 ▲ | **20.70** |
| | | 0 | 2 | LADN02▲ | **20.70** |
| **To left side of** Size 3–7 | 1 | 1 | 0 | LADN10 | **13.10** |
| | | 0 | 1 | LADN01 | **13.10** |
| **To side of** Size 00–2 | 2 | 1 | 1 | LAD8N11 ♦ | **20.70** |
| | | 2 | 0 | LAD8N20 ♦ | **20.70** |

▲ For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADN223). There is no charge for this modification. For slip-on versions, add **9** to the end of the catalog number (for example, LADN229).
■ Including 1 N.O. + 1 N.C. make-before-break overlapping contacts.
♦ 1 block may be added to the left side of Size 00–1, AC coils only; only 1 block may be added to either side of the Size 2 contactor, AC coil only. Cannot be installed on Size 00–2 contactors with DC coils.

### Table 16.399: Instantaneous Blocks with Dust-Tight Auxiliary Contacts (IP54) NEMA 12

| Snap-On Mounting | Standard Contacts N.O. | Standard Contacts N.C. | Dust-Tight Contacts N.O. | Dust-Tight Contacts N.C. | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **To front of** Size 00–2 or **To right side of** Size 3–7 | — | — | 2 | — | LA1DX20 | **65.00** |
| | 2 | — | 2 | — | LA1DZ40 | **82.00** |
| | 1 | 1 | 2 | — | LA1DZ31 | **82.00** |
| | — | — | 2 | — | LA1DY20★ | **77.00** |

★ Device supplied with 4 ground terminal points.

### Table 16.400: Pneumatic Time Delay Contact Blocks

| Snap-On Mounting | Time Delay Contacts N.O. | Time Delay Contacts N.C. | Type | Range of Time Delay | Catalog Number △ | $ Price |
|---|---|---|---|---|---|---|
| **To front of** Size 00–2 or **To right side of** Size 3–7 | 1 | 1 | On energization (on delay) | 0.1 to 3 s▼ | LADT0 | **131.00** |
| | | | | 0.1 to 30 s | LADT2 | **131.00** |
| | | | | 10 to 180 s | LADT4 | **131.00** |
| | | | | 1 to 30 s□ | LADS2 | **131.00** |
| | 1 | 1 | On de-energization (off-delay) | 0.1 to 3 s▼ | LADR0 | **131.00** |
| | | | | 0.1 to 30 s | LADR2 | **131.00** |
| | | | | 10 to 180 s | LADR4 | **131.00** |

▼ Scale range is expanded between 0.1 and 0.6 seconds on the dial for more accurate settings at the lower end of the range.
△ For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADT23). There is no charge for this modification.
□ Switching time between the opening of the N.C. contact and the closing of the N.O. contact: 40 ms ± 15 ms .

### Table 16.401: Mechanical Latch Blocks with Manual or Electrical Unlatch

| Front snap-on mounting onto | Application | Catalog Number | $ Price |
|---|---|---|---|
| Size 00–2 | For silent operation and energy conservation | LAD6K10◊☆ | **77.00** |

◊ Does not include internal coil clearing contact.
☆ Complete the catalog number by adding the coil voltage code (for example, LAD6K10F).

### Table 16.402: Coil Voltage Codes for LA6DK Mechanical Latch Blocks

| Volts | 24 | 120 | 208 | 240 | 480 |
|---|---|---|---|---|---|
| AC or DC▽ | B | F | L | M | R |

▽ DC available at 24 V only.




© 2012 Schneider Electric
All Rights Reserved


LA4DA1U

## RC Coil Suppressor

- Limitation of transient voltage to 300% of nominal voltage maximum.
- Oscillating frequency limited to 400 Hz maximum. Slight increase in drop-out time (1.2 to 2 times normal).

### Table 16.403: Resistor/Capacitor Circuit (RC) for Reduction of Electrical Noise in AC Contactor Coils

| Installed by | Mounting on | Operating Voltage 50/60 Hz | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side without tools◒ | Size 00–1 | 24 V | LAD4RCE | 26.20 |
| | | 120 V | LAD4RCG | 26.20 |
| | | 120–240 V | LAD4RCU | 26.20 |
| Snap-on mounting, and connection without tools to the contactor coil terminals | Size 2 | 24 V | LAD4RC3E | 26.20 |
| | | 120 V | LAD4RC3G | 26.20 |
| | | 120-240 V | LAD4RC3U | 26.20 |

## Varistor Coil Suppressor

- Limitation of transient voltage value to 200% of nominal voltage maximum.
- Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times normal).

### Table 16.404: Varistor (Peak Limiting) for Reduction of Electrical Noise in AC Contactor Coils

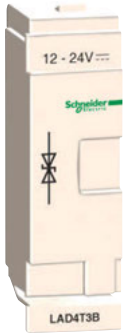
| Installed by | Mounting on | Operating Voltage 50/60 Hz | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side without tools◒ | Size 00–1 | 24 V | LAD4VE | 26.20 |
| | | 120 V | LAD4VG | 26.20 |
| | | 120–240 V | LAD4VU | 26.20 |
| Snap-on mounting, and connection without tools to the contactor coil terminals | Size 2 | 24 V | LAD4V3E | 26.20 |
| | | 120 V | LAD4V3G | 26.20 |
| | | 120-240 V | LAD4V3U | 26.20 |

## Diode Coil Suppressor

- No overvoltage or oscillating frequency.
- Polarized component. Increased drop-out time (6–10 times normal).

### Table 16.405: Diode for Reduction of Electrical Noise in DC Contactor Coils

| Installed on the upper part by | Mounting on | Operating Voltage, DC | Catalog Number | $ Price |
|---|---|---|---|---|
| Snap-on mounting and connection w/o tools to the contactor coil terminals | Size 00–1 | 24 Vdc | LAD4DDL | 26.20 |
| Clip-on front mounting | Size 2 | 24 Vdc | LAD4D3U | 26.20 |



LAD4T3B

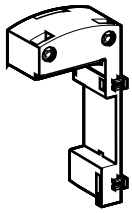
## Bidirectional Diode Coil Suppressor

- Protection provided by limiting the transient voltage to 2 Uc max.
- Maximum reduction of transient voltage peaks

### Table 16.406: Bidirectional Peak Limiting Diode

| Installed by | Mounting on | Operating Voltage 50/60 Hz and DC | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side of the contactor ◒ | Size 00–1✱ | 24 (AC only) | LAD4TB | 26.20 |
| Clip-on front mounting and connection without tools to the contactor coil terminals ✱ | Size 2 | 24 V | LAD4T3B | 26.20 |
| | | 120 V | LAD4T3G | 26.20 |
| | | 208–240 V | LAD4T3U | 26.20 |

◒ Installing the suppressor into the cavity makes the electrical connection. Overall width of the contactor remains the same.
✱ For Size 00–2 with DC coils, 3-pole contactors are fitted with built-in bidirectional diode suppression as standard.


LAD4BB••

### Table 16.407: Cabling Accessories

| Usage | Mounting on | Operating Voltage 50/60 Hz | | Catalog Number | $ Price |
|---|---|---|---|---|---|
| For adapting existing wiring to a new product or for use with top-mounting accessory. | Size 00–1, AC only | Without coil suppression | | LAD4BB | 23.00 |
| | | With coil suppression (varistor) | 24 V | LAD4BBVE | 23.00 |
| | | | 120 V | LAD4BBVG | 23.00 |
| | | | 120-240 V | LAD4BBVU | 23.00 |
| For adapting existing wiring to a new product or for use with top-mounting accessory | Size 2, AC only | — | | LAD4BB3 | 26.20 |



© 2012 Schneider Electric
All Rights Reserved

The following accessories require use of cabling accessories (LAD4BB●●) for proper mounting. See page 16-145 for illustration.

### Table 16.408: Electronic Serial Timer Modules

These solid state modules delay the energizing of the contactor coil, and feature built-in varistor surge suppression.

| Type | Operational Voltage | Time Delay | Catalog Number | $ Price |
|---|---|---|---|---|
| | 24–250 Vac | | | |
| On-delay | Size 00–2 | 0.1–2 s | LA4DT0U | 82. |
| | | 1.5–30 s | LA4DT2U | 82. |
| | | 25–500 s | LA4DT4U | 82. |

### Table 16.409: Interface Modules ▲

These modules allow the contactor coils to be energized from low voltage and low current level signals. They come in mechanical relay and solid state versions. The relay plus manual operation versions include a lever for manually turning the contactor on and off. When a module receives a low level signal, it allows the separate-sourced control voltage to flow to the contactor coil. It saves space and wiring time compared to conventional interposing relays.



LA4DFB

| Interface Type | Operational Voltage | Input Voltage | Catalog Number | $ Price |
|---|---|---|---|---|
| | 24–250 Vac | | | |
| Relay | Size 00–2 | 24 Vdc | LA4DFB | 55. |
| Relay Plus Manual Operation | Size 00–2 | 24 Vdc | LA4DLB | 71. |
| Solid State | Size 00–2 | 24 Vdc | LA4DWB | 71. |

▲ Adapter required, see Table 16.407 on page 16-145.

### Table 16.410: Lugs and Lug Kits▲

| TeSys N Contactor | Lugs | | Lug Kits■ | Cable size AWG range |
|---|---|---|---|---|
| | Line Size | Load Side | | |
| Size 3 | 3 each DZ2FF1 | 3 each DZ2FF1 | DZ2FF6 | 14 to 2/0 |
| Size 4 | 3 each DZ2FG1 | 3 each DZ2FG1 | DZ2FG6 | 6 to 3/0 |
| Size 5 | 3 each DZ2FJ1 | 3 each DZ2FJ1 | DZ2FJ6 | 4 to 500 MCM |
| Size 6 | 3 each DZ2FK1 | 3 each DZ2FK1 | DZ2FK6 | 2 x 2 to 600 MCM |
| Size 7 | 1 each DZ2FL1<br>DZ2FL2<br>DZ2FL3 | 1 each DZ2FL1<br>DZ2FL2<br>DZ2FL3 | DZ2FL6 | 3 x 2 to 600 MCM |

▲ Mounting hardware (screws, washers and nuts) are provided with the contactors, not the lugs. Starters Sizes 3–7 supplied with lugs. See Table 16.411 for pricing.
■ Lug kits incude 6 lugs.

### Table 16.411: Lug Pricing

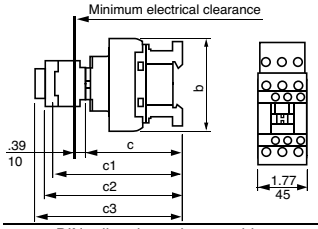
| Lug Catalog Number | $ Price |
|---|---|
| DZ2FF1 | 6.50 |
| DZ2FG1 | 11.00 |
| DZ2FJ1 | 11.00 |
| DZ2FK1 | 21.80 |
| DZ2FL1 | 27.30 |
| DZ2FL2 | 27.30 |
| DZ2FL3 | 27.30 |

| Lug Kit Catalog Number | $ Price |
|---|---|
| DZ2FF6 | 39.30 |
| DZ2FG6 | 65.00 |
| DZ2FJ6 | 65.00 |
| DZ2FK6 | 131.00 |
| DZ2FL6 | 164.00 |



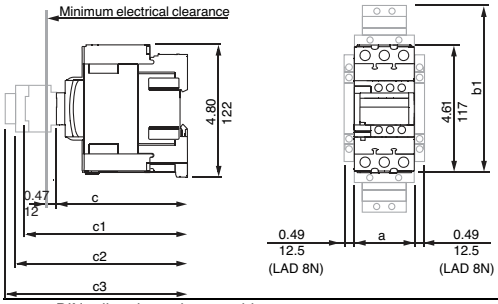

© 2012 Schneider Electric
All Rights Reserved

### Table 16.412: TeSys N Contactors, Size 00–1, Non-Reversing▲

| Dimensional Diagram | Dimension | Description | Dimensions | | | |
|---|---|---|---|---|---|---|
| | | | AC Coil | | DC Coil | |
| | | | In | mm | In | mm |
|  | b | Without add-on accessories | 3.35 | 85 | 3.35 | 85 |
| | b1 | With LAD4BB | 3.86 | 98 | n/a | n/a |
| | | With LA4D•2 | 4.49 | 114 | n/a | n/a |
| | | With LA4DF, DT | 4.84 | 123 | n/a | n/a |
| | | With LA4DR, DW, DL | 5.12 | 130 | n/a | n/a |
| | c | Without cover or add-on blocks | 3.54 | 90 | 3.90 | 99 |
| | | With cover, without add-on blocks | 3.62 | 92 | 3.98 | 101 |
| | c1 | With LADN or LADC | 4.84 | 123 | 5.20 | 132 |
| | c2 | With LAD6K10 | 5.31 | 135 | 5.67 | 144 |
| | c3 | With LADT, R, S | 5.63 | 143 | 5.98 | 152 |
| | | With LADT, R, S and sealing cover | 5.79 | 147 | 6.14 | 156 |

▲ DIN rail and panel mountable.

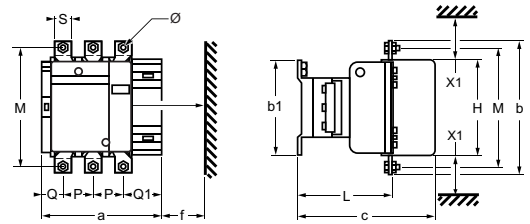
### Table 16.413: TeSys N Contactors, Size 2, Non-Reversing▲

| Dimensional Diagram | Dimension | Description | Dimensions | |
|---|---|---|---|---|
| | | | AC or DC Coils | |
| | | | In | mm |
|  | a | | 2.17 | 55 |
| | b1 | With LA4 DB3 or LAD 4BB3 | 5.35 | 136 |
| | | With LA4 DF, DT | 6.18 | 157 |
| | | With LA4 DM, DW, DL | 6.54 | 166 |
| | c | Without cover or add-on blocks | 4.65 | 118 |
| | | With cover, without add-on blocks | 4.72 | 120 |
| | c1 | With LAD N or C (2 or 4 contacts) | 5.91 | 150 |
| | c2 | With LAD 6K10 or LA6 DK | 6.42 | 163 |
| | c3 | With LAD T, R, S | 6.73 | 171 |
| | | With LAD T, R, S and sealing cover | 6.89 | 175 |

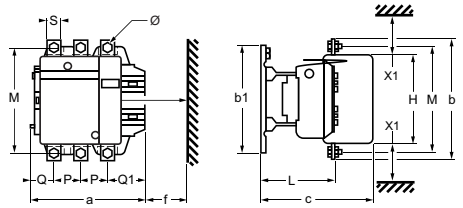
▲ DIN rail and panel mountable.

### Table 16.414: TeSys N Contactors, Size 3–7, Non-Reversing

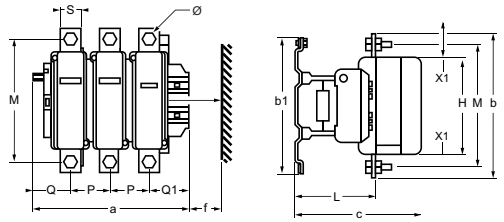
**Dimensional Diagram, Size 3–5**




**Dimensional Diagram, Size 6**




**Dimensional Diagram, Size 7**




| Dimension | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | T02EN13 | | T02FN13 | | T02GN13 | |
| | In | mm | In | mm | In | mm |
| a | 6.4 | 163.5 | 6.4 | 163.5 | 8.4 | 213 |
| P | 1.5 | 37 | 1.6 | 40 | 1.9 | 48 |
| Q | 1.2 | 29.5 | 1 | 26 | 1.7 | 43 |
| Q1 | 2.4 | 60 | 2.3 | 57.5 | 2.9 | 74 |
| S | 0.8 | 20 | 0.8 | 20 | 1 | 25 |
| ø | M6 | | M8 | | M10 | |
| f | 5.2 | 131 | 5.2 | 131 | 5.8 | 147 |
| b | 6.4 | 162 | 6.7 | 170 | 8.1 | 206 |
| b1 | 5.4 | 137 | 5.4 | 137 | 5.7 | 145 |
| M | 5.8 | 147 | 5.9 | 150 | 7.1 | 181 |
| H | 4.9 | 124 | 4.9 | 124 | 6.2 | 158 |
| c | 6.7 | 171 | 6.7 | 171 | 8.6 | 219 |
| L | 4.2 | 107 | 4.2 | 107 | 5.7 | 145 |
| X1 220–500 V | 0.4 | 10 | 0.4 | 10 | 0.4 | 10 |

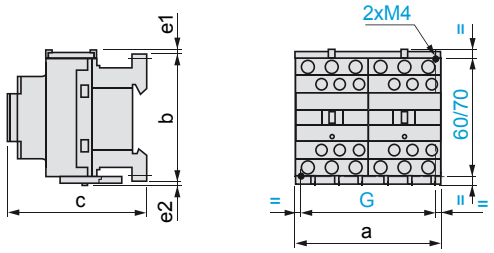
| Dimension | T02HN13 | |
|---|---|---|
| | In | mm |
| a | 9.2 | 233 |
| P | 2.2 | 55 |
| Q | 1.8 | 46 |
| Q1 | 3 | 77 |
| S | 1.2 | 30 |
| ø | M10 | |
| f | 5.9 | 150 |
| b | 9.4 | 238 |
| b1 | 8.2 | 209 |
| M | 8.2 | 208 |
| H | 6.8 | 172 |
| c | 9.1 | 232 |
| L | 5.7 | 146 |
| X1 220–500 V | 0.6 | 15 |

| Dimension | T02JN13 | |
|---|---|---|
| | In | mm |
| a | 12.2 | 309 |
| P | 3.2 | 80 |
| Q | 2.4 | 60 |
| Q1 | 3.5 | 89 |
| S | 1.6 | 40 |
| ø | M12 | |
| f | 7.1 | 181 |
| b | 12 | 304 |
| b1 | 11 | 280 |
| M | 10.4 | 264 |
| H | 8 | 202 |
| c | 10 | 255 |
| L | 6.1 | 155 |
| X1 220–500 V | 0.8 | 20 |



© 2012 Schneider Electric
All Rights Reserved

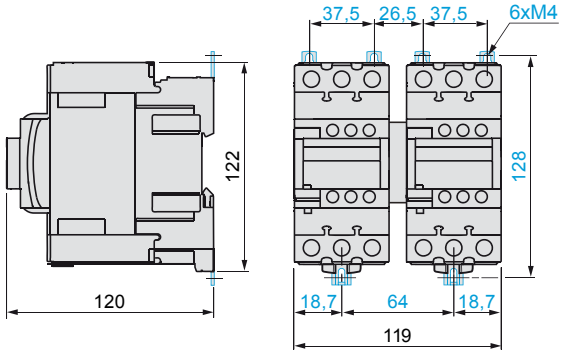
**Table 16.415: TeSys N Size 00–1, Reversing Contactors▲**

| Dimensional Diagram | Dimension | Description | Dimensions | | | |
|---|---|---|---|---|---|---|
| | | | AC Coil | | DC Coil | |
| | | | In | mm | In | mm |
|  | a | Without side-mount accessories | 3.54 | 90 | 3.54 | 90 |
| | b | Contactor base | 3.35 | 85 | 3.35 | 85 |
| | c | With cover, without add-on blocks | 3.62 | 92 | 3.98 | 101 |
| | e1 | | 0.35 | 9 | 0.35 | 9 |
| | e2 | | 0.20 | 5 | 0.20 | 5 |
| | G | Mounting holes | 3.15 | 80 | 3.15 | 80 |



▲ DIN rail and panel mountable.

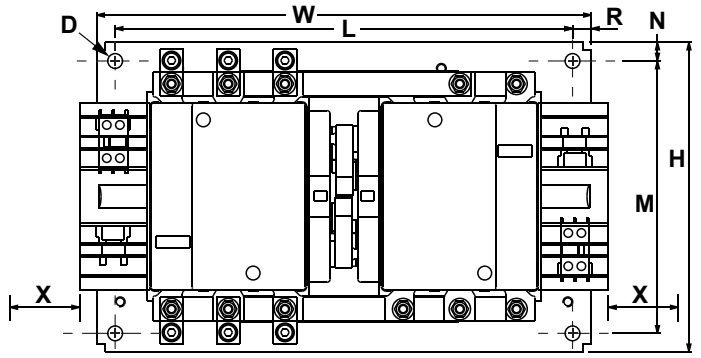
**Table 16.416: TeSys N Size 2, Reversing Contactors▲**

| Dimensional Diagram | Description | Dimensions | |
|---|---|---|---|
| | | AC and DC Coils | |
| | | In | mm |
|  | Width | 4.69 | 119 |
| | Height | 4.80 | 122 |
| | Depth with cover, without add-on blocks | 4.72 | 120 |
| | Load side mounting hole width | 2.52 | 64 |
| | Line side mounting hole width | 3.40 | 101.5 |
| | Mounting hole height | 5.04 | 128 |



▲ DIN rail and panel mountable.

**Table 16.417: TeSys N Size 3–7, Reversing Contactors**

| Dimensional Diagram | Dimension | Dimensions | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T02EN23 | | T02FN23 | | T02GN23 | | T02HN23 | | T02JN23 | |
| | | In | mm | In | mm | In | mm | In | mm | In | mm |
|  | D | 0.38 | 9, 7 | 0.38 | 9, 7 | 0.56 | 14, 2 | 0.56 | 14, 2 | 0.56 | 14, 2 |
| | H | 7.96 | 202, 2 | 7.96 | 202, 2 | 15.27 | 387, 9 | 15.27 | 387, 9 | 22.25 | 565, 2 |
| | L | 11.75 | 298, 5 | 11.75 | 298, 5 | 18 | 457, 2 | 18 | 457, 2 | 30 | 762, 0 |
| | M | 7 | 177, 8 | 7 | 177, 8 | 14 | 355, 6 | 14 | 355, 6 | 19.75 | 501, 7 |
| | N | 0.49 | 12, 5 | 0.49 | 12, 5 | 0.62 | 15, 8 | 0.62 | 15, 8 | 1.25 | 31, 8 |
| | R | 0.49 | 12, 5 | 0.49 | 12, 5 | 0.62 | 15, 8 | 0.62 | 15, 8 | 0.69 | 17, 5 |
| | W | 12.71 | 322, 8 | 12.71 | 322, 8 | 19.27 | 489, 5 | 19.27 | 489, 5 | 31.38 | 797, 0 |
| | X | 5.16 | 131, 0 | 5.16 | 131, 0 | 5.79 | 147, 0 | 5.91 | 150, 0 | 7.13 | 181, 0 |

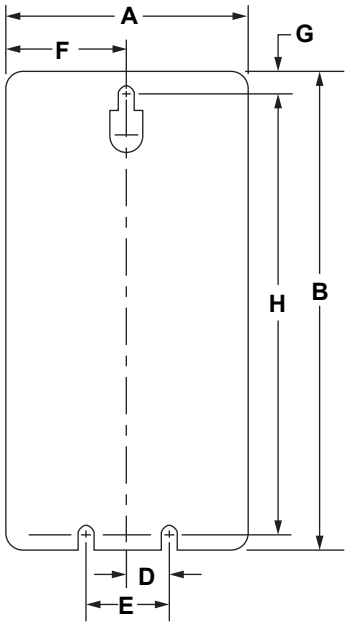




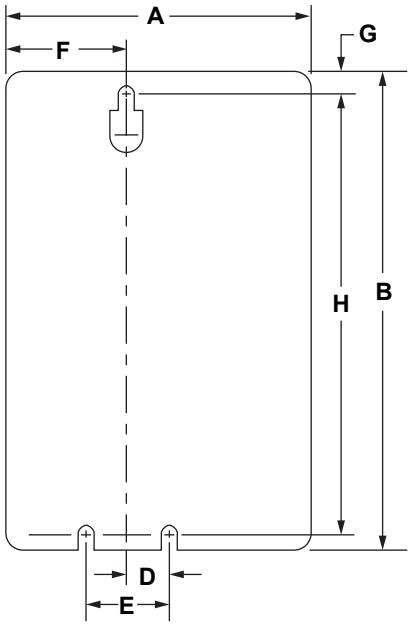


© 2012 Schneider Electric
All Rights Reserved

**Non-reversing**
**T36AN13 / T36BN13 / T36CN13 / T36DN13**




**Reversing**
**T36AN23 / T36BN23 / T36CN23 / T36DN23**




**Depth**

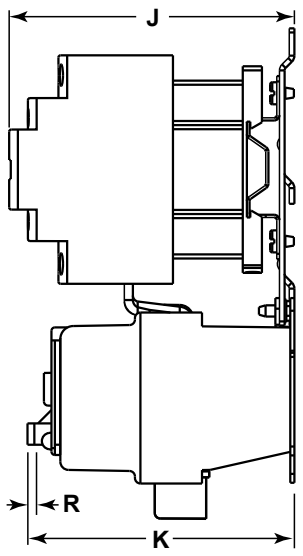



**Table 16.418: TeSys N Size 00–2, Non-Reversing and Reversing Starters**

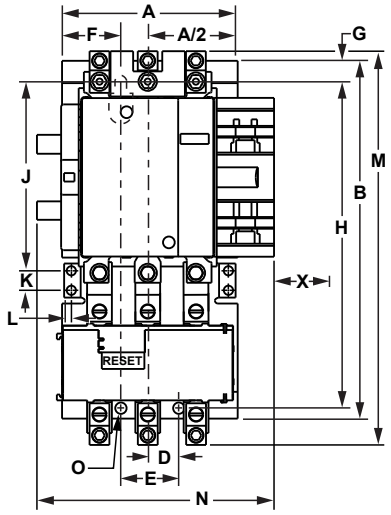
| Dimension | Non-Reversing | | | | | | | | Reversing | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Size 00 T36AN13 | | Size 0 T36BN13 | | Size 1 T36CN13 | | Size 2 T36DN13 | | Size 00 T36AN23 | | Size 0 T36BN23 | | Size 1 T36CN23 | | Size 2 T36DN23 | |
| | In | mm | In | mm | In | mm | In | mm | In | mm | In | mm | In | mm | In | mm |
| A | 3.19 | 81, 0 | 3.19 | 81, 0 | 3.19 | 81, 0 | 3.19 | 81, 0 | 43.9 | 111, 5 | 43.9 | 111, 5 | 43.9 | 111, 5 | 5.19 | 131, 8 |
| B | 6.64 | 168, 7 | 6.64 | 168, 7 | 6.64 | 168, 7 | 8.61 | 218, 7 | 6.64 | 168, 7 | 6.64 | 168, 7 | 6.64 | 168, 7 | 8.61 | 218, 7 |
| D | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 | 0.5 | 12, 7 |
| E | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 | 1.0 | 25, 4 |
| F | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 | 1.59 | 40, 5 |
| G | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 | 0.20 | 5, 2 |
| H | 6.16 | 156, 5 | 6.16 | 156, 5 | 6.16 | 156, 5 | 8.22 | 208, 8 | 6.16 | 156, 5 | 6.16 | 156, 5 | 6.16 | 156, 5 | 8.22 | 208, 8 |
| J (AC Coil) | 4.17 | 105, 9 | 4.17 | 105, 9 | 4.17 | 105, 9 | 4.94 | 125, 4 | 4.17 | 105, 9 | 4.17 | 105, 9 | 4.17 | 104, 9 | 4.94 | 125, 4 |
| J (DC Coil) | 4.52 | 114, 9 | 4.52 | 114, 9 | 4.52 | 114, 9 | | | 4.52 | 114, 9 | 4.52 | 114, 9 | 4.52 | 114, 9 | | |
| K | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 | 3.90 | 99, 0 |
| R▲ | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 |

▲ Reset travel.

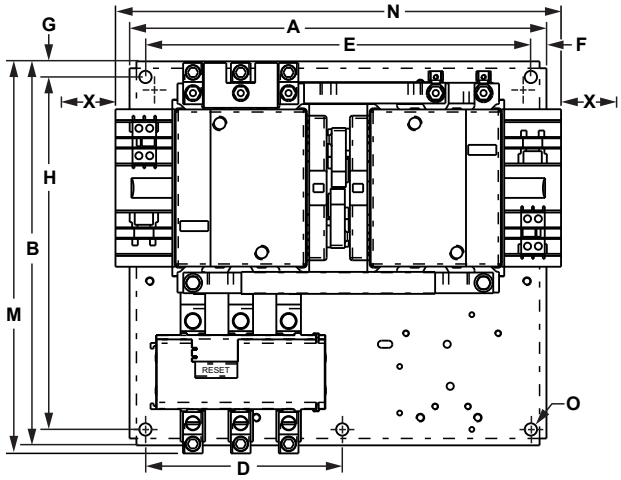


© 2012 Schneider Electric
All Rights Reserved

Non-Reversing
T36EN13 / T36FN13




Reversing
T36EN23 / T36FN23




Depth

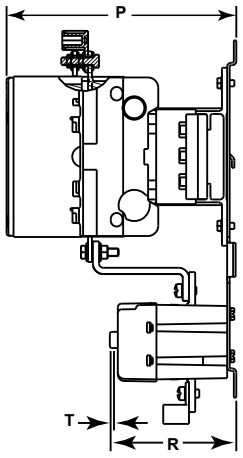



**Table 16.419: TeSys N Size 3–4, Non-Reversing and Reversing Starters**

| Dimension | Non-Reversing | | | | Reversing | | | |
|---|---|---|---|---|---|---|---|---|
| | Size 3 T36EN13 | | Size 4 T36FN13 | | Size 3 T36EN23 | | Size 4 T36FN23 | |
| | In | mm | In | mm | In | mm | In | mm |
| A | 5.31 | 134, 9 | 5.31 | 134, 9 | 12.71 | 322, 8 | 12.71 | 322, 8 |
| B | 10.82 | 274, 8 | 10.82 | 274, 8 | 11.71 | 297, 4 | 11.71 | 297, 4 |
| D | 0.88 | 22, 4 | 0.88 | 22, 4 | 6.0 | 152, 4 | 6.0 | 152, 4 |
| E | 1.75 | 44, 5 | 1.75 | 44, 5 | 11.75 | 298, 5 | 11.75 | 298, 5 |
| F | 1.78 | 45, 0 | 1.78 | 45, 0 | 0.48 | 12, 2 | 0.48 | 12, 2 |
| G | 0.32 | 8, 1 | 0.32 | 8, 1 | 0.48 | 12, 2 | 0.48 | 12, 2 |
| H | 10.19 | 258, 8 | 10.19 | 258, 8 | 10.75 | 273, 1 | 10.75 | 273, 1 |
| J | 6.03 | 153, 2 | 6.03 | 153, 2 | — | — | — | — |
| K | 0.59 | 15, 0 | 0.59 | 15, 0 | — | — | — | — |
| L | 0.22 | 5, 6 | 0.22 | 5, 6 | — | — | — | — |
| M | 11.91 | 302, 4 | 11.91 | 302, 4 | 11.96 | 303, 8 | 11.96 | 303, 8 |
| N | 6.57 | 166, 8 | 6.57 | 166, 8 | 13.58 | 344, 9 | 13.58 | 344, 9 |
| O | 0.375 | 9, 5 | 0.375 | 9, 5 | 0.375 | 9, 5 | 0.375 | 9, 5 |
| P | 6.96 | 176, 7 | 6.96 | 176, 7 | 7.18 | 182, 4 | 7.18 | 182, 4 |
| R | 3.8 | 97 | 3.8 | 97 | 3.8 | 97 | 3.8 | 97 |
| T▲ | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 | 0.24 | 6.1 |
| X■ | 5.16 | 131, 0 | 5.16 | 131, 0 | 5.16 | 131, 0 | 5.16 | 131, 0 |

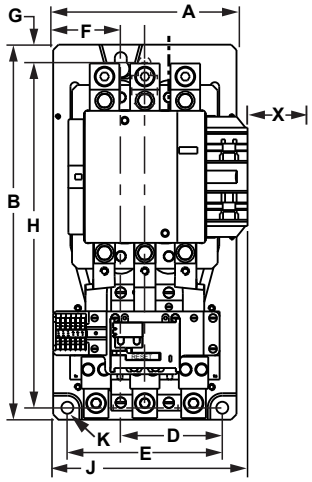
▲ Reset travel.
■ Minimum distance for coil removal.



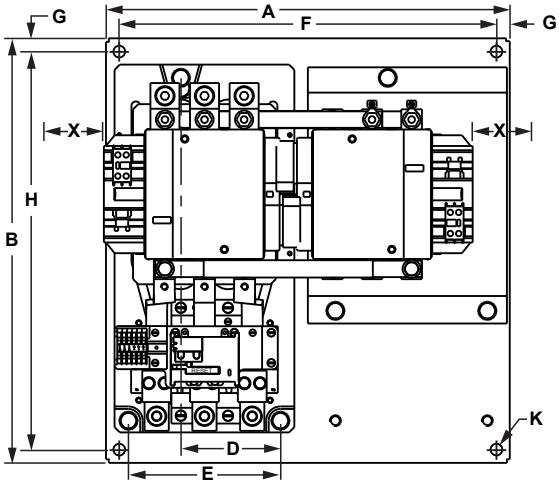


© 2012 Schneider Electric
All Rights Reserved

Non-reversing
T36GN13 / T36HN13 / T36JN13




Reversing
T36GN23




Depth

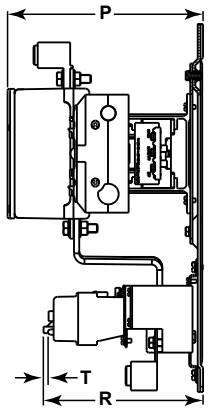



**Table 16.420: TeSys N Size 5–7, Non-Reversing and Reversing Starters**

| Dimension | Non-Reversing | | | | | | Reversing | |
|---|---|---|---|---|---|---|---|---|
| | Size 5 T36GN13 | | Size 6 T36HN13 | | Size 7 T36JN13 | | Size 5 T36GN23 | |
| | In | mm | In | mm | In | mm | In | mm |
| A | 8.58 | 217, 9 | 8.58 | 217, 9 | 8.58 | 217, 9 | 19.3 | 489, 4 |
| B | 17.56 | 446, 0 | 19.75 | 501, 7 | 23.58 | 598, 9 | 20.3 | 514, 8 |
| D | 4.75 | 120, 7 | 4.75 | 120, 7 | 4.75 | 120, 7 | 4.75 | 120, 7 |
| E | 7.25 | 184, 2 | 7.25 | 184, 2 | 7.25 | 184, 2 | 7.25 | 184, 2 |
| F | 3.17 | 80, 4 | 3.17 | 80, 4 | 3.17 | 80, 4 | 18.0 | 457, 2 |
| G | 0.63 | 16, 0 | 0.63 | 16, 0 | 0.63 | 16, 0 | 0.63 | 16, 1 |
| H | 16.37 | 415, 8 | 18.56 | 463, 6 | 22.38 | 565, 9 | 19.0 | 482, 6 |
| J | 9.91 | 251, 6 | 9.91 | 251, 6 | 9.91 | 251, 6 | — | — |
| K | 0.56 | 14, 2 | 0.56 | 14, 2 | 0.56 | 14, 2 | 0.56 | 14, 2 |
| P | 9.32 | 236, 8 | 9.32 | 236, 8 | 9.32 | 236, 8 | 9.95 | 252, 7 |
| R | 7.38 | 187, 0 | 9.16 | 232, 7 | 8.07 | 205, 0 | 7.38 | 187, 0 |
| T▲ | 0.24 | 6, 1 | 0.24 | 6, 1 | 0.24 | 6, 1 | 0.24 | 6, 1 |
| X■ | 5.79 | 147 1 | 5.91 | 150, 1 | 7.13 | 181, 1 | 5.79 | 147, 1 |

▲ Reset travel.
■ Minimum distance for coil removal.



© 2012 Schneider Electric
All Rights Reserved

© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 17
## Motor Control Centers






### Model 6 Motor Control Centers


| | |
|---|---|
| Structure and Unit Features | **17-2** |
| Merchandised Units General Information | **17-2** |
| Combination Starters with Motor Circuit Protector Disconnects | **17-3** |
| Combination Starters with Fusible Switch Disconnects | **17-4** |
| Compac™ 6 Combination Starters | **17-5** |
| Branch Feeder Units | **17-6** |





Model 6 Unit



Model 6 Motor Control Center

### Overview

Designed and manufactured to tackle the toughest power and process control challenges, the Model 6 Motor Control Center features industry-finest innovations that provide unmatched performance, high reliability, and low maintenance. The Model 6 Motor Control Center has integrated industry-leading components into the smallest and most flexible footprint possible to meet your power, control, and automation needs. The Model 6 provides superior performance, as well as long, reliable operation with enhanced safety features.

SQUARE D
by Schneider Electric
© 2012 Schneider Electric
All Rights Reserved

Schneider Electric



Model 6
Motor Control Center



Model 6

## Model 6 Structure Features

- Horizontal main bus uses captive splice bar assembly; allows splicing without removing units
- Horizontal bus is located at the top of the structure for easy installation, inspection and maintenance Available ampacity 600 A, 800 A, 1200 A, 2000 A, and 2500 A
- Sliding non-conductive bus barrier
- 300 A and 600 A vertical bus
- Vertical bus openings built on 3-inch centers
- Optional automatic vertical bus shutters are available
- Mounting channel includes leveling notches for ease of alignment
- Full depth vertical wireway available, either 4-inch or 9-inch width
- Vertical ground bus is standard

## Model 6 Unit Features

- Cast metal handle, color coded for clear indication of disconnect position (including “Tripped”)
- Twin-handle cam (“Butterfly”) mechanism standard on all plug-on units (except Compac™ 6)
- Rugged unit construction features solid rear, side and hinged bottom plates
- Forward tilted pull-apart control terminal blocks standard with NEMA Type B or C wiring
- Starter units available with Class 8536 Type S NEMA or D-Line IEC
- Available overload relays on starter include: melting alloy, bimetallic, Motor Logic™, and TeSys T ™
- Control station plate for pilot devices is mounted on front of unit (no cables across door hinge)
- Easily accessible control transformer
- Starter mounted on right-hand side of unit, adjacent to wireway, for ease of cable termination

### Available units include:

- — Automation equipment
- — Altivar™ AC drives
- — Altistart™ soft starts
- — Surge Protection Device (SPD) units
- — PowerLogic™ circuit monitor and power meter
- — Compac 6 starters and branch feeders
- — Reduced voltage starters
- — Distribution transformers and panelboards
- — Empty mounting units
- — Masterpact™ drawout main circuit breakers
- — Master terminal compartments
- — Automatic transfer switches
- — Full voltage non-reversing
- — Full voltage reversing
- — Circuit breaker branch feeders
- — Fusible switch branch feeders
- — Full voltage 2-speed
- — Programmable logic controllers
- — Incoming devices
- — Tie breakers

New!

## Intelligent Motor Control Center—Model 6 iMCC

Streamline troubleshooting and maximize uptime by incorporating “intelligent” components and cabling solutions into your motor control center.

Access the information you need in real time—anywhere, anytime. Designed to work on open network protocols, the Square D™ brand Model 6 iMCC allows you to monitor AC drive parameters, view full voltage starter status, spot abnormal conditions immediately and quickly diagnose equipment failures from any networked computer.

Communication protocols available: CANopen, DeviceNet™, Ethernet, Modbus™, and PROFIBUS. Connect to your network control system and communcate with every unit in the iMCC regardless of your communication protocol. Monitor each motor and load so you can know what’s going on at all times and take action before problems arise.

## Merchandised Units (shipment in 3 days)

Model 6 Industrial Package units (white) are available for ordering by catalog number. A listing of types available by quick shipment may be found on the following pages. This limited offering includes popular combinations of types and options. Catalog numbers consist of class number (8998), disconnect and device types, horsepower or ampacity ratings and options (for example, 8998SBA001XFTMA). See table below. All units are UL Listed.

## Combination Starters Catalog Numbering System

Units rated as follows:

- Model 6 Industrial Package, 480 V, 60 Hz, NEMA 12 enclosure
- Type 1B wiring, 100,000 AIR rating, 1 N.O./1 N.C. auxiliary interlock on each contactor

**Table 17.1: Numbering System**

| First | Second | Third | Fourth | Fifth | Sixth | Seventh | Eighth |
|---|---|---|---|---|---|---|---|
| 8998 | S | B | A | 005 | A | FT | MA |
| **Class** | **Type** | **Disconnect** | **Device** | **Motor Hp** | **Pilot Device Function** | **Control Power** | **Overload Relay** |
| 8998 | S- Standard Size<br>H- High Density (Compac 6)▲ | B- Circuit Breaker (PowerPact™ MCP)<br>F- Fusible (Class R except Compac 6 Class J) | A-FVNR<br>C-FVR■ | 001=1 hp<br>002=2 hp<br>003=3 hp<br>005=5 hp<br>007=7.5 hp<br>010=10 hp<br>015=15 hp■<br>025=25 hp■<br>040=40 hp■<br>050=50 hp■<br>060=60 hp■<br>075=75 hp■<br>100=100 hp■ | X=None<br>A=Start-Stop PB, On/Off Lights♦<br>C=HOA Sel.Switch, On/Off Lights▲ | FT- 480-120 V CPT★<br>FS- 120 V Fused Separate Ctl w/intlk | MA-Melting Alloy (Thermal Units not Included)<br>SS-Motor Logic SSOL (Class 20 Base Unit) |

▲ Not available with FVR
■ Not available with Compac 6
♦ Includes forward, reverse and stop push-buttons; and forward and reverse pilot lights with FVR starters
★ Includes extra 50 VA CPT on Sz 1 FVNR (T1)

For more information, contact your nearest Schneider Electric sales office.

Complete Model 6 Motor Control Centers are available from the factory.



© 2012 Schneider Electric
All Rights Reserved

## Combination Starters with Motor Circuit Protector Disconnects

Model 6 NEMA-rated FVNR combination starters use PowerPact™ Motor Circuit Protectors.

Ratings: 480 V, NEMA 12, Type 1B-D wiring, 100,000 AIR. Units include 1 N.O./1 N.C. auxiliary contacts. Units with pilot devices use 22 mm type. Units without pilot devices include a station plate with knockouts for five 22 mm devices.

Thermal units are not included with melting alloy overloads.

### Table 17.2: FVNR Combination Starters with Motor Circuit Protector Disconnects

| Ratings | | | Control Transformer | | | | | | Fused Separate Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA Red On/Green Off Lights | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA Red On/Green Off Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| **Full Voltage Non-Reversing (FVNR) Starters With Motor Circuit Protector Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | | | | | |
| 1 | 1 | 12 | SBA001XFTMA | 2988.00 | SBA001AFTMA | 3530.00 | SBA001CFTMA | 3530.00 | SBA001XFSMA | 2672.00 | SBA001AFSMA | 3214.00 | SBA001CFSMA | 3214.00 |
| | 2 | | SBA002XFTMA | | SBA002AFTMA | | SBA002CFTMA | | SBA002XFSMA | | SBA002AFSMA | | SBA002CFSMA | |
| | 3 | | SBA003XFTMA | | SBA003AFTMA | | SBA003CFTMA | | SBA003XFSMA | | BA003AFSMA | | SBA003CFSMA | |
| | 5 | | SBA005XFTMA | | SBA005AFTMA | | SBA005CFTMA | | SBA005XFSMA | | SBA005AFSMA | | SBA005CFSMA | |
| | 7.5 | | SBA007XFTMA | | SBA007AFTMA | | SBA007CFTMA | | SBA007XFSMA | | SBA007AFSMA | | SBA007CFSMA | |
| | 10 | | SBA010XFTMA | | SBA010AFTMA | | SBA010CFTMA | | SBA010XFSMA | | SBA010AFSMA | | SBA010CFSMA | |
| 2 | 15 | 12 | SBA015XFTMA | 3322.00 | SBA015AFTMA | 3864.00 | SBA015CFTMA | 3864.00 | SBA015XFSMA | 3006.00 | SBA015AFSMA | 3548.00 | SBA015CFSMA | 3548.00 |
| | 25 | | SBA025XFTMA | | SBA025AFTMA | | SBA025CFTMA | | SBA025XFSMA | | SBA025AFSMA | | SBA025CFSMA | |
| 3 | 40 | 18 | SBA040XFTMA | 4798.00 | SBA040AFTMA | 5340.00 | SBA040CFTMA | 5340.00 | SBA040XFSMA | 4362.00 | SBA040AFSMA | 4904.00 | SBA040CFSMA | 4904.00 |
| | 50 | | SBA050XFTMA | | SBA050AFTMA | | SBA050CFTMA | | SBA050XFSMA | | SBA050AFSMA | | SBA050CFSMA | |
| 4 | 60 | 21 | SBA060XFTMA | 6644.00 | SBA060AFTMA | 7186.00 | SBA060CFTMA | 7186.00 | SBA060XFSMA | 6086.00 | SBA060AFSMA | 6628.00 | SBA060CFSMA | 6628.00 |
| | 75 | | SBA075XFTMA | | SBA075AFTMA | | SBA075CFTMA | | SBA075XFSMA | | SBA075AFSMA | | SBA075CFSMA | |
| | 100 | | SBA100XFTMA | | SBA100AFTMA | | SBA100CFTMA | | SBA100XFSMA | | SBA100AFSMA | | SBA100CFSMA | |
| **Full Voltage Non-Reversing (FVNR) Starters With Motor Circuit Protector Disconnect and Solid State Overload Relay (Motor Logic™)** | | | | | | | | | | | | | | |
| 1 | 1 | 12 | SBA001XFTSS | 3184.00 | SBA001AFTSS | 3726.00 | SBA001CFTSS | 3726.00 | SBA001XFSSS | 2868.00 | SBA001AFSSS | 3410.00 | SBA001CFSSS | 3410.00 |
| | 2 | | SBA002XFTSS | | SBA002AFTSS | | SBA002CFTSS | | SBA002XFSSS | | SBA002AFSSS | | SBA002CFSSS | |
| | 3 | | SBA003XFTSS | | SBA003AFTSS | | SBA003CFTSS | | SBA003XFSSS | | SBA003AFSSS | | SBA003CFSSS | |
| | 5 | | SBA005XFTSS | | SBA005AFTSS | | SBA005CFTSS | | SBA005XFSSS | | SBA005AFSSS | | SBA005CFSSS | |
| | 7.5 | | SBA007XFTSS | | SBA007AFTSS | | SBA007CFTSS | | SBA007XFSSS | | SBA007AFSSS | | SBA007CFSSS | |
| | 10 | | SBA010XFTSS | | SBA010AFTSS | | SBA010CFTSS | | SBA010XFSSS | | SBA010AFSSS | | SBA010CFSSS | |
| 2 | 15 | 12 | SBA015XFTSS | 3518.00 | SBA015AFTSS | 4060.00 | SBA015CFTSS | 4060.00 | SBA015XFSSS | 3202.00 | SBA015AFSSS | 3744.00 | SBA015CFSSS | 3744.00 |
| | 25 | | SBA025XFTSS | | SBA025AFTSS | | SBA025CFTSS | | SBA025XFSSS | | SBA025AFSSS | | SBA025CFSSS | |
| 3 | 40 | 18 | SBA040XFTSS | 5074.00 | SBA040AFTSS | 5616.00 | SBA040CFTSS | 5616.00 | SBA040XFSSS | 4638.00 | SBA040AFSSS | 5180.00 | SBA040CFSSS | 5180.00 |
| | 50 | | SBA050XFTSS | | SBA050AFTSS | | SBA050CFTSS | | SBA050XFSSS | | SBA050AFSSS | | SBA050CFSSS | |
| 4 | 60 | 21 | SBA060XFTSS | 6920.00 | SBA060AFTSS | 7462.00 | SBA060CFTSS | 7462.00 | SBA060XFSSS | 6362.00 | SBA060AFSSS | 6904.00 | SBA060CFSSS | 6904.00 |
| | 75 | | SBA075XFTSS | | SBA075AFTSS | | SBA075CFTSS | | SBA075XFSSS | | SBA075AFSSS | | SBA075CFSSS | |
| | 100 | | SBA100XFTSS | | SBA100AFTSS | | SBA100CFTSS | | SBA100XFSSS | | SBA100AFSSS | | SBA100CFSSS | |

### Table 17.3: FVR Combination Starters with Motor Circuit Protector Disconnects

| Ratings | | | Control Transformer | | | | Fused Separate Control | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Forward-Rev.-Stop PB, Forward/Reverse Lights | | No Pilot Devices | | Forward-Rev.-Stop PB, Forward/Reverse Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| **Full Voltage Reversing (FVR) Starters With Motor Circuit Protector Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | |
| 1 | 1 | 18 | SBC001XFTMA | 3884.00 | SBC001AFTMA | 4494.00 | SBC001XFSMA | 3568.00 | SBC001AFSMA | 4178.00 |
| | 2 | | SBC002XFTMA | | SBC002AFTMA | | SBC002XFSMA | | SBC002AFSMA | |
| | 3 | | SBC003XFTMA | | SBC003AFTMA | | SBC003XFSMA | | SBC003AFSMA | |
| | 5 | | SBC005XFTMA | | SBC005AFTMA | | SBC005XFSMA | | SBC005AFSMA | |
| | 7.5 | | SBC007XFTMA | | SBC007AFTMA | | SBC007XFSMA | | SBC007AFSMA | |
| | 10 | | SBC010XFTMA | | SBC010AFTMA | | SBC010XFSMA | | SBC010AFSMA | |
| 2 | 15 | 18 | SBC015XFTMA | 4760.00 | SBC015AFTMA | 5370.00 | SBC015XFSMA | 4484.00 | SBC015AFSMA | 5054.00 |
| | 25 | | SBC025XFTMA | | SBC025AFTMA | | SBC025XFSMA | | SBC025AFSMA | |
| 3 | 40 | 27 | SBC040XFTMA | 6246.00 | SBC040AFTMA | 6856.00 | SBC040XFSMA | 5810.00 | SBC040AFSMA | 6420.00 |
| | 50 | | SBC050XFTMA | | SBC050AFTMA | | SBC050XFSMA | | SBC050AFSMA | |
| 4 | 60 | 33 | SBC060XFTMA | 9826.00 | SBC060AFTMA | 10436.00 | SBC060XFSMA | 9268.00 | SBC060AFSMA | 9878.00 |
| | 75 | | SBC075XFTMA | | SBC075AFTMA | | SBC075XFSMA | | SBC075AFSMA | |
| | 100 | | SBC100XFTMA | | SBC100AFTMA | | SBC100XFSMA | | SBC100AFSMA | |
| **Full Voltage Reversing (FVR) Starters With Motor Circuit Protector Disconnect and Solid State Overload Relay (Motor Logic)** | | | | | | | | | | |
| 1 | 1 | 18 | SBC001XFTSS | 4160.00 | SBC001AFTSS | 4690.00 | SBC001XFSSS | 3764.00 | SBC001AFSSS | 4374.00 |
| | 2 | | SBC002XFTSS | | SBC002AFTSS | | SBC002XFSSS | | SBC002AFSSS | |
| | 3 | | SBC003XFTSS | | SBC003AFTSS | | SBC003XFSSS | | SBC003AFSSS | |
| | 5 | | SBC005XFTSS | | SBC005AFTSS | | SBC005XFSSS | | SBC005AFSSS | |
| | 7.5 | | SBC007XFTSS | | SBC007AFTSS | | SBC007XFSSS | | SBC007AFSSS | |
| | 10 | | SBC010XFTSS | | SBC010AFTSS | | SBC010XFSSS | | SBC010AFSSS | |
| 2 | 15 | 18 | SBC015XFTSS | 5116.00 | SBC015AFTSS | 5566.00 | SBC015XFSSS | 4640.00 | SBC015AFSSS | 5250.00 |
| | 25 | | SBC025XFTSS | | SBC025AFTSS | | SBC025XFSSS | | SBC025AFSSS | |
| 3 | 40 | 27 | SBC040XFTSS | 6682.00 | SBC040AFTSS | 7132.00 | SBC040XFSSS | 6086.00 | SBC040AFSSS | 6696.00 |
| | 50 | | SBC050XFTSS | | SBC050AFTSS | | SBC050XFSSS | | SBC050AFSSS | |
| 4 | 60 | 33 | SBC060XFTSS | 10102.00 | SBC060AFTSS | 10712.00 | SBC060XFSSS | 9544.00 | SBC060AFSSS | 10154.00 |
| | 75 | | SBC075XFTSS | | SBC075AFTSS | | SBC075XFSSS | | SBC075AFSSS | |
| | 100 | | SBC100XFTSS | | SBC100AFTSS | | SBC100XFSSS | | SBC100AFSSS | |

© 2012 Schneider Electric
All Rights Reserved

## Combination Starters with Fusible Switch Disconnects

Model 6 NEMA-rated FVNR combination starters listed below use fusible switches with Class R fuse clips (fuses not included).

Ratings: 480 V, NEMA 12, Type 1B-D wiring, 100,000 AIR. Units include 1 N.O./1 N.C. auxiliary contacts. Units with pilot devices use 22 mm type. Units without pilot devices include a station plate with knockouts for five 22 mm devices.

Thermal units are not included with melting alloy overloads.

### Table 17.4: FVNR Combination Starters with Fusible Switch Disconnects

| Ratings | | | Control Transformer | | | | | | Fused Separate Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA Red On/Green Off Lights | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA Red On/Green Off Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **Full Voltage Non-Reversing (FVNR) Starters With Fusible Switch Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | | | | | |
| 1 | 1 | 12 | SFA001XFTMA | 2330.00 | SFA001AFTMA | 2872.00 | SFA001CFTMA | 2872.00 | SFA001XFSMA | 2014.00 | SFA001AFSMA | 2556.00 | SFA001CFSMA | 2556.00 |
| | 2 | | SFA002XFTMA | | SFA002AFTMA | | SFA002CFTMA | | SFA002XFSMA | | SFA002AFSMA | | SFA002CFSMA | |
| | 3 | | SFA003XFTMA | | SFA003AFTMA | | SFA003CFTMA | | SFA003XFSMA | | SFA003AFSMA | | SFA003CFSMA | |
| | 5 | | SFA005XFTMA | | SFA005AFTMA | | SFA005CFTMA | | SFA005XFSMA | | SFA005AFSMA | | SFA005CFSMA | |
| | 7.5 | | SFA007XFTMA | | SFA007AFTMA | | SFA007CFTMA | | SFA007XFSMA | | SFA007AFSMA | | SFA007CFSMA | |
| | 10 | | SFA010XFTMA | | SFA010AFTMA | | SFA010CFTMA | | SFA010XFSMA | | SFA010AFSMA | | SFA010CFSMA | |
| 2 | 15 | 12 | SFA015XFTMA | 2750.00 | SFA015AFTMA | 3292.00 | SFA015CFTMA | 3292.00 | SFA015XFSMA | 2434.00 | SFA015AFSMA | 2976.00 | SFA015CFSMA | 2976.00 |
| | 25 | | SFA025XFTMA | | SFA025AFTMA | | SFA025CFTMA | | SFA025XFSMA | | SFA025AFSMA | | SFA025CFSMA | |
| 3 | 40 | 18 | SFA040XFTMA | 3960.00 | SFA040AFTMA | 4502.00 | SFA040CFTMA | 4502.00 | SFA040XFSMA | 3524.00 | SFA040AFSMA | 4066.00 | SFA040CFSMA | 4066.00 |
| | 50 | | SFA050XFTMA | | SFA050AFTMA | | SFA050CFTMA | | SFA050XFSMA | | SFA050AFSMA | | SFA050CFSMA | |
| 4 | 60 | 30 | SFA060XFTMA | 6344.00 | SFA060AFTMA | 6886.00 | SFA060CFTMA | 6886.00 | SFA060XFSMA | 5786.00 | SFA060AFSMA | 6328.00 | SFA060CFSMA | 6328.00 |
| | 75 | | SFA075XFTMA | | SFA075AFTMA | | SFA075CFTMA | | SFA075XFSMA | | SFA075AFSMA | | SFA075CFSMA | |
| | 100 | | SFA100XFTMA | | SFA100AFTMA | | SFA100CFTMA | | SFA100XFSMA | | SFA100AFSMA | | SFA100CFSMA | |
| **Full Voltage Non-Reversing (FVNR) Starters With Fusible Switch Disconnect and Solid State Overload Relay (Motor Logic™)** | | | | | | | | | | | | | | |
| 1 | 1 | 12 | SFA001XFTSS | 2526.00 | SFA001AFTSS | 3068.00 | SFA001CFTSS | 3068.00 | SFA001XFSSS | 2210.00 | SFA001AFSSS | 2752.00 | SFA001CFSSS | 2752.00 |
| | 2 | | SFA002XFTSS | | SFA002AFTSS | | SFA002CFTSS | | SFA002XFSSS | | SFA002AFSSS | | SFA002CFSSS | |
| | 3 | | SFA003XFTSS | | SFA003AFTSS | | SFA003CFTSS | | SFA003XFSSS | | SFA003AFSSS | | SFA003CFSSS | |
| | 5 | | SFA005XFTSS | | SFA005AFTSS | | SFA005CFTSS | | SFA005XFSSS | | SFA005AFSSS | | SFA005CFSSS | |
| | 7.5 | | SFA007XFTSS | | SFA007AFTSS | | SFA007CFTSS | | SFA007XFSSS | | SFA007AFSSS | | SFA007CFSSS | |
| | 10 | | SFA010XFTSS | | SFA010AFTSS | | SFA010CFTSS | | SFA010XFSSS | | SFA010AFSSS | | SFA010CFSSS | |
| 2 | 15 | 12 | SFA015XFTSS | 2946.00 | SFA015AFTSS | 3488.00 | SFA015CFTSS | 3488.00 | SFA015XFSSS | 2630.00 | SFA015AFSSS | 3172.00 | SFA015CFSSS | 3172.00 |
| | 25 | | SFA025XFTSS | | SFA025AFTSS | | SFA025CFTSS | | SFA025XFSSS | | SFA025AFSSS | | SFA025CFSSS | |
| 3 | 40 | 18 | SFA040XFTSS | 4236.00 | SFA040AFTSS | 4778.00 | SFA040CFTSS | 4778.00 | SFA040XFSSS | 3800.00 | SFA040AFSSS | 4342.00 | SFA040CFSSS | 4342.00 |
| | 50 | | SFA050XFTSS | | SFA050AFTSS | | SFA050CFTSS | | SFA050XFSSS | | SFA050AFSSS | | SFA050CFSSS | |
| 4 | 60 | 30 | SFA060XFTSS | 6620.00 | SFA060AFTSS | 7162.00 | SFA060CFTSS | 7162.00 | SFA060XFSSS | 6062.00 | SFA060AFSSS | 6604.00 | SFA060CFSSS | 6604.00 |
| | 75 | | SFA075XFTSS | | SFA075AFTSS | | SFA075CFTSS | | SFA075XFSSS | | SFA075AFSSS | | SFA075CFSSS | |
| | 100 | | SFA100XFTSS | | SFA100AFTSS | | SFA100CFTSS | | SFA100XFSSS | | SFA100AFSSS | | SFA100CFSSS | |

### Table 17.5: FVR Combination Starters with Fusible Switch Disconnects

| Ratings | | | Control Transformer | | | | Fused Separate Control | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Forward-Rev.-Stop PB, Forward/Reverse Lights | | No Pilot Devices | | Forward-Rev.-Stop PB, Forward/Reverse Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **Full Voltage Reversing (FVR) Starters With Fusible Switch Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | |
| 1 | 1 | 18 | SFC001XFTMA | 3322.00 | SFC001AFTMA | 3932.00 | SFC001XFSMA | 3006.00 | SFC001AFSMA | 3616.00 |
| | 2 | | SFC002XFTMA | | SFC002AFTMA | | SFC002XFSMA | | SFC002AFSMA | |
| | 3 | | SFC003XFTMA | | SFC003AFTMA | | SFC003XFSMA | | SFC003AFSMA | |
| | 5 | | SFC005XFTMA | | SFC005AFTMA | | SFC005XFSMA | | SFC005AFSMA | |
| | 7.5 | | SFC007XFTMA | | SFC007AFTMA | | SFC007XFSMA | | SFC007AFSMA | |
| | 10 | | SFC010XFTMA | | SFC010AFTMA | | SFC010XFSMA | | SFC010AFSMA | |
| 2 | 15 | 18 | SFC015XFTMA | 4460.00 | SFC015AFTMA | 5070.00 | SFC015XFSMA | 4144.00 | SFC015AFSMA | 4754.00 |
| | 25 | | SFC025XFTMA | | SFC025AFTMA | | SFC025XFSMA | | SFC025AFSMA | |
| 3 | 40 | 27 | SFC040XFTMA | 6328.00 | SFC040AFTMA | 6938.00 | SFC040XFSMA | 5892.00 | SFC040AFSMA | 6502.00 |
| | 50 | | SFC050XFTMA | | SFC050AFTMA | | SFC050XFSMA | | SFC050AFSMA | |
| 4 | 60 | 39 | SFC060XFTMA | 10358.00 | SFC060AFTMA | 10968.00 | SFC060XFSMA | 9800.00 | SFC060AFSMA | 10410.00 |
| | 75 | | SFC075XFTMA | | SFC075AFTMA | | SFC075XFSMA | | SFC075AFSMA | |
| | 100 | | SFC100XFTMA | | SFC100AFTMA | | SFC100XFSMA | | SFC100AFSMA | |
| **Full Voltage Reversing (FVR) Starters with Fusible Switch Disconnect and Solid State Overload Relay (Motor Logic)** | | | | | | | | | | |
| 1 | 1 | 18 | SFC001XFTSS | 3518.00 | SFC001AFTSS | 4128.00 | SFC001XFSSS | 3202.00 | SFC001AFSSS | 3812.00 |
| | 2 | | SFC002XFTSS | | SFC002AFTSS | | SFC002XFSSS | | SFC002AFSSS | |
| | 3 | | SFC003XFTSS | | SFC003AFTSS | | SFC003XFSSS | | SFC003AFSSS | |
| | 5 | | SFC005XFTSS | | SFC005AFTSS | | SFC005XFSSS | | SFC005AFSSS | |
| | 7.5 | | SFC007XFTSS | | SFC007AFTSS | | SFC007XFSSS | | SFC007AFSSS | |
| | 10 | | SFC010XFTSS | | SFC010AFTSS | | SFC010XFSSS | | SFC010AFSSS | |
| 2 | 15 | 18 | SFC015XFTSS | 4656.00 | SFC015AFTSS | 5266.00 | SFC015XFSSS | 4340.00 | SFC015AFSSS | 4950.00 |
| | 25 | | SFC025XFTSS | | SFC025AFTSS | | SFC025XFSSS | | SFC025AFSSS | |
| 3 | 40 | 27 | SFC040XFTSS | 6604.00 | SFC040AFTSS | 7214.00 | SFC040XFSSS | 6168.00 | SFC040AFSSS | 6778.00 |
| | 50 | | SFC050XFTSS | | SFC050AFTSS | | SFC050XFSSS | | SFC050AFSSS | |
| 4 | 60 | 39 | SFC060XFTSS | 10634.00 | SFC060AFTSS | 11244.00 | SFC060XFSSS | 10076.00 | SFC060AFSSS | 10686.00 |
| | 75 | | SFC075XFTSS | | SFC075AFTSS | | SFC075XFSSS | | SFC075AFSSS | |
| | 100 | | SFC100XFTSS | | SFC100AFTSS | | SFC100XFSSS | | SFC100AFSSS | |



© 2012 Schneider Electric
All Rights Reserved

## Compac™ 6 Combination Starters with Motor Circuit Protector Disconnects

NEMA-rated Compac 6, half-height FVNR combination starters use GJ frame Mag-Gard™ Motor Circuit Protectors.

Ratings: 480 V, NEMA 12, Type 1B-D wiring, 100,000 AIR. Units include 1 N.O./1 N.C. auxiliary contacts. Units with pilot devices use 22 mm type.

Units without pilot devices include a station plate with knockouts for four 22 mm devices. Thermal units are not included with melting alloy overloads.

**Table 17.6: Compac 6 Combination Starters with Motor Circuit Protector Disconnects**

| Ratings | | | Control Transformer | | | | | | Fused Separate Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA, Red On/Green Off Lights | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA, Red On/Green Off Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **Full Voltage Non-Reversing (FVNR) Starters With Motor Circuit Protector Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | | | | | |
| 1 | 1 | 6 | HBA001XFTMA | 2860.00 | HBA001AFTMA | 3402.00 | HBA001CFTMA | 3402.00 | HBA001XFSMA | 2544.00 | HBA001AFSMA | 3086.00 | HBA001CFSMA | 3086.00 |
| | 2 | | HBA002XFTMA | | HBA002AFTMA | | HBA002CFTMA | | HBA002XFSMA | | HBA002AFSMA | | HBA002CFSMA | |
| | 3 | | HBA003XFTMA | | HBA003AFTMA | | HBA003CFTMA | | HBA003XFSMA | | HBA003AFSMA | | HBA003CFSMA | |
| | 5 | | HBA005XFTMA | | HBA005AFTMA | | HBA005CFTMA | | HBA005XFSMA | | HBA005AFSMA | | HBA005CFSMA | |
| | 7.5 | | HBA007XFTMA | | HBA007AFTMA | | HBA007CFTMA | | HBA007XFSMA | | HBA007AFSMA | | HBA007CFSMA | |
| | 10 | | HBA010XFTMA | | HBA010AFTMA | | HBA010CFTMA | | HBA010XFSMA | | HBA010AFSMA | | HBA010CFSMA | |
| **Full Voltage Non-Reversing (FVNR) Starters With Motor Circuit Protector Disconnect and Solid State Overload Relay (Motor Logic™)** | | | | | | | | | | | | | | |
| 1 | 1 | 6 | HBA001XFTSS | 3056.00 | HBA001AFTSS | 3598.00 | HBA001CFTSS | 3598.00 | HBA001XFSSS | 2740.00 | HBA001AFSSS | 3282.00 | HBA001CFSSS | 3282.00 |
| | 2 | | HBA002XFTSS | | HBA002AFTSS | | HBA002CFTSS | | HBA002XFSSS | | HBA002AFSSS | | HBA002CFSSS | |
| | 3 | | HBA003XFTSS | | HBA003AFTSS | | HBA003CFTSS | | HBA003XFSSS | | HBA003AFSSS | | HBA003CFSSS | |
| | 5 | | HBA005XFTSS | | HBA005AFTSS | | HBA005CFTSS | | HBA005XFSSS | | HBA005AFSSS | | HBA005CFSSS | |
| | 7.5 | | HBA007XFTSS | | HBA007AFTSS | | HBA007CFTSS | | HBA007XFSSS | | HBA007AFSSS | | HBA007CFSSS | |
| | 10 | | HBA010XFTSS | | HBA010AFTSS | | HBA010CFTSS | | HBA010XFSSS | | HBA010AFSSS | | HBA010CFSSS | |

## Compac 6 Combination Starters with Fusible Switch Disconnects

NEMA-rated Compac 6, half-height FVNR combination starters listed below use fusible switches with Class J fuse clips (fuses not included).

Ratings: 480 V, NEMA 12, Type 1B-D wiring, 100,000 AIR. Units include 1 N.O./1 N.C. auxiliary contacts.

Units with pilot devices use 22 mm type. Units without pilot devices include a station plate with knockouts for four 22 mm devices. Thermal units are not included with melting alloy overloads.

**Table 17.7: Compac 6 Combination Starters with Fusible Switch Disconnects**

| Ratings | | | Control Transformer | | | | | | Fused Separate Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA, Red On/Green Off Lights | | No Pilot Devices | | Start-Stop PB, Red On/Green Off Lights | | HOA, Red On/Green Off Lights | |
| NEMA Size | Max. Hp | Space (IN) | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price | Catalog No. | $ Price |
| **Full Voltage Non-Reversing (FVNR) Starters with Fusible Switch Disconnect and Melting Alloy Overload Relay** | | | | | | | | | | | | | | |
| 1 | 1 | 6 | HFA001XFTMA | 2492.00 | HFA001AFTMA | 3034.00 | HFA001CFTMA | 3034.00 | HFA001XFSMA | 2176.00 | HFA001AFSMA | 2718.00 | HFA001CFSMA | 2718.00 |
| | 2 | | HFA002XFTMA | | HFA002AFTMA | | HFA002CFTMA | | HFA002XFSMA | | HFA002AFSMA | | HFA002CFSMA | |
| | 3 | | HFA003XFTMA | | HFA003AFTMA | | HFA003CFTMA | | HFA003XFSMA | | HFA003AFSMA | | HFA003CFSMA | |
| | 5 | | HFA005XFTMA | | HFA005AFTMA | | HFA005CFTMA | | HFA005XFSMA | | HFA005AFSMA | | HFA005CFSMA | |
| | 7.5 | | HFA007XFTMA | | HFA007AFTMA | | HFA007CFTMA | | HFA007XFSMA | | HFA007AFSMA | | HFA007CFSMA | |
| | 10 | | HFA010XFTMA | | HFA010AFTMA | | HFA010CFTMA | | HFA010XFSMA | | HFA010AFSMA | | HFA010CFSMA | |
| **Full Voltage Non-Reversing (FVNR) Starters With Fusible Switch Disconnect and Solid State Overload Relay (Motor Logic)** | | | | | | | | | | | | | | |
| 1 | 1 | 6 | HFA001XFTSS | 2688.00 | HFA001AFTSS | 3230.00 | HFA001CFTSS | 3230.00 | HFA001XFSSS | 2372.00 | HFA001AFSSS | 2914.00 | HFA001CFSSS | 2914.00 |
| | 2 | | HFA002XFTSS | | HFA002AFTSS | | HFA002CFTSS | | HFA002XFSSS | | HFA002AFSSS | | HFA002CFSSS | |
| | 3 | | HFA003XFTSS | | HFA003AFTSS | | HFA003CFTSS | | HFA003XFSSS | | HFA003AFSSS | | HFA003CFSSS | |
| | 5 | | HFA005XFTSS | | HFA005AFTSS | | HFA005CFTSS | | HFA005XFSSS | | HFA005AFSSS | | HFA005CFSSS | |
| | 7.5 | | HFA007XFTSS | | HFA007AFTSS | | HFA007CFTSS | | HFA007XFSSS | | HFA007AFSSS | | HFA007CFSSS | |
| | 10 | | HFA010XFTSS | | HFA010AFTSS | | HFA010CFTSS | | HFA010XFSSS | | HFA010AFSSS | | HFA010CFSSS | |

© 2012 Schneider Electric
All Rights Reserved

## Branch Feeder Units Catalog Numbering System

Units rated as follows:

- 480 V, 60 Hz, NEMA Type 12 Enclosure, Industrial Package
- Short Circuit rating: 100,000 AIR

**Table 17.8: Circuit Breaker Branch Feeder Units**

| First Position | Second Position | Third Position | Fourth Position | Fifth Position |
|---|---|---|---|---|
| 8998 | S | B | F | 015 |
| **Class** | **Type** | **Disconnect** | **Device** | **Feeder Amps** |
| 8998 | S- Standard Size<br>H- Compac™ 6 | B- Breaker (Thermal-Mag) | F- Feeder | 015 080<br>020 100<br>030 125<br>040 150<br>050 200<br>060 250<br>070 |
| **Amps** | **Breaker Frame** | **Space (IN)** | **Catalog No.** | **$ Price** |
| 15 | HL | 6 | HBF015 | **2300.00** |
| 20 | | | HBF020 | |
| 30 | | | HBF030 | |
| 40 | | | HBF040 | |
| 50 | | | HBF050 | |
| 60 | | | HBF060 | |
| 70 | | | HBF070 | **2650.00** |
| 80 | | | HBF080 | |
| 100 | | | HBF100 | |
| 125 | | | HBF125 | **4850.00** |
| 150 | | | HBF150 | |
| 200 | JL | | HBF200 | **4950.00** |
| 250 | | | HBF250 | **6400.00** |
| 15 | HL | 12 | SBF015 | **2200.00** |
| 20 | | | SBF020 | |
| 30 | | | SBF030 | |
| 40 | | | SBF040 | |
| 50 | | | SBF050 | |
| 60 | | | SBF060 | |
| 70 | | | SBF070 | **2550.00** |
| 80 | | | SBF080 | |
| 100 | | | SBF100 | |
| 125 | | | SBF125 | **4370.00** |
| 150 | | | SBF150 | |
| 200 | JL | 18 | SBF200 | **4800.00** |
| 250 | | | SBF250 | **5510.00** |

**Table 17.9: Fusible Branch Feeder Units**

| First Position | Second Position | Third Position | Fourth Position | Fifth Position |
|---|---|---|---|---|
| 8998 | S | F | F | 015 |
| **Class** | **Type** | **Disconnect** | **Device** | **Feeder Amps** |
| 8998 | S- Standard Size<br>H- Compac 6 | F- Fusible▲ | F- Feeder | 030<br>060<br>100<br>200 ■ |
| **Amps** | **Fuse Clips** | **Space (IN)** | **Catalog No.** | **$ Price** |
| 30 | Class J | 6 (Compac 6) | HFF030 | **1272.00** |
| 60 | | | HFF060 | |
| 100 | | | HFF100 | **1746.00** |
| 30 | Class R | 12 | SFF030 | **1160.00** |
| 60 | | | SFF060 | |
| 100 | | | SFF100 | **1592.00** |
| 200 | | 24 | SFF200 | **1960.00** |

▲ Class R except Compac 6, fuses not included.
■ Not available with Compac 6.

## Model 6 Blank Doors

These doors may be used to cover an unused space in the MCC. A blank door will be required when placing a new unit in an existing space that is larger than the new unit.

**Table 17.10: Model 6 Blank Doors**

| Catalog Number | Description | $ Price |
|---|---|---|
| 8998CP03 | 3 Inch High Blank Cover Plate | **58.00** |
| 8998CP06 | 6 Inch High Blank Door | **58.00** |
| 8998CP09 | 9 Inch High Blank Door | **70.00** |
| 8998CP12 | 12 Inch High Blank Door | **82.00** |
| 8998CP15 | 15 Inch High Blank Door | **96.00** |
| 8998CP18 | 18 Inch High Blank Door | **112.00** |
| 8998CP24 | 24 Inch High Blank Door | **140.00** |



© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 18

## TeSys™ IEC Contactors and Starters





**TeSys D Contactors** (p. 18-4)



New!

***TeSys F1700, F2100***

**TeSys F Contactors** (p. 18-5)



**GV7 Manual Motor Starters and Protectors** (p. 18-35)



**GV3P** (p.18-33)



**LUB•2** (p. 18-28)



**GV2P21** (p.18-33)


### Contactors

| | |
|---|---|
| TeSys D | **18-4** |
| TeSys D Reversing | **18-6** |
| TeSys F | **18-5** |
| TeSys D and F Accessories | **18-8** |
| TeSys K | **18-24** |
| TeSys K Accessories | **18-27** |

### Motor Starters and Protectors

| | |
|---|---|
| TeSys U | **18-28** |
| GV2, GV3, GV7 Manual Motor Protectors | **18-33** |
| Enclosed D-Line | **18-21** |
| GV Accessories | **18-34** |
| LS1D Fuse Block | **18-36** |

### Overload Relays

| | |
|---|---|
| TeSys D | **18-4** |
| TeSys F | **18-5** |
| TeSys D and F Accessories | **18-16** |
| TeSys K | **18-24** |
| TeSys K Accessories | **18-27** |
| TeSys T Motor Management System | **Section 16** |

### Soft Start Module ATS01 — **18-32**

### Replacement Parts

| | |
|---|---|
| TeSys D Coils | **18-17** |
| TeSys F Coils | **18-20** |
| TeSys F Contact Tips, etc. | **18-13** |

### Wiring Systems

| | |
|---|---|
| GV-Line Bus Bars | **18-37** |
| TeSys D Quickfit | **18-38** |
| AK5 | **18-39** |

### Dimensions

| | |
|---|---|
| Dimensions | **18-40** |


For more information on lighting, definite purpose (DP), and elevator ratings for TeSys D and TeSys F contactors, refer to catalog 8502CT9901.

For more information on machine safety applications using TeSys D and TeSys F contactors, refer to catalog MKTED208051EN-US.

See our website, www.schneider-electric.us, for UL 508A short circuit ratings (SCCR).



© 2012 Schneider Electric
All Rights Reserved

**Table 18.1: TeSys D Contactors—Interpretation of the Catalog Number**

| LC | ____ | D | ____ | ____ | ____ | ____ |
|---|---|---|---|---|---|---|
| **Full Voltage, Non-Reversing** | 1 | | | | | |
| **Full Voltage, Reversing** | 2 | | | | | |
| **TeSys D 3 Pole Contactors, 9–150 A** | | | | | | |
| **Contactor AC-3 Full Load Amperes (FLA)** | | | | | | |
| 9 A FLA | | 09 | | | | |
| 12 A FLA | | 12 | | | | |
| 18 A FLA | | 18 | | | | |
| 25 A FLA | | 25 | | | | |
| 32 A FLA | | 32 | | | | |
| 40 A FLA | | 40 | | | | |
| 50 A FLA | | 50 | | | | |
| 65 A FLA | | 65 | | | | |
| 80 A FLA | | 80 | | | | |
| 115 A FLA | | 115 | | | | |
| 150 A FLA | | 150 | | | | |
| **Everlink Power Connection (40–65 A only)** | | | A | | | |
| **No Everlink Power Connection (9–32 A, 80–150 A)** | | | Blank | | | |
| **Termination Options (choose one)** | | | | | | |
| Screw Termination | | | | | | Blank |
| Spring Terminations † | | | | | | 3 |
| Ring Tongue Terminations ● | | | | | | 6 |
| Slip-on Terminations (9–12 A only) | | | | | | 9 |

**Coil Voltage (choose one)**

| AC Coils (50/60 Hz) | | DC Coils (standard) | | DC Coils low consumption available for 9–38 A only | |
|---|---|---|---|---|---|
| 12 V | J7 | 12 V | JD | 5 V | AL |
| 21 V | Z7 | 21 V | ZD | 12 V | JL |
| 24 V | B7 | 24 V | BD | 21 V | ZL |
| 36 V | C7 | 36 V | CD | 24 V | BL |
| 42 V | D7 | 48 V | ED | 48 V | EL |
| 48 V | E7 | 60 | ND | 72 V | SL |
| 60 V | EE7 | 72 V | SD | 96 V | DL |
| 100 V | K7 | 110 V | FD | 110 V | FL |
| 110 V | F7 | 125 V | GD | 220 V | ML |
| 115 V | FE7 | 220 V | MD | 250 V | UL |
| 120 V | G7 | 250 V | UD | | |
| 127 V | FC7 | 440 V | RD | | |
| 200 V | L7 | | | | |
| 208 V | LE7 | | | | |
| 220 V | M7 | | | | |
| 230 V | P7 | | | | |
| 240 V | U7 | | | | |
| 277 V | W7 | | | | |
| 380 V | Q7 | | | | |
| 400 V | V7 | | | | |
| 415 V | N7 | | | | |
| 440 V | R7 | | | | |
| 480 V | T7 | | | | |
| 500 V | S7 | | | | |
| 575 V | SC7 | | | | |
| 600 V | X7 | | | | |
| 660 V | Y5 (50 Hz only) | | | | |

† For spring terminal versions of LC1D09–LC1D65A, add **3** to the catalog number prior to adding the voltage code (for example, LC1D12G7 becomes LC1D12**3**G7, and LC1D40AG7 becomes LC1D40A**3**G7. Note that 40–65 A spring terminals are only on the control terminations and not on power terminations). There is no charge for this modification.

● For ring tongue versions of LC1D09–LC1D65A and LC1DT20–LC1DT80A, add **6** to the catalog number prior to adding the voltage code (for example, LC1D09G7 becomes LC1D09**6**G7, and LC1D50AG7 becomes LC1D50A**6**G7). There is no charge for this modification.

Note: Use this table **only** to interpret current catalog numbers. Some combinations are not available.





© 2012 Schneider Electric
All Rights Reserved

**Table 18.2: TeSys F Contactors—Interpretation of the Catalog Number**

**LC** ____ **F** ____ ____ ____ ____

| | | | | |
|---|---|---|---|---|
| **Full Voltage, Non-Reversing** | 1 | | | |
| **Full Voltage, Reversing** | 2 | | | |
| **TeSys F 2, 3, and 4 Pole Contactors 115–800 A** | | | | |
| **Contactor AC-3 Full Load Amperes (FLA)** | | | | |
| 115 A FLA | | 115 | | |
| 150 A FLA | | 150 | | |
| 185 A FLA | | 185 | | |
| 225 A FLA | | 225 | | |
| 265 A FLA | | 265 | | |
| 330 A FLA | | 330 | | |
| 400 A FLA | | 400 | | |
| 500 A FLA | | 500 | | |
| 630 A FLA | | 630 | | |
| 780 A FLA | | 780 | | |
| 800 A FLA | | 800 | | |
| **Number of Poles** | | | | |
| 2 Poles (400 A, 500 A, and 630 A only) | | | 2 | |
| 3 Poles (all sizes) | | | Blank | |
| 4 Poles (all sizes except 800 A) | | | 4 | |
| **Termination Options—Purchase Lugs Separately** | | | | Blank |

**Coil Voltage** (choose one, noting the contactor size it can be used on)

| AC Coils | | For use on: |
|---|---|---|
| 24 V (50 Hz) | B5 | LC1F115–F225 |
| 24 V (60 Hz) | B6 | LC1F115–F225 |
| 24 V (40-400 Hz) | B7 | LC1F225–F400 |
| 42 V (50 Hz) | D5 | LC1F115–F225 |
| 48 V (50 Hz) | E5 | LC1F115–F225 |
| 48 V (60 Hz) | E6 | LC1F115–F225 |
| 48 V (40-400 Hz) | E7 | LC1F115–F630 |
| 110 V (50 Hz) | F5 | LC1F115–F225 |
| 110 V (60 Hz) | F6 | LC1F115–F225 |
| 110 V | F7 | LC1F1700, F2100 |
| 110 V (40-400 Hz) | F7 | LC1F115–F780 |
| 115 V (50 Hz) | FE5 | LC1F115–F225 |
| 115 V (40-400 Hz) | FE7 | LC1F115–F780 |
| 120 V (60 Hz) | G6 | LC1F115–F225 |
| 120 V | G7 | LC1F1700, F2100 |
| 120 V (40-400 Hz) | G7 | LC1F115–F400 |
| 120 V (40-400 Hz) | F7 | LC1F500–F780 |
| 127 V (60 Hz) | G6 | LC1F115–F225 |
| 127 V (40-400 Hz) | G7 | LC1F115–F780 |
| 200/208 V (60 Hz) | L6 | LC1F115–F225 |
| 200/208 V (40-400 Hz) | L7 | LC1F265–F780 |
| 208 V (40-400 Hz) | L7 | LC1F115–F225 |
| 220 V (50 Hz) | M5 | LC1F115–F225 |
| 220 V (60 Hz) | M6 | LC1F115–F225 |
| 220 V (40-400 Hz) | M7 | LC1F115–F780 |
| 220 V | M7 | LC1F1700, F2100 |
| 230 V (50 Hz) | P5 | LC1F115–F225 |
| 230 V (40-400 Hz) | P7 | LC1F115–F800 |

| AC Coils | | For use on: |
|---|---|---|
| 230 V | P7 | LC1F1700, F2100 |
| 240 V (50 Hz) | U5 | LC1F115–F225 |
| 240 V (60 Hz) | U6 | LC1F115–F225 |
| 240 V (40-400 Hz) | U7 | LC1F115–F780 |
| 240 V | U7 | LC1F1700, F2100 |
| 277 V (50 Hz) | W5 | LC1F115–F225 |
| 277 V (40-400 Hz) | W7 | LC1F115–F780 |
| 277 V | W7 | LC1F1700, F2100 |
| 380 V (50 Hz) | Q5 | LC1F115–F225 |
| 380 V (60 Hz) | Q6 | LC1F115–F225 |
| 380 V (40-400 Hz) | Q7 | LC1F115–F780 |
| 380 V | Q7 | LC1F1700, F2100 |
| 400 V (50 Hz) | V5 | LC1F115–F225 |
| 400 V (40-400 Hz) | V7 | LC1F115–F800 |
| 400 V | V7 | LC1F1700, F2100 |
| 415 V (50 Hz) | N5 | LC1F115–F225 |
| 415 V (40-400 Hz) | N7 | LC1F115–F780 |
| 415 V | N7 | LC1F1700, F2100 |
| 440 V (50 Hz) | R5 | LC1F115–F225 |
| 440 V (40-400 Hz) | R7 | LC1F115–F780 |
| 440 V | R7 | LC1F1700, F2100 |
| 460/480 V (60 Hz) | Q6 | LC1F115–F225 |
| 480 V (40-400 Hz) | N7 | LC1F780 |
| 500 V (50 Hz) | S5 | LC1F115–F225 |
| 500 V (40-400 Hz) | S7 | LC1F115–F780 |
| 500 V | S7 | LC1F1700, F2100 |
| 600 V (40-400 Hz) | X7 | LC1F500–F630 |
| 660 V (60 Hz) | Y6 | LC1F115–F225 |

| DC Coils | | For use on: |
|---|---|---|
| 24 V | BD | LC1F115–F400 |
| 48 V | ED | LC1F115–F630 |
| 110 V | FD | LC1F115–F780 |
| 110 V | FD | LC1F1700, F2100 |
| 110 V | FW | LC1F800 |
| 125 V | GD | LC1F115–F780 |
| 125 V | GD | LC1F1700, F2100 |
| 220 V | MD | LC1F265–F780 |
| 250 V | UD | LC1F1700, F2100 |
| 220/240 V | MW | LC1F800 |
| 250 V | UD | LC1F115–F780 |
| 380/400 V | QW | LC1F800 |
| 440 V | RD | LC1F1700, F2100 |
| 440 V | RD | LC1F115–F780 |



© 2012 Schneider Electric
All Rights Reserved


LC1D09


LC1D093


LC1D40A


LC1D115


LRD22


LRD3

E164862
CCN NLDX

LR43364
Class 3211 04

## Table 18.3: TeSys D Contactors—3 or 4 Pole, Screw Terminal Connections

| Maximum Horsepower Ratings | | | | | | Maximum Current Utilization Categories | | No. of Poles | | Instantaneous Auxiliary Contacts | | Catalog Number ▲ | $ Price | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-Phase | | Three-Phase | | | | Inductive AC3 (A) | Resistive AC1 (A) | N.O. | N.C. | N.O. | N.C. | | AC Coils | DC Coils |
| 115 V hp | 230 V hp | 200 V hp | 230 V hp | 460 V hp | 575 V hp | | | | | | | | | |
| 0.5 | 1 | 2 | 2 | 5 | 7.5 | 9 | 20 | 3 | 0 | 1 | 1 | LC1D09 ♦★▼ | 94.00 | 119.00 |
| — | — | — | — | — | — | — | | 4 | | | | LC1DT20 ♦ | 94.00 | 119.00 |
| — | — | — | — | — | — | — | | 2 | 2 | | | LC1D098 ♦ | 94.00 | 119.00 |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | 25 | 3 | 0 | 1 | 1 | LC1D12 ♦★▼ | 119.00 | 149.00 |
| — | — | — | — | — | — | — | | 4 | | | | LC1DT25 ♦ | 119.00 | 149.00 |
| — | — | — | — | — | — | — | | 2 | 2 | | | LC1D128 ♦ | 119.00 | 149.00 |
| 1 | 3 | 5 | 5 | 10 | 15 | 18 | 32 | 3 | 0 | 1 | 1 | LC1D18 ♦★ | 136.00 | 160.00 |
| — | — | — | — | — | — | — | | 4 | | | | LC1DT32 ♦ | 149.00 | 183.00 |
| — | — | — | — | — | — | — | | 2 | 2 | | | LC1D188 ♦ | 149.00 | 183.00 |
| 2 | 3 | 7.5 | 7.5 | 15 | 20 | 25 | 40 | 3 | 0 | 1 | 1 | LC1D25 ♦★ | 151.00 | 181.00 |
| — | — | — | — | — | — | — | | 4 | | | | LC1DT40 ♦ | 193.00 | 240.00 |
| — | — | — | — | — | — | — | | 2 | 2 | | | LC1D258 ♦ | 193.00 | 240.00 |
| 2 | 5 | 10 | 10 | 20 | 30 | 32 | 50 | 3 | 0 | 1 | 1 | LC1D32 ♦★ | 172.00 | 213.00 |
| 3 | 5 | 10 | 10 | 30 | 30 | 40 | 60 | 3 | 0 | 1 | 1 | LC1D40A ♦ | 218.00 | 275.00 |
| — | — | — | — | — | — | — | | 4 | | 0 | 0 | LC1DT60A♦ | 296.00 | 353.00 |
| 3 | 7.5 | 15 | 15 | 40 | 40 | 50 | 80 | 3 | 0 | 1 | 1 | LC1D50A ♦ | 234.00 | 291.00 |
| 5 | 10 | 20 | 20 | 40 | 50 | 65 | | 3 | | | | LC1D65A ♦ | 322.00 | 379.00 |
| — | — | — | — | — | — | — | | 4 | 0 | 0 | 0 | LC1DT80A♦ | 446.00 | 503.00 |
| 7.5 | 15 | 25 | 30 | 60 | 60 | 80 | 125 | 3 | 0 | 1 | 1 | LC1D80 | 363.00 | 420.00 |
| — | — | — | — | — | — | — | | 4 | | 0 | 0 | LC1D80004 ■ | 489.00 | 524.00 |
| — | — | — | — | — | — | — | | 2 | 2 | | | LC1D80008 ■ | 489.00 | 524.00 |
| — | — | 30 | 40 | 75 | 100 | 115 | 200 | 3 | 0 | 1 | 1 | LC1D115 | 479.00 | 479.00 |
| — | — | 40 | 50 | 100 | 125 | 150 | | 3 | | | | LC1D150 | 696.00 | 696.00 |
| — | — | — | — | — | — | — | | 4 | | 0 | 0 | LC1D115004 | 630.00 | 630.00 |

▲ Complete the catalog number by adding the coil voltage code from Table 18.11 on page 18-6 (for example, LC1D09G7).
■ For DC version of these devices, replace the **C** with a **P** (for example, **LC**1D80004•• becomes **LP**1D80004••). This applies only to 80 A, 4-pole devices.
♦ For ring tongue versions of LC1D09–LC1D65A and LC1DT20–LC1DT80A, add **6** to the catalog number prior to adding the voltage code (for example, LC1D09G7 becomes LC1D09**6**G7 and LC1D50AG7 becomes LC1D50A**6**G7). There is no charge for this modification.
★ For spring terminals versions of LC1D09–LC1D65A, add **3** to the catalog number prior to adding the voltage code (for example, LC1D12G7 becomes LC1D12**3**G7 and LC1D40AG7 becomes LC1D40A**3**G7. Note that 40–65 A spring terminals are only on the control terminations and not on power terminations). Ring tongue terminations have a 10% adder to list price.
▼ For slip-on connector versions of LC1D09 and LC1D12 only, add **9** to the catalog number prior to adding the voltage code (for example, LC1D09G7 becomes LC1D09**9**G7). There is no charge for this modification.

## Table 18.4: TeSys D Overload Relays—Ambient Compensated, Bimetallic, Direct Mounting

| Current Setting Range (A) | For Direct Mounting to LC1... | Class 10 with Single-Phase Sensitivity | Class 10 without Single-Phase Sensitivity | Class 20 with Single-Phase Sensitivity | Class 20 without Single-Phase Sensitivity | $ Price |
|---|---|---|---|---|---|---|
| 0.10–0.16 | D09–D32 | LRD01 | LR3D01 | — | — | 60.00 |
| 0.16–0.25 | | LRD02 | LR3D02 | — | — | |
| 0.25–0.40 | | LRD03 | LR3D03 | — | — | |
| 0.40–0.63 | | LRD04 | LR3D04 | LRD04L | LR3D04L | |
| 0.63–1 | | LRD05 | LR3D05 | LRD05L | LR3D05L | |
| 1–1.6 | | LRD06 | LR3D06 | LRD06L | LR3D06L | |
| 1.6–2.5 | | LRD07 | LR3D07 | LRD07L | LR3D07L | |
| 2.5–4 | | LRD08 | LR3D08 | LRD08L | LRD08L | |
| 4–6 | | LRD10 | LR3D10 | LRD10L | LRD10L | |
| 5.5–8 | D09–D32 | LRD12 | LR3D12 | LRD12L | LR3D12L | 62.00 |
| 7–10 | D09–D32 | LRD14 | LR3D14 | LRD14L | LR3D14L | |
| 9–13 | D12–D32 | LRD16 | LR3D16 | LRD16L | LR3D21L | |
| 12–18 | D18–D32 | LRD21 | LR3D21 | LRD21L | LR3D21L | |
| 17–24 | D25–D32 | — | — | LRD22L | LR3D22L | |
| 23–32 | D25–D32 | LRD32 | LR3D32 | LRD32L | LR3D32L | 73.00 |
| 30–38 | D32 | LRD35 | LR3D35 | — | — | |
| 9-13 | D40A-D65A △ | LRD313 | LR3D313 | LRD313L | — | 107.00 |
| 12-18 | D40A-D65A △ | LRD318 | LR3D318 | LRD318L | — | |
| 16-25 | D40A-D65A △ | LRD325 | LR3D325 | LRD325L | — | |
| 23-32 | D40A-D65A △ | LRD332 | LR3D332 | LRD332L | — | |
| 30-40 | D40A-D65A △ | LRD340 | LR3D340 | LRD340L | — | |
| 37-50 | D40A-D65A △ | LRD350 | LR3D350 | LRD350L | — | |
| 48-65 | D40A-D65A △ | LRD365 | LR3D365 | LRD365L | — | |
| 17-25 | D40-D80 □ | LRD3322 | LR3D3322 | LR2D3522 | LR3D3522 | 107.00 |
| 23-32 | D40-D80 □ | LRD3353 | LR3D3353 | LR2D3553 | LR3D3553 | |
| 30-40 | D40-D80 □ | LRD3355 | LR3D3355 | LR2D3555 | LR3D3555 | |
| 37-50 | D50-D80 □ | LRD3357 | LR3D3357 | LR2D3557 | LR3D3557 | |
| 48-65 | D50-D80 □ | LRD3359 | LR3D3359 | LR2D3559 | LR3D3559 | |
| 55–70 | D65–D80 | LRD3361 | LR3D3361 | LR2D3561 | LR3D3561 | 127.00 |
| 63–80 | D65–D80 | LRD3363 | LR3D3363 | LR2D3563 | LR3D3563 | |
| 80–104 | D80 | LRD3365 | — | — | — | |
| 80–104 | D115–D150 | LRD4365 | — | — | — | 362.00 |
| 95–120 | D115–D150 | LRD4367 | — | — | — | |
| 110–140 | D150 | LRD4369 | — | — | — | |

△ Overload relays with Everlink termination—direct mount to D40A to D65A only.
□ Direct mount to old D2 style D40 to D65 (no Everlink terminations) and to D80 only.

***NOTE:*** *For Stand Alone Adapter order LAD7B205.*

***NOTE:*** *To add ring tongue terminations, add '6' to end of part number. Only devices 0.4 A–32 A.*

TeSys D contactor accessories . . . . . pages 18-8 to 18-11
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . page 18-19
Dimensions . . . . . pages 18-40 to 18-46
TeSys T . . . . . pages 16-91



© 2012 Schneider Electric
All Rights Reserved

### Table 18.5: TeSys D Overload Relays—Solid State

| Current Setting Range (A) | For Direct Mounting Beneath Contactor LC1 | Class 10 | Class 20 | $ Price |
|---|---|---|---|---|
| 60–100 | D115–D150 | LR9D5367 | LR9D5567 | **298.00** |
| 90–150 | D115–D150 | LR9D5369 | LR9D5569 | **298.00** |

### Table 18.6: TeSys F Contactors—2, 3, and 4 Pole



LC1F115



LC1F1700, F2100

| Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 | | | | Maximum Current | | Number of Poles | Catalog Number ▲ | $ Price |
|---|---|---|---|---|---|---|---|---|
| 200 V / 208 V | 220 V / 240 V | 460 V / 480 V | 575 V / 600 V | AC-3 | AC-1 | | Panel Mounting with Screws | |
| HP | HP | HP | HP | A | A | | | |
| 30 | 40 | 75 | 100 | 115 | 200 | 3 | LC1F115 | **479.00** |
| | | | | | | 4 | LC1F1154 | **630.00** |
| 40 | 50 | 100 | 125 | 150 | 250 | 3 | LC1F150 | **696.00** |
| | | | | | | 4 | LC1F1504 | **825.00** |
| 50 | 60 | 125 | 150 | 185 | 275 | 3 | LC1F185 | **938.00** |
| | | | | | | 4 | LC1F1854 | **1439.00** |
| Current Rated | | | | 225 | 315 | 3 | LC1F225 | **1059.00** |
| | | | | | | 4 | LC1F2254 | **1935.00** |
| 60 | 75 | 150 | 175 | 265 | 350 | 3 | LC1F265 | **1179.00** |
| | | | | | | 4 | LC1F2654 | **1646.00** |
| 75 | 100 | 200 | 250 | 330 | 400 | 3 | LC1F330 | **1621.00** |
| | | | | | | 4 | LC1F3304 | **1846.00** |
| 100 | 125 | 250 | 300 | 400 | 500 | 2 | LC1F4002 | **1521.00** |
| | | | | | | 3 | LC1F400 | **1874.00** |
| | | | | | | 4 | LC1F4004 | **2133.00** |
| 150 | 200 | 400 | 500 | 500 | 700 | 2 | LC1F5002 | **4324.00** |
| | | | | | | 3 | LC1F500 | **4970.00** |
| | | | | | | 4 | LC1F5004 | **5617.00** |
| 250 | 300 | 600 | 800 | 630 | 1000 | 2 | LC1F6302 | **5917.00** |
| | | | | | | 3 | LC1F630 | **6474.00** |
| | | | | | | 4 | LC1F6304 | **7582.00** |
| Current Rated | | | | 780 | 1600 | 3 | LC1F780 | **7788.00** |
| | | | | | | 4 | LC1F7804 | **9940.00** |
| — | 450 | 800 | 900 | 800 | 1000 | 3 | LC1F800 | **6676.00** |
| Current Rated | | | | | 1700 | 3 | LC1F1700 | **10,000.00** |
| | | | | | 2100 | 3 | LC1F2100 | **12,050.00** |

▲ Complete the part number by adding the coil voltage code from Table 18.8 (for example, LC1F115G7). All contactors except F780 include 1 N.O. coil interlock contact.

### Table 18.7: TeSys F 3-Phase Overload Relays—Solid State, Separate Mounting ■

| Current Setting Range A | For Direct Mounting to Contactor LC1●●●● | Class 10 Trip ♦ Catalog Number | Class 20 ♦ Catalog Number | $ Price |
|---|---|---|---|---|
| 30–50 | F115–F185 | LR9F5357 | LR9F5557 | **298.00** |
| 48–80 | F115–F185 | LR9F5363 | LR9F5563 | **298.00** |
| 60–100 | F115–F185 | LR9F5367 | LR9F5567 | **298.00** |
| 90–150 | F115–F185 | LR9F5369 | LR9F5569 | **298.00** |
| 132–220 | F185 ★ –F265 | LR9F5371 | LR9F5571 | **298.00** |
| 200–330 | F265–F500 | LR9F7375■ | LR9F7575■ | **333.00** |
| 300–500 | F265–F500 | LR9F7379■ | LR9F7579■ | **737.00** |
| 380–630 | F400–F630 | LR9F7381■ | LR9F7581■ | **905.00** |

■ When mounting overload relays LR9F5●57–LR9F5●71 directly beneath the contactor, supporting the relays with a mounting plate is recommended. With overload relays LR9F7●75–LR9F7●81, use of a support mounting plate is mandatory.
♦ IEC standard 60947-4 specifies the following trip times when the overload relay senses 7.2 times the setting current: Class 10—between 4 and 10 seconds; Class 20—between 6 and 20 seconds.
★ Interconnection kit LA7F407 is required to mount an LR9F●71 to an LC1F185.

### Table 18.8: Coil Voltage Codes ◊

| Contactor | Hz | 24 V | 48 V | 110 V | 120 V | 208 V | 220 V | 240 V | 440 V | 480 V | 500 V | 600 V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | | | | | | | | | | | | |
| D09–D150 | 50/60 | B7 | E7 | F7 | G7 | LE7 | M7 | U7 | — | T7 ▼ | — | X7 ▼△ |
| LC1D80–LC1D150 only | 60 | B6 | E6 | F6 | G6 | L6 | M6 | U6 | — | T6 | — | X6 △ |
| | 50 | B5 | E5 | F5 | — | — | M5 ▼ | U5 | — | — | — | — |
| F115, F150, and F185 | 50 | B5 | E5 | F5 | — | — | M5 | U5 | — | — | — | — |
| | 60 | B6 | E6 | F6 | G6 | L6 | M6 | U6 | — | Q5 | — | S7 |
| F265, and F330 | 40–400 | B7 | E7 | F7 | G7 | L7 | M7 | U7 | — | S7☆ | — | X7 |
| F400— F780 | 40–400 | — | E7 | F7 | G7 | L7 | M7 | U7 | — | N7 | — | X7 □ |
| F1700— F2100 | 40–400 | — | — | F7 | G7 | — | M7 | U7 | R7 | — | S7 | — |

| Contactor | Hz | 24 V | 48 V | 110 V | 125 V | 220 V | 250 V | 440 V |
|---|---|---|---|---|---|---|---|---|
| DC ▽ | | | | | | | | |
| D09-D32, DT20-D258 Low Consumption | — | BL | EL | FL | — | ML | UL | — |
| D09–D150 | — | BD | ED | FD | GD | MD | UD | RD |
| F115-F330 | — | BD | ED | FD | GD | MD | UD | RD |
| F400–F780 | — | — | ED | FD | GD | MD | UD | RD |
| F1700— F2100 | — | — | — | FD | GD | MD | UD | RD |

▼ Not available for LC1D80.
△ Not available for LC1D115 or LC1D150.
□ Not available for LC1F780. The 600 V coils for LC1F400–LC1F630 do not include an auxiliary contact for holding circuits.
◊ For additional voltage codes refer to the IEC Contactor and Starter Catalog **8502CT9901**.
☆ For use with F265–F330 only.
▽ DC coils 3-pole contactors are fitted with built-in surge suppression as standard.

### Table 18.9: Coil Voltage Codes for AC and DC Voltages for F800 (includes built-in surge suppressor)

| Vac/Vdc | 110 | 120 | 127 | 220 | 240 | 380 | 415 | 440 |
|---|---|---|---|---|---|---|---|---|
| 50/60 HZ | FW | FW | FW | MW | MW | QW | QW | QW |

TeSys F contactor accessories . . . . . page 18-11
TeSys F overload relay accessories . . . . . page 18-16
TeSys F replacement coils and parts . . . . . pages 18-13, 18-18, 18-20
Dimensions . . . . . pages 18-42 to 18-49

E164862
CCN NLDX

LR43364
Class 3211 04

© 2012 Schneider Electric
All Rights Reserved

Each 3-pole device is prewired with line and load side power wiring for reversing applications.
Each 4-pole device is prewired with load side power wiring.



LC2D09

**Table 18.10: 3-Pole and 4-Pole Mechanically Interlocked Contactors**

| Maximum Horsepower Ratings | | | | | | Maximum Current | | No. of N.O. Power Poles | Built In Auxiliary Contacts (per contactor) | | Catalog Number ▲■ | $ Price | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single Phase | | Three Phase | | | | Inductive AC3 (A) | Resistive AC1 (A) | | N.O. | N.C. | | AC Control | DC Control |
| 115 V hp | 230 V hp | 200 V hp | 230 V hp | 460 V hp | 575 V hp | | | | | | | | |
| 0.5 | 1 | 2 | 2 | 5 | 7.5 | 9 | 20 | 3 | 1 | 1 | LC2D09♦ | **234.00** | **317.00** |
| — | — | — | — | — | — | — | | 4 | 1 | 1 | LC2DT20 | **234.00** | **317.00** |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | 25 | 3 | 1 | 1 | LC2D12♦ | **317.00** | **368.00** |
| — | — | — | — | — | — | — | | 4 | 1 | 1 | LC2DT25 | **317.00** | **368.00** |
| 1 | 3 | 5 | 5 | 10 | 15 | 18 | 35 | 3 | 1 | 1 | LC2D18♦ | **344.00** | **400.00** |
| — | — | — | — | — | — | — | 32 | 4 | 1 | 1 | LC2DT32 | **419.00** | **443.00** |
| 2 | 3 | 7.5 | 7.5 | 15 | 20 | 25 | 40 | 3 | 1 | 1 | LC2D25♦ | **374.00** | **436.00** |
| — | — | — | — | — | — | — | | 4 | 1 | 1 | LC2DT40 | **456.00** | **477.00** |
| 2 | 5 | 10 | 10 | 20 | 30 | 32 | 50 | 3 | 1 | 1 | LC2D32♦ | **415.00** | **503.00** |
| 3 | 5 | 10 | 10 | 30 | 30 | 40 | 60 | 3 | 1 | 1 | LC2D40A | **565.00** | **650.00** |
| 3 | 7.5 | 15 | 15 | 40 | 40 | 50 | 70 | 3 | 1 | 1 | LC2D50A | **596.00** | **680.00** |
| 5 | 10 | 20 | 20 | 50 | 50 | 65 | 80 | 3 | 1 | 1 | LC2D65A | **778.00** | **857.00** |
| 7.5 | 15 | 30 | 30 | 60 | 60 | 80 | 125 | 3 | 1 | 1 | ★ | | — |
| — | — | — | — | — | — | — | | 4 | — | — | ★ | | — |
| — | — | 30 | 40 | 75 | 100 | 115 | 200 | 3 | 1 | 1 | LC2D115 ▼ | **1165.00** | **1165.00** |
| — | — | — | — | — | — | — | | 4 | — | — | LC2D115004 ▼ | **1391.00** | **1391.00** |
| — | — | 40 | 50 | 100 | 125 | 150 | 200 | 3 | 1 | 1 | LC2D150▼ | **1598.00** | **1598.00** |

▲ Use voltage codes from Table 18.11 to complete the catalog number (for example, LC2D09G7).
■ Includes mechanical interlock without electrical contacts. Installer to complete wiring for electronically interlocking contactor operating coils by using a N.C. auxiliary contact integrated in the contactor or optional LADN or LAD8N auxiliary contact block.
♦ For LC2D09–LC2D32, electrical interlock can be included by adding a **V** to the end of the catalog number (for example LC2DO9B7**V**). List price adder: $5.00.
★ For these items, order two non-reversing contactors and one mechanical interlock separately. See page 18-4 and 18-14 for selection.
▼ Includes mechanical interlock (LA9D11502) with prewired electrical contacts for interlocking contactor operating coils.

**Table 18.11: Coil Voltage Codes ☆**

| Contactor | Hz | 24 V | 48 V | 110 V | 120 V | 125 V | 208 V | 220 V | 240 V | 250 V | 440 V | 480 V | 600 V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AC** | | | | | | | | | | | | | |
| D09–D150 | 50/60 | B7 | E7 | F7 | G7 | — | LE7 | M7 | U7 | — | — | T7 △ | X7 △ |
| LC1D80–LC1D150 | 50 | B5 | E5 | F5 | — | — | — | M5 △ | U5 | — | — | — | — |
| | 60 | B6 | E6 | F6 | G6 | — | L6 | M6 | U6 | — | — | T6 | X6 □△ |
| F115, F150, F185 | 50 Hz | B5 | E5 | F5 | — | — | — | M5 | U5 | — | — | — | — |
| | 60 Hz | B6 | E6 | F6 | G6 | — | L6 | M6 | U6 | — | — | Q5 | SC |
| F265, F330 | 40–400 Hz | B7 | E7 | F7 | G7 | — | L7 | M7 | U7 | — | — | S7 ▽ | X7 |
| F400–F780 | 40–400 Hz | — | E7 | F7 | F7 | — | L7 | M7 | U7 | — | — | N7 | X7 ◊ |
| **DC** | | | | | | | | | | | | | |
| D09-D32, DT20-D258 Low Consumption | — | BL | EL | FL | — | — | — | ML | — | UL | — | — | — |
| D09–D150 | — | BD | ED | FD | — | GD | — | MD | — | UD | RD | — | — |
| F115–F330 | — | BD | ED | FD | — | GD | — | MD | — | UD | RD | — | — |
| F400–F780 | — | — | ED | FD | — | GD | — | MD | — | UD | RD | — | — |

△ Not available for LC1D80–LC1D150.
□ Not available for LC1D115 or LC1D150.
◊ Not available for LC1F780. The 600 V coils for LC1F400–LC1F630 do not include an auxiliary contact for holding circuits.
☆ For additional voltage codes refer to the IEC Contactor and Starter catalog, **8502CT9901**.
▽ For use with F265–F330 only.

**Table 18.12: Coil Voltage Codes for AC and DC Coil Voltages for F800 (includes built-in surge suppressor)**

| Vac/Vdc | 24 | 48 | 110 | 120 | 127 | 208 | 220 | 240 | 277 | 380 | 415 | 440 | 480 | 575 | 600 | 660 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50/60 Hz | — | — | FW | FW | FW | — | MW | MW | — | QW | QW | QW | — | — | — | — |

TeSys D contactor accessories . . . . . pages 18-8 to 18-11
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-17 to 18-19
Dimensions . . . . . pages 18-40 to 18-46

E164862
CCN NLDX

LR43364
Class 3211 04





© 2012 Schneider Electric
All Rights Reserved



LC1F265

## How to Order:

Components are available for customer assembly of TeSys F reversing contactors. For example, the following components must be ordered to build a reversing contactor, 75 hp @ 460 V, with a 120 V / 60 Hz coil:

**Table 18.13: Example of Components**

| Description | Quantity | Catalog Number |
|---|---|---|
| Contactors | 2 | LC1F115G6 |
| Lugs (page 18-12) | 6 | DZ2FF1 |
| Auxiliary contacts | 2 | LADN11 |
| Power connections | 1 | LA9FF976 |
| Mechanical interlock | 1 | LA9FF970 |

**Table 18.14: 3-Pole Contactors**

| Maximum Horsepower Ratings | | | | Maximum Current | | Holding Circuit Contact Built Into Coil | | Catalog Number▲ | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| Three Phase | | | | Inductive AC3 (A) | Resistive AC1 (A) | N.O. | N.C. | | |
| 200 V hp | 230 V hp | 460 V hp | 575 V hp | | | | | | |
| 30 | 40 | 75 | 100 | 115 | 200 | 1 | 0 | LC1F115 | **479.00** |
| 40 | 50 | 100 | 125 | 150 | 250 | 1 | 0 | LC1F150 | **696.00** |
| 50 | 60 | 125 | 150 | 185 | 275 | 1 | 0 | LC1F185 | **938.00** |
| 60 | 75 | 150 | 200 | 265 | 350 | 1 | 0 | LC1F265 | **1179.00** |
| 75 | 100 | 200 | 250 | 330 | 400 | 1 | 0 | LC1F330 | **1621.00** |
| 100 | 125 | 250 | 300 | 400 | 500 | 1 | 0 | LC1F400 | **1874.00** |
| 150 | 200 | 400 | 500 | 500 | 700 | 1 | 0 | LC1F500 | **4970.00** |
| 250 | 300 | 600 | 800 | 630 | 1000 | 1 | 0 | LC1F630 | **6872.00** |
| Current rated | | | | 780 | 1600 | 0 | 0 | LC1F780 | **7788.00** |
| — | 450 | 800 | 900 | 800 | 1000 | 0 | 0 | LC1F800 | **6676.00** |

▲ Use coil voltage codes from the Voltage Codes table on page 18-6 to complete the contactor catalog number.

**Table 18.15: Auxiliary Contact (Electrical Interlocking)**—2 must be purchased

| For use with | Number of Contacts | Maximum Number of Blocks Per Contactor | Contact Arrangement | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| LC1F to be ordered separately | 1 | 1 | 1 | — | LADN10 | **13.10** |
| | | | — | 1 | LADN01 | **13.10** |
| | 2 | 2 | 1 | 1 | LADN11 | **20.70** |
| | | | 2 | - | LADN20 | **20.70** |
| | 4 | 2 | 2 | 2 | LADN22 | **41.50** |
| | | | 1 | 3 | LADN13 | **41.50** |
| | | | 4 | — | LADN40 | **41.50** |
| | | | — | 4 | LADN04 | **41.50** |
| | | | 3 | 1 | LADN31 | **41.50** |
| | | | 2 | 2 ■ | LADC22 | **41.50** |

■ including 1 N.O. + 1 N.C. make-before-break

**Table 18.16: Accessories—For the Assembly of 3-Pole Reversing Contactors (Horizontal Mounting)**

| With 2 Identical Contactors ♦ | Set of Power Connections Catalog Number | $ Price | Horizontal Mounting Mechanical Interlock Kit Catalog Number | $ Price |
|---|---|---|---|---|
| LC1F115 | LA9FF976 | **106.00** | LA9FF970 | **53.00** |
| LC1F150 | LA9F15076 | **96.00** | LA9FF970 | **53.00** |
| LC1F185 | LA9FG976 | **113.00** | LA9FG970 | **53.00** |
| LC1F265 | LA9FH976 | **151.00** | LA9FJ970 | **76.00** |
| LC1F330 | LA9FJ976 | **225.00** | LA9FJ970 | **76.00** |
| LC1F400 | LA9FJ976 | **198.00** | LA9FJ970 | **76.00** |
| LC1F500 | LA9FK976 | **306.00** | LA9FJ970 | **76.00** |
| LC1F630, F800 | LA9FL976 | **568.00** | LA9FL970 | **76.00** |

♦ For two contactors of different size, refer to pages 18-15.

TeSys F contactor accessories . . . . . page 18-11
TeSys F overload relay accessories . . . . . page 18-16
TeSys F replacement coils and parts . . . . . pages 18-13, 18-18, 18-20
Dimensions . . . . . page 18-42

**Table 18.17: Definite Purpose Ratings, 3-Phase, Breaking All Lines (Hermetic Refrigeration Compressor)**

| Device | FLA | LRA | | |
|---|---|---|---|---|
| | | 240V | 480V | 600V |
| LC1D09 (AC coil only) | 9 | 54 | 45 | 36 |
| LC1D12 (AC coil only) | 12 | 72 | 60 | 48 |
| LC1D18 (AC coil only) | 18 | 108 | 90 | 72 |
| LC1D25 (AC coil only) | 25 | 150 | 125 | 100 |
| LC1D32 (AC coil only) | 32 | 192 | 160 | 128 |
| LC1D40A | 40 | 240 | 200 | 160 |
| LC1D50A | 50 | 300 | 250 | 200 |
| LC1D65A | 65 | 390 | 325 | 260 |
| LC1D80 | 75 | 450 | 375 | 300 |
| LC1D95 | — | — | — | — |
| LC1D115 | 115 | 690 | 575 | 460 |
| LC1D150 | 150 | 900 | 750 | 600 |



E164862
CCN NLDX

LR43364
Class 3211 04

© 2012 Schneider Electric
All Rights Reserved




Front Mounted Auxiliary Blocks

### Table 18.18: Standard, Instantaneous Auxiliary Contact Blocks

| Snap-On Mounting | Number of Contacts | Composition N.O. | Composition N.C. | Catalog Number ▲ | $ Price |
|---|---|---|---|---|---|
| **To front of** LC●DT20–D258 (4P), LC●D09–D150▲ or **To right side of** LC●F | 4 ▲ | 2 | 2 | LADN22 ■ | **41.50** |
| | | 1 | 3 | LADN13 ■ | **41.50** |
| | | 4 | 0 | LADN40 ■ | **41.50** |
| | | 0 | 4 | LADN04 ■ | **41.50** |
| | | 3 | 1 | LADN31 ■ | **41.50** |
| | | 2 ♦ | 2 ♦ | LADC22 ■♦ | **41.50** |
| | 2 | 1 | 1 | LADN11 ■ | **20.70** |
| | | 2 | 0 | LADN20 ■ | **20.70** |
| | | 0 | 2 | LADN02■ | **20.70** |
| **To front of** LC●D80 and D115 or **To left side of** LC●F | 1 | 1 | 0 | LADN10 ★ | **13.10** |
| | | 0 | 1 | LADN01 ★ | **13.10** |
| **To side of** LC●D09 to D150 only (not for use on TeSys F) | 2 | 1 | 1 | LAD8N11 ▼ | **20.70** |
| | | 2 | 0 | LAD8N20 ▼ | **20.70** |

▲ For low consumption coils (LC1D09–D32 only), only one front-mounted two-contact block allowed. No side-mounted contact blocks allowed.

■ For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADN22**3**). There is no charge for this modification. For slip-on versions, add **9** to the end of the catalog number (for example, LADN22**9**).

♦ Including 1 N.O. + 1 N.C. make-before-break overlapping contacts.

★ This block cannot be added to the LC1D 09–D32 contactors; a maximum of 2 blocks can be mounted on the LC1D40A–LC1/LP1D80 contactors only.

▼ 1 block may be added to the left side of LC1D09–D32, AC coils only; only 1 block may be added to either side of the LC1D40A–D80 contactors, AC coils only. Cannot be installed on TeSys D contactors with DC coils.

### Table 18.19: Instantaneous Blocks with Dust-Tight Auxiliary Contacts (IP54) NEMA 12

| Snap-On Mounting | Standard Contacts N.O. | Standard Contacts N.C. | Dust-Tight Contacts N.O. | Dust-Tight Contacts N.C. | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **To front of** LP●D40–D80, LC●DT20–D258 (4P), LC●D09 to D80 or **To right side of** LC●F | — | — | 2 | — | LA1DX20 | **65.00** |
| | 2 | — | 2 | — | LA1DZ40 | **82.00** |
| | 1 | 1 | 2 | — | LA1DZ31 | **82.00** |
| | — | — | 2 | — | LA1DY20△ | **77.00** |

△ Device supplied with 4 ground terminal points.

### Table 18.20: Pneumatic Time Delay Contact Blocks

| Snap-On Mounting | Time Delay Contacts N.O. | Time Delay Contacts N.C. | Type | Range of Time Delay | Catalog Number ◊ | $ Price |
|---|---|---|---|---|---|---|
| **To front of** LP●D40–D80, LC●DT20–D258 (4P), LC●D09 to D150 or **To right side of** LC●F | 1 | 1 | On energization (on delay) | 0.1 to 3 s□ | LADT0 | **131.00** |
| | | | | 0.1 to 30 s | LADT2 | **131.00** |
| | | | | 10 to 180 s | LADT4 | **131.00** |
| | | | | 1 to 30 s☆ | LADS2 | **131.00** |
| | 1 | 1 | On de-energization (off-delay) | 0.1 to 3 s□ | LADR0 | **131.00** |
| | | | | 0.1 to 30 s | LADR2 | **131.00** |
| | | | | 10 to 180 s | LADR4 | **131.00** |

□ Scale range is expanded between 0.1 and 0.6 seconds on the dial for more accurate settings at the lower end of the range.

◊ For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADT2**3**). There is no charge for this modification.

☆ Switching time between the opening of the N.C. contact and the closing of the N.O. contact: 40 ms ± 15 ms .

### Table 18.21: Mechanical Latch Blocks with Manual or Electrical Unlatch (TeSys D only)

| Front snap-on mounting onto | Application | Catalog Number ⊖ | $ Price |
|---|---|---|---|
| LC●D09 to D65A | For silent operation and energy conservation | LAD6K10▽⊖✱ | **77.00** |
| LC1 D80 to D150 LP1 D80 | For silent operation and energy conservation | LA6DK20▽⊖ | **77.00** |

▽ Does not include internal coil clearing contact.

⊖ Complete the catalog number by adding the coil voltage code (for example, LAD6K10F).

✱ Low consumption DC contactors (and relays) (code coil xL) are not compatible with the LAD6K10x mechanical latching blocks.

### Table 18.22: Coil Voltage Codes for LA6DK Mechanical Latch Blocks

| Volts | 12 | 24 | 32/36 | 42/48 | 60/72 | 100 | 110/127 | 200/208 | 220/240 | 380/415 | 440/480 | 500/600 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC or DC | J | B | C | E | EN | K | F | L | M | Q | R | S |

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-18 to 18-19
Dimensions . . . . . pages 18-40 to 18-46

E164862
CCN NLDX

LR43364
Class 3211 04





© 2012 Schneider Electric
All Rights Reserved


LA4DA1U

## RC Coil Suppressor

- Limitation of transient voltage to 300% of nominal voltage maximum.
- Oscillating frequency limited to 400 Hz maximum. Slight increase in drop-out time (1.2 to 2 times normal).

### Table 18.23: Resistor/Capacitor Circuit (RC) for Reduction of Electrical Noise in AC Contactor Coils

| Installed by | Mounting on | Operating Voltage 50/60 Hz | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side without tools ⬙ | LC1D09 to LC1D32 (3P) LC●DT20 to DT40 (4P), | 24–28 V | LAD4RCE | 26.20 |
| | | 50–127 V | LAD4RCG | 26.20 |
| | | 110–240 V | LAD4RCU | 26.20 |
| Snap-on mounting, and connection without tools to the contactor coil terminals | LC1D40A to LC1D65A (3P), LC1DT60A to LC1DT80A (4P) | 24-48 V | LAD4RC3E | 26.20 |
| | | 50-127 V | LAD4RC3G | 26.20 |
| | | 110-240 V | LAD4RC3U | 26.20 |
| | | 380-415 V | LAD4RC3N | 26.20 |
| Screw connection to the contactor coil terminals | LC●D80 to D150 (3P or 4P) LC●D80 to D115 (4P) | 24–48 V | LA4DA2E | 26.20 |
| | | 50–127 V | LA4DA2G | 26.20 |
| | | 110–240 V | LA4DA2U | 26.20 |
| | | 380–415 V | LA4DA2N | 26.20 |

## Varistor Coil Suppressor

- Limitation of transient voltage value to 200% of nominal voltage maximum.
- Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times normal).

### Table 18.24: Varistor (Peak Limiting) for Reduction of Electrical Noise in AC Contactor Coils

| Installed by | Mounting on | Operating Voltage 50/60 Hz | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side without tools ⬙ | LC●D09 to D32 TeSys D contactors | 24–48 V | LAD4VE | 26.20 |
| | | 50–127 V | LAD4VG | 26.20 |
| | | 110–250 V | LAD4VU | 26.20 |
| Snap-on mounting, and connection without tools to the contactor coil terminals | LC1D40A to LC1D65A (3P), LC1DT60A to LC1DT80A (4P) | 24-48 V | LAD4V3E | 26.20 |
| | | 50-127 V | LAD4V3G | 26.20 |
| | | 110-250 V | LAD4V3U | 26.20 |
| Screw connection to the contactor coil terminals | LC●D80 to D115 (3P or 4P) LC●D12, D25 (4P) | 24–48 Vac | LA4DE2E | 26.20 |
| | | 50–127 Vac | LA4DE2G | 26.20 |
| | | 110–250 Vac | LA4DE2U | 26.20 |
| Screw connection to the contactor coil terminals | LC●D80 (3P or 4P) | 24–48 Vdc | LA4DE3E | 26.20 |
| | | 50–127 Vdc | LA4DE3G | 26.20 |
| | | 110–250 Vdc | LA4DE3U | 26.20 |


LA4DC3U

## Diode Coil Suppressor

- No overvoltage or oscillating frequency.
- Polarized component. Increased drop-out time (6–10 times normal).

### Table 18.25: Diode for Reduction of Electrical Noise in DC Contactor Coils

| Installed on the upper part by | Mounting on | Operating Voltage, DC | Catalog Number | $ Price |
|---|---|---|---|---|
| Snap-on mounting and connection w/o tools to the contactor coil terminals | LC●D09–D32 | 24–250 Vdc | LAD4DDL | 26.20 |
| Clip-on front mounting | LC●D40A to D65, D65A to DT80A | 24–250 Vdc | LAD4D3U | 26.20 |
| Screw connection of wire to the contactor coil terminals | D80 (3P) D80 (4P) | 24–250 Vdc | LA4DC3U | 26.20 |



LAD4T3B

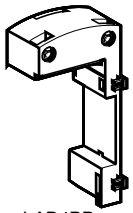
## Bidirectional Diode Coil Suppressor

- Protection provided by limiting the transient voltage to 2 Uc max.
- Maximum reduction of transient voltage peaks

### Table 18.26: Bidirectional Peak Limiting Diode

| Installed by | Mounting on | Operating Voltage 50/60 Hz and DC | Catalog Number | $ Price |
|---|---|---|---|---|
| Snapping into the cavity on the right side of the contactor ⬙ | LC●D09 to LC●D32 (3P) ◑ DT20 to DT40 (4P) | 24 (AC only) | LAD4TB | 26.20 |
| | | 72 (AC only) | LAD4TS | 26.20 |
| Clip-on front mounting and connection without tools to the contactor coil terminals ◑ | LC1D40A to LC1D65A (3P), LC1DT60A to LC1DT80A (4P) | 12–24 V | LAD4T3B | 26.20 |
| | | 25–72 V | LAD4T3S | 26.20 |
| | | 73–125 V | LAD4T3G | 26.20 |
| | | 126–250 V | LAD4T3U | 26.20 |
| | | 251–440 V | LAD4T3R | 26.20 |
| Screw mounting ✪ | LC●D80 | 24 (AC only) | LA4DB2B | 56.00 |
| | | 72 (AC only) | LA4DB2S | 26.20 |
| | | 24 (DC only) | LA4DB3B | 56.00 |
| | | 72 (DC only) | LA4DB3S | 56.00 |

⬙ Installing the suppressor into the cavity makes the electrical connection. Overall width of the contactor remains the same.
◑ For LC●D09–LC●D65A with DC or low consumption DC coils, 3-pole contactors are fitted with built-in bidirectional diode suppression as standard.
✪ Mounting at the top of the contactor on coil terminals A1 and A2.


LAD4BB••

### Table 18.27: Cabling Accessories

| Usage | Mounting on | Operating Voltage 50/60 Hz | | Catalog Number | $ Price |
|---|---|---|---|---|---|
| For adapting existing wiring to a new product or for use with top-mounting accessory. | LC1D09 to D38 LC1DT20 to DT60 AC only | Without coil suppression | | LAD4BB | 23.00 |
| | | With coil suppression (varistor) | 24-48 V | LAD4BBVE | 23.00 |
| | | | 50-127 V | LAD4BBVG | 23.00 |
| | | | 110-250 V | LAD4BBVU | 23.00 |
| For adapting existing wiring to a new product or for use with top-mounting accessory | LC1D40A to LC1D65A (with no coil suppressor) | — | | LAD4BB3 | 26.20 |

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . .page 18-16
TeSys D replacement coils . . . . . pages 18-18 to 18-19
Dimensions . . . . . pages 18-40 to 18-46



© 2012 Schneider Electric
All Rights Reserved

The following accessories require use of cabling accessories (LAD4BB●●) for proper mounting. See page 18-9 for illustration.

### Table 18.28: Electronic Serial Timer Modules

These solid state modules delay the energizing of the contactor coil, and feature built-in varistor surge suppression.

| Type | Operational Voltage ▲ | | Time Delay | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | 24–250 Vac | 100–250 Vac | | | |
| On-delay | LC1D09–D65A | LC1D80–D150 | 0.1–2 s | LA4DT0U | 82. |
| | | | 1.5–30 s | LA4DT2U | 82. |
| | | | 25–500 s | LA4DT4U | 82. |

▲ For 24 V operation, the contactor must be fitted with a 21 V coil: coil voltage code Z5 for 50 Hz; Z6 for 60 Hz; and ZD for DC.

### Table 18.29: Interface Modules ■

These modules allow the contactor coils to be energized from low voltage and low current level signals. They come in mechanical relay and solid state versions. The relay plus manual operation versions include a lever for manually turning the contactor on and off. When a module receives a low level signal, it allows the separate-sourced control voltage to flow to the contactor coil. It saves space and wiring time compared to conventional interposing relays.




LA4DFB

| Interface Type | Operational Voltage | | Input Voltage | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | 24–250 Vac | 100–250 Vac | | | |
| Relay | LC1D09–D150 | — | 24 Vdc | LA4DFB | 55. |
| | LC1D09–D150 | — | 48 Vdc | LA4DFE | 55. |
| Relay Plus Manual Operation | LC1D09–D150 | — | 24 Vdc | LA4DLB | 71. |
| | LC1D09–D150 | — | 48 Vdc | LA4DLE | 71. |
| Solid State | LC1D09–D65 | LC1D80–D115 | 24 Vdc | LA4DWB | 71. |

■ Adapter required for D09–D65A, see table 18.27.

### Table 18.30: Automatic-Manual-Stop Control Modules

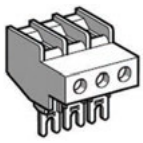
These modules allow for local and/or remote operation of the contactor coil. Each module includes a lever to switch from automatic to manual operation and a dial to turn the contactor on and off.

| Operational Voltage | | Catalog Number | $ Price |
|---|---|---|---|
| 24–100 Vac | 100–250 Vac | | |
| LC1D09–D150 | — | LA4DMK | 35. |





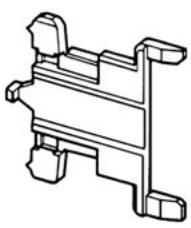
© 2012 Schneider Electric
All Rights Reserved


LA9D3260


LA9D2561


LA9D80962


LA9D11567


LA9D511

### Table 18.31: For Power Pole or Control Connection

| Description | | | For use with contactors LC1/LP1 | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|---|---|---|
| Connectors for larger cable sizes | 4 poles | #8 AWG (10 mm$^2$) | D09, D12 | 1 | LAD92560 | **8.70** |
| | 3 poles | #4 AWG (25 mm$^2$) | D09–D32 | 1 | LA9D3260 | **12.00** |
| Everlink™ terminal block | 3 poles | | D40A–D65A | 1 | LAD96560 | **10.00** |
| Links for the parallel connection of: | 2 poles | | D09–D32 | 10 | LA9D2561 | **26.20** |
| | | | D40A–D65A | 1 | LAD9P32 | **6.00** |
| | | | D80 | 2 | LA9D80961 | **6.50** |
| | | | F115 | 4 | LA9FF602 | **55.00** |
| | | | F150, F185 | 4 | LA9FG602 | **65.00** |
| | | | F265, F330, F400 | 4 | LA9FH602 | **169.00** |
| | | | F500 | 4 | LA9FK602 | **228.00** |
| | | | F630, F800 | 4 | LA9FL602 | **278.00** |
| | 3 poles (wye-delta shorting strap) | | D09–D32 | 10 | LAD9P3 | **10.00** |
| | | | D40A-D65A | 1 | LAD9P33 | **25.00** |
| | | | D80 | 1 | LA9D80962 | **6.50** |
| | | | F115 | 1 | LA9FF601 | **6.80** |
| | | | F150, F185 | 1 | LA9FG601 | **8.20** |
| | | | F265, F330, F400 | 1 | LA9FH601 | **12.00** |
| | | | F500 | 1 | LA9FK601 | **21.80** |
| | | | F630, F800 | 1 | LA9FL601 | **38.20** |
| | 4 poles | | DT20, DT25 | 2 | LA9D1263 | **8.70** |
| | | | D80 | 2 | LA9D80963 | **17.50** |
| Second coil connection | | | LP1D40–D80 | 10 | LA9D09966 | **2.20** |
| Control circuit take-off from main pole | | | D115, D150 | 10 | LA9D11567 | **4.00** |
| | | | D80 | 10 | LA9D8067 | **5.50** |
| Spreaders for increasing pole pitch to 45 mm | | | D115, D150 | 3 | GV7AC03 | **31.10** |
| Replacement power terminal block | | | D115, D150 | 1 | LA9D115603 | **55.00** |

### Table 18.32: For Marking

| Description | For use with contactors LC1/LP1 | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|---|
| **Reference label holder snap-on 8 x 22 mm** | 4-pole contactors D80–D115 | 100 | LA9D92 | **.06** |
| **Reference label holder snap-on 8 x 18 mm 3 poles** | D09-D65A, DT20-DT80A, LADN, LADT, LADR | 100 | LAD90 | **.06** |
| **Sheet of 300 labels self adhesive 7 x 21 mm** | For holder LA9D92 | 1 | LA9D93 | **4.30** |

### Table 18.33: For Mounting

| Description | For use with contactors LC1/LP1 | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|---|
| **Set of shims for mounting LAD8N and LA8DN** | D80 | 1 | LA9D511 | **9.80** |
| **Retrofit plate for replacement of LC1D40-D65 with LC1D40A-D65A** | D40A-D65A | 1 | LAD7X3 | **25.00** |
| **35 mm DIN Rail – 2 meters long** | LC1D09 to D80 | 10 | AM1DP200 | **5.20** |

### Table 18.34: Replacement Contacts

| | For use with contactors | | Catalog Number | $ Price |
|---|---|---|---|---|
| **Three-pole** | LC1D115 | 3 poles | LA5D1158031 | **239.00** |
| | LC1D150 | 3 poles | LA5D150803 | **239.00** |
| **Four-pole** | LC1D115 | 4 poles | LA5D115804 | **318.00** |

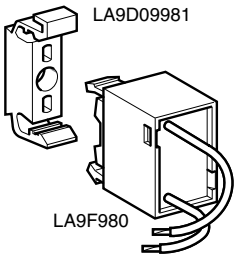
### Table 18.35: Arc Chambers

| | For use with contactors | | Catalog Number | $ Price |
|---|---|---|---|---|
| **Three-pole** | LC1D115 | 3 poles | LA5D11550 | **90.00** |
| | LC1D150 | 3 poles | LA5D15050 | **90.00** |
| **Four-pole** | LC1D115 | 4 poles | LA5D115450 | **119.00** |

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . .page 18-16
TeSys D replacement coils . . . . . pages 18-18 to 18-19
Dimensions . . . . . pages 18-40 to 18-47
TeSys F contactors . . . . . pages 18-5, 18-7
TeSys F replacement coils and parts . . . . . pages 18-13, 18-18, 18-20



© 2012 Schneider Electric
All Rights Reserved




### Table 18.36: Suppressor Blocks

| Operating limit: up to 220 V, 50/60 Hz coils | | | | |
|---|---|---|---|---|
| **Description** | **For Use** | | **Catalog Number** | **$ Price** |
| Suppressor block (clip-on mounting to coil) | With coils | LX1FF, FG, FH, F115, F150, F185, F225, F265, F330 | LA9F980 | **21.80** |
| | With coils | LX1FJ, FK, FL, FX, F400, F500, F630, F780, LX9FF, FG, FH, F115, F150, F185, F225, F265, F330 | LA9D09980 | **20.70** |
| Mounting bracket (for 35 mm DIN rail or panel mounting) for suppressor block | | | LA9D09981 | **5.50** |

### Table 18.37: Lugs and Lug Kits ▲

| Contactor Type LC1 | Lug Kit Catalog Number Contactor Only | Cable Size AWG range | Overload Relay | Directly mounted to contactor | Lugs Required | | Cable size AWG range | |
|---|---|---|---|---|---|---|---|---|
| — | — | — | — | LC1• | Line side of contactor | Load side of overload | Line side of contactor | Load side of overload |
| F115 | DZ2FF6 | 14 to 2/0 | LR9F5•57 to F5•69 | F115 | 3 each DZ2FF1 | 3 each DZ2FG1 | 14 to 2/0 | 6 to 3/0 |
| F150, F185 | DZ2FG6 | 6 to 3/0 | LR9F5•57 to F5•71 | F150 to F185 | 1 each DZ2FG6 | | 6 to 3/0 | |
| — | — | — | LR9F5•71 | F225, F265 | 1 each DZ2FH6 | | 6 to 300 MCM | |
| F225, F265, F330 | DZ2FH6 | 6 to 300 MCM | LR9F7•75 to F7•79 | F265 or F330 | 3 each DZ2FH1 | — | 6 to 300 MCM | 4 to 500 MCM |
| F400 | DZ2FJ6 | 4 to 500 MCM | LR9F7•75 to F7•81 | F400 | 3 each DZ2FJ1 | — | 4 to 500 MCM | 4 to 500 MCM |
| F500 | DZ2FK6 | 2 x 2 to 600 MCM | LR9F7•75 to F7•81 | F500 | 3 each DZ2FK1 | — | 2x2 to 600 MCM | 4 to 500 MCM |
| F630, F800 | DZ2FL6 | 3 x 2 to 600 MCM | LR9F7•81 | F630 | 1 each DZ2FL1 DZ2FL2 DZ2FL3 | 1 each DZ2FR1 | 3x2 to 600 MCM | 4 to 500 MCM |
| F780 | DZ2FX6 | 4 x 1/0 to 750 MCM | — | — | — | — | — | — |

▲ Lug kits ending in the number **6** include 6 identical lugs. In some cases the LR9F overload relay mounted directly on the load side of an LC1F contactor will require a different size lug for your choice of contactor and overload. If the two sizes are different, order 3 of each size lug. Mounting hardware (screws, washers, and nuts) are provided with the contactors and overload relays, not with the lugs. See Table 18.39 for pricing.

### Table 18.38: Lugs, 2- and 4-Pole ♦

| Contactor Type LC1 | Lug Kit Catalog Number | Qty. Required | | AL/CU Cable Size |
|---|---|---|---|---|
| | | 2-Pole | 4-Pole | |
| F115 | DZ2FF1 | 4 | 8 | 14 to 2/0 |
| F150, F185 | DZ2FG1 | 4 | 8 | 6 to 3/0 |
| F225, F265, F330 | DZ2FH1 | 4 | 8 | 6 to 300 MCM |
| F400 | DZ2FJ1 | 4 | 8 | 4 to 500 MCM |
| F500 | DZ2FK1 | 4 | 8 | 2 X 2 to 600 MCM |
| F630 | DZ2FL■ | ■ | ■ | 3 X 2 to 600 MCM |
| F780 | DZ2FX1 | 4 | 8 | 4 X 1/0 to 750 MCM |

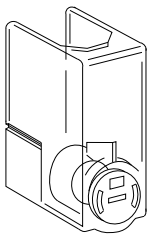
■ For 2-pole F630 contactors, order two DZ2FL1 (L1 and T2), and two DZ2FL3 (L2 and T1).
For 4-pole F6304, order two DZ2FL1 (L1 and T4), four DZ2FL2 (L2, T2, L3, T3) and two DZ2FL3 (L4 and T1).

♦ Lugs for LC1F contactors and overload relays must be ordered separately. Each kit consists of one lug. Mounting hardware (screws, washers, nuts) are provided with the contactors, not the lugs. See Table 18.39 for pricing.

### Table 18.39: Lugs Pricing

| Lug Catalog Number | $ Price |
|---|---|
| DZ2FF6 | **39.30** |
| DZ2FG6 | **65.00** |
| DZ2FH6 | **65.00** |
| DZ2FJ6 | **65.00** |
| DZ2FK6 | **131.00** |
| DZ2FL6 | **164.00** |
| DZ2FX6 | **163.80** |
| DZ2FF1 | **6.50** |
| DZ2FG1 | **11.00** |

| Lug Catalog Number | $ Price |
|---|---|
| DZ2FH1 | **11.00** |
| DZ2FJ1 | **11.00** |
| DZ2FK1 | **21.80** |
| DZ2FL1 | **27.30** |
| DZ2FL2 | **55.00** |
| DZ2FL3 | **27.30** |
| DZ2FR1 | **173.30** |
| DZ2FX1 | **27.30** |


LA9F70●

These clear plastic protective shrouds are an effective means to meet international touch-safe requirements for power terminals. They are designed to be used with power cables that have been bolted to the terminal.

***NOTE:*** *The protection shrouds do not attach to contactors or overloads using* ***DZ2F*** *lug kits.*

### Table 18.40: Power Terminal Protection Shrouds

| For Use With 2-, 3-, And 4-pole Contactors | Number of Shrouds Per Set | Catalog Number | $ Price |
|---|---|---|---|
| LC1F115 | 6 | LA9F701 | **42.40** |
| LC1F150, F185 | 6 | LA9F702 | **61.00** |
| LC1F225, F265, F330, F400 and F4002, F500 and F5002 | 6 | LA9F703 | **82.00** |
| LC1F630, F6302 and F800 | 6 | LA9F704 | **93.00** |
| LC1F1154 | 8 | LA9F706 | **58.00** |
| LC1F1504 and F1854 | 8 | LA9F707 | **80.00** |
| LC1F2254, F2654, F3304, F4004, F5004 | 8 | LA9F708 | **111.00** |
| LC1F6304 | 8 | LA9F709 | **120.00** |

For contactors LC1F115, LC1F150, and LC1F185, an available touch-safe terminal block may be used in place of lugs for power connections.

### Table 18.41: Insulated Terminal Blocks

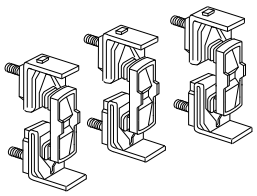
| For contactor type LC1 | For overload relay LR9 | Maximum Cable Size | Catalog Number | $ Price |
|---|---|---|---|---|
| F115, F150, F185 | F5•57, F5•63, F5•67, F5•69 | 300 MCM | LA9F103 | **55.00** |

TeSys F contactors . . . . . .pages 18-5, 18-7
TeSys F overload relay accessories . . . . . page 18-16
TeSys F replacement coils and parts . . . . . .pages 18-18, 18-18, 18-20
Dimensions . . . . . .pages 18-40 to 18-47





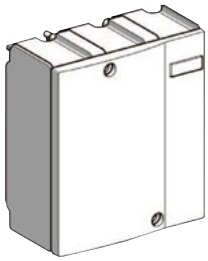
© 2012 Schneider Electric
All Rights Reserved


LA5FG431

### Table 18.42: Replacement Contact Sets ▲

| | For use on contactors | NUmber of Poles | Catalog Number | $ Price |
|---|---|---|---|---|
| Two-pole | LC1F4002 | 2 poles | LA5F400802 | **717.** |
| | LC1F5002 | 2 poles | LA5F500802 | **1111.** |
| | LC1F6302 | 2 poles | LA5F630802 | **1651.** |
| Three-pole | LC1F115, F150 | 3 poles | LA5FF431 | **239.** |
| | LC1F185 | 3 poles | LA5FG431 | **418.** |
| | LC1F265 | 3 poles | LA5FH431 | **793.** |
| | LC1F330, F400 | 3 poles | LA5F400803 | **1076.** |
| | LC1F500 | 3 poles | LA5F500803 | **1589.** |
| | LC1F630 | 3 poles | LA5F630803 | **2488.** |
| | LC1F780 | 1 pole | LA5F780801★ | **1651.** |
| | LC1F800 | 3 poles | LA5F800803 | **2488.** |
| Four-pole | LC1F1504, F1154 | 4 poles | LA5FF441 | **318.** |
| | LC1F1854 | 4 poles | LA5FG441 | **549.** |
| | LC1F2654 | 4 poles | LA5FH441 | **966.** |
| | LC1F3304, F400, F4004 | 4 poles | LA5F400804 | **1435.** |
| | LC1F5004 | 4 poles | LA5F500804 | **2461.** |
| | LC1F6304 | 4 poles | LA5F630804 | **3304.** |
| | LC1F7804 | 1 pole | LA5F780801★ | **1651.** |

### Table 18.43: Arc Chambers


LA5F11550

| | For use on contactors | Number of Poles | Catalog Number | $ Price |
|---|---|---|---|---|
| Two-pole | LC1F4002 | 2 poles | LA5F400250 | **280.** |
| | LC1F5002 | 2 poles | LA5F500250 | **305.** |
| | LC1F6302 | 2 poles | LA5F630250 | **431.** |
| Three-pole | LC1F115 | 3 poles | LA5F11550 | **90.** |
| | LC1F150 | 3 poles | LA5F15050 | **101.** |
| | LC1F185 | 3 poles | LA5F18550 | **179.** |
| | LC1F265 | 3 poles | LA5F26550 | **269.** |
| | LC1F330 | 3 poles | LA5F33050 | **287.** |
| | LC1F400 | 3 poles | LA5F40050 | **305.** |
| | LC1F500 | 3 poles | LA5F50050 | **341.** |
| | LC1F630 | 3 poles | LA5F63050 | **646.** |
| | LC1F780 | 1 pole | LA5F780150★ | **431.** |
| | LC1F800 | 3 poles | LA5F80050 | **750.** |
| Four-pole | LC1F1154 | 4 poles | LA5F115450 | **119.** |
| | LC1F1504 | 4 poles | LA5F150450 | **131.** |
| | LC1F1854 | 4 poles | LA5F185450 | **248.** |
| | LC1F2654 | 4 poles | LA5F265450 | **299.** |
| | LC1F3304 | 4 poles | LA5F330450 | **414.** |
| | LC1F4004 | 4 poles | LA5F400450♦ | **573.** |
| | LC1F5004 | 4 poles | LA5F500450♦ | **610.** |
| | LC1F6304 | 4 poles | LA5F630450■ | **861.** |
| | LC1F7804 | 1 pole | LA5F780150★ | **431.** |

▲ Supplied per pole are: 2 fixed contacts, 1 moving contact, 2 deflectors, 1 backplate, mounting screws and washers.
■ Comprises single-pole components.
♦ Comprises 2-pole components.
★ 2 identical components per pole are supplied.

TeSys F contactors . . . . . pages 18-5, 18-7
TeSys F overload relay accessories . . . . . .page 18-16
TeSys F replacement coils and parts . . . . . pages 18-13, 18-18, 18-20
Dimensions . . . . . pages 18-42 to 18-47

### Table 18.44: AC and DC Coil Part Numbers for LC1F1700 and LC1F2100

| Control Circuit Voltage of the Contactor | Voltage Code | Spare Coil Part Number | Quantity |
|---|---|---|---|
| **AC Coils** | | | |
| 110 V | F7 | LX1FK065 | 2 |
| 120 V | G7 | LX1FK070 | 2 |
| 220 V | M7 | LX1FK110 | 2 |
| 230 V | P7 | LX1FK110 | 2 |
| 240 V | U7 | LX1FK127 | 2 |
| 277 V | W7 | LX1FK140 | 2 |
| 380 V | Q7 | LX1FK200 | 2 |
| 400 V | V7 | LX1FK200 | 2 |
| 415 V | N7 | LX1FK220 | 2 |
| 440 V | R7 | LX1FK220 | 2 |
| 500 V | S7 | LX1FK240 | 2 |
| **DC Coils** | | | |
| 110 V | FD | LX4FK055 | 2 |
| 125 V | GD | LX4FK065 | 2 |
| 220 V | MD | LX4FK110 | 2 |
| 250 V | UD | LX4FK125 | 2 |
| 440 V | RD | LX4FK220 | 2 |

Note: These coills are standard parts included when a voltage code is added to the contactor part number LC1F1700 or LC1F2100.



© 2012 Schneider Electric
All Rights Reserved

**Table 18.45: Contactors**

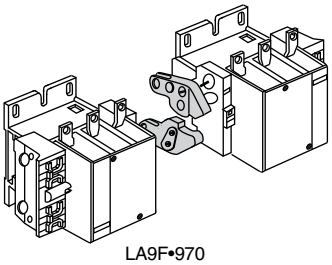
| Reversing contactors comprising two identical, horizontally mounted contactors: | Mechanical interlock | | | | Set of power connections | | | |
|---|---|---|---|---|---|---|---|---|
| | Without electrical interlock | | With incorporated electrical interlock (2 N.C. contacts) | | Reversing contactors for motor control | | Four pole contactors | |
| | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| LC1D09, LC1D12, LC1D18, LC1D25, LC1D32 | LAD9R1▲ | 32.10 | LAD9R1V▲ | 45.50 | Included with kit | | — | |
| LC1DT20, LC1DT25, LC1DT32, LC1DT40 | LADT9R1▲ | 36.90 | LADT9R1V▲ | 45.50 | — | | Included with kit | |
| | ▲ Kit including mechanical interlock and wiring. | | | | | | | |
| LC1D40, LC1D50, LC1D/LP1D65 | LA9D50978 | 31.70 | LA9D4002 | 45.90 | LA9D6569 | 53.00 | LA9D6570 | 63.00 |
| LC1D40A, D50A, D65A | LAD4CM | 45.00 | — | | LA9D65A69 | 75.00 | — | |
| New! | LAD9R3 ■ | 65.00 | — | | — | | — | |
| | ■ Kit combines both LAD4CM and LA9D65A69 | | | | | | | |
| LC1D80 AC coil | LA9D50978 | 31.70 | LA9D4002 | 45.90 | LA9D8069 | 65.00 | LA9D8070 | 79.00 |
| LC1D80 DC coil | LA9D80978 | 31.70 | LA9D8002 | 65.00 | LA9D8069 | 65.00 | LA9D8070 | 79.00 |
| LC1D115 and LC1D150 | Not Available | | LA9D11502 | 78.00 | LA9D11569 | 129.00 | LA9D11571 (3P) | 53.00 |
| | | | — | | | | LA9D11570 (4P) (D115 only) | 53.00 |

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-17 to 18-19
Dimensions . . . . . pages 18-40 to 18-46

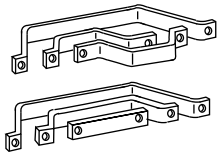




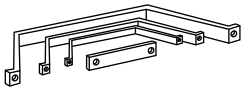
© 2012 Schneider Electric
All Rights Reserved



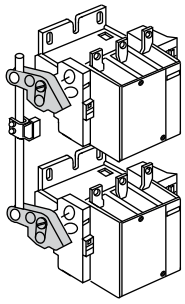
LA9F•970



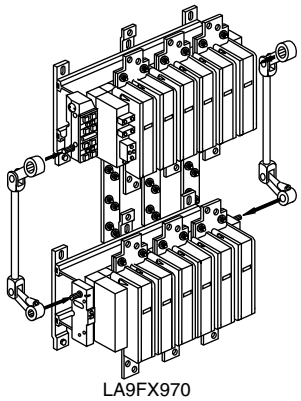
LA9F•976



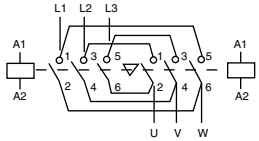
LA9F•977



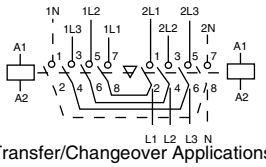
LA9F•4•



LA9FX970




Reversing (motors) Application




Transfer/Changeover Applications

### Table 18.46: Component Parts for the Assembly of F-Line 3-pole Reversing Contactors

| With 2 Identical Contactors ▲ | Set of Power Connections Catalog Number | $ Price | Mechanical Interlock Kit Catalog Number | $ Price |
|---|---|---|---|---|
| **Horizontal Mounting** | | | | |
| LC1F115 | LA9FF976 | **106.00** | LA9FF970 | **53.00** |
| LC1F150 | LA9F15076 | **96.00** | LA9FF970 | **53.00** |
| LC1F185 | LA9FG976 | **113.00** | LA9FG970 | **53.00** |
| LC1F265 | LA9FH976 | **151.00** | LA9FJ970 | **76.00** |
| LC1F330 | LA9FJ976 | **225.00** | LA9FJ970 | **76.00** |
| LC1F400 | LA9FJ976 | **225.00** | LA9FJ970 | **76.00** |
| LC1F500 | LA9FK976 | **306.00** | LA9FJ970 | **76.00** |
| LC1F630 or F800 | LA9FL976 | **568.00** | LA9FL970 | **76.00** |
| **Vertical Mounting** | | | | |
| LC1F115 or F150 | ★ | — | LA9FF4F | **97.00** |
| LC1F185 | ★ | — | LA9FG4G | **113.00** |
| LC1F265 | ★ | — | LA9FH4H | **126.00** |
| LC1F330 | ★ | — | LA9FJ4J | **149.00** |
| LC1F400 | ★ | — | LA9FJ4J | **149.00** |
| LC1F500 | ★ | — | LA9FK4K | **149.00** |
| LC1F630 or F800 | ★ | — | LA9FL4L | **149.00** |
| LC1F780 | ■ | — | LA9FX970 ■ | **508.00** |

### Table 18.47: Component Parts for the Assembly of TeSys F 3-pole or 4-pole Transfer Contactors

| Horizontal Mounting | Set of Power Connections | | $ Price | Mechanical Interlock Kit Catalog Number | $ Price |
|---|---|---|---|---|---|
| | Three-Pole | Four-Pole | | | |
| **Horizontal Mounting** | | | | | |
| LC1F115/4 | LA9FF982 | LA9FF977 | **53.00** | LA9FF970 | **53.00** |
| LC1F150/4 | LA9F15082 | LA9F15077 | **53.00** | LA9FF970 | **53.00** |
| LC1F185/4 | LA9FG982 | LA9FG977 | **53.00** | LA9FG970 | **53.00** |
| LC1F265/4 | LA9FH982 | LA9FH977 | **83.00** | LA9FJ970 | **76.00** |
| LC1F330/4 | LA9FJ982 | LA9FJ977 | **113.00** | LA9FJ970 | **76.00** |
| LC1F400/4 | LA9FJ982 | LA9FJ977 | **113.00** | LA9FJ970 | **76.00** |
| LC1F500/4 | LA9FK982 | LA9FK977 | **154.00** | LA9FJ970 | **76.00** |
| LC1F630/4 | LA9FL982 | LA9FL977 | **233.00** | LA9FL970 | **76.00** |
| **Vertical Mounting** | | | | | |
| LC1F115/4 | ★ | ★ | — | LA9FF4F | **97.00** |
| LC1F185/4 | ★ | ★ | — | LA9FG4G | **113.00** |
| LC1F265/4 | ★ | ★ | — | LA9FH4H | **149.00** |
| LC1F330/4 | ★ | ★ | — | LA9FJ4J | **149.00** |
| LC1F400/4 | ★ | ★ | — | LA9FJ4J | **149.00** |
| LC1F500/4 | ★ | ★ | — | LA9FK4K | **149.00** |
| LC1F630/4 | ★ | ★ | — | LA9FL4L | **149.00** |
| LC1F780/4 | ■ | ♦ | — | LA9FX970 ♦ | **508.00** |

### Table 18.48: Vertical Mounting of 2 Contactors of Different Ratings ▲

| Upper Contactor | Lower Contactor ▼ | Mechanical Interlock Kit Catalog Number | $ Price |
|---|---|---|---|
| LC1F185 or 1854 | LC1F115/150 or 1154/1504 | LA9FG4F | **113.00** |
| LC1F265 or 2654 | LC1F115/150 or 1154/1504 | LA9FH4F | **126.00** |
| LC1F330 or 3304 | LC1F185/1854 or 265/265A | LA9FH4G | **126.00** |
| LC1F400 or 4004 | LC1F115/150 or 1154/1504 | LA9FJ4F | **126.00** |
| | LC1F185 or 1854 | LA9FJ4G | **126.00** |
| | LC1F265/2654 or 330/330A | LA9FJ4H | **149.00** |
| LC1F500 or 5004 | LC1F115/150 or 1154/1504 | LA9FK4F | **149.00** |
| | LC1F185 or 1854 | LA9FK4G | **126.00** |
| | LC1F265/2654 or 330/330A | LA9FK4H | **149.00** |
| | LC1F400 or 4004 | LA9FK4J | **149.00** |
| LC1F630, 6304 or LC1F800 | LC1F115/150 or 1154/1504 | LA9FL4F | **116.00** |
| | LC1F185 or 1854 | LA9FL4G | **126.00** |
| | LC1F265/2654 or 330/330A | LA9FL4H | **149.00** |
| | LC1F400 or 4004 | LA9FL4J | **149.00** |
| | LC1F500 or 5004 | LA9FL4K | **149.00** |

▲ With identical or different numbers of poles.
■ Double mechanical interlock with 2 mechanical links and 3 power connection bars.
♦ Double mechanical interlock with 2 mechanical links and 4 power connection bars.
★ Power connection to be assembled by the customer, except for contactors LC1F780 and F7804.
▼ Lower contactor must have equal or lower current rating.

TeSys F contactors . . . . . pages 18-5, 18-7
TeSys F overload relay accessories . . . . . page 18-16
TeSys F replacement coils and parts . . . . . pages 18-18 to 18-20
Dimensions . . . . . pages 18-42 to 18-47



© 2012 Schneider Electric
All Rights Reserved

## TeSys D Overload Relay Accessories



LA7D901

### Table 18.49: Mounting Kits and Plates▲

| Description | For use with overload relays: | Catalog Number | $ Price |
|---|---|---|---|
| Separate mounting kits for mounting to 35 mm DIN rail or for panel mounting with screws | LRD01–35 and LR3D01–35 | LAD7B10 | 8.70 |
| | LRD01–35 and LRD01–35 for ring tongue terminals | LAD7B106 | 8.70 |
| | LRD15•• | LAD7B105 | 10.40 |
| | New! LR2D15••, LR3D15 | LA7D1064 | 8.70 |
| | LR2D25•• | LA7D2064 | 13.10 |
| | LRD3•••, LR3D3•••, LR2D35•• | LA7D3064 | 17.50 |
| Mounting plates for screw mounting at 110 mm (4.3 in.) centers | LRD01–35, LR3D01–35, LR2D15•• | DX1AP25 | 11.00 |
| | LR2D25•• | DX1AP26 | 12.00 |
| | LRD3•••, LR3D3••, LR2D35•• | LA7D902 | 16.40 |

▲ When using mounting plates, separate mounting kits are also required.

### Table 18.50: Accessories

| Description | For use with | Standard Packaging | Catalog Number | $ Price |
|---|---|---|---|---|
| Prewiring kit allows direct connection of the N.C. contact of relay LRD01–D32 or LR3D01–D32 to the contactor | LC1D09 through D18 | 10 | LAD7C1 | 8.70 |
| | LC1D25, D32 | 10 | LAD7C2 | 8.70 |
| Stop button locking device | All relays except LRD01–D32, LR3D01–D32 and LR9D | 10 | LA7D901 | 2.20 |
| Remote stop/tripping or electrical reset♦ | LRD01-D32, LRD3, LR3D01-D32, LR3D3 | 1 | LAD703■ | 43.70 |
| | All relays except LRD01–D32, LR3D01–D31 | 1 | LA7D03■ | 43.70 |
| Reset by flexible cable 500 mm (19.6 in.) | LRD01-D32, LRD3, LR3D3 | 1 | LAD7305 | 100.00 |

■ Part number to be completed by adding coil voltage code, (for example, LAD703F).



LA7D03

### Table 18.51: Control Circuit Voltages for LA7D03 and LAD703

| Volts | 12 | 24 | 48 | 110 | 220/230 | 380/400 | 415/440 |
|---|---|---|---|---|---|---|---|
| **AC 50/60 Hz** | J★ | B | E | F | M | Q | N |
| **DC** | J | B | E | F | M | — | — |

♦ The time that the LA7D03 can remain energized depends on its rest time; 1 s pulse with 9 s rest time; 5 s pulse with 30 s rest time; 10 s pulse with 90 s rest time; maximum pulse duration of 20 s with rest time of 300 s. Consumption on inrush and sealed: < 100 VA

★ Not available for LRD01–D32, LR3D01–D32.

## TeSys F Overload Relay Accessories



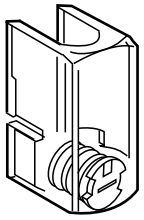
LA7F90•

### Table 18.52: Mounting Plate for Overload Relay

| For use with relays | Catalog Number | $ Price |
|---|---|---|
| LR9F5•57, F5•63, F5•67, F5•69 and F5•71 | LA7F901 | 27.30 |
| LR9F7•75, F7•79 and F7•81 | LA7F902 | 38.20 |

These clear plastic protective shrouds are an effective means to meet international finger-safe requirements for power terminals. They are designed to be used with power cables that have been bolted to the terminal.

***NOTE:*** *The protection shrouds do not attach to contactors or overloads utilizing DZ2F lug kits.*



LA9F70•

### Table 18.53: Power Terminal Protection Shrouds, Single-Pole

| For use with relays | Catalog Number | $ Price |
|---|---|---|
| LR9F5•57 | LA9F701 | 42.40 |
| LR9F5•63, F5•67, F5•69 | LA9F702 | 61.00 |
| LR9F5•71 | LA9F705 | 86.00 |
| LR9F7•75, F7•79, F7•81 | LA9F703 | 82.00 |

### Table 18.54: Power Terminal Protection Shrouds, 3-Pole

| For use with relays | Catalog Number | $ Price |
|---|---|---|
| LR9F5•57, F5•63, F5•67, F5•69 | LA7F701 | 27.30 |
| LR9F5•71 | LA7F702 | 38.20 |
| LR9F7•75, F7•79, F7•81 | LA7F703 | 49.20 |

### Table 18.55: Connection Accessories (for Mounting Overload Relays Beneath Reversing Contactors)▼

| Application | | Set of 3 Bars Catalog Number | $ Price |
|---|---|---|---|
| For relays | For contactor | | |
| LR9F5•57, F5•63, F5•67, F5•69 | LC1F115 | LA7F401 | 19.70 |
| LR9F5•57, F5•63 | LC1F150 and F185 | LA7F402 | 21.80 |
| LR9F5•71 | LC1F265 | LA7F403 | 27.30 |
| LR9F7•75, F7••79 | LC1F265...F400 | LA7F404 | 30.50 |
| LR9F7•81 | LC1F400 | LA7F404 | 30.50 |
| LR9F7•75, F7•79, F7•81 | LC1F500 | LA7F405 | 38.20 |
| LR9F7•81 | LC1F630 | LA7F406 | 43.70 |

▼ Mounting plate required.



LA7F701

### Table 18.56: Marking Accessories

| Description | Sold in units of: | Catalog Number | $ Price |
|---|---|---|---|
| Marker holder, snap-in | 100 | LA7D903 | 0.03 each |

Main overload selection . . . . . .pages 18-2, 18-3
Dimensions . . . . . pages 18-45 to 18-47
TeSys T . . . . . pages 16-91



© 2012 Schneider Electric
All Rights Reserved

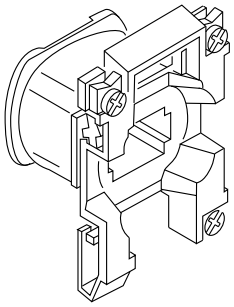

LX1D2

**Table 18.57: For LC1D09–D32, LC1DT20–40 (TeSys D) Contactors and CAD Relays**

| Rated Nominal Voltage | Catalog Number 50/60 Hz | $ Price |
|---|---|---|
| 12 | LXD1J7 | |
| 21▲ | LXD1Z7 | |
| 24 | LXD1B7 | **26.20** |
| 32 | LXD1C7 | |
| 36 | LXD1CC7 | |
| 42 | LXD1D7 | |
| 48 | LXD1E7 | |
| 60 | LXD1EE7 | **26.20** |
| 100 | LXD1K7 | |
| 110 | LXD1F7 | |
| 115 | LXD1FE7 | |
| 120 | LXD1G7 | |
| 127 | LXD1FC7 | **26.20** |
| 200 | LXD1L7 | |
| 208 | LXD1LE7 | |
| 220/230 | LXD1M7 | |
| 230 | LXD1P7 | |
| 230/240 | LXD1U7 | **26.20** |
| 277 | LXD1W7 | |
| 380/400 | LXD1Q7 | |
| 400 | LXD1V7 | |
| 415 | LXD1N7 | |
| 440 | LXD1R7 | **26.20** |
| 480 | LXD1T7 | |
| 575 | LXD1SC7 | |
| 600 | LXD1X7 | **26.20** |

| Specifications | 50/60 Hz |
|---|---|
| Average consumption<br>- Inrush (inductance 0.75)<br>- Sealed (inductance 0.3) | <br>70 VA<br>7 VA |
| Operating range@ 60° C | 80–110% of nominal @ 50 Hz,<br>85–110% of nominal @ 60 Hz |

▲ Voltage for special coils fitted in contactors with serial timer modules, with 24 V supply.

**Table 18.58: For LC1D09, D12, D18—**For old D2 style contactors where the catalog number includes the auxiliary contact arrangement

| Rated Nominal Voltage V | Catalog Number 50 Hz | Catalog Number 60 Hz | Catalog Number 50/60 Hz | $ Price |
|---|---|---|---|---|
| 21 ■ | LX1D2Z5 | LX1D2Z6 | LX1D2Z7 | |
| 24 | LX1D2B5 | LX1D2B6 | LX1D2B7 | |
| 32 | LX1D2C5 | — | — | **52.40** |
| 42 | LX1D2D5 | — | LX1D2D7 | |
| 48 | LX1D2E5 | LX1D2E6 | LX1D2E7 | |
| 110 | LX1D2F5 | LX1D2F6 | LX1D2F7 | |
| 120 | — | LX1D2G6 | LX1D2G7 | |
| 127 | LX1D2G5 | — | — | **52.40** |
| 208 | — | LX1D2L6 | — | |
| 220 | LX1D2M5 | LX1D2M6 | LX1D2M7 | |
| 230 | LX1D2P5 | — | LX1D2P7 | |
| 240 | LX1D2U5 | LX1D2U6 | LX1D2U7 | |
| 256 | LX1D2W5 | — | — | **52.40** |
| 277 | — | LX1D2W6 | — | |
| 380 | LX1D2Q5 | LX1D2Q6 | LX1D2Q7 | |
| 400 | LX1D2V5 | — | LX1D2V7 | |
| 415 | LX1D2N5 | — | LX1D2N7 | |
| 440 | LX1D2R5 | LX1D2R6 | LX1D2R7 | **52.40** |
| 480 | — | LX1D2T6 | — | |
| 500 | LX1D2S5 | — | — | |
| 575 | — | LX1D2S6 | — | |
| 600 | — | LX1D2X6 | — | **52.40** |
| 660 | LX1D2Y5 | — | — | |

| Specifications | 50 Hz | 60 Hz | 50/60 Hz |
|---|---|---|---|
| Average consumption Inrush (inductance .75) | 60 VA | 70 VA | 70 VA at 50 or 60 Hz |
| Sealed (inductance .3) | 7 VA | 7.5 VA | 8 VA at 50 or 60 Hz |
| Operating range at θ ≤ 55°C / 131°F | 80–110 % of nominal voltage | 80–110% of nominal voltage | 85–110% of nominal voltage |

**Table 18.59: For LC1D25, D32—**For old D2 style contactors where the catalog number includes the auxiliary contact arrangement

| Rated Nominal Voltage (V) | Catalog Number 50 Hz | Catalog Number 60 Hz | Catalog Number 50/60 Hz | $ Price |
|---|---|---|---|---|
| 21■ | LX1D4Z5 | LX1D4Z6 | LX1D4Z7 | |
| 24 | LX1D4B5 | LX1D4B6 | LX1D4B7 | |
| 32 | LX1D4C5 | — | — | **72.00** |
| 42 | LX1D4D5 | — | LX1D4D7 | |
| 48 | LX1D4E5 | LX1D4E6 | LX1D4E7 | |
| 110 | LX1D4F5 | LX1D4F6 | LX1D4F7 | |
| 120 | — | LX1D4G6 | LX1D4G7 | |
| 127 | LX1D4G5 | — | — | **72.00** |
| 208 | — | LX1D4L6 | — | |
| 220 | LX1D4M5 | LX1D4M6 | LX1D4M7 | |
| 230 | LX1D4P5 | — | LX1D4P7 | |
| 240 | LX1D4U5 | LX1D4U6 | LX1D4U7 | |
| 256 | LX1D4W5 | — | — | **72.00** |
| 277 | — | LX1D4W6 | — | |
| 380 | LX1D4Q5 | LX1D4Q6 | LX1D4Q7 | |
| 400 | LX1D4V5 | — | LX1D4V7 | |
| 415 | LX1D4N5 | — | LX1D4N7 | |
| 440 | LX1D4R5 | LX1D4R6 | LX1D4R7 | **72.00** |
| 480 | — | LX1D4T6 | — | |
| 500 | LX1D4S5 | — | — | |
| 575 | — | LX1D4S6 | — | |
| 600 | — | LX1D4X6 | — | **72.00** |
| 660 | LX1D4Y5 | — | — | |

| Specifications | 50 Hz | 60 Hz | 50/60 Hz |
|---|---|---|---|
| Average consumption<br>- Inrush (inductance .75)<br>- Sealed (inductance .3) | <br>90 VA<br>7.5 VA | <br>100 VA<br>8.5 VA | <br>100 VA at 50 or 60 Hz<br>8.5 VA at 50 or 60 Hz |
| Operating range at θ ≤ 55 °C / 131 °F | 80–110% of nominal voltage | 80–110% of nominal voltage | 85–110% of nominal voltage |

■ For use in 24 V applications involving serial timer modules refer to page 18-10.

Limited Stock Replaced by TeSys Products

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-17 to 18-19
Dimensions . . . . . pages 18-40 to 18-46



© 2012 Schneider Electric
All Rights Reserved

### Table 18.60: For Old D2 Style LC1D40, D50, D65, D80

| Rated Nominal Voltage V | Catalog Number 50 Hz | Catalog Number 60 Hz | Catalog Number 50/60 Hz | $ Price |
|---|---|---|---|---|
| 24 | LX1D6B5 | LX1D6B6 | LX1D6B7 | **41.50** |
| 32 | LX1D6C5 | — | — | **41.50** |
| 42 | LX1D6D5 | — | LX1D6D7 | **41.50** |
| 48 | LX1D6E5 | LX1D6E6 | LX1D6E7 | **41.50** |
| 110 | LX1D6F5 | LX1D6F6 | LX1D6F7 | **41.50** |
| 120 | — | LX1D6G6 | LX1D6G7 | **41.50** |
| 127 | LX1D6G5 | — | — | **41.50** |
| 208 | — | LX1D6L6 | LX1D6LE7 | **41.50** |
| 220 | LX1D6M5 | LX1D6M6 | LX1D6M7 | **41.50** |
| 230 | LX1D6P5 | — | LX1D6P7 | **41.50** |
| 240 | LX1D6U5 | LX1D6U6 | LX1D6U7 | **41.50** |
| 256 | LX1D6W5 | — | — | **170.00** |
| 277 | — | LX1D6W6 | — | **41.50** |
| 380 | LX1D6Q5 | LX1D6Q6 | LX1D6Q7 | **41.50** |
| 400 | LX1D6V5 | — | LX1D6V7 | **41.50** |
| 415 | LX1D6N5 | — | LX1D6N7 | **41.50** |
| 440 | LX1D6R5 | LX1D6R6 | LX1D6R7 | **41.50** |
| 480 | — | LX1D6T6 | — | **41.50** |
| 500 | LX1D6S5 | — | — | **170.00** |
| 575 | — | LX1D6S6 | — | **41.50** |
| 600 | — | LX1D6X6 | — | **41.50** |
| 660 | LX1D6Y5 | — | — | **41.50** |

For old style and new TeSys style contactors where the catalog number may or may not include the auxiliary contact arrangement.

| Specification | 50 Hz | 60 Hz | 50/60 Hz |
|---|---|---|---|
| Average consumption: | | | |
| -inrush (inductance 0.75) | 200 VA | 220 VA | 245 VA |
| -sealed (inductance 0.3) | 20 VA | 22 VA | 26 VA |
| Operating range at θ ≤ 55°C / 131°F | 80–110% of nominal voltage | | 85–110% of nominal voltage |

### Table 18.61: For TeSys D LC1D40A, D50A, D65A, DT60A, DT80A

| Rated Nominal Voltage V | Catalog Number 50 Hz | Catalog Number 60 Hz | Catalog Number 50/60 Hz | $ Price |
|---|---|---|---|---|
| 12 | LXD3J5 | — | — | **41.50** |
| 24 | — | — | LXD3B7 | **41.50** |
| 32 | — | — | LXD3C7 | **41.50** |
| 42 | — | — | LXD3D7 | **41.50** |
| 48 | — | — | LXD3E7 | **41.50** |
| 100 | — | — | LXD3K7 | **41.50** |
| 110 | — | — | LXD3F7 | **41.50** |
| 115 | — | — | LXD3FE7 | **41.50** |
| 120 | — | — | LXD3G7 | **41.50** |
| 127 | — | — | LXD3FC7 | **41.50** |
| 200 | — | — | LXD3L7 | **41.50** |
| 208 | — | — | LXD3LE7 | **41.50** |
| 220 | — | — | LXD3M7 | **41.50** |
| 230 | — | — | LXD3P7 | **41.50** |
| 240 | — | — | LXD3U7 | **41.50** |
| 277 | — | — | LXD3W7 | **41.50** |
| 380 | — | — | LXD3Q7 | **41.50** |
| 400 | — | — | LXD3V7 | **41.50** |
| 415 | — | — | LXD3N7 | **41.50** |
| 440 | — | — | LXD3R7 | **41.50** |
| 480 | — | — | LXD3T7 | **41.50** |
| 500 | — | — | LXD3S7 | **41.50** |
| 575 | — | — | LXD3SC7 | **41.50** |
| 600 | — | — | LXD3X7 | **41.50** |
| 660 | — | — | LXD3YC7 | **41.50** |
| 690 | — | — | LXD3Y7 | **41.50** |

| Specification | 50 Hz | 60 Hz | 50/60 Hz |
|---|---|---|---|
| Average consumption: | | | |
| -inrush (inductance 0.3) | 160 VA | 140 VA | 140 VA (Inductance: 0.9) |
| -sealed (inductance 0.3) | 7.0 VA | 7.5 VA | 7.5 VA (Inductance: 0.9) |
| Operating range at θ ≤ 55 °C / 131 °F | 85–110% of nominal voltage | | 80–115% of nominal voltage |

### Table 18.62: For TeSys D LC1D115, D150

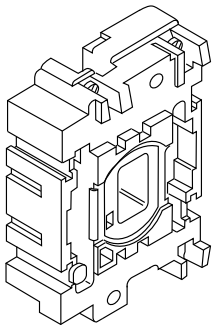
| Rated Nominal Voltage V | Catalog Number 50 Hz | Catalog Number 60 Hz | Catalog Number 50/60 Hz | $ Price |
|---|---|---|---|---|
| 24 | LX1D8B5 | LX1D8B6 | LX1D8B7 | **78.00** |
| 32 | LX1D8C5 | — | LX1D8C7 | **78.00** |
| 42 | LX1D8D5 | — | LX1D8D7 | **78.00** |
| 48 | LX1D8E5 | LX1D8E6 | LX1D8E7 | **78.00** |
| 110 | LX1D8F5 | LX1D8F6 | LX1D8F7 | **78.00** |
| 115 | LX1D8FE5 | — | LX1D8FE7 | **78.00** |
| 120 | — | LX1D8G6 | LX1D8G7 | **78.00** |
| 127 | LX1D8FC5 | — | LX1D8FC7 | **78.00** |
| 208 | — | LX1D8L6 | LX1D8L7 | **78.00** |
| 220/230 | LX1D8M5 | LX1D8M6 | LX1D8M7 | **78.00** |
| 230 | LX1D8P5 | — | LX1D8P7 | **78.00** |
| 240 | LX1D8U5 | LX1D8U6 | LX1D8U7 | **78.00** |
| 277 | — | LX1D8W6 | LX1D8W7 | **78.00** |
| 380/400 | LX1D8Q5 | LX1D8Q6 | LX1D8Q7 | **78.00** |
| 400 | LX1D8V5 | — | LX1D8V7 | **78.00** |
| 415 | LX1D8N5 | — | LX1D8N7 | **78.00** |
| 440 | LX1D8R5 | LX1D8R6 | LX1D8R7 | **78.00** |
| 480 | — | LX1D8T6 | LX1D8T7 | **78.00** |
| 500 | LX1D8S5 | — | LX1D8S6 | **78.00** |

For old style and new TeSys style contactors where the catalog number may or may not include the auxiliary contact arrangement.

| Specification | 50 Hz | 60 Hz | 50/60 Hz |
|---|---|---|---|
| Average consumption: | | | |
| -inrush (inductance 0.8) | 300 VA | 300 VA | 350 VA (Inductance: 0.9) |
| -sealed (inductance 0.3) | 22 VA | 22 VA | 18 VA (Inductance: 0.9) |
| Operating range at θ ≤ 55 °C / 131 °F | 85–110% of nominal voltage | | 80–115% of nominal voltage |

### Table 18.63: For LC1F115, F150, F185, F265, F330, F400, F500, F630, F780, F800

LX1 coils are the standard coils that are included when a voltage code is added to the contactor part number. The LX9 coils may be ordered separately for special applications. LX9 coils do not include a built-in normally open holding circuit contact; a separate auxiliary contact block with a N.O. contact should be added to the contactor. Both the LX1 and LX9 coils can be used on the previous F-line contactors.



LX1D6

| Device Type | Hz | Catalog Number | Catalog Number Suffix□ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 24 V | 48 V | 110 V | 120 V | 208 V | 220 V | 240 V | 277 V | 380 V | 415 V | 440 V | 480 V | 600 V | $ Price |
| F115–F150 | 50 | LX1FF• | 024 | 048 | 110 | 127 | 200 | 220 | 240 | 264 | 380 | 415 | 415 | 500 | 600 | **78.00** |
| | 60 | LX1FF• | 020 | 040 | 092 | 095 | 162 | 184 | 187 | 220 | 316 | 340 | 360 | 380 | 475 | **78.00** |
| | 40–400 | LX9FF• | — | 048 | 110 | 127 | 200 | 220 | 220 | 260 | 380 | 415 | 415 | 500 | — | **78.00** |
| F185 F225 | 50 | LX1FG• | 024 | 048 | 110 | 127 | 200 | 220 | 240 | 264 | 380 | 415 | 415 | 450 | 600 | **108.00** |
| | 60 | LX1FG• | 020 | 040 | 092 | 095 | 162 | 184 | 187 | 220 | 316 | 340 | 360 | 380 | 475 | **108.00** |
| | 40–400 | LX9FG• | — | 048 | 110 | 127 | 200 | 220 | 220 | 260 | 380 | 415 | 415 | 500 | — | **108.00** |
| F265–F330 | 40–400 | LX1FH• | 0242 | 0482 | 1102 | 1272 | 2002 | 2202 | 2402 | 2772 | 3802 | 3802 | 4402 | 5002 | 6002 | **138.00** |
| | 40–400 | LX9FH• | — | 0482 | 1102 | 1272 | 2002 | 2202 | 2402 | 2772 | 3802 | 3802 | . . . | 5002 | — | **138.00** |
| F400★ | 40–400 | LX1FJ• | — | 048 | 110 | 110 | 200 | 220 | 240 | 280 | 380 | 415 | 415 | 415 | 600 | **287.00** |
| | 40–400 | LX9FJ• △ | 910 | 917 | 925 | 925 | 930 | 931 | 932 | 932 | 936 | 936 | 937 | 937 | — | **287.00** |
| F500★ | 40–400 | LX1FK• | — | 048 | 110 | 110 | 200 | 220 | 240 | 280 | 380 | 415 | 415 | 415 | 600 | **360.00** |
| | 40–400 | LX9FK• △ | 910 | 917 | 925 | 925 | 930 | 931 | 932 | 932 | 936 | 936 | 937 | 937 | — | **360.00** |
| F630★ | 40–400 | LX1FL• | — | 048 | 110 | 110 | 200 | 220 | 240 | 260 | 380 | 415 | 415 | 415 | 600 | **398.00** |
| | 40–400 | LX9FL• △ | 910 | 917 | 924 | 925 | 930 | 930 | 931 | 932 | 935 | 936 | 936 | 937 | — | **483.00** |
| F780, FX ♦ | 40–400 | LX1FX• | — | — | 110 | 110 | 200 | 220 | 220 | 280 | 380 | 415 | 415 | 415 | — | **795.00** |
| F800 | 50/60 | LX4F8• ▼ | — | — | FW | FW | — | MW | MW | — | QW | QW | QW | — | — | **725.00** |

♦ LC1F780 contactors operate on 2 coils as a set. The LX1FX part number includes both coils.
★ The 600 V coils for the F400, F500 and F630 do not include an auxiliary contact for holding circuits. If required, select appropriate contacts from page 18-8.
▼ Also requires rectifier DR5TE4U for 110–240 V coils, DR5TE4S for 380–440 V coils. See Table 18.64 for pricing.
△ Coil circuit requires a separately mounted rectifier. Order from Table 18.64.
□ Complete the catalog number by adding the suffix (for example, LX1FF024).

## Application Note on Contactor Drop-out Times:

Contactors using LX1, FH, FJ, FK, FL, and FX coils have longer drop-out times. For critical applications such as emergency stop functions:

- Select a fast drop-out coil (LX9), or
- Use a maintained contact Stop button, or
- Use an interposing relay.

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys F contactors . . . . . pages 18-5, 18-7
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-17 to 18-19
Dimensions . . . . . pages 18-40 to 18-47

### Table 18.64: Rectifier Table

| Coil | Rectifier Catalog Number | $ Price |
|---|---|---|
| LX9F•910 | DR5TF4V | **75.00** |
| LX9F•917 | DR5TF4V | **75.00** |
| LX9F•925 | DR5TE4U | **75.00** |
| LX9F•926 | DR5TE4U | **75.00** |
| LX9F•931 | DR5TE4U | **75.00** |
| LX9F•936 | DR5TE4S | **75.00** |
| LX9F•937 | DR5TE4S | **75.00** |
| LX9F•938 | DR5TE4S | **75.00** |



© 2012 Schneider Electric
All Rights Reserved

### Table 18.65: For Old D2 LP1D09, D12, D18 ▲♦

| Rated Nominal Voltage V | Catalog Number | Catalog Number Wide Range | $ Price |
|---|---|---|---|
| 12 | LX4D2JD | LX4D2JW | **79.00** |
| 21■ | LX4D2ZD | — | **79.00** |
| 24 | LX4D2BD | LX4D2BW | **79.00** |
| 36 | LX4D2CD | LX4D2CW | **79.00** |
| 48 | LX4D2ED | LX4D2EW | **79.00** |
| 60 | LX4D2ND | — | **79.00** |
| 72 | LX4D2SD | LX4D2SW | **79.00** |
| 110 | LX4D2FD | LX4D2FW | **79.00** |
| 125 | LX4D2GD | — | **79.00** |
| 220 | LX4D2MD | LX4D2MW | **79.00** |
| 250 | LX4D2UD | — | **79.00** |
| 440 | LX4D2RD | — | **79.00** |
| 600 | LX4D2XD | — | **79.00** |

| Specifications | | |
|---|---|---|
| **Average consumption** | **9 W** | **11 W** |
| Operating range at θ–55 °C / 131 °F | 80–110% of nominal voltage | 70–125% of nominal voltage |

### Table 18.66: For Old D2 LP1D25, D32 ▲♦

| Rated Nominal Voltage V | Catalog Number | Catalog Number Wide Range | $ Price |
|---|---|---|---|
| 12 | LX4D4JD | LX4D4JW | **110.00** |
| 21 ■ | LX4D4ZD | — | **110.00** |
| 24 | LX4D4BD | LX4D4BW | **110.00** |
| 36 | LX4D4CD | LX4D4CW | **110.00** |
| 48 | LX4D4ED | LX4D4EW | **110.00** |
| 60 | LX4D4ND | — | **110.00** |
| 72 | LX4D4SD | LX4D4SW | **110.00** |
| 110 | LX4D4FD | LX4D4FW | **110.00** |
| 125 | LX4D4GD | — | **110.00** |
| 220 | LX4D4MD | LX4D4MW | **110.00** |
| 250 | LX4D4UD | — | **110.00** |
| 440 | LX4D4RD | — | **110.00** |
| 600 | LX4D4XD | — | **110.00** |

| Specifications | | |
|---|---|---|
| **Average consumption** | **11 W** | **13 W** |
| Operating range at θ ≤ 55 °C / 131 °F | 80–110% of nominal voltage | 70–125% of nominal voltage |

▲ For old style contactors where the catalog number includes the auxiliary contact arrangement (for example, LP1D2510). The new style TeSys DC controlled contactors (for example, LC1D25BD) do not have replaceable coils.

■ For use in 24 V applications with serial timer modules. Refer to page 18-10.

♦ No replacement DC coils for TeSys D contactors.

| TeSys DC Coil Specifications | | |
|---|---|---|
| | **Average consumption** | **Operating range** |
| LC1D09-D32, LC1DT20–LC1DT40 | Inrush 5.4 W | 70–125% @ 60°C |
| | Sealed 5.4 W | |
| LCID••A | Inrush 19 W | 75–125% @ 60°C |
| | Sealed 7.4 W | |
| | **Low consumption** | |
| LC1D09-D32, LC1DT20–LC1DT40 | Inrush 2.4 W | 70–125% @ 60°C |
| | Sealed 2.4 W | |

Note: DC coils for LC1D09–D32, LC1DT20–LC1DT40, and LCID••A contactors are not replaceable.

### Table 18.67: For Old D2 LP1D40, D50, D65 ▲♦

| Rated Nominal Voltage V | Catalog Number | Catalog Number Wide Range | $ Price |
|---|---|---|---|
| 12 | LX4D6JD | LX4D6JW | |
| 24 | LX4D6BD | LX4D6BW | |
| 36 | LX4D6CD | LX4D6CW | **124.00** |
| 48 | LX4D6ED | LX4D6EW | |
| 60 | LX4D6ND | — | |
| 72 | LX4D6SD | LX4D6SW | |
| 110 | LX4D6FD | LX4D6FW | **124.00** |
| 125 | LX4D6GD | — | |
| 220 | LX4D6MD | LX4D6MW | |
| 250 | LX4D6UD | — | |
| 440 | LX4D6RD | — | **124.00** |
| 600 | LX4D6XD | — | |

| Specifications | | |
|---|---|---|
| **Average consumption** | **22 W** | **23 W** |
| Operating range at θ ≤ 55 °C /131 °F | 80–110% of nominal voltage | 75–120% of nominal voltage |

### Table 18.68: For Old D2 LP1D80 and LC1D80▲

| Rated Nominal Voltage V | Catalog Number | Catalog Number Wide Range ★ | $ Price |
|---|---|---|---|
| 12 | LX4D7JD | LX4D7JW | |
| 24 | LX4D7BD | LX4D7BW | |
| 36 | LX4D7CD | LX4D7CW | **134.00** |
| 48 | LX4D7ED | LX4D7EW | |
| 60 | LX4D7ND | — | |
| 72 | LX4D7SD | LX4D7SW | |
| 110 | LX4D7FD | LX4D7FW | |
| 125 | LX4D7GD | — | **134.00** |
| 220 | LX4D7MD | LX4D7MW | |
| 250 | LX4D7UD | — | |
| 440 | LX4D7RD | — | **134.00** |
| 600 | LX4D7XD | — | |

| Specifications | | |
|---|---|---|
| **Average consumption** | **22 W** | **23 W** |
| Operating range at θ ≤ 55 °C / 131 °F | 80–110% nominal voltage | 70–120% nominal voltage |

★ Wide range coils cannot be used with contactors using both front- and side-mounting auxiliaries.

### Table 18.69: For TeSys D LC1D115, 150

| Rated Nominal Voltage V | Catalog Number | $ Price |
|---|---|---|
| 24 | LX4D8BD | |
| 48 | LX4D8ED | |
| 60 | LX4D8ND | **78.00** |
| 72 | LX4D8SD | |
| 110 | LX4D8FD | |
| 125 | LX4D8GD | |
| 220 | LX4D8MD | **78.00** |
| 250 | LX4D8UD | |
| 440 | LX4D8RD | |

| Average Consumption | Inrush 365 W, Sealed 5 W |
|---|---|
| Operating range at θ ≤ 55 °C / 131 °F | 70%–120% of nominal voltage |

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-17 to 18-19
Dimensions . . . . . pages 18-40 to 18-46

Limited Stock—Replaced by TeSys Products



© 2012 Schneider Electric
All Rights Reserved

## TeSys F DC Coils

LX4 coils are the standard coils when a voltage code is added to the part number. The LX9 coils may be ordered separately for special applications. LX9 coils do not include a built-in normally open holding circuit contact; a separate auxiliary contact block with a N.O. contact should be added to the contactor. Both the LX4 and LX9 coils can be used on previous F-line devices.

**Table 18.70: LX4 Coils for LC1F115, F150, F185, F265, F400, F500, F630, F780, F800**

| Device Type | Catalog Number | ● Catalog Number Suffix | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 24 V | 36V | 48 V | 60 V | 72 V | 110 V | 125 V | 220 V | 250 V | 440 V | $ Price |
| F115, F150 | LX4FF● | 024 | 035 | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **78.00** |
| F185, F225 | LX4FG● | 024 | 035 | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **108.00** |
| F265, F330 | LX4FH● | 024 | 035 | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **138.00** |
| F400 | LX4FJ● | — | — | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **287.00** |
| | LX9FJ●♦ | — | — | 918 | — | — | 926 | 927 | 932 | — | 938 | **287.00** |
| F500 | LX4FK● | — | — | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **360.00** |
| | LX9FK●♦ | — | — | 918 | — | — | 926 | 927 | 932 | — | 938 | **360.00** |
| F630 | LX4FL● | — | — | 048 | 060 | 070 | 110 | 125 | 220 | 250 | 440 | **398.00** |
| | LX9FK●♦ | — | — | 918 | — | — | 926 | 927 | 932 | — | 938 | **398.00** |
| F780 | LX4FX●▲ | — | — | — | — | — | 110 | 125 | 220 | 250 | 440 | **795.00** |
| F800 | LX4F8●■ | — | — | — | — | — | FW | FW | MW | — | QW | **725.00** |

▲ LC1F780 contactors operate on 2 coils as a set. The LX4FX part number includes both coils.
■ Also requires rectifier DR5TE4U, **$72.00** list price.
♦ Coil circuit requires a separately mounted resistor. Order from Table 18.71 below.

**Table 18.71: LX9 Coils and Resistors**

| Coil | Resistor Catalog Number | Qty. Required | $ Price | Coil | Resistor Catalog Number | Qty. Required | $ Price | Coil | Resistor Catalog Number | Qty. Required | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LX9FJ918 | DR2SC0047 | 1 | **13.70** | LX9FK918 | DR2SC0039 | 1 | **13.70** | LX9FL918 | DR2SC0047 | 2 | **13.70** |
| LX9FJ926 | DR2SC0030 | 1 | **13.80** | LX9FK926 | DR2SC0220 | 1 | **13.70** | LX9FL925 | DR2SC0270 | 2 | **13.70** |
| LX9FJ927 | DR2SC0390 | 1 | **13.70** | LX9FK927 | DR2SC0330 | 1 | **13.70** | LX9FL926 | DR2SC0330 | 2 | **13.70** |
| LX9FJ932 | DR2SC1200 | 1 | **13.70** | LX9FK932 | DR2SC1000 | 1 | **13.70** | LX9FL931 | DR2SC1000 | 2 | **13.70** |
| LX9FJ938 | DR2SC4700 | 1 | **13.70** | LX9FK938 | DR2SC3300 | 1 | **13.70** | LX9FL937 | DR2SC3900 | 2 | **13.70** |

TeSys F contactors . . . . . .pages 18-5, 18-7
TeSys F overload relay accessories . . . . . page 18-16
TeSys F replacement coils and parts . . . . . .pages 18-18, 18-18, 18-20
Dimensions . . . . . pages 18-42 to 18-47





© 2012 Schneider Electric
All Rights Reserved

TeSys D enclosed full-voltage starters are available in Type 1 and Type 12/3R enclosures through 50 hp at 460 V. The enclosed D-line accepts standard D-Line accessories and all Insta-Kits™ control units and control power transformer kits. Standard capacity control power transformers with built-in fuse block can be installed in the standard enclosure. For extra capacity, please refer to your local distributor or Schneider Electric sales office.

**Table 18.72: Enclosed Full Voltage Non-Reversing Starters**

| Max. Horsepower Ratings (AC3) | | | | | | Auxiliary Contacts | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Phase | | 3 Phase | | | | | | | Type 1 | | Type 12/3R | |
| 115 | 230 | 200 V | 230 V | 460 V | 575V | N.O. | N.C. | | | | | |
| 0.333 | 1 | 2 | 2 | 5 | 7.5 | 1 | 1 | 9 | LE1D093A62••••• | **109.** | LE1D093A72••••• | **175.** |
| 0.5 | 2 | 3 | 3 | 7.5 | 10 | 1 | 1 | 12 | LE1D123A62••••• | **137.** | LE1D123A72••••• | **202.** |
| 1 | 3 | 5 | 5 | 10 | 15 | 1 | 1 | 18 | LE1D183A62••••• | **153.** | LE1D183A72••••• | **219.** |
| 2 | 3 | 5 | 7.5 | 15 | 20 | 1 | 1 | 25 | LE1D253A62••••• | **170.** | LE1D253A72••••• | **235.** |
| 2 | 5 | 7.5 | 10 | 20 | 25 | 1 | 1 | 32 | LE1D323A62••••• | **191.** | LE1D323A72••••• | **245.** |
| 3 | 5 | 10 | 10 | 30 | 30 | 1 | 1 | 40 | LE1D403A62••••• | **273.** | LE1D403A72••••• | **393.** |
| 3 | 7.5 | 12 | 15 | 40 | 40 | 1 | 1 | 50 | LE1D503A62••••• | **300.** | LE1D503A72••••• | **420.** |
| 5 | 10 | 20 | 20 | 40 | 50 | 1 | 1 | 65 | LE1D653A62••••• | **393.** | LE1D653A72••••• | **514.** |
| 7.5 | 15 | 30 | 30 | 60 | 60 | 1 | 1 | 80 | LE1D803A62••••• | **473.** | LE1D803A72••••• | **610.** |

**Table 18.73: Enclosed Full Voltage Reversing Starters**

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Auxiliary Contacts On Each Contactor | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 200V | 230 V | 460 V | 575 V | N.O. | N.C. | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 1 | 1 | 9 | LE2D093A62••••• | **305.** | LE2D093A72••••• | **382.** |
| 3 | 3 | 7.5 | 10 | 1 | 1 | 12 | LE2D123A62••••• | **355.** | LE2D123A72••••• | **453.** |
| 5 | 5 | 10 | 15 | 1 | 1 | 18 | LE2D183A62••••• | **385.** | LE2D183A72••••• | **483.** |
| 5 | 7.5 | 15 | 20 | 1 | 1 | 25 | LE2D253A62••••• | **415.** | LE2D253A72••••• | **513.** |
| 7.5 | 10 | 20 | 25 | 1 | 1 | 32 | LE2D323A62••••• | **464.** | LE2D323A72••••• | **573.** |
| 10 | 10 | 30 | 30 | 1 | 1 | 40 | LE2D403A62••••• | **655.** | LE2D403A72••••• | **819.** |
| 12 | 15 | 40 | 40 | 1 | 1 | 50 | LE2D503A62••••• | **710.** | LE2D503A72••••• | **874.** |
| 20 | 20 | 40 | 50 | 1 | 1 | 65 | LE2D653A62••••• | **900.** | LE2D653A72••••• | **1030.** |
| 30 | 30 | 60 | 60 | 1 | 1 | 80 | LE2D803A62••••• | **1248.** | LE2D803A72••••• | **1412.** |

**Table 18.74: Catalog Number Nomenclature**

Catalog Number Example: LE1D093A62 O G 7 1 07

- Base Catalog Number
- Control Power Transformer △
- Contactor/Starter Coil Voltage □
- Coil Frequency ◊
- Overload Relay Type ▽
- Overload Relay Range ☆

### △Control Power Transformer

**Add price from page 18-23. Select letter for primary voltage of CPT:**

| Voltage | No Transformer used | 208 | 240 | 480 | 600 |
|---|---|---|---|---|---|
| Code | O ▲ | L | M | T | X |

▲ Letter O, not zero.

Note: If control transformer is used, the only options available are 24 or 120 V as the secondary of the transformer. Also, DC voltages are not available when control power transformer is used.

### □Contactor/Starter Coil Voltage

**Select coil voltage from table:**

| Voltage | 24 | 120 | 208 | 240 | 480 | 600 |
|---|---|---|---|---|---|---|
| AC | B | G | L | U | T | X |
| DC | B | — | — | — | — | — |

### ◊Coil Frequency

Select:
7 = dual frequency coils (50/60 Hz.)
6 = 60 Hz.
D=DC

Note: For 9 to 65 A contactors, only dual frequency coils are available; 80 A contactors, the 24–240 V coils are dual frequency only (50/60 Hz.). The 480–600 V coils are 60 Hz. only. See catalog 8502CT9901 for other restrictions.

### ▽Overload relay type

Select:
0 = No overload relay
1 = Class 10 Trip
2 = Class 20 Trip

**Table 18.75: ☆Overload Relay Range**
(Select code from the table below)

| Code | Range | For use on Contactors | $ Price Adder |
|---|---|---|---|
| 01 | 0.1–0.16 | D09–D32■ | **60.** |
| 02 | 0.16–0.25 | D09–D32■ | **60.** |
| 03 | 0.25–0.40 | D09–D32■ | **60.** |
| 04 | 0.40–0.63 | D09–D32■ | **60.** |
| 05 | 0.63–1.0 | D09–D32■ | **60.** |
| 06 | 1.0–1.6 | D09–D32■ | **60.** |
| 07 | 1.6–2.5 | D09–D32■ | **60.** |
| 08 | 2.5–4 | D09–D32 | **60.** |
| 10 | 4–6 | D09–D32 | **60.** |
| 12 | 5.5–8 | D09–D32 | **60.** |
| 13 | 9–13 | D40, D50, D65 | **107.** |
| 14 | 7–10 | D09–D32 | **62.** |
| 16 | 9–13 | D12–D32 | **62.** |
| 18 | 12–18 | D40, D50, D65 | **107.** |
| 21 | 12–18 | D18–D32 | **62.** |
| 22 | 16–24 | D25–D32■ | **62.** |
| | 17–25 | D25–D32♦ | **62.** |
| | 17–25 | D80 | **107.** |
| 25 | 17–25 | D40, D50, D65 | **107.** |
| 30 | 23-28 | D25–D32♦ | **73.** |
| 32 | 23–32 | D25–D32 | **73.** |
| 32 | 23–32 | D40, D50, D65 | **107.** |
| 40 | 30–40 | D40, D50, D65 | **107.** |
| 50 | 37–50 | D40, D50, D65 | **107.** |
| 53 | 30–38 | D80 | **107.** |
| 55 | 30–40 | D80 | **107.** |
| 57 | 37–50 | D80 | **107.** |
| 59 | 48–65 | D80 | **107.** |
| 61 | 55–70 | D65–D80 | **107.** |
| 63 | 63–80 | D65–D80 | **107.** |
| 65 | 48–65 | D40, D50, D65 | **107.** |

■ Available for Class 10 only.
♦ Available for Class 20 only.
Note: If no overload relay is required, leave this portion of the catalog blank. Add appropriate price adder to the base price of the starter.

Dimensions . . . . . .page 18-48



© 2012 Schneider Electric
All Rights Reserved

IEC combination starters combine the requirements of motor overload and short circuit protection in one convenient compact package. All devices provide Type 2 Coordination through 30 hp at 460 V. Devices are available in Type 1 and Type 12/3R enclosures. The IEC combination starter line accepts standard TeSys D accessories and all Insta-Kits™ pilot devices and control power transformer kits. Standard capacity control power transformers with built-in fuse block can be installed in the standard enclosure. For extra capacity, please refer to your local distributor or nearest Square D/Schneider Electric sales office.

***NOTE:*** *Use tables and notes from page 18-21 to complete the catalog numbers.*



### Table 18.76: Enclosed Full Voltage Non-Reversing Fusible Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Fuse Clip Rating | | Auxiliary Contacts | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | Amperes | UL Class | N.O. | N.C. | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 30 A | CC | 1 | 1 | 9 | LE1D096B62••••• | **426.** | LE1D096B72••••• | **551.** |
| 3 | 3 | 7.5 | 10 | 30 A | CC | 1 | 1 | 12 | LE1D126B62••••• | **468.** | LE1D126B72••••• | **592.** |
| 5 | 5 | 10 | 15 | 30 A | J | 1 | 1 | 18 | LE1D186B62••••• | **484.** | LE1D186B72••••• | **607.** |
| 5 | 7.5 | 15 | 20 | 30 A | J | 1 | 1 | 25 | LE1D256B62••••• | **500.** | LE1D256B72••••• | **623.** |
| 7.5 | 10 | 20 | 25 | 60 A | J | 1 | 1 | 32 | LE1D326C62••••• | **653.** | LE1D326C72••••• | **829.** |
| 10 | 10 | 30 | 30 | 60 A | J | 1 | 1 | 40 | LE1D406C62••••• | **708.** | LE1D406C72••••• | **877.** |

### Table 18.77: Enclosed Full Voltage Reversing Fusible Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Fuse Clip Rating | | Aux. Contacts Each Contactor | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | Amperes | UL Class | N.O. | N.C. | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 30 A | CC | 1 | 1 | 9 | LE2D096B62••••• | **712.** | LE2D096B72••••• | **837.** |
| 3 | 3 | 7.5 | 10 | 30 A | CC | 1 | 1 | 12 | LE2D126B62••••• | **778.** | LE2D126B72••••• | **915.** |
| 5 | 5 | 10 | 15 | 30 A | J | 1 | 1 | 18 | LE2D186B62••••• | **808.** | LE2D186B72••••• | **950.** |
| 5 | 7.5 | 15 | 20 | 30 A | J | 1 | 1 | 25 | LE2D256B62••••• | **833.** | LE2D256B72••••• | **980.** |
| 7.5 | 10 | 20 | 25 | 60 A | J | 1 | 1 | 32 | LE2D326C62••••• | **1089.** | LE2D326C72••••• | **1281.** |
| 10 | 10 | 30 | 30 | 60 A | J | 1 | 1 | 40 | LE2D406C62••••• | **1179.** | LE2D406C72••••• | **1371.** |

### Table 18.78: Enclosed Full Voltage Non-Reversing Circuit Breaker Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Auxiliary Contacts | | Circuit Breaker Maximum Current Rating | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | N.O. | N.C. | | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 1 | 1 | 15 A | 9 | LE1D097D62••••• | **569.** | LE1D097D72••••• | **730.** |
| 3 | 3 | 7.5 | 10 | 1 | 1 | 15 A | 12 | LE1D127D62••••• | **622.** | LE1D127D72••••• | **789.** |
| 5 | 5 | 10 | 15 | 1 | 1 | 30 A | 18 | LE1D187E62••••• | **647.** | LE1D187E72••••• | **808.** |
| 5 | 7.5 | 15 | 20 | 1 | 1 | 30 A | 25 | LE1D257E62••••• | **668.** | LE1D257E72••••• | **834.** |
| 7.5 | 10 | 20 | 25 | 1 | 1 | 50 A | 32 | LE1D327F62••••• | **870.** | LE1D327F72••••• | **1088.** |
| 10 | 10 | 30 | 30 | 1 | 1 | 50 A | 40 | LE1D407F62••••• | **944.** | LE1D407F72••••• | **1179.** |

### Table 18.79: Enclosed Full Voltage Reversing Circuit Breaker Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Auxiliary Contacts Each Contactor | | Circuit Breaker Maximum Current Rating | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | N.O. | N.C. | | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 1 | 1 | 15 A | 9 | LE2D097D62••••• | **836.** | LE2D097D72••••• | **972.** |
| 3 | 3 | 7.5 | 10 | 1 | 1 | 15 A | 12 | LE2D127D62••••• | **944.** | LE2D127D72••••• | **1096.** |
| 5 | 5 | 10 | 15 | 1 | 1 | 30 A | 18 | LE2D187E62••••• | **1010.** | LE2D187E72••••• | **1174.** |
| 5 | 7.5 | 15 | 20 | 1 | 1 | 30 A | 25 | LE2D257E62••••• | **1075.** | LE2D257E72••••• | **1251.** |
| 7.5 | 10 | 20 | 25 | 1 | 1 | 50 A | 32 | LE2D327F62••••• | **1403.** | LE2D327F72••••• | **1631.** |
| 10 | 10 | 30 | 30 | 1 | 1 | 50 A | 40 | LE2D407F62••••• | **1522.** | LE2D407F72••••• | **1770.** |

### Table 18.80: Enclosed Full Voltage Non-Reversing Non-Fused Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Auxiliary Contacts | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | N.O. | N.C. | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 1 | 1 | 9 | LE1D096A62••••• | **416.** | LE1D096A72••••• | **541.** |
| 3 | 3 | 7.5 | 10 | 1 | 1 | 12 | LE1D126A62••••• | **458.** | LE1D126A72••••• | **532.** |
| 5 | 5 | 10 | 15 | 1 | 1 | 18 | LE1D186A62••••• | **474.** | LE1D186A72••••• | **597.** |
| 5 | 7.5 | 15 | 20 | 1 | 1 | 25 | LE1D256A62••••• | **490.** | LE1D256A72••••• | **613.** |
| 7.5 | 10 | 20 | 25 | 1 | 1 | 32 | LE1D326A62••••• | **643.** | LE1D326A72••••• | **819.** |
| 10 | 10 | 30 | 30 | 1 | 1 | 40 | LE1D406A62••••• | **698.** | LE1D406A72••••• | **867.** |

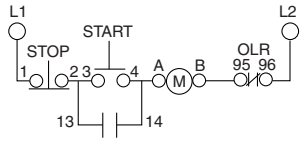
### Table 18.81: Enclosed Full Voltage Reversing Non-Fused Combination Starters

| Max. Horsepower Ratings (AC3) 3 Phase | | | | Aux. Contacts Each Contactor | | Current Rating of Contactor | Catalog Number | $ Price | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 200 V | 230 V | 460 V | 575 V | N.O. | N.C. | | Type 1 | | Type 12/3R | |
| 2 | 2 | 5 | 7.5 | 1 | 1 | 9 | LE2D096A62••••• | **702.** | LE2D096A72••••• | **827.** |
| 3 | 3 | 7.5 | 10 | 1 | 1 | 12 | LE2D126A62••••• | **768.** | LE2D126A72••••• | **905.** |
| 5 | 5 | 10 | 15 | 1 | 1 | 18 | LE2D186A62••••• | **798.** | LE2D186A72••••• | **940.** |
| 5 | 7.5 | 15 | 20 | 1 | 1 | 25 | LE2D256A62••••• | **823.** | LE2D256A72••••• | **970.** |
| 7.5 | 10 | 20 | 25 | 1 | 1 | 32 | LE2D326A62••••• | **1079.** | LE2D326A72••••• | **1271.** |
| 10 | 10 | 30 | 30 | 1 | 1 | 40 | LE2D406A62••••• | **1169.** | LE2D406A72••••• | **1361.** |

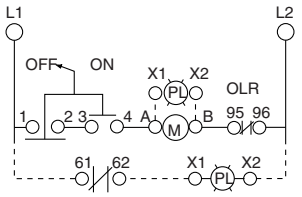
Dimensions . . . . . page 18-48



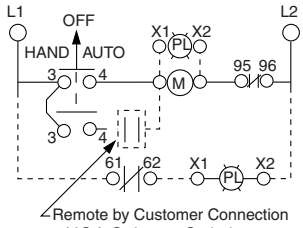
© 2012 Schneider Electric
All Rights Reserved



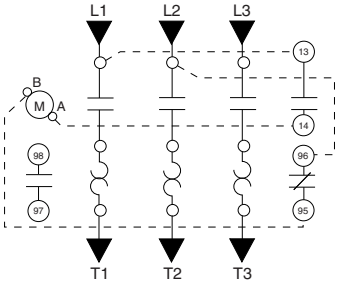
Start/Stop



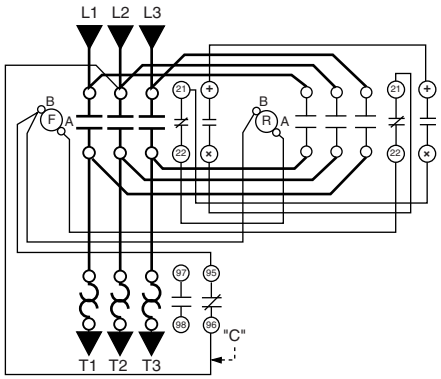
On-Off Selector Switch



HOA Selector Switch



D-Line AC Magnetic Starter
2-3 Poll



D-Line AC Magnetic Reversing Starter
3-Pole

## Factory Modifications and Insta-Kits™ Selection

Add the factory modification code to the end of the catalog number created from page 18-21. With the use of Insta-Kits™, only one operator scheme is allowed. Only the combinations of operators and pilot lights shown below can be ordered.

Pilot lights will be at the coil voltage indicated in the catalog number for the starter.

### Table 18.82: Factory Modifications

| Description | Factory Modification Code▲ | $ Price | Insta-Kits (for field installation) | $ Price |
|---|---|---|---|---|
| **Control Units Only** | | | | |
| For-Rev-Stop Push Button | A06L | **131.** | LA9CA06LT | **71.00** |
| Start/Stop Push Button | A06G | **65.** | LA9CA06GT | **32.80** |
| I/O (Start/Stop) Push Button | N/A | — | N/A | — |
| I/O Push Button (double touch) | A06I | **83.** | LA9CA06IO | **41.50** |
| Emergency Stop | N/A | — | N/A | — |
| Hand-Off-Auto Selector Switch | A06E | **65.** | LA9CA06ET | **32.80** |
| On/Off Selector Switch | A06D | **65.** | LA9CA06DT | **41.50** |
| Start/Mushroom Head Stop Push Button | A06X | **65.** | LA9CA06XT | **63.00** |
| **Pilot Lights only** | | | | |
| LED Pilot light, 24, 120 or 240 V | A16S | **134.** | LA9CA16ST★ | **66.00** |
| Green-Red Pilot Light, Direct Supply, 24 or 120 V ■ | A06S | **112.** | LA9CA06ST★ | **62.00** |
| Green-Red Transformer Pilot Light, 120, 208/240, 480 or 600 V ■ | A06F | **207.** | LA9CA06FT★ | **113.00** |
| **Available Combination of Control Units and Pilot Lights** | | | | |
| Hand-Off-Auto Selector Switch w/24, 120, or 240 V LED Pilot Light | A16U | **213.** | LA9CA16UT★ | **177.00** |
| Start/Stop Push Button w/ 24, 120 or 240 V LED Pilot Light | A16V | **213.** | LA9CA16VT★ | **177.00** |
| On/Off Selector w/ 24, 120 or 240 V LED Pilot Light | A16W | **213.** | LA9CA16WT★ | **177.00** |
| Start/Stop Push Button w/ Green-Red Transformer Pilot Light | A06N | **177.** | LA9CA06NT★ | **95.00** |
| Start/Stop Push Button w/Green-Red Pilot Light | A06V | **177.** | LA9CA06VT | **95.00** |
| Hand-Off-Auto Selector Switch w/Green-Red Pilot Light | A06U | **273.** | LA9CA06UT | **97.00** |
| Hand-Off-Auto Selector Switch w/Green-Red Transformer Pilot Light | A06J | **273.** | LA9CA06JT★ | **147.00** |
| On/Off Selector w/Green-Red Pilot Light | A06W | **177.** | LA9CA06WT | **95.00** |
| On/Off Selector w/Green-Red Transformer Pilot Light | A06H | **273.** | LA9CA06HT★ | **147.00** |
| **Control Power Transformer** | | | | |
| Standard VA, 2 Fuses in Primary, 1 Fuse in Secondary | A206P | **260.** | ♦ | — |
| 50 VA extra, 2 Fuses in Primary, 1 Fuse in Secondary | A207P | **456.** | ♦ | — |
| 100 VA extra, 2 Fuses in Primary, 1 Fuse in Secondary | A208P | **634.** | ♦ | — |

▲ Add these forms to the catalog number selected on page 18-21. The numbers as shown are for use in NEMA 1 Enclosures. For uses in NEMA 12/3R change the 6 to a 7 (ex A06U becomes A07U). Price remains the same. The change DOES NOT apply to control power transformer forms.

■ Pilot lights are wired such that the light is on when the contactor is energized. For non-LED type pilot lights, a green lens is installed on the unit when shipped. A red lens is included for use as applicable.

♦ Select Insta-Kits™ from table below.

### Table 18.83: Insta-Kits™ Selection

| Total VA | Insta-Kits™ Catalog Number | $ Price |
|---|---|---|
| 50 | LA9TFD32★ | **140.00** |
| 100 | LA9TFD80★ | **246.00** |
| 150 | LA9TFD15★ | **343.00** |

★ Complete the part number for the Insta-Kits™ by selecting the voltage code from the appropriate tables below.

### Table 18.84: Voltage Codes for Pilot Lights

| Voltage (Vac) | 24 | 120 | 208/240 | 480 | 600 |
|---|---|---|---|---|---|
| **Code** | B | G | M | T | X |

### Table 18.85: Voltage Codes for Control Power Transformers

| Primary Voltage | 120 | 208 | 240 | 480 | 600 | 208 | 240 | 480 | 600 |
|---|---|---|---|---|---|---|---|---|---|
| **Secondary Voltage** | 24 | | | | | 120 | | | |
| **Code** | E | D | C | B | A | L | M | T | X |



© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Non-Reversing Mini-Contactors



LC1K09●

### Table 18.86: AC Operating Coils

| Maximum Horsepower Ratings | | | | | | Maximum Current | | Type of Connection | Auxiliary Contacts | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Ø | | 3 Ø | | | | Inductive AC3 (A) | Resistive AC1 (A) | | N.O. | N.C. | | |
| 115 V hp | 230 V hp | 200 V hp | 230 V hp | 460 V hp | 575 V hp | | | | | | | |
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1 | — | LC1K0610 ▲ ■ | **57.** |
| | | | | | | | | | — | 1 | LC1K0601 ▲■ | **57.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1 | — | LC1K0910 ▲■ | **75.** |
| | | | | | | | | | — | 1 | LC1K0901 ▲■ | **75.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1 | — | LC1K1210 ▲■ | **86.** |
| | | | | | | | | | — | 1 | LC1K1201 ▲■ | **86.** |

### Table 18.87: Coil Voltage Codes for AC Contactors

Up to and including 240 V coil with integral suppression device available. Add **2** to the code required (for example, J7**2**). Price adder $10.00.

| Vac 50/60 Hz | 12 | 24 | 42 | 48 | 110 | 120 | 127 | 200/208 | 220/230 | 230 | 230/240 | 277 | 380/400 | 400/415 | 440 | 480 | 660/690 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code** | J7 | B7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 | P7 | U7 | UE7 | Q7 | N7 | R7 | T7 | Y7 |

### Table 18.88: DC Operating Coils

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1 | — | LP1K0610 ▲■ | **75.** |
| | | | | | | | | | — | 1 | LP1K0601 ▲■ | **75.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1 | — | LP1K0910 ▲■ | **92.** |
| | | | | | | | | | — | 1 | LP1K0901 ▲■ | **92.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1 | — | LP1K1210 ▲■ | **106.** |
| | | | | | | | | | — | 1 | LP1K1201 ▲■ | **106.** |

▲ See Table 18.89:
For TeSys K contactors with spring terminal clamps, add a **3** before the coil voltage code (for example, LC1K06103G7).
For TeSys K contactors with solder pin terminals, add a **5** before the coil voltage code (for example, LC1K09105B7).
For TeSys K contactors with slip-on terminals, add a **7** before the coil voltage code (for example, LC1K12107M7).

■ Complete the catalog number with the appropriate coil voltage code (for example, LC1K0610**G7**).



LP4K09●

### Table 18.89: Coil Voltage Codes for DC Contactors

Coil with integral suppression device available. Add **3** to the code required (for example, JD**3**). Price adder $10.00 ▲

| Vdc | 12 | 20 | 24 | 36 | 48 | 60 | 72 | 100 | 110 | 125 | 200 | 220 | 230 | 240 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code** | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | LD | MD | MPD | MUD | UD |

▲ 3 W inrush.

### Table 18.90: DC–Low Consumption Operating Coils (devices have built-in transient suppression)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1 | — | LP4K0610 ▲■ | **92.** |
| | | | | | | | | | — | 1 | LP4K0601 ▲■ | **92.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1 | — | LP4K0910 ▲■ | **110.** |
| | | | | | | | | | — | 1 | LP4K0901 ▲■ | **110.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1 | — | LP4K1210 ▲■ | **126.** |
| | | | | | | | | | — | 1 | LP4K1201 ▲■ | **126.** |

▲ See Table 18.91:
For TeSys K contactors with spring terminal clamps, add a **3** before the coil voltage code (for example, LC1K06103G7).
For TeSys K contactors with solder pin terminals, add a **5** before the coil voltage code (for example, LC1K09105B7).
For TeSys K contactors with slip-on terminals, add a **7** before the coil voltage code (for example, LC1K12107M7).

■ Complete the catalog number with the appropriate coil voltage code (for example, LC1K0610**G7**).



LR2K0316

### Table 18.91: Coil Voltage Codes for DC Contactors—Low Consumption ▲

| Vdc | 12 | 24 | 48 | 72 |
|---|---|---|---|---|
| **Code** | JW3 | BW3 | EW3 | SW3 |

▲ 1.8 inrush sealed.

### Table 18.92: Overload Relays for 3-Pole Contactors with Screw-Clamp Terminals

| Class 10, Relay setting range–A | Catalog Number | $ Price |
|---|---|---|
| 0.1 to 0.16 | LR2K0301 | **59.** |
| 0.16 to 0.23 | LR2K0302 | **59.** |
| 0.23 to 0.36 | LR2K0303 | **59.** |
| 0.36 to 0.54 | LR2K0304 | **59.** |
| 0.54 to 0.8 | LR2K0305 | **59.** |
| 0.8 to 1.2 | LR2K0306 | **59.** |
| 1.2 to 1.8 | LR2K0307 | **59.** |
| 1.8 to 2.6 | LR2K0308 | **59.** |
| 2.6 to 3.7 | LR2K0310 | **59.** |
| 3.8 to 5.5 | LR2K0312 | **59.** |
| 5.5 to 8 | LR2K0314 | **59.** |
| 8 to 11.5 | LR2K0316 | **59.** |
| 10 to 14 | LR2K0321 | **59.** |

**LR2K overload relays:**

- AC or DC protection
- Ambient compensated bimetallic
- Class 10
- Single phase sensitivity
- Manual or auto reset
- Full load current dial

E164862
CCN NLDX
(screw terminals)

LR43364
Class 3211 04

E164862
CCN NLDX2
(slip-on & solder-pin terminals)

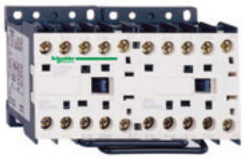
Accessories . . . . . page 18-27
Dimensions . . . . . page 18-49





© 2012 Schneider Electric
All Rights Reserved

## 3-Pole Reversing Mini-Contactors


LC2K09107

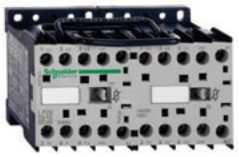
### Table 18.93: AC Operating Coils

| Maximum Horsepower Ratings | | | | | | Maximum Current | | Type of Connection | Auxiliary Contacts | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Ø | | 3 Ø | | | | Inductive AC3 A | Resistive AC1 A | | | | | |
| 115V hp | 230V hp | 200V hp | 230V hp | 460V hp | 575V hp | | | | N.O. | N.C. | | |
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1<br>— | —<br>1 | LC2K0610 ▲■<br>LC2K0601 ▲■ | **130.**<br>**130.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1<br>— | —<br>1 | LC2K0910 ▲■<br>LC2K0901 ▲■ | **167.**<br>**167.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1<br>— | —<br>1 | LC2K1210 ▲■<br>LC2K1201 ▲■ | **191.**<br>**191.** |

### Table 18.94: Coil Voltage Codes for AC Contactors

Up to and including 240 V coil with integral suppression device available. Add **2** to the code required. Example: J7**2**. Price adder $20.00.

| Vac 50/60 Hz | 12 | 24 | 42 | 48 | 110 | 120 | 127 | 200/208 | 220/230 | 230 | 230/240 | 277 | 380/400 | 400/415 | 440 | 480 | 660/690 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | B7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 | P7 | U7 | UE7 | Q7 | N7 | R7 | T7 | Y7 |


LP2K0910

### Table 18.95: DC Operating Coils

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1<br>— | —<br>1 | LP2K0610 ▲■<br>LP2K0601 ▲■ | **167.**<br>**167.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1<br>— | —<br>1 | LP2K0910 ▲■<br>LP2K0901 ▲■ | **202.**<br>**202.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1<br>— | —<br>1 | LP2K1210 ▲■<br>LP2K1201 ▲■ | **232.**<br>**232.** |

### Table 18.96: Coil Voltage Codes for DC Contactors

Coil with integral suppression device available. Add **3** to the code required. Example: JD**3**. Price adder $20.00.

| Vdc | 12 | 20 | 24 | 36 | 48 | 60 | 72 | 100 | 110 | 125 | 200 | 220 | 230 | 240 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | LD | MD | MPD | MUD | UD |

### Table 18.97: DC–Low Consumption Operating Coils (devices have built-in transient suppression)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1.5 | 1.5 | 1.5 | 3 | 3 | 6 | 15 | Screw-clamp | 1<br>— | —<br>1 | LP5K0610 ▲■<br>LP5K0601 ▲■ | **202.**<br>**202.** |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 1<br>— | —<br>1 | LP5K0910 ▲■<br>LP5K0901 ▲■ | **238.**<br>**238.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 1<br>— | —<br>1 | LP5K1210 ▲■<br>LP5K1201 ▲■ | **274.**<br>**274.** |

### Table 18.98: Coil Voltage Codes for DC Contactors—Low Consumption

| Vdc | 12 | 24 | 48 | 72 |
|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 |

▲ For TeSys K contactors with spring terminal clamps, add a **3** before the coil voltage code (for example, LP2K09103BD).
For TeSys K contactors with solder pin terminals, add a **5** before the coil voltage code (for example, LP5K09105BW3).
For TeSys K contactors with slip-on terminals, add a **7** before the coil voltage code (for example, LC2K06107B7).

■ Complete the catalog number with the appropriate coil voltage code (for example, LC1K0610G7).

Overload Relays . . . . . page 18-24
Accessories . . . . . page 18-27
Dimensions . . . . . page 18-49



© 2012 Schneider Electric
All Rights Reserved



LC2K090045

**Table 18.99: AC Operating Coils**

| Maximum Horsepower Ratings | | | | | | Maximum Current | | Type of Connection | Power Poles | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Ø | | 3 Ø | | | | Inductive AC3 (A) | Resistive AC1 (A) | | N.O. | N.C. | | |
| 115 V hp | 230 V hp | 200 V hp | 230 V hp | 460 V hp | 575 V hp | | | | | | | |
| **4-Pole Mini Contactor** | | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 15 | Screw-clamp | 4<br>2 | —<br>2 | LC1K09004 ▲■<br>LC1K09008 ▲■ | **75.**<br>**81.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LC1K12004 ▲■ | **86.** |
| **4-Pole Mechanically Interlocked Contactors** | | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 4 | — | LC2K09004 ▲■ | **167.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LC2K12004 ▲■ | **191.** |

**Table 18.100: Coil Voltage Codes for AC Contactors**

Up to and including 240 V coil with integral suppression device available. Add **2** to the code required. Example: J7**2**. Price adder $10.00 ($20.00 for mechanically interlocked contactors)

| Vac 50/60 Hz | 12 | 24 | 42 | 48 | 110 | 120 | 127 | 200/208 | 220/230 | 230 | 230/ 240 | 277 | 380/400 | 400/415 | 440 | 480 | 660/690 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | B7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 | P7 | U7 | UE7 | Q7 | N7 | R7 | T7 | Y7 |

**Table 18.101: DC Operating Coils**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4-Pole Mini Contactor** | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 15 | Screw-clamp | 4<br>2 | —<br>2 | LP1K09004 ▲■<br>LP1K09008 ▲■ | **92.**<br>**98.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LP1K12004 ▲■ | **106.** |
| **4-Pole Mechanically Interlocked Contactors** | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 4 | — | LP2K09004 ▲■ | **202.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LP2K12004 ▲■ | **232.** |

**Table 18.102: Coil Voltage Codes for DC Contactors**

Coil with integral suppression device available. Add **3** to the code required. Example: **JD3**. Price adder $10.00 ($20.00 for mechanically interlocked contactors)

| Vdc | 12 | 20 | 24 | 36 | 48 | 60 | 72 | 100 | 110 | 125 | 200 | 220 | 230 | 240 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | LD | MD | MPD | MUD | UD |

**Table 18.103: DC–Low Consumption Operating Coils** (devices have built-in transient suppression)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4-Pole Mini Contactor** | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 15 | Screw-clamp | 4<br>2 | —<br>2 | LP4K09004 ▲■<br>LP4K09008 ▲■ | **110.**<br>**116.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LP4K12004 ▲■ | **126.** |
| **4-Pole Mechanically Interlocked Contactors** | | | | | | | | | | | |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | 20 | Screw-clamp | 4 | — | LP5K09004 ▲■ | **238.** |
| 0.5 | 1.5 | 3 | 3 | 7.5 | 10 | 12 | 20 | Screw-clamp | 4 | — | LP5K12004 ▲■ | **274.** |

**Table 18.104: Coil Voltages for DC Contactors—Low Consumption**

| Vdc | 12 | 24 | 48 | 72 |
|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 |

▲ For TeSys K contactors with spring terminal clamps, add a **3** before the coil voltage code (for example, LC1K09103L7).
For TeSys K contactors with solder pin terminals, add a **5** before the coil voltage code (for example, LP4K06015JW3).
For TeSys K contactors with slip-on terminals, add a **7** before the coil voltage code (for example, LP2K090047BD).

■ Complete the catalog number with the appropriate coil voltage code (for example, LC1K0610G7).

Overload Relays . . . . . page 18-24
Accessories . . . . . page 18-27
Dimensions . . . . . page 18-49





© 2012 Schneider Electric
All Rights Reserved


LA1KN11

### Table 18.105: Instantaneous Auxiliary Contact Blocks

| Clip-on front mounting, 1 block per contactor and 2 blocks per pair of mechanically interlocked contactors. | | | | |
|---|---|---|---|---|
| Type of connection | Auxiliary Contacts | | Catalog Number | $ Price |
| | N.O. | N.C. | | |
| Screw clamp | 2 | — | LA1KN20 | 14.20 |
| | — | 2 | LA1KN02 | 14.20 |
| | 1 | 1 | LA1KN11 | 14.20 |
| | 4 | — | LA1KN40 ▲ | 27.30 |
| | 3 | 1 | LA1KN31 ▲ | 27.30 |
| | 2 | 2 | LA1KN22 ▲ | 27.30 |
| | 1 | 3 | LA1KN13 ▲ | 27.30 |
| | — | 4 | LA1KN04 ▲ | 27.30 |
| Slip-on 1 x 0.250 in. or 2 x 0.110 in. | 2 | — | LA1KN207 | 14.20 |
| | — | 2 | LA1KN027 | 14.20 |
| | 1 | 1 | LA1KN117 | 14.20 |
| | 4 | — | LA1KN407 ▲ | 27.30 |
| | 3 | 1 | LA1KN317 ▲ | 27.30 |
| | 2 | 2 | LA1KN227 ▲ | 27.30 |
| | 1 | 3 | LA1KN137▲ | 27.30 |
| | — | 4 | LA1KN047 ▲ | 27.30 |

▲ Block of 4 contacts cannot be used with LP4K or LP5K contactors.


LA1KN22

### Table 18.106: Electronic Time Delay Auxiliary Contact Blocks

| Clip-on front mounting, 1 block per contactor and 2 blocks per pair of mechanically interlocked contactors. | | | | | |
|---|---|---|---|---|---|
| Voltage (V) | Type | Timing Range (S) | Contacts | Catalog Number | $ Price |
| 24–48 Vac or Vdc | On-delay | 1–30 | SPDT | LA2KT2E | 32.80 |
| 110–240 Vac | On-delay | 1–30 | SPDT | LA2KT2U | 32.80 |

Note: Relay outputs, with single pole double throw, 240 Vac/Vdc, 2 A max.
Maximum switching capacity 250 VA / 150 W
Operating temperature: –10 to + 60°C (14 to 140°F)
Reset time: 1.5 s during time delay, 0.5 after time delay

### Table 18.107: Suppressor Module with Incorporated LED Indicator

| Clip-on front mounting | | | | |
|---|---|---|---|---|
| Voltage range | Type | Sold in lots of | Catalog Number | $ Price each |
| 12–24 Vac/Vdc | Varistor | 5 | LA4KE1B ■ | 9.80 |
| 32–48 Vac/Vdc | Varistor | 5 | LA4KE1E ■ | 9.80 |
| 50–129 Vac/Vdc | Varistor | 5 | LA4KE1FC ■ | 9.80 |
| 130–250 Vac/Vdc | Varistor | 5 | LA4KE1UG ■ | 9.80 |
| 12–24 Vdc | Diode + Zener | 5 | LA4KC1B ♦ | 9.80 |
| 32–48 Vdc | Diode + Zener | 5 | LA4KC1E ♦ | 9.80 |
| 220–250 Vac | RC | 5 | LA4KA1U ★ | 9.80 |

■ Protection by limitation of the transient voltage to 2 Uc maximum. Maximum reduction of the transient voltage peaks. Slight time delay on drop-out (1.1–1.5 times normal).
♦ No overvoltage or oscillation frequency. Polarized component. Slight time delay on drop-out (1.1–1.5 times normal).
★ Protection by limitation of the transient voltage to 3 Uc maximum and limitation of the oscillation frequency. Slight time delay on drop-out (1.2 times normal).


LA2KT2U

### Table 18.108: Paralleling Links

| Description | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|
| For 2 poles with screw-clamp terminals | 4 | LA9E01 | 2.20 |
| For 4 poles with screw-clamp terminals | 2 | LA9E02 | 3.50 |

### Table 18.109: Power Connectors

| Description | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|
| Set of 6 power connections for reversing contactors with screw-clamp terminals | 100 | LA9K0969 | 6.20 |
| Set of 4 power connections for changeover contactors with screw-clamp terminals | 100 | LA9K0970 | 6.20 |

### Table 18.110: Marking Strips

| Description | Sold in lots of | Catalog Number | $ Price each |
|---|---|---|---|
| Clips onto front of the contactor | 100 | LA9D90 | .06 |

### Table 18.111: Accessories for Overload Relays

| Description | Type of Connection | Catalog Number | $ Price |
|---|---|---|---|
| Terminal block for separate clip-on mounting of the overload relay onto 35 mm omega rail (AM1DP200) | Screw-clamp | LA7K0064 | 11.90 |



E164862
CCN NLDX

LR43364
Class 3211 04

© 2012 Schneider Electric
All Rights Reserved

# TeSys™ U Simple Motor Starter

Refer to Catalog **8502CT0201**

Schneider Electric
www.schneider-electric.us

The TeSys U motor starter is integrated, making it simple to choose and install. It consists of a control unit snapped in a power base. TeSys U can be configured to fit specific applications as well. Optional accessories include a reverser, a current limiter, predictive maintenance options, and communication options.

For detailed information about TeSys U, visit our website.

**1 Power Base**



**2 Control Unit**



**3** Function Modules
Auxiliary Contacts

\+ = TeSys U Motor Starter

## Selecting TeSys U Motor Starters in Three Steps



Power Base



Control Unit



Auxiliary Contact

### Table 18.112: Step 1. Select Power Base (Only two different bases up to 32 A)

| Control Connection | Max. Current (A) | Three Phase (HP max.) | | | | Single Phase (HP max.) | | Self-Protected Power Base | |
|---|---|---|---|---|---|---|---|---|---|
| | | 200/208 V | 220/240 V | 460 V | 575/600 V | 120 V | 240 V | Catalog Number | $ Price |
| With screw terminations | 12 | 3 | 3 | 7.5 | 10 | 1.5 | 2 | LUB12 | **246.00** |
| | 32 | 10 | 10 | 20 | 25 | 2 | 5 | LUB32 | **345.00** |
| Without screw terminations | 12 | 3 | 3 | 7.5 | 10 | 1.5 | 2 | LUB120• | **276.00** |
| | 32 | 10 | 10 | 20 | 25 | 2 | 5 | LUB320• | **375.00** |

• For use with reversng modules or communication modules with prewired connector

### Table 18.113: Step 2. Select Control Unit □

| Setting Range (A) | Standard 3-phase Class 10 trip ▼ | $ Price | Advanced 3-phase Class 10 trip ▼ | $ Price | Advanced single-phase Class 10 trip ▼ | $ Price | Advanced 3-phase Class 20 trip ▼ | $ Price |
|---|---|---|---|---|---|---|---|---|
| 0.15–0.6 | LUCAX6•• | **120.00** | LUCBX6•• | **150.00** | LUCCX6•• | **150.00** | LUCDX6•• | **150.00** |
| 0.3–1.4 | LUCA1X•• | **120.00** | LUCB1X•• | **150.00** | LUCC1X•• | **150.00** | LUCD1X•• | **150.00** |
| 1.25–5.0 | LUCA05•• | **120.00** | LUCB05•• | **150.00** | LUCC05•• | **150.00** | LUCD05•• | **150.00** |
| 3–12 | LUCA12•• | **120.00** | LUCB12•• | **150.00** | LUCC12•• | **150.00** | LUCD12•• | **150.00** |
| 4.5–18 | LUCA18•• | **120.00** | LUCB18•• | **150.00** | LUCC18•• | **150.00** | LUCD18•• | **150.00** |
| 8–32 | LUCA32•• | **120.00** | LUCB32•• | **150.00** | LUCC32•• | **150.00** | LUCD32•• | **150.00** |

▼ Complete the catalog number by adding appropriate code from voltage code table below (for example, LUCAX6FU).
△ The control unit contains solid-state overload relay and control power source for TeSys U. For more details on the different control units, their functions, and placement on the power base, see 18-29

### Table 18.114: Voltage Codes

| Volts | 24 | 48–72 | 110–240 |
|---|---|---|---|
| DC | BL□ | — | — |
| AC | B | — | — |
| DC or AC | — | ES◊ | FU |

□ DC voltage with range of 0.90 to 1.10 of nominal.
◊ 48–72 Vdc; 48 Vac

### Table 18.115: Step 3. Select Auxiliary Contacts (optional)

| Terminals | Contact Indicates | Contact Normal Status | Contact State for Each Mode▲ | | | | | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Off | Ready | Run | Short Circuit Trip | Overload Trip (Manual Reset) | Overload Trip (Remote/ Auto Reset)■ | | |
| **Auxiliary Contact Blocks** | | | | | | | | | | |
| Screw | Ready condition | N.O. | O | I | I | O | O | I | LUA1C11 | **34.5** |
| | Fault condition | N.C. | I | I | I | O | O | I | | |
| Screw | Ready condition | N.O. | O | I | I | O | O | I | LUA1C20 | |
| | Fault condition | N.C. | O | O | O | I | I | O | | |
| **Auxiliary Contact Function Modules** | | | | | | | | | | |
| Screw | Pole state | 2 N.O. | O | O | I | O | O | | LUFN20 | **34.5** |
| Screw | Pole state | 1 N.O. and 1 N.C. | O I | O I | I O | O I | O I | | LUFN11 | |
| Screw | Pole state | 2 N.C. | 1 | I | O | I | I | | LUFN02 | |

▲ I indicates closed contact; O indicates open contact
■ Requires multifunction or advanced control unit plus fault differentiation module LUFDA10.

### Table 18.116: Accessories

| Accessory | Quick Description | For details & selection, see: |
|---|---|---|
| Current limiter | Increases the breaking capacity to 130kA @ 460 V | Table 18.123 |
| Reverser | Stacked or side mounted (LU6MB0••• only) | Table 18.119 |
| Line phase barrier | Required for use as a self-protected combination starter (UL508E) | Table 18.118 |
| Multifunction control unit | Has functions for monitoring and predictive maintenance | Table 18.124 |
| Function modules | Fault differentiation, thermal overload, motor load indication | Table 18.125 |
| Communication modules | Integrates into existing networks, major portocols are available | Table 18.126 |
| Soft starter + Tesys U | Use Altistart U01soft starter with TeSys U | Table 18.132 |
| Powerbus | Use TeSys U with a prewired system | Table 18.128 |
| Configuration and connection accessories | PowerSuite software, busbar, external handle | Table 18.129 |

Accessories . . . . . pages 18-29 to 18-31
Dimensions . . . . . page 18-50

E164862
CCN NLDX

LR43364
Class 3211 08







© 2012 Schneider Electric
All Rights Reserved

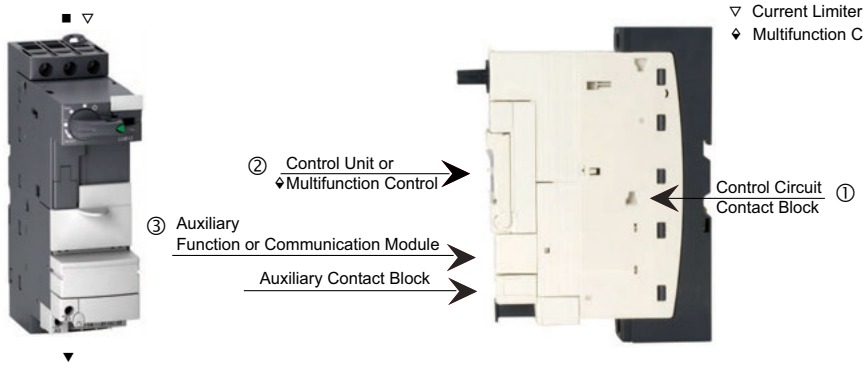
**Table 18.117: Control Units and Functions**

| |  Standard | |  Advanced | |  Multifunction |
|---|---|---|---|---|---|
| **Reference** | **LUCA** | **LUCB** | **LUCC** | **LUCD** | **LUCM** |
| Protection type | | | | | |
| Class 10 | ■ | ■ | | | ■ |
| Class 20 | | | | ■ | ■ |
| Class 5–30 | | | | | ■ |
| Single Phase: LUCC Class 10 only | | | ■ | | ■ |
| Protection functions | | | | | |
| Short circuit | ■ | ■ | ■ | ■ | ■ |
| Over current | ■ | ■ | ■ | ■ | ■ |
| Thermal overload | ■ | ■ | ■ | ■ | ■ |
| Phase loss | ■ | ■ | | ■ | ■ |
| Phase imbalance | ■ | ■ | | ■ | ■ |
| Ground fault | ■ | ■ | ■ | ■ | ■ |
| Underload, long start, jam | | ▫ | ▫ | ▫ | ■ |
| Control functions | | | | | |
| Manual reset | ■ | | | | |
| Automatic or local/remote reset | | ▫ | ▫ | ▫ | ■ |
| Fault differentiation | | ▫ | ▫ | ▫ | ■ |
| Thermal alarm | | ▫ | ▫ | ▫ | ■ |
| Motor load display | | ▫ | ▫ | ▫ | ■ |
| Fault history | | | | | ■ |
| Alarm threshold adjustment | | | | | ■ |
| Tripping test | | ■ | ■ | ■ | ■ |
| | ■ = built-in the control unit | | | | |
| | ▫ = works with the related function modules (see Table 18.119 on page 30) | | | | |

## Power Base and Plug-in Accessories

See below where to install accessories on the power base. Only one accessory can be installed in each location.

■ Line Phase Barrier
▼ Reverser Unit mounts under power base
▽ Current Limiter attaches above power base
♦ Multifunction Control Unit




Power Base (Front View) Side View



© 2012 Schneider Electric
All Rights Reserved



Line Phase Barrier



Reverser Unit Assembled under the Power Base



Control Unit Multifunction



Alarm Differentiation



Parallel Wiring



Motor Load Indicator



### Table 18.118: Line Phase Barrier (optional) ▲

| Description | Catalog Number | $ Price |
|---|---|---|
| Incoming line phase barrier to allow the TeSys U to be used as a self protected combination starter according to UL508E | LU9SP0 | **15.00** |

▲ See page 18-29 for placement on the power base.

### Table 18.119: Reverser

| Control Connection | Max. Current (A) | Three Phase (HP max.) | | | | Self-Protected Starter Base | |
|---|---|---|---|---|---|---|---|
| | | 200/208 V | 220/240 V | 460 V | 575 V | Catalog Number | $ Price |
| With screw terminations | 12 | 3 | 3 | 7.5 | 10 | LU2B12■ | **488.00** |
| | 32 | 10 | 10 | 20 | 25 | LU2B32■ | **720.00** |

■ Voltage code required.

### Table 18.120: Select Control Unit Options★▼

| Setting Range (A) | Standard 3-phase Class 10 trip ♦ | $ Price | Advanced 3-phase Class 10 trip ♦ | $ Price | Advanced single-phase Class 10 trip ♦ | $ Price | Advanced 3-phase Class 20 trip ♦ | $ Price |
|---|---|---|---|---|---|---|---|---|
| 0.15–0.6 | LUCAX6●● | **120.00** | LUCBX6●● | **150.00** | LUCCX6●● | **150.00** | LUCDX6●● | **150.00** |
| 0.3–1.4 | LUCA1X●● | **120.00** | LUCB1X●● | **150.00** | LUCC1X●● | **150.00** | LUCD1X●● | **150.00** |
| 1.25–5.0 | LUCA05●● | **120.00** | LUCB05●● | **150.00** | LUCC05●● | **150.00** | LUCD05●● | **150.00** |
| 3–12 | LUCA12●● | **120.00** | LUCB12●● | **150.00** | LUCC12●● | **150.00** | LUCD12●● | **150.00** |
| 4.5–18 ♦ | LUCA18●● | **120.00** | LUCB18●● | **150.00** | LUCC18●● | **150.00** | LUCD18●● | **150.00** |
| 8–32 ♦ | LUCA32●● | **120.00** | LUCB32●● | **150.00** | LUCC32●● | **150.00** | LUCD32●● | **150.00** |

♦ Complete the catalog number by adding the appropriate code from Table 18.121 (for example, LUCAX6FU).
★ Control units for 4.5–18 and 8–32 can be used **only** with 32 A rated power bases (LUB32 / LU2B32).
▼ The control unit contains solid-state overload relay and control power source for TeSys U.
For more details on the different control units, their functions, and placement on the power base see page 18-29.

### Table 18.121: Voltage Codes

| Volts | 24 | 48–72 | 110–240 |
|---|---|---|---|
| DC | BL△□ | — | — |
| AC | B | — | — |
| DC or AC | — | ES◊ | FU |

△ Voltage code to use for a power base with a communication module.
□ DC voltage with range of 0.90 to 1.10 of nominal.
◊ 48–72 Vdc; 48 Vac

### Table 18.122: Reversing Modules for Field Addition

| Mounting | Catalog No. | $ Price | Wiring Adapter | $ Price |
|---|---|---|---|---|
| Beneath | LU2MB0 | **192.00** | LU9MR1C | **31.50** |
| Beside | LU6MB0 | **222.00** | LU9MR1 | **15.00** |

**Note:** For LU2MB0 and LU6MB0, voltage code required; must match control unit.

### Table 18.123: Current Limiter ☆▽

| Accessory | Application | Technical Data | Mounting | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Current limiter/isolator | Additional current limiting aspects for the starter | 130 kA at 460 V<br>60 kA at 575 V | Direct mounting to LUB● and LU2B● | LUALB1 | **171.00** |
| Limiter cartridge | Replacement cartridge for LUALB1 | 130 kA at 460 V<br>65 kA at 575 V | — | LUALF1 | **78.00** |

☆ Increases the breaking capacity of the motor starter.
▽ See page 18-29 for placement on the power base.

### Table 18.124: Control Unit Multifunction ◒✱

| Setting Range (A) | Multifunction programmable | $ Price |
|---|---|---|
| 0.15–0.6 | LUCMX6BL | **615.00** |
| 0.3–1.4 | LUCM1XBL | |
| 1.25–5.0 | LUCM05BL | |
| 3–12 | LUCM12BL | |
| 4.5–18 | LUCM18BL | |
| 8–32 | LUCM32BL | |

◒ Offers motor management system capabilities. For more details see the LUCM on page 18-31.
✱ See page 18-29 for placement on the power base.

### Table 18.125: Function Modules ♦◑

| Module | Description | For use with: | Operation Requirements | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Fault differentiation with manual reset (thermal overload) | Provides indication between an overload trip and a short circuit trip. | Advanced control units only | 24–250 Vac or Vdc (power from control unit) | LUFDH11 | **156.00** |
| Fault differentiation with auto reset | | | | LUFDA10 | **156.00** |
| Thermal overload pre-alarm | Signals when the motor current reaches 1.05 of the full load setting on the control unit. | Advanced control units only | 24–250 Vac or Vdc (power from control unit) | LUFW10 | **156.00** |
| Motor load indication | Provides a signal proportional to the average currents in the three phases divided by the full load current setting of the control unit. The output corresponds to a load status of 0–2 times the full load setting of the control unit. | Advanced or multi-function control units | 4–20 mA (requires separate 24 Vdc power supply) | LUFV2 | **188.00** |
| Parallel wiring | Provides a convenient way to reduce control wiring and allow for connecting starters to a communications network by providing 24 Vdc for the starters. | Advanced or multi-function control units(24 Vdc only) and LU9BN11C or LU9MRC prewired connector | LU9G02 splitter box and PLC network | LUFC00 | **57.00** |

♦ Offers customization for specific application requirements.
◑ See page 18-29 for placement on the power base.



© 2012 Schneider Electric
All Rights Reserved


AS-Interface


Modbus


DeviceNet


Profibus


CANopen

### Table 18.126: Communication Modules ✪ ◪

| Module | Description | For use with: | Operation Requirements | Catalog Number | $ Price |
|---|---|---|---|---|---|
| AS-Interface Communication | Allows the TeSys U starter to be connected directly to the network using AS-Interface protocols. | Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC prewired connector | Requires separate 24 Vdc power supply and AS-Interface network | ASILUFC5 | 188.00 |
| AS-Interface V2 Communication | Allows the TeSys U starter to be connected directly to the network using AS-Interface V2 protocols. | Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC prewired connector | Requires separate 24 Vdc power supply and AS-Interface V2 network | ASILUFC51 | 188.00 |
| Modbus™ Communication Protocol | Allows the TeSys U starter to be connected directly to the network using Modbus protocols. | Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC prewired connector | Requires separate 24 Vdc power supply | LULC033 | 218.00 |
| Advantys™ STB Communication | Allows the TeSys U starter to be connected to the network using the Advantsys STB protocol | Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL prewired connector | Requires separate 24 Vdc power supply | LULC15 | 218.00 |
| CANopen Communication | Allows the TeSys U starter to be connected to the network using the CANopen protocol | Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL prewired connector | Requires separate 24 Vdc power supply | LULC08 | 218.00 |
| Beckoff Communication | Allows the TeSys Ustarter to be connected to the network using the Beckoff protocol | Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL prewired connector | Requires separate 24 Vdc power supply | LULC14 | 218.00 |
| Profibus Communication | Allows the TeSys U starter to be connected to the network using the Profibus protocol | Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL prewired connector | Requires separate 24 Vdc power supply | LULC07 | 218.00 |
| DeviceNet™ Communication | Allows the TeSys U starter to be connected to the network using the Device Net protocol | Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL prewired connector | Requires separate 24 Vdc power supply | LULC09 | 218.00 |

✪ Communication capabilities can be integrated into existing automation architecture via a variety of protocols.
◪ See 18-29 for placement on the power base.

## Configuration and Connection Accessories

### Table 18.127: Control Circuit Accessories ◊

| Accessory | Application | Technical Data | Mounting | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Control circuit contact block | Switches control circuit power via LUB• handle (NEC430-74 compliance) | 5 A at 600 Vac<br>5 A at 250 Vdc | Side mounting to LUB• and LU2B• only | | LUA8E20 | 71.00 |
| Through-the-door operating mechanism | Use to enclose TeSys LUB• only. | NEMA 1, 12<br>Black<br>w/ trip indication | Kit | | LU9APN21 | 140.00 |
| | | NEMA 1, 12<br>Red/Yellow<br>w/ trip indication | Kit | | LU9APN22 | 140.00 |
| | | NEMA 3R, 4, 4X<br>Red/Yellow<br>without trip indication | Kit | | LU9APN24 | 161.00 |
| Control circuit filters | Use with electronic or triac output controllers | Up to 150 Vac max. | Directly to coil terminals | Non-reversing | LUA4F11 | 39.30 |
| | | | | Reversing | LUA4F12 | 39.30 |
| Angle bracket | Support shaft, for use with LUB• | — | — | | GVAPK12 | 19.00 |

◊ See page 29 for placement on the power base.

### Table 18.128: PowerSuite Configuration Software and Accessories

| Item ▲ | Catalog Number | $ Price ■ |
|---|---|---|
| PowerSuite software | VW3A8104 | 225.00 |
| PC connection kit | VW3A8106 | 113.00 |
| Pocket PC connection kit | VW3A8111 | 143.00 |

▲ For complete details on all components included with each item, refer to catalog **8502CT0201**.
■ Items under discount schedule CP4C.

## Powerbus

### Table 18.129: GV2 Cabling Accessories—Bus Bars

| Description | Application | Pitch | Standard Pack | Catalog Number | $ Price Each |
|---|---|---|---|---|---|
| 3-Pole, 63 A Bus Bar | For feeding 2 GV2 starters or TeSys U controllers | 45 | 1 | GV2G245 | 23.30 |
| | | 54 | 1 | GV2G254 | 23.30 |
| | | 72 | 1 | GV2G272 | 23.30 |
| | For feeding 3 GV2 starters or TeSys U controllers | 45 | 1 | GV2G345 | 28.70 |
| | | 54 | 1 | GV2G354 | 28.70 |
| | For feeding 4 GV2 starters or TeSys U controllers | 45 | 1 | GV2G445 | 34.20 |
| | | 54 | 1 | GV2G454 | 34.20 |
| | | 72 | 1 | GV2G472 | 34.20 |
| | For feeding 5 GV2 starters or TeSys U controllers | 54 | 1 | GV2G554 | 34.20 |

Additional accessories and components are available, including:

- Mounting accessories
- Gateways
- Cabling accessories
- Magelis™ remote display unit

For the complete line of TeSys U-Line motor starter accessories and all technical details (specifications, wiring diagrams, etc.) pertaining to the product line, refer to Catalog 8502CT0201.



© 2012 Schneider Electric
All Rights Reserved

## Altistart Drive and TeSys U Motor Starter

**Table 18.130: Soft Start / Soft Stop Unit for 0.75 to 15 kW Motors** (can be combined with the TeSys U starter)

| Motor | | Starter | | |
|---|---|---|---|---|
| Motor Power▲ | | Nominal Current | Catalog Number | $ Price |
| 230 V | 460 V | | | |
| HP | HP | A | | |
| **3-phase supply voltage: 200 ... 480 V 50/60 Hz** | | | | |
| 1 | 2 | 6 | ATSU01N206LT | **133.00** |
| 1.5 | 3 | | | |
| 2 | 5 | 9 | ATSU01N209LT | **152.00** |
| 3 | 7.5 | 12 | ATSU01N212LT | **175.00** |
| 5 | 10 | 22 | ATSU01N222LT | **219.00** |
| 7.5 | 15 | | | |
| 10 | 20 | 32 | ATSU01N232LT | **300.00** |

▲ Standard motor power ratings, HP power ratings indicated according to standard UL 508.



ATSU01••

**Table 18.131: Accessories**

| Description | Used for Starter | Catalog Number | $ Price |
|---|---|---|---|
| Power connector between ATSU 01N2••LT and TeSys U | ATSU01N2••T | VW3G4104 | **10.00** |

**Table 18.132: TeSys U Starter and Soft Start Unit Combinations**

| Motor Power | | Soft Starter | TeSys U | |
|---|---|---|---|---|
| Voltage | | | Power Base | Control Unit ■ |
| 200 V | 460 V | | | |
| HP | HP | | | |
| 1 | 2 | ATSU01N206LT | LUB 12 | LUC•05BL |
| 1.5 | 3 | ATSU01N206LT | | LUC•12BL |
| 2 | 5 | ATSU01N209LT | | LUC•12BL |
| 3 | — | ATSU01N212LT | | LUC•12BL |
| — | 7.5 | ATSU01N212LT | | LUC •18BL |
| 5 | 10 | ATSU01N222LT | | LUC•18BL |
| 7.5 | 15 | ATSU01N222LT | LUB 32 | LUC•32BL |
| 10 | 20 | ATSU01N232LT | | LUC•32BL |

■ Depending on the configuration of the chosen TeSys U starter, replace the • with **A** for standard, **B** for advanced, and **M** for multifunction. See page 18-28 for a complete list of available control units. Control voltage must be 24 Vdc.

E231693
CCN NLDX

LR96921
Class 3211 06



© 2012 Schneider Electric
All Rights Reserved


GV2ME


GV2P21 with GV2GH7 installed


GV3P


GV7RE20

New!

The GV family of products are 3-pole, horsepower rated, UL 508 listed manual starters. They include a manual disconnect, class 10 ambient-compensated thermal overload relay, and instantaneous, magnetic trip mechanism in one compact unit.

Any GV manual starter can be used alone for local manual control of a motor with individual full-load currents up to 220 A. The GV products may also be used in group motor installations in accordance with National Electric Code article 430-53. Group motor installations give you greater panel density for smaller size and require fewer parts and less wiring for installation when compared to conventional panel designs.

The GV2P and GV3P products also have an additional UL 508 type E rating as a stand-alone, self-protected manual combination starter. The UL 508 type E rating requires the addition of line side insulating barrier GV2GH7 for the GV2P, or GV3G66 for the GV3P. The GV2P and GV3P self-protected manual combination starters may also be combined with specific size contactors from the LC1D product family for a UL 508 Type F combination starter construction. These products have a UL-listed short circuit current rating from 10–100 kA depending on application size and voltage. See the Schneider Electric website for more information.

## How to Order

To order a basic motor starter, select the model number (GV2ME••, GV2P••, or GV3P••) with the appropriate thermal setting from the table below. The thermal trip range and setting should be determined from the motor nameplate full-load current.

**Table 18.133: GV2, GV3**

| Thermal Setting (A) | Maximum Horsepower Ratings | | | | | | | | Group Motor Applications | GV2/3M push button | | GV2/3P rotary handle | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Ø | | | 3 Ø | | | | | | | | | |
| | 120 V hp | 208 V hp | 240 V hp | 120 V hp | 208 V hp | 240 V hp | 480 V hp | 600 V hp | Max. Fuse or Circuit Breaker | Catalog Number | $ Price | Catalog Number | $ Price |
| 0.11–0.16 | — | — | — | — | — | — | — | — | 450 A | GV2ME01▲ | **159.** | GV2P01 | **212.** |
| 0.16–0.25 | — | — | — | — | — | — | — | — | 450 A | GV2ME02▲ | **159.** | GV2P02 | **212.** |
| 0.25–0.40 | — | — | — | — | — | — | — | — | 450 A | GV2ME03▲ | **159.** | GV2P03 | **212.** |
| 0.40–0.63 | — | — | — | — | — | — | — | — | 450 A | GV2ME04▲ | **180.** | GV2P04 | **233.** |
| 0.63–1 | — | — | — | — | — | — | — | 0.5 | 450 A | GV2ME05▲ | **180.** | GV2P05 | **233.** |
| 1–1.6 | — | — | 1/10 | — | — | — | 0.75 | 0.75 | 450 A | GV2ME06▲ | **180.** | GV2P06 | **233.** |
| 1.6–2.5 | — | 1/6 | 1/6 | — | 0.5 | 0.5 | 1 | 1.5 | 450 A | GV2ME07▲ | **180.** | GV2P07 | **233.** |
| 2.5–4 | 1/8 | 0.25 | 1/3 | — | 0.75 | 0.75 | 2 | 3 | 450 A | GV2ME08▲ | **180.** | GV2P08 | **233.** |
| 4–6.3 | 0.25 | 0.5 | 0.5 | 0.75 | 1 | 1.5 | 3 | 5 | 450 A | GV2ME10▲ | **180.** | GV2P10 | **233.** |
| 6–10 | 0.5 | 1 | 1.5 | 1 | 2 | 3 | 5 | 7.5 | 450 A | GV2ME14▲ | **180.** | GV2P14 | **233.** |
| 9–14 | 0.75 | 2 | 2 | 2 | 3 | 3 | 10 | 10 | 450 A | GV2ME16▲ | **224.** | GV2P16 | **278.** |
| 13–18 | 1 | 2 | 3 | 2 | 5 | 5 | 10 | 15 | 450 A | GV2ME20▲ | **224.** | GV2P20 | **278.** |
| 17–23 | 1.5 | 3 | 3 | 3 | 5 | 7.5 | 15 | 20 | 450 A | GV2ME21▲ | **224.** | GV2P21 | **278.** |
| 20–25 | 2 | — | — | — | 7.5 | 7.5 | 15 | 20 | 450 A | GV2ME22▲ | **224.** | GV2P22 | **278.** |
| 24–32 | 2 | 5 | 5 | 5 | 7.5 | 10 | 20 | 25 | 450 A | GV2ME32 | **224.** | GV2P32 | **278.** |
| 9–13 | 0.5 | — | 1.5 | — | 3 | 3 | 7.5 | 10 | — | — | — | GV3P13 | **404.** |
| 12–18 | 0.75 | — | 2 | — | 5 | 5 | 10 | 15 | — | — | — | GV3P18 | **404.** |
| 17–25 | 1.5 | — | 3 | — | 5 | 7.5 | 15 | 20 | — | — | — | GV3P25 | **404.** |
| 23–32 | 2 | — | 5 | — | 7.5 | 10 | 20 | 25 | — | — | — | GV3P32 | **404.** |
| 30–40 | 3 | — | — | — | 10 | — | 25 | 30 | — | — | — | GV3P40 | **504.** |
| 37–50 | — | — | 7.5 | — | 10 | 15 | 30 | 40 | — | — | — | GV3P50 | **504.** |
| 48–65 | 5 | — | 10 | — | 15 | 20 | 40 | 50 | — | — | — | GV3P65 | **504.** |

▲ For spring terminals add **3** to the catalog number (for example, GV2ME01**3**). GV2ME32 is not available with spring terminals. For ring terminals, add **6**.

**Table 18.134: GV7**

| Thermal Setting (A) | Maximum Horsepower Ratings | | | | | | Toggle Operator | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Ø | | 3 Ø | | | | Standard Interrupt | | High Interrupt | |
| | 115 V hp | 230 V hp | 200 V hp | 230 V hp | 460 V hp | 575 V hp | Catalog Number | $ Price | Catalog Number | $ Price |
| 12–20 | — | — | — | 5 | 10 | 15 | GV7RE20 | **417.** | GV7RS20 | **813.** |
| 15–25 | — | — | — | 7.5 | 15 | 20 | GV7RE25 | **417.** | GV7RS25 | **813.** |
| 25–40 | — | — | — | 10 | 30 | 30 | GV7RE40 | **417.** | GV7RS40 | **813.** |
| 30–50 | — | — | — | 15 | 30 | 40 | GV7RE50 | **417.** | GV7RS50 | **813.** |
| 48–80 | — | — | — | 30 | 60 | 75 | GV7RE80 | **417.** | GV7RS80 | **813.** |
| 60–100 | — | — | — | 30 | 75 | 100 | GV7RE100 | **456.** | GV7RS100 | **891.** |
| 90–150 | — | — | — | 50 | 100 | 150 | GV7RE150 | **502.** | GV7RS150 | **978.** |
| 132–220 | — | — | — | 75 | 150 | 200 | GV7RE220 | **502.** | GV7RS220 | **978.** |

Specifications: page 18-36
Accessories: pages 18-34 to 18-35
Dimensions: pages 18-52 to 18-55

## Motor Protector Circuit Breakers

Motor protector circuit breakers provide built-in thermal and magnetic protection. They are used in two-device motor feeder solutions to provide protection against short circuits, overloads, and phase imbalance.

**Table 18.135: Two-Device Solutions—Electronic Motor Protector Circuit Breakers with UL Ratings: H-Frame (150A), J-Frame (250 A), and L-Frame (600 A)■** (refer to discount schedule DE2)

| Electronic Trip Unit Type | Frame | Sensor Rating | Trip Unit | Full Load Ampere Rating (FLA) | Isd (x FLA) | G Interrupting | | J Interrupting | | L Interrupting | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| Standard♦ | H-Frame | 30 | 2.2 M | 14-25 | 5-13 x FLA | HGL36030M38X | **1608.** | HJL36030M38X | **1658.** | HLL36030M38X | **1812.** |
| | | 50 | | 14-42 | 5-13 x FLA | HGL36050M38X | **1938.** | HJL36050M38X | **1998.** | HLL36050M38X | **2191.** |
| | | 100 | | 30-80 | 5-13 x FLA | HGL36100M38X | **2229.** | HJL36100M38X | **2298.** | HLL36100M38X | **2506.** |
| | | 150 | | 58-130 | 5-13 x FLA | HGL36150M38X | **2701.** | HJL36150M38X | **2785.** | HLL36150M38X | **3057.** |
| | J-Frame | 250 | | 114-217 | 5-13 x FLA | JGL36250M38X | **3105.** | JJL36250M38X | **3201.** | JLL36250M38X | **3253.** |
| | L-Frame | 400 | 2.3 M | 190-348 | 5-13 x FLA | LGL36400M38X | **6041.** | LJL36400M38X | **6160.** | LLL36400M38X | **6468.** |
| | | 600 | | 312-520 | 5-13 x FLA | LGL36600M38X | **8429.** | LJL36600M38X | **8604.** | LLL36600M38X | **9156.** |

■ Two-device solutions (these electronic motor protector circuit breakers include short circuit and overload protection):
—1 contactor, plus
—1 electronic motor circuit protector with a Micrologic 2.2 M

♦ The standard trip unit offers Class 5, 10, and 20 and phase unbalance or phase loss protection.

E164864
CCN NLRV

LR81630
Class 3211 05

© 2012 Schneider Electric
All Rights Reserved



GVAU116

## Table 18.136: Voltage Trips

| Only one trip or fault signaling contact can be installed per GV2/GV3 device. | | | | | |
|---|---|---|---|---|---|
| **Description** | **Characteristics** | **Voltage** | **Frequency** | **Catalog Number▲** | **$ Price** |
| Voltage trips GV2 & GV3P | Undervoltage or Shunt trip (external mounting, 1 block right side only) | 24 V | 50 Hz | GVA•025 | **81.00** |
| | | | 60 Hz | GVA•026 | |
| | | 48 V | 50 Hz | GVA•055 | |
| | | | 60 Hz | GVA•056 | |
| | | 100–110 V | 50/60 Hz | GVA•107 | |
| | | 110–115 V | 50 Hz | GVA•115 | |
| | | | 60 Hz | GVA•116 | |
| | | 120–127 V | 50 Hz | GVA•125 | |
| | | 127 V | 60 Hz | GVA•115 | |
| | | 200 V | 50 Hz | GVA•207 | |
| | | 200–220 V | 60 Hz | GVA•207 | |
| | | 220–240 V | 50 Hz | GVA•225 | |
| | | | 60 Hz | GVA•226 | |
| | | 380–400 V | 50 Hz | GVA•385 | |
| | | | 60 Hz | GVA•386 | |
| | | 415–440 V | 50 Hz | GVA•415 | |
| | | 415 V | 60 Hz | GVA•416 | |
| | | 440 V | 60 Hz | GVA•385 | |
| | | 480 V | 60 Hz | GVA•415 | |
| | | 500 V<br>600 V | 50 Hz<br>60 Hz | GVA•505 | |

▲ To order an undervoltage trip: replace the bullet (•) with a **U** (for example, GVA**U**025).
To order a shunt trip: replace the bullet (•) with an **S** (for example, **GVAS025**).



GVAE11

## Table 18.137: Auxiliary Contact Blocks

| Description | Mounting Location | Max. No. of Blocks | Contact Type | Sold in lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Instantaneous auxiliary contacts GV2 + GV3P | Front■□ | 1 | N.O. or N.C.♦ | 1 | GVAE1 | **21.80** |
| | | | N.O. + N.C. | 10 | GVAE11▼ | **35.70** |
| | | | N.O. + N.O. | 1 | GVAE20▼ | **35.70** |
| | Left Hand Side | 2 | N.O. + N.C. | 1 | GVAN11▼ | **35.70** |
| | | | N.O. + N.O. | 1 | GVAN20▼ | **35.70** |
| Fault signaling contact + instantaneous auxiliary contact GV2 + GV3P | Left Hand Side★ | 1 | N.O. (fault) + N.O. | 1 | GVAD1010 | **54.00** |
| | | | N.O. (fault) + N.C. | 1 | GVAD1001 | **54.00** |
| | | | N.C. (fault) + N.O. | 1 | GVAD0110 | **54.00** |
| | | | N.C. (fault) + N.C. | 1 | GVAD0101 | **54.00** |
| Short circuit signaling contact GV2 + GV3P | Left Hand Side | 1 | SPDT | 1 | GVAM11 | **35.70** |

■ Mounting of a **GVAE** contact block or a **GV2AK00** visible isolation block on **GV2P**.
♦ Choice of N.C. or N.O. contact operation, depending on which way the reversible block is mounted.
★ The **GVAD** is always mounted next to the starter.
▼ For spring terminals, add **3** to the catalog number (for example, **GVAE113**).
△ One trip or one fault signaling can be fitted per GV3.
□ Cannot be used with **GV2GH7** insulator.



GVAD0101

## Table 18.138: Voltage Trips–Technical Data (GV2AU, GV2AS)

| Rated Voltage—660 Vac | | | | | |
|---|---|---|---|---|---|
| **Model** | **Inrush** | **Sealed** | **Pick-Up Voltage** | **Drop-Out Voltage** | **Operating Time◊** |
| GVAU | 12 VA / 8 W | 3.5 VA / 1.1 W | 0.8—1.1 | 0.35—0.7 | 10—15 ms |
| GVAS | 14 VA / 10.5 W | 5 VA / 1.6 W | 0.7—1.1 | 0.2—0.75 | 10—15 ms |

◊ From the loss of voltage at the trip terminals to the opening of the starter contacts.

## Table 18.139: GV3P Accessories

| Accessory | Application / Use With | Catalog Number | $ Price |
|---|---|---|---|
| Through-the-door operating mechanism (Qty: 1) | NEMA 1, 12, Black with trip indication, for use with GV3P | GV3APN01 | **136.00** |
| | NEMA 1, 12, Red/Yellow, with trip indication, for use with GV3P | GV3APN02 | **136.00** |
| | NEMA 3R, 4, 4X Red/Yellow without trip indication, for use with GV3P | GV3APN04 | **149.00** |
| Angle bracket (Qty: 1) | Support shaft, for use with GV2P and GV3P | GVAPK12 | **19.00** |
| Hard bracket (Qty: 1) | — | GVAPH03 | **30.00** |
| Set of 3-pole 115 A busbars (tap-offs: 2, pitch: 64 mm) | GV3P•• | GV3G264 | **25.00** |
| Set of 3-pole 115 A busbars (tap-offs: 3, pitch: 64 mm) | GV3P•• | GV3G364 | **45.00** |
| Cover "Larger Spacing" UL 508 type E (Only one cover required on supply side) | GV3P•• | GV3G66 | **18.00** |
| IP 20 cover (Two covers required per starter) | GV3P•• | LAD96570 | **12.00** |
| Padlocking device For use with up to 4 padlocks (not supplied) Ø 6 mm shank maximum | GV3P••<br>GV3P••• | GV2V03 | **15.00** |



GVAN11



© 2012 Schneider Electric
All Rights Reserved


GV7AC01

**Table 18.140: Auxiliary Contact Blocks** (auxiliary contact functions depends on location inside the device)

| Description | Mounting Location | Max. No. of Blocks | Contact Type | Catalog Number | $ Price |
|---|---|---|---|---|---|
| **Standard** | | | | | |
| Instantaneous | Inside Device | 2 per device | N.O. + N.C. | GV7AE11 | 35.70 |
| Trip Indication | | 1 per device | N.O. + N.C. | | |
| Fault Indication | | 1 per device | N.O. + N.C. | | |
| **Low Level** | | | | | |
| Instantaneous | Inside Device | 2 per device | N.O. + N.C. | GV7AB11 | 35.70 |
| Trip Indication | | 1 per device | N.O. + N.C. | | |
| Fault Indication | | 1 per device | N.O. + N.C. | | |


GV7RE20

**Table 18.141: Voltage Trips**

| Description | Mounting Location | Max. No. of Blocks | Voltage | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Undervoltage Trip | Inside Device | 1 per device | 48 Vac | 50 Hz | GV7AU055 | 64.00 |
| | | | 110–130 Vac | 50/60 Hz | GV7AU107 | |
| | | | 200–240 Vac | 50/60 Hz | GV7AU207 | |
| | | | 380–440/480 Vac | 50/60 Hz | GV7AU387 | |
| | | | 525 Vac | 50 Hz | GV7AU525 | |
| Shunt Trip | Inside Device | 1 per device | 48 Vac | 50 Hz | GV7AS055 | 64.00 |
| | | | 110–130 Vac | 50/60 Hz | GV7AS107 | |
| | | | 200–240 Vac | 50/60 Hz | GV7AS207 | |
| | | | 380–440/480 Vac | 50/60 Hz | GV7AS387 | |
| | | | 525 Vac | 50 Hz | GV7AS525 | |
| Fault Indication | Inside Device | 1 per device | 24–130 | | GV7AD111 | 72.00 |
| | | | 110–415 | | GV7AD112 | |


GV7AD111

**Table 18.142: Wiring Accessories**

| Description | Application | Catalog Number | $ Price |
|---|---|---|---|
| Box Lugs | Sold in lots of 3 for GV7R•20–150☆ | GV7AC021 | 19.70 each |
| | Sold in lots of 3 for GV7R•220☆ | GV7AC022 | 24.90 each |
| **Phase Barriers, Bus Bars & Shrouds** | | | |
| Terminal Extension Kit | Increases center distance between phases to 45 mm | GV7AC03 | 46.70 |
| Terminal Shroud Kit | Covers terminal connections for touch safe protection | GV7AC01 | 41.90 |
| Phase Barriers | Provides maximum phase separation at connection points | GV7AC04 | 31.10 |
| Insulating Barriers | Provides insulation between connectors and backplate | GV7AC05 | 24.90 |
| Busbars and Covers | Connect to LC1F115–185 contactor | GV7AC06 | 46.70 |
| | Connect to LC1F225–265 contactor | GV7AC07 | 46.70 |
| **Operating Handles and Accessories** | | | |
| Black rotary operating handle with black legend plate (mounts directly on device) | | GV7AP03 | 86.00 |
| Red rotary operating handle with yellow legend plate (mounts directly on device) | | GV7AP04 | 86.00 |
| Conversion accessory to mount the device directly on panel door | | GV7AP05 | 14.00 |
| Black rotary operating handle with black legend plate and extension kit (185–600 mm) | | GV7AP01 | 102.00 |
| Red rotary operating handle with yellow legend plate and extension kit (185–600 mm) | | GV7AP02 | 102.00 |
| Padlocking device for toggle handle (max. 38 mm padlocks) | | GV7V01 | 14.00 |

☆ Wire size: GV7AC021 = 14 to 3/0 AWG; GV7AC022 = 14 AWG to 350 kcmil.


GV7AS055


GV7AP03

**Table 18.143: Operating Handles**
For use with GV2, GV3, and TeSys U through-the-door operating mechanisms

| Accessory | Description | Catalog Number | $ Price |
|---|---|---|---|
| Operating Handle (Qty: 1) | NEMA 1, 12, Black with trip indication | GVAPB54 | 31.00 |
| | NEMA 1, 12, Red/Yellow, with trip indication | GVAPR54 | 31.00 |
| | NEMA 3R, 4, 4X Red/Yellow without trip indication | GVAPR65 | 37.00 |


GVAPB54

Dimensions . . . . . pages 18-52 to 18-55


GVAPR54


GV7AC021


GV7V01


GV7AE11



© 2012 Schneider Electric
All Rights Reserved

- 45 mm wide (same dimensions as GV2ME)
- Available with screw clamp and spring type terminals
- Mounts directly to LC1D09–D32 contactors (with use of GV2AF3 or GV2AF4)
- Meets application needs for fusible starter
- Uses GV2AE instantaneous contact blocks to open control circuits
- DIN rail mounted



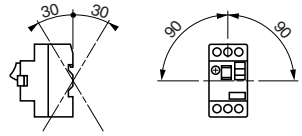
LS1D30

### Table 18.144: LS1 Fuseholders

| Description | Fuse Type | Dimensions | | Use In | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | in. | mm | | | |
| Spring terminals, 3-pole | CC, KTK-R | 0.41 x 1.5 | 10.3 x 38 | US Markets | LS1D303 | **86.** |
| Screw clamp terminals, 3-pole | CC, KTK-R | 0.41 x 1.5 | 10.3 x 38 | US Markets | LS1D30 | **86.** |
| Spring terminals, 3-pole | aM, gG | 0.39 x 1.5 | 10 x 38 | European Markets | LS1D323 | **101.** |
| Screw clamp terminals, 3-pole | aM, gG | 0.39 x 1.5 | 10 x 38 | European Markets | LS1D32 | **86.** |
| Auxiliary main pole adder | aM, gG | 0.39 x 1.5 | 10 x 38 | European Markets | LA8D324▲ | **65.** |

▲ Can be mounted on left-hand or right-hand side of the 3-pole LS1D32 block.

### Table 18.145: Specifications

| Type | LS1D30, LS1D303 | LS1D32, LS1D323, LS1DT32 |
|---|---|---|
| **Max. voltage** | 600 V 3 Phase | |
| **Max. current** | 30 A | |
| **Conforming to standards** | IEC 60947-1, 60947-2, 60947-4-1, EN60204, BS4841, UL 508, CSA 222.2 No. 14, NFC 63-650, 63-120, 79-130, VDE 0113, 0660 | |
| **Product approvals** | UL, CSA | BV |
| **Protective treatment** | "TH" | "TH" |
| **Ambient air temperature—operation** | -58 to 158° F (-50 to +70° C) | |
| **Wiring** | **Number of conductors and cross sectional area (c.s.a.)** | |
| **Solid cable** | 2 x 16–8 AWG (1–6 $mm^2$) | |
| **Flexible cable without cable end** | 2 x 14–8 AWG (1–6 $mm^2$) | |
| **Flexible cable with cable end** | 2 x 16–10 AWG (1–4 $mm^2$) | |
| **Resistance to mechanical impact conforming to IEC 60947-1 §7-1-6** | 0.5 J | |
| **Tightening torque** | 15 in-lb (1.7 N•m) | |
| **Sensitivity to phase failure** | No | |
| **Operating Positions** |   | |
| **Rated voltage—600 V** | 600 V | |
| **Rated thermal current** | 25 A (GV2), 63 A (GV3) | |
| **Mechanical life (varies by application)** | GV2: 100,000 operations | |

### Table 18.146: Environmental Specifications and Approvals

| | |
|---|---|
| **Shock resistance** | 30 g (conforming to IEC 600 68-2-27) |
| **Vibration resistance** | 5 g (5 to 150 Hz) (IEC 600 68-2-26) |
| **Ambient temperature** | –40 to 176 °F (–40 to +80 °C) for storage<br>–4 to 140 °F (–20 to +60 °C) open operation<br>–4 to 104 °F (–20 to +40 °C) enclosed operation |
| **Maximum operating rate** | 25 operations per hour |
| **Operating current of magnetic trip** | Approximately 13 times the maximum thermal trip (non-adjustable setting) |

File E164864
CNN NLRV

File LR81630
Class 3211 05

CE





© 2012 Schneider Electric
All Rights Reserved

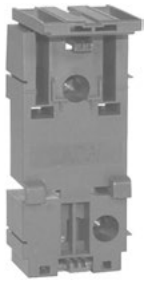

GV2GH7

### Table 18.147: GV2 Mounting Accessories

| Description | Application | Standard Pack ■ | Catalog Number | $ Price |
|---|---|---|---|---|
| Common mounting plate | For GV2 plus any 3-pole LC1D09 thru LC1D25 contactor. (supplied with GV1G02 connector) | 1 | GK2AF01 | **21.60** |
| Adapter plate | For screw mounting of GV2M | 10 | GV2AF02 | **7.10** |
| Combination block | Interconnect for GV2 plus any 3-pole LC1K or LP1K contactor | 10 | GV2AF01 | **14.00** |
| | Interconnect GV2 and LC1D09 thru D32 | 10 | GV2AF3 | **3.20** |
| | Interconnect GV2 and LC1D09 thru D32 mounted on LAD31 | 10 | GV2AF4 | **3.20** |
| 7.5 mm compensation plate | To allow mounting of GV2M and GV2P on a common bus bar | 10 | GV1F03 | **5.40** |
| Mounting plate | For mounting GV2ME or GV2P and contactor LC1D09 thru D32 | 10 | LAD31 | **6.20** |
| | | 10 | LAD311 | **12.30** |

### Table 18.148: GV2 Cabling Accessories—Bus Bars

| Description | Application | Pitch | Standard Pack ■ | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 3-Pole, 63 A Bus Bar | For feeding 2 GV2 starters | 45 | 1 | GV2G245 | **23.30** |
| | | 54 | 1 | GV2G254 | **23.30** |
| | | 72 | 1 | GV2G272 | **23.30** |
| | For feeding 3 GV2 starters | 45 | 1 | GV2G345 | **28.70** |
| | | 54 | 1 | GV2G354 | **28.70** |
| | For feeding 4 GV2 starters | 45 | 1 | GV2G445 | **34.20** |
| | | 54 | 1 | GV2G454 | **34.20** |
| | | 72 | 1 | GV2G472 | **34.20** |
| | For feeding 5 GV2 starters | 54 | 1 | GV2G554 | **34.20** |


LAD31

### Table 18.149: GV2 Other Cabling Accessories

| Description | Application | Standard Pack ■ | Catalog Number | $ Price |
|---|---|---|---|---|
| Terminal blocks | Top feed for use with bus bars | 1 | GV1G09 | **34.20** |
| | Bottom feed, to be used with bus bars; can be fitted with GV1L3 current limiter | 1 | GV2G05 | **34.20** |
| Protective end cover | To cover unused bus bar outlets | 5 | GV1G10 | **3.60** |
| 3-pole flexible connector | For connecting a GV2 to an LC1D09 thru D25 contactor | 10 | GV1G02 | **14.30** |
| Conduit adapter (1/2" NPT) | — | 1 | GV2AK1 | **16.20** |
| Incoming line insulator | For GV2P when used in UL 508 Type E applications▲ | 10 | GV2GH7 | **15.00** |

▲ Cannot be used with front-mounted auxiliary contact block.

### Table 18.150: GV2 Other Accessories

| Description | Application | Standard Pack ■ | Catalog Number | $ Price |
|---|---|---|---|---|
| Visible isolation block—GV2P | Front mounting, 3-pole visible isolation on incoming side of GV2P | 1 | GV2AK00 | **71.40** |
| Current limiter—GV2M | Increases interrupt capacity when attached to GV2M | 1 | GV1L3 | **117.00** |
| Through-the-door operating mechanism | NEMA 1, 12, Black with trip indication, for use with GV2P | 1 | GV2APN01 | **131.00** |
| | NEMA 1, 12, Red/Yellow with trip indication, for use with GV2P | 1 | GV2APN02 | **131.00** |
| | NEMA 3R, 4, 4X, Red/Yellow without trip indication, for use with GV2P | 1 | GV2APN04 | **144.00** |
| Angle bracket | Support shaft, for use with GV2P | 1 | GVAPK11 | **19.00** |
| Hard bracket | — | 1 | GVAPH02 | **30.00** |

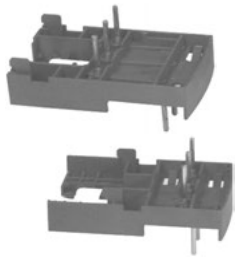

LAD311

### Table 18.151: GV2 Enclosures

| Description | Mounting | Rating | Catalog Number | $ Price |
|---|---|---|---|---|
| Enclosures for GV2M with or without accessories (maximum of 1 accessory on right and left) Enclosures are not UL or CSA listed. | Surface mounting | NEMA 1, IP41<br>IP55 | GV2MC01<br>GV2MC02 | **54.00**<br>**78.00** |
| | Flush mounting | NEMA 1, IP41<br>IP55 | GV2MP01<br>GV2MP02 | **31.10**<br>**54.00** |
| | Flush mounting reduced width (max. of 1 accessory on right) | NEMA 1, IP41<br>IP55 | GV2MP03<br>GV2MP04 | **27.90**<br>**49.70** |

### Table 18.152: GV2 Enclosures Accessories

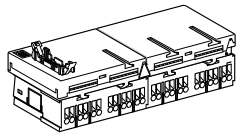
| Description | Type | | Standard Pack■ | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Padlocking device for GV2M (when padlocked, starter is automatically in Off position) | — | | 1 | GV2V01 | **26.90** |
| Mushroom head stop push button (40 mm, red) ♦ | Spring return | | 1 | GV2K011 | **35.90** |
| | Latching | Key release (Ronis key no. 455) | 1 | GV2K021 | **104.00** |
| | | Turn to Release | 1 | GV2K031 | **52.00** |
| | Latching / Padlockable Turn to Release | | 1 | GV2K04 | **117.00** |
| Sealing kit | For enclosures GV2MC01 and GV2MP01 | | 10 | GV2E01 | **18.00** |
| Pilot Light (neon) | 110 V | Green | 10 | GV2SN13 | **26.90** |
| | 110 V | Red | 10 | GV2SN14 | |
| | 110 V | Orange | 10 | GV2SN15 | |
| | 110 V | White | 10 | GV2SN17 | |
| | 220/240 V | Green | 10 | GV2SN23 | |
| | 220/240 V | Red | 10 | GV2SN24 | |
| | 220/240 V | Orange | 10 | GV2SN25 | |
| | 220/240 V | White | 10 | GV2SN27 | |
| | 380/440 V | Green | 10 | GV2SN33 | |
| | 380/440 V | Red | 10 | GV2SN34 | |
| | 380/440 V | Orange | 10 | GV2SN35 | |
| | 380/440 V | White | 10 | GV2SN37 | |

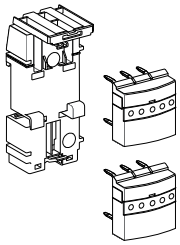

GV2AF3 / GV2AF4

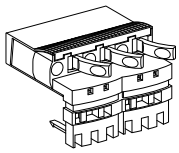
■ Orders must specify multiples of quantities listed.
♦ Supplied with IP55 sealing kit.



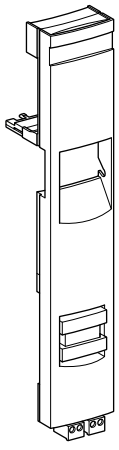
© 2012 Schneider Electric
All Rights Reserved


APP2R4H1


LAD35


LAD3B


LAD33


APP2D1•



### Table 18.153: Splitter Boxes

A total of up to eight starters is permissible after extensions. Use multiple quantities of the same catalog number to create the desired line-up.

| Description | Type of Control-Command Connection on Control System Side | No. of I/O per Starter | No. of Starters per Unit | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 50 A power splitter box | — | — | 2 | LAD322 | **52.00** |
| | | | 4 | LAD324 | **93.00** |
| 50 A power and control splitter box | 1 x HE10 8I/8O | 1I/1O | 4 | APP2R4H1 | **124.00** |
| | 1 x HE10 16I and 1 x HE10 8O | 2I/1O | 4 | APP2R4H2 | **124.00** |
| | via module APP1C••• ▲ | — | 2 | APP2R2E | **124.00** |
| | | | 4 | APP2R4E | **124.00** |
| | AS-Interface | 2I/1O | 2 | APP2R2AS | **124.00** |
| | | 1I/1O | 4 | APP2R4AS | **124.00** |

▲ Connection to an APP1C••• module via APP2CX adapter (LAD35).

### Table 18.154: Power Connection Components for One Starter

| Description | Kit Consists Of: | Catalog Number | $ Price |
|---|---|---|---|
| Assembly and power connection kit | One LAD31 plate for GV2ME and two LAD34 power connection modules | LAD351 | **21.00** |
| Reversing kit ■ | One set of bus bars and one mechanical interlock | LAD32 | **20.70** |

■ To create a TeSys D reverser, use two LC1D contactors, one assembly and power connection kit, and one reversing kit.

### Table 18.155: Power Connection Accessories for One Starter

| Description | Max. Connection Cross-Section | Use | Catalog Number | $ Price |
|---|---|---|---|---|
| Upstream terminal block (50 A max) | 16 $mm^2$ (6 AWG) | Power supply for one or two power splitter boxes | LAD3B | **83.00** |
| Downstream terminal block (50 A max) | 6 $mm^2$ (10 AWG) | Connection of motor cables | LAD331 | **5.00** |

### Table 18.156: Control Connection Module for One Starter

| Description | D-Line Coil Voltage | Type of Coil Control Relay | Type of Starter | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Control connection module (integrating contact block GVAE20) | 12–240 Vac or 24–125 Vdc | Electromechanical ♦ | Non-reversing | APP2D1 | **41.40** |
| | | | Reversing | APP2D2 | **72.00** |
| | 24–48 Vdc | Without relay ★ | Non-reversing | APP2D1D | **31.10** |
| | | | Reversing | APP2D2D | **31.10** |

♦ Relay supplied mounted on the front panel of the control connection.
★ The use of TeSys D low consumption contactors is recommended.

### Table 18.157: Spare or Replacement Parts

| Description | Type of Control-Command Connection on Control System Side | No. of I/O per Starter | No. of Starters | Sold in Lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Plate for mounting a GV2ME manual starter | — | — | 1 | 10 | LAD31 | **6.20** |
| | | | 1 | 10 | LAD311 | **12.30** |
| Power connection module | — | — | 1 | 10 | LAD341 | **7.50** |
| Control-command splitter box (single, for mounting on a power splitter box) | 1 x HE10 8I/8O | 1I/1O | 4 | 1 | APP2R4H3 | **11.30** |
| | 1 x HE10 16I and 1 x HE10 8O | 2I/1O | 4 | 1 | APP2R4H4 | **11.30** |
| | Per module APP1C••• ▼ | — | 2 | 1 | APP2R2C | **11.30** |
| | | | 4 | 1 | APP2R4C | **11.30** |
| | AS-Interface | 2I/1O | 2 | 1 | APP2R2A | **11.30** |
| | | 1I/1O | 4 | 1 | APP2R4A | **11.30** |
| Replacement electromechanical relay (for control connection module) | | — | 1 | 10 | APP2ER | **7.50** |

▼ Connection to an APP1C••• module via APP2CX adapter (LAD35).


© 2012 Schneider Electric
All Rights Reserved

The AK5 pre-fabricated bus bar system provides a quick and easy method of mounting control devices. All components are finger safe, UL Listed, CSA approved and CE marked. Although the AK5 system can be screw mounted onto any type of support, it **must be mounted** on the AM1DL201 DIN rail when component mounting plates incorporating a tap-off are used. When using tap-offs, the nominal operating current of the bus bar (160 A @ 35°) must not be exceeded.



AK5JB143

**Table 18.158: 160 A, 3-Phase Busbar System**

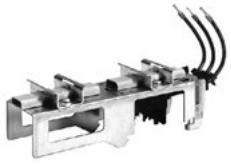
| Maximum number of mounting plates | | | | | | Length | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| Tap-off | | Standard Width Plate | | Extension Plate | | | | | |
| 1.42 in. | 36 mm | 2.13 in. | 54 mm | 2.80 in. | 71 mm | in. | mm | | |
| 6 | | 4 | | 2 | | 13.39 | 344 | AK5JB143 | **210.00** |
| 9 | | 6 | | 3 | | 17.64 | 452 | AK5JB144 | **266.00** |
| 12 | | 8 | | 4 | | 21.85 | 560 | AK5JB145 | **286.00** |
| 15 | | 10 | | 5 | | 26.05 | 668 | AK5JB146 | **345.00** |
| 24 | | 16 | | 8 | | 38.69 | 992 | AK5JB149 | **393.00** |
| 27 | | 18 | | 9 | | 42.90 | 1100 | AK5JB1410 | **540.00** |



AK5PA231

**Table 18.159: Mounting Plate Tap-off** (plugs into busbar mounted on AM1DL201 DIN rail)

| Width | | Thermal Current Amperes | Application | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| in. | mm | | | | | |
| 2.13 | 54 | 25 A | GV2 with | LUS or LUB 12 and 32 | AK5PA231 | **98.00** |
| 2.13 | 54 | 25 A | | contactor | AK5PA232 | **120.00** |
| 4.25 | 108 | 25 A | | reversing contactor | AK5PA232S | **206.00** |



AK5PA232S

**Table 18.160: Bus Tap-off** (plugs into busbar for wiring to a separately mounted device)

| Width | | Thermal Current Amperes | Length of Leads | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| in. | mm | | in. | mm | | |
| 1.42 | 36 | 32 A | 9.84 | 250 | AK5 PC33 | **23.00** |
| 1.42 | 36 | 32 A | 39.37 | 1000 | AK5 PC33L | **37.80** |



AK5PC33

**Table 18.161: Extension Plates**

Used to mount wider components. Bolt to standard mounting plates (after DIN rails are removed).

| Width | | Application | Catalog Number | $ Price |
|---|---|---|---|---|
| in. | mm | | | |
| 2.80 | 71 | GV & Reversing contactor | AK5PE27 | **26.30** |

**Table 18.162: Mounting Rail** (must be used for mounting plates with tap-offs)

| Description | Depth | Length | Catalog Number | $ Price |
|---|---|---|---|---|
| | mm | mm | | |
| 75 mm Omega Rail | 15 | 2000 | AM1DL201 | **41.10** |



AM1DL201

**Table 18.163: Approvals: IEC 439, UL, CSA, DNV, LROS**

File E161251
CCN NMTR

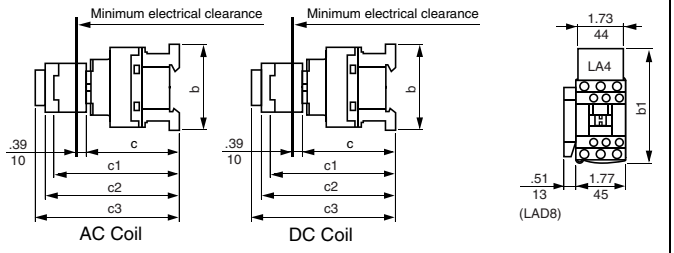
File LR 89150
Class 6228-01



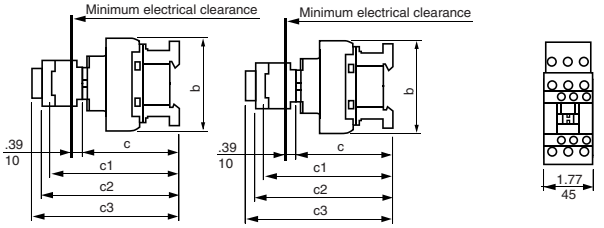
© 2012 Schneider Electric
All Rights Reserved

## Table 18.164: TeSys D Contactors AC Control Circuits

**LC1D09 to D18 (3-pole) and LC1DT12 to LC1DT40 (4 pole)**




**LC1D25 to D38 (3-pole)**

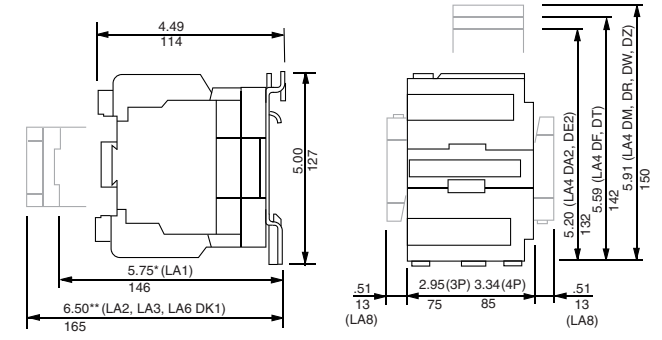



| | | LC1D09 to D18 (3-pole) and LC1DT12 to LC1DT40 (4 pole) | | | LC1D25 to D38 (3-pole) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| b | AC coil, without add-on accessories | 3.03 (77) | 3.89 (99) | 3.14 (80) | 3.36 (85) | 3.89 (99) | 3.34 (85) | 3.89 (99) | 3.58 (91) | 4.13 (105) |
| | DC coil | — | — | — | — | — | — | — | — | — |
| b1 | AC coil, with LAD4BB ■ | 3.70 (94) | 4.21 (107) | 3.75 (95.5) | 3.85 (98) | 4.21 (107) | 3.85 (98) | — | — | — |
| | AC coil, with LA4D*2 ■ | 4.33 (110) ▲ | 4.84 (123) ▲ | 4.30 (111.5) ▲ | 4.48 (114) ▲ | 4.84 (123) ▲ | 4.48 (114) | — | — | — |
| | AC coil, with LA4DF, DT ■ | 4.68 (119) ▲ | 5.19 (132) ▲ | 4.76 (120.5) ▲ | 4.84 (123) ▲ | 5.19 (132) ▲ | 5.02 (129) | — | — | — |
| | AC coil, with LA4DR, DW, DL ■ | 4.96 (126) ▲ | 5.67 (139) ▲ | 5.0 (127.5) ▲ | 5.11 (130) ▲ | 5.47 (139) ▲ | 7.48 (190) | — | — | — |
| c | AC coil, without cover or add-on blocks | 3.30 (84) | 3.30 (84) | 3.30 (84) | 3.54 (90) | 3.54 (90) | 3.54 (90) | 3.54 (90) | 3.85 (98) | 3.85 (98) |
| | AC coil, with cover, without add-on blocks | 3.38 (86) | 3.38 (86) | 3.38 (86) | 3.62 (92) | 3.62 (92) | 3.62 (92) | 3.62 (92) | 3.93 (100) | 3.93 (100) |
| | DC coil, without cover or add-on blocks | 3.66 (93) | 3.66 (93) | 3.66 (93) | 3.89 (99) | 3.89 (99) | — | — | — | — |
| | DC coil, with cover, without add-on blocks | 3.76 (95) | 3.76 (95) | 3.76 (95) | 3.97 (101) | 3.97 (101) | 3.90 (99) | 3.90 (99) | 4.21 (107) | 4.21 (107) |
| c1 | AC coil, with LADN or C (two or four contacts) | 4.60 (117) | 4.60 (117) | 4.60 (117) | 4.84 (123) | 4.84 (123) | 4.84 (123) | 4.84 (123) | 5.15 (131) | 5.15 (131) |
| | DC coil, with LADN or C (two or four contacts) | 4.96 (126) | 4.96 (126) | 4.96 (126) | 5.19 (132) | 5.19 (132) | 4.84 (123) | 4.84 (123) | 5.15 (131) | 5.15 (131) |
| c2 | AC coil, with LAD6K10 | 5.07 (129) | 5.07 (129) | 5.07 (129) | 5.31 (135) | 5.31 (135) | 5.31 (135) | 5.31 (135) | 5.62 (143) | 5.62 (143) |
| | DC coil, with LAD6K10 | 5.43 (138) | 5.43 (138) | 5.43 (138) | 5.66 (144) | 5.66 (144) | 5.31 (135) | 5.31 (135) | 5.62 (143) | 5.62 (143) |
| c3 | AC coil, with LADT,R,S | 5.39 (137) | 5.39 (137) | 5.39 (137) | 5.62 (143) | 5.62 (143) | 5.62 (143) | 5.62 (143) | 5.94 (151) | 5.94 (151) |
| | AC coil, with LADT,R,S and sealing cover | 5.55 (141) | 5.55 (141) | 5.55 (141) | 5.78 (147) | 5.78 (147) | 5.78 (147) | 5.78 (147) | 6.10 (155) | 6.10 (155) |
| | DC coil with LADT,R,S | 5.76 (146) | 5.76 (146) | 5.76 (146) | 5.98 (152) | 5.98 (152) | 5.62 (143) | 5.62 (143) | 5.94 (151) | 5.94 (151) |
| | DC coil with LADT,R,S and sealing cover | 5.90 (150) | 5.76 (146) | 5.76 (146) | 6.14 (156) | 6.14 (156) | 5.78 (147) | 5.78 (147) | 6.10 (155) | 6.10 (155) |

▲ Including LAD4BB
■ Not applicable to devices with DC coils

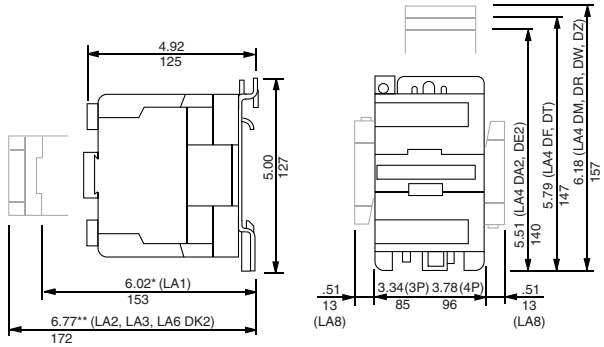
## Table 18.165: AC Coil

**LC1D40, D50, D65 (3P), LC1D65004 (4P)**



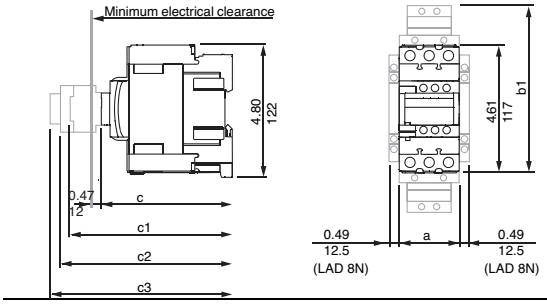

*except LA1DN10, DN01 = 136
** +4 mm with lead sealing device

**LC1D80004 (4P)**




*except LA1DN10, DN01 = 136
** +4 mm with lead sealing device

**LC1 D40A–D65A (3P), LC1 DT60A–DT80A (4P) AC OR DC**



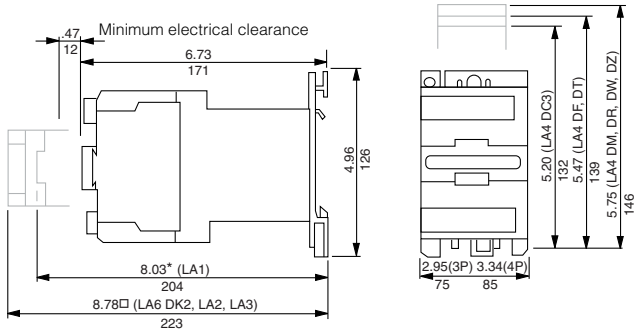

| LC1 | | D40A–D65A in. (mm) | DT60A–DT80A in. (mm) | D40008 in. (mm) |
|---|---|---|---|---|
| a | | 2.17 (55) | 2.76 (70) | 3.35 (85) |
| b1 | with LA4 D•2 | — | — | 5.31 (135) |
| | with LA4 DB3 or LAD 4BB3 | 5.35 (136) | — | — |
| | with LA4 DF, DT | 6.18 (157) | — | 5.59 (142) |
| | with LA4 DM, DW, DL | 6.54 (166) | — | 5.91 (150) |
| c | without cover or add-on blocks | 4.65 (118) | 4.65 (118) | 4.92 (125) |
| | with cover, without add-on blocks | 4.72 (120) | 4.72 (120) | — |
| c1 | with LAD N (1 contact) | — | — | 5.47 (139) |
| | with LAD N or C (2 or 4 contacts) | 5.91 (150) | 5.91 (150) | 5.79 (147) |
| c2 | with LAD 6K10 or LA6 DK | 6.42 (163) | 6.42 (163) | 6.26 (159) |
| c3 | with LAD T, R, S | 6.73 (171) | 6.73 (171) | 6.57 (167) |
| | with LAD T, R, S and sealing cover | 6.89 (175) | 6.89 (175) | 6.73 (171) |



© 2012 Schneider Electric
All Rights Reserved

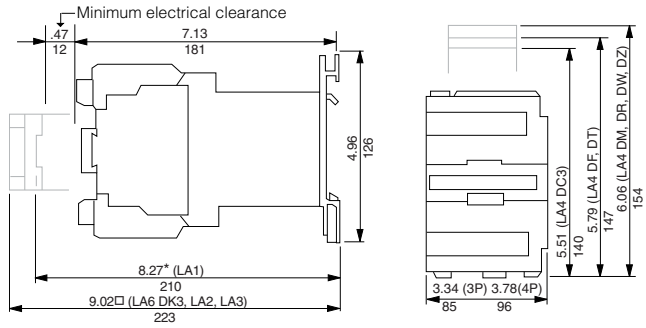
## Table 18.166: DC Coil

### LC1D40, D50, D65 (3P), LC1D650004, (4P)



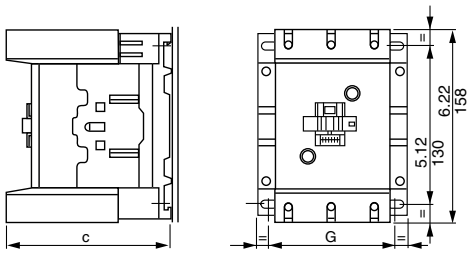

*except LA1DN10, DN01 = 136
□ + 4 mm with lead sealing device

### LC1D80 (3P), LC1D800004(4P)



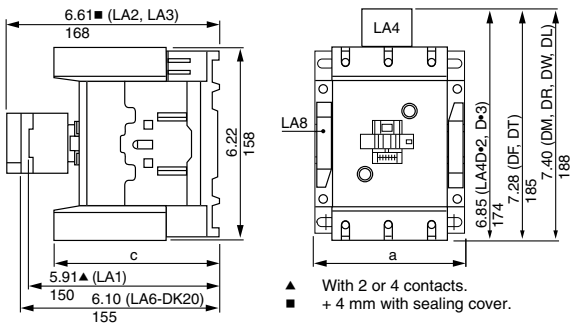

*except LA1DN10, DN01 = 143
□ + 4 mm with lead sealing device

### LC1D115, D150




| LC1 | D115 | D1156 | D150 | D1506 |
|---|---|---|---|---|
| c | 5.12 (132) | 4.53 (115) | 5.12 (132) | 4.53 (115) |
| G (3-poles) | 3.78/4.33 (96/110) | 3.78/4.33 (96/110) | 3.78/4.33 (96/110) | 3.78/4.33 (96/110) |
| G (4-poles) | 5.12/5.67 (130/144) | 5.12/5.67 (130/144) | — | — |

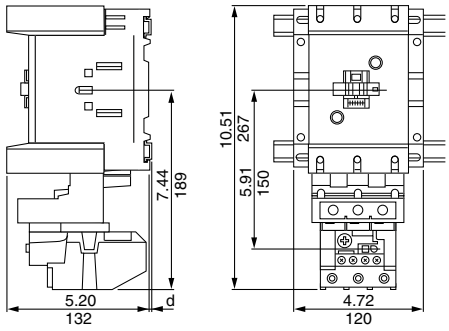
### LC1D115, D150




▲ With 2 or 4 contacts.
■ + 4 mm with sealing cover.

| LC1 | C | A |
|---|---|---|
| D115, D150 | 5.12 (132) | 4.72 (120) |
| D115004 | 5.12 (132) | 6.10 (155) |
| D1156, D1506 | 4.53 (115) | 4.72 (120) |
| D1150046 | 4.53 (115) | 6.10 (155) |

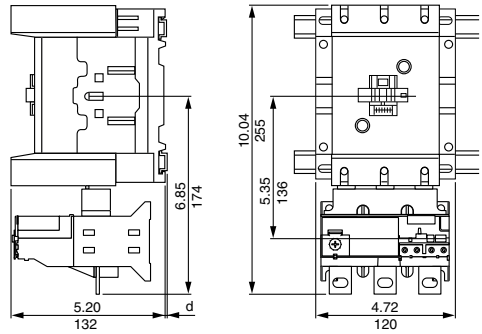
### **LR2D4** bimetallic overload relay
Direct mounting beneath contactors
**LC1D115 and D150**




35 mm DIN rail dimensions

| | AM1DP200 and DR200 | AM1DE••• and ED••• |
|---|---|---|
| d | 0.10 (2.5) | .41 (10.5) |

### **LR9D** solid-state overload relay
Direct mounting beneath contactors
**LC1D115 and D150**




35 mm DIN rail dimensions

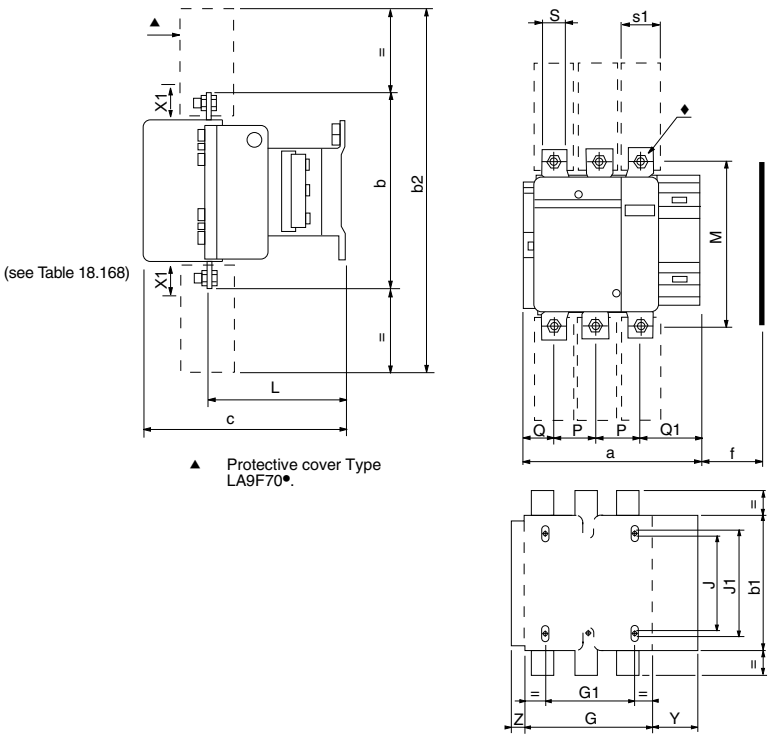
| | AM1DP200 and DR200 | AM1DE••• and ED••• |
|---|---|---|
| d | 0.10 (2.5) | .41 (10.5) |

Note: All dimensions are in Inches (mm).



© 2012 Schneider Electric
All Rights Reserved

## LC1F115 to F330




All dimensions shown in mm.
To convert to inches, divide by 25.4.

### Table 18.167: LC1F115–F330 Dimensions

| LC1 | F115 | | F150 | | F185 | | F265 | | F330 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3-Pole | 4-Pole | 3-Pole | 4-Pole | 3-Pole | 4-Pole | 3-Pole | 4-Pole | 3-Pole | 4-Pole |
| a | 163.5 | 200.5 | 163.5 | 200.5 | 168.5 | 208.5 | 201.5 | 243.5 | 213 | 261 |
| b | 162 | 162 | 170 | 170 | 174 | 174 | 203 | 203 | 206 | 206 |
| b1 | 137 | 137 | 137 | 137 | 137 | 137 | 145 | 145 | 145 | 145 |
| b2 | 265 | 265 | 301 | 301 | 305 | 305 | 370 | 370 | 375 | 375 |
| c | 165■ | 165■ | 165■ | 165■ | 176 | 176 | 207 | 207 | 219 | 219 |
| f | 131 | 131 | 131 | 131 | 130 | 130 | 147 | 147 | 147 | 147 |
| G | 106 | 143 | 106 | 143 | 111 | 151 | 142 | 190 | 154.5 | 202.5 |
| G1 | 80 | 80 | 80 | 80 | 80 | 80 | 96 | 96 | 96 | 96 |
| J | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 |
| J1 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| L | 107 | 107 | 107 | 107 | 113.5 | 113.5 | 141 | 141 | 145 | 145 |
| M | 147 | 147 | 150 | 150 | 154 | 154 | 178 | 178 | 181 | 181 |
| P | 37 | 37 | 40 | 40 | 40 | 40 | 48 | 48 | 48 | 48 |
| Q | 29.5 | 29.5 | 26.5 | 26 | 29 | 29 | 39 | 34 | 43 | 43 |
| Q1 | 60 | 60 | 57.5 | 55.5 | 59.5 | 59.5 | 66.5 | 66.5 | 74 | 74 |
| S | 15 | 15 | 20 | 20 | 20 | 20 | 25 | 25 | 25 | 25 |
| S1 | 27 | 27 | 34 | 34 | 34 | 34 | 38 | 38 | 44.5 | 44.5 |
| Y | 44 | 44 | 44 | 44 | 44 | 44 | 38 | 38 | 38 | 38 |
| Z | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 21.5 | 21.5 | 20.5 | 20.5 |

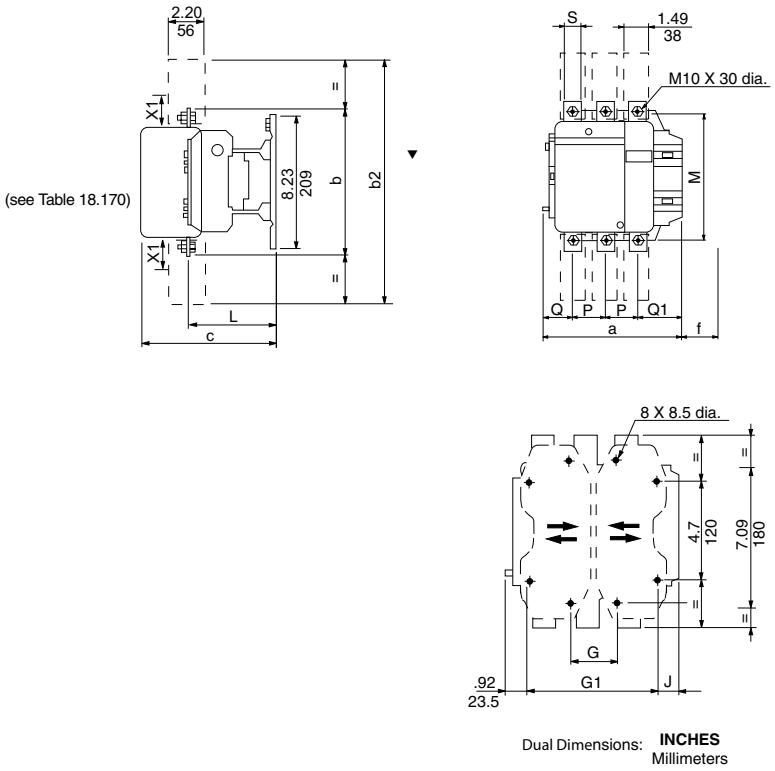
■ +6 mm with time delay block (for F115 and F150).
♦ Optimal terminal shroud
f = minimum distance required for coil removal.

### Table 18.168: LC1F115–F330 Voltage

| | 220/380 V | 415/440 V | 500 V | 660 V | 1000 V |
|---|---|---|---|---|---|
| LC1F115, F150 | 20 | 25 | 30 | 40 | 20 |
| LC1F185 | 20 | 25 | 30 | 40 | 30 |
| LC1F265 | 20 | 25 | 40 | 50 | 40 |
| LC1F330 | 25 | 35 | 40 | 50 | 50 |

X1: Minimum clearance according to the operational voltage and the breaking capacity.

## LC1F400 to F500




### Table 18.169: LC1F400–F500 Dimensions

| LC1 | F400 | | | F500 | | |
|---|---|---|---|---|---|---|
| | 2-Pole | 3-Pole | 4-Pole | 2-Pole | 3-Pole | 4-Pole |
| a | 213 | 213 | 261 | 233 | 233 | 288 |
| b | 206 | 206 | 206 | 238 | 238 | 238 |
| b2 | 375 | 375 | 375 | 400 | 400 | 400 |
| c | 213 | 213 | 213 | 226 | 226 | 226 |
| f | 119 | 119 | 119 | 141 | 141 | 141 |
| G★ | 80 | 80 | 80 | 80 | 80 | 140 |
| G min. | 66 | 66 | 66 | 66 | 66 | 66 |
| G max. | 102 | 102 | 150 | 120 | 120 | 175 |
| G1★ | 170 | 170 | 170 | 170 | 170 | 230 |
| G1 min. | 156 | 156 | 156 | 156 | 156 | 156 |
| G1 max. | 192 | 192 | 240 | 210 | 210 | 265 |
| J | 19.5 | 19.5 | 67.5 | 39.5 | 39.5 | 34.5 |
| L | 145 | 145 | 145 | 146 | 146 | 146 |
| M | 181 | 181 | 181 | 208 | 208 | 208 |
| P | 48 | 48 | 48 | 55 | 55 | 55 |
| Q | 69 | 43 | 43 | 76 | 46 | 46 |
| Q1 | 96 | 74 | 74 | 102 | 77 | 77 |
| S | 25 | 25 | 25 | 30 | 30 | 30 |

★ Supplied
▼ Protective cover
f = Minimum distance required for coil removal.

### Table 18.170: LC1F400–F500 Voltage

| | 220/230 V | 415/440 V | 500 V | 660 V | 1000 V |
|---|---|---|---|---|---|
| LC1F400 | 30 | 40 | 40 | 50 | 60 |
| LC1F500 | 40 | 45 | 50 | 60 | 60 |

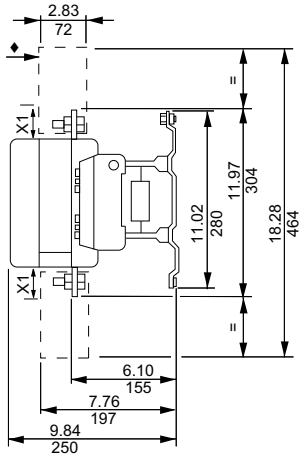
X1: Minimum clearance according to the operational voltage and the breaking capacity.

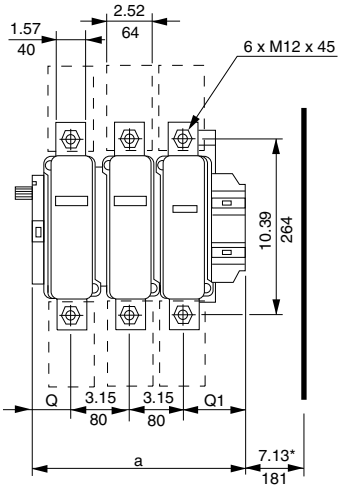


© 2012 Schneider Electric
All Rights Reserved

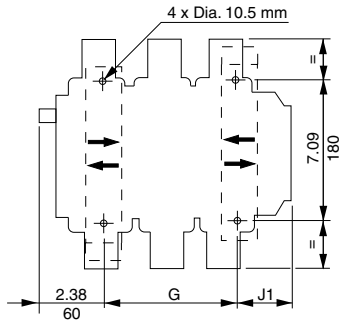
## Table 18.171: LC1F Dimensions

### LC1F630 and LC1F800




Dual Dimensions: **INCHES**
Millimeters

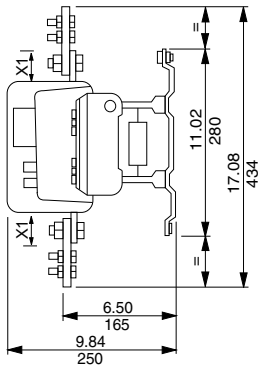


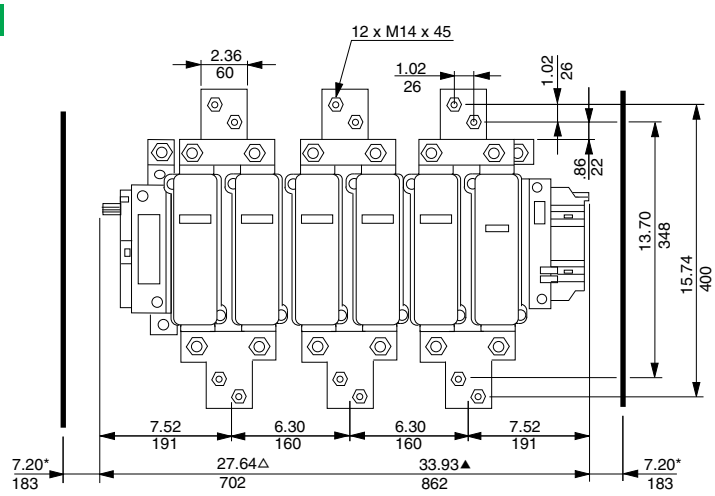

| | LC1F630 | a | | G supplied | | G min. | | G max. | | J1 | | Q | | Q1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm |
| * = minimum distance required for coil removal.<br>♦ Protective terminal cover. | 2 P | 12.17 | 309 | 7.09 | 180 | 3.94 | 100 | 7.68 | 195 | 2.70 | 68.5 | 4.02 | 102 | 5.00 | 127 |
| | 3 P | 12.17 | 309 | 7.09 | 180 | 3.94 | 100 | 7.68 | 195 | 2.70 | 68.5 | 2.36 | 60 | 3.50 | 89 |
| | 4 P | 15.31 | 389 | 9.45 | 240 | 5.91 | 150 | 10.83 | 275 | 2.70 | 68.5 | 2.36 | 60 | 3.50 | 89 |

X1:Minimum clearance according to the operational voltage and the breaking capacity.

| Voltage (V) | 380 | 415/440 | 500 | 660 | 1000 |
|---|---|---|---|---|---|
| X1 in mm | 60 | 60 | 60 | 70 | 80 |

### LC1F780, F7804



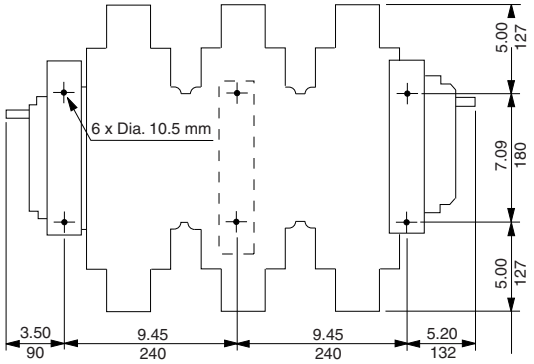




X1: Minimum clearance according to the operational voltage and the breaking capacity.

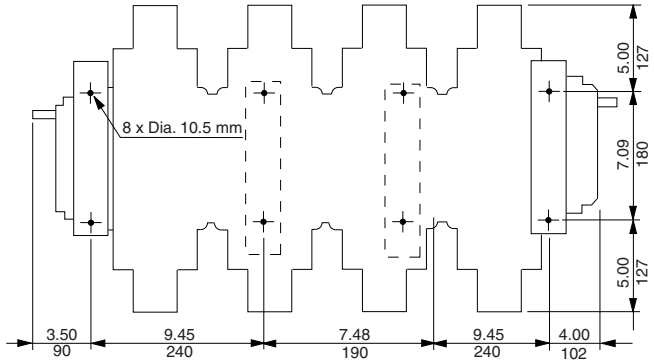
| Voltage (V) | 380 | 415/440 | 660 | 1000 |
|---|---|---|---|---|
| X1 in mm | 90 | 100 | 120 | 120 |

△ Overall length (3 poles)
▲ Overall length (4 poles)
*minimum distance required for coil removal.

### LC1F780 mounting




### LC1F7804 mounting

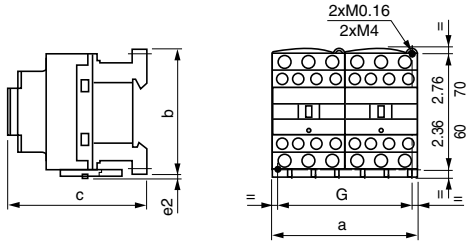





© 2012 Schneider Electric
All Rights Reserved

**Table 18.172: Reversing Contactor Dimensions**

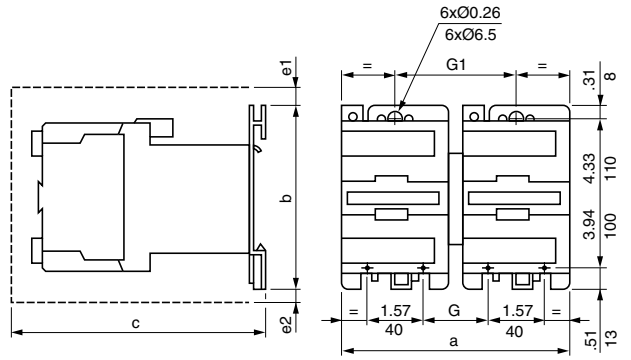
**LC2D09–D32**
**LC2DT20–DT60**
**2 x LC1DT20–DT60**




| LC2 or 2 x LC1 | a | b | c | G |
|---|---|---|---|---|
| | in. (mm) | in. (mm) | in. (mm) | in. (mm) |
| DT20 and DT25 | 3.54 (90) | 3.34 (85) | 3.54 (90) | 3.14 (80) |
| DT32 to DT60 | 3.54 (90) | 3.58 (91) | 3.85 (98) | 3.14 (80) |

c, e2: includes cabling.

**2 x LP1D40, D65, D80, D95**

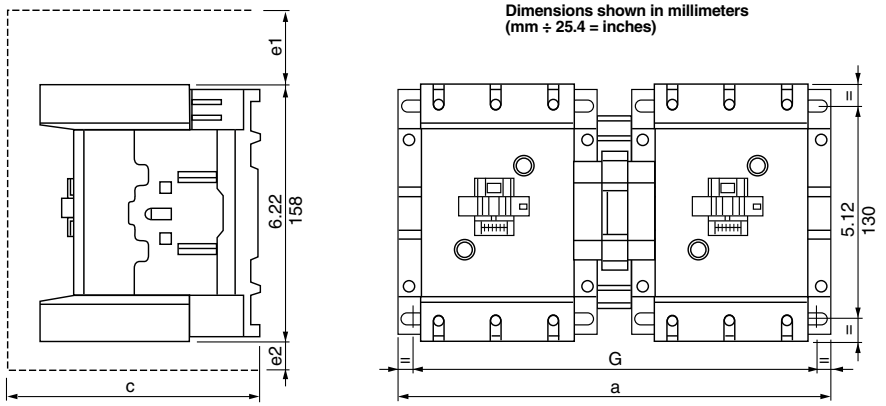



| LC2 or 2 x LC1 | a | b | c | e1 | e2 | G | G1 |
|---|---|---|---|---|---|---|---|
| | in. (mm) | in. (mm) | in. (mm) | in. (mm) | in. (mm) | in. (mm) | in. (mm) |
| D40 to D65 | 7.16 (182) | 5.0 (127) | 7.4 (190) | 1.19 (5) | 0.43 (11) | 2.2 (57) | 3.8 (97) |
| D80 and D95 | 8.14 (207) | 5.0 (127) | 8.4 (215) | 0.51 (13) | 0.78 (20) | 3.7 (96) | 4.3 (111) |

c, e1 and e2: includes cabling.

**LC2D115 and D150**
**2 x LC1D115 and D150**
Panel mounted with 1/4 in. screw

**Dimensions shown in millimeters**
**(mm ÷ 25.4 = inches)**




| LC2 or 2 x LC1 (3-pole) | a | c | e1 | e2 | G |
|---|---|---|---|---|---|
| D115, D150 | 266 | 148 | 56 | 18 | 242/256 |
| **LC2 or 2 x LC1 (4-pole)** | **a** | **c** | **e1** | **e2** | **G** |
| D115 | 334 | 148 | — | 60 | 310/324 |

c, e1 and e2 includes cabling

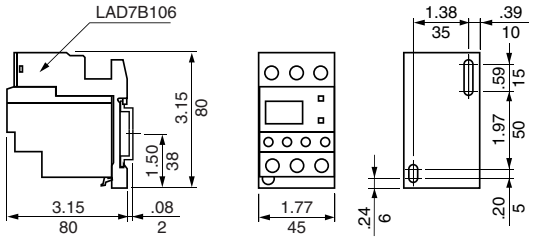
***NOTE:*** *For dimensions of TeSys F reversing contactors, please refer to catalog 8502CT9901.*



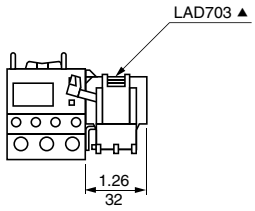
© 2012 Schneider Electric
All Rights Reserved

## Table 18.173: TeSys D Overload Relay Dimensions

**LRD-01-35**
Independent mounting on 50 mm centers or on rail AM1DP200 or DE200

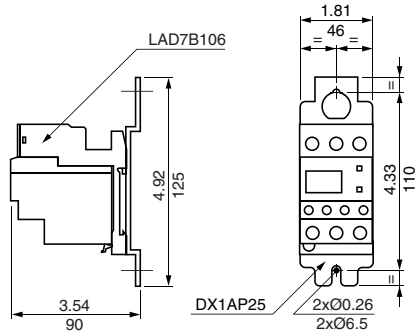



Remote tripping or electrical reset



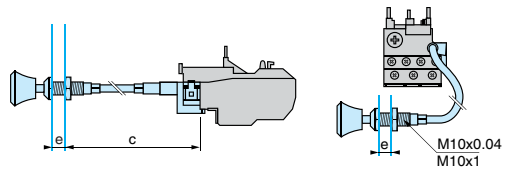

▲ Can only be mounted on RH side of relay LRD-01 to 35

Independent mounting on 110 mm centers



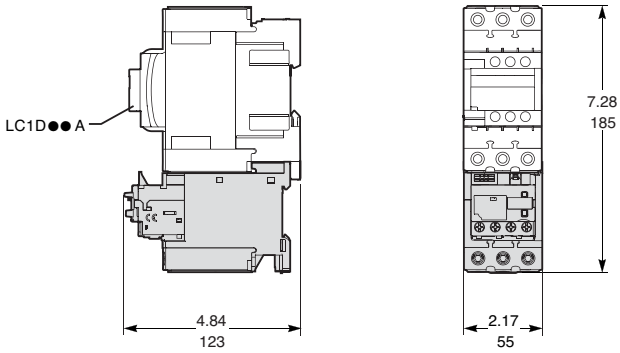

**LRD, LR2D and LR9D**
Reset by flexible cable LA7D305 and LAD7305
Mounting with cable straight

Mounting with cable bent

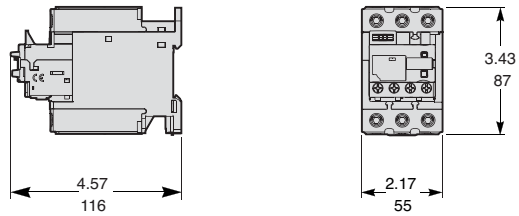



c: up to 21.6 in. (550 mm)
e: up to 0.79 in. (20 mm)

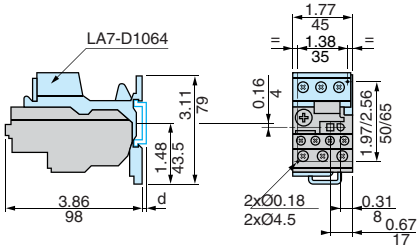
**LRD3●●**
**Beneath LC1D●●A contactor**



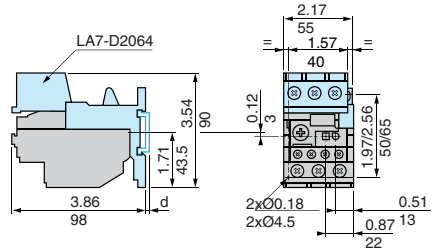

**Separate mounting**



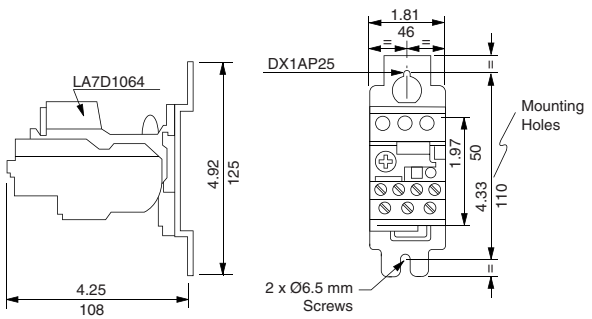

**LR2D1, LR3D1**
**Separate mounting at 50 mm (1.97 in.) centers or on AM1DP200 or DE200 rail**



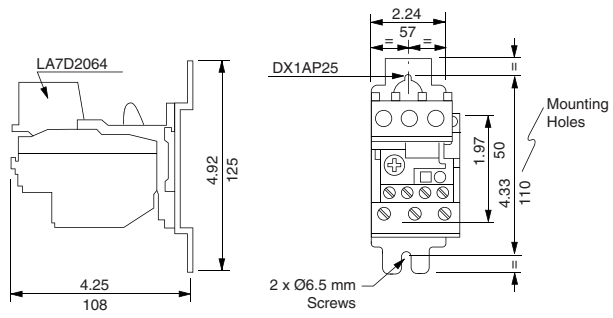

**LR2D2, LR3D2**
**Separate mounting at 50 mm (1.97 in.) centers or on AM1DP200 or DE200 rail**




**LR2D1, LR3D1**
**Separate mounting at 110 mm (4.33 in.) centers**




**LR2D2, LR3D2**
**Separate mounting at 110 mm (4.33 in.) centers**

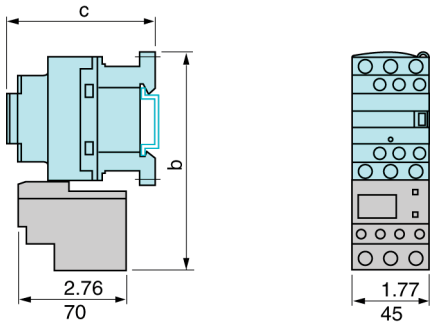





© 2012 Schneider Electric
All Rights Reserved

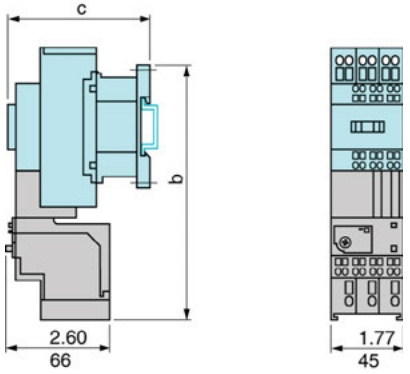
**Table 18.174: TeSys D Thermal Overload Relay Dimensions, in. (mm)**

**LRD-01-35**
**Direct mounting beneath contactors with screw**



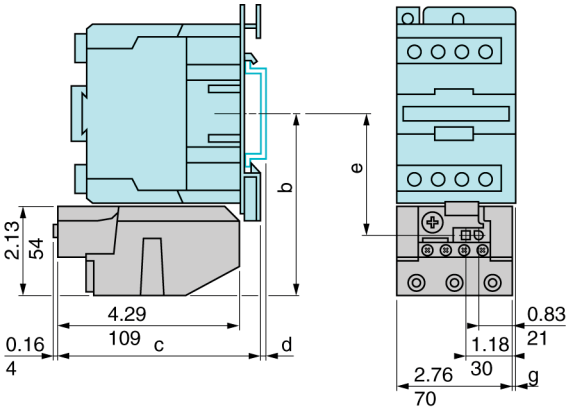

| LC1• | D09–D18 | D25–D38 |
|---|---|---|
| b | 4.84 (123) | 5.39 (137) |
| c | See Catalog 8502CT9901 pages 122, 123. | |

**LRD-013-353**
**Direct mounting beneath contactors with spring terminal connections**



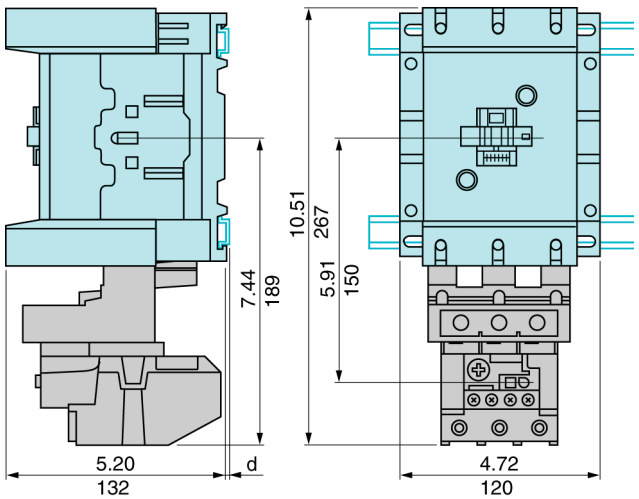

| LC1• | D093–383 |
|---|---|
| b | 4.84 (123) |
| c | See Catalog 8502CT9901 pages 122, 123. |

**LRD-3•••**
Direct mounting beneath contactors
LC1-D40 to D95 and LP1-D40 to D80




| AM1• | DL201 | DL200 | | | | |
|---|---|---|---|---|---|---|
| d | 0.28 (7) | 0.67 (17) | | | | |
| | | b | c | e | g(3P) | g(4P) |
| **AC Control Circuit** | | | | | | |
| LC1D80 | | 4.55 (115.5) | 4.88 (124) | 3.03 (76.9) | 0.37 (9.5) | 0.87 (22) |
| LC1D95 | | 4.55 (115.5) | 4.88 (124) | 3.03 (76.9) | 0.37 (9.5) | — |
| **DC Control Circuit** | | | | | | |
| LC1D40, LP1D40 | | 4.37 (111) | 6.93 (176) | 2.85 (72.4) | 0.18 (4.5) | 0.51(13) |
| LC1D50 | | 4.37 (111) | 6.93 (176) | 2.85 (72.4) | 0.18 (4.5) | — |
| LC1D65, LP1D65 | | 4.37 (111) | 6.93 (176) | 2.85 (72.4) | 0.18 (4.5) | 0.51(13) |
| LC1D80, D95, LP1D80 | | 4.55 (115.5) | 7.06 (179.4) | 3.03 (76.9) | 0.37 (9.5) | 0.87(22) |

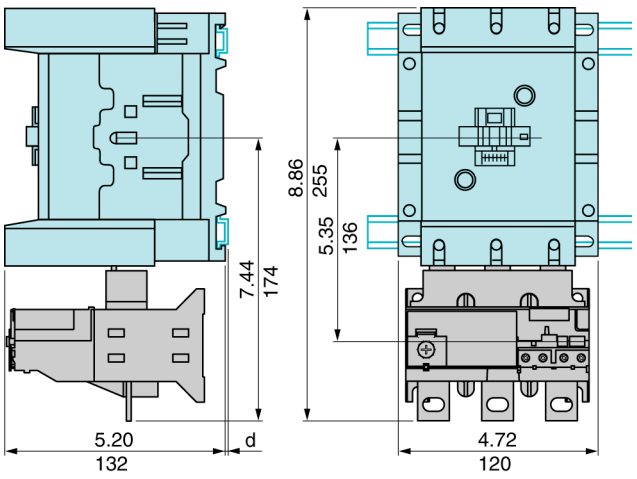
**LRD4•••**
**Direct mounting beneath contactors LC1D115 and D150**




| | AM1DL200 and DR200 | AM1DE200 and ED••• |
|---|---|---|
| d | 0.10 (2.5) | 0.41 (10.5) |

▲ For additional specifications and selection information, see catalog **8502CT9901**

**LR9D**
**Direct mounting beneath contactors LC1D115 and D150**




| | AM1DP200 and DR200 | AM1DE200 and ED••• |
|---|---|---|
| d | 0.10 (2.5) | 0.41 (10.5) |



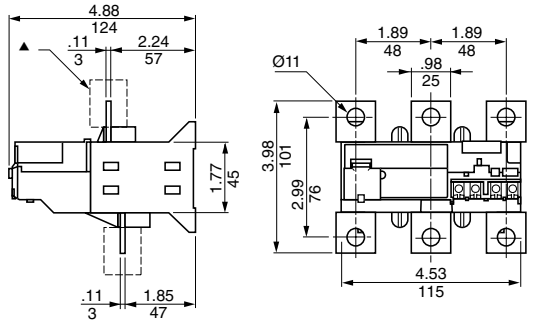


© 2012 Schneider Electric
All Rights Reserved

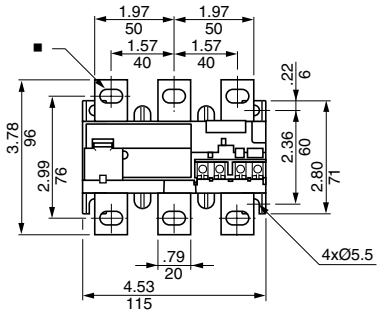
## Table 18.175: TeSys F Overload Relay Dimensions

**LR9F5•71**

Common side view




**LR9F5•57, F5•63, F5•67, F5•69**

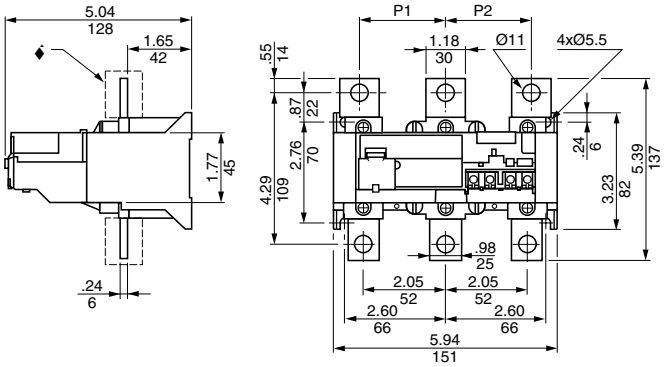



▲ Terminal shroud LA9F70•

■ 6.5 x 13.5 for LR9F5•57 and 8.5 x 13.5 for LR9F5•63, F5•67, F5•69

**LR9F7•75, F7•79, F7•81**

Common side view

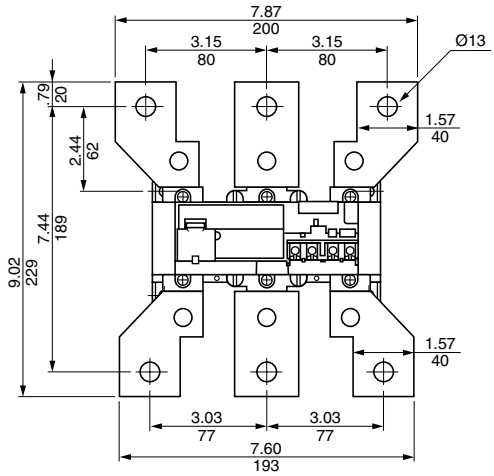



| | P1 | P2 |
|---|---|---|
| LR9F7•75 | 48 | 48 |
| LR9F7•79, F7•81 | 55 | 55 |

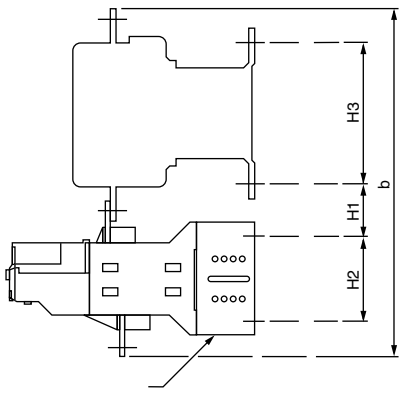
♦ Terminal shroud LA9-F70•

**LR9F7•81**

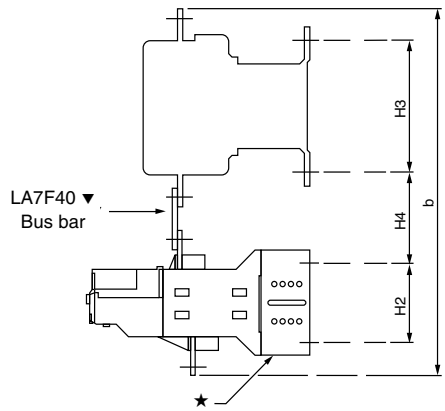
(for mounting beneath LC1F630)




Direct mounting beneath contactor LC1F




Direct mounting beneath reversing contactors or star-delta contactors




| LC1 contactors | With LR9 relays | b | H1 | H2 | H3 | LC1 contactors | With LR9 relays | b | H4 | H2 | H3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F115 | F5•57, F5•63, F5•67, F5•69 | 240 | 30 | 76 | 120 | F115 | F5•57, F5•63, F5•67, F5•69 | 279 | 60 | 76 | 120 |
| F150 | F5•57, F5•63, F5•67, F5•69 | 246 | 30 | 76 | 120 | F150 | F5•57, F5•63, F5•67, F5•69 | 283 | 60 | 76 | 120 |
| F185 | F5•57, F5•63, F5•67, F5•69 | 250 | 30 | 76 | 120 | F185 | F5•57, F5•63, F5•67, F5•69 | 285 | 60 | 76 | 120 |
| F225 | F5•71 | 273 | 40 | 76 | 120 | F225 | F5•71 | 319 | 80 | 76 | 120 |
| | F7•75, F7•79 | 308 | 50 | 108.8 | 120 | | F7•75, F7•79 | 360 | 100 | 108.8 | 120 |
| F265 | F5•71 | 279 | 40 | 76 | 120 | F265 | F5•71 | 332 | 90 | 76 | 120 |
| | F7•75, F7•79 | 314 | 60 | 108.8 | 120 | | F7•75, F7•79 | 363 | 100 | 108.8 | 120 |
| F330 | F7•75, F7•79 | 317 | 60 | 108.8 | 120 | F330 | F7•75, F7•79 | 364 | 100 | 108.8 | 120 |
| F400 | F7•75, F7•79, F7•81 | 317 | 60 | 108.8 | 180 | F400 | F7•75, F7•79, F7•81 | 364 | 100 | 108.8 | 180 |
| F500 | F7•75, F7•79, F7•81 | 346 | 70 | 108.8 | 180 | F500 | F7•75, F7•79, F7•81 | 390 | 110 | 108.8 | 180 |
| F630 | F7•81 | 510 | 110 | 108.8 | 180 | F630 | F7•81 | 509 | 120 | 108.8 | 180 |

★ Relay mounting plate, see page 18-16.

▼ Connection accessories, see page 18-16.

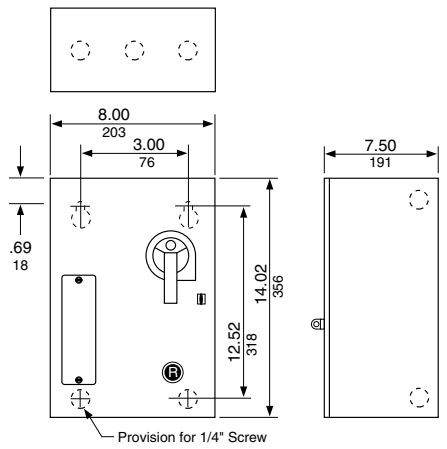


© 2012 Schneider Electric
All Rights Reserved

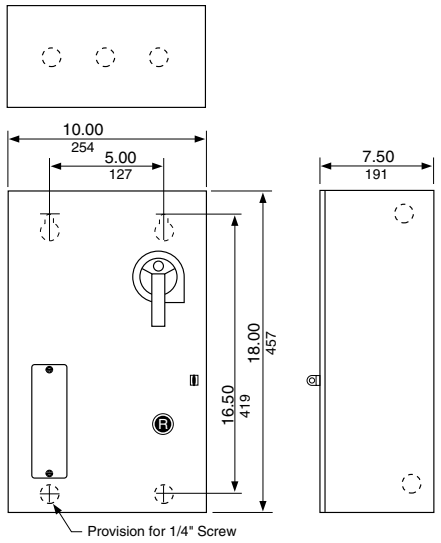
### Table 18.176: TeSys D Combination Starter Dimensions, Reversing and Non-Reversing

**NEMA 1**

**D09–25 (FVNR)**

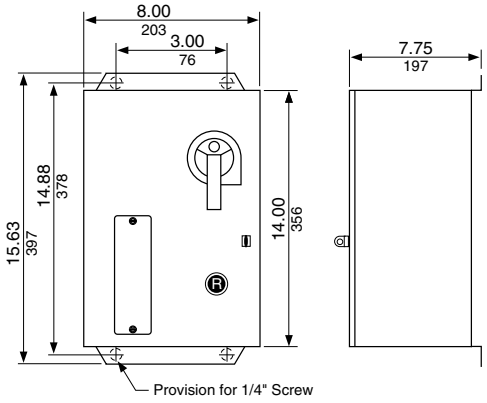



**D09–40 (FVR); D32-40 (FVNR)**

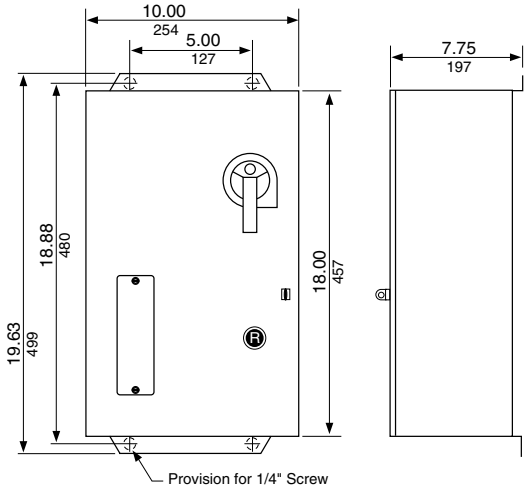



**NEMA 12/3R**

**D09–25 (FVNR)**

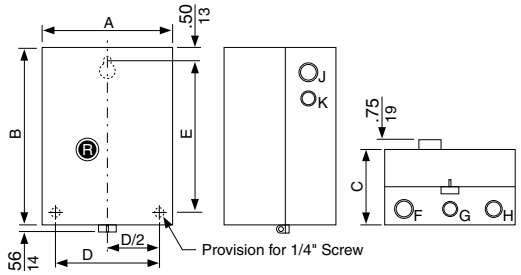



**D09–40 (FVR); D32—40 (FVNR)**




### Table 18.177: Non-Combination Starter Dimensions

**Non-Combination Starters**




| | | Type 1 | | | | | | | | | | Type 12/3R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Non-Reversing | Reversing | A | B | C | D | E | F | G | H | J | K | D | E |
| D09-32 | — | 6.77 | 10.04 | 6.25 | 5.38 | 9.00 | 1–1.25 | 0.5–0.75 | — | 1–0.25 | 0.5–0.75 | 5.38 | 11.37 |
| D40-65 | D09-32 | 8.66 | 10.83 | 7.21 | 7.25 | 9.75 | 1.25–1.5 | 0.5–0.75 | 1–1.25 | 1–0.25 | 0.5–0.75 | 5.38 | 12.15 |
| D80 | D40-80 | 10.63 | 13.98 | 7.21 | 9.22 | 12.94 | 1.25–1.5 | 0.5–0.75 | 1–1.25 | 1–1.25 | 0.5–0.75 | 5.38 | 15.30 |

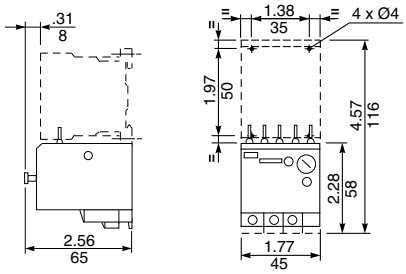
Note: **All dimensions in inches.**



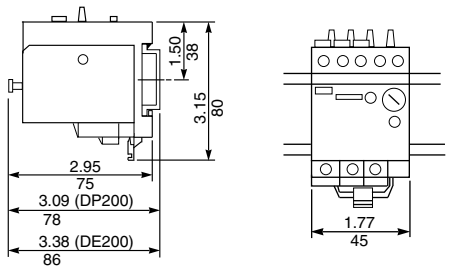
© 2012 Schneider Electric
All Rights Reserved

## Table 18.178: TeSys K Contactor Dimensions

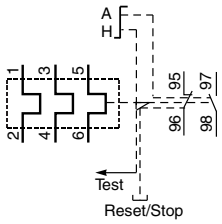
**LR2K**
Direct mounting under the contactor



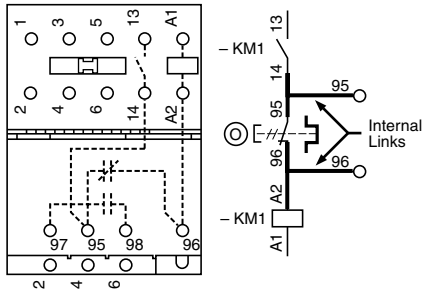

Separate mounting with LA7-K0064 terminal block on 35 mm rail (AM1DP200 or AM1DE200)



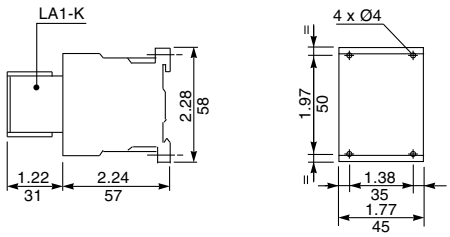

Three-phase



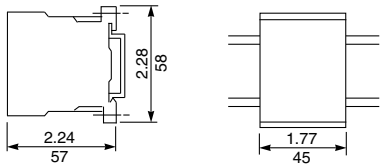

Wiring Scheme



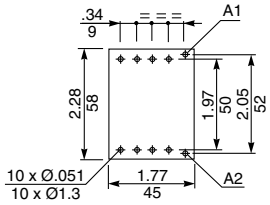

**LC1, LP1, LP4K**
Mini-contactors
On baseplate



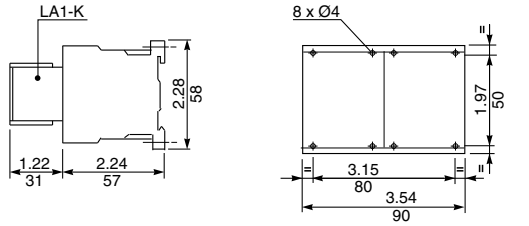

On AM1DP200 or DE200 rail (35 mm)



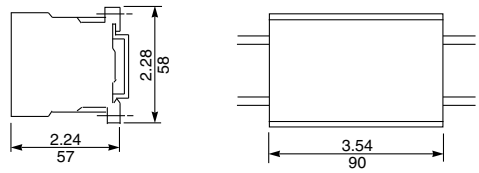

On printed circuit board



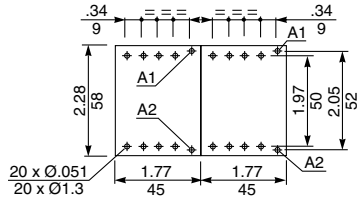

**LC2, LC8, LP2, LP5K**
Reversing mini-contactors
On baseplate




On AM1DP200 or DE200 rail (35 mm)




On printed circuit board for reversing contactors or 2 mini-contactors side-by-side

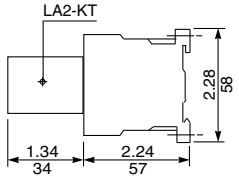



**LA2KT**
Electronic time delay contact blocks




Dual Dimensions: **INCHES**
Millimeters

On mini-contactors or reversing mini-contactors



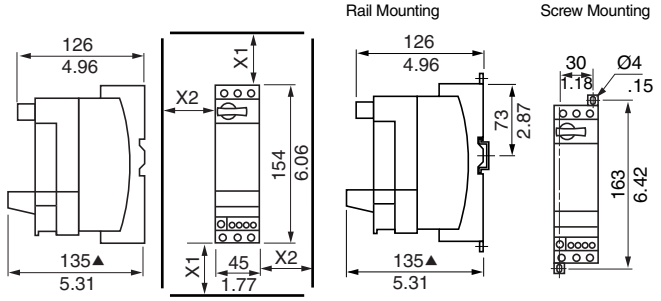



© 2012 Schneider Electric
All Rights Reserved

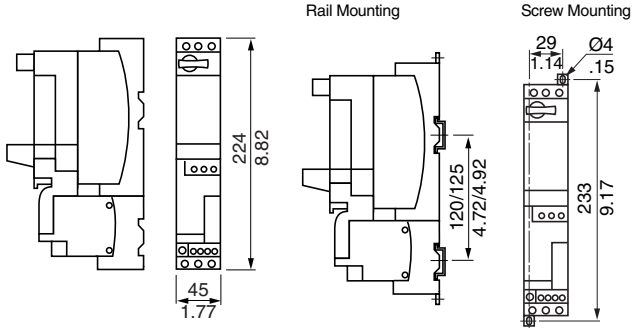
**Table 18.179: TeSys U Starter Dimensions**

## Starter Controllers

### Non-Reversing




### Reversing



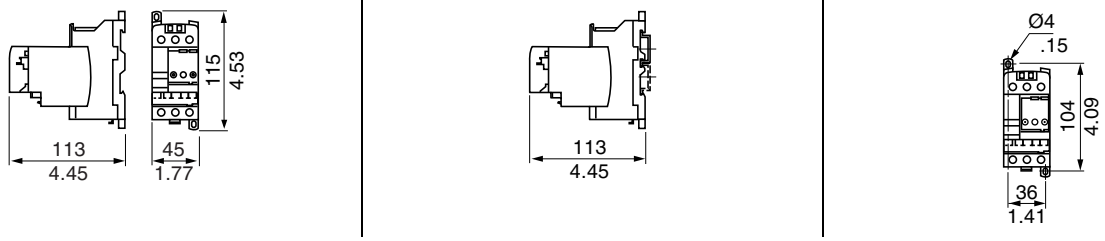

Note: Minimum electrical clearance:
X1: 35 mm for Ue = 440 V; and 70 mm for Ue = 500 and 690 V
X2: 0

▲ Maximum depth (with Modbus™ communication module)

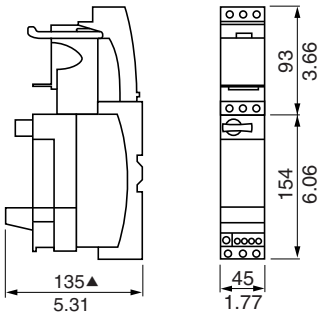
## Reversing Block for Mounting Separately from Power Base

### Rail Mounting

### Screw Mounting



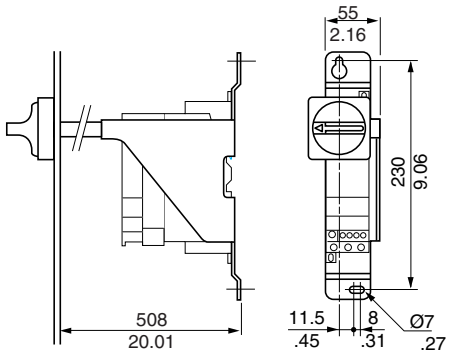

## Limiter Disconnector LUALB1



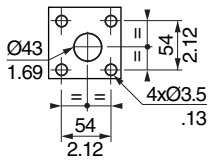

▲ Maximum depth (with Modbus communication module)

## Door interlock Mechanisms

### LU9AP00




### Door Cut-out




Dual Dimensions: **INCHES**
Millimeters

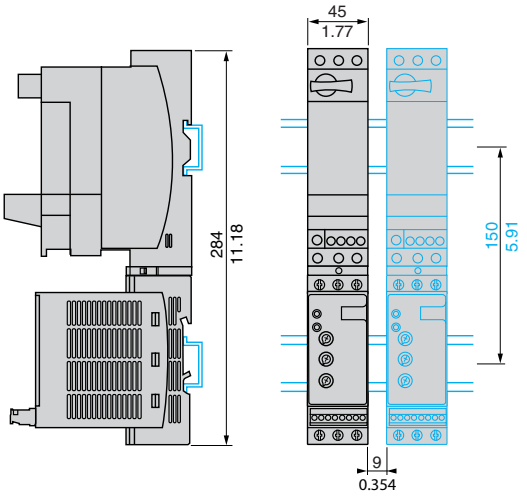




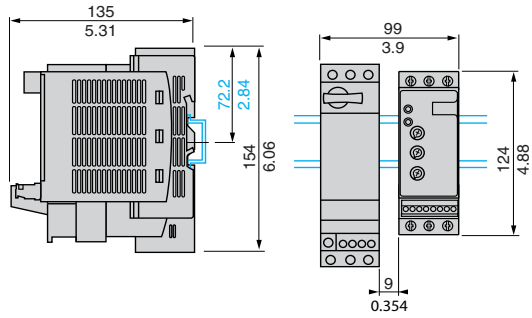
© 2012 Schneider Electric
All Rights Reserved

**Table 18.180: Altistart U01 and TeSys U Soft Starters**

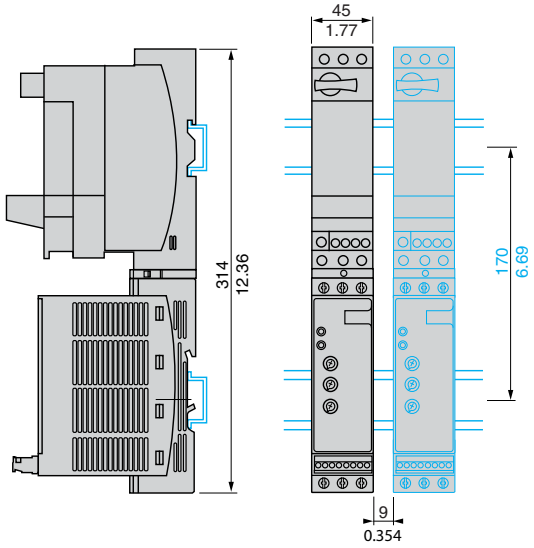
**TeSys U Combination (non-reversing power base) and ATSU01N212LT**
Mounting on (35mm) rail with VW3 G4104 connector



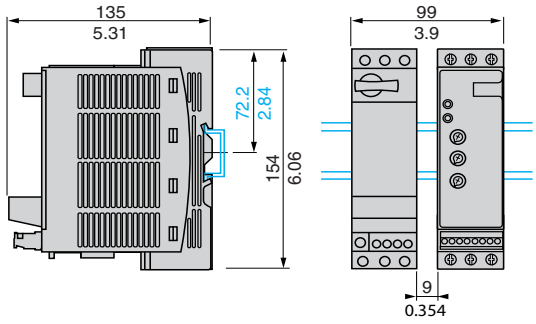

**TeSys U Combination (non-reversing or reversing power base) and ATSU01N2206LT to ATSU01N212LT**
Side-by-side mounting



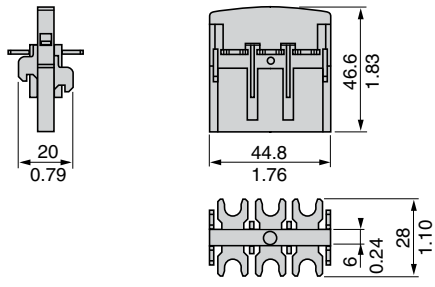

**TeSys U Combination (non-reversing power base) and ATSU01N222LT to ATSU01N232LT**
Mounting on (35mm) rail with VW3G4104 connector




**TeSys U Combination (non-reversing or reversing power base) and ATSU01N222LT to ATSU01N232LT**
Side-by-side mounting




**VW3G4104 Power Connector**

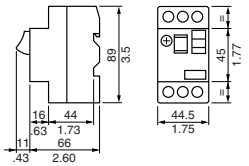




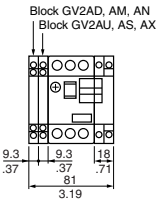

© 2012 Schneider Electric
All Rights Reserved

## Table 18.181: TeSys GV2 and GV3 Manual Starter and Protector Dimensions

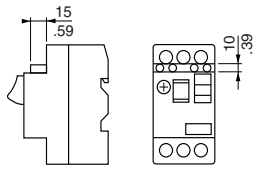
### GV2M




### GV2AD, AM, AN, AU, AS, AX

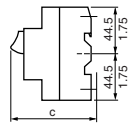



### GV2AE

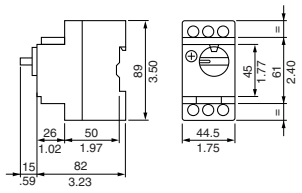



### Mounting of GV2M

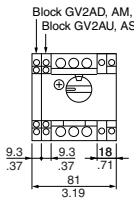
On 35 mm ⊔ rail
C = 78.5 mm (3.09") on AM1DP200 (35 x 7.5 mm)
C = 86 mm (3.39") on AM1DE200, ED200 (35 x 15 mm)



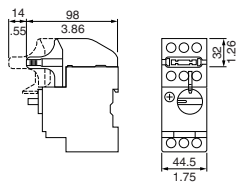

### GV2P




### GV2AD, AM, AN, AU, AS, AX

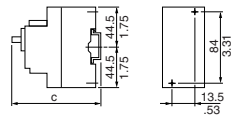



### GV2AK00




### Mounting of GV2P

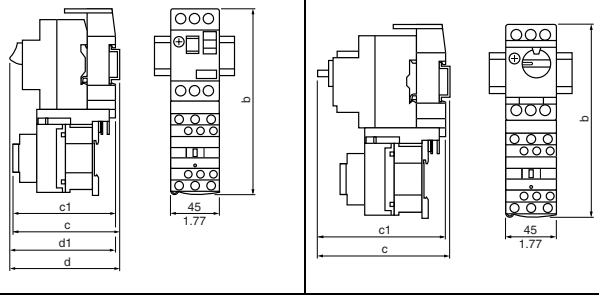
On 35 mm ⊔ rail
C = 98.5 mm (3.88") on AM1DP200
(35 x 7.5 mm)
C = 106 mm (4.17") on AM1DE200, ED200
(35 x 15 mm)




### GV2AF4 + LAD31

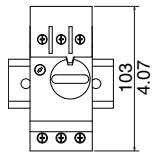
**Combination GV2ME + TeSys D range contactor**

**Combination GV2P + TeSys D range contactor**



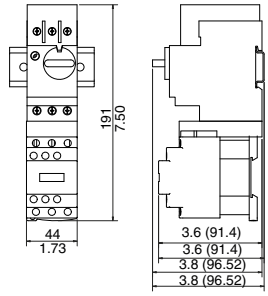

### GV2P + GV2GH7

for UL 508 Type E application




### GV2P + GV2GH7 + TeSys D contactor

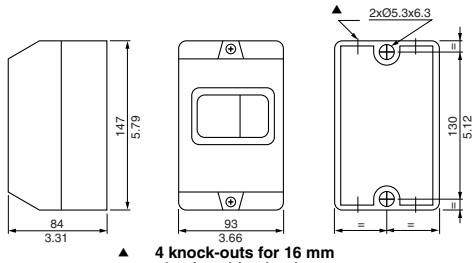
for UL 508 Type E application




| GV2ME + | LC2D09 to D18 | LC2D25 and D32 |
|---|---|---|
| b | 7.4 (188.6) | 7.8 (199) |
| c1 | 3.6 (92.7) | 3.9 (99) |
| c | 3.9 (98.2) | 4.11 (104.5) |
| d1 | 3.9 (98.3) | 3.9 (98.3) |
| d | 4.1 (103.8) | 1.4 (103.8) |

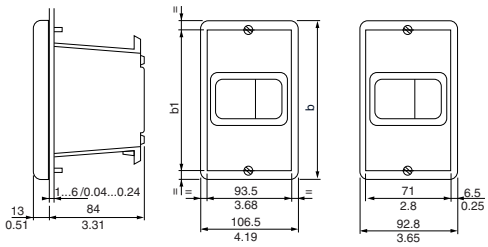
| GV2P + | LC2D09 to D18 | LC2D25 and D32 |
|---|---|---|
| b | 6.61 (168.1) | 7.9 (199.5) |
| c1 | 4.6 (116.8) | 4.6 (116.8) |
| c | 4.8 (122.3) | 4.8 (122.3) |
| — | — | — |
| — | — | — |

### Surface mounting enclosure GV2MC0●




▲ **4 knock-outs for 16 mm plastic cable glands or no. 16 conduit.**

### Flush mounting enclosure GV2MP0● (bracket cut-out)



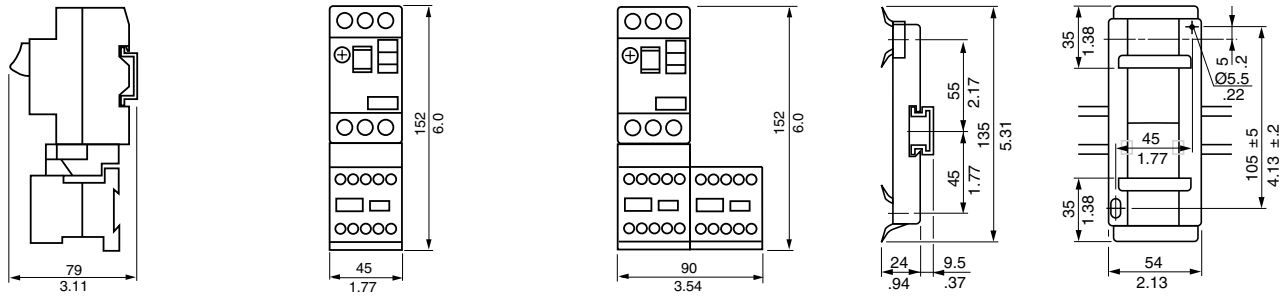

| GV2 | b | | b1 | |
|---|---|---|---|---|
| | in. | mm | in. | mm |
| MP01, MP02 | 5.51 | 140 | 5.00 | 127 |
| MP03, MP04 | 5.24 | 133 | 4.61 | 117 |



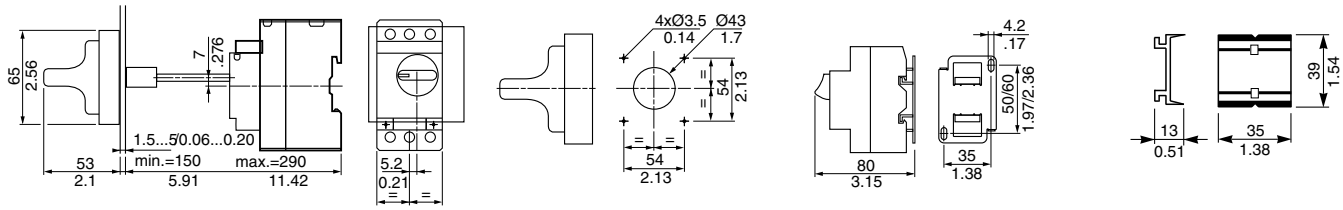
© 2012 Schneider Electric
All Rights Reserved

**Table 18.182: TeSys GV2 and GV3 Manual Starter and Protector Dimensions** (cont'd)

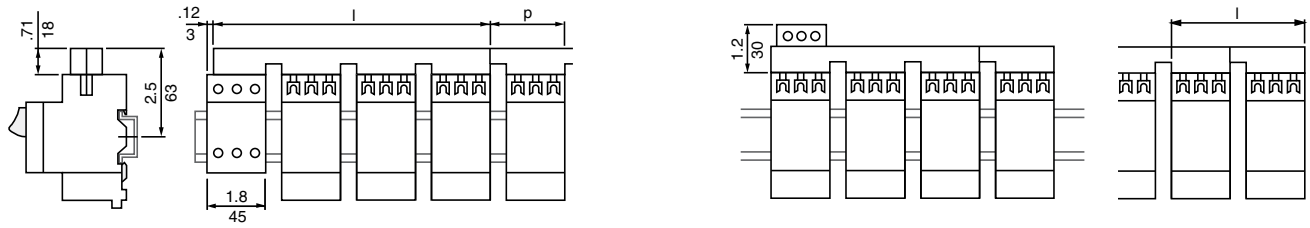
| GV2M with GK2AF01 and LC1K | GV2M with GV2AF01 and LC1K | GV2M with GV2AF01 and LC2K | Adapter Plate GK2AF01 |
|---|---|---|---|
| Dimensions (mm) | | | |




| Mounting external operator GV2AP0• | Door cut-out | GV2M on panel with GV2AF02 adapter plate | 7.5 mm height compensation plate GV1F03 |
|---|---|---|---|




| Sets of bus bars, GV2G445, GV2G454, GV2G472 with terminal block GV2G05 | Sets of bus bars with terminal block GV1G09 | Sets of bus bars GV2G245, GV2G254, GV2G272 |
|---|---|---|

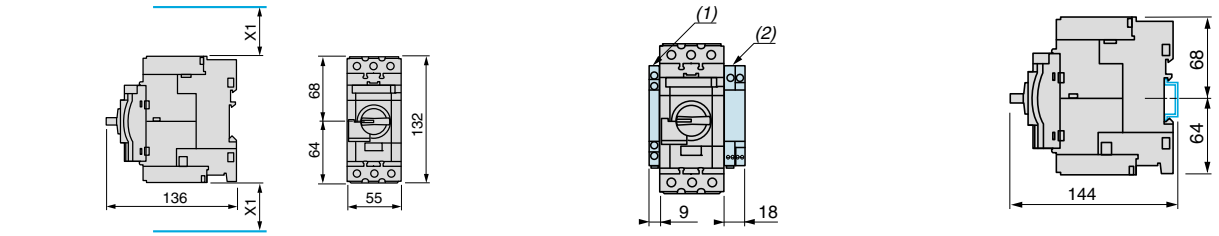



| | | I | P |
|---|---|---|---|
| GV2G445 | 0.16 x 1.8 in. (4 x 45 mm) | 7.0 in. (179 mm) | 1.8 in. (45 mm) |
| GV2G454 | 0.16 x 2.1 in. (4 x 54 mm) | 8.1 in. (206 mm) | 2.1 in. (54 mm) |
| GV2G472 | 0.16 x 1.8 in. (4 x 45 mm) | 10.2 in. (260 mm) | 2.8 in. (72 mm) |

| | | I |
|---|---|---|
| GV2G245 | 0.08 x 1.8 in. (2 x 45 mm) | 3.5 in. (89 mm) |
| GV2G254 | 0.08 x 2.1 in. (2 x 54 mm) | 3.9 in. (98 mm) |
| GV2G272 | 0.08 x 2.8 in.(2 x 72 mm) | 4.6 in. (116 mm) |
| GV2G354 | 0.12 x 2.1 in. (3 x 54 mm) | 6.0 in. (152 mm) |

**GV3P**

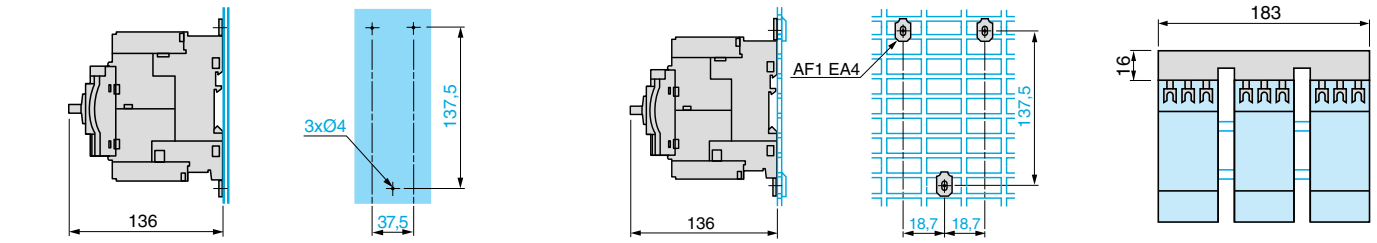
| Dimensions | Mounting on rail AM1 DE200 or AM1 ED201 |
|---|---|




X1 = Electrical clearance (ISC max)
40 mm for Ue < 500 V; 50 mm for Ue < 690 V

Blocks GV AN••, GV AD••, GV AM11
Block GV3 AU•• and GV3 AS••

| Mounting on panel, using M4 screws | Mounting on pre-slotted mounting plate AM1PA |
|---|---|




Note: Leave a space of 9 mm between 2 manual motor protectors: either an empty space or side-mounting add-on contact blocks.
Horizontal mounting is possible: please consult your regional sales office.

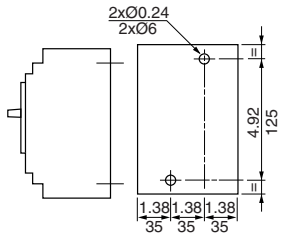


© 2012 Schneider Electric
All Rights Reserved

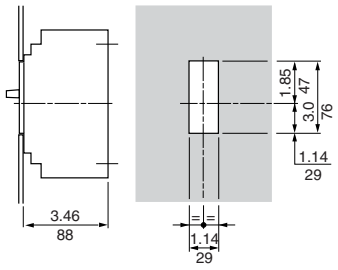
**Table 18.183: TeSys GV7 Manual Starter and Protector Dimensions**

## 1 GV7R

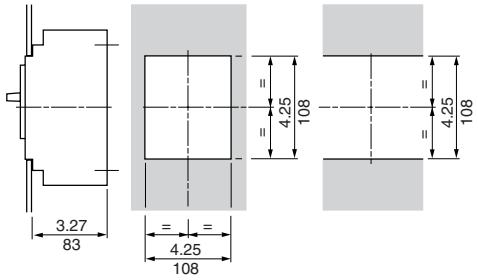
### Panel Mounting



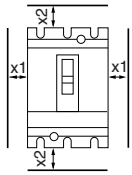

### Flush Mounting




### Side by Side

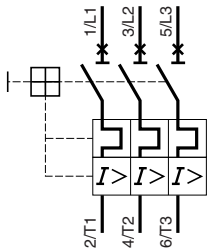



| Minimum Clearance | | x1 | x2 |
|---|---|---|---|
| | | in. (mm) | in. (mm) |
| Painted or insulated metal plate, insulation or insulated bar | | 0 (0) | 1.18 (30) |
| Bare metal plate | U ≤ 440 V | 0.20 (5) | 1.38 (35) |
| | 440 V < U < 600 V | 0.39 (10) | 1.38 (35) |
| | U ≥ 600 V | 0.79 (20) | 1.38 (35) |




Note: Minimum distance between 2 units mounted side by side = 0.

### Motor Controllers GV7R

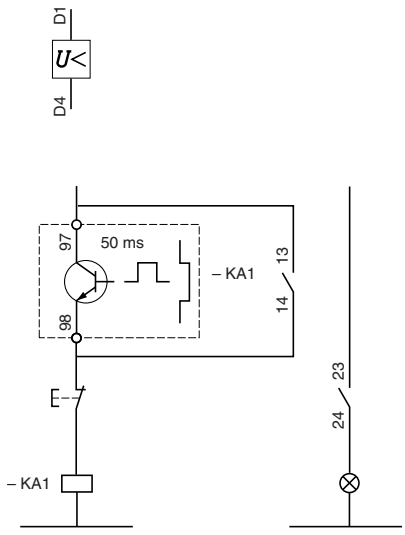



### Add-on Auxiliary Contacts, GV7AE11, GV7AB11

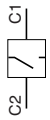



Note: A self-adhesive label, supplied with the contact, can be affixed to the front face of the starter to allow personalized marking according to the function of the contact or contacts.

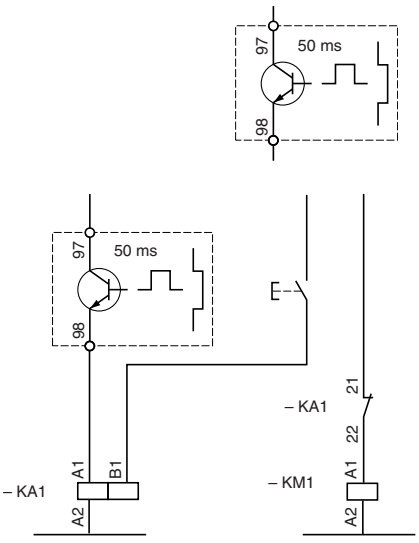
### GV7AU•••




### GV7AS•••




### GV7AD111, AD112





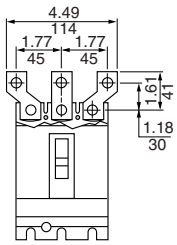



© 2012 Schneider Electric
All Rights Reserved

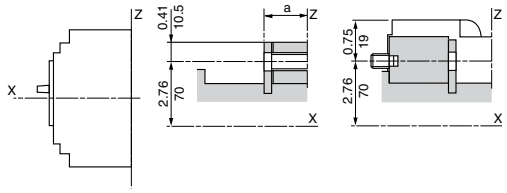
**Table 18.184: TeSys GV7 Manual Starter and Protector Dimensions** (cont'd)

## GV7AC03

### Spreaders



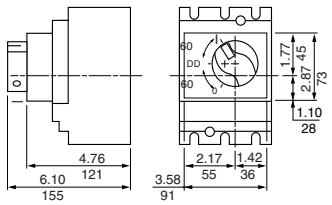

### Cabling | Smooth Terminals | Connectors



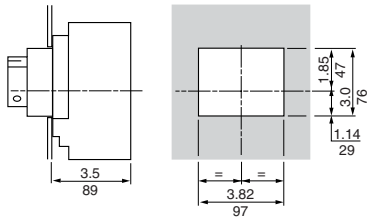

| | a (in./mm) |
|---|---|
| GV7R● | 0.77/19.5 |
| GV7R●220 | 0.85/21.5 |

## GV7AP03, GV7A04

### Direct Rotary Handle




### Flush Mounting



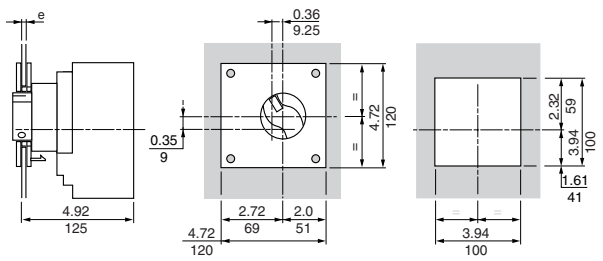


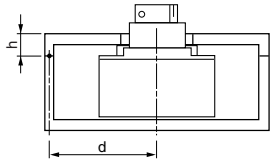

© 2012 Schneider Electric
All Rights Reserved

**Table 18.185: TeSys GV7 Manual Starter and Protector Dimensions** (cont'd)

**GV7AP03 or GV7AP04, GV7AP05**

**Direct Rotary Handle** | **Front Fuse Center** | **Enclosure Vewed from Top**

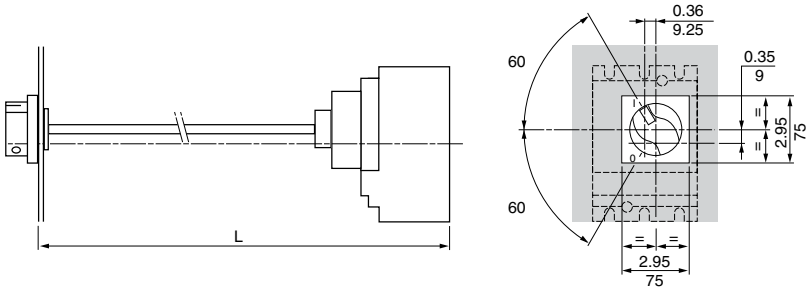



Door cutouts require a minimum distance between the center of the manual motor protector and the door hinge point (h) of
d ≥ 3.94 in (100 mm) + (h x 5)

**GV7AP01, GV7AP02**

**Extended Rotary Handle**




L: 7.28 in. (185 mm) minimum, 23.62 in. (600 mm) maximum.
The shaft of the extended rotary handle GV7AP01 or GV7AP02 must be cut to length: L – 4.96 in. (126 mm)





© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 19

## Push Buttons and Operator Interface



**Type O Compact Light**
(p. 19-11)



**XVL Compact Light**
(p. 19-11)



**Type J Compact Light**
(p. 19-10)



**16 mm XB6**
(p. 19-12)



**22 mm XB4**
(p. 19-23)



**22 mm XB5**
(p. 19-42)



**XB5R Wireless, Batteryless Push Button** (p. 19-63)



**XB5S Biometric Switch**
(p. 19-65)



**30 mm Type K**
(p. 19-67)



**30 mm Type SK**
(p. 19-77)




**30 mm Type KX**
(p. 19-94)



**Type KY Enclosure**
(p. 19-105)



**Type B Wall Station**
(p. 19-103)



**Pendant Stations**
(p. 19-117)



**Tower Lights**
(p. 19-107)



**Type A Foot Switch**
(p. 19-124)



**Rotary Cam Switch**
(p. 19-126)

## Product Panorama


| | |
|---|---|
| **Push Buttons** | **19-2** |
| **Control Stations** | **19-4** |
| **Pendant Stations** | **19-5** |
| **Tower Lights** | **19-6** |


## 22 and 30 mm Most Common Complete Operators


XB4, XB5 (22 mm) and Class 9001 Type K, SK (30 mm) most common complete operators assembled with contact blocks and and light modules. Start-Stop, Hand-Off-Auto, and other configurations are offered in this simplified quick selector. **19-8**


## Compact Pilot Lights


The Compact Pilot Light ranges include the **XVL** miniature LED type; the **Type O** low-cost incandescent; and the **Type J** incandescent, push-to-test types. **19-10**


## 16 mm Push Buttons


**XB6 16 mm Push Buttons**, selector switches, and pilot lights with a plastic bezel are intended for high density panels such as laboratory and test fixtures. **19-12**


## 22 mm Push Buttons


**XB4 22 mm Push Buttons**, selector switches, and pilot lights with a metal bezel are designed for industrial applications, and combine ease of installation and robustness. **19-23**

**XB5 22 mm Push Buttons**, the plastic version of the XB4 unit, is particularly suited to applications requiring a resistance to chemical agents and/or double electrical insulation. **19-42**

**XB5R Plastic and XB4R Metal Wireless, Batteryless Push Buttons** **19-63**

**XB5S Biometric Switches** **19-65**


## 30 mm Push Buttons


**Class 9001 Type K** Chrome-Plated Oiltight/Watertight Push Buttons are intended primarily for machine tool and heavy-duty industrial applications. **19-67**

**Class 9001 Type SK** Non-Metallic Watertight operators are designed for use in highly corrosive areas. **19-77**

**Class 9001 Type KX** operators are Square-Shaped Multifunction Control Units that mount in a Type K mounting hole. This highly versatile line saves space by combining push buttons and pilot lights into one common operator. **19-94**


## Control Stations and Enclosures


**XAL** control stations are available pre-assembled or custom assembled. These control stations use push buttons and pilot lights from the **XB5** 22 mm range. **XAP** enclosures are available in glass reinforced polyester, die cast metal and flush mount. **19-100**

**Type B** Standard Duty Control Stations in 1, 2, and 3 button configurations are available as predetermined complete stations. **19-103**

**Class 9001 Type KY/SKY** Heavy Duty Control Stations are ideally suited for commercial and industrial applications. Available in die cast metal, stainless steel, painted sheet steel, and reinforced polyester. **19-105**


## Tower Lights


**Tower Lights and Beacons.** XVB, XVC, XVE, and XVP tower lights and beacons provide long distance indication of the operation status or sequences of a machine with with lights or buzzers. **19-107**


## Pendant Stations


Our full line of pendant stations for most crane and hoist applications range from the light to medium duty **BW** and **XAC** pendants to the heavy duty **SKYP** pendants. **19-117**


## Foot Switches


The **Type A** foot switch is a heavy duty industrial foot switch which can be used in a variety of industrial applications. **19-124**


## Rotary Cam Switches


**K2** and **K30–K150 Rotary Cam Switches**. Miniature, Custom, and Power Switching Cam Switches provide an inexpensive and versatile means of switching from 10 A logic control through 150 A power switching. **19-126**




© 2012 Schneider Electric
All Rights Reserved

| Family | XVL | Type O | Type J | XB6 |
|---|---|---|---|---|
| |  XVLA1••  XVLA2••  XVLA3•• |  |  |  |
| **Type of Product** | **Mini Pilot Light** | **Compact Pilot Light** | **Compact Pilot Light** | **16 mm Push Button (plastic)** |
| **Mounting Hole Diameter** | 8 mm / 12 mm | 17.5 mm (0.68 in) | 17.5 mm (0.68 in) | 16.2 mm |
| **Approvals** | UL Recognized File E164353, CCN NKCR<br><br>CSA File LR44078, Class 3211-03 | UL Recognized File E179183, CCN NKCR<br><br>CSA File LR25490, Class 3211-03 | UL File E78403, CCN NKCR<br><br>CSA File LR25490, Class 3211-03 | UL File E164353, CCN NKCR<br><br>CSA File LR44087 Class 3211-03 |
| **Conforming to Standards** | CE Marked<br>RoHS Compliant<br>IEC337-2<br>NF C 63-140<br>VDE 0660-200 | CE Marked<br>RoHS Compliant | CE Marked<br>RoHS Compliant | CE Marked<br>RoHS Compliant<br>EN/IEC 60947-1, EN/IEC 60947-5-1, EN/IEC 60947-5-5<br>EN/IEC 60204-1 and<br>EN/ISO 13850: 2006 (trigger action and mechanical latching Emergency Stop push buttons)<br>JIS C 4520 and 853<br>UL 508 and CSA C22-2 no. 14<br>Gost<br>CCC |
| **Degree of Protection** | IP40<br>(IP65 with seal) | NEMA 13 | NEMA 4, 13 | IP65<br>NEMA 1, 4, 4X, 12 |
| **Electric Shock Protection** | | | | |
| **Electrical Consumption** | | | | |
| **LED** | 25 mA | | | 6-30 Vac/Vdc: 15 mA<br>48–120 Vac: 20 mA |
| **Rated Operational Characteristics** | | | | AC-15; B300<br>Ue = 240 Vac and Ie = 1.5A<br>Ue = 120 Vac and Ie = 3 A<br>Continuous 5 A<br><br>DC-13; R300<br>Ue = 250 Vdc and Ie = 0.1 A<br>Ue = 125 Vdc and Ie = 0.22 A |
| **Connection Type** | XVLA1** and XVLA2** = 2.8mm x 0.5mm Faston<br><br>XVLA3** = Screw Terminals | Faston | Screw Terminal<br>— | Quick Connect/ Solder Tabs<br>0.11 x 0.02 in. (2.8 x 0.5 mm) |
| **Cable Size** | 1 x 1.5 mm² max. | | 2 x 14 AWG (copper only) | |
| **Digest Page** | 19-10 | 19-10 | 19-11 | 19-13 |





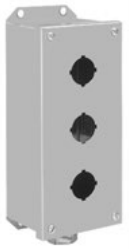
© 2012 Schneider Electric
All Rights Reserved

| Family | XB4 | XB5 | 9001K | 9001SK | 9001KX |
|---|---|---|---|---|---|
| |  |  |  |  |  |

| Type of Product | *22 mm Push Button (metal) | *22 mm Push Button (plastic) | **30 mm Push Button (metal) | **30 mm Push Button (plastic) | **30 mm Push Button (metal, square) |
|---|---|---|---|---|---|
| Mounting Hole Diameter | 22.5 mm | 22.5 mm | 31 mm (1.22 in) | 31 mm (1.22 in) | 31 mm (1.22 in) |
| Approvals | UL Listed File E164353, CCN NKCR<br>UL Recognized File E164353. CCN NKCR2<br>CSA File LR44087. Class 3211-03 | UL Listed File E164353, CCN NKCR<br>UL Recognized File E164353., CCN NKCR2<br>CSA File LR44087. Class 3211-03 | UL File E78403. CCN NKCR<br>CSA File LR25490. Class 3211-03 | UL File E78403. CCN NKCR<br>CSA File LR25490. Class 3211-03 | UL File E78403. CCN NKCR<br>CSA File LR25490. Class 3211-03 |
| Conforming to Standards | CE Marked RoHS Compliant<br>EN/IEC 60947-1, EN/IEC 60947-5-1, EN/IEC 60947-5-4, EN/IEC 60947-5-5<br>EN/IEC 60204-1 and EN/ISO 13850: 2006 (trigger action and mechanical latching emergency stop push buttons)<br>EN/IEC 60364-5-53 (emergency switching of mechanical latching push buttons)<br>—<br>JIS C 4520<br>UL 508<br>CSA C22.2 No.14<br>GOST<br>CCC | CE Marked RoHS Compliant<br>EN/IEC 60947-1, EN/IEC 60947-5-1, EN/IEC 60947-5-4, EN/IEC 60947-5-5<br>EN/IEC 60204-1 and EN/ISO 13850: 2006 (trigger action and mechanical latching emergency stop push button).<br>EN/IEC 60364-5-53 (emergency switching of mechanical latching push buttons)<br>EN81-1 (emergency stop trigger action and mechanical latching push buttons with mechanical state indicator)<br>JIS C 4520<br>UL 508<br>CSA C22.-2 No.14<br>GOST<br>CCC | CE Marked RoHS Compliant<br>EN/IEC 60947-1<br>EN/IEC60947-5-1<br>EN/IEC60947-5-4<br>JIS C 4520 and 852<br>UL 508<br>CSA C22.2 No.14 | CE Marked RoHS Compliant<br>EN/IEC 60947-1<br>EN/IEC60947-5-1<br>EN/IEC60947-5-4<br>JIS C 4520 and 852<br>UL 508<br>CSA C22.2 No.14 | CE Marked RoHS Compliant |
| Degree of Protection | IP65<br>IP66 for booted<br>NEMA 1, 2, 3, 4, 12, 13 | IP65<br>IP66 for booted<br>NEMA 1, 2, 3, 3R, 4, 4X, 12, 13 | IP66<br>NEMA 1, 2, 3, 3R, 4, 12, 13 | IP66<br>NEMA 1, 2, 3, 3R, 4, 4X, 12, 13 | IP66<br>NEMA 1, 2, 3, 3R, 4, 12, 13 |
| Electric Shock Protection | Class I | Class I | Class II | Class II | Class II |
| Electrical Consumption | | | | | |
| LED | 24 Vac/Vdc: 18 mA<br>120 Vac: 14 mA<br>240 Vac: 14 mA | 24 Vac/Vdc: 18 mA<br>120 Vac: 14 mA<br>240 Vac: 14 mA | Incandescent and LED bulbs see ratings on page 19-86 | Incandescent and LED bulbs see ratings on page 19-86 | |
| Rated Operational Characteristics | AC-15; B600<br>Ue = 600 Vac and Ie = 1.2 A<br>Ue = 240 Vac and Ie = 3A<br>Ue = 120 Vac and Ie = 6A<br>Continuous 10 A | AC-15; B600<br>Ue = 600 Vac and Ie = 1.2 A<br>Ue = 240 Vac and Ie = 3 A<br>Ue = 120 Vac and Ie = 6 A<br>Continuous 10 A | AC-15; A600<br>Continuous 10 A | AC-15; A600<br>Continuous 10 A | AC-15; A600<br>Continuous 10 A |
| | DC-13; Q600<br>Ue = 600 Vdc and Ie = 0.1 A<br>Ue = 250 Vdc and Ie = 0.27 A<br>Ue = 125 Vdc and Ie = 0.55 A | DC-13; Q600<br>Ue = 600 Vdc and Ie = 0.1 A<br>Ue = 250Vdc and Ie = 0.27 A<br>Ue = 125 Vdc and Ie = 0.55 A | DC-13; Q600<br>Ue = 600 Vdc and Ie = 0.1 A<br>Ue = 250 Vdc and Ie = 0.27 A<br>Ue = 125 Vdc and Ie = 0.55 A | DC-13; Q600<br>Ue = 600 Vdc and Ie = 0.1 A<br>Ue = 250 Vdc and Ie = 0.27 A<br>Ue = 125 Vdc and Ie = 0.55 A | DC-13; Q600<br>Ue = 600 Vdc and Ie = 0.1 A<br>Ue = 250 Vdc and Ie = 0.27 A<br>Ue = 125 Vdc and Ie = 0.55 A |
| Connection Type | IP20 Fingersafe Screw or Spring Terminal | | IP20 Fingersafe Screw Terminal | | |
| | Screw Terminal: | Spring Terminal: | | | |
| Cable Size | 1 x 24 AWG (0.22 mm²) min.<br>2 x 14 AWG (2.5 mm²) max.<br>2 x 16 AWG (1.5 mm²) max. | 1 x 24 AWG (0.22 mm²) min.<br>2 x 14 AWG (2.5 mm²) max.<br>2 x 16 AWG (1.5 mm²) max. | 1 x 24 AWG (0.22 mm²) min.<br>2 x 16 AWG (1.5 mm²) max | 1 x 24 AWG (0.22 mm²) min.<br>2 x 16 AWG (1.5 mm²) max | 1 x 24 AWG (0.2 2mm²) min.<br>2 x 16 AWG (1.5 mm²) max |
| Digest Page | 19-23 | 19-42 | 19-67 | 19-77 | 19-94 |



© 2012 Schneider Electric
All Rights Reserved

| Family | XAL | XAP | 9001B | 9001KY/SKY |
|---|---|---|---|---|
| |  XALD02 |  XAPA1100<br>  XAPA1104 |  NEMA 1 Surface Mounting 9001BG●●<br>  NEMA 4 9001BW●● |  NEMA 1 Flush Mounting 9001BF●●<br>  NEMA 7 and 9 9001BR●● |  9001KYSS3<br>  9001KY3<br>  9001KYAF3<br>  9001SKY2 |
| **Type of Product/Material** | XALD—Polycarbonate<br>XALK—Polycarbonate | XAPA—glass filled polyester<br>XAPG—die cast zinc<br>XAPE—anodized aluminum | 9001BG—plastic cover<br>9001BF—stainless steel<br>9001BW—die cast zinc<br>9001BR—cast aluminum | 9001KYAF—sheet steel<br>9001KYSS—stainless steel<br>9001KY—die cast zinc<br>9001KZ—die cast zinc<br>9001SKY—Polyester |
| **Number of holes** | 1 to 3 | 0 to 16 | 1 to 3 | 1 to 6 |
| **Type of Operators** | XB5 (22mm) | XB5 (22mm) | Built in | 9001K/SK (30mm) |
| **Available without Operators** | Yes | Yes | No | Yes |
| **Available with Operators** | Yes | No | Yes | Yes |
| **Approvals** | UL File E164353<br>CCN NKCR<br><br>CSA File LR 44087<br>Class 3211-03 | UL File E164353<br>CCN NKCR<br><br>CSA File LR 44087<br>Class 3211-03 | UL File E78403<br>CCN NKCR<br><br>CSA File LR 25490<br>Class 3211-03 | UL File E78403<br>CCN NKCR<br><br>CSA File LR 25490<br>Class 3211-03 |
| **Conforming to Standards** | CE Marked<br><br>EN/IEC 60947-1,<br>EN/IEC 60947-5-1,<br>EN/IEC 60947-5-4,<br><br>JIS C 4520<br><br>UL 508<br><br>CSA C22.2 No.14 | CE Marked<br><br>EN/IEC 60947-1,<br>EN/IEC 60947-5-1,<br>EN/IEC 60947-5-4,<br><br>JIS C 4520<br><br>UL 508<br><br>CSA C22.2 No.14 | CE Marked<br><br>EN/IEC 60947-1,<br>EN/IEC 60947-5-1,<br>EN/IEC 60947-5-4,<br><br>JIS C 4520<br><br>UL 508<br><br>CSA C22.2 No.14 | CE Marked<br><br>EN/IEC 60947-1,<br>EN/IEC 60947-5-1,<br>EN/IEC 60947-5-4,<br><br>JIS C 4520<br><br>UL 508<br><br>CSA C22.2 No.14 |
| **Cable Entry** | No. 13 knock out | XAPA—undrilled<br>XAPG—Tapped 3/4NPT<br>XAPE—flush mount (n/a) | 9001BG—1/2 &3/4 knockout<br>9001BF—N/A<br>9001BW—1/2-14NPT<br>9001BR—1/2-14NPT | 9001KYAF—customer provided<br>9001KYSS—G conduit hub<br>9001KY—customer provided<br>9001KZ—1/2 & 3/4 knockout<br>9001SKY—G conduit hub |
| **Digest Page** | 19-100 | 19-100 | 19-103 | 19-105 |





© 2012 Schneider Electric
All Rights Reserved

| Family | 9001BW | XACA2 | XACA0 | 9001SKYP |
|---|---|---|---|---|










| Type of Product | 2-Button Pendant | 2-Button Pistol Grip Pendant | General Purpose Pendant | Heavy Duty Pendant |
|---|---|---|---|---|
| **Number of operators** | 2 | 2 | 2, 3, 4, 6, 8, 12 | 2, 4, 6, 8, 10 |
| **Approvals** | UL File E78403<br>CNN NKCR<br>CSA File LR25490<br>Class 3211-03 | UL File E164353<br>CNN NKCR<br>CSA File LR 44087<br>Class 3211-03 | UL File E164353<br>CNN NKCR<br>CSA File LR 44087<br>Class 3211-03 | UL File E78403<br>CNN NKCR<br>CSA File LR25490<br>Class 3211-03 |
| **Conforming to Standards** | CE Marked | EN/IEC 60947-5-1,<br>EN/IEC 60204-32,<br>EN/IEC 60947-5-5, and<br>EN/ISO 13850 (for versions with trigger action emergency stop)<br>UL 508<br>CSA C22-2 No. 14<br>RoHS compliant | EN/IEC 60947-5-1,<br>EN/IEC 60204-32,<br>EN/IEC 60947-5-5, and<br>EN/ISO 13850 (for versions with trigger action emergency stop)<br>UL 508<br>CSA C22-2 No. 14<br>RoHS compliant | CE Marked |
| **Degree of Protection** | NEMA 1, 3, 3R, 4, 4X | NEMA 1, 4, 4X, 5<br>IP65<br>IK08 | NEMA 1, 4, 4X, 5<br>IP65<br>IK08 | NEMA 1,2, 3, 4, 4X, 12, 13 |
| **Housing Material** | Polycarbonate / PET Polyester Blend | Yellow Polypropylene | Yellow Polypropylene | Yellow Polycarbonate |
| **Rated Operational Characteristics ▲** | AC - B600 | AC-15: A600<br>or Ue = 600V, Ie = 1.2A<br>or Ue = 240V, Ie = 3A | AC-15: A600<br>or Ue = 600V, Ie = 1.2A<br>or Ue = 240V, Ie = 3A | SKRU2-SKRU5<br>AC - B300<br>DC - P600 |
| | DC - P600 | DC-13: Q600<br>or Ue = 600V. Ie = 0.1A<br>or Ue = 250V, Ie = 0.27A | DC-13: Q600<br>or Ue = 600V. Ie = 0.1A<br>or Ue = 250V, Ie = 0.27A | SKRU1, 10, 11<br>AC - A600<br>DC - P600 |
| **Thermal Current** | Continuous 5A | Continuous 10A | Continuous 10A | — |
| **Connection Type** | 1/2 in. NPT<br>screw clamp terminals | 8–26 mm cable entry<br>screw clamp terminals | 8–26 mm cable entry<br>screw clamp terminals | NPT threaded conduit entry<br>screw clamp terminals |
| **Cable Size** | — | 1 x 0.5 mm² (20AWG) min.<br>2 x 1.5 mm² (16AWG) max.<br>1 x 2.5 mm² (14AWG) max. | 1 x 14 AWG (copper only) | — |
| **Digest Page** | 19-117 | 19-118 | 19-118 | 19-121 |

▲ OSHA Section 1910.179, *Overhead and Gantry Cranes*, limits voltage at pendant push buttons to 150 Vac or 300 Vdc max.



© 2012 Schneider Electric
All Rights Reserved

| Family | XVB L | XVB C | XVP | XVE |
|---|---|---|---|---|
| |  | | | |
| **Type of Product** | Beacon | Tower Light | Tower Light | Tower Light and Beacon |
| **Diameter** | 70mm | 70 mm | 50 mm | 70 mm |
| **Features** | Product for Customer Configuration | Product for Customer Configuration | Product for Customer Configuration | Product for Customer Configuration |
| **Approvals** | UL File E164353 CCN NKCR<br>CSA File LR 44087 Class 3211 03 | UL File E164353 CCN NKCR<br>CSA File LR 44087 Class 3211 03 | UL File E164353 CCN NKCR<br>CSA File LR 44087 Class 3211 03 | UL File E164353 CCN NKCR<br>CSA File LR 44087 Class 3211 03 |
| **Conforming to Standards** | CE Marked<br>IEC/EN 60947-5-1<br>UL 508<br>CSA 22.2 No 14 | CE Marked<br>IEC/EN 60947-5-1<br>UL 508<br>CSA 22.2 No 14 | CE Marked<br>IEC/EN 60947-5-1<br>UL 508<br>CSA 22.2 No 14 | CE Marked<br>IEC/EN 60947-5-1<br>UL 508<br>CSA 22.2 No 14 |
| **Degree of Protection** | IP65 | IP65 | IP65 | IP42 |
| **Light Source** | LED / Incandescent | LED / Incandescent | LED / Incandescent | LED / Incandescent |
| **Electrical Consumption** | | | | |
| **LED Steady** | 24 Vac/dc: < 30 mA<br>120–230 Vac: < 30 mA | | 24 Vac/dc: < 80 mA<br>120–230 Vac: < 30mA | 24V ac/dc: < 25mA<br>120–230 Vac: I< 25 mA |
| **LED Flashing with Buzzer** | 24 Vac/dc: < 40 mA<br>120–230 Vac: < 15mA<br>1 Hz (1 flash per second) | | 24 V ac/dc: < 40mA<br>120–230 Vac: < 15 mA<br>1 Hz (1 flash per second) | 24 V ac/dc: < 30mA<br>120–230Vac: < 25 mA<br>1 Hz (1 flash per second) |
| **Strobe (Energized)** | 24 Vdc:<br>5 Joules unit < 430 mA; 10 J unit: < 850 mA<br>120 Vac:<br>5 Joules unit: < 130 mA; 10 J unit: < 260 mA<br>230 Vac:<br>5 Joules unit: < 105 mA; 10 J unit: < 210 mA<br>1 Hz (1 flash per second) | | 24 Vdc: ≤40mA<br>120 Vac: ≤20mA<br>230 Vac: ≤11mA<br>1 Hz (1 flash per second) | 24 Vdc: ≤85 mA<br>120 Vac: ≤35 mA<br>230 Vac: ≤25 mA<br>1 Hz (1 flash per second) |
| **Audible Sounders** | 12–48 Vac/dc: < 20 mA<br>120–230 Vac: < 50 mA<br>90 decibels at 1 meter<br>— | | 24 Vdc: ≤15 mA<br>120 Vac: ≤15 mA<br>230 Vac: ≤12mA<br>55 to 85 decibels at 1 meter | 85 decibels at 1 meter<br>—<br>—<br>— |
| **Connection Type** | Screw Clamp | Screw Clamp | Screw Clamp | Screw Clamp |
| **Cable Size** | 1 x 16 AWG (1.5 mm²)<br>With Cable End | 1 x 16 AWG (1.5 mm²)<br>With Cable End | 2 x 16 AWG (1.5 mm²)<br>With Cable End | 2 x 16 AWG (1.5 mm²)<br>With Cable End |
| **Digest Page** | 19-110 | 19-111 | 19-114 | 19-113 |





© 2012 Schneider Electric
All Rights Reserved

| Family | XVC 4 | XVC 6 | XVC 1 | XVS | XVR |
|---|---|---|---|---|---|
| |  |  |  |   |     |
| **Type of Product** | Tower Light | Tower Light | Tower Light | Siren and Electronic Alarm | Rotating Mirror Beacon |
| **Diameter** | 40 mm | 60 mm | 100 mm | — | 84/106/120/130 mm |
| **Features** | All devices are pre-assembled and pre-wired | | | Adjustable Tones<br>XVS14BMW, 0 to 105 decibels, 43 tones<br>XVS72BM●●, 0 to 90 decibels, 16 tones | All devices are pre-assembled and pre-wired.<br>XVR12●●●S includes buzzer: 70 to 90 decibels |
| **Approvals** | UL Recognized E164353<br>CNN NKCR | UL Recognized E164353<br>CNN NKCR | UL Recognized E164353<br>CNN NKCR | UL Recognized E164353<br>CNN UCST | UL Recognized E164353<br>CNN NKCR |
| | CSA LR44087<br>Class 3211-03 | CSA LR44087<br>Class 3211-03 | CSA LR44087<br>Class 3211-03 | CSA LR44087<br>Class 3211-03 | CSA LR44087<br>Class 3211-03 |
| **Conforming to Standards** | CE Marked | CE Marked | CE Marked | CE Marked | CE Marked |
| | EN61000-6-2 | EN61000-6-2 | EN61000-6-2 | — | EN61000-6-2 |
| | EN61000-6-3 | EN61000-6-3 | EN61000-6-3 | — | EN61000-6-4 |
| | — | EN61000-6-4 | EN61000-6-4 | — | — |
| | UL 508 | UL 508 | UL 508 | UL 508 | UL 508 |
| | CSA 22.2 No. 14 | CSA 22.2 No. 14 | CSA 22.2 No. 14 | CSA 22.2 No. 14 | CSA 22.2 No. 14 |
| **Degree of Protection** | IP54 | IP54 | IP54 | IP53 / IP54 | IP23 / IP65 / IP66 |
| **Light Source** | LED | LED | LED | — | LED |
| **Electrical Consumption** | | | | | |
| **LED Steady** | 24 V:<br>1 unit = 40mA;<br>2 unit = 80mA;<br>3 unit = 120mA<br>4 unit = 160mA;<br>5 unit = 200mA | | 24 V:<br>1 unit = 100mA;<br>2 unit = 200mA;<br>3 unit = 300mA<br>4 unit = 400mA;<br>5 unit = 500mA | — | XVR08, XVR10, XVR12, and XVR13 (without buzzer)<br>12 Vac/dc: 360mA<br>24 Vac/dc: 180mA |
| **LED Flashing**<br>**** with Buzzer** | **24 V:<br>1 unit = 90 mA;<br>2 unit = 130 mA;<br>3 unit = 170 mA<br>4 unit = 210 mA;<br>5 unit = 250 mA<br>0.7 to 3 Hz (1 flash per 0.7 to 3 seconds) | | 24 V:<br>1 unit = 150mA;<br>2 unit = 250mA;<br>3 unit = 350mA<br>4 unit = 450mA;<br>5 unit = 550mA<br>3 to 3.5 Hz (1 flash per 3 to 3.5 seconds) | — | XVR12 with buzzer:<br>12 Vac/dc: 400 mA<br>24 Vac/dc: 230 mA<br>3 Hz (1 flash per 3 seconds) |
| **Strobe (Energized)** | — | — | — | — | — |
| **Audible Sounders** | *70 to 85 decibels at 1 meter* | 70 to 85 decibels at 1 meter | 60 to 85 decibels at 1 meter | XVS14BMW<br>12 Vdc: 350mA<br>24 Vdc: 400 mA<br>105 decibels at 1 meter | — |
| | | — | — | XVS72BM<br>12 Vdc: 280 mA<br>24 Vdc: 190 mA<br>90 decibels at 1 meter | — |
| **Connection Type** | Pre-Wired,<br>Color-Coded Wires<br>**cable length:**<br>600mm XVC4●●<br>900mm XVC4●●K<br>500mm XVC4●●5S | Pre-Wired,<br>Color-Coded Wires<br>**cable length:**<br>600mm XVC6●●<br>850mm XVC6●●K<br>550mm XVC6●●5S<br>850mm XVC6●●5SK | Pre-Wired,<br>Color-Coded Wires<br>**cable length:**<br>500mm XVC1●●K<br>500mm XVC1●●SK<br>550mm XVC6●●5S<br>850mm XVC6●●5SK | XVS14BMW<br>Pre-Wired, Color-Coded Wires<br>**cable length:**<br>500mm XVS14<br>XVS72BM●●<br>**Not** Pre-Wired | Pre-Wired<br>cable length:<br>500mm XVR08●●●<br>400mm XVR10●●●<br>400mm XVR12●●●<br>400mm XVR13●●● |
| **Cable Size** | 22 AWG (0.33 mm²) | 22 AWG (0.33 mm²) | 22 AWG (0.33 mm²) | — | 18 AWG (0.75 mm²) |
| **Digest Page** | 19-111 | 19-109 | 19-109 | 19-116 | 19-107 |

**For Tower Lights catalog numbers:**
●○ first dot denotes voltage selection
○● second dot denotes color selection



© 2012 Schneider Electric
All Rights Reserved

### Table 19.1: BLACK—Start Push Buttons (flush head)

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 1 N.O. | XB4BA21 | **38.50** | ZBY2303 | **3.40** |
| XB5 Double Insulated |  | 1 N.O. | XB5AA21 | **38.50** | ZBY2303 | **3.40** |

### Table 19.2: BLACK—Off-On Selector Switch

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 1 N.O. | XB4BD21 | **51.00** | ZBY2367 | **3.40** |
| XB5 Double Insulated |  | 1 N.O. | XB5AD21 | **51.00** | ZBY2367 | **3.40** |

### Table 19.3: RED—120 Vac LED—On Pilot Light

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 120 Vac Red LED | XB4BVG4 | **72.00** | ZBY2311 | **3.40** |
| XB5 Double Insulated |  | 120 Vac Red LED | XB5AVG4 | **72.00** | ZBY2311 | **3.40** |

### Table 19.4: RED—40 mm Mushroom Stop (Push-Pull)

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 1 N.C. | XB4BT42 | **68.00** | ZBY9330 | **3.40** |
| XB5 Double Insulated |  | 1 N.C. | XB5AT42 | **68.00** | ZBY9330 | **3.40** |

### Table 19.5: RED—Stop Push Buttons (extended head)

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 1 N.C. | XB4BL42 | **38.50** | ZBY2304 | **3.40** |
| XB5 Double Insulated |  | 1 N.C. | XB5AL42 | **38.50** | ZBY2304 | **3.40** |

### Table 19.6: Hand-Off-Auto Selector Switch

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 2 N.O. | XB4BD33 | **68.00** | ZBY2387 | **3.40** |
| XB5 Double Insulated |  | 2 N.O. | XB5AD33 | **68.00** | ZBY2387 | **3.40** |

### Table 19.7: GREEN—120 Vac LED—Off Pilot Light

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 120 Vac Green LED | XB4BVG3 | **72.00** | ZBY2312 | **3.40** |
| XB5 Double Insulated |  | 120 Vac Green LED | XB5AVG3 | **72.00** | ZBY2312 | **3.40** |

### Table 19.8: RED—40 mm Mushroom Emergency Stop (Trigger Action, Turn-to-Release)

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate 60 mm Round | $ Price |
|---|---|---|---|---|---|---|
| XB4 Die Cast Chrome |  | 1 N.O. / 1 N.C. | XB4BS8445 | **165.00** | ZBY9330 | **3.40** |
| XB5 Double Insulated |  | 1 N.O./ 1 N.C. | XB5AS8445 | **165.00** | ZBY9330 | **3.40** |

**When ordering, please specify:**

- Quantity
- Type or Catalog Number





© 2012 Schneider Electric
All Rights Reserved

### Table 19.9: BLACK—Start Push Buttons

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  |  | KR1BH13 | **89.00** | KN201 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  |  | SKR1BH13 | **89.00** | KN101SP | **4.40** |

### Table 19.10: BLACK—Off-On Selector Switch

| Operator Style | Description | Contact Sequence (Contact Block Included) | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  |  1 0 / 0 1 | KS11BH13 | **106.00** | KN244 | **2.90** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | | SKS11BH13 | **106.00** | KN144SP | **2.90** |

### Table 19.11: RED—120 Vac—On Pilot Light

| Operator Style | Description | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  | KP1R31 | **153.00** | KN203 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | SKP1R31 | **153.00** | KN103SP | **4.40** |

### Table 19.12: RED—120 Vac—On Push-To-Test Pilot Light

| Operator Style | Description | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  | KT1R31 | **197.00** | KN203 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | SKT1R31 | **197.00** | KN103SP | **4.40** |

### Table 19.13: RED—Stop Push Buttons

| Operator Style | Description | Contact Block | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  |  | KR1RH13 | **89.00** | KN202 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  |  | SKR1RH13 | **89.00** | KN102RP | **4.40** |

### Table 19.14: BLACK—Hand-Off-Auto Selector Switch

| Operator Style | Description | Contact Sequence (Contact Block Included) | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  |  1 0 0 / 0 0 1 | KS43BH13 | **106.00** | KN260 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | | SKS43BH13 | **106.00** | KN160SP | **4.40** |

### Table 19.15: GREEN—120 Vac—Off Pilot Light

| Operator Style | Description | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  | KP1G31 | **153.00** | KN204 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | SKP1G31 | **153.00** | KN104SP | **4.40** |

### Table 19.16: GREEN—120 Vac—Off Push-To-Test Pilot Light

| Operator Style | Description | Type | $ Price | Legend Plate | $ Price |
|---|---|---|---|---|---|
| 30 mm Industrial (Metal) |  | KT1G31 | **197.00** | KN204 | **4.40** |
| 30 mm Corrosion Resistant (Non-Metallic) |  | SKT1G31 | **197.00** | KN104RP | **4.40** |

**When ordering, please specify:**

- Quantity
- Class Number (if appropriate)
- Type or Catalog Number



© 2012 Schneider Electric
All Rights Reserved



XVLA1••

## XVL Miniature LED

### Table 19.17: Specifications

| | |
|---|---|
| **Conforming to standards** | IEC 337-2, NF C 63-140, VDE 0660-200 |
| **Degree of protection** | IP40 (IP65 with seal) conforming to IEC 529 and NF C 20-010 |
| **Current consumption** | 25 mA |
| **Cabling** | XVLA1••, XVLA2••: tags for 2.8 x 0.5 mm Faston connectors, also for soldered connections.<br>XVLA3••: threaded connectors, clamping, capacity: min. 1 x 0.2 $mm^2$, max. 1 x 1.5 $mm^2$ |



XVLA2••

### Table 19.18: With Black Bezel, Raised LED

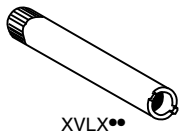
| Description | Supply Voltage DC | Color | Catalog Number | $ Price Each |
|---|---|---|---|---|
| Ø 8 mm ▲<br>with integral ballast resistor<br>and reverse polarity protection diode<br>Degree of protection IP40<br>LED pilot lights Ø 8 mm, with black bezel,<br>visible LED XVLA1•• | 12 V | Green<br>Red<br>Amber | XVLA123<br>XVLA124<br>XVLA125 | **32.80** |
| | 24 V | Green<br>Red<br>Amber | XVLA133<br>XVLA134<br>XVLA135 | |



XVLA3••

### Table 19.19: With Integral Lens Cap, Covered LED

| Description | Supply Voltage DC | Color | Catalog Number | $ Price Each |
|---|---|---|---|---|
| Ø 8 mm▲<br>with integral ballast resistor<br>and reverse polarity protection diode<br>Degree of protection IP40<br>Ø 8 mm, with lens incorporated,<br>LED XVLA2 | 12 V | Green<br>Red<br>Amber | XVLA223<br>XVLA224<br>XVLA225 | **32.80** |
| | 24 V | Green<br>Red<br>Amber | XVLA233<br>XVLA234<br>XVLA235 | |
| Ø 12 mm ■<br>with integral ballast resistor<br>and reverse polarity protection diode<br>Degree of protection IP40<br>Ø 12 mm, with lens incorporated,<br>LED XVLA3 | 12 V | Green<br>Red<br>Amber | XVLA323<br>XVLA324<br>XVLA325 | **52.00** |
| | 24 V | Green<br>Red<br>Amber | XVLA333<br>XVLA334<br>XVLA335 | |



XVLX••

▲ Quick connects (2.8 x 0.5 mm).
■ Screw termination.

### Table 19.20: Accessories

| Description | | Catalog Number | $ Price Each |
|---|---|---|---|
| Tightening tools<br>(Sold singly) | For Ø 8 mm pilot lights | XVLX08 | **18.60** |
| | For Ø 12 mm pilot lights | XVLX12 | **24.00** |
| Seals (IP65)<br>(Sold in lots of 10) | For Ø 8 mm pilot lights | XVLZ911 | **0.65** |
| | For Ø 12 mm pilot lights | XVLZ912 | |



XVLZ91•

## Class 9001 Type O, NEMA 13 Pilot Lights



Type O

### Table 19.21: Instrument Type Incandescent Pilot Lights—Type O NEMA 13

| Voltage Vac/Vdc | Avg. Current (A) | Red Lens Type♦ | Green Lens Type♦ | Amber Lens Type♦ | Clear Lens Type♦ | Yellow Lens Type♦ | White Lens Type♦ | Fluted Blue Lens Type♦ | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| 12 | .170 | OR12 | OG12 | OA12 | OC12 | OY12 | OW12 | — | |
| 24 | .073 | OR24 | OG24 | OA24 | OC24 | OY24 | OW24 | FB24 | **28.70** |
| 120 | .025 | OR120 | OG120 | OA120 | OC120 | OY120 | OW120 | FB120 | |

♦ To order, add prefix 9001 to the beginning of the catalog number.

### Table 19.22: Replacement Lamps—Class 9001, Type O

| Voltage | Sylvania Lamp Number | Square D Part Number | $ Price |
|---|---|---|---|
| 12 V | 12PSB | 2550105003 | |
| 24 V | 24PSB | 2550105004 | **16.50** |
| 120 V | 120PSB | 2550105005 | |





© 2012 Schneider Electric
All Rights Reserved

## Standard, Push-To-Test, and Remote Test Pilot Lights

Class 9001 Type J compact pilot lights are designed to be mounted in a 0.69 in. (11•16 in. or 17.5 mm) diameter mounting hole. Each terminal accepts up to two 14 AWG wires (CU only). Type J compact pilot lights meet NEMA 4 (watertight) and NEMA 13 (oiltight). Type JT push-to-test pilot lights have contacts built into the encapsulated body. Type JTR remote test pilot lights have dual inputs for one push remote testing—all you need is a push button with a current rating equal to or greater than the total lamp draw. Type JTR remote test pilot lights can also be energized from two separate input signals of the same voltage and polarity. This is done by wiring the Test terminal to the second input signal.



Type JP1R29

### Table 19.23: Standard Pilot Light ▲

| Style/Voltage | Color Cap■ | | | | | | Lamp | Replacement Lamp | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| | None | $ Price | Red | Green | Yellow | $ Price | | | |
| Transformer, 110–120 V, 50–60 Hz | JP1 | **143.00** | JP1R29 | JP1G29 | JP1Y29 | **153.00** | 6.3 V, 0.15 A | 2550101020 | **12.50** |
| Incandescent, 120 Vac/Vdc | JP38 | **116.00** | JP38R29 | JP38G29 | JP38Y29 | **126.00** | 120 V, 0.015 A | 2550101040 | **12.50** |
| Incandescent, 24–28 Vac/Vdc | JP35 | **116.00** | JP35R29 | JP35G29 | JP35Y29 | **126.00** | 28 V, 0.040 A | 2550101024 | **12.50** |
| LED, 24–28 Vac | — | — | JP35LRR29 | JP35LGG29 | JP35LYY29 | **153.00** | 28 V, 0.03 A | — | — |
| LED, 24–28 Vdc | — | — | JP35DRR29 | JP35DGG29 | JP35DYY29 | **153.00** | 28 V, 0.03 A | — | — |
| LED, 120 Vac | — | — | JP38LRR29 | JP38LGG29 | JP38LYY29 | **153.00** | 28 V, 0.03 A | — | — |
| Replacement LED, 120 Vac Red | — | — | — | — | — | — | — | 6508805207 | **43.00** |
| Replacement LED, 120 Vac Yellow | — | — | — | — | — | — | — | 6508805208 | **43.00** |
| Replacement LED, 120 Vac Green | — | — | — | — | — | — | — | 6508805209 | **43.00** |

### Table 19.24: Push-To-Test Pilot Light ▲

| Style/Voltage | Color Cap■ | | | | | | Lamp | Replacement Lamp | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| | None | $ Price | Red | Green | Yellow | $ Price | | | |
| Transformer, 110–120 V, 50–60 Hz | JT1 | **185.00** | JT1R29 | JT1G29 | JT1Y29 | **195.00** | 6.3 V, 0.15 A | 2550101020 | **12.50** |
| Incandescent, 120 Vac/Vdc | JT38 | **158.00** | JT38R29 | JT38G29 | JT38Y29 | **168.00** | 120 V, 0.015 A | 2550101040 | **12.50** |
| Incandescent, 24-28 Vac/Vdc | JT35 | **158.00** | JT35R29 | JT35G29 | JT35Y29 | **168.00** | 28 V, 0.040 A | 2550101024 | **12.50** |
| LED, 24–28 Vac | — | — | JT35LRR29 | JT35LGG29 | JT35LYY29 | **195.00** | 28 V, 0.03 A | — | — |
| LED, 24–28 Vdc | — | — | JT35DRR29 | JT35DGG29 | JT35DYY29 | **195.00** | 28 V, 0.03 A | — | — |
| LED, 120 Vac | — | — | JT38LRR29 | JT38LGG29 | JT38LYY29 | **195.00** | 28 V, 0.03 A | | — |
| Replacement LED, 120 Vac Red | — | — | — | — | — | — | — | 6508805207 | **43.00** |
| Replacement LED, 120 Vac Yellow | — | — | — | — | — | — | — | 6508805208 | **43.00** |
| Replacement LED, 120 Vac Green | — | — | — | — | — | — | — | 6508805209 | **43.00** |

### Table 19.25: Color Caps, Class 9001 Type J

| Color | Replacement Color Caps | |
|---|---|---|
| | Plastic■ | $ Price |
| Red | R29 | **9.90** |
| Green | G29 | |
| Amber | A29 | |
| Blue | L29 | |
| White | W29 | |
| Yellow | Y29 | |

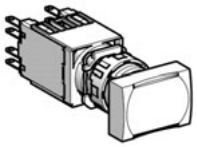
### Table 19.26: Legend Plates

| Description | | | Maximum Number of Lines | Maximum Number of Characters | Catalog Number■ | $ Price |
|---|---|---|---|---|---|---|
|  | Blank | Black Field<br>Red Field | 2 | 8 | JN100<br>JN100R | **4.40** |
| | Special Marking (Specify Marking) | Black Field<br>Red Field | | | JN199<br>JN199R | **18.50** |
|  | Blank | Aluminum Field | 2 | 16 | JN700 | **4.40** |
| | Special Marking (Specify Marking) | Aluminum Field | | | JN799 | **18.50** |

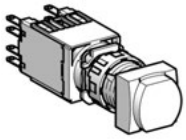
▲ Other voltages are available. Refer to Catalog 9001CT0001.
■ To order, add prefix 9001 to the beginning of the catalog number.



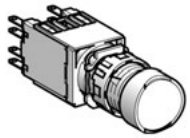
© 2012 Schneider Electric
All Rights Reserved



XB6DW•••B



XB6CE•••B



XB6AF•••B

**Table 19.27: Illuminated Push Buttons (12–24 Vac/Vdc LED included)**
**Complete Units with Quick Connectors/Solder Tabs**

| Type of Operator | Type of Contact | | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|---|
| | N.O. | N.C. | | Catalog Number | | | |
| Flush, spring return | 1 | — | White | XB6DW1B1B | XB6CW1B1B | XB6AW1B1B | 44.40 |
| | | | Green | XB6DW3B1B | XB6CW3B1B | XB6AW3B1B | |
| | | | Yellow | XB6DW5B1B | XB6CW5B1B | XB6AW5B1B | |
| | | | Blue | XB6DW6B1B | XB6CW6B1B | XB6AW6B1B | |
| | — | 1 | Red | XB6DW4B2B | XB6CW4B2B | XB6AW4B2B | 44.40 |
| | 1 | 1 | White | XB6DW1B5B | XB6CW1B5B | XB6AW1B5B | 52.00 |
| | | | Green | XB6DW3B5B | XB6CW3B5B | XB6AW3B5B | |
| | | | Red | XB6DW4B5B | XB6CW4B5B | XB6AW4B5B | |
| | | | Yellow | XB6DW5B5B | XB6CW5B5B | XB6AW5B5B | |
| | | | Blue | XB6DW6B5B | XB6CW6B5B | XB6AW6B5B | |
| Flush, maintained | 1 | — | White | XB6DF1B1B | XB6CF1B1B | XB6AF1B1B | 44.40 |
| | | | Green | XB6DF3B1B | XB6CF3B1B | XB6AF3B1B | |
| | | | Yellow | XB6DF5B1B | XB6CF5B1B | XB6AF5B1B | |
| | | | Blue | XB6DF6B1B | XB6CF6B1B | XB6AF6B1B | |
| | — | 1 | Red | XB6DF4B2B | XB6CF4B2B | XB6AF4B2B | 44.40 |
| | 1 | 1 | White | XB6DF1B5B | XB6CF1B5B | XB6AF1B5B | 52.00 |
| | | | Green | XB6DF3B5B | XB6CF3B5B | XB6AF3B5B | |
| | | | Red | XB6DF4B5B | XB6CF4B5B | XB6AF4B5B | |
| | | | Yellow | XB6DF5B5B | XB6CF5B5B | XB6AF5B5B | |
| | | | Blue | XB6DF6B5B | XB6CF6B5B | XB6AF6B5B | |
| Extended, spring return | 1 | — | White | XB6DE1B1B | XB6CE1B1B | XB6AE1B1B | 44.40 |
| | | | Green | XB6DE3B1B | XB6CE3B1B | XB6AE3B1B | |
| | | | Yellow | XB6DE5B1B | XB6CE5B1B | XB6AE5B1B | |
| | | | Blue | XB6DE6B1B | XB6CE6B1B | XB6AE6B1B | |
| | — | 1 | Red | XB6DE4B2B | XB6CE4B2B | XB6AE4B2B | 44.40 |
| | 1 | 1 | White | XB6DE1B5B | XB6CE1B5B | XB6AE1B5B | 52.00 |
| | | | Green | XB6DE3B5B | XB6CE3B5B | XB6AE3B5B | |
| | | | Red | XB6DE4B5B | XB6CE4B5B | XB6AE4B5B | |
| | | | Yellow | XB6DE5B5B | XB6CE5B5B | XB6AE5B5B | |
| | | | Blue | XB6DE6B5B | XB6CE6B5B | XB6AE6B5B | |

**Table 19.28: Illuminated Push Buttons (120 Vac LED included)**
**Complete Units with Quick Connectors/Solder Tabs**

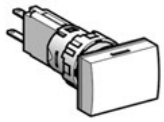
| Type of Operator | Type of Contact | | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|---|
| | N.O. | N.C. | | Catalog Number | | | |
| Flush, spring return | 1 | — | White | XB6DW1G1B | XB6CW1G1B | XB6AW1G1B | 44.40 |
| | | | Green | XB6DW3G1B | XB6CW3G1B | XB6AW3G1B | |
| | | | Yellow | XB6DW5G1B | XB6CW5G1B | XB6AW5G1B | |
| | | | Blue | XB6DW6G1B | XB6CW6G1B | XB6AW6G1B | |
| | — | 1 | Red | XB6DW4G2B | XB6CW4G2B | XB6AW4G2B | 44.40 |
| | 1 | 1 | White | XB6DW1G5B | XB6CW1G5B | XB6AW1G5B | 52.00 |
| | | | Green | XB6DW3G5B | XB6CW3G5B | XB6AW3G5B | |
| | | | Red | XB6DW4G5B | XB6CW4G5B | XB6AW4G5B | |
| | | | Yellow | XB6DW5G5B | XB6CW5G5B | XB6AW5G5B | |
| | | | Blue | XB6DW6G5B | XB6CW6G5B | XB6AW6G5B | |
| Flush, maintained | 1 | — | White | XB6DF1G1B | XB6CF1G1B | XB6AF1G1B | 44.40 |
| | | | Green | XB6DF3G1B | XB6CF3G1B | XB6AF3G1B | |
| | | | Yellow | XB6DF5G1B | XB6CF5G1B | XB6AF5G1B | |
| | | | Blue | XB6DF6G1B | XB6CF6G1B | XB6AF6G1B | |
| | — | 1 | Red | XB6DF4G2B | XB6CF4G2B | XB6AF4G2B | 44.40 |
| | 1 | 1 | White | XB6DF1G5B | XB6CF1G5B | XB6AF1G5B | 52.00 |
| | | | Green | XB6DF3G5B | XB6CF3G5B | XB6AF3G5B | |
| | | | Red | XB6DF4G5B | XB6CF4G5B | XB6AF4G5B | |
| | | | Yellow | XB6DF5G5B | XB6CF5G5B | XB6AF5G5B | |
| | | | Blue | XB6DF6G5B | XB6CF6G5B | XB6AF6G5B | |
| Extended, spring return | 1 | — | White | XB6DE1G1B | XB6CE1G1B | XB6AE1G1B | 44.40 |
| | | | Green | XB6DE3G1B | XB6CE3G1B | XB6AE3G1B | |
| | | | Yellow | XB6DE5G1B | XB6CE5G1B | XB6AE5G1B | |
| | | | Blue | XB6DE6G1B | XB6CE6G1B | XB6AE6G1B | |
| | — | 1 | Red | XB6DE4G2B | XB6CE4G2B | XB6AE4G2B | 44.40 |
| | 1 | 1 | White | XB6DE1G5B | XB6CE1G5B | XB6AE1G5B | 52.00 |
| | | | Green | XB6DE3G5B | XB6CE3G5B | XB6AE3G5B | |
| | | | Red | XB6DE4G5B | XB6CE4G5B | XB6AE4G5B | |
| | | | Yellow | XB6DE5G5B | XB6CE5G5B | XB6AE5G5B | |
| | | | Blue | XB6DE6G5B | XB6CE6G5B | XB6AE6G5B | |

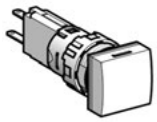
Legends . . . . . pages 19-20 and 19-22

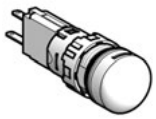


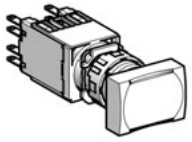


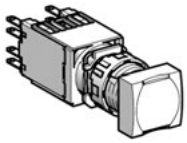
© 2012 Schneider Electric
All Rights Reserved

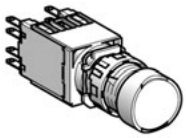

XB6DV••B

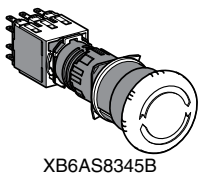

XB6CV••B

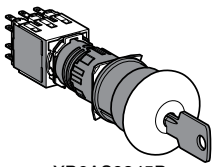

XB6AV••B


XB6DA••B


XB6CA••B


XB6AA••B


XB6AS8345B


XB6AS9345B



ZB6Y7330

### Table 19.29: Pilot Lights (12–24 Vac/Vdc LED included)
### Complete Units with Quick Connectors/Solder Tabs

| Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|
| | Catalog Number | | | |
| White | XB6DV1BB | XB6CV1BB | XB6AV1BB | 27.30 |
| Green | XB6DV3BB | XB6CV3BB | XB6AV3BB | |
| Red | XB6DV4BB | XB6CV4BB | XB6AV4BB | |
| Yellow | XB6DV5BB | XB6CV5BB | XB6AV5BB | |
| Blue | XB6DV6BB | XB6CV6BB | XB6AV6BB | |

### Table 19.30: Pilot Lights (120 Vac LED)
### Complete Units with Quick Connectors/Solder Tabs

| Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|
| | Catalog Number | | | |
| White | XB6DV1GB | XB6CV1GB | XB6AV1GB | 27.30 |
| Green | XB6DV3GB | XB6CV3GB | XB6AV3GB | |
| Red | XB6DV4GB | XB6CV4GB | XB6AV4GB | |
| Yellow | XB6DV5GB | XB6CV5GB | XB6AV5GB | |
| Blue | XB6DV6GB | XB6CV6GB | XB6AV6GB | |

### Table 19.31: Push Buttons (Non-Illuminated)
### Complete Units with Quick Connectors/Solder Tabs

| Type of Push | Type of Contact | | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|---|
| | N.O. | N.C. | | Catalog Number | | | |
| Flush, spring return | 1 | — | White | XB6DA11B | XB6CA11B | XB6AA11B | 26.20 |
| | | | Black | XB6DA21B | XB6CA21B | XB6AA21B | |
| | | | Green | XB6DA31B | XB6CA31B | XB6AA31B | |
| | | | Yellow | XB6DA51B | XB6CA51B | XB6AA51B | |
| | | | Blue | XB6DA61B | XB6CA61B | XB6AA61B | |
| | — | 1 | Black | XB6DA22B | XB6CA22B | XB6AA22B | 26.20 |
| | | | Red | XB6DA42B | XB6CA42B | XB6AA42B | |
| | 1 | 1 | White | XB6DA15B | XB6CA15B | XB6AA15B | 34.10 |
| | | | Black | XB6DA25B | XB6CA25B | XB6AA25B | |
| | | | Green | XB6DA35B | XB6CA35B | XB6AA35B | |
| | | | Red | XB6DA45B | XB6CA45B | XB6AA45B | |
| | | | Yellow | XB6DA55B | XB6CA55B | XB6AA55B | |
| | | | Blue | XB6DA65B | XB6CA65B | XB6AA65B | |

### Table 19.32: Trigger Action Emergency Stop Mushroom Head Push Buttons (Color Red)▲

| Shape of Head | Type of Push | Type of Contact | | Diameter of Head (mm) | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | |
| | Turn-to-release | — | 1 | 30 | XB6AS8342B | 65.00 |
| | | 1 | 1 | 30 | XB6AS8345B | 73.00 |
| | Key release | — | 1 | 30 | XB6AS9342B■ | 78.00 |
| | | 1 | 1 | 30 | XB6AS9345B■ | 87.00 |

▲ Complies with EN418/ISO13850 standards for Emergency Stop push buttons when used with circular Legend Plate ZB6Y7330 (see page 19-22)
■ Ronis 200 key

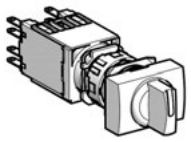
### Table 19.33: Circular Legends, 45 mm

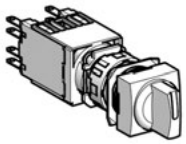
| Description | Color | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Circular legends, 45 mm | Yellow | Blank | ZB6Y7001 | 3.40 |
| | | Emergency stop | ZB6Y7330 | |

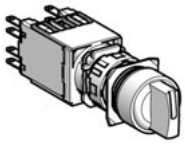
Legends . . . . . pages 19-20 and 19-22

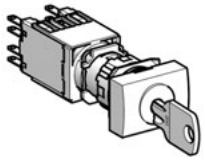


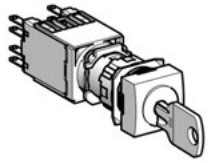
© 2012 Schneider Electric
All Rights Reserved


XB6DD•••B


XB6CD•••B


XB6AD•••B


XB6DG••B


XB6CG••B

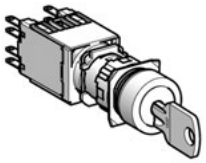

XB6AG••B

**Table 19.34: Selector Switches (Switching Angle: Handle: 60°, Key: 70°)**
**Complete Units with Quick Connectors/Solder Tabs**

| Type of Operator | Type of Contact | | Number and Type of Positions | | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|---|---|
| | N.O. | N.C. | | | Catalog Number | | | |
| Handle | 1 | — | 2-maintained | | XB6DD221B | XB6CD221B | XB6AD221B | **29.70** |
| | 1 | 1 | 2-maintained | | XB6DD225B | XB6CD225B | XB6AD225B | **37.60** |
| | | | 3-maintained | | XB6DD235B | XB6CD235B | XB6AD235B | **37.60** |
| | 2 | — | 3-maintained | | XB6DD233B | XB6CD233B | XB6AD233B | **37.60** |
| Key | 1 | 1 | 2-maintained | | XB6DGC5B | XB6CGC5B | XB6AGC5B | **68.00** |
| | | | 2-maintained | | XB6DGB5B | XB6CGB5B | XB6AGB5B | **68.00** |
| | | | 3-maintained | | XB6DGH5B | XB6CGH5B | XB6AGH5B | **68.00** |
| | 2 | — | 3-maintained | | XB6DGH3B | XB6CGH3B | XB6AGH3B | **68.00** |

Note: Indicates key withdrawal position.

**Table 19.35: Selector Switch Sequence**

| 2 Position Selector Switch | | |
|---|---|---|
| | | Contact block guide ▲ |
| O | X | 1 N.O. (left or right) |
| X | O | 1 N.C. (left or right) |
| O<br><br>X | X<br><br>O | 1 N.O.<br>and<br>1 N.C. |

| 3 Position Selector Switch | | | |
|---|---|---|---|
| | | | Contact block guide ▲ |
| O | O | X | 1 N.O. (left) |
| X | O | X | 2 N.O. wired in **parallel** (side by side) |
| X | O | O | 1 N.O. (right) |
| O | X | X | 1 N.C. (right) |
| X | X | O | 1 N.C. (left) |
| O | X | O | 2 N.C. wired in **series** (side by side) |

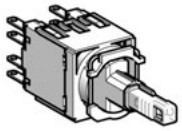
▲ As viewed from the front of the panel.

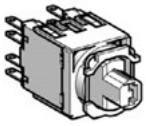
Legends . . . . . pages 19-20 and 19-22





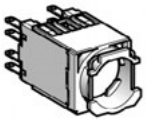
© 2012 Schneider Electric
All Rights Reserved


ZB6ZB••B


ZB6ZH••B

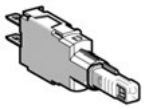
### Table 19.36: Contact Blocks and Light Modules for Illuminated Push Buttons▲

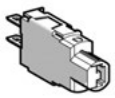
| Description | Supply Voltage | Type of Contact N.O. | Type of Contact N.C. | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **Quick connectors/solder tabs** | | | | | | |
| Integral LED ■ | 12–24 Vac/Vdc | 1 | — | White<br>Green<br>Yellow<br>Blue | ZB6ZB11B<br>ZB6ZB31B<br>ZB6ZB51B<br>ZB6ZB61B | **28.00** |
| | | — | 1 | Red<br>Yellow | ZB6ZB42B<br>ZB6ZB52B | **28.00** |
| | | 1 | 1 | White<br>Green<br>Red<br>Yellow<br>Blue | ZB6ZB15B<br>ZB6ZB35B<br>ZB6ZB45B<br>ZB6ZB55B<br>ZB6ZB65B | **35.20** |
| | 120 Vac | 1 | — | White<br>Green<br>Yellow<br>Blue | ZB6ZG11B<br>ZB6ZG31B<br>ZB6ZG51B<br>ZB6ZG61B | **28.00** |
| | | — | 1 | Red<br>Yellow | ZB6ZG42B<br>ZB6ZG52B | **28.00** |
| | | 1 | 1 | White<br>Green<br>Red<br>Yellow<br>Blue | ZB6ZG15B<br>ZB6ZG35B<br>ZB6ZG45B<br>ZB6ZG55B<br>ZB6ZG65B | **35.20** |
| Direct for incandescent bulb (not included)★ | ≤24 Vac/Vdc | 1 | — | — | ZB6ZH01B | **23.80** |
| | | — | 1 | — | ZB6ZH02B | **23.80** |
| | | 1 | 1 | — | ZB6ZH05B | **31.00** |


ZB6Z•B

### Table 19.37: Contact Blocks for Push Buttons and Selector Switches

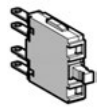
| Description | Type of Contact N.O. | Type of Contact N.C. | Catalog Number | $ Price |
|---|---|---|---|---|
| **Quick connectors/solder tabs** | | | | |
| Contact blocks with mounting base | 1 | — | ZB6Z1B | **9.40** |
| | — | 1 | ZB6Z2B | **9.40** |
| | 2 | — | ZB6Z3B | **16.60** |
| | — | 2 | ZB6Z4B | **16.60** |
| | 1 | 1 | ZB6Z5B | **16.60** |


ZB6E••B


ZB6E•0B

### Table 19.38: Light Modules for Pilot Lights

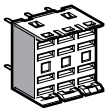
| Description | Supply Voltage | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|
| **Quick connectors/solder tabs△** | | | | |
| Integral LED♦ | 12–24 Vac/Vdc | White<br>Green<br>Red<br>Yellow<br>Blue | ZB6EB1B<br>ZB6EB3B<br>ZB6EB4B<br>ZB6EB5B<br>ZB6EB6B | **16.60** |
| | 120 Vac | White<br>Green<br>Red<br>Yellow<br>Blue | ZB6EG1B<br>ZB6EG3B<br>ZB6EG4B<br>ZB6EG5B<br>ZB6EG6B | **16.60** |
| With resistor for 95 V neon bulb (not included) ★▼ | 110 Vac | — | ZB6EG0B | **15.60** |
| | 230 Vac | — | ZB6EM0B | **15.60** |
| Direct supply for 0.6 W max. incandescent bulb (not included)★ | ≤24 Vac/Vdc | — | ZB6EH0B | **14.40** |

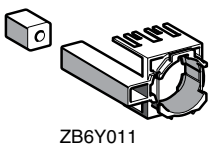

ZB6E•B

### Table 19.39: Separate Contact Blocks (Maximum of 3 contacts per mounting base.)

| Contact Material | For use with mounting base | Type of Contact N.O. | Type of Contact N.C. | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Silver alloy | Quick connectors/solder tabs | 1 | — | ZB6E1B | **7.20** |
| | | — | 1 | ZB6E2B | **7.20** |
| Gold flashed | Quick connectors/solder tabs | 1 | — | ZB6E1E | **12.40** |
| | | — | 1 | ZB6E2E | **12.40** |

▲ Illuminated selector switches can be assembled by using a contact block/light module assembly in conjunction with a selector switch head, supplied without handle, and a transparent handle. See page 19-16.
■ The LED must be the same color as the push button cap.
♦ The LED must be the same color as the lens.
★ Order bulbs separately. See page 19-22.
▼ Neon bulb can only be used with a red, yellow, or white cap.
△ Electrical components with connection by printed circuit board pins are available. See page 19-22.


ZB6Y010


ZB6Y011

### Table 19.40: Accessories for Printed Circuit Board Installations

| Description | for use with | Catalog Number |
|---|---|---|
| Plug-in Socket Adapter | contact blocks and light modules | ZB6Y010 |
| Body Bracket | plug-in socket adapter | ZB6Y011 |



© 2012 Schneider Electric
All Rights Reserved


ZB6DW•


ZB6CE•


ZB6AF•

**Table 19.41: Heads for Illuminated Push Buttons**
**(To combine with complete bodies and contact blocks, see page 19-15)**

| Type of Push | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|
| | | Catalog Number | | | |
| Flush, spring return | White | ZB6DW1 | ZB6CW1 | ZB6AW1 | |
| | Green | ZB6DW3 | ZB6CW3 | ZB6AW3 | |
| | Red | ZB6DW4 | ZB6CW4 | ZB6AW4 | **14.40** |
| | Yellow | ZB6DW5 | ZB6CW5 | ZB6AW5 | |
| | Blue | ZB6DW6 | ZB6CW6 | ZB6AW6 | |
| | 5 colors ▲ | ZB6DW9 | ZB6CW9 | ZB6AW9 | **16.40** |
| Flush, maintained | White | ZB6DF1 | ZB6CF1 | ZB6AF1 | |
| | Green | ZB6DF3 | ZB6CF3 | ZB6AF3 | |
| | Red | ZB6DF4 | ZB6CF4 | ZB6AF4 | **14.40** |
| | Yellow | ZB6DF5 | ZB6CF5 | ZB6AF5 | |
| | Blue | ZB6DF6 | ZB6CF6 | ZB6AF6 | |
| | 5 colors ▲ | ZB6DF9 | ZB6CF9 | ZB6AF9 | **16.40** |
| Extended, spring return | White | ZB6DE1 | ZB6CE1 | ZB6AE1 | |
| | Green | ZB6DE3 | ZB6CE3 | ZB6AE3 | |
| | Red | ZB6DE4 | ZB6CE4 | ZB6AE4 | **14.40** |
| | Yellow | ZB6DE5 | ZB6CE5 | ZB6AE5 | |
| | Blue | ZB6DE6 | ZB6CE6 | ZB6AE6 | |
| | 5 colors▲ | ZB6DE9 | ZB6CE9 | ZB6AE9 | **16.40** |

▲ Five different color caps included with head (white, green, red, yellow, and blue).


ZB6DV•


ZB6CV•


ZB6AV•

**Table 19.42: Heads for Pilot Lights**
**(To combine with light modules, see page 19-15.)**

| Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|
| | Catalog Number | | | |
| White | ZB6DV1 | ZB6CV1 | ZB6AV1 | |
| Green | ZB6DV3 | ZB6CV3 | ZB6AV3 | |
| Red | ZB6DV4 | ZB6CV4 | ZB6AV4 | **8.20** |
| Yellow | ZB6DV5 | ZB6CV5 | ZB6AV5 | |
| Blue | ZB6DV6 | ZB6CV6 | ZB6AV6 | |
| 5 colors ■ | ZB6DV9 | ZB6CV9 | ZB6AV9 | **10.20** |

■ Five different color caps included with head (white, green, red, yellow, and blue).

Legends . . . . . pages 19-20 and 19-22





© 2012 Schneider Electric
All Rights Reserved

## Non-Illuminated Operators


ZB6DA•

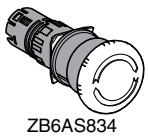

ZB6CA•

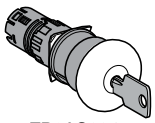

ZB6AA•

### Table 19.43: Heads for Push Buttons (To combine with complete bodies and contact blocks, see page 19-15.)

| Type of Push | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|
| | | Catalog Number | | | |
| Flush, spring return | White | ZB6DA1 | ZB6CA1 | ZB6AA1 | 14.40 |
| | Black | ZB6DA2 | ZB6CA2 | ZB6AA2 | |
| | Green | ZB6DA3 | ZB6CA3 | ZB6AA3 | |
| | Red | ZB6DA4 | ZB6CA4 | ZB6AA4 | |
| | Yellow | ZB6DA5 | ZB6CA5 | ZB6AA5 | |
| | Blue | ZB6DA6 | ZB6CA6 | ZB6AA6 | |
| | 6 colors▲ | ZB6DA9 | ZB6CA9 | ZB6AA9 | 16.40 |

▲ Five different color caps included with head (white, green, red, yellow, and blue).


ZB6AS834


ZB6AS934

### Table 19.44: Mushroom Heads for Trigger Action Push Buttons (30 mm)■

| Shape of Head | Type of Push | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|
| | Turn-to-release | Red | ZB6AS834 | 49.60 |
| | Key release | Red | ZB6AS934♦ | 62.60 |

### Table 19.45: Circular Legends, 45 mm

| Description | Color | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Circular legends, 45 mm | Yellow | Blank | ZB6Y7001 | 3.40 |
| | | Emergency stop | ZB6Y7330 | |

■ Complies with EN418/ISO13850 standards for Emergency Stop push buttons when used with circular Legend Plate ZB6Y7330 (see page 19-22)
♦ Ronis 200 key



ZB6Y7330

## Non-Illuminated Selector Switches


ZB6DD••


ZB6CD••


ZB6AD••

### Table 19.46: Heads for Non-Illuminated Selector Switches▲♦ (To combine with complete bodies and contact blocks, see page 19-15.)

| Number and Type of Positions | | Color of Handle | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|
| | | | Catalog Number | | | |
| **Switching angle: maintained positions 60°, spring return positions 45°** | | | | | | |
| 2-maintained | | Black | ZB6DD22 | ZB6CD22 | ZB6AD22 | 17.60 |
| 2-maintained | | Black | ZB6DD28■ | ZB6CD28■ | ZB6AD28■ | |
| 3-maintained | | Black | ZB6DD23 | ZB6CD23 | ZB6AD23 | |
| 2-spring return to center | | Black | ZB6DD24 | ZB6CD24 | ZB6AD24 | |
| 3-spring return to center | | Black | ZB6DD25 | ZB6CD25 | ZB6AD25 | |
| 3-spring return from right to center | | Black | ZB6DD26 | ZB6CD26 | ZB6AD26 | |
| 3-spring return from left to center | | Black | ZB6DD27 | ZB6CD27 | ZB6AD27 | |

▲ For bodies with 2 contact blocks, maximum.
■ Switching angle: maintained positions 90°.
♦ See selector switch sequence charts on page 19-19.

Legends . . . . . pages 19-20 and 19-22



© 2012 Schneider Electric
All Rights Reserved

**Table 19.47: Heads for Non-Illuminated Selector Switches▲♦**
**(To combine with complete bodies and contact blocks, see page 19-15.)**


ZB6DD••


ZB6CD••


ZB6AD••

| Number and Type of Positions | | Color of Handle | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|
| | | | Catalog Number | | | |
| **Switching angle: maintained positions 60°, spring return positions 45°** | | | | | | |
| 2-maintained | | Black | ZB6DD22 | ZB6CD22 | ZB6AD22 | |
| 2-maintained | | Black | ZB6DD28■ | ZB6CD28■ | ZB6AD28■ | |
| 3-maintained | | Black | ZB6DD23 | ZB6CD23 | ZB6AD23 | |
| 2-spring return to center | | Black | ZB6DD24 | ZB6CD24 | ZB6AD24 | **17.60** |
| 3-spring return to center | | Black | ZB6DD25 | ZB6CD25 | ZB6AD25 | |
| 3-spring return from right to center | | Black | ZB6DD26 | ZB6CD26 | ZB6AD26 | |
| 3-spring return from left to center | | Black | ZB6DD27 | ZB6CD27 | ZB6AD27 | |

▲ For bodies with 2 contact blocks, maximum.
■ Switching angle: maintained positions 90°.
♦ See selector switch sequence charts on page 19-14.

Legends . . . . . pages 19-20 and 19-22

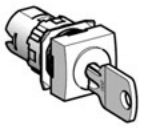


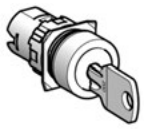


© 2012 Schneider Electric
All Rights Reserved

**Table 19.48: Heads for Ronis Key Operated Selector Switches ▲**
**(To combine with complete bodies and contact blocks, see page 19-15.)**


ZB6DG•


ZB6CG•


ZB6AG•

| Number and Type of Positions | | Key Withdrawal | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|---|
| | | | Catalog Number | | | |
| **Switching angle: maintained positions 70°, spring return positions 45°** | | | | | | |
| **2-maintained** | | Right-hand position | ZB6DGA | ZB6CGA | ZB6AGA | |
| | | Center position | ZB6DGB | ZB6CGB | ZB6AGB | |
| | | Both positions | ZB6DGC | ZB6CGC | ZB6AGC | |
| **2-spring return from right to center** | | Center position | ZB6DGL | ZB6CGL | ZB6AGL | |
| **3-maintained** | | Left-hand position | ZB6DGD | ZB6CGD | ZB6AGD | |
| | | Center position | ZB6DGE | ZB6CGE | ZB6AGE | |
| | | Left-hand and center positions | ZB6DGF | ZB6CGF | ZB6AGF | |
| | | Right-hand position | ZB6DGG | ZB6CGG | ZB6AGG | 45.60 |
| | | All 3 positions | ZB6DGH | ZB6CGH | ZB6AGH | |
| | | Left-hand and right-hand positions | ZB6DGJ | ZB6CGJ | ZB6AGJ | |
| | | Right-hand and center positions | ZB6DGK | ZB6CGK | ZB6AGK | |
| **3-spring return from right to center** | | Left-hand position | ZB6DGQ | ZB6CGQ | ZB6AGQ | |
| | | Center position | ZB6DGR | ZB6CGR | ZB6AGR | |
| | | Left-hand and center positions | ZB6DGS | ZB6CGS | ZB6AGS | |
| **3-spring return to center** | | Center position | ZB6DGT | ZB6CGT | ZB6AGT | |

Note: ⚷ Indicates key withdrawal position.
▲ Ronis 200 key standard.

**Table 19.49: Selector Switch Sequence (using contact block assemblies, page 19-15)**

| 2 Position Selector Switch | | |
|---|---|---|
| | | Contact block guide ■ |
| O | X | 1 N.O. (left or right) |
| X | O | 1 N.C. (left or right) |
| O<br><br>X | X<br>and<br>O | 1 N.O.<br>1 N.C. |

| 3 Position Selector Switch | | | |
|---|---|---|---|
| | | | Contact block guide ■ |
| O | O | X | 1 N.O. (left) |
| X | O | X | 2 N.O. wired in **parallel** (side by side) |
| X | O | O | 1 N.O. (right) |
| O | X | X | 1 N.C. (right) |
| X | X | O | 1 N.C. (left) |
| O | X | O | 2 N.C. wired in **series** (side by side) |

■ As viewed from the front of the panel.

Legends . . . . . pages 19-20 and 19-22



© 2012 Schneider Electric
All Rights Reserved


ZB6YD20

**Table 19.50: Standard Legend Plate (24 X 28 mm) for 8 X 21 mm Legend ▲**

| Description | Background Color of Legend | Catalog Number | $ Price |
|---|---|---|---|
| Without legend insert | — | ZB6YD20 | **2.00** |
| With blank legend insert | White or yellow | ZB6YD21 | **3.40** |
| | Black or red | ZB6YD22 | **3.40** |



ZB6Y2178



ZB6Y2304

**Table 19.51: 8 x 21 mm Marked Legends (for 24 x 28 mm legend holder ZB6YD20) ▲**

| Color | Marking | | Catalog Number | $ Price |
|---|---|---|---|---|
| White Text<br>Red Background (Stop and Fault)<br>Black Background (all others) | International | O-I | ZB6Y2178 | **1.60** |
| | | I-II | ZB6Y2179 | |
| | | I-O-II | ZB6Y2186 | |
| | | ◄—O—► | ZB6Y2190 | |
| | English | HAND-O-AUTO | ZB6Y2387 | |
| | | CLOSE | ZB6Y2314 | |
| | | DOWN | ZB6Y2308 | |
| | | FORWARD | ZB6Y2305 | |
| | | FAULT | ZB6Y2334 | |
| | | LEFT | ZB6Y2310 | |
| | | OFF | ZB6Y2312 | |
| | | ON | ZB6Y2303 | |
| | | OPEN | ZB6Y2313 | |
| | | RESET | ZB6Y2323 | |
| | | REVERSE | ZB6Y2306 | |
| | | RIGHT | ZB6Y2309 | |
| | | RUN | ZB6Y2311 | |
| | | STOP | ZB6Y2304 | |
| | | UP | ZB6Y2307 | |

▲ Additional legend plate sizes and markings are available in Catalog **9001CT1102**.





© 2012 Schneider Electric
All Rights Reserved


ZB6YD•10


ZB6YC•10


ZB6YA•10


ZB6YD•17


ZB6YD•19


ZB6YC•19


ZB6YA•19

**Table 19.52: Push Button Caps—Marked**

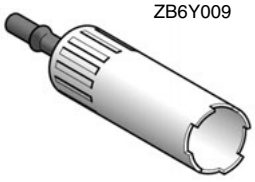
| Ink Marking Color: White on colored cap Black on white cap | Color | Rectangular | Square | Round | $ Price |
|---|---|---|---|---|---|
| | | Catalog Number | | | |
| **For non-illuminated push buttons** | | | | | |
| **0** | White | ZB6YD100 | ZB6YC100 | ZB6YA100 | |
| | Black | ZB6YD200 | ZB6YC200 | ZB6YA200 | |
| **1** | White | ZB6YD101 | ZB6YC101 | ZB6YA101 | |
| | Black | ZB6YD201 | ZB6YC201 | ZB6YA201 | |
| **2** | White | ZB6YD102 | ZB6YC102 | ZB6YA102 | |
| | Black | ZB6YD202 | ZB6YC202 | ZB6YA202 | |
| **3** | White | ZB6YD103 | ZB6YC103 | ZB6YA103 | |
| | Black | ZB6YD203 | ZB6YC203 | ZB6YA203 | |
| **4** | White | ZB6YD104 | ZB6YC104 | ZB6YA104 | |
| | Black | ZB6YD204 | ZB6YC204 | ZB6YA204 | |
| **5** | White | ZB6YD105 | ZB6YC105 | ZB6YA105 | |
| | Black | ZB6YD205 | ZB6YC205 | ZB6YA205 | |
| **6** | White | ZB6YD106 | ZB6YC106 | ZB6YA106 | |
| | Black | ZB6YD206 | ZB6YC206 | ZB6YA206 | |
| **7** | White | ZB6YD107 | ZB6YC107 | ZB6YA107 | |
| | Black | ZB6YD207 | ZB6YC207 | ZB6YA207 | |
| **8** | White | ZB6YD108 | ZB6YC108 | ZB6YA108 | |
| | Black | ZB6YD208 | ZB6YC208 | ZB6YA208 | |
| **9** | White | ZB6YD109 | ZB6YC109 | ZB6YA109 | |
| | Black | ZB6YD209 | ZB6YC209 | ZB6YA209 | |
| **ON** | White | ZB6YD117 | ZB6YC117 | ZB6YA117 | |
| | Green | ZB6YD317 | ZB6YC317 | ZB6YA317 | |
| **OFF** | Black | ZB6YD224 | ZB6YC224 | ZB6YA224 | |
| | Red | ZB6YD424 | ZB6YC424 | ZB6YA424 | |
| **I** | White | ZB6YD111 | ZB6YC111 | ZB6YA111 | |
| | Green | ZB6YD311 | ZB6YC311 | ZB6YA311 | |
| **O** | Black | ZB6YD210 | ZB6YC210 | ZB6YA210 | |
| | Red | ZB6YD410 | ZB6YC410 | ZB6YA410 | |
| **R** | Black | ZB6YD226 | ZB6YC226 | ZB6YA226 | 4.20 |
| | Blue | ZB6YD626 | ZB6YC626 | ZB6YA626 | |
| **START** | White | ZB6YD140 | ZB6YC140 | ZB6YA140 | |
| | Green | ZB6YD340 | ZB6YC340 | ZB6YA340 | |
| **STOP** | Black | ZB6YD241 | ZB6YC241 | ZB6YA241 | |
| | Red | ZB6YD441 | ZB6YC441 | ZB6YA441 | |
| **II** | White | ZB6YD112 | ZB6YC112 | ZB6YA112 | |
| | Black | ZB6YD212 | ZB6YC212 | ZB6YA212 | |
| **III** | White | ZB6YD113 | ZB6YC113 | ZB6YA113 | |
| | Black | ZB6YD213 | ZB6YC213 | ZB6YA213 | |
| **+** | White | ZB6YD114 | ZB6YC114 | ZB6YA114 | |
| | Black | ZB6YD214 | ZB6YC214 | ZB6YA214 | |
| **-** | White | ZB6YD115 | ZB6YC115 | ZB6YA115 | |
| | Black | ZB6YD215 | ZB6YC215 | ZB6YA215 | |
| **UP** | White | ZB6YD127 | ZB6YC127 | ZB6YA127 | |
| | Black | ZB6YD227 | ZB6YC227 | ZB6YA227 | |
| **DOWN** | White | ZB6YD128 | ZB6YC128 | ZB6YA128 | |
| | Black | ZB6YD228 | ZB6YC228 | ZB6YA228 | |
| **CLOSE** | White | ZB6YD132 | ZB6YC132 | ZB6YA132 | |
| | Black | ZB6YD232 | ZB6YC232 | ZB6YA232 | |
| ⬆ | White | ZB6YD119 | ZB6YC119 | ZB6YA119 | |
| | Black | ZB6YD219 | ZB6YC219 | ZB6YA219 | |
| ⬇ | White | ZB6YD120 | ZB6YC120 | ZB6YA120 | |
| | Black | ZB6YD220 | ZB6YC220 | ZB6YA220 | |
| ➡ | White | ZB6YD121 | ZB6YC121 | ZB6YA121 | |
| | Black | ZB6YD221 | ZB6YC221 | ZB6YA221 | |
| ⬅ | White | ZB6YD122 | ZB6YC122 | ZB6YA122 | |
| | Black | ZB6YD222 | ZB6YC222 | ZB6YA222 | |

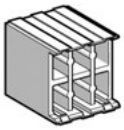


© 2012 Schneider Electric
All Rights Reserved


ZB6Y009

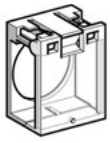

ZB6Y002

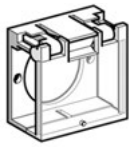

ZB6Y905


ZB6Y001


ZB6Y005


ZB6Y007


ZB6YA001


ZB6YD001


ZB6YD20



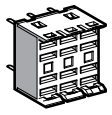
ZB6Y2178

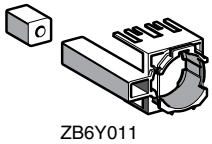


ZB6Y2304



ZB6Y7330


ZB6Y010


ZB6Y011

### Table 19.53: Accessories

| Description | Application | Catalog Number | $ Price |
|---|---|---|---|
| Body | Fitting contact blocks | ZB6Y009 | **2.00** |
| Bezel tightening tool + bulb extractor | Fixing the switch and changing bulbs | ZB6Y905 | **4.20** |
| Three piece tool kit | — | ZB6Y019 | **12.40** |
| Nut | Fixing head to panel | ZB6Y002 | **2.00** |
| Adaptor | Flush mounting a circular head push button or pilot light in Ø 22 mm cut-out | ZB6YA002 | **6.20** |
| Shroud | Protecting contacts against touching | ZB6Y001 | **3.40** |
| Protective cover | Circular and square head push buttons and switches | ZB6YA001 | **16.60** |
| | Rectangular head push buttons and switches | ZB6YD001 | **16.60** |
| Female Quick connector/Solder tab | Sold in lots of 100 pieces | ZB6Y004 | **0.42** |
| Blanking plug | Plugging an unused knockout | ZB6Y005 | **4.20** |
| Ronis key, 2 pieces | Key operated selector switches and emergency stop mushroom | ZB6Y007 | **6.20** |
| Incandescent bulbs, bayonet T1 1/4 | 6 V | ZB6YA006 | **2.00** |
| | 12 V | ZB6YJ012 | **2.00** |
| | 28 V▲ | ZB6YB028 | **2.00** |
| Neon bulbs | 110/230 V ■ | ZB6YG095 | **4.20** |

▲ 28 V bulb supplied, for use on 24 V.
■ 95 V bulb supplied, for use on 110/230 V.

### Table 19.54: Standard Legend Plate (24 X 28 mm) for 8 X 21 mm Legend ▲

| Description | Background Color of Legend | Catalog Number | $ Price |
|---|---|---|---|
| Without legend insert | — | ZB6YD20 | **2.00** |
| With blank legend insert | White or yellow | ZB6YD21 | **3.40** |
| | Black or red | ZB6YD22 | **3.40** |

### Table 19.55: 8 x 21 mm Marked Legends (for 24 x 28 mm legend holder ZB6YD20) ▲

| Color | Marking | | Catalog Number | $ Price |
|---|---|---|---|---|
| White Text<br>Red Background (Stop and Fault)<br>Black Background (all others) | International | O-I | ZB6Y2178 | **1.60** |
| | | I-II | ZB6Y2179 | |
| | | I-O-II | ZB6Y2186 | |
| | | ◄—O—► | ZB6Y2190 | |
| | English | HAND-O-AUTO | ZB6Y2387 | |
| | | CLOSE | ZB6Y2314 | |
| | | DOWN | ZB6Y2308 | |
| | | FORWARD | ZB6Y2305 | |
| | | FAULT | ZB6Y2334 | |
| | | LEFT | ZB6Y2310 | |
| | | OFF | ZB6Y2312 | |
| | | ON | ZB6Y2303 | |
| | | OPEN | ZB6Y2313 | |
| | | RESET | ZB6Y2323 | |
| | | REVERSE | ZB6Y2306 | |
| | | RIGHT | ZB6Y2309 | |
| | | RUN | ZB6Y2311 | |
| | | STOP | ZB6Y2304 | |
| | | UP | ZB6Y2307 | |

▲ Additional legend plate sizes and markings are available in Catalog **9001CT0001**.

### Table 19.56: Circular Legends, 45 mm

| Description | Color | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Circular legends, 45 mm | Yellow | Blank | ZB6Y7001 | **3.40** |
| | | Emergency stop | ZB6Y7330 | |

### Table 19.57: Accessories for Printed Circuit Board Installations

| Description | for use with | Catalog Number |
|---|---|---|
| Plug-in Socket Adapter | contact blocks and light modules | ZB6Y010 |
| Body Bracket | plug-in socket adapter | ZB6Y011 |





© 2012 Schneider Electric
All Rights Reserved


XB4BA31


XB4BA4322


XB4BP51


XB4BL42


XB4BC21


XB4BL73415


XB4BL73731p5



XB4BA731327

**Table 19.58: Non-Illuminated Push Buttons, Momentary (screw clamp terminal connections)**

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Cap Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
|  | Flush | 1 | — | — | Black | XB4BA21 | (ZB4BZ101 + ZB4BA2) | 38.50 |
| | | | | | Green | XB4BA31 | (ZB4BZ101 + ZB4BA3) | |
| | | | | | Yellow | XB4BA51 | (ZB4BZ101 + ZB4BA5) | |
| | | | | | Blue | XB4BA61 | (ZB4BZ101 + ZB4BA6) | |
| | | — | 1 | — | Red | XB4BA42 | (ZB4BZ102 + ZB4BA4) | 38.50 |
| | | 1 | 1 | — | Black | XB4BA25 | (ZB4BZ105 + ZB4BA2) | 56.00 |
| | | | | | Green | XB4BA35 | (ZB4BZ105 + ZB4BA3) | |
| | | | | | Red | XB4BA45 | (ZB4BZ105 + ZB4BA4) | |
| | | | | | Yellow | XB4BA55 | (ZB4BZ105 + ZB4BA5) | |
| | | | | | Blue | XB4BA65 | (ZB4BZ105 + ZB4BA6) | |
|  | Flush | 1 | — | "I" (white) | Green | XB4BA3311 | (ZB4BZ101 + ZB4BA331) | 44.70 |
|  | Flush | — | 1 | "O" (white) | Red | XB4BA4322 | (ZB4BZ102 + ZB4BA432) | 44.70 |
|  | Flush with clear silicone boot (color of pusher unobscured) | 1 | — | — | Black | XB4BP21 | (ZB4BZ101 + ZB4BP2) | 53.00 |
| | | | | | Green | XB4BP31 | (ZB4BZ101 + ZB4BP3) | |
| | | | | | Yellow | XB4BP51 | (ZB4BZ101 + ZB4BP5) | |
| | | | | | Blue | XB4BP61 | (ZB4BZ101 + ZB4BP6) | |
| | | — | 1 | — | Red | XB4BP42 | (ZB4BZ102 + ZB4BP4) | 53.00 |
|  | Extended | — | 1 | — | Red | XB4BL42 | (ZB4BZ102 + ZB4BL4) | 38.50 |
| | | 1 | 1 | — | Red | XB4BL45 | (ZB4BZ105 + ZB4BL4) | 56.00 |
|  | Mushroom head Ø 40 mm | 1 | — | — | Black | XB4BC21 | (ZB4BZ101 + ZB4BC2) | 56.00 |

**Table 19.59: Two Button Push Buttons, Momentary (screw clamp terminal connections)**

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Degree of Protection | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
|  | One flush green push* One extended red push** | 1 | 1 | **"I" (white) ***"O" (white) | IP66 IP69K | XB4BL73415 | (ZB4BZ105 + ZB4BL7341) | 69.00 |

**Table 19.60: Two Button Push Buttons, Momentary + one white central pilot light (screw clamp terminal connections)**

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Degree of Protection | Pilot Light Voltage | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|
|   | One flush green push* One extended red push** One white central pilot light block | 1 | 1 | **"I" (white) ***"O" (white) | IP66 IP69K | 24 | XB4BW73731B5 | 130.00 |
| | | | | | | 120 | XB4BW73731G5 | |
| | | | | | | 240 | XB4BW73731M5 | |

**Table 19.61: Three Button Push Buttons, Momentary (screw clamp terminal connections)**

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Degree of Protection | Marking and Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
|  | Two flush pushes + one central projecting red push* | 2 | 1 | IP66 IP69K | White "I" on green background White "II" on green background *White "Stop" on red background | XB4BA731327 | 120.00 |
| | | | | | Black "➡" on white background White "⇦" on black background *White "Stop" on red background | XB4BA711237 | |

Legends . . . . . pages 19-37 to 19-39
Caps. . . . . .page 19-39



© 2012 Schneider Electric
All Rights Reserved

**Table 19.62: Non-Illuminated Emergency Stop and Emergency Off Mushroom Head Push Buttons, Ø 40 mm, Red (screw clamp terminal connections)**


XB4BT845


XB4BS9445


XB4BS542

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|
| | Trigger action push-pull▲ | 1 | 1 | XB4BT845 | (ZB4BZ105 + ZB4BT84) | **101.00** |
| | Trigger action turn-to-release▲ | 1 | 1 | XB4BS8445 | (ZB4BZ105 + ZB4BS844) | **165.00** |
| | | 1 | 2 | XB4BS84441 | (ZB4BZ141 + ZB4BS844) | |
| | Trigger action Key release ▲ (No. 455) | 1 | 1 | XB4BS9445 | (ZB4BZ105 + ZB4BS944) | **165.00** |
| | Push-pull | — | 1 | XB4BT42 | (ZB4BZ102 + ZB4BT4) | **68.00** |
| | Turn-to-release | — | 1 | XB4BS542 | (ZB4BZ102 + ZB4BS54) | **110.00** |
| | Key release (No. 455) | — | 1 | XB4BS142 | (ZB4BZ102 + ZB4BS14) | **147.00** |

▲ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator. For emergency stop applications, always use a trigger action push button (per EN/IEC 13850).

**Table 19.63: Non-Illuminated Selector Switches and Key Switches (screw clamp terminal connections)■**


XB4BD33


XB4BJ33


XB4BG33

| Shape of Head | Type of Operator | Type of Contact N.O. | Type of Contact N.C. | Number and Type of Positions | | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| | Standard lever, black | 1 | — | 2-maintained | | XB4BD21 | (ZB4BZ101 + ZB4BD2) | **51.00** |
| | | 1 | 1 | 2-maintained | | XB4BD25 | (ZB4BZ105 + ZB4BD2) | **68.00** |
| | | 2 | — | 3-maintained | | XB4BD33 | (ZB4BZ103 + ZB4BD3) | **68.00** |
| | | | | 3-momentary to center | | XB4BD53 | (ZB4BZ103 + ZB4BD5) | **75.00** |
| | Extended lever, black | 1 | — | 2-maintained | | XB4BJ21 | (ZB4BZ101 + ZB4BJ2) | **51.00** |
| | | 2 | — | 3-maintained | | XB4BJ33 | (ZB4BZ103 + ZB4BJ3) | **68.00** |
| | | | | 3-momentary to center | | XB4BJ53 | (ZB4BZ103 + ZB4BJ5) | **75.00** |
| | Key (No. 455) | 1 | — | 2-maintained | | XB4BG21 | (ZB4BZ101 + ZB4BG2) | **123.00** |
| | | | | | | XB4BG41 | (ZB4BZ101 + ZB4BG4) | **123.00** |
| | | | | 2-momentary to left | | XB4BG61 | (ZB4BZ101 + ZB4BG6) | **123.00** |
| | | 2 | — | 3-maintained | | XB4BG03 | (ZB4BZ103 + ZB4BG0) | **141.00** |
| | | | | | | XB4BG33 | (ZB4BZ103 + ZB4BG3) | **141.00** |

Note: The symbol ⚷ indicates key withdrawal position(s).

■ See page 19-29 for contact configurations.

Legends . . . . . pages 19-37 to 19-39





© 2012 Schneider Electric
All Rights Reserved

### Table 19.64: Pilot Lights with Protected LED™ (screw clamp terminal connections) ▲


XB4BVB5

| Shape of Head | Supply Voltage | Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|
| Protected LED | 24 Vac/Vdc | White | XB4BVB1 | (ZB4BVB1 + ZB4BV013) | 72.00 |
| | | Green | XB4BVB3 | (ZB4BVB3 + ZB4BV033) | |
| | | Red | XB4BVB4 | (ZB4BVB4 + ZB4BV043) | |
| | | Yellow | XB4BVB5 | (ZB4BVB5 + ZB4BV053) | |
| | | Blue | XB4BVB6 | (ZB4BVB6 + ZB4BV063) | |
| | 110–120 Vac | White | XB4BVG1 | (ZB4BVG1 + ZB4BV013) | 72.00 |
| | | Green | XB4BVG3 | (ZB4BVG3 + ZB4BV033) | |
| | | Red | XB4BVG4 | (ZB4BVG4 + ZB4BV043) | |
| | | Yellow | XB4BVG5 | (ZB4BVG5 + ZB4BV053) | |
| | | Blue | XB4BVG6 | (ZB4BVG6 + ZB4BV063) | |

### Table 19.65: Pilot Lights for BA9s Bulb (screw clamp terminal connections)


XB4BV64


XB4BV33

| Shape of Head | Supply Voltage | Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|
| **Direct supply, for BA9s (incandescent, LED, neon) V ≤ 250 V, 2.4 W bulb (bulb not included)** | | | | | |
| | ≤ 250 Vac/Vdc | White | XB4BV61 | (ZB4BV6 + ZB4BV01) | 51.00 |
| | | Green | XB4BV63 | (ZB4BV6 + ZB4BV03) | |
| | | Red | XB4BV64 | (ZB4BV6 + ZB4BV04) | |
| | | Yellow | XB4BV65 | (ZB4BV6 + ZB4BV05) | |
| **Transformer type with 1.2 VA, 6 V secondary. BA9s incandescent bulb included** | | | | | |
| | 110–120 Vac 50/60 Hz | White | XB4BV31 | (ZB4BV3 + ZB4BV01) | 117.00 |
| | | Green | XB4BV33 | (ZB4BV3 + ZB4BV03) | |
| | | Red | XB4BV34 | (ZB4BV3 + ZB4BV04) | |
| | | Yellow | XB4BV35 | (ZB4BV3 + ZB4BV05) | |

### Table 19.66: Illuminated Push Buttons, Momentary (screw clamp terminal connections) ▲


XB4BW33B5


XB4BW3465


XB4BW3545

| Shape of Head | Description | Type of Contact N.O. | Type of Contact N.C. | Supply Voltage | Color of Push | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| **Flush** | | | | | | | | |
| Protected LED | | 1 | 1 | 24 Vac/Vdc | White | XB4BW31B5 | (ZB4BW0B15 + ZB4BW313) | 119.00 |
| | | | | | Green | XB4BW33B5 | (ZB4BW0B35 + ZB4BW333) | |
| | | | | | Red | XB4BW34B5 | (ZB4BW0B45 + ZB4BW343) | |
| | | | | | Yellow | XB4BW35B5 | (ZB4BW0B55 + ZB4BW353) | |
| | | | | | Blue | XB4BW36B5 | (ZB4BW0B65 + ZB4BW363) | |
| | | | | 110–120 Vac | White | XB4BW31G5 | (ZB4BW0G15 + ZB4BW313) | 119.00 |
| | | | | | Green | XB4BW33G5 | (ZB4BW0G35 + ZB4BW333) | |
| | | | | | Red | XB4BW34G5 | (ZB4BW0G45 + ZB4BW343) | |
| | | | | | Yellow | XB4BW35G5 | (ZB4BW0G55 + ZB4BW353) | |
| | | | | | Blue | XB4BW36G5 | (ZB4BW0G65 + ZB4BW363) | |
| | Direct supply for BA9s 2.4 W max. bulb not included | 1 | 1 | ≤ 250 Vac/Vdc | White | XB4BW3165 | (ZB4BW065 + ZB4BW31) | 99.00 |
| | | | | | Green | XB4BW3365 | (ZB4BW065 + ZB4BW33) | |
| | | | | | Red | XB4BW3465 | (ZB4BW065 + ZB4BW34) | |
| | | | | | Yellow | XB4BW3565 | (ZB4BW065 + ZB4BW35) | |
| | Transformer type 1.2 VA, 6 V secondary. BA9s incandescent bulb included | 1 | 1 | 110–120 Vac 50/60 Hz | White | XB4BW3135 | (ZB4BW035 + ZB4BW31) | 163.00 |
| | | | | | Green | XB4BW3335 | (ZB4BW035 + ZB4BW33) | |
| | | | | | Red | XB4BW3435 | (ZB4BW035 + ZB4BW34) | |
| | | | | | Yellow | XB4BW3535 | (ZB4BW035 + ZB4BW35) | |
| | | | | 230–240 Vac 50/60 Hz | White | XB4BW3145 | (ZB4BW045 + ZB4BW31) | 163.00 |
| | | | | | Green | XB4BW3345 | (ZB4BW045 + ZB4BW33) | |
| | | | | | Red | XB4BW3445 | (ZB4BW045 + ZB4BW34) | |
| | | | | | Yellow | XB4BW3545 | (ZB4BW045 + ZB4BW35) | |
| **Extended** | | | | | | | | |
| Protected LED | | 1 | 1 | 24 Vac/Vdc | White | XB4BW11B5 | (ZB4BW0B15 + ZB4BW113) | 113.00 |
| | | | | | Green | XB4BW13B5 | (ZB4BW0B35 + ZB4BW133) | |
| | | | | | Red | XB4BW14B5 | (ZB4BW0B45 + ZB4BW143) | |
| | | | | | Yellow | XB4BW15B5 | (ZB4BW0B55 + ZB4BW153) | |
| | | | | | Blue | XB4BW16B5 | (ZB4BW0B65 + ZB4BW163) | |
| | | | | 110–120 Vac | White | XB4BW11G5 | (ZB4BW0G15 + ZB4BW113) | 113.00 |
| | | | | | Green | XB4BW13G5 | (ZB4BW0G35 + ZB4BW133) | |
| | | | | | Red | XB4BW14G5 | (ZB4BW0G45 + ZB4BW143) | |
| | | | | | Yellow | XB4BW15G5 | (ZB4BW0G55 + ZB4BW153) | |
| | | | | | Blue | XB4BW16G5 | (ZB4BW0G65 + ZB4BW163) | |

▲ For 240 V LED, replace the last “B” or “G” in the catalog number with an “M”. For example, XB4BV**B**1 (24 V) becomes XB4BV**M**1 (240 V—AC only).

Legends . . . . . pages 19-37 to 19-39



© 2012 Schneider Electric
All Rights Reserved


ZB4BA0


ZB4BA4


ZB4BA38


ZB4BP18


ZB4BL1


ZB4BA36

**Table 19.67: Non-Illuminated Operators, Momentary—Unmarked**

| Shape of Head | Type of Push | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Flush, without color cap ▲ | — | ZB4BA0 | 11.00 |
|  | Flush, with set of 6 color caps | White<br>Black<br>Green<br>Red<br>Yellow<br>Blue | ZB4BA9 | 13.00 |
|  | Flush | White | ZB4BA1 | 13.00 |
| | | Black | ZB4BA2 | |
| | | Green | ZB4BA3 | |
| | | Red | ZB4BA4 | |
| | | Yellow | ZB4BA5 | |
| | | Blue | ZB4BA6 | |
| | | Gray | ZB4BA8 | |
|  | Flush with transparent cap, for insertion of legend ■ | White | ZB4BA18 | 16.00 |
| | | Green | ZB4BA38 | |
| | | Red | ZB4BA48 | |
| | | Yellow | ZB4BA58 | |
| | | Blue | ZB4BA68 | |
|  | Booted Flush (clear silicone) Cap color unobscured | White | ZB4BPA1 | 25.80 |
| | | Black | ZB4BPA2 | |
| | | Green | ZB4BPA3 | |
| | | Red | ZB4BPA4 | |
| | | Yellow | ZB4BPA5 | |
| | | Blue | ZB4BPA6 | |
|  | Booted Extended (clear silicone) Cap color unobscured | White | ZB4BP1 | 25.80 |
| | | Black | ZB4BP2 | |
| | | Green | ZB4BP3 | |
| | | Red | ZB4BP4 | |
| | | Yellow | ZB4BP5 | |
| | | Blue | ZB4BP6 | |
|  | Booted (colored silicone) Cap color unobscured | White | ZB4BP1S | 25.80 |
| | | Black | ZB4BP2S | |
| | | Green | ZB4BP3S | |
| | | Red | ZB4BP4S | |
| | | Yellow | ZB4BP5S | |
| | | Blue | ZB4BP6S | |
|  | Booted (clear silicone) for insertion of legend ■ Cap color unobscured | White | ZB4BP18 | 29.00 |
| | | Green | ZB4BP38 | |
| | | Red | ZB4BP48 | |
| | | Yellow | ZB4BP58 | |
| | | Blue | ZB4BP68 | |
|  | Extended | White | ZB4BL1 | 13.00 |
| | | Black | ZB4BL2 | |
| | | Green | ZB4BL3 | |
| | | Red | ZB4BL4 | |
| | | Yellow | ZB4BL5 | |
| | | Blue | ZB4BL6 | |
|  | Guarded Head | White | ZB4BA16 | 35.00 |
| | | Black | ZB4BA26 | |
| | | Green | ZB4BA36 | |
| | | Red | ZB4BA46 | |
| | | Yellow | ZB4BA56 | |
| | | Blue | ZB4BA66 | |

▲ Color cap to be ordered separately, see page 19-39.
■ For legend ordering information, see page 19-39.

**Table 19.68: Non-Illuminated Operators, Momentary—Premarked**

| Shape of Head | Type of Push | Marking Text | Marking Color | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
|  | Flush | I | White | Green | ZB4BA331 | 18.60 |
| | | | Black | White | ZB4BA131 | |
| | | START | White | Green | ZB4BA333 | |
| | | | Black | White | ZB4BA133 | |
| | | ON | White | Green | ZB4BA341 | |
| | | | Black | White | ZB4BA141 | |
| | | RESET | White | Black | ZB4BA222 | |
| | | JOG | White | Black | ZB4BA245 | |
| | | O | White | Red | ZB4BA432 | |
| | | | | Black | ZB4BA232 | |
| | | STOP | White | Red | ZB4BA434 | |
| | | | | Black | ZB4BA234 | |
| | | OFF | White | Red | ZB4BA435 | |
| | | | | Black | ZB4BA235 | |
| | | ↑ ♦ | Black | White | ZB4BA334 | |
| | | | White | Black | ZB4BA335 | |
|  | Extended | O | White | Red | ZB4BL432 | 18.60 |
| | | | | Black | ZB4BL232 | |
| | | STOP | White | Red | ZB4BL434 | |
| | | | | Black | ZB4BL234 | |
| | | OFF | White | Red | ZB4BL435 | |
| | | | | Black | ZB4BL235 | |


ZB4BA331


ZB4BA334


ZB4BL432

♦ Cap supplied not clipped-in, allowing orientation of arrow in any one of 4 directions: ↑, ↓, ← or →

Legends . . . . . pages 19-37 to 19-39





© 2012 Schneider Electric
All Rights Reserved


ZB4BH02

### Table 19.69: Non-Illuminated Push-on/Push-off Operators

| Shape of Head | Type of Push | Color of Push | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Flush | White | ZB4BH01 | 17.60 |
| | | Black | ZB4BH02 | |
| | | Green | ZB4BH03 | |
| | | Red | ZB4BH04 | |
| | | Yellow | ZB4BH05 | |
| | | Blue | ZB4BH06 | |
|  | Extended | White | ZB4BH1 | 17.60 |
| | | Black | ZB4BH2 | |
| | | Green | ZB4BH3 | |
| | | Red | ZB4BH4 | |
| | | Yellow | ZB4BH5 | |
| | | Blue | ZB4BH6 | |



ZB4BA73133



ZB4BA71124

### Table 19.70: Three Head Operators, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Premarked | | | | | | |
|  Two flush + one central projecting red push marked "Stop" | Two flush | "I" "II" | Green Green | IP66 IP69K | ZB4BA73132 | 60.00 |
| | | "←" "→" | Green Green | | ZB4BA73133 | |
| | | "↑" "↓" | Green Green | | ZB4BA73134 | |
| | | "+" "–" | Green Green | | ZB4BA73135 | |
| | | "+" "–" | White White | | ZB4BA71115 | |
| | | "←" "→" | White Black | | ZB4BA71123 | |
| | | "↑" "↓" | White Black | | ZB4BA71124 | |
| | | "↑" "↓" | Black Black | | ZB4BA72124 | |
| Without caps | | | | | | |
| | Two flush without caps | — | — | IP66 IP69K | ZB4BA791 | 51.00 |

### Table 19.71: Two Head Operators, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| No Marking | | | | | | |
|  | Two flush | — | Green Red | IP66 IP69K | ZB4BA7340 | 37.20 |
| | | — | White Black | | ZB4BA7120 | |
|  | One flush One extended | — | Green Red | | ZB4BL7340 | |
| Premarked | | | | | | |
|  | Two flush | "I" "O" | Green Red | IP66 IP69K | ZB4BA7341 | 41.40 |
| | | "I" "O" | White Black | | ZB4BA7121 | |
|  | One flush One extended | "I" "O" | Green Red | | ZB4BL7341 | |
| Without caps | | | | | | |
|  | Two flush without caps | — | — | IP66 IP69K | ZB4BA79 | 35.00 |


ZB4BA7121


ZB4BL7341

Legends . . . . . pages 19-37 to 19-39
Caps. . . . . .page 19-39



© 2012 Schneider Electric
All Rights Reserved


ZB4BC24


ZB4BC2


ZB4BR2


ZB4BS834


ZB4BT4


ZB4BS64


ZB4BS74



### Table 19.72: Mushroom Heads, Momentary

| Shape of Head | Diameter of Head | Color of Head | Catalog Number | $ Price |
|---|---|---|---|---|
|  | 30 mm | Black | ZB4BC24 | 29.40 |
| | | Green | ZB4BC34 | |
| | | Red | ZB4BC44 | |
| | | Yellow | ZB4BC54 | |
| | | Blue | ZB4BC64 | |
| | 40 mm | Black | ZB4BC2 | 29.40 |
| | | Green | ZB4BC3 | |
| | | Red | ZB4BC4 | |
| | | Yellow | ZB4BC5 | |
| | | Blue | ZB4BC6 | |
| | 60 mm | Black | ZB4BR2 | 35.00 |
| | | Green | ZB4BR3 | |
| | | Red | ZB4BR4 | |
| | | Yellow | ZB4BR5 | |
| | | Blue | ZB4BR6 | |

### Table 19.73: Mushroom Heads for Maintained Push Buttons

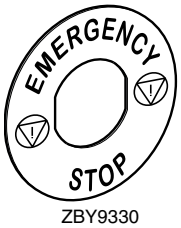
| Shape of Head | Type of Push | Diameter of Head | Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
|  | Trigger action Push-pull ▲ | 40 mm | Red | ZB4BT84 | 54.00 |
|  | Trigger action Turn-to-release ▲ | 30 mm | Red | ZB4BS834 | 112.00 |
| | | 40 mm | Red | ZB4BS844 | 112.00 |
| | | | Red marked "EMO" | ZB4BS84430 | 118.00 |
| | | 60 mm | Red | ZB4BS864 | 112.00 |
|  | Trigger action Key release (No. 455) ▲ | 30 mm | Red | ZB4BS934 | 112.00 |
| | | 40 mm | Red | ZB4BS944 ■ | 112.00 |
| | | 60 mm | Red | ZB4BS964 | 112.00 |
|  | Push-pull | 40 mm | Black | ZB4BT2 | 40.40 |
| | | | Red | ZB4BT4 | |
| | | 60 mm | Black | ZB4BX2 | 46.00 |
| | | | Red | ZB4BX4 | |
|  | Turn-to-release | 30 mm | Black | ZB4BS42 | 78.00 |
| | | | Red | ZB4BS44 | |
| | | 40 mm | Black | ZB4BS52 | 78.00 |
| | | | Red | ZB4BS54 | |
| | | | Red marked "EMO" | ZB4BS5430 | 85.00 |
| | | | Yellow | ZB4BS55 | 78.00 |
| | | | Yellow marked "Robot Stop" | ZB4BS5550 | 85.00 |
| | | 60 mm | Black | ZB4BS62 | 90.00 |
| | | | Red | ZB4BS64 | |
|  | Key release (No. 455) | 30 mm | Black | ZB4BS72 | 112.00 |
| | | | Red | ZB4BS74 | |
| | | 40 mm | Black | ZB4BS12 | 112.00 |
| | | | Red | ZB4BS14 ■ | |
| | | 60 mm | Black | ZB4BS22 | 112.00 |
| | | | Red | ZB4BS24 | |

▲ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator. For emergency stop applications, always use a trigger action push button (per EN/IEC 13850).

■ Other key numbers:
—key no. 421E: add the suffix 12 to the catalog number.
—key no. 458A: add the suffix 10 to the catalog number.
—key no. 520E: add the suffix 14 to the catalog number.
—key no. 3131A: add the suffix 20 to the catalog number.
Example: The catalog number for a head with key No. 421E for a 2 position maintained, lockable selector switch, with key withdrawal from the left-hand position, becomes: ZB4BG212.

### Table 19.74: Circular Legends for Emergency Stop Mushroom Heads (yellow background)

| Diameter | Text | Catalog Number | $ Price |
|---|---|---|---|
| 60 mm | Blank | ZBY9101 | 3.40 |
| | EMERGENCY STOP | ZBY9330 | |
| 90 mm | Blank | ZBY8101 | |
| | EMERGENCY STOP | ZBY8330 | |



ZBY9330

Legends . . . . . pages 19-37 to 19-39
Caps . . . . . page 19-39



© 2012 Schneider Electric
All Rights Reserved



ZB4BD4
Standard Lever



ZB4BJ3
Extended Lever



ZB4BG8

## Table 19.75: Non-Illuminated Selector Switches ■

| Color | Number and Type of Positions | | Standard Lever ▲ Catalog Number | Extended Lever Catalog Number | $ Price |
|---|---|---|---|---|---|
| Black | 2-maintained | | ZB4BD2 | ZB4BJ2 | **24.00** |
| Black | 2-momentary from right to left | | ZB4BD4 | ZB4BJ4 | **29.40** |
| Black | 3-maintained | | ZB4BD3 | ZB4BJ3 | **24.00** |
| Black | 3-momentary to center | | ZB4BD5 | ZB4BJ5 | **29.40** |
| Black | 3-momentary from left to center | | ZB4BD7 | ZB4BJ7 | **29.40** |
| Black | 3-momentary from right to center | | ZB4BD8 | ZB4BJ8 | **29.40** |

▲ For colored lever, add the following code to the end of part number: 01–white, 03–green, 04–red, 05–yellow, 06–blue (Example: ZB4BD**04**).

## Table 19.76: Non-Illuminated Key Switches ■

| Type of Operator | Number and Type of Positions | | Catalog Number | $ Price |
|---|---|---|---|---|
| Key (No. 455) ♦ | 2-maintained | | ZB4BG2 | **90.00** |
| | | | ZB4BG02 | |
| | | | ZB4BG4 | |
| | 2-momentary from right to left | | ZB4BG6 | |
| | 3-maintained | | ZB4BG0 | |
| | | | ZB4BG3 | |
| | | | ZB4BG03 | |
| | | | ZB4BG04 | |
| | | | ZB4BG5 | |
| | | | ZB4BG9 | |
| | | | ZB4BG09 | |
| | 3-momentary from left to center | | ZB4BG1 | **116.00** |
| | | | ZB4BG01 | |
| | 3-momentary to center | | ZB4BG7 | |
| | 3-momentary from right to center | | ZB4BG8 | |
| | | | ZB4BG05 | |
| | | | ZB4BG08 | |

**Note:**
The symbol ⚷ indicates the key withdrawal position(s).

■ See Table 19.77 for contact configurations.
♦ Other key numbers:
—key no. 421E: add the suffix 12 to the catalog number.
—key no. 458A: add the suffix 10 to the catalog number.
—key no. 520E: add the suffix 14 to the catalog number.
—key no. 3131A: add the suffix 20 to the catalog number.

**Example:** For a head with key no. 421E for a 2 position maintained, lockable selector switch, with key withdrawal from the left-hand position, order ZB4BG212.

## Table 19.77: Sequence of Contacts on Selector Switch Bodies

| Unit Type | | Selector Switches | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-position | | | | | | 3-position | | | | | | | | |
| *Note: L=Left, C=Center, R=Right, O=Open, X=Closed* | | 315° | | | 45° | | | 315° | | | 0° | | | 45° | | |
| Operator Plunger Position | Up | | | | | | | | | | | | | | | |
| | Down | | | | | | | | | | | | | | | |
| Contact Block Location | | L | C | R | L | C | R | L | C | R | L | C | R | L | C | R |
| Contacts | N/O | O | O | O | X | X | X | X | X | O | O | O | O | O | X | X |
| | N/C | X | X | X | O | O | O | O | O | X | X | X | X | X | O | O |

Legends . . . . . pages 19-37 to 19-39
Selector Switch Sequence (Table 19.91) . . . . . .page 19-33



© 2012 Schneider Electric
All Rights Reserved



ZB4BD922

### Table 19.78: Potentiometer Operator (with Mounting Collar)

| Shape of Head | Description | Application | Catalog Number | $ Price |
|---|---|---|---|---|
|  | For potentiometer with shaft length 1.73 to 1.97 in. (45 to 50 mm) (potentiometer not included) | For shaft Ø 1/4 in. (6.35 mm) | ZB4BD922 | **142.00** |
| | | For shaft Ø 0.24 in. (6 mm) | ZB4BD912 | |



XD4PA12

### Table 19.79: Joysticks (54 mm, Extended Operating Shaft) ▲

| Description | Contact Operation | Action | Catalog Number | $ Price |
|---|---|---|---|---|
| 2 direction  | 1 step 1 N.O. contact per direction | Maintained | XD4PA12 | **250.00** |
| | | Momentary | XD4PA22 | |
| 4 direction  | 1 step 1 N.O. contact per direction | Maintained | XD4PA14 | **316.00** |
| | | Momentary | XD4PA24 | |

▲ Do not use standard contact blocks ZBE10• (single) or ZBE20• (double).

### Table 19.80: Legends for Joysticks

| Description | For use with | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Legends 30 x 48 mm for customer engraving | 2 direction | Black one side Red reverse | ZBG2201 | **3.40** |
| | | White one side Yellow reverse | ZBG2401 | |
| Legends 48 x 48 mm for customer engraving | 4 direction | Black one side Red reverse | ZBG4201 | |
| | | White one side Yellow reverse | ZBG4401 | |



ZB4BD28

### Table 19.81: Two Position Toggle Switch

| Shape of Head | Color | Type of Positions | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Black | Maintained | ZB4BD28 | **46.60** |
| | Black | Momentary | ZB4BD48 | |



XB4BA8•1

### Table 19.82: Reset Operators, Flush, Adjustable Shaft

| Shape of Head | Travel | | Actuation Distance | | Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | in. | mm | in. | mm | | | |
|  | 0.39 | 10 | 0.24–0.63 | 6–16 | Black | XB4BA821 | **30.10** |
| | | | | | Red | XB4BA841 | |
| | | | | | Blue | XB4BA861 | |
| | | | 0.63–1.02 | 16–26 | Black | XB4BA822 | **30.10** |
| | | | | | Red | XB4BA842 | |
| | | | | | Blue | XB4BA862 | |
|  | 0.55 | 14 | 1.18–5.12 | 30–130 | Black | XB4BA921 | **36.10** |
| | | | | | Red | XB4BA941 | |
| | | | | | Blue | XB4BA961 | |
| | | | 5.12–10.12 | 130–257 | Black | XB4BA922 | **45.10** |
| | | | | | Red | XB4BA942 | |
| | | | | | Blue | XB4BA962 | |

Legends . . . . . pages 19-37 to 19-39





© 2012 Schneider Electric
All Rights Reserved


ZB4BV063


ZB4BV04


ZB4BV043S


ZB4BV6


ZB4BV•


ZB4BV••

### Table 19.83: Pilot Light Heads

| Shape of Head | For Use with Body Comprising Light Module Type | Color of Lens | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Protected LED™ only | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BV013<br>ZB4BV033<br>ZB4BV043<br>ZB4BV053<br>ZB4BV063 | **7.60** |
| | Protected LED only<br>Fresnel (jeweled) lens ▲ | White<br>Green<br>Red<br>Amber<br>Blue | ZB4BV013S<br>ZB4BV033S<br>ZB4BV043S<br>ZB4BV053S<br>ZB4BV063S | **7.60** |
| | For BA9s incandescent bulb, neon or LED only ■ | White<br>Green<br>Red<br>Yellow<br>Blue<br>Clear | ZB4BV01<br>ZB4BV03<br>ZB4BV04<br>ZB4BV05<br>ZB4BV06<br>ZB4BV07 | **7.60** |
| | For BA9s incandescent bulb, neon or LED Fresnel (jeweled) lens ■ | White<br>Green<br>Red<br>Amber<br>Blue<br>Clear | ZB4BV01S<br>ZB4BV03S<br>ZB4BV04S<br>ZB4BV05S<br>ZB4BV06S<br>ZB4BV07S | **7.60** |

▲ For use in bright ambient conditions, for example, in sunlight.

### Table 19.84: Complete Bodies (Mounting Collar + Light Module for BA9s Incandescent Bulb, Neon or LED)

| Description | Light Source | Supply Voltage (V) | Catalog Number | $ Price |
|---|---|---|---|---|
| Screw clamp terminal connections | | | | |
| Direct supply | BA9s bulb 2.4 W max.<br>Not included ■ | ≤250 | ZB4BV6 | **38.60** |
| Direct supply | BA9s incandescent bulb included | 24 v 2 Watt | ZB4BV624 | **49.20** |
| Direct supply | BA9s incandescent bulb included | 120 v 2.4 Watt | ZB4BV6120 | **49.20** |
| **Transformer type<br>1.2 VA, 6 V secondary** | BA9s incandescent bulb included | 110–120 Vac<br>50/60 Hz | ZB4BV3 | **98.00** |
| | | 230–240 Vac<br>50/60 Hz | ZB4BV4 | |
| | | 400–50 Hz | ZB4BV5 | |
| | | 440–480 Vac<br>60 Hz | ZB4BV8 | |
| | | 550–600 Vac<br>60 Hz | ZB4BV9 | |

■ Order bulb separately; see page 19-40. For BA9 LED, see page 19-120.

### Table 19.85: Complete Bodies (Mounting Collar + Light Module with Protected LED™) ♦

| Light Source | Supply Voltage | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|
| Screw clamp terminal connections ★ | | | | |
| Protected LED™ | 12 Vac/Vdc | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BVJ1<br>ZB4BVJ3<br>ZB4BVJ4<br>ZB4BVJ5<br>ZB4BVJ6 | **57.00** |
| | 24 Vac/Vdc | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BVB1<br>ZB4BVB3<br>ZB4BVB4<br>ZB4BVB5<br>ZB4BVB6 | **57.00** |
| | 24–120 Vac/Vdc | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BVBG1<br>ZB4BVBG3<br>ZB4BVBG4<br>ZB4BVBG5<br>ZB4BVBG6 | **57.00** |
| | 110–120 Vac | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BVG1<br>ZB4BVG3<br>ZB4BVG4<br>ZB4BVG5<br>ZB4BVG6 | **57.00** |
| Flashing<br>Protected LED™ | 24 Vac/Vdc | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BV18B1<br>ZB4BV18B3<br>ZB4BV18B4<br>ZB4BV18B5<br>ZB4BV18B6 | **66.00** |
| | 110–120 Vac | White<br>Green<br>Red<br>Yellow<br>Blue | ZB4BV18G1<br>ZB4BV18G3<br>ZB4BV18G4<br>ZB4BV18G5<br>ZB4BV18G6 | **66.00** |

♦ For 240 V LED, replace the last “B” or “G” in the catalog number with an “M”. For example, ZB4BV**B**1 (24 V) becomes ZB4BV**M**1 (240 V).
★ For Quick-Connect version, add “3” to the end of the catalog number Example: ZB4BVJ13 (Quick-Connect size 1 x 1/40" or 2 x 0.110").

Legends . . . . . pages 19-37 to 19-39



© 2012 Schneider Electric
All Rights Reserved

**Table 19.86: Heads for Momentary Illuminated Push Buttons**

| Shape of Head | Type of Push | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED™ light modules** | | | | |
|  ZB4BW333 | Flush | White | ZB4BW313 | **18.60** |
| | | Green | ZB4BW333 | |
| | | Red | ZB4BW343 | |
| | | Yellow | ZB4BW353 | |
| | | Blue | ZB4BW363 | |
| | Flush with clear silicone boot | White | ZB4BW513 | **31.00** |
| | | Green | ZB4BW533 | |
| | | Red | ZB4BW543 | |
| | | Yellow | ZB4BW553 | |
| | | Blue | ZB4BW563 | |
|  ZB4BW563 | Flush for insertion of legend | White | ZB4BA18 | **16.00** |
| | | Green | ZB4BA38 | |
| | | Red | ZB4BA48 | |
| | | Yellow | ZB4BW58 | |
| | | Blue | ZB4BA68 | |
|  ZB4BW113 | Extended | White | ZB4BW113 | **13.00** |
| | | Green | ZB4BW133 | |
| | | Red | ZB4BW143 | |
| | | Yellow | ZB4BW153 | |
| | | Blue | ZB4BW163 | |
| | Mushroom (40 mm) | Clear | ZB4BW413 | **29.40** |
| | | Green | ZB4BW433 | |
| | | Red | ZB4BW443 | |
| | | Yellow | ZB4BW453 | |
| | | Blue | ZB4BW463 | |
| **Only use with light modules for a BA9s incandescent bulb, neon or LED** | | | | |
|  ZB4BW33 | Flush | White | ZB4BW31 | **18.60** |
| | | Green | ZB4BW33 | |
| | | Red | ZB4BW34 | |
| | | Yellow | ZB4BW35 | |
| | | Blue | ZB4BW36 | |
| | | Clear | ZB4BW37 | |
| | Extended | White | ZB4BW11 | **13.00** |
| | | Green | ZB4BW13 | |
| | | Red | ZB4BW14 | |
| | | Yellow | ZB4BW15 | |
| | | Blue | ZB4BW16 | |
| | | Clear | ZB4BW17 | |

**Table 19.87: Heads for Maintained Illuminated Push Buttons**

| Shape of Head | Type of Push | Color of Lens | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
|  ZB4BW14 | Push/Pull Mushroom (40 mm) | Clear | ZB4BW613 | **46.00** |
| | | Green | ZB4BW633 | |
| | | Red | ZB4BW643 | |
| | | Yellow | ZB4BW653 | |
| | | Blue | ZB4BW663 | |
|  ZB4BW643 | | | | |

**Table 19.88: Illuminated Push-On/Push-Off Operators**

| Shape of Head | Type of Push | Color of Lens | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
|  ZB4BH033 | Flush | White | ZB4BH013 | **24.80** |
| | | Green | ZB4BH033 | |
| | | Red | ZB4BH043 | |
| | | Yellow | ZB4BH053 | |
| | | Blue | ZB4BH063 | |
|  ZB4BH63 | Extended | White | ZB4BH13 | **19.60** |
| | | Green | ZB4BH33 | |
| | | Red | ZB4BH43 | |
| | | Yellow | ZB4BH53 | |
| | | Blue | ZB4BH63 | |

Legends . . . . . pages 19-37 to 19-39





© 2012 Schneider Electric
All Rights Reserved


ZB4BW7A3741


ZB4BW7A1721


ZB4BK1343

### Table 19.89: Two Button with Clear Pilot Light, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **No Marking** | | | | | | |
| Protected LED | Two flush | — | Green<br>Red | IP66<br>IP69K | ZB4BW7A3740 | **48.00** |
| | | — | White<br>Black | | ZB4BW7A1720 | |
| Protected LED | One flush<br>One extended | — | Green<br>Red | | ZB4BW7L3740 | |
| **Premarked** | | | | | | |
| Protected LED | Two flush | "I"<br>"O" | Green<br>Red | IP66<br>IP69K | ZB4BW7A3741 | **52.00** |
| | | "I"<br>"O" | White<br>Black | | ZB4BW7A1721 | |
| Protected LED | One flush<br>One extended | "I"<br>"O" | Green<br>Red | | ZB4BW7I3741 | |
| Protected LED | Two flush | "⬆"<br>"⬇" | White<br>Black | | ZB4BW7A1724 | |
| Protected LED | Two flush | "+"<br>"-" | White<br>Black | | ZB4BW7A1715 | |
| **Without caps** | | | | | | |
| | Two flush<br>without caps | — | — | IP66<br>IP69K | ZB4BW7A9 | **35.00** |

### Table 19.90: Illuminated Selector Switches, Standard Lever

| Shape of Head | Number and Type of Positions | | Catalog Number ▼ | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
| | 2-maintained | | ZB4BK12•3 | **35.00** |
| | 2-momentary from right to left | | ZB4BK14•3 | **51.00** |
| | 3-maintained | | ZB4BK13•3 | **35.00** |
| | 3-momentary to center | | ZB4BK15•3 | **51.00** |
| | 3-momentary from right to center | | ZB4BK18•3 | **51.00** |
| | 3-momentary from left to center | | ZB4BK17•3 | **51.00** |

▼ Designate color as follows: 1—white, 3—green, 4—red, 5—yellow, 6—blue.

### Table 19.91: Sequence of Contacts on Illuminated Selector Switch Bodies

| Unit Type | | Selector Switches | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-position | | | | 3-position | | | | | |
| | | 315° | | 45° | | 315° | | 0° | | 45° | |
| Operator Plunger Position | Up | | | | | | | | | | |
| | Down | | | | | | | | | | |
| Contact Block Location | | L | R | L | R | L | R | L | R | L | R |
| Contacts | N/O | O | O | X | X | X | O | O | O | O | X |
| | N/C | X | X | O | O | O | X | X | X | X | O |

Note: L=Left, R=Right, O=Open, X=Closed

| 2 Position Selector Switch | | | 3 Position Selector Switch | | | |
|---|---|---|---|---|---|---|
| | | Contact block guide | | | | Contact block guide |
| O | X | 1 N.O. (left or right) | O | O | X | 1 N.O. (left) |
| X | O | 1 N.C. (left or right) | X | O | X | 2 N.O. wired in **parallel** (side by side) |
| O | X | 1 N.O. | X | O | O | 1 N.O. (right) |
| | | and | O | X | X | 1 N.C. (right) |
| X | O | 1 N.C. | X | X | O | 1 N.C. (left) |
| | | | O | X | O | 2 N.C. wired in **series** (side by side) |

Legends . . . . . pages 19-37 to 19-39
Caps. . . . . page19-39



© 2012 Schneider Electric
All Rights Reserved



ZB4BZ101

### Table 19.92: Contact Blocks (Mounting Collar with Contact Blocks)

| Description | Type of Contact | | Catalog Number | $ Price |
|---|---|---|---|---|
| | N.O. | N.C. | | |
| Screw clamp terminal connections | 1 | — | ZB4BZ101 | **22.00** |
| | — | 1 | ZB4BZ102 | **22.00** |
| | 2 | — | ZB4BZ103 | **38.20** |
| | — | 2 | ZB4BZ104 | **38.20** |
| | 1 | 1 | ZB4BZ105 | **38.20** |
| | 1 | 2 | ZB4BZ141 | **55.00** |

For Quick-Connect version add "3" to the end of the catalog number Example: ZB4BZ1013 (Quick-Connect size 1 x 0.250" or 2 x 0.110").
For Ring Tongue compatible blocks add "9" to the end of the catalog number (Example: ZB4BZ1029).
Electrical components with connection by printed circuit board pins are available. Refer to Catalog **9001CT0001**.
Electrical components with connection by plug-in connector are available. Refer to Catalog **9001CT0001**.



ZB4BW0••3



ZB4BW06•



ZB4BW0•5

### Table 19.93: Complete Bodies (Mounting Collar + Single Contact Block + Light Module with Protected LED™)

| Light Source | Type of Contact △ | | Color | Supply Voltage □ | | $ Price |
|---|---|---|---|---|---|---|
| | N.O. | N.C. | | 24 Vac/Vdc | 110–120 Vac | |
| | | | | Catalog Number | | |
| **Screw clamp terminal connections** | | | | | | |
| Protected LED™ | 1 | — | White | ZB4BW0B11 | ZB4BW0G11 | **73.00** |
| | | | Green | ZB4BW0B31 | ZB4BW0G31 | |
| | | | Red | ZB4BW0B41 | ZB4BW0G41 | |
| | | | Yellow | ZB4BW0B51 | ZB4BW0G51 | |
| | | | Blue | ZB4BW0B61 | ZB4BW0G61 | |
| | — | 1 | White | ZB4BW0B12 | ZB4BW0G12 | **73.00** |
| | | | Green | ZB4BW0B32 | ZB4BW0G32 | |
| | | | Red | ZB4BW0B42 | ZB4BW0G42 | |
| | | | Yellow | ZB4BW0B52 | ZB4BW0G52 | |
| | | | Blue | ZB4BW0B62 | ZB4BW0G62 | |
| | 2 | — | White | ZB4BW0B13 | ZB4BW0G13 | **90.00** |
| | | | Green | ZB4BW0B33 | ZB4BW0G33 | |
| | | | Red | ZB4BW0B43 | ZB4BW0G43 | |
| | | | Yellow | ZB4BW0B53 | ZB4BW0G53 | |
| | | | Blue | ZB4BW0B63 | ZB4BW0G63 | |
| | 1 | 1 | White | ZB4BW0B15 | ZB4BW0G15 | **90.00** |
| | | | Green | ZB4BW0B35 | ZB4BW0G35 | |
| | | | Red | ZB4BW0B45 | ZB4BW0G45 | |
| | | | Yellow | ZB4BW0B55 | ZB4BW0G55 | |
| | | | Blue | ZB4BW0B65 | ZB4BW0G65 | |

△ Can be fitted with additional contact blocks, see page 19-35.
□ For 240V LED, replace the "B" or "G" with "M". (Example: change "ZB4BW0**B**11 (24V) to ZB4BW0**M**11 (240V))

### Table 19.94: Mounting Collar, Contact Block and Light Module (with screw clamp terminal connections) ◊

| Supply | Light Source | Supply Voltage | Type of Contact ◊ | | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | | | N.O. | N.C. | | | |
| **Screw clamp terminal connections** | | | | | | | |
| Direct supply | BA9s 2.4 W max. bulb Not included ◊ | ≤ 250 Vac/Vdc | 1 | — | — | ZB4BW061 | **55.00** |
| | | | — | 1 | — | ZB4BW062 | **55.00** |
| | | | 2 | — | — | ZB4BW063 | **71.00** |
| | | | 1 | 1 | — | ZB4BW065 | **71.00** |
| Transformer type 1.2 VA, 6 V secondary | BA9s incandescent bulb included | 110–120 Vac 50/60 Hz | 1 | — | — | ZB4BW031 | **114.00** |
| | | | 1 | 1 | — | ZB4BW035 | **130.00** |
| | | 230–240 Vac 50/60 Hz | 1 | — | — | ZB4BW041 | **114.00** |
| | | | 1 | 1 | — | ZB4BW045 | **130.00** |
| | | 440–480 Vac 60 Hz | 1 | — | — | ZB4BW081 | **114.00** |
| | | | 1 | 1 | — | ZB4BW085 | **130.00** |

◊ Order bulb separately, see page 19-40.
☆ Can be fitted with additional contact blocks, see page 19-35.





© 2012 Schneider Electric
All Rights Reserved


ZB4BZ009

### Table 19.95: Body/Mounting Collar

| For use with | Catalog Number | $ Price |
|---|---|---|
| Electrical block (contact or light module) | ZB4BZ009 | **5.40** |

### Table 19.96: Add-On Contact Block (with screw clamp terminal connections) ★▼


ZBE101

| Description | | Type of Contact N.O. | Type of Contact N.C. | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Standard **single** contact blocks▲■ | | 1 | — | ZBE101 | **16.40** |
| | | — | 1 | ZBE102 | **16.40** |
| Standard **double** contact blocks▲■ | | 2 | — | ZBE203 | **33.20** |
| | | — | 2 | ZBE204 | **33.20** |
| | | 1 | 1 | ZBE205 | **33.20** |
| Special contact blocks for low power switching ♦ | | 1 | — | ZBE1016 | **32.80** |
| | | — | 1 | ZBE1026 | **32.80** |
| Low-power switching | Dusty environment ♦ (IP5X, 50 µm dust) | 1 | — | ZBE1016P | **32.80** |
| | | — | 1 | ZBE1026P | **32.80** |
| Staggered contacts | Early make N/O | 1 | – | ZBE201 | **16.40** |
| | Late break N/C | — | 1 | ZBE202 | **16.40** |
| | Overlapping N/O+N/C | 1 | 1 | ZB4BZ106 | **32.80** |
| | Staggered N/O+N/O | — | 2 | ZB4BZ107 | **32.80** |

▲ For Quick-Connect version add "3" to the end of the catalog number Example: ZBE1013 (Quick-Connect size 1 x 0.250" or 2 x 0.110").
■ For Ring Tongue compatible blocks add "9" to the end of the catalog number (Example: ZBE1029).
♦ Cannot stack additional contact blocks onto these blocks.


ZBE203

### Table 19.97: Light Modules (with screw clamp terminal connections) ★▼


ZBVB•

| Description | Supply Voltage | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|
| Protected LED | 12 Vac/Vdc | White | ZBVJ1 | **52.00** |
| | | Green | ZBVJ3 | |
| | | Red | ZBVJ4 | |
| | | Yellow | ZBVJ5 | |
| | | Blue | ZBVJ6 | |
| | 24 Vac/Vdc | White | ZBVB1 | **52.00** |
| | | Green | ZBVB3 | |
| | | Red | ZBVB4 | |
| | | Yellow | ZBVB5 | |
| | | Blue | ZBVB6 | |
| | 110–120 Vac | White | ZBVG1 | **52.00** |
| | | Green | ZBVG3 | |
| | | Red | ZBVG4 | |
| | | Yellow | ZBVG5 | |
| | | Blue | ZBVG6 | |
| | 24–120 Vac/Vdc | White | ZBVBG1 | **52.00** |
| | | Green | ZBVBG3 | |
| | | Red | ZBVBG4 | |
| | | Yellow | ZBVBG5 | |
| | | Blue | ZBVBG6 | |
| | 230–240 Vac | White | ZBVM1 | **52.00** |
| | | Green | ZBVM3 | |
| | | Red | ZBVM4 | |
| | | Yellow | ZBVM5 | |
| | | Blue | ZBVM6 | |
| Direct supply for BA9s<br>2.4 W max. bulb<br>Not included △ | ≤ 250 Vac/Vdc | — | ZBV6 | **33.20** |

★ Electrical components with connection by printed circuit board pins are available. Refer to Catalog **9001CT0001** for more details.
▼ Electrical components with connection by plug-in connector are available. Refer to Catalog **9001CT0001** for more details.
△ See page 19-40 for bulb information.



© 2012 Schneider Electric
All Rights Reserved



ZB4BZ009



ZBE1015



ZB4BZ1015

**Table 19.98: Spring Terminal Products for XB4 22 mm Push Buttons**

### Body/Mounting Collar

| For use with | Catalog Number | $ Price |
|---|---|---|
| Contact block or light module | ZB4BZ009 | **5.40** |

### Contact Blocks ▲

| Spring Terminal Connections, Contacts for Standard Applications | | | | | |
|---|---|---|---|---|---|
| Description | Type of contact | N/O | N/C | Catalog Number | $ Price |
| Contact blocks | Single | 1 | – | ZBE1015 | **18.00** |
| | | – | 1 | ZBE1025 | **18.00** |
| | Single with body/mounting collar | 1 | – | ZB4BZ1015 | **24.00** |
| | | – | 1 | ZB4BZ1025 | **24.00** |
| | | 2 | – | ZB4BZ1035 | **42.00** |
| | | – | 2 | ZB4BZ1045 | **42.00** |
| | | 1 | 1 | ZB4BZ1055 | **42.00** |

### Light Modules ▲

| Spring Terminal Connections | | | | |
|---|---|---|---|---|
| Description | Supply voltage | Color of light source | Catalog Number | $ Price |
| **Integral LED** (to combine with heads for integral LED) Protected LED | 12 Vac/Vdc | White | ZBVJ15 | **57.00** |
| | | Green | ZBVJ35 | **57.00** |
| | | Red | ZBVJ45 | **57.00** |
| | | Orange | ZBVJ55 | **57.00** |
| | | Blue | ZBVJ65 | **57.00** |
| | 24 Vac/Vdc | White | ZBVB15 | **57.00** |
| | | Green | ZBVB35 | **57.00** |
| | | Red | ZBVB45 | **57.00** |
| | | Orange | ZBVB55 | **57.00** |
| | | Blue | ZBVB65 | **57.00** |
| | 110–120 Vac | White | ZBVG15 | **57.00** |
| | | Green | ZBVG35 | **57.00** |
| | | Red | ZBVG45 | **57.00** |
| | | Orange | ZBVG55 | **57.00** |
| | | Blue | ZBVG65 | **57.00** |
| | 230–240 Vac | White | ZBVM15 | **57.00** |
| | | Green | ZBVM35 | **57.00** |
| | | Red | ZBVM45 | **57.00** |
| | | Orange | ZBVM55 | **57.00** |
| | | Blue | ZBVM65 | **57.00** |

▲ Additional blocks **cannot** be attached to the back of these contact blocks or light modules. However, spring terminal contact blocks can be mounted behind screw terminal contact blocks.





© 2012 Schneider Electric
All Rights Reserved

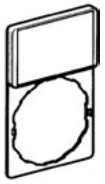

ZBZ32


ZBY•101

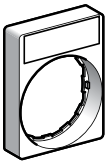


ZBY2303

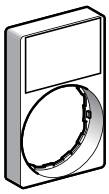

ZBZ33


ZBY610•


ZBZ4


ZBY•H101


ZBZ5


ZBY6H10•

### Table 19.99: Standard (30 x 40 mm) Legend Holders for 8 x 27 mm Legends

| Description | Legend | | Catalog Number | $ Price |
|---|---|---|---|---|
| | Color | Text | | |
| **Without legend ▲** | — | — | ZBZ32 | **2.00** |
| **With blank legend (for engraving)** | Black or red background | — | ZBY2101 | **3.40** |
| | White or yellow background | — | ZBY4101 | |
| **Custom Legend (Specify Engraving) 2 lines of 11 characters (including spaces) maximum per line** | Black background | White | ZBY2002 | **14.20** |
| | Red background | White | ZBY2004 | |
| | White background | Black | ZBY4001 | |
| | Yellow background | Black | ZBY4005 | |
| **With legend marked with international language** | Black or red background ■ | O (black background) | ZBY2146 | **3.40** |
| | | O (red background) | ZBY2931 | |
| | | I | ZBY2147 | |
| | | II | ZBY2148 | |
| | | O-I | ZBY2178 | |
| | | I-II | ZBY2179 | |
| | | I-O-II | ZBY2186 | |
| **With legend marked with English language** | Black or red background■ | AUTO | ZBY2115 | **3.40** |
| | | AUTO-HAND | ZBY2364 | |
| | | AUTO-O-HAND | ZBY2385 | |
| | | CLOSE | ZBY2314 | |
| | | DOWN | ZBY2308 | |
| | | EMERGENCY STOP | ZBY2330 | |
| | | FAST | ZBY2328 | |
| | | FORWARD | ZBY2305 | |
| | | FOR-REV | ZBY2371 | |
| | | HAND | ZBY2316 | |
| | | HAND-OFF-AUTO | ZBY2387 | |
| | | INCH | ZBY2321 | |
| | | JOG | ZBY2382 | |
| | | LEFT | ZBY2310 | |
| | | OFF | ZBY2312 | |
| | | OFF-ON | ZBY2367 | |
| | | ON | ZBY2311 | |
| | | OPEN | ZBY2313 | |
| | | POWER ON | ZBY2326 | |
| | | RESET (red background) | ZBY2323 | |
| | | RESET (black background) | ZBY2322 | |
| | | REVERSE | ZBY2306 | |
| | | RIGHT | ZBY2309 | |
| | | RUN | ZBY2334 | |
| | | SLOW | ZBY2327 | |
| | | START | ZBY2303 | |
| | | STOP | ZBY2304 | |
| | | STOP-START | ZBY2366 | |
| | | UP | ZBY2307 | |

▲ For marked legends, see page 19-38.
■ Start functions: white letters on black background. Stop functions: white letters on red background (unless otherwise specified above).

### Table 19.100: Large (30 x 50 mm) Legend Holders for 18 x 27 mm Legends

| Description ♦ | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Without legend insert** | — | ZBZ33 | **2.00** |
| **With blank legend insert** | Black or red background | ZBY6101 | **3.40** |
| | White or yellow background | ZBY6102 | |

### Table 19.101: 30 x 40 mm legend holder (flush mounting with bezel) for 8 x 27 mm legends

| Description ♦ | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Without legend** | — | ZBZ34 | **2.00** |
| **With blank legend** | Black or red background | ZBY2H101 | **3.40** |
| | White or yellow background | ZBY4H101 | **3.40** |

### Table 19.102: 30 x 50 mm legend holder (flush mounting with bezel) for 18 x 27 mm legends

| Description ♦ | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Without legend** | — | ZBZ35 | **4.20** |
| **With blank legend** | Black or red background | ZBY6H101 | **5.40** |
| | White or yellow background | ZBY6H102 | **5.40** |

♦ For custom Legends, see page 19-38.



© 2012 Schneider Electric
All Rights Reserved



ZBY02178



ZBY02303

**Table 19.103: Marked Legends for 8 x 27 mm (for 30 x 40 mm legend holders ZBZ32)**

| Color | Marking | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Black or red background ▲ | International | O (black background) | ZBY02146 | 1.70 |
| | | O (red background) | ZBY02931 | |
| | | I | ZBY02147 | |
| | | II | ZBY02148 | |
| | | O-I | ZBY02178 | |
| | | I-II | ZBY02179 | |
| | | I-O-II | ZBY02186 | |
| | English | AUTO | ZBY02115 | 1.70 |
| | | AUTO-HAND | ZBY02364 | |
| | | AUTO-O-HAND | ZBY02385 | |
| | | CLOSE | ZBY02314 | |
| | | DOWN | ZBY02308 | |
| | | EMERGENCY STOP | ZBY02330 | |
| | | FAST | ZBY02328 | |
| | | FORWARD | ZBY02305 | |
| | | FOR-REV | ZBY02371 | |
| | | HAND | ZBY02316 | |
| | | HAND-OFF-AUTO | ZBY02387 | |
| | | INCH | ZBY02321 | |
| | | JOG | ZBY02382 | |
| | | LEFT | ZBY02310 | |
| | | OFF | ZBY02312 | |
| | | OFF-ON | ZBY02367 | |
| | | ON | ZBY02311 | |
| | | OPEN | ZBY02313 | |
| | | POWER ON | ZBY02326 | |
| | | RESET (red background) | ZBY02323 | |
| | | RESET (black background) | ZBY02322 | |
| | | REVERSE | ZBY02306 | |
| | | RIGHT | ZBY02309 | |
| | | RUN | ZBY02334 | |
| | | SLOW | ZBY02327 | |
| | | START | ZBY02303 | |
| | | STOP | ZBY02304 | |
| | | STOP-START | ZBY02366 | |
| | | UP | ZBY02307 | |

▲ Start functions: white letters on black background. Stop functions: white letters on red background (unless otherwise specified above).

**Table 19.104: Legends for Customer Engraving (inserts only)**

| Description | For use with | Color | Text Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 8 x 27 mm | 30 x 40 mm legend holders | Black or red background | White | ZBY0101 | 1.70 |
| | | White or yellow background | Black | ZBY0102 | |
| 18 x 27 mm | 30 x 50 mm legend holders | Black or red background | White | ZBY5101 | |
| | | White or yellow background | Black | ZBY5102 | |

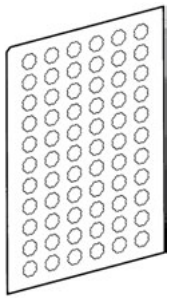
**Table 19.105: Legends for Factory Engraving (inserts only)**

| Description | For use with | Color | Text Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 8 x 27 mm Custom Legend/Insert Only (Specify Engraving) 2 lines of 11 characters (including spaces) maximum per line (**Example:** ZBY01002 marked "Robot") | 30 x 40 mm legend holders | Black background | White | ZBY01002 | 12.20 |
| | | Red background | White | ZBY01004 | |
| | | White background | Black | ZBY01001 | |
| | | Yellow background | Black | ZBY01005 | |
| 18 x 27 mm Custom Legend/Insert Only (Specify Engraving) 3 lines of 11 characters (including spaces) maximum per line (**Example:** ZBY05002 marked "Robot") | 30 x 50 mm legend holders | Black background | White | ZBY05002 | 12.20 |
| | | Red background | White | ZBY05004 | |
| | | White background | Black | ZBY05001 | |
| | | Yellow background | Black | ZBY05005 | |





© 2012 Schneider Electric
All Rights Reserved



ZBY1101



ZBA•



ZBL•




ZBA•33

### Table 19.106: Sheets of Legends for Push Buttons, Switches, and Pilot Lights

| Description | Marking | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Sheets of 66 circular peel-off transparent self-adhesive legends | Blank | | ZBY1101 | 6.20 |
| | International | O | ZBY1146 | 10.40 |
| | | I | ZBY1147 | |
| | | II | ZBY1148 | |
| | | III | ZBY1149 | |
| | | STOP | ZBY1304 | |
| | | → | ZBY1912 | |
| | English | HAND | ZBY1316 | 10.40 |
| | | OFF | ZBY1312 | |
| | | ON | ZBY1311 | |
| | | START | ZBY1303 | |
| SiS Label Software | Legend Design Software: English, French, German, Spanish, Italian | | XBY2U | 104.00 |

### Table 19.107: Push Button Caps—Unmarked

| For use with | Type of Push | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| ZB4BA0 push button heads | Flush | White | ZBA1 | 2.00 |
| | | Black | ZBA2 | |
| | | Green | ZBA3 | |
| | | Red | ZBA4 | |
| | | Yellow | ZBA5 | |
| | | Blue | ZBA6 | |
| | | 6 colors ▲ | ZBA9 | 4.20 |
| | Extended | White | ZBL1 | 2.00 |
| | | Black | ZBL2 | |
| | | Green | ZBL3 | |
| | | Red | ZBL4 | |
| | | Yellow | ZBL5 | |
| | | Blue | ZBL6 | |
| | | 6 colors ▲ | ZBL9 | 4.20 |

▲ Set of 6 different colored caps: white, black, green, red, yellow, blue.

### Table 19.108: Push Button Caps—Marked

| For use with | Type of Push | Marking | | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | Text ■ | Color | | | |
| **ZB4BA0 push button heads** | Flush | | White | Green | ZBA331 | 4.20 |
| | | | Black | White | ZBA131 | |
| | | | White | Green | ZBA333 | |
| | | | Black | White | ZBA133 | |
| | | | White | Green | ZBA341 | |
| | | | Black | White | ZBA141 | |
| | | | Black | White | ZBA343 | |
| | | | White | Black | ZBA344 | |
| | | ♦ ⓣ | White | Green | ZBA345 | |
| | | ♦ ⓣ | White | Black | ZBA245 | |
| | | ◇ | White | Green | ZBA346 | |
| | | ↑ | Black | White | ZBA334 ★ | |
| | | | White | Black | ZBA335 ★ | |
| | | | White | Red | ZBA432 | |
| | | | | Black | ZBA232 | |
| | | | White | Red | ZBA434 | |
| | | | | Black | ZBA234 | |
| | | | White | Red | ZBA435 | |
| | | | | Black | ZBA235 | |
| | | | White | Blue | ZBA639 | |

■ Start functions: white letters on black background. Stop functions: white letters on red background (unless otherwise specified).
♦ Double injection molded marking.
★ Cap supplied not clipped-in, allowing orientation of arrow in any one of 4 directions: ↑, ↓, ← or →



© 2012 Schneider Electric
All Rights Reserved


ZBA7235


ZBA7331

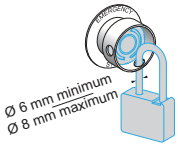

ZBA7432


ZBA79

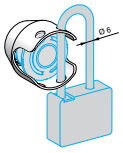
## Table 19.109: Multiple-head and XB5R Push Button Caps▲

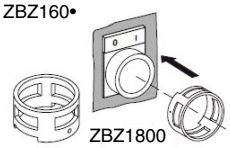
| For use with | Type of Push | Marking | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Double push button heads<br>Tripe push button heads<br>ZB4RZA0<br>ZB5RZA0 | Flush | Unmarked | White | ZBA71 | 4.00 |
| | | "I" black | | ZBA7131 | 5.30 |
| | | "➡" black | | ZBA7134 | 5.30 |
| | | "+" black | | ZBA7138 | 5.30 |
| | | Unmarked | Black | ZBA72 | 4.00 |
| | | "O" white | | ZBA7232 | 5.30 |
| | | "+" white | | ZBA7233 | 5.30 |
| | | "➡" white | | ZBA7235 | 5.30 |
| | | "I" white | | ZBA7237 | 5.30 |
| | | Unmarked | Green | ZBA73 | 4.00 |
| | | "I" white | | ZBA7331 | 5.30 |
| | | "+" white | | ZBA7333 | 5.30 |
| | | "⬆" white | | ZBA7335 | 5.30 |
| | | "II" white | | ZBA7336 | 5.30 |
| | | Unmarked | Red | ZBA74 | 4.00 |
| | | "O" white | | ZBA7432 | 5.30 |
| | | Unmarked | Yellow | ZBA75 | 4.00 |
| | | Unmarked | Blue | ZBA76 | 4.00 |
| | | Assorted | 10 colors■ | ZBA79 | 3.00 |

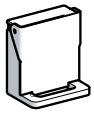
▲ Sold in lots of 10.
■ Set of 10 different caps: white, black, green, red, yellow, blue, white "I" on green background, black "I" on white background, white "O" on red background, white "O" on black background.

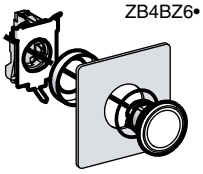


ZBZ3605


ZBZ160•


ZBZ1800


ZB4BZ6•


ZB4BZ011

## Table 19.110: Accessories

| Description | Application | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Padlocking kit<br>Conforming to EN/ISO 13850 ▼<br>(See legends below) | For Emergency Stop function only, with the following Ø 40 trigger-action push buttons:<br>XB4BT8•<br>XB4BS8•<br>XB4BS9•<br>ZB4BT8•<br>ZB4BS8•<br>ZB4BS9• | Yellow | ZBZ3605 | 108.00 |
| Metal guards<br>Padlockable | For Emergency Stop function only with the following Ø 40 mm trigger-action push buttons:<br>XB4BT8•<br>XB4BS8•<br>XB4BS9•<br>ZB4BT8• (except ZB5AT8643M)<br>ZB4BS8•<br>ZB4BS9• | Chromium Plated | ZBZ1600 | 108.00 |
| | | Black | ZBZ1602 | |
| | | Red | ZBZ1604 | |
| | | Yellow | ZBZ1605 | |
| | | Blue | ZBZ1606 | |
| Metal guard | For XB4 illuminated push buttons | Chromium-plated | ZBZ1800 | 108.00 |
| Plastic guards★ | Round Guard for ZB4BS5430, 2.5" dia EMO Mushroom Operators | Yellow | ZB4BZ1905 | 25.80 |
| | Narrow Flange Guard for ZB4BS5430 or ZB4BS84430 EMO Mushroom Operators△ | Yellow | ZB4BZ2005 | |
| | Trigger Action Guard for ZB4BS84430, 3" dia EMO Mushroom Operators | Yellow | ZB4BZ2105 | |
| Padlockable flaps | For push buttons | Black | ZB4BZ62 | 32.80 |
| | | Red | ZB4BZ64 | |
| Mounting kit | For push buttons ZB4B• with flush mounting bezel head<br>For 30 mm mounting hole. Minimum quantity 10 | | ZB4BZ011 | 16.60 |
| Metal blanking plug, round chromium plated ♦ | For Ø 22 mm control and signalling units | | ZB4SZ3 | 11.00 |
| Plastic blanking plug, round black with mounting nut | For Ø 22 mm control and signalling units | | ZB5SZ3 | 11.00 |

| Description | Marking | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Ø 60 mm Legend<br>for padlocking device ZBZ3605 | Without | Yellow | ZBY9101T | 3.40 |
| | EMERGENCY STOP | Yellow | ZBY9330T | |

♦ Requires a ZB4BZ009 body/mounting collar for mounting, see page 19-35.
★ For additional information, refer to publication **9001DB0601R6/06**.
▼ Standard circular legends are not compatible with this product. Use special legends ZBY• •T listed above.
△ Maximum panel thickness is 2.5 mm.


DL1CE•••


DL1CF•••


XBFX13


ZBZ8

## Table 19.111: BA9s Bulbs and Associated Accessories

| Description | Characteristics | Catalog Number | $ Price |
|---|---|---|---|
| Replacement bulbs<br>(Type BA9s)<br>Incandescent | 6 V, 1.2 W | DL1CB006 | 11.00 |
| | 12 V, 2 W | DL1CE012 | |
| | 24 V, 2 W | DL1CE024 | |
| | 120–130 V, 2.4 W | DL1CE130 | |
| Neon bulbs | 120–130 V, 1.8 mA | DL1CF110 | 15.20 |
| | 230–240 V, 1,8 mA | DL1CF220 | |
| Bulb extractor | — | XBFX13 | 11.00 |
| Lens cap tightening tool | Illuminated push buttons with flush push | ZBZ8 | 6.20 |
| Power driver bits for mounting and wiring (package of 5) | Cross headed screw (POZIDRIV type 1) | ZB4BZ905 | 52.00 |
| Mounting Adapter | For mounting 22 mm push button in 30 mm KO | ZBZ41 | 10.40 |





© 2012 Schneider Electric
All Rights Reserved


ZBZ•8


ZBDD2


ZBG455


ZBG455P


ZBP0


ZBA709


ZBV01•3


ZBV01•

### Table 19.112: Bellows Seals for Harsh Environments (IP 69K) ▲

| Description | For use with | Color & Material | Sold in Lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Bellows seals for harsh environments (Humidity, dust, high-pressure cleaning) | Any Harmony XB4 metal, mushroom head push button ★, Ø 40 mm or Ø 60 mm (except ZB4BR•16) | Red Silicone | 2 | ZBZ48 | 12.40 |
| | | Black EPDM | 2 | ZBZ28 | |
| | | Yellow EPDM | 2 | ZBZ58 | |

▲ Only when mounted on control stations. Use special legends ZBY• •T.

### Table 19.113: Boot for Standard Selector Switch Handle

| Description | For use with | Catalog Number | $ Price |
|---|---|---|---|
| Boot for standard handle | ZB4BD•• | ZBD D2 | 12.40 |

### Table 19.114: Replacement Keys

| Description | Key Number | Catalog Number | $ Price |
|---|---|---|---|
| Set of 2 keys | 455 | ZBG455 | 11.00 |
| | 421E | ZBG421E | |
| | 458A | ZBG458A | |
| | 520E | ZBG520E | |
| | 3131A | ZBG3131A | |
| Set of 2 keys, One of which is supplied booted (rubber boot) | 455 | ZBG455P | 23.40 |
| | 421E | ZBG421EP | |
| | 458A | ZBG458AP | |
| | 520E | ZBG520EP | |
| | 3131A | ZBG3131AP | |

### Table 19.115: Clear Boots

| Description | For use with | Material | Catalog Number | $ Price |
|---|---|---|---|---|
| Single boots | Booted push buttons with circular head | Silicone | ZBP0 | 12.40 |
| | Booted push buttons with circular head used in food industry applications | | ZBP0A | 12.40 |
| Double boots | Double-headed push buttons, two flush | | ZBA708 | 10.80 |
| | Double-headed push buttons, one flush + one projecting | | ZBA709 | 10.80 |
| Triple boot | Triple-headed push buttons, two flush + one projecting | | ZBA710 | 10.80 |

### Table 19.116: Colored boots

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Single boot (can be replaced without dismantling the head) | Black | ZB2 BP012 | 13.00 |
| | Green | ZB2 BP013 | |
| | Red | ZB2 BP014 | |
| | Yellow | ZB2 BP015 | |
| | Blue | ZB2 BP016 | |

### Table 19.117: Lens Caps

| For use with | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Lens caps for Protected LED™ light modules** | | | |
| Pilot lights | White | ZBV0113 | 5.40 |
| | Green | ZBV0133 | |
| | Red | ZBV0143 | |
| | Yellow | ZBV0153 | |
| | Blue | ZBV0163 | |
| Illuminated push buttons with flush push | White | ZBW9113 | 5.40 |
| | Green | ZBW9133 | |
| | Red | ZBW9143 | |
| | Yellow | ZBW9153 | |
| | Blue | ZBW9163 | |
| Illuminated push buttons with extended push | White | ZBW9313 | 5.40 |
| | Green | ZBW9333 | |
| | Red | ZBW9343 | |
| | Yellow | ZBW9353 | |
| | Blue | ZBW9363 | |
| **Lens caps for BA9 light modules** | | | |
| Pilot lights | White | ZBV011 | 5.40 |
| | Green | ZBV013 | |
| | Red | ZBV014 | |
| | Yellow | ZBV015 | |
| | Blue | ZBV016 | |
| | Clear | ZBV017 | |
| Illuminated push buttons with flush push | White | ZBW911 | 5.40 |
| | Green | ZBW913 | |
| | Red | ZBW914 | |
| | Yellow | ZBW915 | |
| | Blue | ZBW916 | |
| | Clear | ZBW917 | |
| Illuminated push buttons with extended push | White | ZBW931 | 5.40 |
| | Green | ZBW933 | |
| | Red | ZBW934 | |
| | Yellow | ZBW935 | |
| | Blue | ZBW936 | |
| | Clear | ZBW937 | |



© 2012 Schneider Electric
All Rights Reserved


XB5AA31


XB5AA4322


XB5AP51


XB5AL42


XB5AC21


XB5AL73415


XB5AW73731●5



XB5AA731327

Table 19.118: Non-Illuminated Push Buttons, Momentary (screw clamp terminal connections)

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Cap Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| | Flush | 1 | — | — | Black | XB5AA21 | (ZB5AZ101 + ZB5AA2) | 38.50 |
| | | | | | Green | XB5AA31 | (ZB5AZ101 + ZB5AA3) | |
| | | | | | Yellow | XB5AA51 | (ZB5AZ101 + ZB5AA5) | |
| | | | | | Blue | XB5AA61 | (ZB5AZ101 + ZB5AA6) | |
| | | — | 1 | — | Red | XB5AA42 | (ZB5AZ102 + ZB5AA4) | 38.50 |
| | | 1 | 1 | — | Black | XB5AA25 | (ZB5AZ105 + ZB5AA2) | 56.00 |
| | | | | | Green | XB5AA35 | (ZB5AZ105 + ZB5AA3) | |
| | | | | | Red | XB5AA45 | (ZB5AZ105 + ZB5AA4) | |
| | | | | | Yellow | XB5AA55 | (ZB5AZ105 + ZB5AA5) | |
| | | | | | Blue | XB5AA65 | (ZB5AZ105 + ZB5AA6) | |
| | Flush | 1 | — | "I" (white) | Green | XB5AA3311 | (ZB5AZ101 + ZB5AA331) | 44.70 |
| | Flush | — | 1 | "O" (white) | Red | XB5AA4322 | (ZB5AZ102 + ZB5AA432) | 44.70 |
| | Flush with clear silicone boot (color of pusher unobscured) | 1 | — | — | Black | XB5AP21 | (ZB5AZ101 + ZB5AP2) | 53.00 |
| | | | | | Green | XB5AP31 | (ZB5AZ101 + ZB5AP3) | |
| | | | | | Yellow | XB5AP51 | (ZB5AZ101 + ZB5AP5) | |
| | | | | | Blue | XB5AP61 | (ZB5AZ101 + ZB5AP6) | |
| | | — | 1 | — | Red | XB5AP42 | (ZB5AZ102 + ZB5AP4) | 53.00 |
| | Extended | — | 1 | — | Red | XB5AL42 | (ZB5AZ102 + ZB5AL4) | 38.50 |
| | | 1 | 1 | — | Red | XB5AL45 | (ZB5AZ105 + ZB5AL4) | 38.50 |
| | Mushroom head Ø 40 mm | 1 | — | — | Black | XB5AC21 | (ZB5AZ101 + ZB5AC2) | 56.00 |

Table 19.119: Two Button Push Buttons, Momentary (screw clamp terminal connections)

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Degree of Protection | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| | One flush green push* One extended red push** | 1 | 1 | *"I" (white) ***"O" (white) | IP66 IP69K | XB5AL73415 | (ZB5AZ105 + ZB5AL7341) | 80.75 |

Table 19.120: Two Button Push Buttons, Momentary + one white central pilot light (screw clamp terminal connections)

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Marking | Degree of Protection | Pilot Light Voltage | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|
| Protected LED | One flush green push* One extended red push** One white central pilot light block | 1 | 1 | *"I" (white) ***"O" (white) | IP66 IP69K | 24 | XB5AW73731B5 | 123.50 |
| | | | | | | 120 | XB5AW73731G5 | |
| | | | | | | 240 | XB5AW73731M5 | |

Table 19.121: Three Button Push Buttons, Momentary (screw clamp terminal connections)

| Shape of Head | Type of Push | Type of Contact N.O. | Type of Contact N.C. | Degree of Protection | Marking and Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | Two flush pushes + one central projecting red push* | 2 | 1 | IP66 IP69K | White "I" on green background White "II" on green background *White "Stop" on red background | XB5AA731327 | 114.00 |
| | | | | | Black "➡" on white background White "⇦" on black background *White "Stop" on red background | XB5AA711237 | |

Legends . . . . . pages 19-58 to 19-60
Caps . . . . . page 19-39





© 2012 Schneider Electric
All Rights Reserved


XB5AS9445


XB5AT42


XB5AS542

Table 19.122: Non-Illuminated Emergency Stop and Emergency Off Mushroom Head Push Buttons, Ø 40 mm (Red) (screw clamp terminal connections)

| Shape of Head | Type of Push | Type of Contact | | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | |
| | Trigger action push-pull▲ | 1 | 1 | XB5AT845 | (ZB5AZ105 + ZB5AT84) | 101.00 |
| | Trigger action turn-to-release▲ | 1 | 1 | XB5AS8445 | (ZB5AZ105 + ZB5AS844) | 165.00 |
| | | — | 2 | XB5AS8444 | (ZB5AZ104 + ZB5AS844) | |
| | Trigger action Key release (No. 455)▲ | 1 | 1 | XB5AS9445 | (ZB5AZ105+ ZB5AS944) | 165.00 |
| | Push-pull | — | 1 | XB5AT42 | (ZB5AZ102 + ZB5AT4) | 68.00 |
| | Turn-to-release | — | 1 | XB5AS542 | (ZB5AZ102 + ZB5AS54) | 110.00 |
| | Key release (No. 455) | — | 1 | XB5AS142 | (ZB5AZ102 + ZB5AS14) | 147.00 |

▲ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator. For emergency stop applications, always use a trigger action push button (per EN/IEC 13850).


XB5AD33


XB5AJ33


XB5AG33

Table 19.123: Non-Illuminated Selector Switches and Key Switches (screw clamp terminal connections) ■

| Shape of Head | Type of Operator | Type of Contact | | Number and Type of Positions | | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | | | |
| | Standard lever, black | 1 | — | 2-maintained | | XB5AD21 | (ZB5AZ101 + ZB5AD2) | 51.00 |
| | | 1 | 1 | 2-maintained | | XB5AD25 | (ZB5AZ105 + ZB5AD2) | 68.00 |
| | | 2 | — | 3-maintained | | XB5AD33 | (ZB5AZ103 + ZB5AD3) | 68.00 |
| | | | | 3-momentary to center | | XB5AD53 | (ZB5AZ103 + ZB5AD5) | 75.00 |
| | Extended lever, black | 1 | — | 2-maintained | | XB5AJ21 | (ZB5AZ101 + ZB5AJ2) | 51.00 |
| | | 2 | — | 3-maintained | | XB5AJ33 | (ZB5AZ103 + ZB5AJ3) | 68.00 |
| | | | | 3-momentary to center | | XB5AJ53 | (ZB5AZ103 + ZB5AJ5) | 75.00 |
| | Key (No. 455) | 1 | — | 2-maintained | | XB5AG21 | (ZB5AZ101 + ZB5AG2) | 123.00 |
| | | | | | | XB5AG41 | (ZB5AZ101 + ZB5AG4) | 123.00 |
| | | | | 2-momentary to left | | XB5AG61 | (ZB5AZ101 + ZB5AG6) | 123.00 |
| | | 2 | — | 3-maintained | | XB5AG03 | (ZB5AZ103 + ZB5AG0) | 141.00 |
| | | | | | | XB5AG33 | (ZB5AZ103 + ZB5AG3) | 141.00 |

■ See 19-49 for contact configurations.
Note: The symbol ⚷ indicates key withdrawal position(s)

Legends . . . . . pages 19-58 to 19-60



© 2012 Schneider Electric
All Rights Reserved



XB5AVB1



XB5AV63



XB5AV34



XB5AW31B5



XB5AW3465



XB5AW3335

**Table 19.124: Pilot Lights with Protected LED™ (screw clamp terminal connections) ▲**

| Shape of Head | Supply Voltage | Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|
| Protected LED | 24 Vac/Vdc | White | XB5AVB1 | (ZB5AVB1 + ZB5AV013) | 72.00 |
| | | Green | XB5AVB3 | (ZB5AVB3 + ZB5AV033) | |
| | | Red | XB5AVB4 | (ZB5AVB4 + ZB5AV043) | |
| | | Yellow | XB5AVB5 | (ZB5AVB5 + ZB5AV053) | |
| | | Blue | XB5AVB6 | (ZB5AVB6 + ZB5AV063) | |
| | 110–120 Vac | White | XB5AVG1 | (ZB5AVG1 + ZB5AV013) | 72.00 |
| | | Green | XB5AVG3 | (ZB5AVG3 + ZB5AV033) | |
| | | Red | XB5AVG4 | (ZB5AVG4 + ZB5AV043) | |
| | | Yellow | XB5AVG5 | (ZB5AVG5 + ZB5AV053) | |
| | | Blue | XB5AVG6 | (ZB5AVG6 + ZB5AV063) | |

**Table 19.125: Pilot Lights for BA9s Bulb (screw clamp terminal connections)**

| Shape of Head | Supply Voltage | Color | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|
| **Direct supply, for BA9s (incandescent, LED, neon) V ≤ 250 V, 2.4 W bulb (bulb not included) ■** | | | | | |
| | ≤ 250 Vac/Vdc | White | XB5AV61 | (ZB5AV6 + ZB5AV01) | 51.00 |
| | | Green | XB5AV63 | (ZB5AV6 + ZB5AV03) | |
| | | Red | XB5AV64 | (ZB5AV6 + ZB5AV04) | |
| | | Yellow | XB5AV65 | (ZB5AV6 + ZB5AV05) | |
| **Transformer type with 1.2 VA, 6 V secondary. BA9s incandescent bulb included** | | | | | |
| | 110–120 Vac 50/60 Hz | White | XB5AV31 | (ZB5AV3 + ZB5AV01) | 117.00 |
| | | Green | XB5AV33 | (ZB5AV3 + ZB5AV03) | |
| | | Red | XB5AV34 | (ZB5AV3 + ZB5AV04) | |
| | | Yellow | XB5AV35 | (ZB5AV3 + ZB5AV05) | |

**Table 19.126: Illuminated Push Buttons, Momentary (screw clamp terminal connections) ▲**

| Shape of Head | Description | Type of Contact N.O. | Type of Contact N.C. | Supply Voltage | Color of Push | Catalog Number | Components | $ Price |
|---|---|---|---|---|---|---|---|---|
| **Flush** | | | | | | | | |
| Protected LED | | 1 | 1 | 24 Vac/Vdc | White | XB5AW31B5 | (ZB5AW0B15 + ZB5AW313) | 119.00 |
| | | | | | Green | XB5AW33B5 | (ZB5AW0B35 + ZB5AW333) | |
| | | | | | Red | XB5AW34B5 | (ZB5AW0B45 + ZB5AW343) | |
| | | | | | Yellow | XB5AW35B5 | (ZB5AW0B55 + ZB5AW353) | |
| | | | | | Blue | XB5AW36B5 | (ZB5AW0B65 + ZB5AW363) | |
| | | | | 110–120 Vac | White | XB5AW31G5 | (ZB5AW0G15 + ZB5AW313) | 119.00 |
| | | | | | Green | XB5AW33G5 | (ZB5AW0G35 + ZB5AW333) | |
| | | | | | Red | XB5AW34G5 | (ZB5AW0G45 + ZB5AW343) | |
| | | | | | Yellow | XB5AW35G5 | (ZB5AW0G55 + ZB5AW353) | |
| | | | | | Blue | XB5AW36G5 | (ZB5AW0G65 + ZB5AW363) | |
| | Direct supply for BA9s 2.4 W max. bulb **not** included | 1 | 1 | ≤ 250 Vac/Vdc | White | XB5AW3165 | (ZB5AW065 + ZB5AW31) | 99.00 |
| | | | | | Green | XB5AW3365 | (ZB5AW065 + ZB5AW33) | |
| | | | | | Red | XB5AW3465 | (ZB5AW065 + ZB5AW34) | |
| | | | | | Yellow | XB5AW3565 | (ZB5AW065 + ZB5AW35) | |
| | Transformer type 1.2 VA, 6 V secondary. BA9s incandescent bulb included | 1 | 1 | 110–120 Vac 50/60 Hz | White | XB5AW3135 | (ZB5AW035 + ZB5AW31) | 163.00 |
| | | | | | Green | XB5AW3335 | (ZB5AW035 + ZB5AW33) | |
| | | | | | Red | XB5AW3435 | (ZB5AW035 + ZB5AW34) | |
| | | | | | Yellow | XB5AW3535 | (ZB5AW035 + ZB5AW35) | |
| | | | | 230–240 Vac 50/60 Hz | White | XB5AW3145 | (ZB5AW045 + ZB5AW31) | 163.00 |
| | | | | | Green | XB5AW3345 | (ZB5AW045 + ZB5AW33) | |
| | | | | | Red | XB5AW3445 | (ZB5AW045 + ZB5AW34) | |
| | | | | | Yellow | XB5AW3545 | (ZB5AW045 + ZB5AW35) | |
| **Extended** | | | | | | | | |
| Protected LED | | 1 | 1 | 24 Vac/Vdc | White | XB5AW11B5 | (ZB5AW0B15 + ZB5AW113) | 113.00 |
| | | | | | Green | XB5AW13B5 | (ZB5AW0B35 + ZB5AW133) | |
| | | | | | Red | XB5AW14B5 | (ZB5AW0B45 + ZB5AW143) | |
| | | | | | Yellow | XB5AW15B5 | (ZB5AW0B55 + ZB5AW153) | |
| | | | | | Blue | XB5AW16B5 | (ZB5AW0B65 + ZB5AW163) | |
| | | | | 110–120 Vac | White | XB5AW11G5 | (ZB5AW0G15 + ZB5AW113) | 113.00 |
| | | | | | Green | XB5AW13G5 | (ZB5AW0G35 + ZB5AW133) | |
| | | | | | Red | XB5AW14G5 | (ZB5AW0G45 + ZB5AW143) | |
| | | | | | Yellow | XB5AW15G5 | (ZB5AW0G55 + ZB5AW153) | |
| | | | | | Blue | XB5AW16G5 | (ZB5AW0G65 + ZB5AW163) | |

▲ For 240V LED, replace the "B" or "G" with "M". (Example: XB5APV**B1** (24 V) to XB5APV**M1** (240 Vac only))
■ For bulb information, refer to page 19-61

Legends . . . . . pages 19-58 to 19-60





© 2012 Schneider Electric
All Rights Reserved

**Table 19.127: Non-Illuminated Operators, Momentary—Unmarked**


ZB5AA0


ZB5AA5


ZB5AL3


ZB5AP1


ZB5CA2

| Shape of Head | Type of Push | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Flush, without color cap ▲ | — | ZB5AA0 | 11.00 |
|  | Flush, with set of 6 color caps | 6 colors ■ | ZB5AA9 | 13.00 |
|  | Flush | White | ZB5AA1 | 13.00 |
| | | Black | ZB5AA2 | |
| | | Green | ZB5AA3 | |
| | | Red | ZB5AA4 | |
| | | Yellow | ZB5AA5 | |
| | | Blue | ZB5AA6 | |
| | | Gray | ZB5AA8 | |
|  | Flush with transparent cap, for insertion of legend ♦ | White | ZB5AA18 | 16.00 |
| | | Green | ZB5AA38 | |
| | | Red | ZB5AA48 | |
| | | Yellow | ZB5AA58 | |
| | | Blue | ZB5AA68 | |
|  | Extended | White | ZB5AL1 | 13.00 |
| | | Black | ZB5AL2 | |
| | | Green | ZB5AL3 | |
| | | Red | ZB5AL4 | |
| | | Yellow | ZB5AL5 | |
| | | Blue | ZB5AL6 | |
|  | Booted Flush (clear) Cap color unobscured | White | ZB5APA1 | 25.80 |
| | | Black | ZB5APA2 | |
| | | Green | ZB5APA3 | |
| | | Red | ZB5APA4 | |
| | | Yellow | ZB5APA5 | |
| | | Blue | ZB5APA6 | |
|  | Booted Extended (clear) Cap color unobscured | White | ZB5AP1 | 25.80 |
| | | Black | ZB5AP2 | |
| | | Green | ZB5AP3 | |
| | | Red | ZB5AP4 | |
| | | Yellow | ZB5AP5 | |
| | | Blue | ZB5AP6 | |
|  | Booted (colored) Cap color unobscured | White | ZB5AP1S | 25.80 |
| | | Black | ZB5AP2S | |
| | | Green | ZB5AP3S | |
| | | Red | ZB5AP4S | |
| | | Yellow | ZB5AP5S | |
| | | Blue | ZB5AP6S | |
|  | Booted (clear) for insertion of legend ♦ Cap color unobscured | White | ZB5AP18 | 29.00 |
| | | Green | ZB5AP38 | |
| | | Red | ZB5AP48 | |
| | | Yellow | ZB5AP58 | |
| | | Blue | ZB5AP68 | |
|  | Flush Plunger (with high guard) | White | ZB5AA14 | 32.20 |
| | | Black | ZB5AA24 | |
| | | Green | ZB5AA34 | |
| | | Red | ZB5AA44 | |
| | | Yellow | ZB5AA54 | |
| | | Blue | ZB5AA64 | |
|  | Flush | White | ZB5CA1 | 27.00 |
| | | Black | ZB5CA2 | |
| | | Green | ZB5CA3 | |
| | | Red | ZB5CA4 | |
| | | Yellow | ZB5CA5 | |
| | | Blue | ZB5CA6 | |
|  | Extended | White | ZB5CL1 | 27.00 |
| | | Black | ZB5CL2 | |
| | | Green | ZB5CL3 | |
| | | Red | ZB5CL4 | |
| | | Yellow | ZB5CL5 | |
| | | Blue | ZB5CL6 | |
|  | Heads only Recessed (high guard) | White | ZB5 AA16 | 32.20 |
| | | Black | ZB5 AA26 | |
| | | Green | ZB5 AA36 | |
| | | Red | ZB5 AA46 | |
| | | Yellow | ZB5 AA56 | |
| | | Blue | ZB5 AA66 | |
|  | Heads only Recessed (high guard) | White | ZB5 CA16 | |
| | | Black | ZB5 CA26 | |
| | | Green | ZB5 CA36 | |
| | | Red | ZB5 CA46 | |
| | | Yellow | ZB5 CA56 | |
| | | Blue | ZB5 CA66 | |

▲ Order color cap separately, see page 19-60.
■ Six colored caps included with head (white, black, green, red, yellow, blue).
♦ For legend ordering information see page 19-60.

Legends . . . . . pages 19-58 to 19-60



© 2012 Schneider Electric
All Rights Reserved


ZB5AA331


ZB5AA432


ZB5AL232


ZB5AC24


ZB5AC2


ZB5AR4

**Table 19.128: Non-Illuminated Operators, Momentary—Premarked**

| Shape of Head | Type of Push | Marking | | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | Text | Color | | | |
| | Flush | | White | Green | ZB5AA331 | 18.60 |
| | | | Black | White | ZB5AA131 | |
| | | | White | Green | ZB5AA333 | |
| | | | Black | White | ZB5AA133 | |
| | | | White | Green | ZB5AA341 | |
| | | | Black | White | ZB5AA141 | |
| | | | White | Green | ZB5AA345 | |
| | | | White | Red | ZB5AA432 | |
| | | | | Black | ZB5AA232 | |
| | | | White | Red | ZB5AA434 | |
| | | | | Black | ZB5AA234 | |
| | | | White | Red | ZB5AA435 | |
| | | | | Black | ZB5AA235 | |
| | | | Black | White | ZB5AA343 | |
| | | | White | Black | ZB5AA344 | |
| | | ↑ ▲ | Black | White | ZB5AA334 | |
| | | | White | Black | ZB5AA335 | |
| | Extended | | White | Red | ZB5AL432 | 18.60 |
| | | | | Black | ZB5AL232 | |
| | | | White | Red | ZB5AL434 | |
| | | | | Black | ZB5AL234 | |
| | | | White | Red | ZB5AL435 | |
| | | | | Black | ZB5AL235 | |
| | Flush | | White | Green | ZB5CA331 | 32.00 |
| | | | White | Red | ZB5CA432 | 32.00 |

▲ Cap supplied not clipped-in, allowing orientation of arrow in any one of 4 directions: ↑, ↓, ← or →

**Table 19.129: Mushroom Heads, Momentary**

| Shape of Head | Diameter of Head | Color of Head | Catalog Number | $ Price |
|---|---|---|---|---|
| | 30 mm | Black | ZB5AC24 | 29.40 |
| | | Green | ZB5AC34 | |
| | | Red | ZB5AC44 | |
| | | Yellow | ZB5AC54 | |
| | | Blue | ZB5AC64 | |
| | 40 mm | Black | ZB5AC2 | 29.40 |
| | | Green | ZB5AC3 | |
| | | Red | ZB5AC4 | |
| | | Yellow | ZB5AC5 | |
| | | Blue | ZB5AC6 | |
| | 60 mm | Black | ZB5AR2 | 35.00 |
| | | Green | ZB5AR3 | |
| | | Red | ZB5AR4 | |
| | | Yellow | ZB5AR5 | |
| | | Blue | ZB5AR6 | |

Legends . . . . . pages 19-58 to 19-60





© 2012 Schneider Electric
All Rights Reserved



ZB5AH04

### Table 19.130: Non-Illuminated Push-on/Push-off Operators

| Shape of Head | Type of Push | Color of Push | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Flush | White | ZB5AH01 | 17.60 |
| | | Black | ZB5AH02 | |
| | | Green | ZB5AH03 | |
| | | Red | ZB5AH04 | |
| | | Yellow | ZB5AH05 | |
| | | Blue | ZB5AH06 | |
|  | Extended | White | ZB5AH1 | 17.60 |
| | | Black | ZB5AH2 | |
| | | Green | ZB5AH3 | |
| | | Red | ZB5AH4 | |
| | | Yellow | ZB5AH5 | |
| | | Blue | ZB5AH6 | |
|  | Flush | White | ZB5CH01 | 35.20 |
| | | Black | ZB5CH02 | |
| | | Green | ZB5CH03 | |
| | | Red | ZB5CH04 | |
| | | Yellow | ZB5CH05 | |
| | | Blue | ZB5CH06 | |



ZB5AL7341

### Table 19.131: Two Head Operators, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **No Marking** | | | | | | |
|  | Two flush | — | Green<br>Red | IP66<br>IP69K | ZB5AA7340 | 35.50 |
| | | — | White<br>Black | | ZB5AA7120 | |
|  | One flush<br>One extended | — | Green<br>Red | | ZB5AL7340 | |
| **Premarked** | | | | | | |
|  | Two flush | "I"<br>"O" | Green<br>Red | IP66<br>IP69K | ZB5AA7341 | 39.50 |
| | | "I"<br>"O" | White<br>Black | | ZB5AA7121 | |
|  | One flush<br>One extended | "I"<br>"O" | Green<br>Red | | ZB5AL7341 | |
| **Without caps** | | | | | | |
|  | Two flush<br>without caps | — | — | IP66<br>IP69K | ZB5AA79 | 33.25 |



ZB5AA7121

### Table 19.132: Three Head Operators, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **Premarked** | | | | | | |
| Two flush<br>+ one central<br>projecting red push<br>marked "Stop" | Two flush | "I"<br>"II" | Green<br>Green | IP66<br>IP69K | ZB5AA73132 | 57.00 |
| | | "←"<br>"→" | Green<br>Green | | ZB5AA73133 | |
| | | "↑"<br>"↓" | Green<br>Green | | ZB5AA73134 | |
| | | "+"<br>"-" | Green<br>Green | | ZB5AA73135 | |
| | | "+"<br>"-" | White<br>White | | ZB5AA71115 | |
| | | "←"<br>"→" | White<br>Black | | ZB5AA71123 | |
| | | "↑"<br>"↓" | White<br>Black | | ZB5AA71124 | |
| | | "↑"<br>"↓" | Black<br>Black | | ZB5AA72124 | |
| **Without caps** | | | | | | |
| | Two flush<br>without caps | — | — | IP66<br>IP69K | ZB5AA791 | 48.50 |




ZB5AA73133




ZB5AA71124

Caps. . . . . page 19-60



© 2012 Schneider Electric
All Rights Reserved


ZB5AS844


ZB5AS934


ZB5AT4


ZB5AS54


ZB5AS64

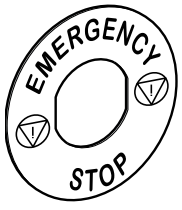

ZBY9330

**Table 19.133: Mushroom Heads for Maintained Push Buttons**

| Shape of Head | Type of Push | Diameter of Head | Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
|  | Trigger action Push-pull ■ | 40 mm | Red | ZB5AT84 | **54.00** |
|  | Trigger action Turn-to-release ■ | 30 mm | Red | ZB5AS834 | **112.00** |
| | | 40 mm | Red | ZB5AS844 | **112.00** |
|  | Trigger action Key release (No. 455) ■ | 30 mm | Red | ZB5AS934 | **112.00** |
| | | 40 mm | Red | ZB5AS944 ▲ | **112.00** |
| | | 60 mm | Red | ZB5AS964 | **112.00** |
|  | Push-pull | 30 mm | Black | ZB5AT24 | **40.40** |
| | | | Red | ZB5AT44 | |
| | | 40 mm | Black | ZB5AT2 | **40.40** |
| | | | Red | ZB5AT4 | |
| | | 60 mm | Black | ZB5AX2 | **46.00** |
| | | | Red | ZB5AX4 | |
|  | Turn-to-release | 30 mm | Black | ZB5AS42 | **78.00** |
| | | | Red | ZB5AS44 | |
| | | 40 mm | Black | ZB5AS52 | **78.00** |
| | | | Red | ZB5AS54 | |
| | | | Yellow | ZB5AS55 | |
| | | 60 mm | Black | ZB5AS62 | **90.00** |
| | | | Red | ZB5AS64 | |
|  | Key release (No. 455) | 30 mm | Black | ZB5AS72 | **112.00** |
| | | | Red | ZB5AS74 | |
| | | 40 mm | Black | ZB5AS12 | **112.00** |
| | | | Red | ZB5AS14 ▲ | |
| | | 60 mm | Black | ZB5AS22 | **112.00** |
| | | | Red | ZB5AS24 | |

▲ Other key numbers:
—key no. 421E: add the suffix 12 to the catalog number.
—key no. 458A: add the suffix 10 to the catalog number.
—key no. 520E: add the suffix 14 to the catalog number.
—key no. 3131A: add the suffix 20 to the catalog number.
Example: The catalog number for a Ø 40 mm red mushroom head for a trigger action, maintained push button, with release by key no. 421E becomes: ZB5AS94412.

■ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator. For emergency stop applications, always use a trigger action push button (per EN/IEC 13850).

**Table 19.134: Circular Legends for Emergency Stop Mushroom Heads (yellow background)**

| Diameter | Text | Catalog Number | $ Price |
|---|---|---|---|
| 60 mm | Blank | ZBY9101 | **3.40** |
| | EMERGENCY STOP | ZBY9330 | |
| 90 mm | Blank | ZBY8101 | |
| | EMERGENCY STOP | ZBY8330 | |

Legends . . . . . pages 19-58 to 19-60





© 2012 Schneider Electric
All Rights Reserved



ZB5AD•
Standard Lever



ZB5AJX•
Extended Lever



ZB5AG•

### Table 19.135: Non-Illuminated Selector Switches

| Color | Number and Type of Positions | | Standard Lever ▲ Catalog Number | Extended Lever Catalog Number | $ Price |
|---|---|---|---|---|---|
| Black | 2-maintained | | ZB5AD2 | ZB5AJ2 | **24.00** |
| Black | 2-momentary from right to left | | ZB5AD4 | ZB5AJ4 | **29.40** |
| Black | 3-maintained | | ZB5AD3 | ZB5AJ3 | **24.00** |
| Black | 3-momentary to center | | ZB5AD5 | ZB5AJ5 | **29.40** |
| Black | 3-momentary from left to center | | ZB5AD7 | ZB5AJ7 | **29.40** |
| Black | 3-momentary from right to center | | ZB5AD8 | ZB5AJ8 | **29.40** |

▲ For colored lever, add the following code to the end of catalog number: 01—white, 03—green, 04—red, 05—yellow, 06—blue (Example: ZB5AD204).

### Table 19.136: Non-Illuminated Key Switches

| Type of Operator | Number and Type of Positions | | Catalog Number ■ | $ Price |
|---|---|---|---|---|
| **Key (No. 455)**  | 2-maintained | | ZB5AG2 | |
| | | | ZB5AG4 | |
| | | | ZB5AG02 | |
| | 2-momentary from right to left | | ZB5AG6 | |
| | 3-maintained | | ZB5AG0 | **90.00** |
| | | | ZB5AG3 | |
| | | | ZB5AG5 | |
| | | | ZB5AG9 | |
| | | | ZB5AG09 | |
| | 3-momentary from left to center | | ZB5AG1 | |
| | 3-momentary to center | | ZB5AG7 | |
| | 3-momentary from right to center | | ZB5AG8 | **116.00** |
| | | | ZB5AG08 | |
| | | | ZB5AG05 | |

Note: The symbol ⚷ indicates key withdrawal position(s).

■ Other key numbers:
—key no. 421E: add the suffix 12 to the catalog number.
—key no. 458A: add the suffix 10 to the catalog number.
—key no. 520E: add the suffix 14 to the catalog number.
—key no. 3131A: add the suffix 20 to the catalog number.
—key no. 8D1: add the suffix D to the catalog number.
Example: The catalog number for a head with key no. 421E for a 2 position maintained, lockable selector switch, with key withdrawal from the left-hand position, becomes: ZB5AG212

### Table 19.137: Sequence of Contacts on Selector Switch Bodies

| Unit Type | | Selector Switches | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-position | | | | | | 3-position | | | | | | | | |
| | | 315° | | | 45° | | | 315° | | | 0° | | | 45° | | |
| Operator Plunger Position | Up | | | | | | | | | | | | | | | |
| | Down | | | | | | | | | | | | | | | |
| Contact Block Location | | L | C | R | L | C | R | L | C | R | L | C | R | L | C | R |
| Contacts | N/O | O | O | O | X | X | X | X | X | O | O | O | O | O | X | X |
| | N/C | X | X | X | O | O | O | O | O | X | X | X | X | X | O | O |

Note: L=Left, C=Center, R=Right, O=Open, X=Closed

Selector Switch Sequence (Table 19.91) . . . . . .page 19-33



© 2012 Schneider Electric
All Rights Reserved


XB5AA

### Table 19.138: Reset Operators

| Shape of Head | Actuation Distance | | Text | Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | in | mm | | | | |
| **Flush** | **Adjustable Shaft▲** | | | | | |
|  | 0.67–4.72 | 17–120 | Without | Green | XB5AA831 | **37.60** |
| | | | | Red | XB5AA841 | |
| | | | | Blue | XB5AA861 | |
| | | | O | Red | XB5AA84101 | **45.40** |
| | | | R | Blue | XB5AA86102 | **45.40** |
| | 4.72–10.12 | 120–257 | Without | Green | XB5AA832 | **43.40** |
| | | | | Red | XB5AA842 | |
| | | | | Blue | XB5AA862 | |
| | | | O | Red | XB5AA84201 | **50.00** |
| | | | R | Blue | XB5AA86202 | **50.00** |
| **Extended** | | | | | | |
|  | 0.67–4.72 | 17–120 | O | Red | XB5AL84101 | **45.40** |
| | 4.72–10.12 | 120–257 | O | Red | XB5AL84201 | **50.00** |

▲ Shaft only (short) is W40437632 (Price = $20.00)


XD5PA12

### Table 19.139: Potentiometer Operator (with Mounting Collar)

| Shape of Head | Description | Application | Catalog Number | $ Price |
|---|---|---|---|---|
|  | For potentiometer with shaft length 1.73 to 1.97 in. (44 to 50 mm) (potentiometer not included) | For shaft Ø 0.25 in. (6.35 mm) | ZB5AD922 | **142.00** |
| | | For shaft Ø 0.24 in. (6 mm) | ZB5AD912 | |

### Table 19.140: Joystick (54 mm, Extended Operating Shaft) ■

| Description | Contact Operation | Action | Catalog Number | $ Price |
|---|---|---|---|---|
| 2 direction  | 1 step 1 N.O. contact per direction | Maintained | XD5PA12 | **250.00** |
| | | Momentary | XD5PA22 | |
| 4 direction  | 1 step 1 N.O. contact per direction | Maintained | XD5PA14 | **316.00** |
| | | Momentary | XD5PA24 | |

■ Do not use standard contact blocks ZBE10• (single) or ZBE20• (double)

### Table 19.141: Legends for Joystick

| Description | For use with | | Catalog Number | $ Price |
|---|---|---|---|---|
| Legends 30 x 48 mm for engraving | 2 direction | Black one side Red reverse | ZBG2201 | **3.40** |
| | | White one side Yellow reverse | ZBG2401 | |
| Legends 48 x 48 mm for engraving | 4 direction | Black one side Red reverse | ZBG4201 | |
| | | White one side Yellow reverse | ZBG4401 | |


XB5DS•

### Table 19.142: Hour Counters ♦

| Characteristics | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|
| Indication 0–9999.9 (IP40 NEMA 1) | 12–24 Vdc or Vac, 50/60 Hz | XB5DSB | **383.00** |
| | 120 Vac, 60 Hz | XB5DSG | |
| | 230–240 Vac, 50 Hz | XB5DSM | |


XB5KS•

### Table 19.143: Buzzer ♦

| Characteristics | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|
| 85 db buzzer:4kHz, continuous or intermittent (IP40 NEMA 1) | 24 Vdc or Vac, 50/60 Hz | XB5KSB | **183.00** |
| | 120 Vac, 60 Hz | XB5KSG | |
| | 230–240 Vac, 50 Hz | XB5KSM | |

♦ UR E191025, XHNR2 and XHNR8.


ZB5AD28

### Table 19.144: Two Position Toggle Switch

| Shape of Head | Color | Type of Positions | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Black | Maintained | ZB5AD28 | **46.60** |
| | Black | Momentary | ZB5AD48 | |

Legends . . . . . pages 19-58 to 19-60





© 2012 Schneider Electric
All Rights Reserved



ZB5AV053



ZB5AV01



ZB5CV063

**Table 19.145: Pilot Light Heads**

| Shape of Head | For use with Body Comprising Light Module Type | Color of Lens | Catalog Number | $ Price |
|---|---|---|---|---|
|  | Protected LED™ only | White | ZB5AV013 | 7.60 |
| | | Green | ZB5AV033 | |
| | | Red | ZB5AV043 | |
| | | Yellow | ZB5AV053 | |
| | | Blue | ZB5AV063 | |
| | Protected LED only Fresnel (jeweled) lens ▲ | White | ZB5AV013S | 7.60 |
| | | Green | ZB5AV033S | |
| | | Red | ZB5AV043S | |
| | | Amber | ZB5AV053S | |
| | | Blue | ZB5AV063S | |
| | For BA9s incandescent bulb, neon or LED only ■ | White | ZB5AV01 | 7.60 |
| | | Green | ZB5AV03 | |
| | | Red | ZB5AV04 | |
| | | Yellow | ZB5AV05 | |
| | | Blue | ZB5AV06 | |
| | | Clear | ZB5AV07 | |
| | For BA9s incandescent bulb, neon or LED Fresnel (jeweled) lens ■ | White | ZB5AV01S | 7.60 |
| | | Green | ZB5AV03S | |
| | | Red | ZB5AV04S | |
| | | Amber | ZB5AV05S | |
| | | Blue | ZB5AV06S | |
| | | Clear | ZB5AV07S | |
|  | Protected LED only | White | ZB5CV013 | 27.00 |
| | | Green | ZB5CV033 | |
| | | Red | ZB5CV043 | |
| | | Yellow | ZB5CV053 | |
| | | Blue | ZB5CV063 | |

▲ For use in bright ambient conditions (i.e., sunlight).
■ Order bulb separately; see page 19-40. For BA9 LED, see page 19-120.

Legends . . . . . pages 19-58 to 19-60



© 2012 Schneider Electric
All Rights Reserved



ZB5AV6



ZB5AV3



ZB5AV••

**Table 19.146: Complete Bodies (Mounting Collar + Light Module for BA9s Incandescent Bulb, Neon or LED)**

| Description | Light Source | Supply Voltage (V) | Catalog Number | $ Price |
|---|---|---|---|---|
| **Screw clamp terminal connections** | | | | |
| Direct supply | BA9s bulb 2.4 W max. Not included ▲ | ≤250 | ZB5AV6 | **38.60** |
| Direct supply | BA9s incandescent bulb included | 24 V 2 W | ZB5AV624 | **49.20** |
| Direct supply | BA9s incandescent bulb included | 120 V 2.4 W | ZB5AV6120 | **49.20** |
| Transformer type 1.2 VA, 6 V secondary | BA9s incandescent bulb included | 110–120 Vac 50/60 Hz | ZB5AV3 | **98.00** |
| | | 230–240 Vac 50/60 Hz | ZB5AV4 | |
| | | 400–50 Hz | ZB5AV5 | |
| | | 440–480 Vac 60 Hz | ZB5AV8 | |
| | | 550–600 Vac 60 Hz | ZB5AV9 | |

▲ Order bulb separately, see page 19-61.

**Table 19.147: Complete Bodies (Mounting Collar + Light Module with Protected LED™) ■ ♦**

| Light Source | Supply Voltage | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|
| **Screw clamp terminal connections** | | | | |
| Protected LED™ | 12 Vac/Vdc | White | ZB5AVJ1 | **57.00** |
| | | Green | ZB5AVJ3 | |
| | | Red | ZB5AVJ4 | |
| | | Yellow | ZB5AVJ5 | |
| | | Blue | ZB5AVJ6 | |
| | 24 Vac/Vdc | White | ZB5AVB1 | **57.00** |
| | | Green | ZB5AVB3 | |
| | | Red | ZB5AVB4 | |
| | | Yellow | ZB5AVB5 | |
| | | Blue | ZB5AVB6 | |
| | 24–120 Vac/Vdc | White | ZB5AVBG1 | **57.00** |
| | | Green | ZB5AVBG3 | |
| | | Red | ZB5AVBG4 | |
| | | Yellow | ZB5AVBG5 | |
| | | Blue | ZB5AVBG6 | |
| | 110–120 Vac | White | ZB5AVG1 | **57.00** |
| | | Green | ZB5AVG3 | |
| | | Red | ZB5AVG4 | |
| | | Yellow | ZB5AVG5 | |
| | | Blue | ZB5AVG6 | |
| **Flashing** Protected LED™ | 24 Vac/Vdc | White | ZB5AV18B1 | **66.00** |
| | | Green | ZB5AV18B3 | |
| | | Red | ZB5AV18B4 | |
| | | Yellow | ZB5AV18B5 | |
| | | Blue | ZB5AV18B6 | |
| | 110–120 Vac | White | ZB5AV18G1 | **66.00** |
| | | Green | ZB5AV18G3 | |
| | | Red | ZB5AV18G4 | |
| | | Yellow | ZB5AV18G5 | |
| | | Blue | ZB5AV18G6 | |

■ For Quick-Connect version, add "3" to the end of the catalog number Example: ZB5AVJ13 (Quick-Connect size 1 x 0.250" or 2 x 0.110").
♦ For 240 V LED, replace the "B" or "G" with "M". (Example: ZB5AV**B**1 (24V) to ZB5AV**M**1 (240V))





© 2012 Schneider Electric
All Rights Reserved


ZB5AW313


ZB5AW363


ZB5AW143


ZB5CW313


ZB5AW33

### Table 19.148: Heads for Momentary Illuminated Push Buttons

| Shape of Head | Type of Push | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED™ light modules** | | | | |
|  | Flush | White | ZB5AW313 | **18.60** |
| | | Green | ZB5AW333 | |
| | | Red | ZB5AW343 | |
| | | Yellow | ZB5AW353 | |
| | | Blue | ZB5AW363 | |
|  | Flush with clear boot | White | ZB5AW513 | **31.00** |
| | | Green | ZB5AW533 | |
| | | Red | ZB5AW543 | |
| | | Yellow | ZB5AW553 | |
| | | Blue | ZB5AW563 | |
|  | Flush for insertion of legend | White | ZB5AA18 | **16.00** |
| | | Green | ZB5AA38 | |
| | | Red | ZB5AA48 | |
| | | Yellow | ZB5AA58 | |
| | | Blue | ZB5AA68 | |
|  | Extended | White | ZB5AW113 | **13.00** |
| | | Green | ZB5AW133 | |
| | | Red | ZB5AW143 | |
| | | Yellow | ZB5AW153 | |
| | | Blue | ZB5AW163 | |
|  | Flush for insertion of legend | White | ZB5CW313 | **27.00** |
| | | Green | ZB5CW333 | |
| | | Red | ZB5CW343 | |
| | | Yellow | ZB5CW353 | |
| | | Blue | ZB5CW363 | |
|  | Extended | White | ZB5CW113 | **27.00** |
| | | Green | ZB5CW133 | |
| | | Red | ZB5CW143 | |
| | | Yellow | ZB5CW153 | |
| | | Blue | ZB5CW163 | |
| **Only use with light modules for a BA9s incandescent bulb, neon or LED** | | | | |
|  | Flush | White | ZB5AW31 | **18.60** |
| | | Green | ZB5AW33 | |
| | | Red | ZB5AW34 | |
| | | Yellow | ZB5AW35 | |
| | | Blue | ZB5AW36 | |
| | | Clear | ZB5AW37 | |
|  | Extended | White | ZB5AW11 | **13.00** |
| | | Green | ZB5AW13 | |
| | | Red | ZB5AW14 | |
| | | Yellow | ZB5AW15 | |
| | | Blue | ZB5AW16 | |
| | | Clear | ZB5AW17 | |

### Table 19.149: Illuminated Push-on/Push-off Operators

| Shape of Head | Type of Push | Color of Lens | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
|  | Flush | White | ZB5AH013 | **24.80** |
| | | Green | ZB5AH033 | |
| | | Red | ZB5AH043 | |
| | | Yellow | ZB5AH053 | |
| | | Blue | ZB5AH063 | |
|  | Extended | White | ZB5AH13 | **19.60** |
| | | Green | ZB5AH33 | |
| | | Red | ZB5AH43 | |
| | | Yellow | ZB5AH53 | |
| | | Blue | ZB5AH63 | |

Legends . . . . . pages 19-58 to 19-60



© 2012 Schneider Electric
All Rights Reserved



ZB5AW7A3741



ZB5AW7A1721

### Table 19.150: Two Button with Clear Pilot Light, Momentary

| Shape of Head | Description | Marking | Cap Color | Degree of Protection | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **No Marking** | | | | | | |
| Protected LED | Two flush | — | Green<br>Red | IP66<br>IP69K | ZB5AW7A3740 | 45.60 |
| | | — | White<br>Black | | ZB5AW7A1720 | |
| Protected LED | One flush<br>One extended | — | Green<br>Red | | ZB5AW7L3740 | |
| **Premarked** | | | | | | |
| Protected LED | Two flush | "I"<br>"O" | Green<br>Red | IP66<br>IP69K | ZB5AW7A3741 | 49.50 |
| | | "I"<br>"O" | White<br>Black | | ZB5AW7A1721 | |
| Protected LED | One flush<br>One extended | "I"<br>"O" | Green<br>Red | | ZB5AW7I3741 | |
| Protected LED | Two flush | "⇕"<br>"⇕" | White<br>Black | | ZB5AW7A1724 | |
| Protected LED | Two flush | "+"<br>"-" | White<br>Black | | ZB5AW7A1715 | |
| **Without caps** | | | | | | |
| | Two flush<br>without caps | — | — | IP66<br>IP69K | ZB5AW7A9 | 42.75 |



ZB5AW7•

### Table 19.151: Heads for Maintained Illuminated Push Buttons

| Shape of Head | Type of Push | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
| | Turn-to-Release Mushroom (40 mm) | White<br>Green<br>Red<br>Yellow<br>Blue | ZB5AW713<br>ZB5AW733<br>ZB5AW743<br>ZB5AW753<br>ZB5AW763 | 63.00 |



ZB5AT8643M

### Table 19.152: Emergency Stop, Trigger Action and Mechanical Latching Push Button with Mechanical State Indicator for Elevator Inspection Box Applications—Heads Only

| Shape of Head | Type of Reset | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| | Push-pull (40 mm) | Red | ZB5AT8643M | 124.00 |

***NOTE:*** *ZB5AT8643M not to be used with ZBZ16* guard.*



ZB5AK1213

### Table 19.153: Illuminated Selector Switches, Standard Lever

| Shape of Head | Number and Type of Positions | | Catalog Number ★ | $ Price |
|---|---|---|---|---|
| **Only use with Protected LED light modules** | | | | |
| | 2-maintained | | ZB5AK12★3 | 35.00 |
| | 2-momentary from right to left | | ZB5AK14★3 | 51.00 |
| | 3-maintained | | ZB5AK13★3 | 35.00 |
| | 3-momentary to center | | ZB5AK15★3 | 51.00 |
| | 3-momentary from right to center | | ZB5AK18★3 | 51.00 |
| | 3-momentary from left to center | | ZB5AK17★3 | 51.00 |

★ Designate color as follows: 1—white, 3—green, 4—red, 5—yellow, 6—blue



ZB5AK1463

### Table 19.154: Sequence of Contacts on Selector Switch Bodies

| Unit Type | | Selector Switches | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-position | | | | | | 3-position | | | | | | | | |
| | | 315° | | | 45 | | | 315° | | | 0° | | | 45° | | |
| Operator Plunger Position | Up | | | | | | | | | | | | | | | |
| | Down | | | | | | | | | | | | | | | |
| Contact Block Location | | L | C | R | L | C | R | L | C | R | L | C | R | L | C | R |
| Contacts | N/O | O | O | O | X | X | X | X | X | O | O | O | O | O | X | X |
| | N/C | X | X | X | O | O | O | O | O | X | X | X | X | X | O | O |

Note: L=Left, C=Center, R=Right, O=Open, X=Closed

Legends . . . . . pages 19-58 to 19-60
Caps . . . . . page 19-60





© 2012 Schneider Electric
All Rights Reserved

***NOTE:*** *For the Quick-Connect version, add the numeral **3** to the end of the catalog number.*
*Example: ZB5AZ101**3** (Quick-Connect size 1 x 0.250" or 2 x 0.110").*


ZB5AZ101

### Table 19.155: Contact Blocks (Mounting Collar with Contact Blocks) ▲■♦

| Description | Type of Contact | | Catalog Number | $ Price |
|---|---|---|---|---|
| | N.O. | N.C. | | |
| Screw clamp terminal connections | 1 | — | ZB5AZ101 | **22.00** |
| | — | 1 | ZB5AZ102 | **22.00** |
| | 2 | — | ZB5AZ103 | **38.20** |
| | — | 2 | ZB5AZ104 | **38.20** |
| | 1 | 1 | ZB5AZ105 | **38.20** |
| | 1 | 2 | ZB5AZ141 | **55.00** |

▲ For Ring Tongue compatible blocks add "9" to the end of the catalog number (Example: ZB5AZ1029).
■ Electrical components with connection by printed circuit board pins are available. Refer to Catalog **9001CT0001** for more information.
♦ Electrical components with connection by plug-in connector are available. Refer to Catalog **9001CT0001** for more information.

### Table 19.156: Complete Bodies (Mounting Collar + Single Contact Block + Light Module with Protected LED™)

| Light Source | Type of Contact ▼ | | Color | Supply Voltage ★ | | $ Price |
|---|---|---|---|---|---|---|
| | N.O. | N.C. | | 24 Vac/Vdc | 110–120 Vac | |
| | | | | Catalog Number | | |
| **Screw clamp terminal connections** | | | | | | |
| Protected LED | 1 | — | White | ZB5AW0B11 | ZB5AW0G11 | **73.00** |
| | | | Green | ZB5AW0B31 | ZB5AW0G31 | |
| | | | Red | ZB5AW0B41 | ZB5AW0G41 | |
| | | | Yellow | ZB5AW0B51 | ZB5AW0G51 | |
| | | | Blue | ZB5AW0B61 | ZB5AW0G61 | |
| | — | 1 | White | ZB5AW0B12 | ZB5AW0G12 | **73.00** |
| | | | Green | ZB5AW0B32 | ZB5AW0G32 | |
| | | | Red | ZB5AW0B42 | ZB5AW0G42 | |
| | | | Yellow | ZB5AW0B52 | ZB5AW0G52 | |
| | | | Blue | ZB5AW0B62 | ZB5AW0G62 | |
| | 2 | — | White | ZB5AW0B13 | ZB5AW0G13 | **90.00** |
| | | | Green | ZB5AW0B33 | ZB5AW0G33 | |
| | | | Red | ZB5AW0B43 | ZB5AW0G43 | |
| | | | Yellow | ZB5AW0B53 | ZB5AW0G53 | |
| | | | Blue | ZB5AW0B63 | ZB5AW0G63 | |
| | 1 | 1 | White | ZB5AW0B15 | ZB5AW0G15 | **90.00** |
| | | | Green | ZB5AW0B35 | ZB5AW0G35 | |
| | | | Red | ZB5AW0B45 | ZB5AW0G45 | |
| | | | Yellow | ZB5AW0B55 | ZB5AW0G55 | |
| | | | Blue | ZB5AW0B65 | ZB5AW0G65 | |


ZB5AW0••1

★ For 240V LED, replace the "B" or "G" with "M". (Example: change "ZB5AW0**B**11 (24 V) to ZB5AW0**M**11 (240 V))

### Table 19.157: Mounting Collar, Contact Block and Light Module (with screw clamp terminal connections) ▼

| Supply | Light Source | Supply Voltage | Type of Contact ▼ | | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | | | N.O. | N.C. | | | |
| **Screw clamp terminal connections** | | | | | | | |
| Direct supply | BA9s 2.4 W max. bulb Not included △ | ≤250 Vac/Vdc | 1 | — | — | ZB5AW061 | **55.00** |
| | | | — | 1 | — | ZB5AW062 | **55.00** |
| | | | 2 | — | — | ZB5AW063 | **71.00** |
| | | | 1 | 1 | — | ZB5AW065 | **71.00** |
| Transformer type 1.2 VA, 6 V secondary | BA9s incandescent bulb included | 110–120 Vac 50/60 Hz | 1 | — | — | ZB5AW031 | **114.00** |
| | | | 1 | 1 | — | ZB5AW035 | **130.00** |
| | | 230–240 Vac 50/60 Hz | 1 | — | — | ZB5AW041 | **114.00** |
| | | | 1 | 1 | — | ZB5AW045 | **130.00** |
| | | 440–480 Vac 60 Hz | 1 | — | — | ZB5AW081 | **114.00** |
| | | | 1 | 1 | — | ZB5AW085 | **130.00** |


ZB5AW065


ZB5AW035

▼ Can be fitted with additional contact blocks, see page 19-56.
△ Order bulb separately, see page 19-61.



© 2012 Schneider Electric
All Rights Reserved



ZB5AZ009

### Table 19.158: Body/Mounting Collar

| For use with | Catalog Number | $ Price |
|---|---|---|
| Electrical block (contact or light module) | ZB5AZ009 | **5.40** |



ZBE101

### Table 19.159: Add-On Contact Block (with screw clamp terminal connections) ★▼

| Description | | Type of Contact | | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | | N.O. | N.C. | | |
| Standard **single** contact blocks▲■ | | 1 | — | ZBE101 | **16.40** |
| | | — | 1 | ZBE102 | **16.40** |
| Standard **double** contact blocks▲■ | | 2 | — | ZBE203 | **33.20** |
| | | — | 2 | ZBE204 | **33.20** |
| | | 1 | 1 | ZBE205 | **33.20** |
| Special contact blocks for low-power switching ♦ | | 1 | — | ZBE1016 | **32.80** |
| | | — | 1 | ZBE1026 | **32.80** |
| Low-power switching | Dusty environment ♦ (IP5X, 50 µm dust) | 1 | — | ZBE1016P | **32.80** |
| | | — | 1 | ZBE1026P | **32.80** |
| Staggered contacts | Early make N/O | 1 | – | ZBE201 | **16.40** |
| | Late break N/C | — | 1 | ZBE202 | **16.40** |
| | Overlapping N/O+N/C | 1 | 1 | ZB4BZ106 | **32.80** |
| | Staggered N/O+N/O | — | 2 | ZB4BZ107 | **32.80** |

▲ For Quick-Connect version add "3" to the end of the catalog number (Example: ZBE1013) (Quick-Connect size 1 x 0.250" or 2 x 0.110").
■ For Ring Tongue compatible blocks add "9" to the end of the catalog number (Example: ZBE1029).
♦ Cannot stack additional contact blocks onto these blocks.



ZBE203

### Table 19.160: Light Modules (with screw clamp terminal connections)★▼

| Description | Supply Voltage | Color of Light Source | Catalog Number | $ Price |
|---|---|---|---|---|
| Protected LED™ | 12 Vac/Vdc | White | ZBVJ1 | **52.00** |
| | | Green | ZBVJ3 | |
| | | Red | ZBVJ4 | |
| | | Yellow | ZBVJ5 | |
| | | Blue | ZBVJ6 | |
| | 24 Vac/Vdc | White | ZBVB1 | **52.00** |
| | | Green | ZBVB3 | |
| | | Red | ZBVB4 | |
| | | Yellow | ZBVB5 | |
| | | Blue | ZBVB6 | |
| | 110–120 Vac | White | ZBVG1 | **52.00** |
| | | Green | ZBVG3 | |
| | | Red | ZBVG4 | |
| | | Yellow | ZBVG5 | |
| | | Blue | ZBVG6 | |
| | 24–120 Vac/Vdc | White | ZBVBG1 | **52.00** |
| | | Green | ZBVBG3 | |
| | | Red | ZBVBG4 | |
| | | Yellow | ZBVBG5 | |
| | | Blue | ZBVBG6 | |
| | 230–240 Vac | White | ZBVM1 | **52.00** |
| | | Green | ZBVM3 | |
| | | Red | ZBVM4 | |
| | | Yellow | ZBVM5 | |
| | | Blue | ZBVM6 | |
| Direct supply for BA9s (2.4 W max. bulb not included—see page 19-61) | ≤ 250 Vac/Vdc | — | ZBV6 | **33.20** |

★ Electrical components with connection by printed circuit board pins are available. Refer to Catalog **9001CT0001** for more details.
▼ Electrical components with connection by plug-in connector are available. Refer to Catalog **9001CT0001** for more details.



ZBVB•





© 2012 Schneider Electric
All Rights Reserved



ZB5AZ009



ZBE1015



ZB5AZ1015

## Table 19.161: Spring Terminal Products for XB5 22 mm Push Buttons

### Body/Mounting Collar

| For Use With | Catalog Number | $ Price |
|---|---|---|
| Contact block or light module | ZB5AZ009 | **5.40** |

### Contact Blocks ▲

| Spring Terminal Connections, Contacts for Standard Applications | | | | | |
|---|---|---|---|---|---|
| **Description** | **Type of Contact** | **N/O** | **N/C** | **Catalog Number** | **$ Price** |
| Contact blocks | Single | 1 | – | ZBE1015 | **18.00** |
| | | – | 1 | ZBE1025 | **18.00** |
| | Single with body/mounting collar | 1 | – | ZB5AZ1015 | **24.00** |
| | | – | 1 | ZB5AZ1025 | **24.00** |
| | | 2 | – | ZB5AZ1035 | **42.00** |
| | | – | 2 | ZB5AZ1045 | **42.00** |
| | | 1 | 1 | ZB5AZ1055 | **42.00** |

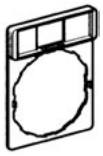
### Light Modules ▲

| Spring Terminal Connections | | | | |
|---|---|---|---|---|
| **Description** | **Supply Voltage** | **Color of Light Source** | **Catalog Number** | **$ Price** |
| **Integral LED** (to combine with heads for integral LED) Protected LED | 12 Vac/Vdc | White | ZBVJ15 | **57.00** |
| | | Green | ZBVJ35 | **57.00** |
| | | Red | ZBVJ45 | **57.00** |
| | | Orange | ZBVJ55 | **57.00** |
| | | Blue | ZBVJ65 | **57.00** |
| | 24 Vac/Vdc | White | ZBVB15 | **57.00** |
| | | Green | ZBVB35 | **57.00** |
| | | Red | ZBVB45 | **57.00** |
| | | Orange | ZBVB55 | **57.00** |
| | | Blue | ZBVB65 | **57.00** |
| | 110–120 Vac | White | ZBVG15 | **57.00** |
| | | Green | ZBVG35 | **57.00** |
| | | Red | ZBVG45 | **57.00** |
| | | Orange | ZBVG55 | **57.00** |
| | | Blue | ZBVG65 | **57.00** |
| | 230–240 Vac | White | ZBVM15 | **57.00** |
| | | Green | ZBVM35 | **57.00** |
| | | Red | ZBVM45 | **57.00** |
| | | Orange | ZBVM55 | **57.00** |
| | | Blue | ZBVM65 | **57.00** |

▲ Additional blocks **cannot** be attached to the back of these contact blocks or light modules.



© 2012 Schneider Electric
All Rights Reserved

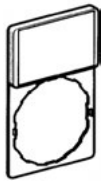

ZBZ32


ZBY•101

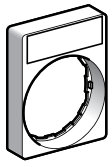


ZBY2303

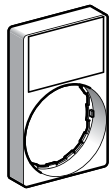

ZBZ33


ZBY610•


ZBZ4


ZBY•H101


ZBZ5


ZBY6H10•

### Table 19.162: Standard (30 x 40 mm) Legend Holders for 8 x 27 mm Legends

| Description | Legend | | Catalog Number | $ Price |
|---|---|---|---|---|
| | Color | Text | | |
| Without legend insert ▲ | — | — | ZBZ32 | 2.00 |
| With blank legend insert (for engraving) | Black or red background | — | ZBY2101 | 3.40 |
| | White or yellow background | — | ZBY4101 | |
| Custom legend plate and insert (specify engraving) 2 lines of 11 characters (including spaces) maximum per line | Black background | White | ZBY2002 | 14.20 |
| | Red background | White | ZBY2004 | |
| | White background | Black | ZBY4001 | |
| | Yellow background | Black | ZBY4005 | |
| With international language marked legend | Black or red background ■ | O (black background) | ZBY2146 | 3.40 |
| | | O (red background) | ZBY2931 | |
| | | I | ZBY2147 | |
| | | II | ZBY2148 | |
| | | O-I | ZBY2178 | |
| | | I-II | ZBY2179 | |
| | | I-O-II | ZBY2186 | |
| With English language marked legend | Black or red background ■ | AUTO | ZBY2115 | 3.40 |
| | | AUTO-HAND | ZBY2364 | |
| | | AUTO-O-HAND | ZBY2385 | |
| | | CLOSE | ZBY2314 | |
| | | DOWN | ZBY2308 | |
| | | EMERGENCY STOP | ZBY2330 | |
| | | FAST | ZBY2328 | |
| | | FORWARD | ZBY2305 | |
| | | FOR-REV | ZBY2371 | |
| | | HAND | ZBY2316 | |
| | | HAND-OFF-AUTO | ZBY2387 | |
| | | INCH | ZBY2321 | |
| | | JOG | ZBY2382 | |
| | | LEFT | ZBY2310 | |
| | | OFF | ZBY2312 | |
| | | OFF-ON | ZBY2367 | |
| | | ON | ZBY2311 | |
| | | OPEN | ZBY2313 | |
| | | POWER ON | ZBY2326 | |
| | | RESET (red background) | ZBY2323 | |
| | | RESET (black background) | ZBY2322 | |
| | | REVERSE | ZBY2306 | |
| | | RIGHT | ZBY2309 | |
| | | RUN | ZBY2334 | |
| | | SLOW | ZBY2327 | |
| | | START | ZBY2303 | |
| | | STOP | ZBY2304 | |
| | | STOP-START | ZBY2366 | |
| | | UP | ZBY2307 | |

▲ For legends, see page 19-59.
■ Start functions: white letters on black background. Stop functions: white letters on red background (unless otherwise specified above).

### Table 19.163: Large (30 x 50 mm) Legend Holders for 18 x 27 mm Legends

| Description ♦ | For use with | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Without legend insert | Circular and square heads | — | ZBZ33 | 2.00 |
| With blank legend insert | Circular and square heads | Black or red background | ZBY6101 | 3.40 |
| | | White or yellow background | ZBY6102 | |

### Table 19.164: 30 x 40 mm legend holder (flush mounting with bezel) for 8 x 27 mm legends

| Description ♦ | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Without legend** | — | ZBZ34 | 2.00 |
| **With blank legend** | Black or red background | ZBY2H101 | 3.40 |
| | White or yellow background | ZBY4H101 | |

### Table 19.165: 30 x 50 mm legend holder (flush mounting with bezel) for 18 x 27 mm legends

| Description ♦ | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Without legend** | — | ZBZ35 | 4.20 |
| **With blank legend** | Black or red background | ZBY6H101 | 5.40 |
| | White or yellow background | ZBY6H102 | |

♦ For custom legends, please see page 19-59





© 2012 Schneider Electric
All Rights Reserved



ZBY02178



ZBY02303

**Table 19.166: Marked Legends for 8 x 27 mm (for 30 x 40 mm legend holders ZBZ32)**

| Color | Marking | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Black or red background▲ | International | O (black background) | ZBY02146 | 1.70 |
| | | O (red background) | ZBY02931 | |
| | | I | ZBY02147 | |
| | | II | ZBY02148 | |
| | | O-I | ZBY02178 | |
| | | I-II | ZBY02179 | |
| | | I-O-II | ZBY02186 | |
| | English | AUTO | ZBY02115 | 1.70 |
| | | AUTO-HAND | ZBY02364 | |
| | | AUTO-O-HAND | ZBY02385 | |
| | | CLOSE | ZBY02314 | |
| | | DOWN | ZBY02308 | |
| | | EMERGENCY STOP | ZBY02330 | |
| | | FAST | ZBY02328 | |
| | | FORWARD | ZBY02305 | |
| | | FOR-REV | ZBY02371 | |
| | | HAND | ZBY02316 | |
| | | HAND-OFF-AUTO | ZBY02387 | |
| | | INCH | ZBY02321 | |
| | | JOG | ZBY02382 | |
| | | LEFT | ZBY02310 | |
| | | OFF | ZBY02312 | |
| | | OFF-ON | ZBY02367 | |
| | | ON | ZBY02311 | |
| | | OPEN | ZBY02313 | |
| | | POWER ON | ZBY02326 | |
| | | RESET (red background) | ZBY02323 | |
| | | RESET (black background) | ZBY02322 | |
| | | REVERSE | ZBY02306 | |
| | | RIGHT | ZBY02309 | |
| | | RUN | ZBY02334 | |
| | | SLOW | ZBY02327 | |
| | | START | ZBY02303 | |
| | | STOP | ZBY02304 | |
| | | STOP-START | ZBY02366 | |
| | | UP | ZBY02307 | |

▲ Start functions: white letters on black background. Stop functions: white letters on red background (unless otherwise specified above).

**Table 19.167: Legends for Customer Engraving (inserts only)**

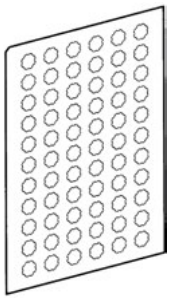
| Description | For use with | Color | Text Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 8 x 27 mm | 30 x 40 mm legend holders | Black or red background | White | ZBY0101 | 1.70 |
| | | White or yellow background | Black | ZBY0102 | |
| 18 x 27 mm | 30 x 50 mm legend holders | Black or red background | White | ZBY5101 | |
| | | White or yellow background | Black | ZBY5102 | |

**Table 19.168: Legends for Factory Engraving (inserts only)**

| Description | For use with | Color | Text Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 8 x 27 mm<br>Custom legend/insert only (specify engraving)<br>2 lines of 11 characters (including spaces) maximum per line<br>**Example**: ZBY01002 marked "Robot" | 30 x 40 mm legend holders | Black background | White | ZBY01002 | 12.20 |
| | | Red background | White | ZBY01004 | |
| | | White background | Black | ZBY01001 | |
| | | Yellow background | Black | ZBY01005 | |
| 18 x 27 mm<br>Custom legend/insert only (specify engraving)<br>3 lines of 11 characters (including spaces) maximum per line<br>**Example**: ZBY05002 marked "Robot" | 30 x 50 mm legend holders | Black background | White | ZBY05002 | 12.20 |
| | | Red background | White | ZBY05004 | |
| | | White background | Black | ZBY05001 | |
| | | Yellow background | Black | ZBY05005 | |



© 2012 Schneider Electric
All Rights Reserved


ZBY1101

### Table 19.169: Sheets of Legends for Push Buttons, Switches, and Pilot Lights

| Description | Marking | Text | Catalog Number | $ Price |
|---|---|---|---|---|
| Sheets of 66 circular peel-off transparent self-adhesive legends | Blank–Round | | ZBY1101 | 6.20 |
| | Blank–Square legends | | ZBCY1101 | 6.20 |
| | International | O | ZBY1146 | 10.40 |
| | | I | ZBY1147 | |
| | | II | ZBY1148 | |
| | | III | ZBY1149 | |
| | | STOP | ZBY1304 | |
| | | → | ZBY1912 | |
| | English | HAND | ZBY1316 | 10.40 |
| | | OFF | ZBY1312 | |
| | | ON | ZBY1311 | |
| | | START | ZBY1303 | |
| SiS Label Software | Legend Design Software: English, French, German, Spanish, Italian | | XBY2U | 104.00 |

### Table 19.170: Push Button Caps—Unmarked


ZBA•


ZBL•

| For use with | Type of Push | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| ZB5AA0 push button heads | Flush | White | ZBA1 | 2.00 |
| | | Black | ZBA2 | |
| | | Green | ZBA3 | |
| | | Red | ZBA4 | |
| | | Yellow | ZBA5 | |
| | | Blue | ZBA6 | |
| | | 6 colors ▲ | ZBA9 | 4.20 |
| | Extended | White | ZBL1 | 2.00 |
| | | Black | ZBL2 | |
| | | Green | ZBL3 | |
| | | Red | ZBL4 | |
| | | Yellow | ZBL5 | |
| | | Blue | ZBL6 | |
| | | 6 colors ▲ | ZBL9 | 4.20 |

### Table 19.171: Push Button Caps—Marked



ZBA•33

| For use with | Type of Push | Marking | | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | Text | Color | | | |
| ZB5AA0 push button heads | Flush | I ■ | White | Green | ZBA331 | 4.20 |
| | | | Black | White | ZBA131 | |
| | | START ■ | White | Green | ZBA333 | |
| | | | Black | White | ZBA133 | |
| | | ON | White | Green | ZBA341 | |
| | | | Black | White | ZBA141 | |
| | | UP ■ | Black | White | ZBA343 | |
| | | DOWN■ | White | Black | ZBA344 | |
| | | ⏻ ■ | White | Green | ZBA345 | |
| | | ⏻ | White | Black | ZBA245 | |
| | | ⏀ | White | Green | ZBA346 | |
| | | ↑ | Black | White | ZBA334♦ | |
| | | | White | Black | ZBA335♦ | |
| | | O■ | White | Red | ZBA432 | |
| | | | | Black | ZBA232 | |
| | | STOP■ | White | Red | ZBA434 | |
| | | | | Black | ZBA234 | |
| | | OFF | White | Red | ZBA435 | |
| | | | | Black | ZBA235 | |
| | | R■ | White | Blue | ZBA639 | |

▲ Set of 6 different colored caps: white, black, green, red, yellow, blue.
■ Double injection molded marking.
♦ Cap supplied not clipped-in, allowing orientation of arrow in any one of 4 directions: ↑, ↓, ← or →





© 2012 Schneider Electric
All Rights Reserved


ZBA7235


ZBA7331

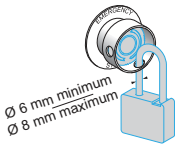

ZBA7432


ZBA79

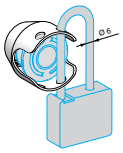
### Table 19.172: Multiple-head and XB5R Push Button Caps■

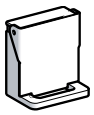
| For use with | Type of Push | Marking | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Double push button heads<br>Tripe push button heads<br>ZB4RZA0<br>ZB5RZA0 | Flush | Unmarked | White | ZBA71 | 4.00 |
| | | "I" black | | ZBA7131 | 5.30 |
| | | "➡" black | | ZBA7134 | 5.30 |
| | | "+" black | | ZBA7138 | 5.30 |
| | | Unmarked | Black | ZBA72 | 4.00 |
| | | "O" white | | ZBA7232 | 5.30 |
| | | "+" white | | ZBA7233 | 5.30 |
| | | "➡" white | | ZBA7235 | 5.30 |
| | | "I" white | | ZBA7237 | 5.30 |
| | | Unmarked | Green | ZBA73 | 4.00 |
| | | "I" white | | ZBA7331 | 5.30 |
| | | "+" white | | ZBA7333 | 5.30 |
| | | "⬆" white | | ZBA7335 | 5.30 |
| | | "II" white | | ZBA7336 | 5.30 |
| | | Unmarked | Red | ZBA74 | 4.00 |
| | | "O" white | | ZBA7432 | 5.30 |
| | | Unmarked | Yellow | ZBA75 | 4.00 |
| | | Unmarked | Blue | ZBA76 | 4.00 |
| | | Assorted | 10 colors♦ | ZBA79 | 3.00 |

▲ Sold in lots of 10.
■ Set of 10 different caps: white, black, green, red, yellow, blue, white "I" on green background, black "I" on white background, white "O" on red background, white "O" on black background.



ZBZ3605


ZBZ160•


ZB4BZ6•

### Table 19.173: Accessories

| Description | Application | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Padlocking kit<br>Conforming to EN / ISO 13850 ▼<br>(See legends below) | For Emergency Stop function only, with the following Ø40 mm trigger-action push buttons:<br>XB5AT8•<br>XB5AS8•<br>XB5AS9•<br>ZB5AT8•<br>ZB5AS8•<br>ZB5AS9• | Yellow | ZBZ3605 | 108.00 |
| Metal guards<br>Padlockable | For Emergency stop function only with the following Ø40 mm trigger-action push buttons:<br>XB5AT8•<br>XB5AS8•<br>XB5AS9•<br>ZB5AT8• (except ZB5AT8643M)<br>ZB5AS8•<br>ZB5AS9• | Chromium Plated | ZBZ1600 | 108.00 |
| | | Black | ZBZ1602 | |
| | | Red | ZBZ1604 | |
| | | Yellow | ZBZ1605 | |
| | | Blue | ZBZ1606 | |
| Plastic guards★ | Round Guard for ZB5AS5430<br>EMO Mushroom Operators | Yellow | ZB4BZ1905 | 25.80 |
| | Narrow Flange Guard for ZB5AS5430 or ZB5AS84430<br>EMO Mushroom Operators△ | Yellow | ZB4BZ2005 | |
| | Trigger Action Guard for ZB5AS84430<br>EMO Mushroom Operators | Yellow | ZB4BZ2105 | |
| Padlockable flaps | For push buttons | Black | ZB4BZ62 | 32.80 |
| | | Red | ZB4BZ64 | |
| Plastic blanking plug, round♦ | For Ø22 mm units with round heads | Black | ZB5SZ3 | 11.00 |
| Plastic blanking plug, square♦ | For Ø22 mm units with square heads | Black | ZB5SZ5 | 11.00 |
| Square insert | To give square appearance to ZB5A round heads | Black | ZB5AZ31 | 2.00 |
| Mounting nut | Operator | — | ZB5AZ901 | 4.40 |
| Tool | For tightening mounting nut ZB5AZ901 | — | ZB5AZ905 | 12.40 |
| Plate | Anti-rotation of head | — | ZB5AZ902 | 2.00 |
| | | | | |
| Ø60 mm Legend<br>for padlocking device ZBZ3605 | Without | Yellow | ZBY9101T | 3.40 |
| | EMERGENCY STOP | Yellow | ZBY9330T | |

♦ Mounting nut included with blanking plug.
★ For additional information, refer to publication **9001DB0601R6/06**.
▼ Standard circular legends are not compatible with this product. Use special legends ZBY• •T listed above.
△ Maximum panel thickness is 2.5 mm.


ZB4SZ3


ZB5SZ3


DLCE•••


DL1CF•••


XBFX13


ZBZ8

### Table 19.174: BA9s Bulbs and Associated Accessories

| Description | Characteristics | Catalog Number | $ Price |
|---|---|---|---|
| Replacement bulbs<br>(Type BA9s)<br>Incandescent | 6 V, 1.2 W | DL1CB006 | 11.00 |
| | 12 V, 2 W | DL1CE012 | |
| | 24 V, 2 W | DL1CE024 | |
| | 120–130 V, 2.4 W | DL1CE130 | |
| Neon bulbs | 120–130 V | DL1CF110 | 15.20 |
| | 230–240 V | DL1CF220 | |
| Bulb extractor | — | XBFX13 | 11.00 |
| Lens cap tightening tool | Illuminated push buttons with flush push | ZBZ8 | 6.20 |
| Power driver bits for mounting and wiring (package of 5) | Cross headed screw (POZIDRIV type 1) | ZB4BZ905 | 52.00 |
| Mounting Adapter | For mounting 22 mm push button in 30 mm knockout | ZBZ41 | 10.40 |



© 2012 Schneider Electric
All Rights Reserved



ZBZ•8

### Table 19.175: Bellows Seals for Harsh Environments (IP 69K) ▲

| Description | For use with | Color & Material | Sold in Lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Bellows Seals for harsh environments (Humidity, dust, high-pressure cleaning) | XB5 plastic mushroom head push button ▲, Ø40 mm or Ø60 mm | Red Silicone | 2 | ZBZ48 | 12.40 |
| | | Black EPDM | 2 | ZBZ28 | |
| | | Yellow EPDM | 2 | ZBZ58 | |

▲ Only when mounted on control stations. Use special legends ZBY• •T.



ZBDD2

### Table 19.176: Boot for standard selector switch handle

| Description | For use with | Catalog Number | $ Price |
|---|---|---|---|
| Boot for standard handle | ZB5A•• | ZBDD2 | 12.40 |



ZBG455



ZBG455P

### Table 19.177: Replacement Keys

| Description | Key Number | Catalog Number | $ Price |
|---|---|---|---|
| Set of 2 keys | 455 | ZBG455 | 11.00 |
| | 421E | ZBG421E | |
| | 458A | ZBG458A | |
| | 520E | ZBG520E | |
| | 3131A | ZBG3131A | |
| Set of 2 keys, One of which is supplied booted (rubber boot) | 455 | ZBG455P | 23.40 |
| | 421E | ZBG421EP | |
| | 458A | ZBG458AP | |
| | 520E | ZBG520EP | |
| | 3131A | ZBG3131AP | |



ZBP0

### Table 19.178: Clear Boots

| Description | For use with | Material | Catalog Number | $ Price |
|---|---|---|---|---|
| Single boots | Booted push buttons with circular head | Silicone | ZBP0 | 12.40 |
| | Booted push buttons with circular head used in food industry applications | | ZBP0A | 12.40 |
| Double boots | Double-headed push buttons, two flush | | ZBA708 | 10.80 |
| | Double-headed push buttons, one flush + one projecting | | ZBA709 | 10.80 |
| Triple boot | Triple-headed push buttons, two flush + one projecting | | ZBA710 | 10.80 |



ZBA709

### Table 19.179: Colored boots

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Single boot (can be replaced without dismantling the head) | Black | ZB2 BP012 | 13.00 |
| | Green | ZB2 BP013 | |
| | Red | ZB2 BP014 | |
| | Yellow | ZB2 BP015 | |
| | Blue | ZB2 BP016 | |



ZBV01•3

### Table 19.180: Lens Caps

| For use with | Color | Catalog Number | $ Price |
|---|---|---|---|
| **Lens caps for Protected LED™ light modules** | | | |
| Pilot lights | White | ZBV0113 | 5.40 |
| | Green | ZBV0133 | |
| | Red | ZBV0143 | |
| | Yellow | ZBV0153 | |
| | Blue | ZBV0163 | |
| Illuminated push buttons with flush push | White | ZBW9113 | 5.40 |
| | Green | ZBW9133 | |
| | Red | ZBW9143 | |
| | Yellow | ZBW9153 | |
| | Blue | ZBW9163 | |
| Illuminated push buttons with extended push | White | ZBW9313 | 5.40 |
| | Green | ZBW9333 | |
| | Red | ZBW9343 | |
| | Yellow | ZBW9353 | |
| | Blue | ZBW9363 | |
| **Circular lens caps for BA9s light modules** | | | |
| Pilot lights | White | ZBV011 | 5.40 |
| | Green | ZBV013 | |
| | Red | ZBV014 | |
| | Yellow | ZBV015 | |
| | Blue | ZBV016 | |
| | Clear | ZBV017 | |
| Illuminated push buttons with flush push | White | ZBW911 | 5.40 |
| | Green | ZBW913 | |
| | Red | ZBW914 | |
| | Yellow | ZBW915 | |
| | Blue | ZBW916 | |
| | Clear | ZBW917 | |
| Illuminated push buttons with extended push | White | ZBW931 | 5.40 |
| | Green | ZBW933 | |
| | Red | ZBW934 | |
| | Yellow | ZBW935 | |
| | Blue | ZBW936 | |
| | Clear | ZBW937 | |
| **Square lens caps for Protected LED light modules (ZB5C operators only)** | | | |
| Pilot lights | White | ZBCV0113 | 9.40 |
| | Green | ZBCV0133 | |
| | Red | ZBCV0143 | |
| | Yellow | ZBCV0153 | |
| | Blue | ZBCV0163 | |
| Illuminated push buttons with flush push | White | ZBCW9113 | 9.40 |
| | Green | ZBCW9133 | |
| | Red | ZBCW9143 | |
| | Yellow | ZBCW9153 | |
| | Blue | ZBCW9163 | |
| Illuminated push buttons with extended push | White | ZBCW9313 | 9.40 |
| | Green | ZBCW9333 | |
| | Red | ZBCW9343 | |
| | Yellow | ZBCW9353 | |
| | Blue | ZBCW9363 | |



ZBV01•





© 2012 Schneider Electric
All Rights Reserved



XB5RFA02



ZBRT1



ZB4RZA0





ZB5RTA4

### Table 19.181: Ready-to-use Packs▲

| Description | Transmitter Type | Voltage Receiver V | Receiver Type | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Packs include:<br>- 1 push button/transmitter<br>- 1 receiver<br>The push button and receiver are factory-paired■ | Ø 22 mm plastic head<br>+ 1 set of 10 different colored caps | ∿/⎓ 24 to 240 | Programmable receiver with:<br>- 2 relay outputs type RT 3A♦ | XB5RFA02 | **510.00** |
| | Ø 22 mm metallic head<br>+ 1 set of 10 different colored caps | | | XB4RFA02 | **510.00** |
| | Ø 22 mm plastic head | ⎓ 24 | Non-programmable receiver with:<br>- 1 relay output type RT 3A★ | XB5RFB01 | **210.00** |
| | Ø 22 mm metallic head | | | XB4RFB01 | **210.00** |
| Packs include:<br>- 1 push button/transmitter in handy box▼<br>- 1 receiver<br>The push button and receiver are factory-paired■ | Ø 22 mm plastic head<br>+ 1 set of 10 different colored caps | ∿/⎓ 24 to 240 | Programmable receiver with:<br>- 2 relay outputs type RT 3A♦ | XB5RMA04 | **590.00** |
| | Ø 22 mm metallic head<br>+ 1 operator head | ⎓ 24 | Non-programmable receiver with:<br>- 1 relay output type RT 3A★ | XB5RMB03 | **290.00** |

### Table 19.182: Transmitter Components for Wireless, Batteryless Push Buttons

| Description | Type of Push | Cap Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Transmitter for wireless, batteryless push buttons△ □ | – | – | ZBRT1 | **110.00** |
| Spring return push button heads for transmitter ZBRT1 | Plastic | Without cap◊ | ZB5RZA0 | **18.60** |
| | Metal | Without cap◊ | ZB4RZA0 | |
| Wireless, batteryless push buttons including:<br>- a transmitter fitted with mounting collar<br>- a spring return push button head with clipped-in cap☆ | Plastic | White | ZB5RTA1 | **130.00** |
| | | Black | ZB5RTA2 | |
| | | Green | ZB5RTA3 | |
| | | Green with white "I" | ZB5RTA331 | |
| | | Red | ZB5RTA4 | |
| | | Red with white "O" | ZB5RTA432 | |
| | | Yellow | ZB5RTA5 | |
| | | Blue | ZB5RTA6 | |
| | Metal | White | ZB4RTA1 | **130.00** |
| | | Black | ZB4RTA2 | |
| | | Green | ZB4RTA3 | |
| | | Green with white "I" | ZB4RTA331 | |
| | | Red | ZB4RTA4 | |
| | | Red with white "O" | ZB4RTA432 | |
| | | Yellow | ZB4RTA5 | |
| | | Blue | ZB4RTA6 | |

▲ Wireless and batteryless push button and receiver, factory-paired.
■ For additional components, these devices can be field-paired.
♦ Supplied with output function set to momentary. Outputs programmable to maintained and Start-Stop.
★ Non-programmable momentary output function.
▼ Supplied with a magnet.
△ Mounting collar ZB5AZ009 (plastic) or ZB4BZ009 (metal) to be ordered separately.
□ Only heads ZB4RZA0 and ZB5RZA0 are mechanically compatible.
◊ Cap to be ordered separately: see Table 19.184 on page 19-64.
☆ This cap is fitted by Schneider Electric and cannot be removed (risk of damage).



© 2012 Schneider Electric
All Rights Reserved



ZBRRA



ZBA7235



ZBA7331



ZBA7432



ZBA79



ZBRM01



XALD02H7



ZBRA1

## Table 19.183: Programmable Receivers

| Description | Output Type | Voltage Receiver V | Catalog Number | $ Price |
|---|---|---|---|---|
| Programmable receivers equipped with:<br>- 2 buttons (“Scroll-through”, “Ok”)<br>- 6 indicating LEDs (power ON, outputs, signal strength) | 4 PNP outputs, 200 mA / 24 V | ⎓ 24 | ZBRRC | **430.00** |
| | 2 relay outputs type RT 3A▲ | ∿/⎓ 24 to 240 | ZBRRA | **430.00** |

## Table 19.184: Caps for Harmony Push Button Heads ZB5RZA0 and ZB4RZA0

| Description | Background Color | Marking | Sold in lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Sets of 10 different colored caps with identical marking■ | White | Without | 10 | ZBA71 | **4.00** |
| | | “I” (black) | 10 | ZBA7131 | **5.30** |
| | | “⇧” (black) | 10 | ZBA7134 | **5.30** |
| | | “+” (black) | 10 | ZBA7138 | **5.30** |
| | Black | Without | 10 | ZBA72 | **4.00** |
| | | “O” (white) | 10 | ZBA7232 | **5.30** |
| | | “+” (white) | 10 | ZBA7233 | **5.30** |
| | | “⇩” (white) | 10 | ZBA7235 | **5.30** |
| | | “I” (white) | 10 | ZBA7237 | **5.30** |
| | Green | Without | 10 | ZBA73 | **4.00** |
| | | “I” (white) | 10 | ZBA7331 | **5.30** |
| | | “+” (white) | 10 | ZBA7333 | **5.30** |
| | | “⇧” white | 10 | ZBA7335 | **5.30** |
| | | “II” (white) | 10 | ZBA7336 | **5.30** |
| | Red | Without | 10 | ZBA74 | **4.00** |
| | | “O” (white) | 10 | ZBA7432 | **5.30** |
| | Yellow | Without | 10 | ZBA75 | **4.00** |
| | Blue | Without | 10 | ZBA76 | **4.00** |
| Set of 10 different colored caps with different markings■ | White, black, green, red, yellow, blue, white “I” on green background, black “I” on white background, white “O” on red background, white “O” on black background | | 10 | ZBA79 | **3.00** |

## Table 19.185: Boxes for Wireless, Batteryless Push Buttons

| Description | For use with: | Marking | Sold in lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Handy box, plastic, empty ♦ ★ | Mobile wireless,batteryless push buttons | 1 cut-out | 1 | ZBRM01 | **80.00** |
| Empty enclosures ▼ | Mounted or on-board wireless,batteryless push buttons | 1 cut-out | 1 | XALD01H7 | **32.80** |
| | | 2 cut-outs | 1 | XALD02H7 | **38.20** |

## Table 19.186: Accessories

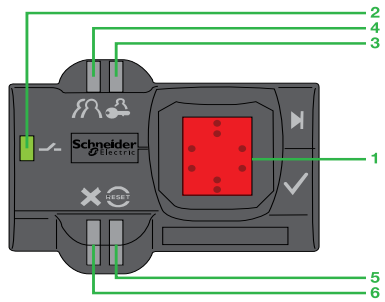
| Description | For use with: | Marking | Sold in lots of | Catalog Number | $ Price |
|---|---|---|---|---|---|
| External antenna △ | Between transmitter and receiver, used to increase the range and/or get around obstacles | ∿/⎓ 24 to 240 V<br>- 5m cable<br>- 1 power-ON LED<br>- 2 LEDs reception/transmission | 1 | ZBRA1 | **170.00** |
| Mounting collar | – | Plastic | 10 | ZB5AZ009 | **5.40** |
| | | Metal | 10 | ZB4BZ009 | **5.40** |
| Legend plate, 27 x 8 mm, for engraving | For adhering to handy box ZBRM01 | Self-adhesive, blank, black background | 10 | ZBY0101T | **1.70** |

▲ Supplied with output function set to momentary Outputs programmable to maintained and Start-Stop.
■ Cap can be clipped-in at 90° steps, through 360°.
♦ Cannot be used for wired contacts (no cable gland outlet).
★ Supplied with a magnet.
▼ Box equipped with cable gland outlets, compatible with Harmony ZB5 push button heads.
△ Not wired to the receiver.





© 2012 Schneider Electric
All Rights Reserved






XB5 S•B••••



ZB5 SZ70



ZB5SZ72

## Biometric Switches

The fingerprint-reading biometric switch is designed for use in industry to restrict access to systems or machines. No interface is required to program or operate the switch: it is an independent unit.

Two types of products are available:

- Maintained biometric switches, Type XB5S1B, with two fixed states
- Momentary biometric switches, Type XB5S2B, with pulse output

The biometric switch is aimed at two types of users:

- The administrator who manages the registration and deletion of fingerprints
- The operator who, once registered, uses the product as a control unit

The product is of monolithic design (a single plastic housing) and is mounted by a nut (hand-tightened without the need for tools) in a standard 22 mm diameter hole. It operates on a 24 Vdc supply.

The product connects to the power supply and to the control output (relay or PLC) with a 2 meter cable or with an M12 connector.

It can be installed on a flat, horizontal, or vertical surface.

Two protective covers are available (see table below)

- One to protect the active face of the sensing screen. This cover is attached with a self-adhesive hinge
- One made of 12 gauge stainless steel — designed to cover the entire switch — which protects the entire switch from the outdoor environment (rain, sleet, snow, sunlight, UV protection). It also gives some protection from someone trying to break into the switch

## Description

The product consists of a dark gray housing, with the following on its front face:

- A sensing screen **(1)** that allows the registration of fingerprints and subsequent recognition of the registered fingerprints
- A green LED output state indicator **(2)**, which illuminates when the output is activated (N.O. solid state contact)
- An orange LED **(3)**, indicating an administrator's Registration mode
- An orange LED **(4)**, indicating an operator's Registration mode
- A red Reset LED **(5)**, which indicates in Delete mode that the administrator is deleting all or part of the memory
- A red LED **(6)** which flashes to indicate an unrecognized fingerprint or incorrect operation

### Table 19.187: Complete Units

| Description | Output | Connection | Catalog Number | $ Price |
|---|---|---|---|---|
| Maintained biometric switch, 24 Vdc | PNP | 2 m cable | XB5S1B2L2 | **580.00** |
| | | M12 connector | XB5S1B2M12 | **595.00** |
| Momentary biometric switch, 24 Vdc with 0.5 s output pulse | PNP | 2 m cable | XB5S2B2L2 | **580.00** |
| | | M12 connector | XB5S2B2M12 | **595.00** |

### Table 19.188: Accessories

| Description | Function | Catalog Number | $ Price |
|---|---|---|---|
| Protective cover, translucent and self-adhesive | Protection of the sensing screen | ZB5SZ70 | **10.00** |
| Mounting nut, Ø 22 mm | Replacement part | ZB5SZ71 | **6.00** |
| Legend plate, 28 x 7 mm, self-adhesive, blank, with black background, for engraving | | ZBY0101T | **1.70** |
| Mounting adapter | Allows this product to mount in a 30 mm mounting hole | ZBZ41 | **10.40** |
| Stainless-steel protective cover | Protects switch from outside elements and vandalism | ZB5SZ72 | **220.00** |



© 2012 Schneider Electric
All Rights Reserved

**Table 19.189: Biometric Switch Specifications**

| Biometric Switch, Types XB5S1B•••• and XB5S2B•••• | | |
|---|---|---|
| Product certifications | | UL, CSA, CE IEC 61000-6-2 / IEC 61000-6-4 |
| Degree of protection | Conforming to EN/IEC 60529 | IP 65, NEMA 1, 2, 3, 3R, 12 |
| Ambient air temperature | Storage | -25 to +70°C |
| | Operation | -5 to +50°C |
| Vibration resistance | Conforming to IEC 60068-2-6 | 1 gn, 9 to 500 Hz. Amplitude 3 mm, 5 to 9 Hz |
| Electric shock resistance | Conforming to IEC60068-2-27 | 50 gn, duration 11 ms |
| Connection method | Cable | Length: 2 m, 3-wire, pre-wired |
| | Connector | M12 |
| Materials | Housing | Polyamide PA66 |
| | Cable | PvR 3 x 0.34 $mm^2$ |
| Memory capacity | | 200 records (100 users, operators, or administrators, each registering 2 fingerprints) |
| Output state indicator | | Green LED |
| Short-circuit protection | | By gG fuse, 250 mA |
| Rated supply voltage | | 24 Vdc with protection against reverse polarity |
| Voltage limits (including ripple) | | 20–30 Vdc |
| Switching capacity | | ≤ 200 mA with protection against overloads and short-circuits |
| Residual voltage, closed state | | ≤ 1 V |
| No-load current consumption | | ≤ 50 mA |
| Delays | First-up | < 2 s |
| | Response time | < 1 s |
| | Recovery time | < 1 s |

***NOTE:*** *Momentary switch has 0.5 s output pulse.*

**Figure 19.1: Connections**

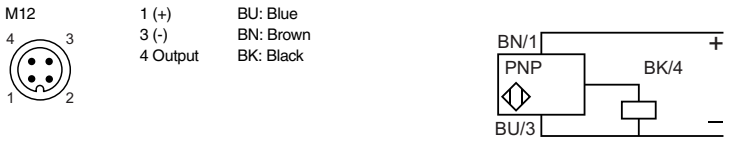
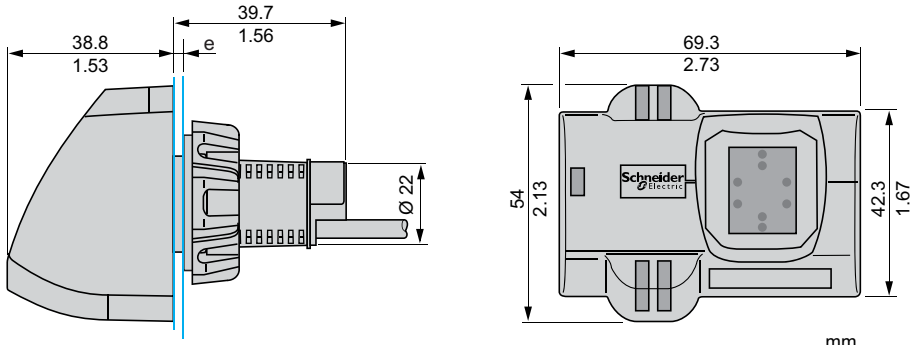



**Figure 19.2: Dimensions**

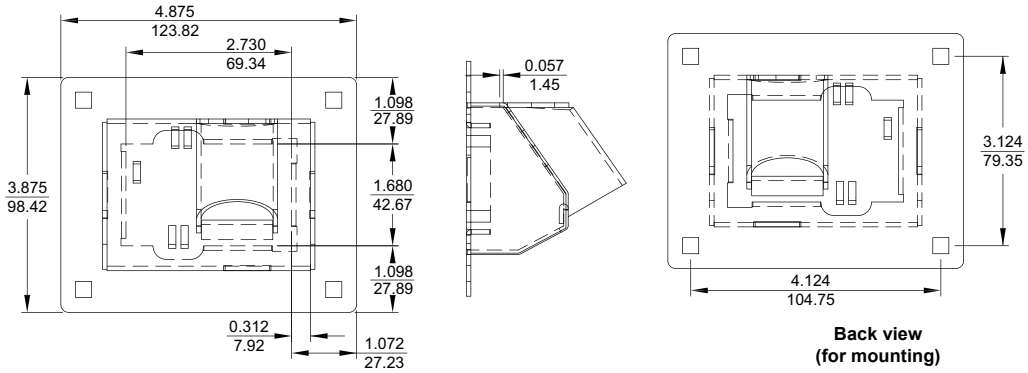
XB5 Biometric Switch




e = 1 to 6 mm
(0.04 to 0.24 in.)

Dim. = mm / in.

Stainless-Steel Cover




**Back view (for mounting)**





© 2012 Schneider Electric
All Rights Reserved

## Table 19.190: Non-Illuminated Momentary Push Button Operators UL Types 4, 13/NEMA 4, 13

For use in hazardous locations—See page 19-87.
Contact blocks and legend plate not included unless otherwise noted.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | Color | Operator with 1 N.O. and 1 N.C. Contact (KA1) | $ Price | Operator with 1 N.O. Contact (KA2) | Operator with 1 N.C. Contact (KA3) | $ Price | Operator Only with No Contacts | $ Price |
|---|---|---|---|---|---|---|---|---|---|
|  9001KR1B | Full Guard | Black | KR1BH13 | | KR1BH5 | KR1BH6 | | KR1B | |
| | | Red | KR1RH13 | | KR1RH5 | KR1RH6 | | KR1R | |
| | | Green | KR1GH13 | | KR1GH5 | KR1GH6 | | KR1G | |
| | | Universal ▲ | KR1UH13 | | KR1UH5 | KR1UH6 | | KR1U | |
| | | Other ■ | KR1■H13 | | KR1■H5 | KR1■H6 | | KR1■ | |
|  9001KR3B | No Guard | Black | KR3BH13 | | KR3BH5 | KR3BH6 | | KR3B | |
| | | Red | KR3RH13 | | KR3RH5 | KR3RH6 | | KR3R | |
| | | Green | KR3GH13 | | KR3GH5 | KR3GH6 | | KR3G | |
| | | Universal ▲ | KR3UH13 | **89.00** | KR3UH5 | KR3UH6 | **66.00** | KR3U | **38.60** |
| | | Other ■ | KR3■H13 | | KR3■H5 | KR3■H6 | | KR3■ | |
|  9001KR2B | Extended Guard | Black | KR2BH13 | | KR2BH5 | KR2BH6 | | KR2B | |
| | | Red | KR2RH13 | | KR2RH5 | KR2RH6 | | KR2R | |
| | | Green | KR2GH13 | | KR2GH5 | KR2GH6 | | KR2G | |
| | | Universal ▲ | KR2UH13 | | KR2UH5 | KR2UH6 | | KR2U | |
| | | Other■ | KR2■H13 | | KR2■H5 | KR2■H6 | | KR2■ | |
|  9001KR4B | 1-3/8 in. (35 mm) Diameter Mushroom Button | **Snap-In Plastic Mushroom Button** | | | | | | | |
| | | Black | KR4BH13 | | KR4BH5 | KR4BH6 | **112.00** | KR4B | **81.00** |
| | | Red | KR4RH13 | | KR4RH5 | KR4RH6 | **112.00** | KR4R | **81.00** |
| | | Red ♦ | KR4R05H13 | **138.00** | KR4R05H5 | KR4R05H6 | **119.00** | KR4R05 | **86.00** |
| | | Green | KR4GH13 | | KR4GH5 | KR4GH6 | **112.00** | KR4G | **81.00** |
| | | Other ★ | KR4★H13 | | KR4★H5 | KR4★H6 | **112.00** | KR4★ | **81.00** |
| | | Black | KR24BH13 | | KR24BH5 | KR24BH6 | | KR24B | |
| | | Red | KR24RH13 | **138.00** | KR24RH5 | KR24RH6 | **112.00** | KR24R | **81.00** |
| | | Green | KR24GH13 | | KR24GH5 | KR24GH6 | | KR24G | |
| | | Other★ | KR24★H13 | | KR24★H5 | KR24★H6 | | KR24★ | |
|  9001KR24BM | 1-1/2 in. (40 mm) Diameter Mushroom Button | **Screw-in Metal Mushroom Button with Set Screw Security** | | | | | | | |
| | | Black | — | | — | — | | 9001KR24BM | |
| | | Red | — | — | — | — | — | 9001KR24RM | **90.00** |
| | | Green | — | | — | — | | 9001KR24GM | |
|  9001KR5B | 2-1/4 in. (57 mm) Diameter Mushroom Button | **Snap-In Plastic Mushroom Button** | | | | | | | |
| | | Black | KR5BH13 | | KR5BH5 | KR5BH6 | **112.00** | KR5B | **81.00** |
| | | Red | KR5RH13 | | KR5RH5 | KR5RH6 | **119.00** | KR5R | **81.00** |
| | | Red ♦ | KR5R05H13 ♦ | **138.00** | KR5R05H5 ♦ | KR5R05H6 ♦ | **112.00** | KR5R05 ♦ | **86.00** |
| | | Green | KR5GH13 | | KR5GH5 | KR5GH6 | **112.00** | KR5G | **81.00** |
| | | Other★ | KR5★H13 | | KR5★H5 | KR5★H6 | **112.00** | KR5★ | **81.00** |
| | | Black | KR25BH13 | | KR25BH5 | KR25BH6 | | KR25B | |
| | | Red | KR25RH13 | **138.00** | KR25RH5 | KR25RH6 | **112.00** | KR25R | **81.00** |
| | | Green | KR25GH13 | | KR25GH5 | KR25GH6 | | KR25G | |
| | | Other★ | KR25★H13 | | KR25★H5 | KR25★H6 | | KR25★ | |
|  9001KR25BM | 2-3/8 in. (60 mm) Diameter Mushroom Button | **Screw-in Metal Mushroom Button with Set Screw Security** | | | | | | | |
| | | Black | — | | — | — | | 9001KR25BM | |
| | | Red | — | — | — | — | — | 9001KR25RM | **101.00** |
| | | Green | — | | — | — | | 9001KR25GM | |

▲ The universal push button operators contain one each of the following color inserts: black, red, green, yellow, orange, blue and white.
■ See Table 19.191 for color code.
♦ Knob has the words "Emergency Stop" in raised letters highlighted in white for readability.
★ See Table 19.191 for color code.

## Table 19.191: Color Codes

| Color | KR1, 2, 3 Place Color Code in Type Number ■ | KR4, 5, 24, 25 Place Color Code in Type Number ★ |
|---|---|---|
| Blue | L | L |
| Yellow | Y | Y |
| White | W | — |
| Orange | S | S |
| Gray | E | — |

***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

## Table 19.192: 30 mm Multifunction Operators

*NOTE: When ordering, add prefix 9001 to the catalog number.*

| Description ∗ | | Color | With 2 N.C. Contacts (1 KA3, 1 KA5) | With 1 N.O. & 1 N.C. Contact (1 KA1) | $ Price | Without Contacts ☆ | $ Price |
|---|---|---|---|---|---|---|---|
| **Non-Illuminated Push-Pull Mushroom Operators** | | | | | | | |
|  **KR9R94H13** Set Screw Style | Position, Plastic Head 1-5/8 in. (40 mm), Screw-0n Momentary Pull Maintained Neutral Momentary Push ⬙ | Red<br>Green<br>Other ▼ | KR8RH25<br>KR8GH25<br>KR8▼H25 | —<br>—<br>— | **142.00** | KR8R<br>KR8G<br>KR8▼ | **86.00** |
| | 2 Position, Plastic Head 1-5/8 in. (40 mm), Screw-0n Maintained Pull Maintained Push ◑ | Red ◒<br>Green<br>Other ▼ | —<br>—<br>— | KR9RH13<br>KR9GH13<br>KR9▼H13 | **188.00** | KR9R<br>KR9G<br>KR9▼ | **129.00** |
| | 2 Position , Plastic Head 1-5/8 in. (40 mm), Screw-0n Head with Set Screw Maintained Pull Maintained Push ◑ | Red | — | KR9R94H13 | **194.00** | KR9R94 | **134.00** |
|  9001KR9RM94 | 2 Position, Metal Head 1-1/2 in. (40 mm) Diameter | Black<br>Red<br>Green | —<br>—<br>— | — | —<br>—<br>— | 9001KR9BM94<br>9001KR9RM94<br>9001KR9GM94 | **138.00** |
|  9001KR9RM95 | 2 Position, Metal Head 2-3/8 in. (60 mm) Diameter | Black<br>Red<br>Green | —<br>—<br>— | — | —<br>—<br>— | 9001KR9BM95<br>9001KR9RM95<br>9001KR9GM95 | **149.00** |

| Description | | Color | With 1 N.O. & 1 N.C. Contact (KA1) | $ Price | With 2 N.O. & 2 N.C. Contacts (KA2) | $ Price | Without Contacts | $ Price |
|---|---|---|---|---|---|---|---|---|
| **Non-Illuminated Turn-to-Release Mushroom Operators** | | | | | | | | |
|  **9001KR16H2** Trigger Action | 2 Position, Plastic Head Turn-to-Release Trigger Action | Red | KR16H13 | **172.00** | KR16H2 | **218.00** | KR16 | **113.00** |



**9001KR9P1**
1.625 in. Diameter Knob
For 1-3/8 in. or 2-1/4 in. Diameter Knob ∗
Includes Type KN379
Legend Plate Marked
Pull To Start Push To Stop

**Screw-On Plastic Illuminated Push-Pull Mushroom Operators**

| Description ∗ | Voltage | With Red Knob and 2 N.C. Contacts (1 KA3, 1 KA5) | With Other Color Knob and 2 N.C. Contacts (1 KA3, 1 KA5) | $ Price | With Other Color Knob Without Contacts ☆ | $ Price |
|---|---|---|---|---|---|---|
| 3 Position Illuminated Momentary Pull Maintained Neutral Momentary Push⬙ | 110-120 V, 50-60 Hz<br>Other—Transformer, LED, Flashing □<br>Other—Full Voltage, Resistor, Neon ◊ | KR8P1RH25<br>KR8P△RH25<br>KR8P△RH25 | KR8P1▼H25<br>KR8P△▼H25<br>KR8P△▼H25 | **267.00**<br>**267.00**<br>**215.00** | KR8P1▼<br>KR8P△▼<br>KR8P△▼ | **201.00**<br>**201.00**<br>**171.00** |
| **Description ∗** | **Voltage** | **With Red◒ Knob and 1 N.O. & 1 N.C. Contact (KA1)** | **With Other Color Knob and 1 N.O. & 1 N.C. Contact (KA1)** | **$ Price** | **With Other Color Knob Without Contacts** | **$ Price** |
| 2 Position Illuminated Maintained Pull Maintained Push | 110–120 V, 50–60 Hz<br>Other—Transformer, LED, Flashing □<br>Other—Full Voltage, Resistor, Neon ◊ | KR9P1RH13<br>KR9P△RH13<br>KR9P△RH13 | KR9P1▼H13<br>KR9P△▼H13<br>KR9P△▼H13 | **316.00**<br>**316.00**<br>**257.00** | KR9P1▼<br>KR9P△▼<br>KR9P△▼ | **243.00**<br>**243.00**<br>**215.00** |

▼ Choose one color from the Color Codes table here, and insert the color code in Type number. **Example: KR9** with a yellow knob = **KR9Y**

△ Add the voltage assembly code as chosen from page 19-86. **Example: KR8P** with a 277 V 50–60 Hz voltage = **KR8P8**

□ The knob must be the same color as the LED light module chosen, for example, for a green LED, use a green knob.

◊ On neon light modules, use clear knobs only.

☆ These operators can be ordered complete with contact blocks. For maximum block usage, see page 19-88. Add the "H" number chosen from page 19-88 to the end of the operator Type number and add the cost of the "H" number to the operator cost.

▽ KR11UH1 has 1 KA1 (1 N.O., 1 N.C.) and KR12UH1H1 has 2 KA1 (2 N.O., 2 N.C.).

◒ To obtain a red knob with "Push Emergency Stop" printed on the red knob—substitute "R05" in place of "R" and add **$2.10** to the price.

∗ For 1-3/8 in. or 2-1/4 in. Dia. Knob:
a) Order Type -20 or -21 knob from page 19-92.
b) Order 9001K54 adapter (no charge)—allows Type -20 or -21 knob to fit on push pull operators. Voids UL and NEMA 6 rating.
c) Can order assembled operator by adding color code to Type -20 or -21. **Example: 9001KR9R** would be **9001KR9R20** or **9001KR9R21**. No price adder.

⬙ See page 19-67 for contact sequences.

◑ See Table 19.193.

## Table 19.193: Color Codes

| Color | KR8, KR9 |
|---|---|
| Black ✪ | B |
| Red | R |
| Green | G |
| Blue | L |
| Yellow | Y |
| White | W |
| Orange ✪ | S |
| Clear | C |
| Amber | A |
| Gray | — |

✪ These colors are not available on illuminated push-pull operators.

## Table 19.194: Contact Sequences

| 9001 KR8RH1 or H13 | | | | |
|---|---|---|---|---|
| | | Pull | Ctr | Push |
| (KA1) | KA3 | X | O | O |
| | KA2 | O | O | X |

| 9001 KR8RH25 | | | |
|---|---|---|---|
| KA3 | X | O | O |
| KA5 | X | X | O |
| KA2 | O | O | X |

*NOTE: To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*





© 2012 Schneider Electric
All Rights Reserved

## Table 19.195: Illuminated Momentary Push Button Operators
## UL Types 4, 13/NEMA 4, 13

For use in hazardous locations—See page 19-87.
Legend plate and contact block not included unless otherwise noted.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | Voltage and Frequency | Style | With Red Color Cap and 1 N.O. and 1 N.C. Contact (KA1) | With Green Color Cap and 1 N.O. and 1 N.C. Contact (KA1) | $ Price □ | With Other Color Cap Without Contact Block ▲ | $ Price ◊ |
|---|---|---|---|---|---|---|---|---|
|  9001K1L1 | Full Guard Illuminated Push Button Clear Plastic Top | 110–120 V, 50–60 Hz | Transformer | K1L1RH13 | K1L1GH13 | **231.00** | K1L1▼ | **184.00** |
| | | 220–240 V, 50–60 Hz | Transformer | K1L7RH13 | K1L7GH13 | **231.00** | K1L7▼ | **184.00** |
| | | 24–28 Vac/Vdc | Full Voltage | K1L35RH13 | K1L35GH13 | **198.00** | K1L35▼ | **138.00** |
| | | For other voltages see Table ■ | Transformer or Flashing | K1L■RH13 | K1L■GH13 | **231.00** | K1L■▼ | **184.00** |
| | | | Full Voltage | K1L■RH13 | K1L■GH13 | **198.00** | K1L■▼ | **138.00** |
| | | | Resistor or Neon♦ | K1L■RH13 | K1L■GH13 | **198.00** | K1L■▼ | **138.00** |
| | | | LED ★ | K1L■RH13 | K1L■GH13 | **231.00** | K1L■▼ | **184.00** |
|  9001K3L1 | Full Guard Illuminated Push Button Metal Top | 110–120 V, 50–60 Hz | Transformer | K3L1RH13 | K3L1GH13 | **231.00** | K3L1▼ | **184.00** |
| | | 220–240 V, 50–60 Hz | Transformer | K3L7RH13 | K3L7GH13 | **231.00** | K3L7▼ | **184.00** |
| | | 24–28 Vac/Vdc | Full Voltage | K3L35RH13 | K3L35GH13 | **198.00** | K3L35▼ | **138.00** |
| | | For other voltages see Table ■ | Transformer or Flashing | K3L■RH13 | K3L■GH13 | **231.00** | K3L■▼ | **184.00** |
| | | | Full Voltage | K3L■RH13 | K3L■GH13 | **198.00** | K3L■▼ | **138.00** |
| | | | Resistor or Neon ♦ | K3L■RH13 | K3L■GH13 | **231.00** | K3L■▼ | **138.00** |
| | | | LED ★ | K3L■RH13 | K3L■GH13 | **231.00** | K3L■▼ | **184.00** |
|  9001K2L1 | No Guard Illuminated Push Button | 110–120 V, 50–60 Hz | Transformer | K2L1RH13 | K2L1GH13 | **217.00** | K2L1▼ | **153.00** |
| | | 220–240 V, 50–60 Hz | Transformer | K2L7RH13 | K2L7GH13 | **217.00** | K2L7▼ | **153.00** |
| | | 24–28 Vac/Vdc | Full Voltage | K2L35RH13 | K2L35GH13 | **184.00** | K2L35▼ | **125.00** |
| | | For other voltages see Table ■ | Transformer or Flashing | K2L■RH13 | K2L■GH13 | **217.00** | K2L■▼ | **153.00** |
| | | | Full Voltage | K2L■RH13 | K2L■GH13 | **184.00** | K2L■▼ | **125.00** |
| | | | Resistor or Neon ♦ | K2L■RH13 | K2L■GH13 | **184.00** | K2L■▼ | **125.00** |
| | | | LED ★ | K2L■RH13 | K2L■GH13 | **217.00** | K2L■▼ | **153.00** |
|  9001K2LR20 | 1-3/8 in. (35 mm) Illuminated Mushroom, Screw-On Plastic Head | 110–120 V, 50–60 Hz | Transformer | K2L1R20H13 | K2L1G20H13 | **217.00** | Order K2L ■▼ Above △ | |
| | | 220–240 V, 50–60 Hz | Transformer | K2L7R20H13 | K2L7G20H13 | **217.00** | | |
| | | 24–28 Vac/Vdc | Full Voltage | K2L35R20H13 | K2L35G20H13 | **184.00** | | |
| | | For other voltages see Table ■ | Transformer or Flashing | K2L■R20H13 | K2L■G20H13 | **217.00** | | |
| | | | Full Voltage | K2L■R20H13 | K2L■G20H13 | **184.00** | | |
| | | | Resistor or Neon ♦ | K2L■R20H13 | K2L■G20H13 | **184.00** | | |
| | | | LED ★ | K2L■R20H13 | K2L■G20H13 | **217.00** | | |
|  9001K2LR21 | 2-1/4 in. (57 mm) Illuminated Mushroom, Screw-On Plastic Head | 110–120 V, 50–60 Hz | Transformer | K2L1R21H13 | K2L1G21H13 | **217.00** | Order K2L ■▼ Above △ | |
| | | 220–240 V, 50–60 Hz | Transformer | K2L7R21H13 | K2L7G21H13 | **217.00** | | |
| | | 24–28 Vac/Vdc | Full Voltage | K2L35R21H13 | K2L35G21H13 | **184.00** | | |
| | | For other voltages see Table ■ | Transformer or Flashing | K2L■R21H13 | K2L■G21H13 | **217.00** | | |
| | | | Full Voltage | K2L■R21H13 | K2L■G21H13 | **184.00** | | |
| | | | Resistor or Neon ♦ | K2L■R21H13 | K2L■G21H13 | **184.00** | | |
| | | | LED ★ | K2L■R21H13 | K2L■G21H13 | **217.00** | | |

▲ These operators can be ordered complete with contact blocks. For maximum block usage, see page 19-88. Add the "H" number chosen from page page 19-88 to the end of the operator type number and add the cost of the "H" number to the operator cost.
■ Add the voltage assembly code as chosen from Table 19.248 or Table 19.249 on page 19-86. **Example:** K2L▲ with 240 Vac/Vdc = K2L25
♦ On neon light modules, use clear color caps only.
★ The cap must be the same color as the LED light module chosen, e.g., for red LED, use red color cap.
▼ Add the color code as chosen from the color cap table. **Example:** K2L25♦ with a blue 13◆6 mushroom button = K2L25L20
△ The only difference between a no guard (K2L♦) operator and mushroom button operator is the color cap.
□ Price includes operator, light module, contact block, and color cap.
◊ Price includes operator, light module, and color cap.

## Table 19.196: Color Caps

| Color | Color Codes | | |
|---|---|---|---|
| | ▼ K1L, K2L, K3L | ▼ 1-3/8 in. Mushroom | ▼ 2-1/4 in. Mushroom |
| Red | R | R20 | R21 |
| Green | G | G20 | G21 |
| Blue | L | L20 | L21 |
| Yellow | Y | Y20 | Y21 |
| White | W | W20 | W21 |
| Clear | C | C20 | C21 |
| Amber | A | A20 | A21 |

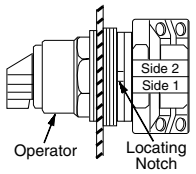
***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

## Table 19.197: 2-Position Selector Switches

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Contact Block Required | | | | | 1 — Contact Closed 0 — Contact Open | | | |
|---|---|---|---|---|---|---|---|---|
| Contact Block Position | Quantity and Type KA1 or KA2 or KA3 | | | Mount on Side KA1 or KA2 or KA3 | | | Left | Right | Left | Right |
|  Top View | KA1 | or | KA3 | KA1 #2 | or | KA3 #2 | 1 | 0 | 0 | 1 |
| | | | KA2 | | | KA2 #2 | 0 | 1 | 1 | 0 |
| | KA1 | or | KA3 | KA1 #1 | or | KA3 #1 | 1 | 0 | 0 | 1 |
| | | | KA2 | | | KA2 #1 | 0 | 1 | 1 | 0 |
| 19-73 | | | | | | | E | | D | |

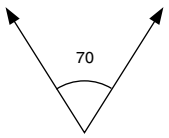
| Non-Illuminated Operators | Cat. No. | Cat. No. | $ Price |
|---|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | KS11 | KS12 | **42.80** |
| With Knob (select style and color from Table 19.198 below) | KS11* | KS12* | **42.80** |
| Key Operated with E10 Key (Code1,2,3) | KS11K** | KS12K** | **138.00** |
| **Operator with Contact Blocks and Standard black knob** | | | |
| With 1 KA1 on Side #2 | KS11BH13 | — | **106.00** |
| With 1 KA1 on Side #1 | KS11BH1 | — | **106.00** |
| With 1 KA1 on Side #1 and 1 KA1 on side #2 | KS11BH2 | — | **152.00** |
| **Spring Return from Left ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | KS25 | — | **71.00** |
| With Knob (select style and color from Table 19.198) | KS25* | — | **71.00** |
| Key Operated with E10 Key (Code 2 only)★ | KS25K2 | — | **167.00** |
| **Spring Return from Right ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | — | KS34 | **71.00** |
| With Knob (select style and color from Table 19.198 below) | — | KS34* | **71.00** |
| Key Operated with E10 Key (Code 1 only) | — | KS34K1 | **167.00** |

| Illuminated Operators | Cat. No. | Cat. No. | $ Price |
|---|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K11J1 | K12J1 | **158.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K11J1R | K12J1R | **167.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K11J■♦ | K12J■♦ | **167.00** |
| **Spring Return from Left ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K25J1 | — | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K25J1R | — | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K25J■♦ | — | **197.00** |
| **Spring Return from Right ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | — | K34J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | — | K34J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | — | K34J■♦ | **197.00** |

▲ These operators can be ordered complete with contact blocks. Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208 Vac = K25J3.
♦ Add the knob color code from Table 19.198. For LED, knob color must match LED.
★ Add the key withdrawal code from Table 19.199.

## Table 19.198: Selector Switch Assembly Code and Knob Cat. No.

| Color | Standard Knob | | Gloved Hand Knob | | $ Price |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | |
| Black | B | B11 | FB | B25 | |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | **9.90** |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |



**2 Position**

## Table 19.199: ★ Key Withdrawal Codes

| Code | Position |
|---|---|
| 1 | Left Only |
| 2 | Right Only |
| 3 | Left and Right |

***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories, see pages 19-85 through 19-92.*

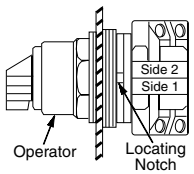




© 2012 Schneider Electric
All Rights Reserved

## Table 19.200: 3-Position Selector Switches

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*




**Top View**

| Contact Block Required | | | | | 1 - Contact Closed 0- Contact Open | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact Block Position | Quantity and Type | | | Mount on Side | Center Left Right | Center Left Right | Center Left Right | Center Left Right | Center Left Right | Center Left Right | Center Left Right | Center Left Right | Center Left Right |
| KA1 | or | KA3 / KA2 | KA1 #2 | or | KA3 #2 | 1 0 0 | 1 0 0 | 0 0 1 | 1 0 0 | 1 0 0 | 1 0 0 | 1 0 0 | 0 1 0 | 1 1 0 |
| | | | | | KA2 #2 | 0 1 1 | 0 0 1 | 0 1 0 | 0 1 0 | 0 0 1 | 0 1 1 | 0 1 1 | 1 0 0 | 0 0 1 |
| KA1 | or | KA3 / KA2 | KA1 #1 | or | KA3 #1 | 0 0 1 | 1 0 0 | 0 0 1 | 1 0 0 | 0 1 0 | 0 0 1 | 1 0 1 | 0 0 1 | 0 1 1 |
| | | | | | KA2 #1 | 1 1 0 | 0 0 1 | 0 1 0 | 0 1 0 | 0 0 1 | 1 0 0 | 0 1 0 | 0 1 0 | 1 0 0 |

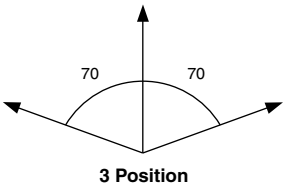
| 19-73 | B | C | D | E | F | G | J | L | M | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Non-Illuminated Operators** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **$ Price** |
| **Manual Return, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | KS42 | KS43 | KS44 | KS45 | KS46 | KS47 | KS49 | KS401 | KS402 | **43.00** |
| With Knob (select style and color from table 19.168 below) | KS42♦ | KS43♦ | KS44♦ | KS45♦ | KS46♦ | KS47♦ | KS49♦ | KS401♦ | KS402♦ | **53.00** |
| Key Operated with E10 Key (Code 4 through 10) ▼ | KS42K▼ | KS43K▼ | KS44K▼ | KS45K▼ | KS46K▼ | KS47K▼ | KS49K▼ | KS401K▼ | KS402K▼ | **138.00** |
| **Operator with Contact Blocks and Standard black knob ★** | | | | | | | | | | |
| With 1 KA1 on Side #2 (H13) | KS42BH13 | KS43BH13 | KS44BH13 | KS45BH13 | KS46BH13 | KS47BH13 | KS49BH13 | KS401BH13 | KS402BH13 | **106.00** |
| With 1 KA1 on Side #1 (H1) | KS42BH1 | KS43BH1 | KS44BH1 | KS45BH1 | KS46BH1 | KS47BH1 | KS49BH1 | KS401BH1 | KS402BH1 | **106.00** |
| With 1 KA1 on Side #1 and 1 KA1 on side #2 (H2) | KS42BH2 | KS43BH2 | KS44BH2 | KS45BH2 | KS46BH2 | KS47BH2 | KS49BH2 | KS401BH2 | KS402BH2 | **152.00** |
| **Spring Return from Left to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | KS62 | KS63 | KS64 | KS65 | KS66 | KS67 | KS69 | KS601 | KS602 | **71.00** |
| With Knob (select style and color from table 19.168 below) | KS62♦ | KS63♦ | KS64♦ | KS65♦ | KS66♦ | KS67♦ | KS69♦ | KS601♦ | KS602♦ | **81.00** |
| Key Operated with E10 Key (Code 5, 6 or 9 only)▼ | KS62K▼ | KS63K▼ | KS64K▼ | KS65K▼ | KS66K▼ | KS67K▼ | KS69K▼ | KS601K▼ | KS602K▼ | **167.00** |
| **Spring Return from Right to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | KS72 | KS73 | KS74 | KS75 | KS76 | KS77 | KS79 | KS701 | KS702 | **71.00** |
| With Knob (select style and color from table 19.168 below) | KS72♦ | KS73♦ | KS74♦ | KS75♦ | KS76♦ | KS77♦ | KS79♦ | KS701♦ | KS702♦ | **81.00** |
| Key Operated with E10 Key (Code 4, 5 or 7 only) | KS72K▼ | KS73K▼ | KS74K▼ | KS75K▼ | KS76K▼ | KS77K▼ | KS79K▼ | KS701K▼ | KS702K▼ | **167.00** |
| **Spring Return from Both Sides to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | KS52 | KS53 | KS54 | KS55 | KS56 | KS57 | KS59 | KS501 | KS502 | **71.00** |
| With Knob (select style and color from table 19.168 below) | KS52♦ | KS53♦ | KS54♦ | KS55♦ | KS56♦ | KS57♦ | KS59♦ | KS501♦ | KS502♦ | **81.00** |
| Key Operated with E10 Key (Code 4, 5 or 7 only) | KS52K▼ | KS53K▼ | KS54K▼ | KS55K▼ | KS56K▼ | KS57K▼ | KS59K▼ | KS501K▼ | KS502K▼ | **167.00** |

| **Illuminated Operators** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **$ Price** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Manual Return, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K42J1 | K43J1 | K44J1 | K45J1 | K46J1 | K47J1 | K49J1 | K401J1 | K402J1 | **158.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K42J1R | K43J1R | K44J1R | K45J1R | K46J1R | K47J1R | K49J1R | K401J1R | K402J1R | **167.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K42J■♦ | K42J■♦ | K44J■♦ | K45J■♦ | K46J■♦ | K47J■♦ | K49J■♦ | K401J■♦ | K402J■♦ | **158.00** |
| **Spring Return from Left to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K62J1 | K63J1 | K64J1 | K65J1 | K66J1 | K67J1 | K69J1 | K601J1 | K602J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K62J1R | K63J1R | K64J1R | K65J1R | K66J1R | K67J1R | K69J1R | K601J1R | K602J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K62J■♦ | K62J■♦ | K64J■♦ | K65J■♦ | K66J■♦ | K67J■♦ | K69J■♦ | K601J■♦ | K602J■♦ | **167.00** |
| **Spring Return from Right to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K72J1 | K73J1 | K74J1 | K75J1 | K76J1 | K77J1 | K79J1 | K701J1 | K702J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K72J1R | K73J1R | K74J1R | K75J1R | K76J1R | K77J1R | K79J1R | K701J1R | K702J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K72J■♦ | K72J■♦ | K74J■♦ | K75J■♦ | K76J■♦ | K77J■♦ | K79J■♦ | K701J■♦ | K702J■♦ | **167.00** |
| **Spring Return from Both Sides to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | K52J1 | K53J1 | K54J1 | K55J1 | K56J1 | K57J1 | K59J1 | K501J1 | K502J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | K52J1R | K53J1R | K54J1R | K55J1R | K56J1R | K57J1R | K59J1R | K501J1R | K502J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | K52J■♦ | K53J■♦ | K54J■♦ | K55J■♦ | K56J■♦ | K57J■♦ | K59J■♦ | K501J■♦ | K502J■♦ | **167.00** |

▲ These operators can be ordered complete with contact blocks.00 Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208Vac = K25J3.
♦ Add the knob color code from Table 19.201. For LED, knob color must match LED.
★ For other color knobs replace the B with knob color code from Table 19.201.
▼ Add the key withdrawal code from table Table 19.202. Example: KS43K▼ with key withdrawal in the right position only = KS43K6.

## Table 19.201: Selector Switch Assembly Code and Knob Cat. No.

| Color | Standard Knob | | Gloved Hand Knob | | |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | $ Price |
| Black | B | B11 | FB | B25 | **9.90** |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |




**3 Position**

## Table 19.202: ▼ Key Withdrawal Codes

| Code | Position |
|---|---|
| 4 | Left Only |
| 5 | Center Only |
| 6 | Right Only |
| 7 | Left and Center |
| 8 | Left and Right |
| 9 | Center and Right |
| 10 | Left, Center, and Right |

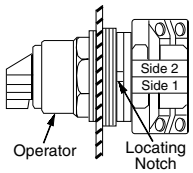
***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

### Table 19.203: 4-Position Selector Switches

*NOTE: When ordering, add prefix 9001 to the catalog number.*

| Contact Block Position | Quantity and Type KA1 or KA2 or KA3 | | | Mount on Side KA1 or KA2 or KA3 | | | 1—Contact Closed 0—Contact Open |
|---|---|---|---|---|---|---|---|
|  Top View | KA1 | or | KA3 | KA1 #2 | or | KA3 #2 | 1 0 0 0 |
| | | | KA2 | | | KA2 #2 | 0 0 1 0 |
| | KA1 | or | KA3 | KA1 #1 | or | KA3 #1 | 0 0 0 1 |
| | | | KA2 | | | KA2 #1 | 0 1 0 0 |
| Cam (see page 19-73) | | | | | | | H |

| Non-Illuminated Operators | Cat. No. | $ Price |
|---|---|---|
| Manual Return ▲, Operator Only (without contact blocks) | | |
| Without Knob | KS88 | 42.80 |
| With Knob (select style and color from table 19.168 below) | KS88♦ | 53.00 |
| Key Operated with E10 Key (Codes 11, 12, 13, 14, 15) | KS88K★ | 138.00 |

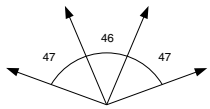
| Illuminated Operators | Cat. No. | $ Price |
|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | |
| Without Knob, 110-120V 50-60 Hz Transformer | KS88J1 | 158.00 |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | KS88J1R | 167.00 |
| With Other Color Knob and other voltage Light Module ■ ♦ | KS88J■♦ | 158.00 |

▲ These operators can be ordered complete with contact blocks. Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208Vac = K25J3.
♦ Add the knob color code from table 19.204. For LED, knob color must match LED.
★ Add the key withdrawal code from Table 19.205.

### Table 19.204: Selector Switch Assembly Code and Knob Cat. No.

| Color | Standard Knob | | Gloved Hand Knob | | $ Price |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | |
| Black | B | B11 | FB | B25 | 9.90 |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |

### Table 19.205: ★ Key Withdrawal Codes

| Code | Position |
|---|---|
| |  4 Position |
| 11 | 1 and 4 |
| 12 | 4 only |
| 13 | 1 only |
| 14 | 1, 2, 3 and 4 |
| 15 | 2, 3, and 4 |

## Potentiometers with Dial Plate

### Table 19.206: Potentiometers with Dial Plate (not UL listed)—Maximum Voltage 300 Vac



| Power | Description | Ratings | Type | $ Price |
|---|---|---|---|---|
| 2 W | Operator Only, for Single Potentiometer | NEMA 4, 13 | K20 | 201.00 |
| | Operator with Single Potentiometer | | K21 | 287.00 |
| | Operator Only, for Tandem Potentiometer | | K22 | 314.00 |
| | Operator with Tandem Potentiometer | | K23 | 399.00 |

### Table 19.207: Potentiometer Suffixes

| Single Potentiometer | | | |
|---|---|---|---|
| Suffix ▼ | Resistance | Suffix ▼ | Resistance |
| 01 | 50 Ω | 07 | 5 kΩ |
| 02 | 100 Ω | 08 | 10 kΩ |
| 04 | 500 Ω | 09 | 25 kΩ |
| 05 | 1 kΩ | 13 | 500 kΩ |
| 39 | 2 kΩ | 37 | 750 kΩ |
| 06 | 2.5 kΩ | 14 | 1 MΩ |

| Tandem Potentiometer | | |
|---|---|---|
| Suffix ▼ | Resistance | |
| | Front | Rear |
| 82 | 1 kΩ | 1 kΩ |

▼ For the complete part number, add the suffix from Table 19.207 to the catalog number from Table 19.206. Example: 9001K2105.

Any potentiometer with a shaft 7/8" long and 1/4" diameter may be used with these operators

***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories. See pages 19-85 through 19-92.*





© 2012 Schneider Electric
All Rights Reserved

Shown below is a simplified method of selecting a selector switch to meet almost any combination of contact sequences.

**Step No. 1**

Determine the contact sequence(s) required. Set up a target table like the one shown for the example below.

| Contact Sequence 0—contact open 1—contact closed | ↖ | ↑ | ↗ |
|---|---|---|---|
| A | 1 | 0 | 0 |
| B | 0 | 1 | 0 |
| C | 0 | 0 | 1 |

**Step No. 2**

Look for a cam type common to all sequences in Table 19.208, Table 19.209, or Table 19.210. For the example above, Table 19.209 would be used. For the contact sequences A (1 0 0), B (0 1 0) and C (0 0 1) of the example above, cam types F and L are common to all three sequences.

**Step No. 3**

Next, use the cam type common to all the sequences (if several cam types are common, choose one) to find the operator type number. Go to the proper page number as indicated in the table below:

| Number of Positions | Push Button Line | Page Number |
|---|---|---|
| 2 | Type K, Type SK, Type KX | 19-70, 19-80, 19-88, 19-95, 19-97 |
| 3 | Type K, Type SK, Type KX | 19-71, 19-81, 19-88, 19-95, 19-97 |
| 4 | Type K, Type SK, Type KX | 19-72, 19-82, 19-93 |

If for the example above a manual return operator with a standard black knob is required and:

The F cam type is chosen, the operator type number is:

- Type K—Class 9001 Type KS46B (from page19-71)
- Type SK—Class 9001 Type SKS46B (from page 19-81)
- Type KX—Class 9001 Type KXSDFB (from page 19-97)

The L cam type is chosen, the operator type number is:

- Type K—Class 9001 Type KS401B (from page 19-71)
- Type SK—Class 9001 Type SKS401B (from page 19-81)
- Type KX—Class 9001 Type KXSDLB (from page 19-97)

**Step No. 4:**

Determine the contact blocks required by using the same table in Step No. 2.

If, for the example above, the F cam type is chosen:

- Use a 9001KA3 mounted on side no. 2 for sequence A (1 0 0).
- Use a 9001KA3 mounted on side no. 1 for sequence B (0 1 0).
- Use a 9001KA2 mounted on side no. 1 or 2 for sequence C (0 0 1).

If, for the example above, the L cam type is chosen:

- Use a 9001KA2 mounted on side no. 2 for sequence A (1 0 0).
- Use a 9001KA2 mounted on side no. 1 or a 9001KA3 mounted on side no. 2 for sequence B (0 1 0).
- Use a 9001KA3 mounted on side no. 1 for sequence C (0 0 1).

One Type KA1 double circuit block can be used in place of one Type KA2 single circuit block plus one Type KA3 single circuit block mounted on the same side.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

**Table 19.208: 2 Position Selector Switch**

| If you require contact sequence— ↖ | ↗ | Use Cam Type | Use Contact Block Type | Mount on side no. (See page 19-88) |
|---|---|---|---|---|
| 1 | 0 | E | KA3 | 1 or 2 |
| | | D | KA2 | 1 or 2 |
| 0 | 1 | E | KA2 | 1 or 2 |
| | | D | KA3 | 1 or 2 |

**Table 19.209: 3 Position Selector Switch**

| If you require contact sequence— ↖ | ↑ | ↗ | Use Cam Type | Use Contact Block Type | Mount on side no. (See page 19-88) |
|---|---|---|---|---|---|
| 1 | 0 | 0 | G M | KA2 | 1 |
| | | | L | KA2 | 2 |
| | | | C E | KA3 | 1 |
| | | | B C E F G J | KA3 | 2 |
| | | | B G J | KA5▲ | 2 |
| 0 | 1 | 0 | D E J L | KA2 | 1 |
| | | | D E | KA2 | 2 |
| | | | F | KA3 | 1 |
| | | | L | KA3 | 2 |
| 0 | 0 | 1 | C F | KA2 | 1 or 2 |
| | | | B D G L | KA3 | 1 |
| | | | D | KA3 | 2 |
| | | | B | KA5▲ | 1 |
| | | | M | KA2 | 2 |
| 1 | 1 | 0 | B | KA2 | 1 |
| | | | C F | KA5▲ | 1 or 2 |
| | | | M | KA3 | 2 |
| 0 | 1 | 1 | B G J | KA2 | 2 |
| | | | G | KA5▲ | 1 |
| | | | L | KA5▲ | 2 |
| | | | M | KA3 | 1 |
| 1 | 0 | 1 | J | KA3 | 1 |
| | | | D E J L | KA5▲ | 1 |
| | | | D E | KA5▲ | 2 |

**Table 19.210: 4 Position Selector Switch**

| If you require contact sequence— ↖ | ↖ | ↗ | ↗ | Use Cam Type | Use Contact Block Type | Mount on side no. (See page 19-88) |
|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | H | (A) KA3 | 2 |
| 0 | 1 | 0 | 0 | H | (B) KA2 | 1 |
| 0 | 0 | 1 | 0 | H | (C) KA2 | 2 |
| 0 | 0 | 0 | 1 | H | (D) KA3 | 1 |
| 1 | 0 | 0 | 1 | H | A & D Wired in Parallel | |
| 1 | 1 | 0 | 0 | H | A & B Wired in Parallel | |
| 0 | 1 | 1 | 0 | H | B & C Wired in Parallel | |
| 0 | 0 | 1 | 1 | H | C & D Wired in Parallel | |
| 1 | 1 | 1 | 0 | H | A, B & C Wired in Parallel | |
| 0 | 1 | 1 | 1 | H | B, C & D Wired in Parallel | |
| 1 | 0 | 1 | 0 | H | A & C Wired in Parallel | |
| 0 | 1 | 0 | 1 | H | B & D Wired in Parallel | |
| 1 | 1 | 0 | 1 | H | KA5▲ | 2 |
| 1 | 0 | 1 | 1 | H | KA5▲ | 1 |

▲ Type KA5 must be the last block on either side. If more than one KA5 is required on either side—contact your local Square D sales office.

Note: For Outline Dimensions see Catalog **9001CT1103**

KA1 = KA3 + KA2



**When ordering, please specify:**

- Quantity
- Class Number
- Type or Catalog Number

For "H" Numbers . . . . . .page 19-88



© 2012 Schneider Electric
All Rights Reserved

**Table 19.211: Pilot Lights—UL Types 4, 13/NEMA 4 & 13**

For use in hazardous locations—See page 19-87.
Legend plates not included.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

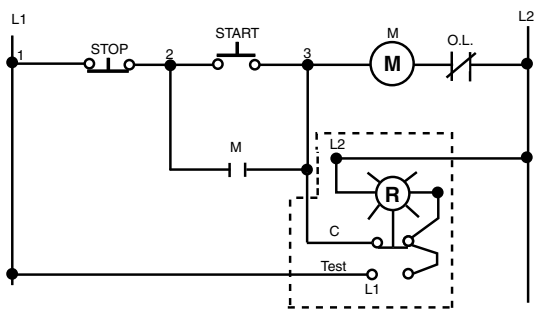
| Description | Voltage | Style | With Red Fresnel Color Cap | With Green Fresnel Color Cap | With Other Color Cap | $ Price | Without Color Cap | $ Price |
|---|---|---|---|---|---|---|---|---|
|  Standard Pilot Light (Plastic Fresnel Color Cap Shown) | 110–120 V, 50–60 Hz<br>220–240 V, 50–60 Hz<br>24–28 Vac/Vdc | Transformer<br>Transformer<br>Full Voltage | KP1R31<br>KP7R31<br>KP35R31 | KP1G31<br>KP7G31<br>KP35G31 | KP1■<br>KP7■<br>KP35■ | **153.00**<br>**153.00**<br>**125.00** | KP1<br>KP7<br>KP35 | **143.00**<br>**143.00**<br>**116.00** |
| | For other voltages see page 19-86. | Transformer, Flashing or LED ♦<br>Full Voltage, Neon or Resistor ★ | KP▲R31<br>KP▲R31 | KP▲G31<br>KP▲G31 | KP▲■<br>KP▲■ | **153.00**<br>**125.00** | KP▲<br>KP▲ | **143.00**<br>**116.00** |
|  Push-To-Test Pilot Light (Glass Color Cap Shown) | 110–120 V, 50–60 Hz<br>220–240 V, 50–60 Hz<br>24–28 Vac/Vdc | Transformer<br>Transformer<br>Full Voltage | KT1R31<br>KT7R31<br>KT35R31 | KT1G31<br>KT7G31<br>KT35G31 | KT1■<br>KT7■<br>KT35■ | **197.00**<br>**197.00**<br>**167.00** | KT1<br>KT7<br>KT35 | **185.00**<br>**185.00**<br>**158.00** |
| | For other voltages see page 19-86. | Transformer, Flashing or LED ♦<br>Full Voltage, Neon or Resistor ★ | KT▲R31<br>KT▲R31 | KT▲G31<br>KT▲G31 | KT▲■<br>KT▲■ | **197.00**<br>**167.00** | KT▲<br>KT▲ | **185.00**<br>**158.00** |
|  Remote Test Pilot Light (Glass Color Cap Shown) | 120 Vac Only<br>24–28 Vac Only<br>for other voltages | Resistor ▼<br>Full Voltage ▼ | KTR38R31<br>KTR35R31 | KTR38G31<br>KTR35G31 | KTR38■<br>KTR35■ | **197.00**<br>**197.00** | KTR38<br>KTR35 | **185.00**<br>**185.00** |
| | See page 19-86.▼ | Full Voltage or Resistor ▼ | KTR▲R31 | KTR▲G31 | KTR ▲■ | **197.00** | KTR▲ | **185.00** |

▲ Add the voltage assembly code as chosen from Table 19.248 or Table 19.249 on 19-86. **EXAMPLE: KT▲R31 with 208 Vac red LED = KT37LRR31**
■ Add the color code as chosen from Table 19.212. **EXAMPLE: KP1■ with a blue fresnel cap = KP1L31**
♦ The cap must be the same color as the LED light module chosen, e.g., for green LED, use green color cap.
★ On neon light modules, use clear color caps only.
▼ On remote test pilot lights use only full voltage or resistor voltage assembly codes. Do not choose LED, neon or transformer codes. For AC use only.

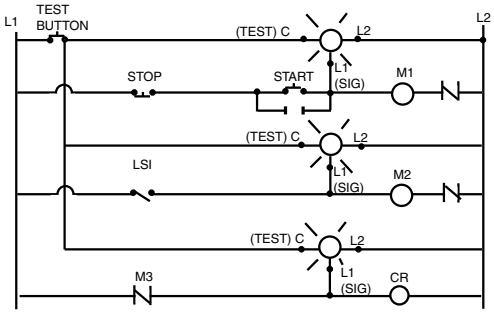
**Table 19.212: Color Caps**

| Color | Plastic Fresnel  | Plastic Domed  | Glass  |
|---|---|---|---|
| Amber | A31 | A9 | A6 |
| Blue | L31 | L9 | L6 |
| Clear | C31 | C9 | C6 |
| Green | G31 | G9 | G6 |
| Red | R31 | R9 | R6 |
| White | W31 | W9 | W6 |
| Yellow | Y31 | Y9 | Y6 |

**Typical Wiring Diagram**




Push-To-Test Pilot Light




Remote Test Pilot Light

***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*





© 2012 Schneider Electric
All Rights Reserved



Without Latch



With Latch

**Table 19.213: Joy Stick Operators—UL Types 4, 13/NEMA 4, 13 for use in hazardous locations. See page 19-87. Contact blocks and legend plate not included unless noted.**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | | | Operator With Contacts | $ Price | Operator Without Contacts ▲ | $ Price |
|---|---|---|---|---|---|---|---|
| 3 Position—Center Off | Momentary Contact—Spring Return to Center | Without Latch | | K71H7 | 326.00 | K71 | 252.00 |
| | | With Latch | | K70H7 | | K70 | |
| | Maintained Contact | Without Latch | | K73H7 | | K73 | |
| | | With Latch | | K72H7 | | K72 | |
| 3 Position—Center Off | Momentary Contact—Spring Return to Center | Without Latch | | K31H8 | 326.00 | K31 | 252.00 |
| | | With Latch | | K30H8 | | K30 | |
| | Maintained Contact | Without Latch | | K33H8 | | K33 | |
| | | With Latch | | K32H8 | | K32 | |
| 5 Position—Center Off | Momentary Contact—Spring Return to Center | Without Latch | | K35H2 | 435.00 | K35 | 309.00 |
| | | With Latch | | K34H2 | | K34 | |
| | Maintained Contact | Without Latch | | K37H2 | | K37 | |
| | | With Latch | | K36H2 | | K36 | |

▲ These operators can be ordered complete with contact blocks—a total of four (4) contact blocks can be used. Add the "H" number chosen from page 19-88 to the operator type number and add the cost of the "H" number to the operator cost.

**Table 19.214: Contact Arrangements**

| Operator Positions | | Contact Block Type | Contact Block Location | Contact | Handle position (with reference to Nib) 1 | 2 | OFF | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | KA3 | POS 1 (3) | A | — | 1 | 0 | — | 0 |
| | | KA3 | POS 2 (4) | A | — | 0 | 0 | — | 1 |
| | 3 | KA2 | POS 1 (3) | B | 1 | — | 0 | 0 | — |
| | | KA2 | POS 2 (4) | B | 0 | — | 0 | 1 | — |
| | 5 | KA1 | POS 1 (3) | A | 0 | 1 | 0 | 0 | 0 |
| | | | | B | 1 | 0 | 0 | 0 | 0 |
| | | KA1 | POS 2 (4) | A | 0 | 0 | 0 | 0 | 1 |
| | | | | B | 0 | 0 | 0 | 1 | 0 |

(1) Contact Closed (0) Contact Open

The joy stick operator is ideal for applications where only one circuit is to be energized at one time. The three position joy stick closes one circuit in each Up-Down or Right-Left position with all circuits open in center position. The five position operator closes one circuit in each Up, Down, Left and Right position with all circuits open in center position.

Momentary contact operators are spring return to the center position. Maintained operators remain in position and must be returned manually. Operators with latch cannot be operated until the latch button in center of handle is pressed.



Selector Push Button
9001KQ

For use in hazardous locations—See page 19-87. Legend plate and contact block not included.
**Inserts** are field convertible. For colors not listed, order operator without insert, plus separate color insert from page 19-92. Up to two Type KA contact blocks can be mounted in tandem (total of four blocks). Selector push buttons cannot be illuminated.

**Table 19.215: Selector Push Button Operators—UL Types 4, 13/NEMA 4, 13**

| Contact Block Required | | Two Position Operators | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0—Contact Open 1—Contact Closed F—Free D—Depressed | | | | | | | | | |
| Quantity and Type | Mount on Side | Left FD | Right FD | Left FD | Right FD | Left FD | Right FD | Left FD | Right FD | Left FD | Right FD |
| 1 KA1 | #2 | 0 0 / 0 1 | 1 0 / 0 1 | 0 0 / 0 1 | 1 0 / 0 0 | 0 0 / 0 1 | 1 1 / 0 0 | 1 1 / 0 0 | 1 0 / 0 1 | 1 0 / 0 1 | 0 0 / 0 1 |
| 1 KA1 | #1 | 0 0 / 0 1 | 1 1 / 0 0 | 0 0 / 0 1 | 1 0 / 0 0 | 1 1 / 0 0 | 0 0 / 0 1 | 1 0 / 0 1 | 1 1 / 0 0 | 1 1 / 0 0 | 0 0 / 0 1 |
| Cam ♦ | | P | | R | | S | | T | | Y | |
| Color Insert | | Type | | Type | | Type | | Type | | Type | $ Price |
| Without Insert ■ Black | | KQ11 | | KQ12 | | KQ13 | | KQ14 | | KQ15 | 80. |
| | | KQ11B | | KQ12B | | KQ13B | | KQ14B | | KQ15B | 81. |

Order Contact Blocks From Pages 19-85 and 19-87.

■ Order color inserts from page 19-92.
♦ Cams are not interchangeable.



Key Operated Push Button
9001KR

For use in hazardous locations. See page 19-87. Key operated push buttons are used wherever unauthorized use of a push button is discouraged. Examples are locking a Start push button in the extended position or locking a Stop push button in the depressed position. The operator can also be locked in the flush position—holding all contacts open. Up to two Type KA contact blocks can be mounted in tandem (total of four blocks).
Legend Plate and Contact Block Not Included ("X" = locked position) ★

**Table 19.216: Key Operated Push Button – UL Types 4, 13/NEMA 4, 13**

| Description | Lockable Positions Extended | Flush | Depressed | Type | $ Price |
|---|---|---|---|---|---|
| Push button operable only with key in lock. Key is removable in locked position only. | X | — | — | KR131 | 125.00 |
| | — | X | — | KR132 | |
| | — | — | X | KR133 | |
| | X | X | X | KR137 | |
| Push button operable with or without key in lock. Push button can be locked with key only. Key removable in both locked or unlocked position. | X | — | — | KR141 | |
| | — | X | — | KR142 | |
| | — | — | X | KR143 | |
| | X | X | X | KR147 | |
| To lock the unit, rotate the key with the button in the extended position. Then, push the button to lock it in the position indicated at right. Key is removable only in this position. | — | X | — | KR152 | |
| | — | — | X | KR153 | |

★ All key operated push buttons are furnished as standard with Square D no. E10 key change. See catalog **9001CT0001** for other key changes.



© 2012 Schneider Electric
All Rights Reserved

**Table 19.217: Illuminated and Non-Illuminated Dual Operators Meets UL Type 13/NEMA 13 and UL Type 6/NEMA 6, which UL and NEMA consider an equivalent to UL Type 4/NEMA 4. For use in hazardous locations—See page 19-87. Legend plate and contact blocks not included unless otherwise noted.**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*



**9001KR7U**



**9001KR11U**

| Description | Color | With 2 N.O. Contacts (2 KA2) | With 1 N.O. & 1 N.C. Contact (KA2, KA3) | $ Price | Without Contacts ★ | $ Price |
|---|---|---|---|---|---|---|
| Momentary Dual Function | Universal ▲ Green-Red Other ■ | KR6UH7 KR6GRH7 KR6■H7 | KR6UH37 KR6GRH37 KR6■H37 | 138.00 | KR6U KR6GR KR6■ | 81.00 |
| Momentary Interlocked Dual Function | Universal▲ Green-Red Other ■ | KR67UH7 KR67GRH7 KR67■H7 | KR67UH37 KR67GRH37 KR67■H37 | 184.00 | KR67U KR67GR KR67■ | 125.00 |
| Maintained Interlocked Dual Function | Universal ▲ Green-Red Other ■ | KR7UH7 KR7GRH7 KR7■H7 | KR7UH37 KR7GRH37 KR7■H37 | 184.00 | KR7U KR7GR KR7■ | 125.00 |
| **Description** | **Color** | | **Contacts (KA1)** | **$ Price** | **Without Contacts ★** | **$ Price** |
| Both Buttons Maintained Interlocked Assembly | Universal ♦ Other ★ | — | KR11UH1 KR11★H1 | 178.00 | KR11U KR11★ | 120.00 |
| One Button Momentary One Button Maintained Interlocked Assembly | Universal ♦ Other★ | — | KR12UH1H1 KR12★H1H1 | 273.00 | KR12U KR12★ | 162.00 |

▲ Universal for KR6, KR67, KR7 includes 2 inserts each of black, red and green.
■ Choose one color for each button. R = red, G = green, B = Black. **Example: 9001KR6 with left red and right black = 9001KR6RB.** See Table 19.193.
♦ Universal for KR11, KR12 includes 2 each of black, red, green, yellow, orange, blue, white.
★ Choose one color for each button from Table 19.193 and insert color code in type number. **Example: 9001KR11 with top button gray and bottom button orange = 9001KR11ES**



Emergency Break-Glass Operator 9001K15

**Table 19.218: Emergency Break-Glass Operator—UL 4, 13/NEMA 4, 13▼**

| Type | $ Price |
|---|---|
| K15 | 125.00 |

Operator is held in a depressed position by a glass disc. When the glass disc is broken with the hammer, button returns to a normal extended position. Package of 5 discs included with operator.

▼ For enclosed versions see page 19-106.

**Table 19.219: 9001K15 Replacement Parts**

| Description | Part Number | $ Price |
|---|---|---|
| Yellow bumper | 3105211101 | 14.30 |
| Hammer and chain | 3105206750 | 57.30 |
| Lower ring nut | 6512232801 | 16.70 |
| Top ring nut | 9001K40 | 4.40 |
| Package of 5 replacement discs | 9001K57 | 16.70 |
| Clip to hold hammer | 2540902240 | 2.60 |



Rocker Arm Operating

**Table 19.220: Rocker Arm Operating Lever**

| Type | $ Price |
|---|---|
| K50 | 77.00 |

Allows two standard push buttons to be operated independently of each other. Price does not include push buttons or legend plates. Order push buttons and legend plates from pages 19-67, 19-89, and 19-90—specify which marking is to be inverted.



Push-on Push-off Module 9001K85

**Table 19.221: Alternate Action—Push-on, Push-off Module**

| Type | $ Price |
|---|---|
| K85 | 42.80 |

This module can be added to standard 9001 Type K, KX, SK or T momentary push button operators. Contact blocks mounted behind this module (maximum of 2) are held in the depressed position when the operator is pressed once, and released to their normal position when the operator is pressed again. For a N.C. circuit, use a 9001KA3 or the N.C. contact of either a 9001KA1 or 9001KA4. For a N.O. circuit, use the N.O. contact of either a 9001KA4 or 9001KA6.



Time Delay Push Button 9001KRD

**Table 19.222: Off Delay Push Button—UL Types 4, 13/NEMA 4, 13**

| Description | Type (All Colors) | | | |
|---|---|---|---|---|
| | Full Guard | Extended Guard | No Guard | $ Price |
| Timed Contact 1 N.O. and 1 N.C. | KRD1UH1 | KRD2UH1 | KRD3UH1 | 277.00 |
| Timed Contact 2 N.O. and 2 N.C. | KRD1UH2 | KRD2UH2 | KRD3UH2 | 514.00 |

Timing period is adjustable from 0.1 second to 60 seconds and begins after button has been released. Devices include a pack of seven color inserts for color coding the push button. See 19-92 for Universal color insert. Contacts are quick make-quick break.

Note: When mounted in top or bottom hole of a Type K enclosure, device requires one additional space below or above operator. When mounted other than in top or bottom hole, device may require two additional spaces, one above and one below operator. Closing plates must be installed on unused holes.



**Table 19.223: Wobble Stick**
**For easy operation of any standard push button.**

| Type | $ Price |
|---|---|
| K8 | 42.80 |





© 2012 Schneider Electric
All Rights Reserved

**Table 19.224: Non-Illuminated Momentary Push Button Operators UL Types 4, 4X, 13/NEMA 4, 4X, 13. For use in hazardous locations—See page 19-87. Contact blocks and legend plate not included unless otherwise noted.**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | Color | Operator with 1 N.O. and 1 N.C. Contact (KA1) | $ Price | Operator with 1 N.O. Contact (KA2) | Operator with 1 N.C. Contact (KA3) | $ Price | Operator Only No Contacts ▼ | $ Price |
|---|---|---|---|---|---|---|---|---|
|  9001SKR1B Full Guard | Black | SKR1BH13 | **89.00** | SKR1BH5 | SKR1BH6 | **66.00** | SKR1B | **38.60** |
| | Red | SKR1RH13 | **89.00** | SKR1RH5 | SKR1RH6 | **66.00** | SKR1R | **38.60** |
| | Green | SKR1GH13 | **89.00** | SKR1GH5 | SKR1GH6 | **66.00** | SKR1G | **38.60** |
| | Universal ▲ | SKR1UH13 | **89.00** | SKR1UH5 | SKR1UH6 | **66.00** | SKR1U | **38.60** |
| | Other ■ | SKR1■H13 | **89.00** | SKR1■H5 | SKR1■H6 | **66.00** | SKR1■ | **38.60** |
|  9001SKR3B No Guard | Black | SKR3BH13 | **89.00** | SKR3BH5 | SKR3BH6 | **66.00** | SKR3B | **38.60** |
| | Red | SKR3RH13 | **89.00** | SKR3RH5 | SKR3RH6 | **66.00** | SKR3R | **38.60** |
| | Green | SKR3GH13 | **89.00** | SKR3GH5 | SKR3GH6 | **66.00** | SKR3G | **38.60** |
| | Universal ▲ | SKR3UH13 | **89.00** | SKR3UH5 | SKR3UH6 | **66.00** | SKR3U | **38.60** |
| | Other ■ | SKR3■H13 | **89.00** | SKR3■H5 | SKR3■H6 | **66.00** | SKR3■ | **38.60** |
|  9001SKR2B Extended Guard | Black | SKR2BH13 | **89.00** | SKR2BH5 | SKR2BH6 | **66.00** | SKR2B | **38.60** |
| | Red | SKR2RH13 | **89.00** | SKR2RH5 | SKR2RH6 | **66.00** | SKR2R | **38.60** |
| | Green | SKR2GH13 | **89.00** | SKR2GH5 | SKR2GH6 | **66.00** | SKR2G | **38.60** |
| | Universal ▲ | SKR2UH13 | **89.00** | SKR2UH5 | SKR2UH6 | **66.00** | SKR2U | **38.60** |
| | Other ■ | SKR2■ | **89.00** | SKR2■H5 | SKR2■H6 | **66.00** | SKR2■ | **38.60** |
|  9001SKR4B 1-3/8 in. (35 mm) Mushroom Button | **Snap-In Mushroom Button** | | | | | | | |
| | Black | SKR4BH13 | **138.00** | SKR4BH5 | SKR4BH6 | **112.00** | SKR4B | **81.00** |
| | Red | SKR4RH13 | **138.00** | SKR4RH5 | SKR4RH6 | **112.00** | SKR4R | **81.00** |
| | Red ♦ | SKR4R05H13 | **142.00** | SKR4R05H5 | SKR4R05H6 | **119.00** | SKR4R05 | **86.00** |
| | Green | SKR4GH13 | **138.00** | SKR4GH5 | SKR4GH6 | **112.00** | SKR4G | **81.00** |
| | Other ★ | SKR4★H13 | **138.00** | SKR4★H5 | SKR4★H6 | **112.00** | SKR4★ | **81.00** |
| | **Screw-On Mushroom Button with Set Screw Security** | | | | | | | |
| | Black | SKR24BH13 | **138.00** | SKR24BH5 | SKR24BH6 | **112.00** | SKR24B | **81.00** |
| | Red | SKR24RH13 | **138.00** | SKR24RH5 | SKR24RH6 | **112.00** | SKR24R | **81.00** |
| | Green | SKR24GH13 | **138.00** | SKR24GH5 | SKR24GH6 | **112.00** | SKR24G | **81.00** |
| | Other ★ | SKR24★H13 | **138.00** | SKR24★H5 | SKR24★H6 | **112.00** | SKR24★ | **81.00** |
|  9001SKR5 2-1/4 in. (57 mm) Mushroom Button | **Snap-In Mushroom Button, Plastic Head** | | | | | | | |
| | Black | SKR5BH13 | **138.00** | SKR5BH5 | SKR5BH6 | **112.00** | SKR5B | **81.00** |
| | Red | SKR5RH13 | **138.00** | SKR5RH5 | SKR5RH6 | **112.00** | SKR5R | **81.00** |
| | Red ♦ | SKR5R05H13 | **142.00** | SKR5R05H5 | SKR5R05H6 | **119.00** | SKR5R05 | **86.00** |
| | Green | SKR5GH13 | **138.00** | SKR5GH5 | SKR5GH6 | **112.00** | SKR5G | **81.00** |
| | Other ★ | SKR5★H13 | **138.00** | SKR5★H5 | SKR5★H6 | **112.00** | SKR5★ | **81.00** |
| | **Screw-On Mushroom Button with Set Screw Security, Plastic Head** | | | | | | | |
| | Black | SKR25BH13 | **138.00** | SKR25BH5 | SKR25BH6 | **112.00** | SKR25B | **81.00** |
| | Red | SKR25RH13 | **138.00** | SKR25RH5 | SKR25RH6 | **112.00** | SKR25R | **81.00** |
| | Green | SKR25GH13 | **138.00** | SKR25GH5 | SKR25GH6 | **112.00** | SKR25G | **81.00** |
| | Other ★ | SKR25★H13 | **138.00** | SKR25★H5 | SKR25★H6 | **112.00** | SKR25★ | **81.00** |

**Table 19.225: Color Codes**

| Color | ■ SKR1, 2, 3 Place Color Code in Type Number | ★ SKR4, 5, 24, 25 Place Color Code in Type Number |
|---|---|---|
| Blue | L | L |
| Yellow | Y | Y |
| White | W | — |
| Orange | S | S |
| Gray | E | — |

▲ The universal push button operators include one each of the following color inserts: black, red, green, yellow, orange, blue and white.
■ See Table 19.225.
♦ Knob has the words “Emergency Stop” in raised letters highlighted in white for readability.
★ See Table 19.225.
▼ These operators can be ordered complete with contact blocks. For maximum block usage, see page 19-88. Add the “H” number chosen from page 19-88 to the end of the operator type number and add the cost of the “H” number to the operator cost.

***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

**Table 19.226: 30 mm Multifunction Operators**
**UL Types 4, 4X, 13/NEMA 4, 4X, 13**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

**Non-Illuminated Push-Pull Screw-on Mushroom Operators, Plastic Head**

| | Description | Color | With 2 N.C. Contacts (1 KA3, 1 KA5) | With 1 N.O./1 N.C. Contact (1 KA1) | $ Price | Without Contacts ◒ | $Price |
|---|---|---|---|---|---|---|---|
|  9001SKR9R Non-Illuminated 1-5/8 in. Diameter Knob Includes Type KN179WP Legend Plate Marked Pull To Start Push To Stop | **3 Position** | | | | | | |
| | Momentary Pull-Maintained Neutral-Momentary Push ▽ | Red | SKR8RH25 | — | **142.00** | SKR8R | **86.00** |
| | | Green | SKR8GH25 | — | | SKR8G | |
| | | Other □ | SKR8□H25 | — | | SKR8□ | |
| | **2 Position△** | | | | | | |
| | Maintained Pull-Maintained Push | Red | — | SKR9RH13 | **188.00** | SKR9R | **129.00** |
| | | Green | — | SKR9GH13 | | SKR9G | |
| | | Other □ | — | SKR9□H13 | | SKR9□ | |

**Non-Illuminated Turn-to-Release Mushroom Operators**

| | Description | Color | With 1 N.O. Contact (KA1) | $ Price | With 2 N.O./2 N.C. Contacts (2 KA1) | $ Price | Without Contacts | $Price |
|---|---|---|---|---|---|---|---|---|
|  9001SKR16H2 | 2 Position, Plastic Head Turn-to-Release Trigger Action | Red | SKR16H13 | **172.00** | SKR16H2 | **218.00** | SKR16 | **113.00** |

**Screw-On Plastic Illuminated Push-Pull Mushroom Operators**

| Illuminated | Description | Voltage | With Red Knob and 2 N.C. Contacts (1 KA3, 1 KA5) | With Other Color Knob and 2 N.C. Contacts | $ Price | With Other Color Knob Without Contacts ◒ | $ Price |
|---|---|---|---|---|---|---|---|
|  9001SKR9P1 Illuminated 1-5/8 in. Diameter Knob Includes Type KN179WP Legend Plate Marked Pull to Start Push To Stop | **3 Position** | | | | | | |
| | Momentary Pull-Maintained Neutral-Momentary Push ⧫ | 110–120 V, 50–60 Hz | SKR8P1RH25 | SKR8P1□H25 | **267.00** | SKR8P1□ | **201.00** |
| | | Other—Transformer, LED, Flashing ☆ | SKR8P◊RH25 | SKR8P◊□H25 | | SKR8P◊□ | |
| | | Other—Full Voltage, Resistor, Neon ▽ | SKR8P◊RH25 | SKR8P◊□H25 | **215.00** | SKR8P◊□ | **171.00** |
| | **Description** | **Voltage** | **With Red △ Knob and 1 N.O. & 1 N.C. Contact (KA1)** | **With Other Color Knob and 1 N.O. & 1 N.C. Contact (KA1)** | **$ Price** | **With Other Color Knob Without Contacts** | **$ Price** |
| | **2 Position** | | | | | | |
| | Maintained Pull-Maintained Push | 110–120 V, 50–60 Hz | SKR9P1RH13 | SKR9P1□H13 | **316.00** | SKR9P1□ | **243.00** |
| | | Other—Transformer, L.E.D., Flashing ☆ | SKR9P◊RH13 | SKR9P◊□H13 | | SKR9P◊□ | |
| | | Other—Full Voltage, Resistor, Neon ▽ | SKR9P◊RH13 | SKR9P◊□H13 | **257.00** | SKR9P◊□ | **215.00** |

△ To obtain a red knob with "Push Emergency Stop" printed on the red knob—substitute R05 in place of "R" and add **$2.10** to the price.

□ Choose one color from Table 19.227 and insert the color code in the Type number. **Example: SKR9□ with a yellow knob = SKR9Y**

◊ Add the voltage assembly code as chosen from page 19-86. **Example: SKR8P◊ with 277 V 50–60 Hz = SKR8P8**

☆ The knob must be the same color as the LED light module chosen; e.g., for green LED, use green knob.

▽ On neon light modules, use clear knobs only.

◒ These operators can be ordered complete with contact blocks. For maximum block usage, see page 19-88. Add the "H" number chosen from page 19-88 to the end of the operator type number and add the cost of the "H" number to the operator cost.

✱ SKR11UH1 has 1 KA1(1 N.O., 1 N.C.) and SKR12UH1H1 has 2 KA1 (2 N.O., 2 N.C.).

⧫ For positions, refer to Tables 19.228 and 19.229.

**Table 19.227: Color Codes**

| Color | SKR11, SKR12 | SKR8, SKR9 |
|---|---|---|
| Black ◑ | B | B |
| Red | R | R |
| Green | G | G |
| Blue | L | L |
| Yellow | Y | Y |
| White | W | W |
| Orange ◑ | S | S |
| Clear | — | C |
| Amber | — | A |
| Gray | E | — |

◑ These colors are not available on illuminated push-pull operators.

**Table 19.228: Positions for 9001SKR8RH1 or H13**

| | | 9001SKR8RH1 or H13 | | |
|---|---|---|---|---|
| | | PULL | CTR | PUSH |
| (KA1) | KA3 | X | O | O |
| | KA2 | O | O | X |

**Table 19.229: Positions for 9001SKR8H25**

| | 9001SKR8H25 | | |
|---|---|---|---|
| | PULL | CTR | PUSH |
| KA3 | X | O | O |
| KA5 | X | X | O |
| KA2 | O | O | X |

***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*





© 2012 Schneider Electric
All Rights Reserved

**Table 19.230: Illuminated Push Button Operators**
**UL Types 4, 4X, 13/NEMA 4, 4X, 13**
**For use in hazardous locations—See page 19-87.**
**Legend plate not included unless otherwise noted.**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | Voltage and Frequency | Style | With Red Color Cap and 1 N.O. and 1 N.C. Contact (KA1) | With Green Color Cap and 1 N.O.and 1 N.C. Contact (KA1) | $ Price □ | With Other Color Cap Without Contact Blocks ▲ | $ Price ◊ |
|---|---|---|---|---|---|---|---|---|
|  9001SK1L1 | Full Guard Illuminated Push Button | 110–120 V, 50–60 Hz | Transformer | SK1L1RH13 | SK1L1GH13 | **231.00** | SK1L1 | **158.00** |
| | | 220–240 V, 50–60 Hz | Transformer | SK1L7RH13 | SK1L7GH13 | **231.00** | SK1L7 | **158.00** |
| | | 24–28 Vac/Vdc | Full Voltage | SK1L35RH13 | SK1L35GH13 | **198.00** | SK1L35 | **129.00** |
| | | For other voltages See Table ■ | Transformer, Flashing | SK1L■RH13 | SK1L■GH13 | **231.00** | SK1L ■ | **158.00** |
| | | | Full Voltage | SK1L■RH13 | SK1L■GH13 | **198.00** | SK1L ■ | **129.00** |
| | | | Resistor, Neon ♦ | SK1L■RH13 | SK1L■GH13 | **198.00** | SK1L ■ | **129.00** |
| | | | LED ▼ | SK1L■RH13 | SK1L■GH13 | **231.00** | SK1L ■★ | **158.00** |
|  9001SK2L1 | No Guard Illuminated Push Button | 110–120 V, 50–60 Hz | Transformer | SK2L1RH13 | SK2L1GH13 | **217.00** | SK2L1 | **143.00** |
| | | 220–240 V, 50–60 Hz | Transformer | SK2L7RH13 | SK2L7GH13 | **217.00** | SK2L7 | **143.00** |
| | | 24–28 Vac/Vdc | Full Voltage | SK2L35RH13 | SK2L35GH13 | **184.00** | SK2L35 | **116.00** |
| | | For other voltages See Table ■ | Transformer, Flashing | SK2L■RH13 | SK2L■GH13 | **217.00** | SK2L ■ | **143.00** |
| | | | Full Voltage | SK2L■RH13 | SK2L■GH13 | **184.00** | SK2L ■ | **116.00** |
| | | | Resistor, Neon ♦ | SK2L■RH13 | SK2L■GH13 | **184.00** | SK2L ■ | **116.00** |
| | | | LED▼ | SK2L■RH13 | SK2L■GH13 | **217.00** | SK2L ■★ | **143.00** |
|  9001SK2L1R20 | 1-3/8 in. (35 mm) Illuminated Mushroom, Screw-On Plastic Head | 110–120 V, 50–60 Hz | Transformer | SK2L1R20H13 | SK2L1G20H13 | **217.00** | Order SK2L■★△ | |
| | | 220–240 V, 50–60 Hz | Transformer | SK2L7R20H13 | SK2L7G20H13 | **217.00** | | |
| | | 24–28 Vac/Vdc | Full Voltage | SK2L35R20H13 | SK2L35G20H13 | **184.00** | | |
| | | For other voltages See Table ■ | Transformer, Flashing | SK2L■R20H13 | SK2L■G20H13 | **217.00** | | |
| | | | Full Voltage | SK2L■R20H13 | SK2L■G20H13 | **184.00** | | |
| | | | Resistor, Neon ♦ | SK2L■R20H13 | SK2L■G20H13 | **184.00** | | |
| | | | LED ▼ | SK2L■R20H13 | SK2L■G20H13 | **217.00** | | |
|  9001SK2L1R21 | 2-1/4 in. (57 mm) Illuminated Mushroom, Screw-On Plastic Head | 110–120 V, 50–60 Hz | Transformer | SK2L1R21H13 | SK2L1G21H13 | **217.00** | Order SK2L■★△ | |
| | | 220–240 V, 50–60 Hz | Transformer | SK2L7R21H13 | SK2L7G21H13 | **217.00** | | |
| | | 24–28 Vac/Vdc | Full Voltage | SK2L35R21H13 | SK2L35G21H13 | **184.00** | | |
| | | For other voltages See Table ■ | Transformer, Flashing | SK2L■R21H13 | SK2L■G21H13 | **217.00** | | |
| | | | Full Voltage | SK2L■R21H13 | SK2L■G21H13 | **184.00** | | |
| | | | Resistor, Neon ♦ | SK2L■R21H13 | SK2L■G21H13 | **184.00** | | |
| | | | LED ▼ | SK2L■R21H13 | SK2L■G21H13 | **217.00** | | |

▲ These operators can be ordered complete with contact blocks. For maximum block usage, see page 19-88. Add the "H" number chosen from page 19-88 to the end of the operator type number and add the cost of the "H" number to the operator cost.
■ Add the voltage assembly code as chosen from page 19-86. **EXAMPLE: SK2L■ with 240 Vac/Vdc = SK2L25.**
♦ On neon light modules, use clear color caps only.
★ The cap must be the same color as the LED light module chosen e.g., for red LED, use red color cap.
▼ Add the color code as chosen from the color cap table below. **EXAMPLE: SK2L25▼ with a blue 1-3/8 in. mushroom button = SK2L25L20.**
△ The only difference between a no guard (SK2L) operator and mushroom button operator is the color cap.
□ Price includes operator, light module, contact blocks and color cap.
◊ Price includes operator, light module and color cap.

**Table 19.231: Color Caps**

| Color | Color Codes | | |
|---|---|---|---|
| | SK1L/SK2L | 1-3/8 in. (35 mm) Mushroom | 2-1/4 in. (57 mm) Mushroom |
| Red | R | R20 | R21 |
| Green | G | G20 | G21 |
| Blue | L | L20 | L21 |
| Yellow | Y | Y20 | Y21 |
| White | W | W20 | W21 |
| Clear | C | C20 | C21 |
| Amber | A | A20 | A21 |

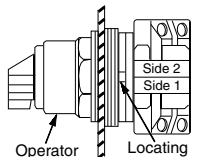
***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

## Table 19.232: 2-Position Selector Switches

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Contact Block Required | | | | | 1—Contact Closed 0—Contact Open | | | |
|---|---|---|---|---|---|---|---|---|
| Contact Block Position | Quantity and Type KA1 or KA2 or KA3 | | Mount on Side KA1 or KA2 or KA3 | | ↖ Left | ↗ Right | ↖ Left | ↗ Right |
|  Top View | KA1 or KA3 | KA2 | KA1 #2 | KA3 #2 | 1 | 0 | 0 | 1 |
| | | | | KA2 #2 | 0 | 1 | 1 | 0 |
| | KA1 or KA3 | KA2 | KA1 #1 | KA3 #1 | 1 | 0 | 0 | 1 |
| | | | | KA2 #1 | 0 | 1 | 1 | 0 |
| **Cam (see page 19-73)** | | | | | **E** | | **D** | |

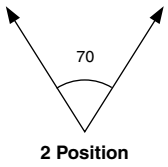
| Non-Illuminated Operators | Type | Type | $ Price |
|---|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | SKS11 | SKS12 | **42.80** |
| With Knob (select style and color from Table 19.233 below) | SKS11♦ | SKS12♦ | **53.00** |
| **Operator with Contact Blocks and Standard black knob** | | | |
| With 1 KA1 on Side #2 | SKS11BH13 | — | **106.00** |
| With 1 KA1 on Side #1 | SKS11BH1 | — | **106.00** |
| With 1 KA1 on Side #1 and 1 KA1 on side #2 | SKS11BH2 | — | **152.00** |
| **Spring Return from Left ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | SKS25 | — | **71.00** |
| With Knob (select style and color from Table 19.233 below) | SKS25♦ | — | **81.00** |
| **Spring Return from Right ▲, Operator Only (without contact blocks)** | | | |
| Without Knob | — | SKS34 | **71.00** |
| With Knob (select style and color from Table 19.233 below) | — | SKS34♦ | **81.00** |

| Illuminated Operators | Type | Type | $ Price |
|---|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK11J1 | SK12J1 | **158.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK11J1R | SK12J1R | **167.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK11J■♦ | SK12J■♦ | **167.00** |
| **Spring Return from Left ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK25J1 | — | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK25J1R | — | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK25J■♦ | — | **197.00** |
| **Spring Return from Right ▲, Operator Only (without contact blocks)** | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | — | SK34J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | — | SK34J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | — | SK34J■♦ | **197.00** |

▲ These operators can be ordered complete with contact blocks. Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208Vac = K25J3
♦ Add the knob color code from Table 19.233. For LED, knob color must match LED.

## Table 19.233: Selector Switch Assembly Code and Knob Cat. No.

| Color | Standard Knob | | Gloved Hand Knob | | $ Price |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | |
| Black | B | B11 | FB | B25 | **9.90** |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |



2 Position

***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories. See pages 19-85 through 19-92.*

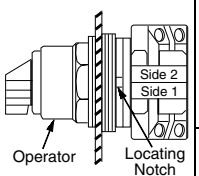




© 2012 Schneider Electric
All Rights Reserved

## Table 19.234: 3-Position Selector Switches

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Contact Block Required | | | | 1 — Contact Closed 0 — Contact Open | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact Block Position | Quantity and Type | Mount on Side | | Center | Center | Center | Center | Center | Center | Center | Center | Center |
|  Top View | KA1 or KA3 / KA2 | KA1 #2 or | KA3 #2 | 1 0 0 | 1 0 0 | 0 0 1 | 1 0 0 | 1 0 0 | 1 0 0 | 1 0 0 | 0 1 0 | 1 1 0 |
| | | | KA2 #2 | 0 1 1 | 0 0 1 | 0 1 0 | 0 1 0 | 0 0 1 | 0 1 1 | 0 1 1 | 1 0 0 | 0 0 1 |
| | KA1 or KA3 / KA2 | KA1 #1 or | KA3 #1 | 0 0 1 | 1 0 0 | 0 0 1 | 1 0 0 | 0 1 0 | 0 0 1 | 1 0 1 | 0 0 1 | 0 1 1 |
| | | | KA2 #1 | 1 1 0 | 0 0 1 | 0 1 0 | 0 1 0 | 0 0 1 | 1 0 0 | 0 1 0 | 0 1 0 | 1 0 0 |
| Cam (see page 19-73) | | | | B | C | D | E | F | G | J | L | M |

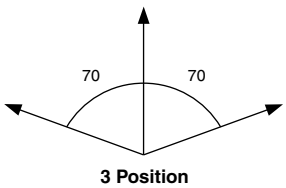
| Non-Illuminated Operators | Type | Type | Type | Type | Type | Type | Type | Type | Type | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| **Manual Return, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | SKS42 | SKS43 | SKS44 | SKS45 | SKS46 | SKS47 | SKS49 | SKS401 | SKS402 | **42.80** |
| With Knob (select style and color from Table 19.235 below) | SKS42♦ | SKS43♦ | SKS44♦ | SKS45♦ | SKS46♦ | SKS47♦ | SKS49♦ | SKS401♦ | SKS402♦ | **53.00** |
| **Operator with Contact Blocks and Standard black knob ★** | | | | | | | | | | |
| With 1 KA1 on Side #2 (H13) | SKS42BH13 | SKS43BH13 | SKS44BH13 | SKS45BH13 | SKS46BH13 | SKS47BH13 | SKS49BH13 | SKS401BH13 | SKS402BH13 | **106.00** |
| With 1 KA1 on Side #1 (H1) | SKS42BH1 | SKS43BH1 | SKS44BH1 | SKS45BH1 | SKS46BH1 | SKS47BH1 | SKS49BH1 | SKS401BH1 | SKS402BH1 | **106.00** |
| With 1 KA1 on Side #1 and 1 KA1 on side #2 (H2) | SKS42BH2 | SKS43BH2 | SKS44BH2 | SKS45BH2 | SSKS46BH2 | SKS47BH2 | SKS49BH2 | SKS401BH2 | SKS402BH2 | **152.00** |
| **Spring Return from Left to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | SKS62 | SKS63 | SKS64 | SKS65 | SKS66 | SKS67 | SKS69 | SKS601 | SKS602 | **71.00** |
| With Knob (select style and color from Table 19.235 below) | SKS62♦ | SKS63♦ | SKS64♦ | SKS65♦ | SKS66♦ | SKS67♦ | SKS69♦ | SKS601♦ | SKS602♦ | **81.00** |
| **Spring Return from Right to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | SKS72 | SKS73 | SKS74 | SKS75 | SKS76 | SKS77 | SKS79 | SKS701 | SKS702 | **71.00** |
| With Knob (select style and color from Table 19.235 below) | SKS72♦ | SKS73♦ | SKS74♦ | SKS75♦ | SKS76♦ | SKS77♦ | SKS79♦ | SKS701♦ | SKS702♦ | **81.00** |
| **Spring Return from Both Sides to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob | SKS52 | SKS53 | SKS54 | SKS55 | SKS56 | SKS57 | SKS59 | SKS501 | SKS502 | **71.00** |
| With Knob (select style and color from Table 19.235 below) | SKS52♦ | SKS53♦ | SKS54♦ | SKS55♦ | SKS56♦ | SKS57♦ | SKS59♦ | SKS501♦ | SKS502♦ | **81.00** |

| Illuminated Operators | Type | Type | Type | Type | Type | Type | Type | Type | Type | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|
| **Manual Return, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK42J1 | SK43J1 | SK44J1 | SK45J1 | SK46J1 | SK47J1 | SK49J1 | SK401J1 | SK402J1 | **158.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK42J1R | SK43J1R | SK44J1R | SK45J1R | SK46J1R | SK47J1R | SK49J1R | SK401J1R | SK402J1R | **167.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK42J■♦ | SK43J■♦ | SK44J■♦ | SK45J■♦ | SK46J■♦ | SK47J■♦ | SK49J■♦ | SK401J■♦ | SK402J■♦ | **167.00** |
| **Spring Return from Left to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK62J1 | SK63J1 | SK64J1 | SK65J1 | SK66J1 | SK67J1 | SK69J1 | SK601J1 | SK602J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK62J1R | SK63J1R | SK64J1R | SK65J1R | SK66J1R | SK67J1R | SK69J1R | SK601J1R | SK602J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK62J■♦ | SK63J■♦ | SK64J■♦ | SK65J■♦ | SK66J■♦ | SK67J■♦ | SK69J■♦ | SK601J■♦ | SK602J■♦ | **197.00** |
| **Spring Return from Right to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK72J1 | SK73J1 | SK74J1 | SK75J1 | SK76J1 | SK77J1 | SK79J1 | SK701J1 | SK702J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK72J1R | SK73J1R | SK74J1R | SK75J1R | SK76J1R | SK77J1R | SK79J1R | SK701J1R | SK702J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK72J■♦ | SK73J■♦ | SK74J■♦ | SK75J■♦ | SK76J■♦ | SK77J■♦ | SK79J■♦ | SK701J■♦ | SK702J■♦ | **197.00** |
| **Spring Return from Both Sides to Center, Operator Only (without contact blocks) ▲** | | | | | | | | | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK52J1 | SK53J1 | SK54J1 | SK55J1 | SK56J1 | SK57J1 | SK59J1 | SK501J1 | SK502J1 | **185.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK52J1R | SK53J1R | SK54J1R | SK55J1R | SK56J1R | SK57J1R | SK59J1R | SK501J1R | SK502J1R | **197.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK52J■♦ | SK53J■♦ | SK54J■♦ | SK55J■♦ | SK56J■♦ | SK57J■♦ | SK59J■♦ | SK501J■♦ | SK502J■♦ | **197.00** |

▲ These operators can be ordered complete with contact blocks. Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208Vac = K25J3.
♦ Add the knob color code from Table 19.235 below. For LED, knob color must match LED.
★ For other color knobs replace the B with knob color code from Table 19.235 below.

## Table 19.235: Selector Switch Assembly Code and Knob Cat. No.

| Color | Standard Knob | | Gloved Hand Knob | | $ Price |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | |
| Black | B | B11 | FB | B25 | **9.90** |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |



3 Position

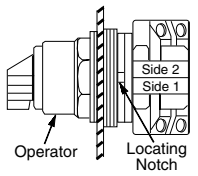
***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories. See pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

**Table 19.236: 4-Position Selector Switches**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Contact Block Required | | | | | | 1 — Contact Closed 0 — Contact Open | | | |
|---|---|---|---|---|---|---|---|---|---|
| Contact Block Position | Quantity and Type | | | Mount on Side | | | | | |
|  Top View | KA1 | or | KA3 | KA1 #2 | or | KA3 #2 | 1 | 0 | 0 | 0 |
| | | | KA2 | | | KA2 #2 | 0 | 0 | 1 | 0 |
| | KA1 | or | KA3 | KA1 #1 | or | KA3 #1 | 0 | 0 | 0 | 1 |
| | | | KA2 | | | KA2 #1 | 0 | 1 | 0 | 0 |
| Cam (see page 19-73) | | | | | | | H | | | |

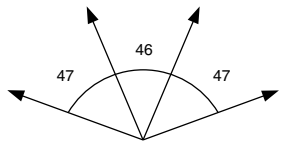
| Non-Illuminated Operators | Type | $ Price |
|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | |
| Without Knob | SKS88 | **42.80** |
| With Knob (select style and color from Table 19.237 below) | SKS88♦ | **52.65** |

| Illuminated Operators | Type | $ Price |
|---|---|---|
| **Manual Return ▲, Operator Only (without contact blocks)** | | |
| Without Knob, 110-120V 50-60 Hz Transformer | SK88J1 | **158.00** |
| With Standard Red Knob, 110-120V 50-60 Hz Transformer | SK88J1R | **167.00** |
| With Other Color Knob and other voltage Light Module ■ ♦ | SK88J■♦ | **167.00** |

▲ These operators can be ordered complete with contact blocks. Add the "H code" from page 19-88 as needed for your application.
■ Add the voltage assembly code as chosen from page 19-86. Example: K25J■ with 208Vac = K25J3
♦ Add the knob color code from Table 19.237. For LED, knob color must match LED

**Table 19.237: Selector Switch Assembly Code and Knob Cat. No.**

| Color | Standard Knob | | Gloved Hand Knob | | $ Price |
|---|---|---|---|---|---|
| | ♦ Knob Code | Cat. No. | ♦ Knob Code | Cat. No. | |
| Black | B | B11 | FB | B25 | **9.90** |
| Red | R | R8 | FR | R24 | |
| Green | G | G8 | FG | G24 | |
| Yellow | Y | Y8 | FY | Y24 | |
| Blue | L | L8 | FL | L24 | |
| White | W | W8 | FW | W24 | |
| Amber | A | A8 | FA | A24 | |
| Clear | C | C8 | FC | C24 | |



4 Position

## Potentiometers with Dial Plate

**Table 19.238: Potentiometers with Dial Plate (not UL listed)—Maximum Voltage 300 Vac**

| Power | Description | Ratings | Type | $ Price |
|---|---|---|---|---|
| 2 W | Operator Only, for Single Potentiometer | NEMA 4, 13 | SK20 | **201.00** |
| | Operator with Single Potentiometer | | SK21 | **287.00** |
| | Operator Only, for Tandem Potentiometer | | SK22 | **314.00** |
| | Operator with Tandem Potentiometer | | SK23 | **399.00** |

**Table 19.239: Potentiometer Suffixes**

| Single Potentiometer | | | |
|---|---|---|---|
| **Suffix ★** | **Resistance** | **Suffix ★** | **Resistance** |
| 01 | 50 Ω | 07 | 5 kΩ |
| 02 | 100 Ω | 08 | 10 kΩ |
| 04 | 500 Ω | 09 | 25 kΩ |
| 05 | 1 kΩ | 13 | 500 kΩ |
| 39 | 2 kΩ | 37 | 750 kΩ |
| 06 | 2.5 kΩ | 14 | 1 MΩ |

| Tandem Potentiometer | | |
|---|---|---|
| **Suffix ★** | **Resistance** | |
| | **Front** | **Rear** |
| 82 | 1 kΩ | 1 kΩ |

★ For the complete part number, add the suffix from Table 19.239 to the catalog number from Table 19.238. Example: 9001K2105.

Any potentiometer with a shaft 7/8 in. long and 1/4 in. diameter may be used with these operators.

***NOTE:*** *To select and order Contact Blocks, Light Modules, Knobs, and Accessories. See pages 19-85 through 19-92.*





© 2012 Schneider Electric
All Rights Reserved

**Table 19.240: Pilot Lights—UL Types 4, 4X, 13/NEMA 4, 4X, 13. For use in hazardous locations, see page 19-87. Legend plate not included.**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | Voltage | Style | With Red Fresnel Color Cap | With Green Fresnel Color Cap | With Other Color Cap | $ Price | Without Color Cap | $ Price |
|---|---|---|---|---|---|---|---|---|---|
|  9001SKP1 | Standard Pilot Light (Fresnel color cap shown) | 110–120 V, 50–60 Hz | Transformer | SKP1R31 | SKP1G31 | SKP1■ | 153.00 | SKP1 | 143.00 |
| | | 220–240 V, 50–60 Hz | Transformer | SKP7R31 | SKP7G31 | SKP7■ | 153.00 | SKP7 | 143.00 |
| | | 24–28 Vac/Vdc | Full Voltage | SKP35R31 | SKP35G31 | SKP35■ | 125.00 | SKP35 | 116.00 |
| | | For other voltages see Table ▲ | Transformer, Flashing or LED♦ | SKP▲R31 | SKP▲G31 | SKP▲■ | 125.00 | SKP▲ | 116.00 |
| | | | Full Voltage, Neon or Resistor★ | SKP▲R31 | SKP▲G31 | SKP▲■ | 125.00 | SKP▲ | 116.00 |
|  9001SKT1 | Push-To-Test Pilot Light (Fresnel color cap shown) | 110–120 V, 50–60 Hz | Transformer | SKT1R31 | SKT1G31 | SKT1■ | 197.00 | SKT1 | 185.00 |
| | | 220–240 V, 50–60 Hz | Transformer | SKT7R31 | SKT7G31 | SKT7■ | 197.00 | SKT7 | 185.00 |
| | | 24–28 Vac/Vdc | Full Voltage | SKT35R31 | SKT35G31 | SKT35■ | 167.00 | SKT35 | 158.00 |
| | | For other voltages see Table ▲ | Transformer, Flashing or LED♦ | SKT▲R31 | SKT▲G31 | SKT▲■ | 197.00 | SKT▲ | 158.00 |
| | | | Full Voltage, Neon or Resistor★ | SKT▲R31 | SKT▲G31 | SKT▲■ | 197.00 | SKT▲ | 158.00 |
|  9001SKTR38 | Remote Test Pilot Light (Fresnel color cap shown) | 120 Vac Only | Resistor | SKTR38R31 | SKTR38G31 | SKTR38■ | 197.00 | SKTR38 | 185.00 |
| | | 24–28 Vac Only | Full Voltage | SKTR35R31 | SKTR35G31 | SKTR35■ | 197.00 | SKTR35 | 185.00 |
| | | For other voltages see Tables ▲■▼ | Full Voltage or Resistor ▼ | SKTR▲R31 | SKTR▲G31 | SKTR▲■ | 197.00 | SKTR▲ | 185.00 |

▲ Add the voltage assembly code as chosen from Table 19.248 or Table 19.249 on page 19-86.
**EXAMPLE: SKT♦R31 with 208 Vac red LED voltage = SKT37LRR31.**

■ Add the color code as chosen from the color cap table below.
**EXAMPLE: SKP1♦ with a blue fresnel cap = SKP1L31.**

♦ The cap must be the same color as the LED light module chosen, e.g., for a green LED, use a green color cap.

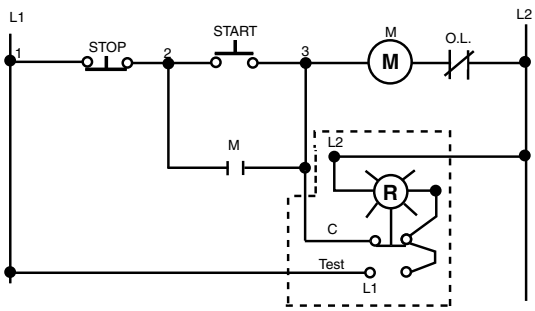
★ On neon light modules, use clear color caps only.

▼ Use only full voltage or resistor voltage assembly codes on remote test pilot lights. Do not choose LED, neon or transformer codes. For AC use only.

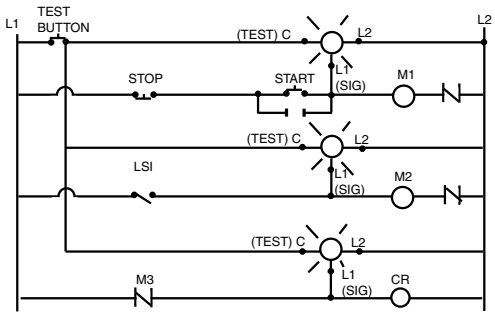
**Table 19.241: Color Caps**

| Color | ■ Plastic Fresnel  | ■ Plastic Domed  |
|---|---|---|
| Amber | A31 | A9 |
| Blue | L31 | L9 |
| Clear | C31 | C9 |
| Green | G31 | G9 |
| Red | R31 | R9 |
| White | W31 | W9 |
| Yellow | Y31 | Y9 |

**Typical Wiring Diagram**




Push-To-Test Pilot Light




Remote Test Pilot Light

***NOTE:*** *To select and order contact blocks, light modules, and accessories, see pages 19-85 through 19-92.*



© 2012 Schneider Electric
All Rights Reserved

**Table 19.242: Multifunction Operators—UL Types 4, 4X, 13/NEMA 4, 4X, 13**

For use in hazardous locations—See page 19-87.
Legend plate and contact blocks not included unless otherwise noted.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Interlocked Assembly | Description | Color | Contacts | $ Price | Without Contacts | $ Price |
|---|---|---|---|---|---|---|
|  9001SKR11U | Interlocked Assembly Both Buttons Maintained | Universal ▲ | SKR11UH1 | 178.00 | SKR11U | 120.00 |
| | | Other ■ | SKR11■H1 | | SKR11■ | |
| | Interlocked Assembly One Button Momentary | Universal ▲ | SKR12UH1H1 | 273.00 | SKR12U | 162.00 |
| | Interlocked Assembly One Button Maintained | Other ■ | SKR12■H1H1 | | SKR12■ | |

▲ Universal for SKR11,12 includes 2 each of black, red, green, yellow, orange, blue, white.
■ Choose one color for each button. R = red, G = green, B = Black.
**Example: 9001SKR11 with top button gray and bottom button orange = 9001SKR11ES.** See Table 19.227





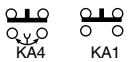
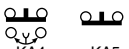
© 2012 Schneider Electric
All Rights Reserved

The Class 9001 Type KA contact blocks are Fingersafe® contact blocks (meeting VDE 0106 Part 100). They have one screw mounting and captive (backed out) plus/minus terminal screws. These contact blocks are double-break, direct-acting contacts. Because of the wiping action of these contacts, they are suitable for use with programmable controllers. All contact blocks listed below accept up to 2 #12–#24 AWG solid or stranded wires. Recommended tightening torque for screw terminals is 7 lb-in.

### Table 19.243: Standard Contact Blocks

| Description | Symbol | Type | $ Price |
|---|---|---|---|
|  (Clear Cover) | Direct-Acting  | KA1 | **42.80** |
|  (Green Cover) |  | KA2 | **21.50** |
|  (Red Cover) |  Direct-Acting  | KA3 | **21.50** |
|  (Clear Cover) |  N.O. Contact Early Closing | KA4 | **42.80** |
|  (Red Cover) |  N.C. Contact Late Opening | KA5 | **21.50** |
|  (Green Cover) |  N.O. Contact Early Closing | KA6 | **21.50** |

### Table 19.244: Additional Circuit Arrangements

| | | | |
|---|---|---|---|
| Sequencing ▲ N.O. Contact of KA4 closes before N.O. Contact on KA1 |  KA4 KA1 | Order One Type KA4 and One Type KA1 | **85.60** |
| Overlapping ▲ N.O. Contact of KA4 closes before N.C. Contact of KA5 Opens |  KA4 KA5 | Order One Type KA4 and One Type KA5 | **64.30** |

▲ For push buttons or two-position selector switches only. For sequencing or overlapping contacts on other operators, refer to catalog **9001CT0001**.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Symbol | Contact Blocks with Binder Head Screws (not Fingersafe) | | | Gold Flashed Contacts with Standard Pressure Wire Terminals | |
|---|---|---|---|---|---|
| | Type | Quantity ■ | $ Price | Type | $ Price |
|  | KA21 | 25–Up | **42.80** | KA31 | **71.00** |
|  | KA22 | 25–Up | **21.50** | KA32 | **35.60** |
|  | KA23 | 25–Up | **21.50** | KA33 | **35.60** |
|  N.O. Early Closing | KA24 | 25–Up | **42.80** | KA34 | **71.00** |
|  N.C. Contact Late Opening | KA25 | 25–Up | **21.50** | KA35 | **35.60** |

■ Minimum order quantity is 25. The price represents one individual contact block.

### Contact blocks listed below are not Fingersafe, but provide:

- Terminals that accept ring tongue/fork tongue connectors
- Short single circuit contact blocks (0.75" deep vs. 0.97" deep on the Fingersafe)
- Same as old style Series G product available prior to March, 1989.
- For assembled operators, use form Y238 (add to catalog number as suffix, for example: 9001KRU1H13Y238)



### Table 19.245: Contact blocks (not Fingersafe)

| Symbol | Type | $ Price | Symbol | Type | $ Price |
|---|---|---|---|---|---|
|  | KA1G | **42.80** |  N.O. Contact Early Closing | KA4G | **42.80** |
|  | KA2G | **21.50** |  N.C. Contact Late Opening | KA5G | **21.50** |
|  | KA3G | **21.50** |  N.O. Contact Early Closing | KA6G | **21.50** |

### Table 19.246: Contact blocks with Quick-Connect terminals (not Fingersafe)

| Symbol | Type | $ Price |
|---|---|---|
|  | KA12 | **35.60** |
|  | KA13 | **35.60** |

Dimensions . . . . . Catalog 9001CT0001

### Table 19.247: Maximum Current Ratings for Control Circuit Contacts—Types KA1–KA6, KA21–KA25, KA31–KA35, KA1G–KA6G

| V | AC | | | | | | Volts | DC | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inductive (NEMA / UL Type A600) 35% Power Factor | | | | | Resistive 75% Power Factor Make, Break and Continuous Amperes | | Inductive and Resistive (NEMA Q600) | | | | |
| | Make | | Break | | Continuous Carrying Amperes | | | Make and Break | | | | Continuous Carrying Amperes |
| | Amperes | VA | Amperes | VA | | | | KA1 | KA2 KA3 | KA4 | KA5 KA6 | |
| 120 | 60 | 7200 | 6.0 | 720 | 10 | 10 | 125 | 0.55 | 0.55 | — | — | 2.5 |
| 240 | 30 | | 3.0 | | | | 250 | 0.27 | 0.27 | — | — | |
| 480 | 15 | | 1.5 | | | | 600 | 0.10 | 0.10 | — | — | |
| 600 | 12 | | 1.2 | | | | | | | | | |



© 2012 Schneider Electric
All Rights Reserved

For use in hazardous locations—See page 19-87.

- With neon type light modules, use a **clear** color cap only.
- With LED light modules, use either a clear color cap or a cap the same color as the LED.



**Table 19.248: Standard Light Modules for Types K, SK, and KX Control Units ■**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Voltage | Description | Light Module | | Voltage Assembly Code | Rating | Replacement Lamp | |
|---|---|---|---|---|---|---|---|
| | | Type | $ Price | | | Part Number ■ | $ Price |
| All | Full Voltage (without Bayonet Base Lamp) | KM40 | **78.00** | 40 | — | None | — |
| 6 Vac/Vdc | Full Voltage | KM31 | **86.00** | 31 | .9 VA | 2550101020 | **12.45** |
| 6 Vac/Vdc | LED Red | KM31LR | **116.00** | 31LR | | 6508805201 | **42.75** |
| 6 Vac/Vdc | LED Green | KM31LG | **116.00** | 31LG | | 6508805203 | **42.75** |
| 6 Vac/Vdc | LED Yellow | KM31LY | **116.00** | 31LY | | 6508805202 | **28.50** |
| 12–14 Vac/Vdc | Full Voltage | KM32 | **86.00** | 32 | 1.2 VA | 2550101037 | **12.45** |
| 12–14 Vac/Vdc | LED Red | KM32LR | **116.00** | 32LR | | 6508805201 | **42.75** |
| 12–14 Vac/Vdc | LED Green | KM32LG | **116.00** | 32LG | | 6508805203 | **42.75** |
| 12–14 Vac/Vdc | LED Yellow | KM32LY | **116.00** | 32LY | | 6508805202 | **28.50** |
| 18 Vac/Vdc | Resistor | KM33 | **86.00** | 33 | 1.4 VA | 2550101037 | **12.45** |
| 24–28 Vac/Vdc | Full Voltage | KM35 | **86.00** | 35 | 1.2 VA | 2550101002 | **12.45** |
| 24–28 Vac/Vdc | LED Red | KM35LR | **116.00** | 35LR | .28 VA | 6508805210 | **42.75** |
| 24–28 Vac/Vdc | LED Green | KM35LG | **116.00** | 35LG | .28 VA | 6508805212 | **42.75** |
| 24–28 Vac/Vdc | LED Yellow | KM35LY | **116.00** | 35LY | .28 VA | 6508805211 | **42.75** |
| 24–28 Vac/Vdc | LED White | KM35LW | **116.00** | 35LW | .28 VA | 6508805214 | **42.75** |
| 24–28 Vac/Vdc | LED Blue | KM35LL | **116.00** | 35LL | .28 VA | 6508805213 | **42.75** |
| 48 Vac/Vdc | Full Voltage | KM36 | **86.00** | 36 | 2.6 VA | 2550101025 | **12.45** |
| 110–120 V, 50–60 Hz | LED Red | KM1LR | **143.00** | 1LR | | 6508805201 | **42.75** |
| 110–120 V, 50–60 Hz | LED Green | KM1LG | **143.00** | 1LG | | 6508805203 | **42.75** |
| 110–120 V, 50–60 Hz | LED Yellow | KM1LY | **143.00** | 1LY | | 6508805202 | **42.75** |
| 110–120 V, 50–60 Hz | Transformer | KM1 | **116.00** | 1 | 2.4 VA | 2550101020 | **12.45** |
| 110–120 V, 50–60 Hz | Flashing | KMF1 | **116.00** | F1 | .85 VA | 2550101036 | **16.50** |
| 120 Vac/Vdc | Full Voltage/Resistor | KM38 | **86.00** | 38 | 3.0 VA | 2550101027 | **12.45** |
| 120 Vac/Vdc | Neon ▲ | KM11 | **86.00** | 11 | 0.2 VA | 2550101013 | **32.85** |
| 120 Vac/Vdc | LED Red | KM38LR | **116.00** | 38LR | 1.4 VA | 6508805210 | **42.75** |
| 120 Vac/Vdc | LED Green | KM38LG | **116.00** | 38LG | 1.4 VA | 6508805212 | **42.75** |
| 120 Vac/Vdc | LED Yellow | KM38LY | **116.00** | 38LY | 1.4 VA | 6508805211 | **42.75** |
| 120 Vac/Vdc | LED White | KM38LW | **116.00** | 38LW | 1.4 VA | 6508805214 | **42.75** |
| 120 Vac/Vdc | LED Blue | KM38LL | **116.00** | 38LL | 1.4 VA | 6508805213 | **42.75** |
| 208–220 V, 50–60 Hz | Transformer | KM3 | **116.00** | 3 | 2.5 VA | 2550101020 | **12.45** |
| 208–220 V, 50–60 Hz | LED Red | KM3LR | **143.00** | 3LR | | 6508805201 | **42.75** |
| 208–220 V, 50–60 Hz | LED Green | KM3LG | **143.00** | 3LG | | 6508805203 | **42.75** |
| 208–220 V, 50–60 Hz | LED Yellow | KM3LY | **143.00** | 3LY | | 6508805202 | **42.75** |
| 208–220 V, 50–60 Hz | LED White | KM3LW | **143.00** | 3LW | | 6508805215 | **42.75** |
| 208–220 V, 50–60 Hz | LED Blue | KM3LL | **143.00** | 3LL | | 6508805216 | **42.75** |
| 220–240 V, 50–60 Hz | Transformer | KM7 | **116.00** | 7 | 2.0 VA | 2550101020 | **12.45** |
| 220–240 V, 50–60 Hz | LED Red | KM7LR | **143.00** | 7LR | | 6508805201 | **42.75** |
| 220–240 V, 50–60 Hz | LED Green | KM7LG | **143.00** | 7LG | | 6508805203 | **42.75** |
| 220–240 V, 50–60 Hz | LED Yellow | KM7LY | **143.00** | 7LY | | 6508805202 | **42.75** |
| 220–240 V, 50–60 Hz | LED White | KM7LW | **143.00** | 7LW | | 6508805215 | **42.75** |
| 220–240 V, 50–60 Hz | LED Blue | KM7LL | **143.00** | 7LL | | 6508805216 | **42.75** |
| 240 Vac/Vdc | Resistor | KM25 | **86.00** | 25 | 6.0 VA | 2550101027 | **12.45** |
| 240 Vac/Vdc | Neon ▲ | KM12 | **86.00** | 12 | 0.3 VA | 2550101013 | **32.85** |
| 277 V, 50–60 Hz | Transformer | KM8 | **116.00** | 8 | 2.4 VA | 2550101020 | **12.45** |
| 380–480 V, 50–60 Hz | Transformer | KM5 | **116.00** | 5 | 2.8 VA | 2550101020 | **12.45** |
| 480 Vac/Vdc | Neon ▲ | KM14 | **86.00** | 14 | 0.5 VA | 2550101013 | **32.85** |
| 550–600 V, 50–60 Hz | Transformer | KM6 | **116.00** | 6 | 2.5 VA | 2550101020 | **12.45** |

▲ Not for use on KX operators.
■ For use with all operators except KX and remote test pilot.

***NOTE:*** *Light modules are available in other voltages. For additional information, refer to Catalog* **9001CT0001**.

For use in hazardous locations—See page 19-87.

- Reduces the depth of illuminated push buttons with contact blocks by over 33%.
- With LED light modules, use a cap that is the same color as the LED.



**Table 19.249: Shallow Depth Light Modules For Types K and SK Control Units ♦**

| Voltage | Description | Light Module | | Voltage Assembly Code | Rating | Replacement Lamp | |
|---|---|---|---|---|---|---|---|
| | | Type | $ Price | | | Part Number | $ Price |
| 24–28 Vac/Vdc | Full Voltage | KM55 | **86.00** | 55 | 1.2 VA | 2550101002 | **12.45** |
| | LED Red | KM55LR | **116.00** | 55LR | 0.5 VA | 6508805204 | **42.75** |
| | LED Green | KM55LG | | 55LG | | 6508805206 | |
| | LED Yellow | KM55LY | | 55LY | | 6508805205 | |
| 110–120 Vac/Vdc | Full Voltage | KM58 | **86.00** | 58 | 3.0 VA | 2550101027 | **12.45** |
| | LED Red | KM58LR | **116.00** | 58LR | 0.5 VA | 6508805204 | **42.75** |
| | LED Green | KM58LG | | 58LG | | 6508805206 | |
| | LED Yellow | KM58LY | | 58LY | | 6508805205 | |

♦ For use with all operators except KX and remote test pilot.

File CCN E78403 NKCR — File Class LR25490 3211 03 — CE marked





© 2012 Schneider Electric
All Rights Reserved

Hazardous locations do not always require the use of explosion-proof equipment like the Class 9001 Type BR control stations. Selecting the most appropriate device for the location can save you money. For more information on the types of hazardous locations, contact your local electrical inspector.

### Table 19.250: Square D Offering According to Class, Division, and Group

| For | | | Use |
|---|---|---|---|
| Class | Division | Group(s) | |
| I | 1 | A | 1. Intrinsically Safe System |
| I | 1 | B, C, D | 1. 9001 BR station |
| | | | 2. Intrinsically Safe System |
| I | 2 | A | 1. 9001 K, SK, KX control stations with restrictions ▲ |
| | | | 2. Intrinsically Safe System |
| I | 2 | B, C, D | 1. 9001 BR station |
| | | | 2. 9001 K, SK, KX control stations with restrictions ▲ |
| | | | 3. Intrinsically Safe System |
| II | 1 | E, F, G | 1. 9001 BR station |
| | | | 2. Intrinsically Safe System |
| II | 2 | E, F | 1. 9001 BR station |
| | | | 2. 9001 K, SK, KX control stations with restrictions ▲ |
| | | | 3. Intrinsically Safe System |
| II | 2 | G | 1. 9001 BR station |
| | | | 2. 9001 K, SK, KX control stations with restrictions ■ |
| | | | 3. Intrinsically Safe System |
| III | 1, 2 | — | 1. 9001 BR Station |
| | | | 2. 9001 K, SK, KX control stations with restrictions ■ |
| | | | 3. Intrinsically Safe System |

▲ Any Class 9001 Type K, SK or KX operator can be used in an area classified as Class I, Division 2 hazardous locations, if:
1. Only logic (KA40 series) or power (KA50 series) reed contact blocks are used.
2. All Type K and SK illuminated operators are UL approved for use in Class I Division 2 areas. ♦
3. Type KX illuminated operators do not use 4 lamp light modules, or 2 lamp light modules other than the transformer type. ♦
4. The operators are mounted in any NEMA 4 & 13 enclosures.

■ Any Class 9001 Type K, SK, or KX operator mounted in a Class 9001 Type KY, KYSS, KYAF, SKY enclosure may be used, except potentiometer operators.

♦ Add Form Y243 to single lamp Push-To-Test pilot lights.

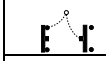
Note: For ▲ and ■: UL Listed: File E10054(N), CCN NOIV.

### Table 19.251: Hazardous Locations (see page 19-87)

Types K, SK — File CCN E10054(N) NOIV — File Class LR26817 3218 02

***NOTE:*** *When ordering, add prefix 9001 to the catalog number. All contact blocks listed below accept #12–18 solid or stranded wire.*

### Table 19.252: Hermetically Sealed Logic Reed Contact Blocks △ Suitable for use on low energy level circuits

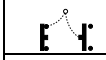
| Description | Symbol | Type | $ Price |
|---|---|---|---|
|  |  | KA41 | 86.00 |
| |  | KA42 | 42.80 |
| |  | KA43 | 42.80 |
| |  | KA44 | 86.00 |
| |  | KA45 | 86.00 |

| Max. Vac/Vdc | Maximum Load | | |
|---|---|---|---|
| | Resistive | Inductive | Continuous |
| 32/30 | .25 A | .10 A | .5 A |
| 120/100 | 8 VA | 3 VA | .5 A |

The maximum number of logic and/or power reed contact blocks per operator is as indicated on individual selection tables for standard contact blocks, **except**:

- On 3 position selector switches with cams C, D, E, F, G, L, or M, mount reed blocks on **one side only** (either side), maximum 2 in tandem.
- On 4 position selector switches, mount reed blocks on **one side only** (either side), maximum 2 in tandem.
- On joysticks or on Type KR8 or SKR8 push-pull operators, mount reed blocks on **one side only** (either side), maximum 2 in tandem.

### Table 19.253: Hermetically Sealed Power Reed Contact Blocks △

| Description | Symbol | Type | $ Price |
|---|---|---|---|
|  |  | KA51 | 143.00 |
| |  | KA52 | 101.00 |
| |  | KA53 | 101.00 |
| |  | KA54 | 143.00 |
| |  | KA55 | 143.00 |

| Volts | AC NEMA C300 ★ | | | | |
|---|---|---|---|---|---|
| | Make | | Break | | Continuous Carrying Amperes |
| | A | VA | A | VA | |
| 120 | 10.00 | 1200 | 1.000 | 120 | 3.0 |
| 240 | 5.00 | | .500 | | |

| Volts | DC NEMA Q150 ▼ | | | | |
|---|---|---|---|---|---|
| | Make | | Break | | Continuous Carrying Amperes |
| | A | VA | A | VA | |
| 115 | .50 | 58 | .50 | 58 | 3.0 |

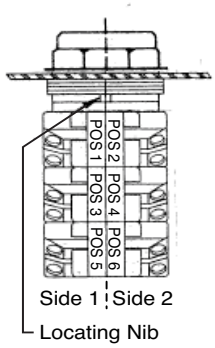
Note: The power reed contact blocks can be used with standard industrial relays and starters through NEMA Size 4. Minimum voltage is 5 V and the minimum current is 1 mA.

★ Inductive Rating—35% Power Factor.
▼ Inductive and Resistive Ratings
△ Not for use in pendant stations.



© 2012 Schneider Electric
All Rights Reserved

**Example:** A Type KR1B push button with 2 Type KA1 contact blocks would be Class 9001 Type KR1BH2.



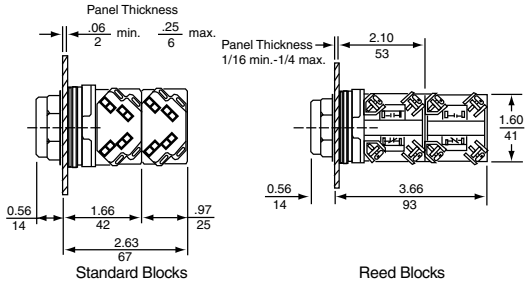

The design of the Class 9001 Type KA contact blocks allows them to be mounted side by side and/or in tandem. This enables you to specify an operator and a particular arrangement of contact blocks (shipped completely assembled) with a single Type number.

### Table 19.254: "H" Codes

| Suffix No. (Add to Operator Type) | $ Price | Positions | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| H1 | **28.50** | KA1 | | | | | |
| H2 | **57.00** | KA1 | KA1 | | | | |
| H3 | **86.00** | KA1 | KA1 | KA1 | | | |
| H4 | **114.00** | KA1 | KA1 | KA1 | KA1 | | |
| H5 | **14.30** | KA2 | | | | | |
| H6 | **14.30** | KA3 | | | | | |
| H7 | **28.50** | KA2 | KA2 | | | | |
| H8 | **28.50** | KA3 | KA3 | | | | |
| H9 | **57.00** | KA4 | KA1 | | | | |
| H10 | **42.80** | KA4 | KA5 | | | | |
| H11 | **86.00** | KA1 | KA1 | | KA1 | | |
| H12 | **57.00** | KA2 | KA3 | KA2 | KA3 | | |
| H13 | **28.50** | | KA1 | | | | |
| H14 | **14.30** | | KA3 | | | | |
| H15 | **42.80** | KA2 | KA3 | KA2 | | | |
| H16 | **42.80** | KA2 | KA3 | | KA3 | | |
| H17 | **71.00** | KA1 | KA1 | KA2 | | | |
| H18 | **71.00** | KA3 | KA1 | KA3 | | KA3 | |
| H19 | **143.00** | KA1 | KA1 | KA1 | KA1 | KA1 | |
| H21 | **28.50** | KA2 | KA3 | | | | |
| H23 | **171.00** | KA1 | KA1 | KA1 | KA1 | KA1 | KA1 |
| H24 | **42.80** | KA1 | KA2 | | | | |
| H25 | **28.50** | KA5 | KA3 | | | | |

***NOTE:*** *For "H" Codes not shown in this table, contact your local Schneider Electric Customer Care Center.*

### Table 19.255: Dimensions When Using Contact Blocks




### Table 19.256: Basic Operators (Without Color Caps, Mushroom Buttons, Knobs, Selector Switch Cams, Contact Blocks, Light Modules, or Legend Plates)

| Description | For UL Types/NEMA | | $ Price |
|---|---|---|---|
| | 1, 3R, 4, 12, 13 | 4, 4X, 13 | |
| Non-Illuminated Push Button (Extended Guard) | KR2 | SKR2 | **38.55** |
| Non-Illuminated Push Button (No Guard) | KR3 | SKR3 | **38.55** |
| Non-Illuminated Push Button (Mushroom Button/Screw-On) | KR20 | SKR20 | **38.55** |
| Non-Illuminated Dual Push Button (Momentary) | KR6 | — | **78.00** |
| Non-Illuminated Dual Push Button (Momentary Interlocked) | KR67 | — | **121.50** |
| Non-Illuminated Dual Push Button (Maintained Interlocked) | KR7 | — | **121.50** |
| Momentary Pull—Maintained Neutral—Momentary Push | KR8 ▲★ | SKR8 ▲ | **75.00** |
| Maintained Pull—Maintained Push | KR9 ▲★ | SKR9 ▲ | **120.00** |
| Illuminated Push Button (Full Guard—Plastic Top) | K1L ■ | SK1L ■ | **42.75** |
| Illuminated Push Button and Push-To-Test (No Guard) | K2L ■ ♦ | SK2L ■ ♦ | **28.65** |
| Illuminated Push Button (Full Guard—Metal Top) | K3L ■ | — | **42.75** |
| Standard Pilot Light | KP | SKP | **28.65** |
| 3 Position Maintained Selector Switch | KS4 ▲ | SKS4 ▲ | **36.30** |
| 3 Position Spring Return Both Sides To Center—Selector Switch | KS5 ▲ | SKS5 ▲ | **64.80** |
| 3 Position Spring Return Left To Center—Selector Switch | KS6 ▲ | SKS6 ▲ | **64.80** |
| 3 Position Spring Return Right To Center—Selector Switch | KS7 ▲ | SKS7 ▲ | **64.80** |

▲ Operator can be converted to an illuminated operator by removing the liner (6512240601) and adding a light module.

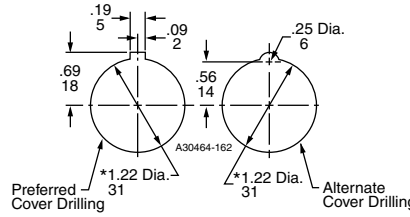
■ Operator can be converted to a non-illuminated operator by adding liner (6512240601).

♦ Operator includes jumper wires for push-to-test conversion.

★ These operators can be supplied with 1-3/8 in or 2-1/4 in dia. mushroom buttons. For 1-3/8 in.: add ( ) 20 to type number. The ( ) refers to the color chosen—see page 19-92. For 2-1/4 in.: Add ( ) 21 to type number. The ( ) refers to the color chosen—see page 19-92. Voids UL and NEMA 6 Rating.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

### Mounting Hole for All Types K, SK, and KX Control Units




*Units also mount in 1.20 dia. 30

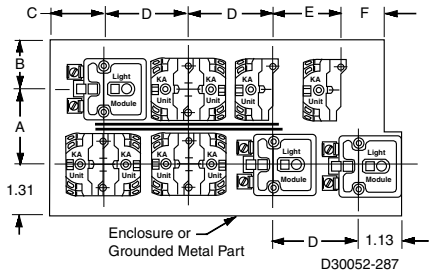
Dual Dimensions: **INCHES** Millimeters

**Hole Punch:** Use Greenlee Tool #60242 to punch mounting hole and notch.

### Maximum Contact Block Usage

(Includes Types K, SK and KX)

- **2 blocks mounted side by side only:** Any 2, 3 or 4 position **spring return** selector switch (non-illuminated, illuminated or keyed).
- **2 blocks mounted in tandem on one side only:** Any 2 operator interlocked push button.
- **2 blocks mounted in tandem (total of four blocks):** Any selector push button, keyed push button, 2, 3, or 4 position **maintained** selector switch (non-illuminated, illuminated or keyed), push-pull operators (non-illuminated or illuminated), joy stick, dual push button.
- **3 blocks mounted in tandem (total of six blocks):** Single momentary push buttons (non-illuminated or illuminated).




### Min. Centerline Spacing, Type K & SK Control Units

| Legend Plate | Operator | Centerline Spacing (in.) | | | | | |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F |
| **Legend Plate Orientation Position #1** | | | | | | | |
| KN2 KN5 | Standard Push Button | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| KN3 | Standard Push Button | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 1.375 in. Dia. Mushroom | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| KN4 | Standard Push Button | 1.94 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.94 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.74 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| KN6 | Standard Push Button | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | 1.375 in. Dia. Mushroom | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | 2.25 in. Dia. Mushroom | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| **Legend Plate Orientation Position #2** | | | | | | | |
| KN2 KN5 | Standard Push Button | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| KN3 | Standard Push Button | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| KN4 | Standard Push Button | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| | 1.375 in. Dia. Mushroom | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| KN6 | Standard Push Button | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |
| | 1.375 in. Dia. Mushroom | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 1.12 |
| | Selector Switch Knobs | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |





© 2012 Schneider Electric
All Rights Reserved

## Table 19.257: Legend Plates

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Standard Markings | Plastic Legend Plates for use with Types K and SK Operators | | | | | | | | | Aluminum Legend Plates for use with Type K Operators | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-3/4" Square | | | 2-1/4" Square | | | 2-1/2" Square | | | Black Legend | Black Legend | Blue Legend |
| | Silver Legend with Black Letters | White Legend with Black Letters | Black Legend with White Letters | Silver Legend with Black Letters | White Legend with Black Letters | Black Legend with White Letters | Silver Legend with Black Letters | White Legend with Black Letters | Black Legend with White Letters |  |  |  |
| **For Push Button or Pilot Light** | | | | | | | | | | **KN200** | **KN300** | **KN800** |
| **Blank** | KN200SP | KN200WP | KN200BP | KN100SP | KN100WP | KN100BP | KN700SP | KN700WP | KN700BP | KN200 | KN300 | KN800 |
| **Blank (red)** | KN200RP ■ | KN200RP ■ | KN200RP ■ | KN100RP ■ | KN100RP ■ | KN100RP ■ | KN700RP ■ | KN700RP ■ | KN700RP ■ | KN200R ▲ | KN300R ▲ | KN800R ▲ |
| **Start** | KN201SP | KN201WP | KN201BP | KN101SP | KN101WP | KN101BP | KN701SP | KN701WP | KN701BP | KN201 | KN301 | KN801 |
| **Stop** | KN202RP ■ | KN202RP ■ | KN202RP ■ | KN102RP ■ | KN102RP ■ | KN102RP ■ | KN702RP ■ | KN702RP ■ | KN702RP ■ | KN202 ▲ | KN302 ▲ | KN802 ▲ |
| **On** | KN203SP | KN203WP | KN203BP | KN103SP | KN103WP | KN103BP | KN703SP | KN703WP | KN703BP | KN203 | KN303 | KN803 |
| **Off** | KN204RP ■ | KN204RP ■ | KN204RP ■ | KN104RP ■ | KN104RP ■ | KN104RP ■ | KN704RP ■ | KN704RP ■ | KN704RP ■ | KN204 ▲ | KN304 ▲ | KN804 ▲ |
| **Emerg. Stop** | KN205RP ■ | KN205RP ■ | KN205RP ■ | KN105RP ■ | KN105RP ■ | KN105RP ■ | KN705RP ■ | KN705RP ■ | KN705RP ■ | KN205 ▲ | KN305 ▲ | KN805 ▲ |
| **Forward** | KN206SP | KN206WP | KN206BP | KN106SP | KN106WP | KN106BP | KN706SP | KN706WP | KN706BP | KN206 | KN306 | KN806 |
| **Reverse** | KN207SP | KN207WP | KN207BP | KN107SP | KN107WP | KN107BP | KN707SP | KN707WP | KN707BP | KN207 | KN307 | KN807 |
| **Close** | KN208SP | KN208WP | KN208BP | KN108SP | KN108WP | KN108BP | KN708SP | KN708WP | KN708BP | KN208 | KN308 | KN808 |
| **Open** | KN209SP | KN209WP | KN209BP | KN109SP | KN109WP | KN109BP | KN709SP | KN709WP | KN709BP | KN209 | KN309 | KN809 |
| **Down** | KN210SP | KN210WP | KN210BP | KN110SP | KN110WP | KN110BP | KN710SP | KN710WP | KN710BP | KN210 | KN310 | KN810 |
| **Up** | KN211SP | KN211WP | KN211BP | KN111SP | KN111WP | KN111BP | KN711SP | KN711WP | KN711BP | KN211 | KN311 | KN811 |
| **Fast** | KN212SP | KN212WP | KN212BP | KN112SP | KN112WP | KN112BP | KN712SP | KN712WP | KN712BP | KN212 | KN312 | KN812 |
| **Slow** | KN213SP | KN213WP | KN213BP | KN113SP | KN113WP | KN113BP | KN713SP | KN713WP | KN713BP | KN213 | KN313 | KN813 |
| **High** | KN214SP | KN214WP | KN214BP | KN114SP | KN114WP | KN114BP | KN714SP | KN714WP | KN714BP | KN214 | KN314 | KN814 |
| **Low** | KN215SP | KN215WP | KN215BP | KN115SP | KN115WP | KN115BP | KN715SP | KN715WP | KN715BP | KN215 | KN315 | KN815 |
| **Inch** | KN216SP | KN216WP | KN216BP | KN116SP | KN116WP | KN116BP | KN716SP | KN716WP | KN716BP | KN216 | KN316 | KN816 |
| **In** | KN217SP | KN217WP | KN217BP | KN117SP | KN117WP | KN117BP | KN717SP | KN717WP | KN717BP | KN217 | KN317 | KN817 |
| **Jog** | KN218SP | KN218WP | KN218BP | KN118SP | KN118WP | KN118BP | KN718SP | KN718WP | KN718BP | KN218 | KN318 | KN818 |
| **Jog For.** | KN219SP | KN219WP | KN219BP | KN119SP | KN119WP | KN119BP | KN719SP | KN719WP | KN719BP | KN219 | KN319 | KN819 |
| **Jog Rev.** | KN220SP | KN220WP | KN220BP | KN120SP | KN120WP | KN120BP | KN720SP | KN720WP | KN720BP | KN220 | KN320 | KN820 |
| **Lower** | KN221SP | KN221WP | KN221BP | KN121SP | KN121WP | KN121BP | KN721SP | KN721WP | KN721BP | KN221 | KN321 | KN821 |
| **Out** | KN222SP | KN222WP | KN222BP | KN122SP | KN122WP | KN122BP | KN722SP | KN722WP | KN722BP | KN222 | KN322 | KN822 |
| **Reset** | KN223SP | KN223WP | KN223BP | KN123SP | KN123WP | KN123BP | KN723SP | KN723WP | KN723BP | KN223 | KN323 | KN823 |
| **Run** | KN224SP | KN224WP | KN224BP | KN124SP | KN124WP | KN124BP | KN724SP | KN724WP | KN724BP | KN224 | KN324 | KN824 |
| **Start Jog** | KN225SP | KN225WP | KN225BP | KN125SP | KN125WP | KN125BP | KN725SP | KN725WP | KN725BP | KN225 | KN325 | KN825 |
| **Test** | KN226SP | KN226WP | KN226BP | KN126SP | KN126WP | KN126BP | KN726SP | KN726WP | KN726BP | KN226 | KN326 | KN826 |
| **Raise** | KN227SP | KN227WP | KN227BP | KN127SP | KN127WP | KN127BP | KN727SP | KN727WP | KN727BP | KN227 | KN327 | KN827 |
| **Decrease** | KN228SP | KN228WP | KN228BP | KN128SP | KN128WP | KN128BP | KN728SP | KN728WP | KN728BP | KN228 | KN328 | KN828 |
| **Increase** | KN229SP | KN229WP | KN229BP | KN129SP | KN129WP | KN129BP | KN729SP | KN729WP | KN729BP | KN229 | KN329 | KN829 |
| **Left** | KN230SP | KN230WP | KN230BP | KN130SP | KN130WP | KN130BP | KN730SP | KN730WP | KN730BP | KN230 | KN330 | KN830 |
| **Right** | KN231SP | KN231WP | KN231BP | KN131SP | KN131WP | KN131BP | KN731SP | KN731WP | KN731BP | KN231 | KN331 | KN831 |
| **Cycle Start** | KN232SP | KN232WP | KN232BP | KN132SP | KN132WP | KN132BP | KN732SP | KN732WP | KN732BP | KN232 | KN332 | KN832 |
| **Feed Start** | KN233SP | KN233WP | KN233BP | KN133SP | KN133WP | KN133BP | KN733SP | KN733WP | KN733BP | KN233 | KN333 | KN833 |
| **Cycle Stop** | KN234SP | KN234WP | KN234BP | KN134SP | KN134WP | KN134BP | KN734SP | KN734WP | KN734BP | KN234 | KN334 | KN834 |
| **Motor Run** | KN236SP | KN236WP | KN236BP | KN136SP | KN136WP | KN136BP | KN736SP | KN736WP | KN736BP | KN236 | KN336 | KN836 |
| **Motor Stop** | KN237SP | KN237WP | KN237BP | KN137SP | KN137WP | KN137BP | KN737SP | KN737WP | KN737BP | KN237 | KN337 | KN837 |
| **Power On** | KN238SP | KN238WP | KN238BP | KN138SP | KN138WP | KN138BP | KN738SP | KN738WP | KN738BP | KN238 | KN338 | KN838 |
| **Pull To Start** | N/A | N/A | N/A | KN179SP | KN179WP | KN179BP | KN779SP | KN779WP | KN779BP | N/A | KN379 | N/A |
| **Push To Stop** | | | | | | | | | | | | |
| **For Selector Switch or Selector Push Button** | | | | | | | | | | | | |
| **For.-Rev.** | KN239SP | KN239WP | KN239BP | KN139SP | KN139WP | KN139BP | KN739SP | KN739WP | KN739BP | KN239 | KN339 | KN839 |
| **Hand-Auto.** | KN240SP | KN240WP | KN240BP | KN140SP | KN140WP | KN140BP | KN740SP | KN740WP | KN740BP | KN240 | KN340 | KN840 |
| **High-Low** | KN241SP | KN241WP | KN241BP | KN141SP | KN141WP | KN141BP | KN741SP | KN741WP | KN741BP | KN241 | KN341 | KN841 |
| **Jog-Run** | KN242SP | KN242WP | KN242BP | KN142SP | KN142WP | KN142BP | KN742SP | KN742WP | KN742BP | KN242 | KN342 | KN842 |
| **Man.-Auto.** | KN243SP | KN243WP | KN243BP | KN143SP | KN143WP | KN143BP | KN743SP | KN743WP | KN743BP | KN243 | KN343 | KN843 |
| **Off-On** | KN244SP | KN244WP | KN244BP | KN144SP | KN144WP | KN144BP | KN744SP | KN744WP | KN744BP | KN244 | KN344 | KN844 |
| **On-Off** | KN245SP | KN245WP | KN245BP | KN145SP | KN145WP | KN145BP | KN745SP | KN745WP | KN745BP | KN245 | KN345 | KN845 |
| **Open-Close** | KN246SP | KN246WP | KN246BP | KN146SP | KN146WP | KN146BP | KN746SP | KN746WP | KN746BP | KN246 | KN346 | KN846 |
| **Raise-Lower** | KN247SP | KN247WP | KN247BP | KN147SP | KN147WP | KN147BP | KN747SP | KN747WP | KN747BP | KN247 | KN347 | KN847 |
| **Run-Jog** | KN248SP | KN248WP | KN248BP | KN148SP | KN148WP | KN148BP | KN748SP | KN748WP | KN748BP | KN248 | KN348 | KN848 |
| **Slow-Fast** | KN250SP | KN250WP | KN250BP | KN150SP | KN150WP | KN150BP | KN750SP | KN750WP | KN750BP | KN250 | KN350 | KN850 |
| **Start-Stop** | KN251SP | KN251WP | KN251BP | KN151SP | KN151WP | KN151BP | KN751SP | KN751WP | KN751BP | KN251 | KN351 | KN851 |
| **Up-Down** | KN253SP | KN253WP | KN253BP | KN153SP | KN153WP | KN153BP | KN753SP | KN753WP | KN753BP | KN253 | KN353 | KN853 |
| **Low-High** | KN254SP | KN254WP | KN254BP | KN154SP | KN154WP | KN154BP | KN754SP | KN754WP | KN754BP | KN254 | KN354 | KN854 |
| **Stop-Start** | KN255SP | KN255WP | KN255BP | KN155SP | KN155WP | KN155BP | KN755SP | KN755WP | KN755BP | KN255 | KN355 | KN855 |
| **Left-Right** | KN256SP | KN256WP | KN256BP | KN156SP | KN156WP | KN156BP | KN756SP | KN756WP | KN756BP | KN256 | KN356 | KN856 |
| **On-Auto** | KN276SP | KN276WP | KN276BP | KN176SP | KN176WP | KN176BP | KN776SP | KN776WP | KN776BP | KN276 | KN376 | KN876 |
| **Auto-Off-Hand** | KN258SP | KN258WP | KN258BP | KN158SP | KN158WP | KN158BP | KN758SP | KN758WP | KN758BP | KN258 | KN358 | KN858 |
| **For.-Off-Rev.** | KN259SP | KN259WP | KN259BP | KN159SP | KN159WP | KN159BP | KN759SP | KN759WP | KN759BP | KN259 | KN359 | KN859 |
| **Hand-Off-Auto.** | KN260SP | KN260WP | KN260BP | KN160SP | KN160WP | KN160BP | KN760SP | KN760WP | KN760BP | KN260 | KN360 | KN860 |
| **Man.-Off-Auto.** | KN262SP | KN262WP | KN262BP | KN162SP | KN162WP | KN162BP | KN762SP | KN762WP | KN762BP | KN262 | KN362 | KN862 |
| **Open-Off-Close** | KN263SP | KN263WP | KN263BP | KN163SP | KN163WP | KN163BP | KN763SP | KN763WP | KN763BP | KN263 | KN363 | KN863 |
| **Up-Off-Down** | KN264SP | KN264WP | KN264BP | KN164SP | KN164WP | KN164BP | KN764SP | KN764WP | KN764BP | KN264 | KN364 | KN864 |
| **Low-Off-High** | KN265SP | KN265WP | KN265BP | KN165SP | KN165WP | KN165BP | KN765SP | KN765WP | KN765BP | KN265 | KN365 | KN865 |
| **Jog-Stop-Run** | KN267SP | KN267WP | KN267BP | KN167SP | KN167WP | KN167BP | KN767SP | KN767WP | KN767BP | KN267 | KN367 | KN867 |
| **High-Low-Off** | KN270SP | KN270WP | KN270BP | KN170SP | KN170WP | KN170BP | KN770SP | KN770WP | KN770BP | KN270 | KN370 | KN870 |
| **High-Off-Low** | KN277SP | KN277WP | KN277BP | KN177SP | KN177WP | KN177BP | KN777SP | KN777WP | KN777BP | KN277 | KN377 | KN877 |
| **Auto-Man.-Off** | KN278SP | KN278WP | KN278BP | KN178SP | KN178WP | KN178BP | KN778SP | KN778WP | KN778BP | KN278 | KN378 | KN878 |

▲ Legend plate has red background with silver letters.
■ Legend plate has red background with black letters.

For Pricing Information . . . . . .page 19-90



© 2012 Schneider Electric
All Rights Reserved

### Table 19.258: Legend Plates–Special Marking

| Legend Plate | Description | | Type | $ Price |
|---|---|---|---|---|
| KN100( )P (Plastic) ▲ 2.25 in Square | Standard Markings | | See page 19-89 | 4.40 |
| | Special Marking ■ | Silver Field, Black Letters | KN199SP | 18.50 |
| | | White Field, Black Letters | KN199WP | |
| | | Red Field, Black Letters | KN199RP | |
| | | Black Field, White Letters | KN199BP | |
| KN200 Aluminum | Standard Markings | | See page 19-89 | 4.40 |
| | Special Marking ■ | Black Field | KN299 | 18.50 |
| | | Red Field | KN299R | |
| KN200( )P (Plastic) ▲ 1.7 in. Square | Standard Markings | | See page 19-89 | 4.40 |
| | Special Marking ■ | Silver Field, Black Letters | KN299SP | 18.50 |
| | | White Field, Black Letters | KN299WP | |
| | | Red Field, Black Letters | KN299RP | |
| | | Black Field, White Letters | KN299BP | |
| KN300 Aluminum | Standard Markings | | See page 19-89 | 4.40 |
| | Special Marking ■ | Black Field | KN399 | 18.50 |
| | | Red Field | KN399R | |
| KN400 Aluminum | Blank | | KN400 | 8.60 |
| | Any Marking ■ | | KN499 | 22.80 |
| KN500 Aluminum | Standard Markings | | Select from Table 19.263 | 4.40 |
| | Special Marking ■ | Black Field | KN599 | 18.50 |
| | | Green Red Field | KN519 | |
| KN600 Aluminum | Blank | Black Field | KN600 | 9.90 |
| | | Red Field | KN600R | |
| | Any Marking ■ | Black Field | KN699 | 22.80 |
| | | Red Field | KN699R | |
| KN700( )P (Plastic) ▲ 2.5 in. Square | Standard Markings | | Select from page 19-89 | 4.40 |
| | Special Marking ■ | Silver Field, Black Letters | KN799SP | 18.50 |
| | | White Field, Black Letters | KN799WP | |
| | | Red Field, Black Letters | KN799RP | |
| | | Black Field, White Letters | KN799BP | |
| KN800 Aluminum | Standard Markings | | Select from page 19-89 | 4.40 |
| | Special Marking ■ | Blue Field | KN899 | 18.50 |
| | | Red Field | KN899R | |
| KN900 Aluminum | Blank | | KN900 | 4.40 |
| | Any Marking ■ | | KN999 | 18.50 |

▲ Other colors available (see Table 19.259).
■ Specify marking required.

### Table 19.259: Plastic Legend Plates—Other Colors

| | Plate Color | Letter Color | 1.7 in. Square | 2.25 in. Square | 2.5 in. Square | $ Price |
|---|---|---|---|---|---|---|
| **Blank Legend Plates** | Yellow | Black | KN200YP | KN100YP | KN700YP | 4.40 |
| | Green | White | KN200GP | KN100GP | KN700GP | |
| | Blue | | KN200LP | KN100LP | KN700LP | |
| | Red | | KN200CP | KN100CP | KN700CP | |
| **Special Engraved Legend Plates** | Yellow | Black | KN299YP | KN199YP | KN799YP | 18.50 |
| | Green | White | KN299GP | KN199GP | KN799GP | |
| | Blue | | KN299LP | KN199LP | KN799LP | |
| | Red | | KN299CP | KN199CP | KN799CP | |

### Table 19.260: Maximum Number of Lines and Characters for Type KN Legend Plates

| Type | KN100 | KN200 | KN300 | KN400 | KN500 | KN600 | KN700 | KN800 | KN900 |
|---|---|---|---|---|---|---|---|---|---|
| **Max. No. of Characters per Line** | 16 | 14 | 18 | 18 | 8 per field | 22 | 17 | 18 | 18 per pos. |
| **Max. No. of Lines** | 2 | 1 | 3 | 2 | 2 per field | 4 | 2 | 2 | 1 per pos. |

Note: The maximum number of characters and lines is a practical maximum, based on a minimum size of characters to facilitate easy reading.

### Table 19.261: Circular Legends for Emergency Stop Mushroom Heads (yellow background)

| Diameter | Text | Catalog Number | $ Price |
|---|---|---|---|
| 60 mm | — | 9001KN9100 | 4.40 |
| | EMERGENCY STOP | 9001KN9330 | |
| 90 mm | — | 9001KN8100 | |
| | EMERGENCY STOP | 9001KN8330 | |

▲ Legend plate has red background with silver letters.
■ Legend plate has red background with black letters.

For Pricing Information . . . . . page 19-90

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*



**Legend Plate Position #1**

### Table 19.262: Min. Centerline Spacing, Type K & SK Control Units

| Legend Plate | Operator | Centerline Spacing (in.) A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **Legend Plate Orientation Position #1** | | | | | | | |
| KN2 KN5 | Standard Push Button | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.75 | 1.31 | 1.44 | 2.25 | 1.69 | 0.88 |
| KN3 | Standard Push Button | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 1.375 in. Dia. Mushroom | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 2.00 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| KN4 | Standard Push Button | 1.94 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.94 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.74 | 1.31 | 1.44 | 2.25 | 1.62 | 0.88 |
| KN6 | Standard Push Button | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | 1.375 in. Dia. Mushroom | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | 2.25 in. Dia. Mushroom | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 2.38 | 1.62 | 1.44 | 2.25 | 2.25 | 1.12 |



**Legend Plate Position #2**

| Legend Plate | Operator | Centerline Spacing (in.) A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **Legend Plate Orientation Position #2** | | | | | | | |
| KN2 KN5 | Standard Push Button | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.62 | 1.31 | 1.44 | 2.25 | 1.75 | 0.88 |
| KN3 | Standard Push Button | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| | 1.375 in. Dia. Mushroom | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.75 | 1.31 | 1.44 | 2.25 | 2.00 | 0.88 |
| KN4 | Standard Push Button | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| | 1.375 in. Dia. Mushroom | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.44 | 2.25 | 2.25 | 1.12 |
| | Selector Switch Knobs | 1.62 | 1.31 | 1.44 | 2.25 | 1.94 | 1.00 |
| KN6 | Standard Push Button | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |
| | 1.375 in. Dia. Mushroom | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |
| | 2.25 in. Dia. Mushroom | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 1.12 |
| | Selector Switch Knobs | 2.25 | 1.31 | 1.62 | 2.38 | 2.38 | 0.88 |

### Table 19.263: Special Legend Plates



| Type KN500 (For Use with Dual Function Operators: KR6, KR7 and KR67) Standard Markings | | |
|---|---|---|
| **Type** | **Green** | **Red** |
| KN500 | Blank | Blank |
| KN501 | Start | Stop |
| KN502 | On | Off |

| Type | Black | Black |
|---|---|---|
| KN520 | Blank | Blank |
| KN521 | Start | Stop |
| KN522 | On | Off |
| KN523 | Forward | Reverse |
| KN524 | Up | Down |
| KN525 | High | Low |
| KN526 | Open | Close |





© 2012 Schneider Electric
All Rights Reserved

## Table 19.264: Padlock Attachments

| | Used On | Description | Type | $ Price |
|---|---|---|---|---|
|  | **Type K** non-illuminated push button — Standard or mushroom (KR4, KR5 mushroom buttons only). | Holds button in depressed position and can be padlocked. | K4 | **42.80** |
|  | **Types K and SK** non-illuminated push buttons with or without protective boots. | Holds button in depressed position when padlocked. | K5 | **71.00** |
|  | | | K97 | **42.80** |
|  | **Types K and SK** non-illuminated push buttons, cover type attachment. KR, SKR | Attachment can be padlocked. Does not hold button in depressed position. | K6 | **42.80** |
|  | **Types K and SK** push buttons, cover type attachment. | Spring loaded cover cannot be padlocked. Does not hold button in depressed position. | K60 | **57.00** |
|  | **Types K and SK** push-pull operator and illuminated push buttons. KR8, KR9 | Holds button in depressed position and can be padlocked. | K62 | **71.00** |
|  | **KR11U** and **KR12U** Interlocked Assembly | Holds maintained button in depressed position and can be padlocked. | K96 | **42.80** |
|  | **Type KR9 & SKR9** Push-Pull operators— Non-Illuminated and Illuminated | Holds button in depressed position. Can be padlocked. | K162 | **59.00** |

## Table 19.265: Mushroom Button Guards

|  |  |  |
|---|---|---|
| Aluminum Mushroom Guard for 1.375 in. Mushroom Button Operator (KR4, KR24) | Yellow Plastic Extended Mushroom Guard for 1.375 in. and 1.625 in. Mushroom Button Operators | Aluminum Mushroom Guard for 2.25 in. Mushroom Button Operator |

| Type | $ Price | Type | Used On | $ Price | Type | Used On | $ Price |
|---|---|---|---|---|---|---|---|
| K48 | **57.00** | K56■ | KR4, SKR4 | **57.00** | K68 | KR5 | **57.00** |
| | | K56♦M▲ | KR8, KR9, SKR8, SKR9 | **68.00** | K685 | KR25 | **68.00** |

▲ The mushroom guard has finger holes for push-pull operators.
■ B=Black G=Green R=Red Y=Yellow
♦ R=Red Y=Yellow

***NOTE:** When ordering, add prefix 9001 to the catalog number.*

## Table 19.266: Padlock Attachments

| | Used On | Description | Type | $ Price |
|---|---|---|---|---|
|  | **Types K and SK** selector switches and potentiometers (will not work with gloved-hand knob). | Cover type attachment that can be padlocked to keep unauthorized personnel from tampering with the operator. | K7 | **42.80** |
|  | **Types K and SK** selector switches and potentiometers (will not work with gloved-hand knob). | Same as 9001K7 but with spring loaded lockout cover. | K107 | **56.00** |
|  | **Types K and SK** illuminated push buttons (with or without guard) and key operated push buttons. | Cover type attachment that can be padlocked to keep unauthorized personnel from tampering with the operator. | K108 | **42.80** |
|  | **Types K and SK** illuminated push buttons (with or without guard) and key operated push buttons. | Same as 9001K108 but with spring loaded lockout cover. | K109 | **57.00** |
|  | **Types K and SK** maintained push-pull operators using 1.375 in. dia. mushroom buttons (-20 series as shown on page 19-92). | Cover type attachment that holds mushroom button in depressed position and can be padlocked. | K110 | **54.00** |

## Table 19.267: Protective Boots


KU1


KU17


KU37


KU27

Note: These Type KU protective boots are recommended for very dirty environments or severe hose down, but they are not required for UL Type 4 rating on the Type K operators or UL Type 4 or 4X rating on the Type SK operators. The K1 wrench (see page 19-93) is required for installation of these boots.

| For Non-Illuminated Push Buttons★ | | | Clear Color for | Type | $ Price |
|---|---|---|---|---|---|
| Color | Type | $ Price | | | |
| Black | KU1 | **28.70** | Standard knob selector switch | KU17 | **42.80** |
| Red | KU2 | | Gloved-hand cap for use on standard knob selector switch | KU18 | **42.80** |
| Blue | KU3 | | | | |
| Brown | KU4 | | Standard pilot light and maintained contact push buttons | KU27 | **42.80** |
| Green | KU5 | | | | |
| Yellow | KU6 | | | | |
| Clear | KU7 | | Push-to-test and illuminated push button without guard | KU37 | **42.80** |
| Clear | KU8 | **42.80** | | | |
| (Provides Full Guard) | | | Illuminated push button with guard | KU47 | **57.00** |

★ Use KU27 for maintained contact push buttons.

## Table 19.268: Closing Plates



| Description | Type | $ Price |
|---|---|---|
| Gray | K51▼ | **14.30** |
| Black | K52▼ | |

▼ Meets UL and NEMA 1, 2, 3, 4, 4X, 6, 12 and 13.

**Dimensions see catalog 9001CT0001**



© 2012 Schneider Electric
All Rights Reserved

**Table 19.269: Accessories**

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | Color | Type | Package Qty. | $ Price Each |
|---|---|---|---|---|
|  Color inserts for KR1, KR2, KR3, SKR1, SKR2, SKR3, KR11, KR12, SKR11, SKR12, KRD, T, TRD | Black<br>Blue<br>Gray<br>Green<br>Orange<br>Red | T8BK<br>T8BE<br>T8GY<br>T8GN<br>T8OE<br>T8RD | 10 | .72 |
| | Universal ▲ | T8U | 7 | 5.70 |
| | White | T8WH | 10 | .70 |
| | Yellow | T8YW | | |
|  1.375 in. Snap-in Mushroom knob for KR4 and SKR4 ♦ | Black<br>Blue<br>Green<br>Orange<br>Red | K16B<br>K16L<br>K16G<br>K16S<br>K16R | 1 | 42.80 |
| | Red ■ | K16R05 | | 47.60 |
| | Yellow | K16Y | | 42.80 |
|  2-1/4 in. Snap-in Mushroom knob for KR5 and SKR5 ★ | Black<br>Blue<br>Green<br>Orange<br>Red | K17B<br>K17L<br>K17G<br>K17S<br>K17R | 1 | 42.80 |
| | Red ■ | K17R05 | | 42.80 |
| | Yellow | K17Y | | 42.80 |
|  1-3/8 in. Screw-on Mushroom knob for KR24 and SKR24▼ | Black<br>Blue<br>Green<br>Orange<br>Red<br>Yellow | K92B<br>K92L<br>K92G<br>K92S<br>K92R<br>K92Y | 1 | 42.80 |
|  2-1/4 in. Screw-on Mushroom knob for KR25 and SKR25 △ | Black<br>Blue<br>Green<br>Orange<br>Red<br>Yellow | K93B<br>K93L<br>K93G<br>K93S<br>K93R<br>K93Y | 1 | 42.80 |
|  Push-Pull Knobs for KR8, KR9, SKR8, SKR9 Operators | Amber<br>Black □<br>Blue<br>Clear<br>Green<br>Orange □<br>Red | A22<br>B23<br>L22<br>C22<br>G22<br>S23<br>R22 | 1 | 9.90 |
| | Red ▽ | R2205 | | 15.80 |
| | White<br>Yellow | W22<br>Y22 | | 9.90 |
|  Color Inserts for Dual Function Operators KR6, KR7, KR67 | Black<br>Green<br>Red | B19<br>G19<br>R19 | 10 | 1.40 |
| | Universal ◊ | U19 | | 8.60 |
| Standard Color  Caps for Illuminated Push Buttons K1L, K2L, K3L, SK1L, SK2L | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A7<br>L7<br>C7<br>G7<br>R7<br>W7<br>Y7 | 1 | 9.90 |
| Knob for KR9R94 | Red | R94 | 1 | 9.90 |
| **Metal** Knob for KR24 | Red<br>Green<br>Black | K92RM<br>K92GM<br>K92BM | 1 | 51.00 |
| **Metal** Knob for KR25 | Red<br>Green<br>Black | K93RM<br>K93GM<br>K93BM | 1 | 63.00 |
| **Metal** Knob for KR9 (40 mm) | Red<br>Green<br>Black | K94RM<br>K94GM<br>K94BM | 1 | 51.00 |
| **Metal** Knob for KR9 (60 mm) | Red<br>Green<br>Black | K95RM<br>K95GM<br>K95BM | 1 | 63.00 |

| Description | Color | Type | Package Qty. | $ Price Each |
|---|---|---|---|---|
|  1-3/8 in. Mushroom Knob for Illuminated Push Buttons K2L, SK2L ☆ | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A20<br>L20<br>C20<br>G20<br>R20<br>W20<br>Y2 | 1 | 9.90 |
|  2-1/4 in. Mushroom Knob for Illuminated Push Buttons K2L, SK2L ☆ | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A21<br>L21<br>C21<br>G21<br>R21<br>W21<br>Y21 | 1 | 9.90 |
|  Plastic Fresnel Pilot Light Lens for KP, KT, SKP, SKT | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A31<br>L31<br>C31<br>G31<br>R31<br>W31<br>Y31 | 1 | 9.90 |
|  Domed Plastic Pilot Light Lens for KP, KT, SKP, SKT | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A9<br>L9<br>C9<br>G9<br>R9<br>W9<br>Y9 | 1 | 9.90 |
|  Glass Pilot Light Lens for KP, KT | Amber<br>Blue<br>Clear<br>Green<br>Red<br>White<br>Yellow | A6<br>L6<br>C6<br>G6<br>R6<br>W6<br>Y6 | 1 | 9.90 |
|  Standard Selector Switch Knob for K and SK Selector Switches | Amber<br>Black □<br>Blue<br>Clear<br>Green<br>Orange □<br>Red<br>White<br>Yellow | A8<br>B11<br>L8<br>C8<br>G8<br>S11<br>R8<br>W8<br>Y8 | 1 | 9.90 |
|  Gloved-Hand Selector Switch Knob for K and SK Selector Switches | Amber<br>Black □<br>Blue<br>Clear<br>Green<br>Orange □<br>Red<br>White<br>Yellow | A24<br>B25<br>L24<br>C24<br>G24<br>S25<br>R24<br>W24<br>Y24 | 1 | 9.90 |
|  Color Inserts for KQ and TQ Selector Push Buttons | Black<br>Blue<br>Green<br>Orange<br>Red<br>White<br>Yellow | T5BK<br>T5BE<br>T5GN<br>T5OE<br>T5RD<br>T5WH<br>T5YW | 10 | 1.40 |
| | **Cam** | **Type** | **$ Price Each** | |
|  Selector Switch Cams | B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>L<br>M | K13B<br>K13C<br>K13D<br>K13E<br>K13F<br>K13G<br>K13H<br>K13J<br>K13L<br>K13M | 6.30 | |

▲ Includes one each of the following color inserts: Black, Red, Green, Yellow, Orange, Blue, and White.
■ "EMERGENCY STOP" is in raised letters and hot stamped white across the front of the mushroom button.
♦ The mushroom button cap listed here may be assembled to a 9001KR1U or SKR1U to form a 9001KR4 or SKR4.
★ The mushroom button cap listed here may be assembled to a 9001KR1U or SKR1U to form a 9001KR5 or SKR5.
▼ The mushroom button cap listed here may be assembled to a 9001KR20 to form a 9001KR24 or SKR20 to form a 9001SKR24.
△ The mushroom button cap listed here may be assembled to a 9001KR20 to form a 9001KR25 or a SKR20 to form a 9001SKR25.
□ These color caps are opaque and are for use on non-illuminated operators only.
◊ Includes two of each of the following color inserts: Black, Red, and Green.
☆ May be used on KR8 and KR9 operators. Order mushroom button and K54 adapter (no charge) from page 19-88. Using the K54 adapter voids Type 6 rating.
▽ Red knob with "Push Emergency Stop" marked on top of knob.





© 2012 Schneider Electric
All Rights Reserved

*NOTE: When ordering, add prefix 9001 to the catalog number.*

### Table 19.270: Ring Nuts

| Used On | Type | Used On | Type | $ Price |
|---|---|---|---|---|
| K1L | K44 | SK1L | SK44 | 18.50 |
| K30-K37 | K45 | — | — | 4.40 |
| K70-K73 | K45 | — | — | 4.40 |
| K20, K21, K22, K23 | K45 | SK20, SK21, SK22, SK23 | SK45 | 4.40 |
| K20, K21, K22, K23 ♦ | SK46 | SK20, SK21, SK22, SK23 ♦ | SK46 | 4.40 |
| K2L | K49 | SK2L | SK49 | 4.40 |
| K3L (complete) | K111 | — | — | 18.50 |
| K3L (metal top only) | 6515802701 | — | — | 12.00 |
| KP, KTR | K41 | SKP, SKTR | SK41 | 4.40 |
| KR1 | K41 | SKR1 | SK41 | 4.40 |
| KR11 | K42 | SKR11 | SK42 | 4.40 |
| KR12 ▲ | K42 | SKR12 ▲ | SK42 | 4.40 |
| KR12 ■ | K41 | SKR12 ■ | SK41 | 4.40 |
| KR13, 14, 15 | K55 | — | — | 4.40 |
| KR2 | K42 | SKR2 | SK42 | 4.40 |
| KR20 | K49 | — | — | 4.40 |
| KR24 | K49 | — | — | 4.40 |
| KR25 | K49 | SKR25 | SK49 | 4.40 |
| KR3 | K40 | SKR3 | SK40 | 4.40 |
| KR4 | K41 | SKR4 | SK41 | 4.40 |
| KR5 | K41 | SKR5 | SK41 | 4.40 |
| KR6 | K47 | — | — | 4.40 |
| KR67 | K47 | — | — | 4.40 |
| KR7 | K47 | — | — | 4.40 |
| KR8 | K58 | SKR8 | 6509704401 | 4.40 |
| KR9 | K41 | SKR9 | SK41 | 4.40 |
| KS | K45 | SKS | SK45 | 4.40 |
| KS ♦ | SK46 | SKS ♦<br>SKRU11<br>SKRU1,2,3,4,5,10 | SK46<br>SK41<br>SK40 | 4.40 |
| KT | K49 | SKT | SK49 | 4.40 |

▲ Maintained button of two button operator.
■ Momentary button of two button operator.
♦ Secondary ring nut (holds knob on selector switch or potentiometer).

### Table 19.271: Replacement Lamps For Series A–F (black) Light Modules

| Light Module Type | Lamp Number (ANSI) | Square D Replacement Lamps | |
|---|---|---|---|
| | | Part Number | $ Price |
| KM1 | GE44★ | — | — |
| KM2 | GE1490 | 2550101003 | 12.45 |
| KM3 | GE44★ | — | — |
| KM4 | GE1490 | 2550101003 | 12.45 |
| KM5 | GE44★ | — | — |
| KM6 | GE44★ | — | — |
| KM7 | GE44★ | — | — |
| KM8 | GE44★ | — | — |
| KM9 | GE755 | 2550101020 | 12.45 |
| KM11 | CMDK1A5 | 2550105014 | 33.00 |
| KM12 | CMDK1A5 | 2550105014 | 33.00 |
| KM13 | CMDK1A5 | 2550105014 | 33.00 |
| KM14 | CMDK1A5 | 2550105014 | 33.00 |
| KM15 | CMDK1A5 | 2550105014 | 33.00 |
| KM21 | SYL12PSB | 2550105003 | 16.50 |
| KM22 | SYL12PSB | 2550105003 | 16.50 |
| KM23 | SYL28PSB | 2550105008 | 16.50 |
| KM25 | SYL120PSB | 2550105005 | 16.50 |
| KM31 | SYL6PSB | 2550105007 | 16.50 |
| KM32 | SYL12PSB | 2550105003 | 16.50 |
| KM34 | SYL24PSB | 2550105004 | 16.50 |
| KM35 | SYL28PSB | 2550105008 | 16.50 |
| KM36 | SYL48PSB | 2550105009 | 16.50 |
| KM37 | SYL60PSB | 2550105010 | 16.50 |
| KM38 | SYL120PSB | 2550105005 | 16.50 |

★ GE44 and GE755 are interchangeable (GE755 gives longer life). If a GE44 lamp is ordered, a GE755 (2550101020) will be substituted. For a replacement lamp in a current series light module see the light module listing on page 19-86.

### Table 19.272: Repair Parts

| Description | Part Number | $ Price |
|---|---|---|
| E10 Key | 2941101100 | 9.90 |
| Gray cap for KR11, KR12, SKR11, or SKR12 | 3105217001 | 13.80 |
| Clear plastic top (only) for 9001K44 & SK44 Ring Nut | 4487D63XI | 7.95 |
| Gasket for Type K and SK Push-Pull Knob | 6509701801 | 1.95 |
| Gasket for Plastic Illuminated Lens | 6509701901 | 3.90 |
| Gasket for Type K and SK selector switch knob | 3105406401 | 1.95 |
| Black Compensating Gasket (Type K and SK Operators | 6509702001 | 3.90 |
| Liner for Non-Illuminated Operators | 6509704901 | N/C |
| Locking Thrust Washer | 6512231201 | 3.90 |
| Nylon Spacer | 6509705001 | 5.10 |
| Locking Thrust Washer (Std. Type SK Operator) | 6512240601 | 3.90 |
| Push-Pull Mushroom Adapter▼ | K54 | N/C |
| Rubber Boot for Joystick | 6512243201 | 7.20 |
| Knob on Joysticks without latch | 4458D20X3 | 12.90 |
| Knob for SK Potentiometer | 3105404408 | 10.65 |
| Fingersafe™ Cover for 9001KM | 6508804101 | 3.00 |

▼ Allows Type -20 and -21 mushroom color caps to be used on push-pull operators. Use of 9001K54 voids Type 6 rating.

### Table 19.273: KU Replacement Ring Nuts (Threaded Inside and Out)

| Used On | Part Number | $ Price |
|---|---|---|
| KU1 through KU8, KU27, KU37, KU47 | 3105204101 | 4.35 |
| KU17, KU18 | 3105205901 | 10.65 |

### Table 19.274: Interlock



For mechanically interlocking two push buttons so that only one button can be depressed at a time. A Type K3 attachment is furnished with the **9001 KR11, KR12, SKR11, SKR12, SKRU1** and **SKRU11** operators. However, these are maintained operators and the **K3** interlock serves to release one of the buttons when the other is depressed. When used with momentary contact buttons, the **K3** interlock **does not** hold the buttons in the depressed position. It simply prevents pushing both buttons at the same time.
The Type **K3** interlock is mounted behind the operators. Operators not included.

| Type | $ Price |
|---|---|
| K3 | 28.65 |

### Table 19.275: Screwdriver



Used to tighten mounting screws on contact blocks and light modules.

| Type | $ Price |
|---|---|
| K69 | 35.50 |

### Table 19.276: Wrenches



K95



K1

| Where Used | Type | $ Price |
|---|---|---|
| For tightening ring nuts on 22 and 30 mm control units | K95 | 42.75 |
| For tightening threaded protective caps | K1 | 71.40 |

***NOTE:*** *For more information, see Instruction Bulletin No. 30072-100-10.*



© 2012 Schneider Electric
All Rights Reserved




### Table 19.277: Push Buttons—Single, with Contacts

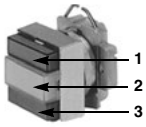
***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | Button Color | Legend Marking | Contacts | Voltage | Type | $ Price |
|---|---|---|---|---|---|---|
| Non-Illuminated | Green | Start | 1 N/O | — | KXRA133 | **64.00** |
| | Red | Stop | 1 N/C | — | KXRA134 | **64.00** |
| | Amber | blank | 2 C/O | — | KXRAAH2 | **138.00** |
| | Green | blank | 2 C/O | — | KXRAGH2 | **138.00** |
| | Blue | blank | 2 C/O | — | KXRALH2 | **138.00** |
| Illuminated | Amber | blank | 1 C/O | 24 | KXRB34AH1 | **184.00** |
| | Green | blank | 1 C/O | 24 | KXRB34GH1 | **184.00** |
| | Red | blank | 1 C/O | 24 | KXRB34RH1 | **184.00** |
| | Amber | blank | 1 C/O | 110/120 | KXRB1AH1 | **217.00** |
| | Green | blank | 1 C/O | 110/120 | KXRB1GH1 | **217.00** |
| | Red | blank | 1 C/O | 110/120 | KXRB1RH1 | **217.00** |

### Table 19.278: Push Buttons—Dual, with Contacts



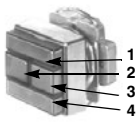

| Description | Top Button (#1) | Lower Button (#2) | Contacts | Type | $ Price |
|---|---|---|---|---|---|
| Momentary | Start (Green) | Stop (Red) | 2 C/O | KXRC111 | **171.00** |
| Momentary | Start (Green) | Stop (Red) | 1 N/O, 1 N/C | KXRC136 | **129.00** |
| Momentary | Up (Green) | Down (Green) | 2 N/O | KXRD140 | **135.00** |
| Momentary | blank (Blue) | blank (Blue) | 2 N/O | KXRDLLH7 | **139.00** |
| Maintained▲ | Start (Green) | Stop (Red) | 1 C/O | KXRE115 | **171.00** |
| Maintained ▲ | On (Blue)■ | Off (Blue)■ | 3 C/O | KXRELLH3 | **273.00** |
| Maintained ▲ | On (Blue)■ | Off (Blue)■ | 3 C/O | KXRELLH3 | **273.00** |
| Maintained ▲ | On (Blue)■ | Off (Blue)■ | 2 C/O | KXRELLH2 | **277.00** |




Pilot Light at
110–120 V, 50–60 Hz
Transformer

### Table 19.279: Push Buttons—Dual with One Pilot Light and Contacts

| Description | Top Button (#1) | Middle Lens (#2) | Lower Button (#3) | Contacts | Voltage | Type | $ Price |
|---|---|---|---|---|---|---|---|
| Momentary | Start (Green) | On (Red) | Stop (Red) | 2 C/O | 110/120 | KXRG117 | **314.00** |
| Momentary | Start (Green) | On (Red) | Stop (Red) | 1 N/O, 1 N/C | 110/120 | KXRG137 | **270.00** |
| Maintained ▲ | Start (Green) | On (Red) | Stop (Red) | 1 C/O | 110/120 | KXRJ119 | **329.00** |




Pilot Lights at
110–120 V, 50–60 Hz
Transformer

### Table 19.280: Push Buttons—Dual with Two Pilot Lights and Contacts

| Description | Top Button (#1) | Left Lens (#2) | Right Lens (#3) | Lower Button (#4) | Contacts | Voltage | Type | $ Price |
|---|---|---|---|---|---|---|---|---|
| Momentary | Start (Green) | On (Red) | Off (Green) | Stop (Red) | 2 C/O | 110/120 | KXRL121 | **485.00** |
| Momentary | Start (Green) | On (Red) | Off (Green) | Stop (Red) | 1 N/O, 1 N/C | 110/120 | KXRL138 | **441.00** |
| Momentary | Start (Green) | On (Red) | Off (Green) | Stop (Red) | 2 C/O | 24 | KXRL34GRGRH2 | **451.00** |
| Momentary | Start (Green) | On (Red) | Off (Green) | Stop (Red) | 1 N/O, 1 N/C | 24 | KXRL34GRGRH37 | **494.00** |

▲ Maintained operators are mechanically interlocked
■ Text is vertical





© 2012 Schneider Electric
All Rights Reserved

### Table 19.281: Selector Switches—with Contacts

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

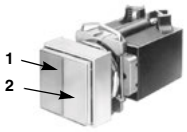


| Description | Legend | Knob | Contacts | | | Type | $ Price |
|---|---|---|---|---|---|---|---|
| 2-position, maintained | Off-On | Black | 1 | 0 | | KXSA125 | **99.00** |
| | | | 0 | 1 | | | |
| 2-position, maintained | Off-On | Black | 1 | 0 | | KXSA139 | **78.00** |
| 3-position, maintained | Hand-Off-Auto | Black | 1 | 0 | 0 | KXSD126 | **99.00** |
| | | | 0 | 0 | 1 | | |

### Table 19.282: Pilot Lights



110–120 V, 50–60 Hz Transformer




110–120 V, 50–60 Hz. Transformer



110–120 V, 50–60 Hz Transformer

| Description | Voltage | Lens 1* | Lens 2* | Lens 3* | Lens 4* | Type | $ Price |
|---|---|---|---|---|---|---|---|
| Single | 24 | Amber | | | | KXPA35A | **125.00** |
| Single | 24 | Red | | | | KXPA35R | **125.00** |
| Single | 24 | Green | | | | KXPA35G | **125.00** |
| Single | 24 | White | | | | KXPA35W | **125.00** |
| Single | 110/120 | Amber | | | | KXPA1A | **153.00** |
| Single | 110/120 | Red | | | | KXPA1R | **153.00** |
| Single | 110/120 | Green | | | | KXPA1G | **153.00** |
| Single | 110/120 | White | | | | KXPA1W | **153.00** |
| Dual | 24 | Amber | Amber | | | KXPB34AA | **219.00** |
| Dual | 24 | Red | Red | | | KXPB34RR | **219.00** |
| Dual | 24 | Green | Green | | | KXPB34GG | **219.00** |
| Dual | 24 | White | White | | | KXPB34WW | **219.00** |
| Dual | 24 | Red | Green | | | KXPB34RG | **219.00** |
| Dual | 110/120 | Amber | Amber | | | KXPB1AA | **278.00** |
| Dual | 110/120 | Red | Red | | | KXPB1RR | **278.00** |
| Dual | 110/120 | Green | Green | | | KXPB1GG | **278.00** |
| Dual | 110/120 | White | White | | | KXPB1WW | **278.00** |
| Dual | 110/120 | Red | Green | | | KXPB1RG | **278.00** |
| Quad | 24 | White | Amber | Green | Red | KXPC34WAGR | **552.00** |
| Quad | 110/120 | White | Amber | Green | Red | KXPC1WAGR | **552.00** |
| Quad | 110/120 | White | Blue | Green | Red | KXPC1WLGR | **552.00** |

* Lenses are blank (no markings)

### Table 19.283: Potentiometers



| Description | Power | Resistance | Type | Price |
|---|---|---|---|---|
| Single | 2 W | 3.2 kΩ | KXBB06 | **287.00** |
| Single | 2 W | 5 kΩ | KXBB07 | **287.00** |
| Single | 2 W | 10 kΩ | KXBB08 | **287.00** |
| Tandem | 2 W | 5 kΩ / 5 kΩ | KXBD83 | **399.00** |



© 2012 Schneider Electric
All Rights Reserved




**Table 19.284: Push Buttons—without Contacts ▲**

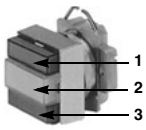
***NOTE:** When ordering, add prefix 9001 to the catalog number.*

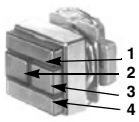
| Push Button | Action | Lens Color (1) | Lens Color (2) | Type | Price |
|---|---|---|---|---|---|
| **Single Push Button** | | | | | |
| Non-Illuminated | Momentary | Amber | — | KXRAA | **38.60** |
| | | Green | — | KXRAG | **38.60** |
| | | Blue | — | KXRAL | **38.60** |
| | | Red | — | KXRAR | **38.60** |
| | | White | — | KXRAW | **38.60** |
| Illuminated 24 V | Momentary | Amber | — | KXRB35A | **125.00** |
| | | Green | — | KXRB35G | **125.00** |
| | | Blue | — | KXRB35L | **125.00** |
| | | Red | — | KXRB35R | **125.00** |
| | | White | — | KXRB35W | **125.00** |
| Illuminated 110/120 V | Momentary | Amber | — | KXRB38A | **125.00** |
| | | Green | — | KXRB38G | **125.00** |
| | | Blue | — | KXRB38L | **125.00** |
| | | Red | — | KXRB38R | **125.00** |
| | | White | — | KXRB38W | **125.00** |
| **Dual Push Button** | | | | | |
| Non-Illuminated | Momentary + Interlock | Green | Red | KXRCGR | **77.00** |
| | | White | White | KXRCWW | **77.00** |
| | | Green | Green | KXRCGG | **77.00** |
| | Maintained + Interlock | Green | Red | KXREGR | **120.00** |
| | | White | White | KXREWW | **120.00** |
| | | Green | Green | KXREGG | **120.00** |




**Table 19.285: Dual Push Button with Pilot Light—without Contacts ▲**

| Action | Voltage | Lens Color (1) | Lens Color (2) | Lens Color (3) | Lens Color (4) | Type | Price |
|---|---|---|---|---|---|---|---|
| **With One Pilot Light** | | | | | | | |
| Momentary | 24 Vac/dc | Red | White | Green | — | KXRG35RWG | **188.00** |
| | 24 Vac/dc | Green | White | Green | — | KXRG35GWG | **188.00** |
| | 110/120 Vac/dc | Red | White | Green | — | KXRG38RWG | **188.00** |
| | 110/120 Vac/dc | Green | White | Green | — | KXRG38GWG | **188.00** |
| Momentary + Interlock | 24 Vac/dc | Red | White | Green | — | KXRH35RWG | **221.00** |
| | 24 Vac/dc | Green | White | Green | — | KXRH354GWG | **221.00** |
| | 110/120 Vac/dc | Red | White | Green | — | KXRH38RWG | **221.00** |
| | 110/120 Vac/dc | Green | White | Green | — | KXRH38GWG | **221.00** |
| Maintained + Interlock | 24 Vac/dc | Red | White | Green | — | KXRJ35RWG | **243.00** |
| | 24 Vac/dc | Green | White | Green | — | KXRJ35GWG | **243.00** |
| | 110/120 Vac/dc | Red | White | Green | — | KXRJ38RWG | **243.00** |
| | 110/120 Vac/dc | Green | White | Green | — | KXRJ38GWG | **243.00** |
| **With Two Pilot Lights** | | | | | | | |
| Momentary | 24 Vac/dc | Red | White | White | Green | KXRL35RWWG | **324.00** |
| | 24 Vac/dc | Red | Red | Green | Green | KXRL35GGRR | **324.00** |
| | 110/120 Vac/dc | Red | White | White | Green | KXRL38RWWG | **324.00** |
| | 110/120 Vac/dc | Red | Red | Green | Green | KXRL38GGRR | **324.00** |
| Momentary + Interlock | 24 Vac/dc | Red | White | White | Green | KXRM35RWWG | **368.00** |
| | 24 Vac/dc | Red | Red | Green | Green | KXRM35RRGG | **368.00** |
| | 110/120 Vac/dc | Red | White | White | Green | KXRM38RWWG | **368.00** |
| | 110/120 Vac/dc | Red | Red | Green | Green | KXRM38RRGG | **368.00** |




▲ Order contact blocks separately (See Table 19.287 on Page 19-97)

Accessories . . . . . Page 19-99





© 2012 Schneider Electric
All Rights Reserved



### Table 19.286: Selectors—without Contacts ▲

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| Description | | Voltage | Knob Color | Type | $ Price |
|---|---|---|---|---|---|
| 2-Position, Maintained | Non-Illuminated | — | Black | KXSAEB | **53.00** |
| | Illuminated | 24 Vac/dc | Red | KXSJE35R | **138.00** |
| | Illuminated | 24 Vac/dc | Green | KXSJE35G | **138.00** |
| | Illuminated | 24 Vac/dc | White | KXSJE35W | **138.00** |
| | Illuminated | 120 Vac/dc | Red | KXSJE38R | **138.00** |
| | Illuminated | 120 Vac/dc | Green | KXSJE38G | **138.00** |
| | Illuminated | 120 Vac/dc | White | KXSJE38W | **138.00** |
| | Key (Withdraw L) | — | N/A | KXSRE1 | **140.00** |
| | Key (Withdraw R) | — | N/A | KXSRE2 | **138.00** |
| | Key (Withdraw Both) | — | N/A | KXSRE3 | **138.00** |
| 3-Position, Maintained | Non-Illuminated | — | Black | KXSDCB | **53.00** |
| | Key (Withdraw C) | — | N/A | KXSVC5 | **138.00** |
| | Key (Withdraw All) | — | N/A | KXSVC10 | **138.00** |
| 4-Position, Maintained | Non-Illuminated | — | Black | KXSHHB | **58.00** |

▲ Order contacts separately (See Table 19.287)

### Table 19.287: Contact Blocks—Purchase Separately

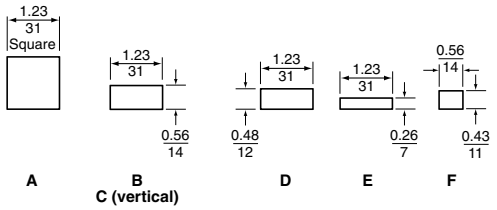
| | Description | Type | $ Price |
|---|---|---|---|
|  (Clear Cover) | 1 N/O, 1 N/C | KA1 | **42.80** |
|  (Green Cover) | 1 N/O | KA2 | **21.50** |
|  (Red Cover) | 1 N/C | KA3 | **21.50** |
|  (Clear Cover) | 1 N/C, 1 N/O (Early Make) | KA4 | **42.80** |
|  (Red Cover) | 1 N/C (Late Break) | KA5 | **21.50** |
|  (Green Cover) | 1 N/O (Early Make) | KA6 | **21.50** |



© 2012 Schneider Electric
All Rights Reserved

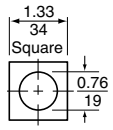
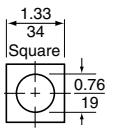
*NOTE: When ordering, add prefix 9001 to the catalog number.*

### Table 19.288: Legend Plates for Push Buttons or Pilot Lights

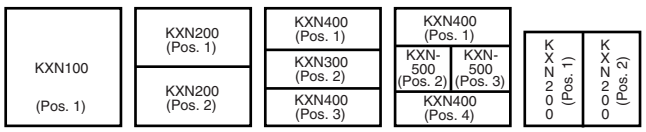
| Marking | Used On | | | | | | $ Price |
|---|---|---|---|---|---|---|---|
| |  A B C (vertical) D E F | | | | | | |
| | A | B | C | D | E | F | |
| | KXRA, KXRB KXRN, KXRP KXPA, KXPC KXTA, KXTB KXTE | KXRC, KXRD KXRE, KXRF | KXPB KXTD ♦ | KXRG, KXRH KXRJ, KXRK▲ | KXRG, KXRH KXRJ, KXRK KXRL, KXRM KXTC ■ | KXRL, KXRM KXTC ▲ | |
| **Blank** | KXN100 | KXN200 | KXN200 | KXN300 | KXN400 | KXN500 | 4.40 |
| **Start** | KXN101 | KXN201 | KXN201V | KXN301 | KXN401 | KXN501 | |
| **Stop** | KXN102 | KXN202 | KXN202V | KXN302 | KXN402 | KXN502 | |
| **On** | KXN103 | KXN203 | KXN203V | KXN303 | KXN403 | KXN503 | |
| **Off** | KXN104 | KXN204 | KXN204V | KXN304 | KXN404 | KXN504 | |
| **Emerg. Stop** | KXN105 | KXN205 | KXN205V | KXN305 | KXN405 | KXN505 | |
| **Forward** | KXN106 | KXN206 | KXN206V | KXN306 | KXN406 | KXN506 | |
| **Reverse** | KXN107 | KXN207 | KXN207V | KXN307 | KXN407 | KXN507 | |
| **Close** | KXN108 | KXN208 | KXN208V | KXN308 | KXN408 | KXN508 | |
| **Open** | KXN109 | KXN209 | KXN209V | KXN309 | KXN409 | KXN509 | |
| **Down** | KXN110 | KXN210 | KXN210V | KXN310 | KXN410 | KXN510 | |
| **Up** | KXN111 | KXN211 | KXN211V | KXN311 | KXN411 | KXN511 | |
| **Jog** | KXN118 | KXN218 | KXN218V | KXN318 | KXN418 | KXN518 | |
| **Reset** | KXN123 | KXN223 | KXN223V | KXN323 | KXN423 | KXN523 | |
| **Run** | KXN124 | KXN224 | KXN224V | KXN324 | KXN424 | KXN524 | |
| **Cycle Start** | KXN132 | KXN232 | KXN232V | KXN332 | KXN432 | KXN532 | |
| **Motor Run** | KXN136 | KXN236 | KXN236V | KXN336 | KXN436 | KXN536 | |
| **Power On** | KXN138 | KXN238 | KXN238V | KXN338 | KXN438 | KXN538 | |
| **Special-Marking** | KXN199 | KXN299 | KXN299V | KXN399 | KXN499 | KXN599 | 18.50 |

▲ These legend inserts are for the pilot lights in the center of the operator.
■ These legend inserts are for the push button portion of the operator.
♦ These legend inserts have vertical printing.

### Table 19.289: Legend Plates for Selector Switches

| Marking | Used On | | $ Price |
|---|---|---|---|
| |  KXN-600 |  KXN-700 | |
| | KXSA, KXSB, KXSC, KXSD, KXSE, KXSF, KXSG, KXSH, KXSJ, KXSK, KXSL, KXSM, KXSN, KXSO, KXSP, KXSQ | KXSR, KXSS, KXST, KXSV, KXSW, KXSX, KXSY, KXSZ | |
| **Blank** | KXN600 | KXN700 | 4.40 |
| **For.-Rev.** | KXN639 | KXN739 | |
| **Hand-Auto** | KXN640 | KXN740 | |
| **Man-Auto** | KXN643 | KXN743 | |
| **Off-On** | KXN644 | KXN744 | |
| **On-Off** | KXN645 | KXN745 | |
| **Open-Close** | KXN646 | KXN746 | |
| **Start-Stop** | KXN651 | KXN751 | |
| **Auto-Off-Hand** | KXN658 | KXN758 | |
| **Hand-Off-Auto** | KXN660 | KXN760 | |
| **Man-Off-Auto** | KXN662 | KXN762 | |
| **Special Marking** | KXN699 | KXN799 | 18.50 |

Dual Dimensions: **INCHES** Millimeters




KXRA, KXRB KXRN, KXRP KXPA, KXPC KXTA, KXTB | KXRC, KXRD KXRE, KXRF | KXRG, KXRH KXRJ, KXRK | KXRL, KXRM KXTC | KXPB, KXTD

### Table 19.290: Letter Height For Standard Legends

| | in. | mm |
|---|---|---|
| KXN100 | 1/4 | 6 |
| KXN200 | 3/16 | 4.75 |
| KXN300 | 3/16 | 4.75 |
| KXN400 | 3/16 | 4.75 |
| KXN500 | 3/16 | 4.75 |
| KXN600 | 1/8 | 3 |
| KXN700 | 1/8 | 3 |

### Table 19.291: Maximum Number of Lines and Characters For Type KXN Legend Inserts

| Letter Height | | Number of … | KXN199 | KXN299 Horizontal | KXN299 Vertical | KXN399 | KXN499 | KXN599 |
|---|---|---|---|---|---|---|---|---|
| in. | mm | | | | | | | |
| 1/4 | 6 | Characters per Line | 7 | 7 | 3 | 7 | 7 | 3 |
| | | Lines per Legend Insert | 4 | 2 | 4 | 1 | 1 | 1 |
| 3/16 | 4.75 | Characters per Line | 9 | 9 | 4 | 9 | 9 | 4 |
| | | Lines per Legend Insert | 5 | 2 | 6 | 2 | 1 | 2 |
| 1/8 | 3 | Characters per Line | 14 | 14 | 5 | 14 | 14 | 6 |
| | | Lines per Legend Insert | 8 | 4 | 9 | 3 | 2 | 3 |

### Table 19.292: Maximum Number of Lines and Characters for Type KXN699 and KXN799 Legend Plates

| Position | Letter Height | | Characters Per Marking Area | |
|---|---|---|---|---|
| | in. | mm | A and C | B |
|  | 3/16 | 4.75 | 6 | 6 |
| | 1/8 | 3 | 8 | 9 |
|  | 3/16 | 4.75 | 10 | 5 |
| | 1/8 | 3 | 13 | 7 |

All Type KX push buttons and pilot lights have a blank insert as standard. These blank inserts can be custom marked using a marking pen, a mechanical lettering set, press letters, or a tape lettering machine that marks a tape which can then be transferred to the blank insert.

To have legend inserts installed into the operators, order the operator as normal and then indicate where to install the legend inserts using the numbered positions shown on the operator ordered.

**Example:**
9001KXRL1GRGRH2 with a
9001KXN 401 in position 1
9001KXN 503 in position 2
9001KXN 504 in position 3
9001KXN 402 in position 4





© 2012 Schneider Electric
All Rights Reserved

*__NOTE:__ When ordering, add prefix 9001 to the catalog number.*

### Table 19.293: Closing Plate

| | Type | $ Price |
|---|---|---|
|  UL Types 4, 13/NEMA 4, 13 Square Closing Plate (Chrome Plated) Same size as KX bezel | KXAK52 | **14.30** |

### Table 19.294: Boots

| | For Use On | Type | $ Price |
|---|---|---|---|
|  | All KX** push buttons and pilot lights | KXAKU7 | **28.70** |
| | All KX** selector switches and potentiometers | KXAKU17B | **42.80** |

### Table 19.295: Shrouds

| | Description | For Use On | Color | Type | $ Price |
|---|---|---|---|---|---|
|  | Full Shroud | All push buttons and pilot lights | Red | KXAK41R | **7.20** |
| | | | Black | KXAK41B | **7.20** |
| | Short Shroud | Any KX operator | Red | KXAK40R | **7.20** |
| | | | Black | KXAK40B | **7.20** |

### Table 19.296: Lamp and Lens Removal Kit

| | Type | $ Price |
|---|---|---|
|  Used to remove lamp and lens on all illuminated operators and pilot lights. | KXALLRT | **21.50** |

### Table 19.297: Button Covers

| Description | For Use On | Color | Type | Code | $ Price |
|---|---|---|---|---|---|
|  Includes 2-KXN200 | KXPB KXTD | Red<br>Green<br>Amber<br>Blue<br>White | KXAC28▲<br>KXAC28▲<br>KXAC28▲<br>KXAC28▲<br>KXAC28▲ | R■<br>G■<br>A■<br>L■<br>W■ | **9.90** |
|  Includes KXN400 | KXTC (Position 1 & 4) | Red<br>Green<br>Amber<br>Blue<br>White | KXAR4<br>KXAG4<br>KXAA4<br>KXAL4<br>KXAW4 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN500 | KXTC (Position 2 & 3) ó | Red<br>Green<br>Amber<br>Blue<br>White | KXAR5<br>KXAG5<br>KXAA5<br>KXAL5<br>KXAW5 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes 1–KXN100 | KXPC | Red<br>Green<br>Amber<br>Blue<br>White | KXAC48♦<br>KXAC48♦<br>KXAC48♦<br>KXAC48♦<br>KXAC48♦ | R★<br>G★<br>A★<br>L★<br>W★ | **9.90** |
|  Includes KXN100 | KXRA KXRB | Red<br>Green<br>Amber<br>Blue<br>White | KXAR1<br>KXAG1<br>KXAA1<br>KXAL1<br>KXAW1 | R<br>G<br>A<br>L<br>W | **6.60** |
|  Includes KXN100 | KXRN KXRP | Red<br>Green<br>Amber<br>Blue<br>White | KXARM1<br>KXAGM1<br>KXAAM1<br>KXALM1<br>KXAWM1 | R<br>G<br>A<br>L<br>W | **17.10** |
|  ▼ Includes KXN200 | KXRC KXRD KXRE KXRF | Red<br>Green<br>Amber<br>Blue<br>White | KXAR2<br>KXAG2<br>KXAA2<br>KXAL2<br>KXAW2 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN300 | KXRG (Position 2) KXRH (Position 2) KXRJ (Position 2) KXRK (Position 2) | Red<br>Green<br>Amber<br>Blue<br>White | KXAR3<br>KXAG3<br>KXAA3<br>KXAL3<br>KXAW3 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN400 | KXRG (Position 1 & 3) KXRH (Position 1 & 3) KXRJ (Position 1 & 3) KXRK (Position 1 & 3) KXRL (Position 1 & 4) KXRM (Position 1 & 4) | Red<br>Green<br>Amber<br>Blue<br>White | KXAR4<br>KXAG4<br>KXAA4<br>KXAL4<br>KXAW4 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN500 | KXRL (Position 2 & 3) KXRM (Position 2 & 3) | Red<br>Green<br>Amber<br>Blue<br>White | KXAR5<br>KXAG5<br>KXAA5<br>KXAL5<br>KXAW5 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN100 | KXPA | Red<br>Green<br>Amber<br>Blue<br>White | KXAR8<br>KXAG8<br>KXAA8<br>KXAL8<br>KXAW8 | R<br>G<br>A<br>L<br>W | **9.90** |
|  Includes KXN100 | KXTA KXTB | Red<br>Green<br>Amber<br>Blue<br>White | KXAR1<br>KXAG1<br>KXAA1<br>KXAL1<br>KXAW1 | R<br>G<br>A<br>L<br>W | **9.90** |

▲ Each KXAC28 includes a clear cover and 1 each of all colors. If the same color is required for position #1and #2 of the KXPB operator, order 2 of Type KXAC28.

■ When specifying color codes—the first will be installed in #1 and the second in #2. The price for BOTH color codes is **$6.60**.

♦ Each KXAC48 includes a clear cover and 1 each of all colors. If the same color is required for position #1and #2 of the KXPC operator, order 2 of Type KXAC48.

★ When specifying color codes—the first will be installed in #1, the second in #2, the third in #3 and the fourth in #4. The price for ALL FOUR color codes is **$6.60**.

▼ Two required per operator. When ordering an assembled operator—specify two code numbers.The first code will be assembled into #1 and the second code will be assembled into #2.



© 2012 Schneider Electric
All Rights Reserved



XALD101H29H7


XALK174H7



XALD211H29H7



XALD321H29H7

**Table 19.298: Start or Stop Function**
**Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016**

| Description | Type of Push | Type of Contact | | Marking | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | |
| **Marking on Legend Holder** | | | | | | |
| 1 momentary push button | Flush black | 1 | — | Start | XALD101H29H7 | **73.00** |
| | Flush red | — | 1 | Stop | XALD111H29H7 | **73.00** |
| **Marking on Legend Holder** | | | | | | |
| 1 mushroom head push button Ø 40 mm, momentary | Red | — | 1 | Stop on red legend | XALD164H29H7 | **84.00** |

**Table 19.299: Emergency Stop or Emergency Off Function**
**Polycarbonate; Light gray base, RAL7035; Yellow lid, RAL1012**

| Description | Type | Type of Contact | | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | | N.O. | N.C. | | |
| 1 mushroom head push button Ø 40 mm, red Turn-to-release | Standard ▲ | — | 1 | XALK174H7 | **117.00** |
| | Trigger action ■ | — | 1 | XALK178H7 | **147.00** |
| 1 mushroom head push button Ø 40 mm, red Key release (Key No. 455) | Standard ▲ | — | 1 | XALK184H7 | **147.00** |
| | Trigger action ■ | — | 1 | XALK188H7 | **147.00** |
| 1 mushroom head push button Ø 40 mm, red Push-pull | Standard ▲ | — | 1 | XALK194H7 | **99.00** |

▲ Emergency Off (IEC 60364-5-53)
■ Emergency Stop (EN / IEC 13850)

**Table 19.300: Start-Stop Function**
**Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016**

| Description | Type of Push | Type of Contact | | Text | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | |
| 2 momentary push buttons | 1 flush black | 1 | — | Start | XALD211H29H7 | **73.00** |
| | 1 flush red | — | 1 | Stop | | |
| | 1 flush black | 1 | — | Forward | XALD251H29H7 | **73.00** |
| | 1 flush black | 1 | — | Reverse | | |

**Table 19.301: Three Function**
**Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016**

| Description | Type of Push | Type of Contact | | Text | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | | | |
| 3 momentary push buttons (no markings) | 1 flush black 1 flush red 1 flush black | 1 | — | Open | XALD351H29H7 | **143.00** |
| | | — | 1 | Stop | | |
| | | 1 | — | Close | | |
| | | 1 | — | Forward | XALD311H29H7 | **143.00** |
| | | — | 1 | Stop | | |
| | | 1 | — | Reverse | | |
| | | 1 | — | Up | XALD321H29H7 | **143.00** |
| | | — | 1 | Stop | | |
| | | 1 | — | Down | | |





© 2012 Schneider Electric
All Rights Reserved


XALD02H7

### Table 19.302: Empty Enclosures ▲

**Polycarbonate**

| Description | Number of Holes | Catalog Number | $ Price |
|---|---|---|---|
| **For normal environments, CSA approved and UL Listed (with stainless steel lid mounting screws)** | | | |
| Light gray base RAL7035<br>Dark gray lid RAL7016 | 1 | XALD01H7 | **32.80** |
| | 2 | XALD02H7 | **38.20** |
| | 3 | XALD03H7 | **49.00** |
| | 4 | XALD04H7 | **71.00** |
| | 5 | XALD05H7 | **87.00** |
| Light gray base RAL7035<br>Yellow lid RAL1012 | 1 | XALK01H7 | **35.40** |


ZENL1111


ZALV••

### Table 19.303: Electrical Block and Accessories (for mounting on metal plate at back of enclosure) ▲

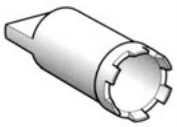
| Description | Type | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| **Electrical blocks with screw clamp terminal connections** | | | | |
| Metal-plate-mounting contact blocks | N.O. contact | — | ZENL1111 | **16.60** |
| | N.C. contact | — | ZENL1121 | **16.40** |
| Light blocks with Protected LED™ | 24 Vac/Vdc | White | ZALVB1 | **52.00** |
| | | Green | ZALVB3 | |
| | | Red | ZALVB4 | |
| | | Yellow | ZALVB5 | |
| | | Blue | ZALVB6 | |
| | 120 Vac | White | ZALVG1 | **52.00** |
| | | Green | ZALVG3 | |
| | | Red | ZALVG4 | |
| | | Yellow | ZALVG5 | |
| | | Blue | ZALVG6 | |
| | 230 Vac | White | ZALVM1 | **52.00** |
| | | Green | ZALVM3 | |
| | | Red | ZALVM4 | |
| | | Yellow | ZALVM5 | |
| | | Blue | ZALVM6 | |

▲ For customer assembly using XB5 operators and standard screw-terminal contact blocks, see Push Buttons—ZB5 22 mm starting on page 19-45. Either mounting method can be used: contact block ZENL mounting on metal plate, or contact block ZBE mounting on operator with mounting collar.


ZB5SZ3

### Table 19.304: Accessories for electrical blocks

| Description | Application | Catalog Number | $ Price |
|---|---|---|---|
| Blanking plug | Ø 22 mm units | ZB5SZ3 | **11.00** |
| Nut | Head mounting | ZB5AZ901 | **4.40** |
| Grounding terminal | Grounding | XALZ09 | **5.40** |
| Key | For tightening nut | ZB5AZ905 | **12.40** |


ZB5AZ905

### Table 19.305: Undrilled Enclosures, Glass-Reinforced Polyester

| Type | | H x W Dimensions IN | H x W Dimensions mm | Catalog Number | $ Price |
|---|---|---|---|---|---|
| NEMA 4, 4X, 13<br>Usable depth 3.27 in. (83 mm) | Without hinges | 3.34 x 5.75 | 85 x 146 | XAPA1100 | **110.00** |
| | | 3.34 x 8.90 | 85 x 226 | XAPA2100 | **180.00** |
| | | 5.95 x 9.49 | 151 x 241 | XAPA3100 | **284.00** |
| | With hinges | 5.95 x 9.49 | 151 x 241 | XAPA4100 | **378.00** |
| Undrilled Grounding Plate | Sheet steel with ground screw | For XAPA1100 | | XAPZ100 | **22.00** |
| | | For XAPA2100 | | XAPZ200 | **24.60** |
| | | For XAPA3100 and 4100 | | XAPZ300 | **32.00** |


XAPA1100

### Table 19.306: Drilled Insulated Enclosures, Glass-Reinforced Polyester ■

| Type | Number of Knockouts 22 mm | Number of Rows Vertical | Number of Rows Horizontal | H x W Dimensions IN | H x W Dimensions mm | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| NEMA 4, 4X, 13<br>Usable depth 3.27 in. (83 mm)<br>1.58 in. (40 mm) centerline spacing of holes | 1 | 1 | 1 | 3.35 X 5.75 | 85 X 146 | XAPA1110 | **114.00** |
| | 2 | 1 | 2 | 3.35 X 5.75 | 85 X 146 | XAPA1120 | **114.00** |
| | 4 | 2 | 2 | 3.35 X 5.75 | 85 X 146 | XAPA1104 | **114.00** |
| | 8 | 2 | 4 | 3.35 X 8.90 | 85 X 226 | XAPA2108 | **182.00** |
| | 16 | 4 | 4 | 5.94 X 9.49 | 151 X 241 | XAPA3116 | **390.00** |
| Drilled Grounding Plate | | Sheet steel with ground screw | | For XAPA1110 | | XAPZ110 | **22.00** |
| | | | | For XAPA1120 | | XAPZ120 | **22.00** |
| | | | | For XAPA1104 | | XAPZ104 | **22.00** |
| | | | | For XAPA2108 | | XAPZ208 | **24.60** |
| | | | | For XAPA3116 | | XAPZ316 | **32.00** |


XAPA1104

■ Uses standard XB5 products from pages 19-42 through 19-62. Do not use ZENL style contact blocks.



© 2012 Schneider Electric
All Rights Reserved


XAPG39400

### Table 19.307: Undrilled Die Cast Enclosures (Painted Gray RAL7032)

| Type | Material | Usable Depth | | H x W x D Dimensions | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | | IN | mm | IN | mm | | |
| NEMA 4, 13 | Zinc | 1.93 | 49 | 3.15 x 3.15 x 2.03 | 80 x 80 x 51.5 | XAPG19100 | **110.00** |
| | | | | 5.12 x 3.15 x 2.03 | 130 x 80 x 51.5 | XAPG29100 | **120.00** |
| | | | | 6.89 x 3.15 x 2.03 | 175 x 80 x 51.5 | XAPG39100 | **142.00** |
| | | 2.93 | 74.5 | 3.15 x 3.15 x 3.03 | 80 x 80 x 77 | XAPG19400 | **110.00** |
| | | | | 5.12 x 3.15 x 3.03 | 130 x 80 x 77 | XAPG29400 | **120.00** |
| | | | | 6.89 x 3.15 x 3.03 | 175 x 80 x 77 | XAPG39400 | **142.00** |
| | | | | 8.66 x 3.15 x 3.03 | 220 x 80 x 77 | XAPG49400 | **174.00** |
| | Aluminum | 2.93 | 2.93 | 12.20 x 3.35 x 3.03 | 310 x 85 x 77 | XAPG59400 | **262.00** |


XAPG29703


XAPE302

### Table 19.308: Drilled Die Cast Enclosures (Painted Gray RAL7032) ▲

| Type | Material | Usable Depth | | Number of 22 mm holes | H x W x D Dimensions | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|
| | | IN | mm | | IN | mm | | |
| NEMA 4, 13 1.18 in. (30 mm) centerline spacing of holes for horizontal mount | Zinc | 1.93 | 49 | 2 | 3.15 x 3.15 x 2.03 | 80 x 80 x 51.5 | XAPG19702 | **120.00** |
| | | | | 3 | 5.12 x 3.15 x 2.03 | 130 x 80 x 51.5 | XAPG29703 | **142.00** |
| | | | | 4 | 6.90 x 3.15 x 2.03 | 175 x 80 x 51.5 | XAPG39704 | **174.00** |
| | | 2.93 | 74.5 | 2 | 3.15 x 3.15 x 3.03 | 80 x 80 x 77 | XAPG19802 | **120.00** |
| | | | | 3 | 5.12 x 3.15 x 3.03 | 130 x 80 x 77 | XAPG29803 | **142.00** |
| | | | | 4 | 6.90 x 3.15 x 3.03 | 175 x 80 x 77 | XAPG39804 | **174.00** |
| NEMA 4, 13 1.58 in. (40 mm) centerline spacing of holes for vertical mount | Zinc | 1.93 | 1.93 | 1 | 3.15 x 3.15 x 2.03 | 80 x 80 x 51.5 | XAPG19201 | **110.00** |
| | | | | 2 | 5.12 x 3.15 x 2.03 | 130 x 80 x 51.5 | XAPG29202 | **120.00** |
| | | | | 3 | 6.90 x 3.15 x 2.03 | 175 x 80 x 51.5 | XAPG39203 | **142.00** |
| | | 2.93 | 74.5 | 1 | 3.15 x 3.15 x 3.03 | 80 x 80 x 77 | XAPG19501 | **110.00** |
| | | | | 2 | 5.12 x 3.15 x 3.03 | 130 x 80 x 77 | XAPG29502 | **120.00** |
| | | | | 3 | 6.90 x 3.15 x 3.03 | 175 x 80 x 77 | XAPG39503 | **142.00** |
| | | | | 4 | 8.66 x 3.15 x 3.03 | 220 x 80 x 77 | XAPG49504 | **174.00** |
| | Aluminum | 2.93 | 74.5 | 5 | 12.20 x 3.35 x 3.03 | 310 x 85 x 77 | XAPG59505 | **268.00** |

▲ Can use either XB4 or XB5 products.


XAPE303

### Table 19.309: Drilled Flush Plates ■

| Type | Material | Number of 22 mm holes | H x W x D Dimensions | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | IN | mm | | |
| NEMA 4, 13 1.18 in. (30 mm) centerline spacing of holes | Anodized Aluminum | 1 | 2.83 x 2.83 | 72 x 72 | XAPE301 | **52.00** |
| | | 2 | 4.13 x 2.83 | 105 x 72 | XAPE302 | **60.00** |
| | | 3 | 5.43 x 2.83 | 138 x 72 | XAPE303 | **68.00** |
| | | 4 | 6.73 x 2.83 | 171 x 72 | XAPE304 | **82.00** |
| | | 5 | 8.03 x 2.83 | 204 x 72 | XAPE305 | **98.00** |

■ Can use either XB4 or XB5 products.

### Table 19.310: Optional Back Box (for finger protection, if required)

| Type | Material | For Use With | Catalog Number | $ Price |
|---|---|---|---|---|
| Protective rear covers | Insulating Fiberglass | Flush plate XAPE301 | XAPE901 | **32.80** |
| | | Flush plate XAPE302 | XAPE902 | |
| | | Flush plate XAPE303 | XAPE903 | |
| | | Flush plate XAPE304 | XAPE904 | |
| | | Flush plate XAPE305 | XAPE905 | **60.00** |





© 2012 Schneider Electric
All Rights Reserved




NEMA 1
Surface Mounting
Type BG201




NEMA 1
Flush Mounting
(w/o pullbox)
Type BF201




NEMA 4
Type BW243




NEMA 7 and 9
Type BR103

## Table 19.311: Control Stations

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| No. of Buttons | Nameplate Markings and Features | Contact Symbol ▲ | Surface Mounting NEMA1 | | Stainless Steel Flush Plate ■ | | Watertight and Dusttight NEMA4 | | For Hazardous Locations NEMA 7 & 9 ♦ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 1 | Start | 1 | BG101 | **86.00** | BF101 | **116.00** | BW146 | **270.00** | BR101 | **363.00** |
| | Stop | 3 | BG102 | **86.00** | BF102 | **116.00** | BW147 | **270.00** | — | — |
| | Stop (Mushroom Button) | 3 | BG103 | **99.00** | — | — | BW151 | **287.00** | BR103 | **378.00** |
| | Stop (Lockout) | 3 | BG104 | **129.00** | — | — | BW148 | **270.00** | BR104 | **363.00** |
| | Universal (w/o legend insert) | 16 | BG107 | **83.00** | BF107 | **111.00** | BW159 | **269.00** | BR107 | **360.00** |
| | Off-On (Selector Switch) | 19 | BG111 | **86.00** | — | — | — | — | — | — |
| | Hand-Off-Auto (Selector Switch) | 17 | BG112 | **86.00** | — | — | — | — | — | — |
| | Universal Selector Switch (w/o legend insert) | 19 or 17 | BG114 | **83.00** | — | — | — | — | — | — |
| 2 | Start-Stop | 145 | BG201 | **86.00** | BF201 | **116.00** | BW240 | **270.00** | BR204 | **363.00** |
| | Start-Stop (for latching Applications) | 146 | BG202 | **107.00** | — | — | BW252 | **270.00** | BR202 | **363.00** |
| | Start-Stop (Mushroom on Stop) | 145 | BG203 | **99.00** | — | — | BW250 | **287.00** | BR203 | **378.00** |
| | Start-Stop (Lockout on Stop) | 145 | BG204 | **129.00** | — | — | BW241 | **270.00** | BR204 | **363.00** |
| | Start-Stop (Mushroom on both) | 145 | BG205 | **116.00** | — | — | BW246 | **300.00** | BR205 | **392.00** |
| | Forward-Reverse | 146 | BG206 | **107.00** | — | — | BW242 | **270.00** | — | — |
| | Open-Close | 146 | BG207 | **107.00** | — | — | BW244 | **270.00** | — | — |
| | Up-Down | 146 | BG208 | **107.00** | BF208 | **135.00** | BW243 | **270.00** | BR208 | **363.00** |
| | Raise-Lower | 146 | BG209 | **107.00** | — | — | BW253 | **270.00** | — | — |
| | On-Off | 145 | BG210 | **86.00** | BF210 | **116.00** | BW245 | **270.00** | — | — |
| | On-Off | 146 | BG211 | **107.00** | BF211 | **135.00** | BW254 | **270.00** | — | — |
| | Universal (w/o legend inserts) | 25 | BG214 | **78.00** | — | — | BW260 | **264.00** | BR214 | **356.00** |
| | Start-Stop (Maintained Contact) | 10 | BG215 | **129.00** | BF215 | **158.00** | BW255 | **314.00** | BR215 | **405.00** |
| | On -Off (Maintained Contact) | 10 | BG216 | **129.00** | BF216 | **158.00** | BW256 | **314.00** | BR216 | **405.00** |
| | Universal (Maintained contact w/o legend inserts) | 10 | BG218 | **122.00** | — | — | — | — | BR218 | **399.00** |
| 3 | Fast-Slow-Stop | 109 | BG301 | **171.00** | — | — | — | — | — | — |
| | Forward-Reverse-Stop | 109 | BG302 | **171.00** | — | — | — | — | — | — |
| | Opn-Close-Stop | 109 | BG303 | **171.00** | BF303 | **207.00** | — | — | — | — |
| | Raise-Lower-Stop | 109 | BG304 | **171.00** | — | — | — | — | — | — |
| | Up-Down-Stop | 109 | BG305 | **171.00** | BF305 | **207.00** | — | — | — | — |
| | Start-Jog-Stop | 109 | BG316 | **171.00** | — | — | — | — | — | — |
| | Universal (w/o legend inserts) | 8 | BG307 | **162.00** | — | — | — | — | — | — |
| | Start-Stop, Red Pilot Light: 120Vac/dc | 145 & 121 | BG308 | **314.00** | BF308 | **342.00** | — | — | — | — |

▲ See Table 19.314 on page 19-104.
■ Uses standard 2.0 or 2.13 in. deep wall boxes, single gang for Types BF1 and BF2, two gang for Type BF3
♦ Also rated for Class I, Division I and II, Groups B, C, or D; Class II, Division I and II, Groups E, F, or G

## Table 19.312: Accessories

| Description | Color | Type | $ Price |
|---|---|---|---|
| Mushroom Caps for NEMA 1 | Red | B301 | **14.30** |
| Mushroom Caps for NEMA 4 | Red | B303 | **14.30** |
| Lockout Kit for NEMA 1 | — | B321 | **42.80** |
| Pilot Light Lenses, NEMA 1 Surface Mount | Red | B331 | **10.70** |
| Pilot Light Lenses, NEMA 1 Surface Mount | Green | B332 | **10.70** |
| Pilot Light Lenses, NEMA 1 Flush Mount | Red | B341 | **10.70** |
| Pilot Light Lenses, NEMA 1 Flush Mount | Green | B342 | **10.70** |
| Replacement Covers for BW240 ▼ | — | BWD219 | **17.90** |
| Replacement Covers for BW241 ★▼ | — | BWD220 | **35.60** |
| Replacement Covers for BW242-BW260 ▼ | — | BWD219 | **17.90** |

★ Includes factory installed lockout on the cover.
▼ Replacement case/covers are not avaiulable for Type BR devices.

## Table 19.313: Interchangeable Push Button Legend Inserts

| Marking | For NEMA 1 Surface Mount | For NEMA 4 or 7/9 Lever Type | For NEMA 4 Round Button | For NEMA4 Mushroom Button | $ Price |
|---|---|---|---|---|---|
| Start | B101 | B161 | B259 | B282 | **3.60** |
| Stop | B102 | B162 | B260 | B283 | **3.60** |
| Fast | B103 | — | — | — | **3.60** |
| Slow | B104 | — | — | — | **3.60** |
| Forward | B105 | — | B255 | — | **3.60** |
| Reverse | B106 | — | B256 | — | **3.60** |
| Open | B107 | — | B263 | — | **3.60** |
| Close | B108 | — | B264 | — | **3.60** |
| Raise | B109 | — | B261 | — | **3.60** |
| Lower | B110 | — | B262 | | **3.60** |
| Up | B111 | — | B253 | B276 | **3.60** |
| Down | B112 | — | B254 | B277 | **3.60** |
| On | B115 | B175 | B257 | — | **3.60** |
| Off | B116 | B176 | B258 | — | **3.60** |
| Hand | B117 | — | B265 | — | **3.60** |
| Auto | B118 | — | B266 | — | **3.60** |
| Jog | B119 | — | — | — | **3.60** |
| Blank (Black) | B129 | B189 | B251 | B251 | **3.60** |
| Blank (Red) | B129R | B189R | B252 | B252 | **3.60** |

Replacement Interiors . . . . . page 19-104
Electrical Contact Ratings . . . . . page 19-104



© 2012 Schneider Electric
All Rights Reserved



Type BGC214
(Type BGC contact block assemblies include cover.)



Type BGB214



BOC361

## Table 19.314: Replacement Interiors For Type B Standard Duty Push Button Stations

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

| For Control Station Types | Contact Symbol | Contact Block Assembly ▲ Type | $ Price | Terminal Block Wiring Receptacle Type | $ Price |
|---|---|---|---|---|---|
| BF101–BF107 | 16 | BOC107 | **39.20** | BFB107 | **42.80** |
| BF111–BF114 | 19 or 17 | BOC114 | **39.20** | BFB114 | **42.80** |
| BF121–BF123 | 121 | BOC123 | **147.00** | BFB123 | **42.80** |
| BF201–BF214 | 25 | BOC214 | **35.60** | BFB214 | **42.80** |
| BF215–BF218 | 10 | BOC218 | **78.00** | BFB214 | **42.80** |
| BF221–BF224 | 7 or 19 & 121 | BOC224 | **234.00** | BFB224 | **64.00** |
| BF225–BF226 | 17 or 19 & 16 | BOC226 | **57.00** | BFB226 | **64.00** |
| BF301–BF307 | 8 | BOC214<br>& BOC107 | **35.60**<br>**39.20** | BFB214<br>& BFB107 | **42.80**<br>**42.80** |
| BF308–BF309 | 25<br>& 121 | BOC214<br>& BOC123 | **35.60**<br>**147.00** | BFB214<br>& BFB123 | **42.80**<br>**42.80** |
| BF310–BF313 | 10 & 121 | BOC218<br>& BOC123 | **78.00**<br>**147.00** | BFB214<br>& BFB123 | **42.80**<br>**42.80** |
| BF314–BF315 | 17 or 19 & 25 | BOC214<br>& BOC114 | **35.60**<br>**39.20** | BFB214<br>& BFB114 | **42.80**<br>**42.80** |
| BG101–BG107 | 16 | BGC107 | **39.20** | BGB107 | **42.80** |
| BG111–BG114 | 17 or 19 | BGC114 | **39.20** | BGB114 | **42.80** |
| BG121–BG123 | 121 | BGC123 | **147.00** | BGB123 | **42.80** |
| BG201–BG214 | 25 | BGC214 | **35.60** | BGB214 | **42.80** |
| BG215–BG218 | 10 | BGC218 | **78.00** | BGB214 | **42.80** |
| BG221–BG224 | 17 or 19 & 121 | BGC224 | **234.00** | BGB224 | **64.00** |
| BG225–BG226 | 17 or 19 & 16 | BGC226 | **57.00** | BGB226 | **64.00** |
| BG301–BG307<br>BG316–BG326 | 8 | BGC307 | **39.20** | BGB307 | **57.00** |
| BG308–BG309 | 25 & 121 | BGC309 | **212.00** | BGB309 | **86.00** |
| BG310–BG313 | 10 & 121 | BGC313 | **242.00** | BGB309 | **86.00** |
| BG314–BG315 | 17 or 19 & 25 | BGC315 | **75.00** | BGB315 | **86.00** |
| BR101–BR107 | 16 | BOC107 | **39.20** | BFB107 | **42.80** |
| BR202–BR214 | 25 | BOC214 | **35.60** | BFB214 | **42.80** |
| BR215–BR219 | 10 | BOC218 | **78.00** | BFB214 | **42.80** |
| BW101–BW107 | 16 | BOC107 | **39.20** | BFB107 | **42.80** |
| BW202–BW214 | 25 | BOC214 | **35.60** | BFB214 | **42.80** |
| BW215–BW218 | 10 | BOC218 | **78.00** | BFB214 | **42.80** |
| BW146–BW159 | 16 | BOC360 | **126.00** | | |
| BW240–BW260 | 25 | BOC361 | **126.00** | | |
| BW255–BW258 | 10 | BOC362 | **126.00** | | |

Note: Contact block assemblies for all Type BG stations include cover and contact block. Replacement contact block assemblies and terminal block wiring receptacles for push buttons have provision for 1 N.O. & 1 N.C. circuit on each button. Unneeded circuits need not be wired.

▲ Order separate legend plates, if required, from listing on page 19-103.

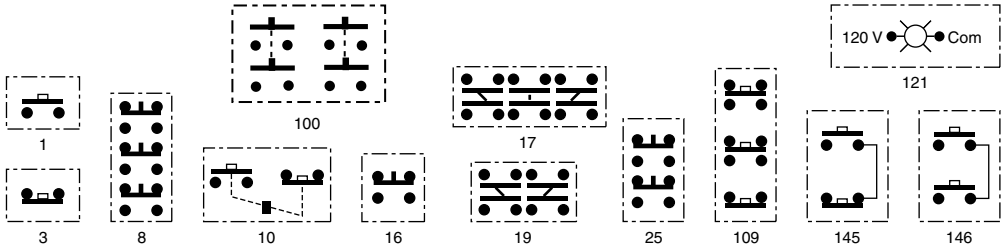
| C-Shaped Mounting Bracket for 9001BR Interior | |
|---|---|
| Catalog Number | $ Price |
| 3110112001 | **8.70** |

## Table 19.315: Electrical Contact Ratings ■

| AC—NEMA B600 | | | | | | | DC—NEMA P600 | | |
|---|---|---|---|---|---|---|---|---|---|
| Volts | Inductive 35% Power Factor | | | | | Resistive 75% Power Factor | Volts | Inductive and Resistive | |
| | Make | | Break | | Continuous Carrying Amperes | Make, Break and Continuous Carrying Amperes | | Make and Break Amperes | Continuous Carrying Amperes |
| | A | VA | A | VA | | | | | |
| 120 | 30.5 | 3600 | 3.75 | 360 | 5 | 5 | 120 | 1.1 | 5 |
| 240 | 15 | 3600 | 1.5 | 360 | 5 | 5 | 240 | 0.55 | 5 |
| 480 | 7.5 | 3600 | .75 | 360 | 5 | 5 | 600 | 0.2 | 5 |
| 600 | 6 | 3600 | .6 | 360 | 5 | 5 | | | |

■ OSHA Regulation, Section 1910.70, Overhead and Gantry Cranes, limits the voltage of pendant push buttons to 150 Vac or 300 Vdc.

## Contact Symbols



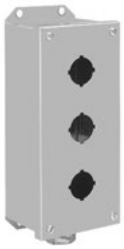





© 2012 Schneider Electric
All Rights Reserved

### Table 19.316: Empty Enclosures (for Customer Assembly)

*NOTE: When ordering, add prefix 9001 to the catalog number.*

| UL Types 1, 3 and 13/ NEMA 1, 3, and 13 | UL Types 1, 3, 4 and 13/ NEMA 1, 3, 4 and 13 | UL Types 1, 3, 4, 4X and 13/ NEMA 1, 3, 4, 4X and 13 | |
|---|---|---|---|
|  |  |  |  |

| No of Holes | Sheet Steel | | Die Cast Zinc | | Stainless Steel (304) | | Polymeric (Plastic) | |
|---|---|---|---|---|---|---|---|---|
| | Type | $ Price | Type | $ Price | Type | $ Price | Type | $ Price |
| 1 | KYAF1 | 143.00 | KY1 | 143.00 | KYSS1 | 257.00 | SKY1 | 171.00 |
| 2 | KYAF2 | 158.00 | KY2 ▲ | 158.00 | KYSS2 | 270.00 | SKY2 | 201.00 |
| 3 | KYAF3 | 185.00 | KY3 ▲ | 185.00 | KYSS3 | 372.00 | SKY3 | 228.00 |
| 4 | KYAF4 | 228.00 | KY4 ▲ | 228.00 | KYSS4 | 485.00 | SKY4 | 269.00 |
| 6 | KYAF6 | 287.00 | KY6 | 287.00 | KYSS6 | 714.00 | SKY6 | 287.00 |

▲ Only KN200 series legend plates will fit upright on these enclosures with their long axis vertical.

***NOTE:*** *See Table 19.319 on Page 19-106 for Assembled Control Stations*



KYG1Y
(mushroom head not included)

### Table 19.317: Guarded Enclosures

| UL Types 1, 3, 4 and 13/ NEMA 1, 3, 4 and 13 | | | | |
|---|---|---|---|---|
| No of Holes | Die Cast Zinc | | | |
| | Cover Color | Box Color | Type | $ Price |
| 1 | Gray | Gray | KYG1 ■ | 150.00 |
| 1 | Yellow | Gray | KYG1Y ■ | |

■ Includes 1" NPT threaded conduit opening.

***NOTE:*** *See Table 19.319 on Page 19-106 for Assembled Control Stations*

### Table 19.318: Stainless Steel (302) NEMA 1 Flush Plates ♦




K26

| No of Holes | Description | Type | $ Price |
|---|---|---|---|
| 1 | 1 Hole flush plate, cover screws, insulating liners | K25 | 28.70 |
| 2 | 2 Hole flush plate, cover screws, insulating liners | K26 | 42.80 |
| 3 | 3 Hole flush plate, cover screws, insulating liners | K27 | 57.00 |
| 4 | 4 Hole flush plate, cover screws, insulating liners | K28 | 86.00 |

♦ To be used with a standard 2 x 3 in. general purpose switch box. A 2.5 in. deep switch box should be used if two Type KA contact blocks are mounted side by side. If two Type KA contact blocks are mounted in tandem, a 3.5 in. deep box should be used.



© 2012 Schneider Electric
All Rights Reserved

## Table 19.319: Assembled Control Stations

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*



Type KYK31



Type KYSS300



Type SKY201



Type KYG1Y2

| No of Holes | Operator Style and Features | Type | $ Price | Consists of | | | |
|---|---|---|---|---|---|---|---|
| | | | | Enclosure | Operators | Contact Blocks | Legend Plates |
| **UL Types 1, 3, 4 and 13/NEMA 1, 3, 4 and 13 Die Cast Zinc Enclosure▲** | | | | | | | |
| 1 | Selector Switch (3 Pos Maintained) | KYK111 | **243.** | KY1 | KS43B | KA1 | Hand-Off-Auto |
| | Selector Switch (2 Pos Maintained) | KYK110 | **243.** | KY1 | KS11B | KA1 | Off-On |
| | Push Button (Momentary) | KYK11 | **228.** | KY1 | KR1B | KA1 | Start |
| | Push Button (Momentary) | KYK13 | **228.** | KY1 | KR1R | KA1 | Stop |
| | Mushroom Button (Momentary) | KYK14 | **270.** | KY1 | KR4R | KA1 | Stop |
| | Push Button (with Lockout) | KYK15 | **270.** | KY1 | KR3R, K4 | KA1 | Stop |
| | Break Glass Operator | KYK116 | **329.** | KY1 | K15 | KA1 | To Stop—Break Glass |
| | Break Glass Operator (Red Enclosure) | KYK117 | **329.** | KY1S1 | K15 | KA1 | To Stop—Break Glass |
| 2 | 2 Push Buttons (Lockout on Stop) | KYK224 | **372.** | KY2 | KR1B, KR3R, K4 | KA1, KA1 | Jog-Stop |
| | 2 Push Buttons | KYK218 | **329.** | KY2 | KR1B, KR3R | KA1, KA1 | On-Off |
| | 2 Push Buttons | KYK26 | **329.** | KY2 | KR1B, KR1B | KA1, KA1 | Open-Close |
| | 2 Push Buttons | KYK25 | **329.** | KY2 | KR1B, KR1B | KA1, KA1 | Up-Down |
| | 2 Push Buttons | KYK21 | **329.** | KY2 | KR1B, KR3R | KA1, KA1 | Start-Stop |
| | 2 Push Buttons (with Sealed Contacts) ★ | KYK223 | **527.** | KY2 | KR1B, KR3R | KA51, KA51 | Start-Stop |
| | 2 Push Buttons (Lockout on Stop) | KYK23 | **372.** | KY2 | KR1B, KR3R, K4 | KA1, KA1 | Start-Stop |
| | 2 Push Buttons (Maintained/Interlocked) | KYK27 | **329.** | KY2 | KR11GR | KA1 | Start-Stop |
| | 1 Push Button, 1 Mushroom Button | KYK22 | **372.** | KY2 | KR1B, KR4R | KA1, KA1 | Start-Stop |
| 3 | 3 Push Buttons | KYK31 | **441.** | KY3 | KR1B, KR1B, KR3R | KA1, KA1, KA1 | Forward; Reverse; Stop |
| | 3 Push Buttons (Lockout on Stop) | KYK326 | **485.** | KY3 | KR1B, KR1B, KR3R, K4 | KA1, KA1, KA1 | Forward; Reverse; Stop |
| | 3 Push Buttons (With Sealed Contacts & Lockout on Stop) ★ | KYK322 | **783.** | KY3 | KR1B, KR1B, KR3R, K4 | KA51, KA51, KA51 | Forward; Reverse; Stop |
| | 3 Push Buttons | KYK33 | **441.** | KY3 | KR1B, KR1B, KR3R | KA1, KA1, KA1 | Open; Close; Stop |
| | Red 120v Pilot Light, 2 Push Buttons | KYK317 | **471.** | KY3 | KP1R31, KR1B, KR3R | KA2, KA3 | Start; Stop |
| | 3 Push Buttons | KYK32 | **441.** | KY3 | KR1B, KR1B, KR3R | KA1, KA1, KA1 | Up; Down; Stop |
| | 3 Push Buttons (Lockout on Stop) | KYK325 | **485.** | KY3 | KR1B, KR1B, KR3R, K4 | KA1, KA1, KA1 | Up ; Down; Stop |
| **UL Types 1, 3, 4 and 13/NEMA 1, 3, 4 and 13—Stainless Steel (304) ■** | | | | | | | |
| 1 | Push Button (Momentary) | KYSS101 | **342.** | KYSS1 | KR1B | KA1 | Start |
| | Push Button (Momentary) | KYSS103 | **320.** | KYSS1 | KR1B | KA3 | Stop |
| | Selector Switch (2 Pos Maintained) | KYSS110 | **356.** | KYSS1 | KS11B | KA1 | Off-On |
| | Selector Switch (3 Pos Maintained) | KYSS111 | **356.** | KYSS1 | KS43B | KA1 | Hand-Off-Auto |
| 2 | 2 Push Buttons | KYSS201 | **422.** | KYSS2 | KR1B, KR3R | KA1, KA3 | Start; Stop |
| | 2 Push Buttons (Lockout on Stop) | KYSS203 | **491.** | KYSS2 | KR1B, KR3R, K5 | KA1, KA3 | Start; Stop |
| | 2 Push Buttons (Maintained with Interlock) | KYSS210 | **441.** | KYSS2 | KR11U | KA1, KA1 | Start; Stop |
| | 2 Push Buttons | KYSS205 | **441.** | KYSS2 | KR1B, KR1B | KA1, KA1 | Up; Down |
| **UL Types 1, 3, 4. 4X and 13/NEMA 1, 3, 4, 4X and 13—Stainless Steel (304) ♦** | | | | | | | |
| 1 | Push Button (Momentary) | KYSK101 | **342.** | KYSS1 | SKR1B | KA1 | Start |
| | Push Button (Momentary) | KYSK103 | **320.** | KYSS1 | SKR3R | KA3 | Stop |
| | Selector Switch (2 Pos Maintained) | KYSK110 | **356.** | KYSS1 | SKS11B | KA1 | Off-On |
| | Selector Switch (3 Pos Maintained) | KYSK111 | **356.** | KYSS1 | SKS43B | KA1 | Hand-Off-Auto |
| 2 | 2 Push Buttons | KYSK201 | **422.** | KYSS2 | SKR1B, SKR3R | KA1, KA3 | Start; Stop |
| | 2 Push Buttons (Lockout on Stop) | KYSK203 | **491.** | KYSS2 | SKR1B, SKR3R, K5 | KA1, KA3 | Start; Stop |
| | 2 Push Buttons (Maintained with Interlock) | KYSK210 | **441.** | KYSS2 | SKR11U | KA1, KA1 | Start; Stop |
| | 2 Push Buttons | KYSK205 | **441.** | KYSS2 | SKR1B, SKR1B | KA1, KA1 | Up; Down |
| **UL Types 1, 3, 4. 4X and 13/NEMA 1, 3, 4, 4X and 13—Polymeric (Plastic) ♦** | | | | | | | |
| | Selector Switch (3 Pos Maintained) | SKY111 | **270.** | SKY1 | SKS43B | KA1 | Hand-Off-Auto |
| 1 | Selector Switch (2 Pos Maintained) | SKY110 | **270.** | SKY1 | SKS11B | KA1 | Off-On |
| | Selector Switch (2 Pos Maintained with Sealed Contacts) ★ | SKY122 | **372.** | SKY1 | SKS11B | KA51 | Off-On |
| | Push Button (with Lockout) | SKY105 | **306.** | SKY1 | SKR3R, K5 | KA3 | Stop |
| 2 | 2 Push Buttons | SKY201 | **350.** | SKY2 | SKR1B, SKR3R | KA1, KA3 | Start-Stop |
| | 2 Push Buttons (Lockout on Stop) | SKY203 | **422.** | SKY2 | SKR1B, SKR1R, K5 | KA1, KA3 | Start-Stop |
| | 2 Push Buttons (With Sealed Contacts) ★ | SKY223 | **570.** | SKY2 | SKR1B, SKR3R | KA51, KA51 | Start-Stop |
| | 2 Push Buttons (With Sealed Contacts) ★ | SKY222 | **570.** | SKY2 | SKR1B, SKR3R | KA51, KA51 | On-Off |
| | 2 Push Buttons | SKY205 | **372.** | SKY2 | SKR1B, SKR1B | KA1, KA1 | Up-Down |
| 3 | 3 Push Buttons | SKY302 | **464.** | SKY3 | SKR1B, SKR1B, SKR3R | KA1, KA1, KA3 | Up-Down-Stop |
| | 3 Push Buttons | SKY303 | **464.** | SKY3 | SKR1B, SKR1B, SKR3R | KA1, KA1, KA3 | Open-Close-Stop |
| | Red 120v Pilot Light, 2 Push Buttons | SKY315A | **531.** | SKY3 | SKP1R31, SKR1B, SKR3R | KA1, KA3 | Start-Stop |
| **UL Types 1, 3, 4 and 13/NEMA 1, 3, 4 and 13 Die Cast Zinc Enclosures with Integral Guard** | | | | | | | |
| 1 | Guarded Enclosure (grey) with 120V Red LED Pilot Light | KYG11 ▼ | **250.** | KYG1 | KP38LRR9 | — | order separately |
| | Guarded Enclosure (grey) with 120V Green LED Pilot Light | KYG12 ▼ | **250.** | KYG1 | KP38LGG9 | — | order separately |
| | Guarded Enclosure (Yellow Cover) with Red Push-Pull Mushroom | KYG1Y1 ▼ | **275.** | KYG1Y | KR9R | KA3 | Push to Stop/ Pull to Start |
| | Guarded Enclosure (Yellow Cover) with Red Turn-To Release Mushroom | KYG1Y2 ▼ | **275.** | KYG1Y | KR16 | KA3 | Emergency Stop |

▲ Uses 9001K metal operators and metal legend plates.
■ Uses 9001K metal operators and plastic legend plates.
♦ Uses 9001SK plastic operators and plastic legend plates.
★ Control Station consists of components that are UL listed for use in Class 1, Division 2, Groups A, B, C, or D.
▼ Includes 1" NPT threaded conduit opening.





© 2012 Schneider Electric
All Rights Reserved



*XVR 08●●●*



*XVR 10●●●*



*XVR 12●●●*



*XVR 13●●●*



*XVR ZR1*



*XVR Z081*



*XVC Z13*



*XVC Z23*

### Table 19.320: XVR Pre-Wired Rotating Mirror Beacons

| Diameter (mm) | Sound Option | Enclosure Rating | Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Ø 84 | Without buzzer | IP 23<br>(IP 65 with accessories) | 12 Vac/Vdc | Red | XVR 08J04 | 180.00 |
| | | | | Orange | XVR 08J05 | |
| | | | | Green | XVR 08J03 | |
| | | | | Blue | XVR 08J06 | |
| | | | 24 Vac/Vdc | Red | XVR 08B04 | |
| | | | | Orange | XVR 08B05 | |
| | | | | Green | XVR 08B03 | |
| | | | | Blue | XVR 08B06 | |
| Ø 106 | Without buzzer | IP 23<br>(IP 55 with accessories) | 12 Vac/Vdc | Red | XVR 10J04 | 207.00 |
| | | | | Orange | XVR 10J05 | |
| | | | | Green | XVR 10J03 | |
| | | | | Blue | XVR 10J06 | |
| | | | 24 Vac/Vdc | Red | XVR 10B04 | |
| | | | | Orange | XVR 10B05 | |
| | | | | Green | XVR 10B03 | |
| | | | | Blue | XVR 10B06 | |
| Ø 120 | Without buzzer | IP 23 | 12 Vac/Vdc | Red | XVR 12J04 | 198.00 |
| | | | | Orange | XVR 12J05 | |
| | | | | Green | XVR 12J03 | |
| | | | | Blue | XVR 12J06 | |
| | | | 24 Vac/Vdc | Red | XVR 12B04 | |
| | | | | Orange | XVR 12B05 | |
| | | | | Green | XVR 12B03 | |
| | | | | Blue | XVR 12B06 | |
| Ø 120 | With buzzer | IP 23 | 12 Vac/Vdc | Red | XVR 12J04S | 216.00 |
| | | | | Orange | XVR 12J05S | |
| | | | | Green | XVR 12J03S | |
| | | | | Blue | XVR 12J06S | |
| | | | 24 Vac/Vdc | Red | XVR 12B04S | |
| | | | | Orange | XVR 12B05S | |
| | | | | Green | XVR 12B03S | |
| | | | | Blue | XVR 12B06S | |
| Ø 130 | Without buzzer | IP 23<br>Resistant to vibration | 12 Vdc | Red | XVR 13J04 | 270.00 |
| | | | | Orange | XVR 13J05 | |
| | | | 24 Vdc | Red | XVR 13B04 | |
| | | | | Orange | XVR 13B05 | |

### Table 19.321: XVR Accessories

| Description | Diameter (mm) | Height (mm) | Catalog Number | $ Price |
|---|---|---|---|---|
| Reflecting prism | 84 | — | XVR ZR1 | 36.00 |
| | 106 | — | XVR ZR2 | |
| | 120/130 | — | XVR ZR3 | |
| Rubber base<br>to increase the IP degree of protection | 84 | — | XVR Z081 | |
| | 106 | — | XVR Z082 | |
| Mount tube and base | 106, 120 and 130 | 300 | XVC Z13 | 270.00 |
| L-shape mounting bracket | 84, 106 and 120 | — | XVC Z23 | 27.00 |



© 2012 Schneider Electric
All Rights Reserved




*XVC 4B5* *XVC 4B35S*

### Table 19.322: XVC4 Tower Lights — 40 mm diameter (1.5 inches)

| Description | Light source (included) | Voltage | Signaling colors ▲ | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | Steady | Flashing | | |
| **With support tube mounting** | | | | | | |
| Without buzzer | LED for steady light only | 24 Vdc | R | – | XVC 4B1 | **157.50** |
| | | | R, O | – | XVC 4B2 | **198.00** |
| | | | R, O, G | – | XVC 4B3 | **229.50** |
| | | | R, O, G, B | – | XVC 4B4 | **283.50** |
| | | | R, O, G, B, C | – | XVC 4B5 | **352.50** |
| | | 100-240 Vac | R | – | XVC 4M1 | **181.50** |
| | | | R, O | – | XVC 4M2 | **228.00** |
| | | | R, O, G | – | XVC 4M3 | **264.00** |
| | | | R, O, G, B | – | XVC 4M4 | **379.50** |
| | | | R, O, G, B, C | – | XVC 4M5 | **379.50** |
| With buzzer + flashing light | LED for steady or flashing light ■ | 24 Vdc | R | R | XVC 4B15S | **240.00** |
| | | | R, O | R, O | XVC 4B25S | **271.50** |
| | | | R, O, G | R, O, G | XVC 4B35S | **309.00** |
| | | | R, O, G, B | R, O, G, B | XVC 4B45S | **378.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 4B55S | **441.00** |
| | | 100-240 Vac | R | R | XVC 4M15S | **276.00** |
| | | | R, O | R, O | XVC 4M25S | **312.00** |
| | | | R, O, G | R, O, G | XVC 4M35S | **355.50** |
| | | | R, O, G, B | R, O, G, B | XVC 4M45S | **435.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 4M55S | **507.00** |
| **For base mounting** | | | | | | |
| Without buzzer | LED for steady light only | 24 Vdc | R | – | XVC 4B1K | **117.00** |
| | | | R, O | – | XVC 4B2K | **154.50** |
| | | | R, O, G | – | XVC 4B3K | **189.00** |
| | | | R, O, G, B | – | XVC 4B4K | **255.00** |
| | | | R, O, G, B, C | – | XVC 4B5K | **331.50** |




*XVC Z11* *XVC Z01*

### Table 19.323: Accessories for XVC4

| Description | Diameter mm | Minimum height to be added mm | Catalog Number | $ Price |
|---|---|---|---|---|
| Die-cast metal mounting base (for use with XVC4●● and XVC4●●5S with support tube) | 90 | 32 | XVC Z11 | **39.00** |
| Plastic mounting base (for use with XVC4, XVC4●● and XVC4●●5S — customer must discard the support tube) | 84 | 24.5 | XVC Z01 | **64.50** |



*XVC 1B5K*
*XVC 1B5SK*

### Table 19.324: XVC Tower Lights — 100 mm diameter (4 inches)

| Description | Light source (included) | Voltage Vdc | Signaling colors ▲ | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | Steady | Flashing | | |
| **For base mounting** | | | | | | |
| Without buzzer With flashing light | LED for steady or flashing light ■ | 24 | R | R | XVC 1B1K | **631.50** |
| | | | R, O | R, O | XVC 1B2K | **685.50** |
| | | | R, O, G | R, O, G | XVC 1B3K | **739.50** |
| | | | R, O, G, B | R, O, G, B | XVC 1B4K | **793.50** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 1B5K | **847.50** |
| | | 100-240 Vac | R | R | XVC 1M1K | **726.00** |
| | | | R, O | R, O | XVC 1M2K | **787.50** |
| | | | R, O, G | R, O, G | XVC 1M3K | **850.50** |
| | | | R, O, G, B | R, O, G, B | XVC 1M4K | **912.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 1M5K | **975.00** |
| With buzzer + flashing light | LED for steady or flashing light ■ | 24 | R | R | XVC 1B1SK | **703.50** |
| | | | R, O | R, O | XVC 1B2SK | **757.50** |
| | | | R, O, G | R, O, G | XVC 1B3SK | **811.50** |
| | | | R, O, G, B | R, O, G, B | XVC 1B4SK | **865.50** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 1B5SK | **919.50** |
| | | 100-240 Vac | R | R | XVC 1M1SK | **808.50** |
| | | | R, O | R, O | XVC 1M2SK | **871.50** |
| | | | R, O, G | R, O, G | XVC 1M3SK | **933.00** |
| | | | R, O, G, B | R, O, G, B | XVC 1M4SK | **996.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 1M5SK | **1057.50** |

▲ Signaling colors: R = Red, G = Green, O = Orange, B = Blue, C = Clear. The colors are listed in the mounting order of the illuminated units from top to bottom.

■ Flashing light function selected by wiring or programming.



*XVC Z13*

### Table 19.325: Accessories for XVC1

| Description | Diameter mm | Height mm | Catalog Number | $ Price |
|---|---|---|---|---|
| Mount tube and base | 140 | 300 | XVC Z13 | **270.00** |
| L-shape mount bracket | — | — | XVC Z23 | **27.00** |



*XVC Z23*





© 2012 Schneider Electric
All Rights Reserved




*XVC 6B5K* *XVC 6B55SK*




*XVC Z02* *XVC Z12*

**Table 19.326: XVC6 Tower Lights, 60 mm diameter (2.375 inches)**

| Description | Light source (included) | Voltage | Signaling colors ▲ | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | Steady | Flashing | | |
| **With support tube mounting** | | | | | | |
| Without buzzer | LED for steady light only | 24 Vdc | R | – | XVC 6B1 | **169.50** |
| | | | R, O | – | XVC 6B2 | **211.50** |
| | | | R, O, G | – | XVC 6B3 | **252.00** |
| | | | R, O, G, B | – | XVC 6B4 | **303.00** |
| | | | R, O, G, B, C | – | XVC 6B5 | **426.00** |
| | | 100-240 Vac | R | – | XVC 6M1 | **195.00** |
| | | | R, O | – | XVC 6M2 | **243.00** |
| | | | R, O, G | – | XVC 6M3 | **289.50** |
| | | | R, O, G, B | – | XVC 6M4 | **348.00** |
| | | | R, O, G, B, C | – | XVC 6M5 | **489.00** |
| With buzzer + flashing light | LED for steady or flashing light ■ | 24 Vdc | R | R | XVC 6B15S | **252.00** |
| | | | R, O | R, O | XVC 6B25S | **292.50** |
| | | | R, O, G | R, O, G | XVC 6B35S | **315.00** |
| | | | R, O, G, B | R, O, G, B | XVC 6B45S | **378.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 6B55S | **472.50** |
| | | 100-240 Vac | R | R | XVC 6M15S | **289.50** |
| | | | R, O | R, O | XVC 6M25S | **336.00** |
| | | | R, O, G | R, O, G | XVC 6M35S | **363.00** |
| | | | R, O, G, B | R, O, G, B | XVC 6M45S | **435.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 6M55S | **543.00** |
| **For base mounting** | | | | | | |
| Without buzzer | LED for steady light only | 24 Vdc | R | – | XVC 6B1K | **132.00** |
| | | | R, O | – | XVC 6B2K | **163.50** |
| | | | R, O, G | – | XVC 6B3K | **214.50** |
| | | | R, O, G, B | – | XVC 6B4K | **283.50** |
| | | | R, O, G, B, C | – | XVC 6B5K | **378.00** |
| | | 100-240 Vac | R | – | XVC 6M1K | **151.50** |
| | | | R, O | – | XVC 6M2K | **187.50** |
| | | | R, O, G | – | XVC 6M3K | **246.00** |
| | | | R, O, G, B | – | XVC 6M4K | **325.50** |
| | | | R, O, G, B, C | – | XVC 6M5K | **435.00** |
| With buzzer + flashing light | LED for steady or flashing light ■ | 24 Vdc | R | R | XVC 6B15SK | **205.50** |
| | | | R, O | R, O | XVC 6B25SK | **252.00** |
| | | | R, O, G | R, O, G | XVC 6B35SK | **283.50** |
| | | | R, O, G, B | R, O, G, B | XVC 6B45SK | **346.50** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 6B55SK | **426.00** |
| | | 100-240 Vac | R | R | XVC 6M15SK | **237.00** |
| | | | R, O | R, O | XVC 6M25SK | **289.50** |
| | | | R, O, G | R, O, G | XVC 6M35SK | **327.00** |
| | | | R, O, G, B | R, O, G, B | XVC 6M45SK | **399.00** |
| | | | R, O, G, B, C | R, O, G, B, C | XVC 6M55SK | **490.50** |

**Table 19.327: Accessories for XVC6**

| Description | Diameter mm | Minimum height to be added mm | Catalog Number | $ Price |
|---|---|---|---|---|
| Die-cast metal mounting base for XVC6B• and XVC6B•5S with support tube. | 100 | 30 | XVC Z02 | **27.00** |
| Stamped metal mounting base for XVC6B• K and XVC6B•5SK | 84 | 21.6 | XVC Z12 | **45.00** |

▲ Signaling colors: R = Red, G = Green, O = Orange, B = Blue, C = Clear. The colors are listed in the mounting order of the illuminated units from top to bottom.

■ Flashing light function selected by wiring or programming.



© 2012 Schneider Electric
All Rights Reserved



XVBL3•



XVBL4B•



XVBL6B•
5 Joule



XVBL8B•
10 Joule

### Table 19.328: XVB Beacons with Steady Light

| Description | Light Source and Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Complete unit, includes:<br>1 lens unit<br>1 base unit (direct or tube mounting) | Bulb (10 W max)<br>not included<br>250 V max<br>(must order bulb separately ♦) | Green | XVBL33 | 114.00 |
| | | Red | XVBL34 | |
| | | Amber | XVBL35 | |
| | | Blue | XVBL36 | |
| | | Clear | XVBL37 | |
| | | Yellow | XVBL38 | |

### Table 19.329: XVB Beacons with Flashing Light (one flash per second)

| Description | Light Source and Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Complete unit, includes:<br>1 lens unit<br>1 base unit (direct or tube mounting) | Bulb (10 W max)<br>not included<br>24 Vac<br>24–48 Vdc<br>(must order bulb separately ♦) | Green | XVBL4B3 | 193.50 |
| | | Red | XVBL4B4 | |
| | | Amber | XVBL4B5 | |
| | | Blue | XVBL4B6 | |
| | | Clear | XVBL4B7 | |
| | | Yellow | XVBL4B8 | |
| | Bulb (10 W max)<br>not included<br>48–230 Vac<br>(must order bulb separately ♦) | Green | XVBL4M3 | |
| | | Red | XVBL4M4 | |
| | | Amber | XVBL4M5 | |
| | | Blue | XVBL4M6 | |
| | | Clear | XVBL4M7 | |
| | | Yellow | XVBL4M8 | |

### Table 19.330: XVB Beacons with 10 Joule Strobe (2.75 in./70 mm diameter) ▲

| Description | Light Source and Voltage | Color | Catalog Number ■ | $ Price |
|---|---|---|---|---|
| Complete unit, includes:<br>1 lens unit<br>1 base unit (direct or tube mounting) | Strobe<br>24 Vac/Vdc<br>(includes bulb) | Green | XVBL8B3 | 366.00 |
| | | Red | XVBL8B4 | |
| | | Amber | XVBL8B5 | |
| | | Blue | XVBL8B6 | |
| | | Clear | XVBL8B7 | |
| | | Yellow | XVBL8B8 | |
| | Strobe<br>120 Vac<br>(includes bulb) | Green | XVBL8G3 | |
| | | Red | XVBL8G4 | |
| | | Amber | XVBL8G5 | |
| | | Blue | XVBL8G6 | |
| | | Clear | XVBL8G7 | |
| | | Yellow | XVBL8G8 | |

▲ **Important:** Discharge tube elements are not suitable for continuous-operation signaling due to temperature rise caused by the discharge tube.
■ For 5 Joule units, specify XVBL6••, instead of XVBL8•• (**$190.00**).
♦ For bulbs, see Table 19.336 on page 19-112.

***NOTE:*** *There are no replacement lenses for strobes.*





© 2012 Schneider Electric
All Rights Reserved

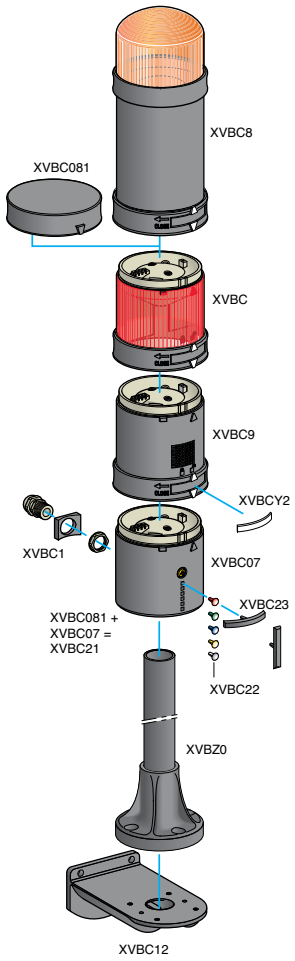



Table 19.331: XVB Lens Units for Steady Light

| Description | Light Source and Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Illuminated lens unit | Bulb (10 W max) not included 250 Vac/Vdc max (must order bulb separately ■) | Green | XVBC33 | 60.60 |
| | | Red | XVBC34 | |
| | | Orange | XVBC35 | |
| | | Blue | XVBC36 | |
| | | Clear | XVBC37 | |
| | | Yellow | XVBC38 | |

Table 19.332: XVB Lens Unit for Flashing Light

| Description | Light Source and Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Illuminated lens unit | Bulb (10 W max) not included 24 Vac 24–48 Vdc (must order bulb separately ■) | Green | XVBC4B3 | 141.00 |
| | | Red | XVBC4B4 | |
| | | Orange | XVBC4B5 | |
| | | Blue | XVBC4B6 | |
| | | Clear | XVBC4B7 | |
| | | Yellow | XVBC4B8 | |
| | Bulb (10 W max) not included 48–230 Vac (must order bulb separately ■) | Green | XVBC4M3 | |
| | | Red | XVBC4M4 | |
| | | Orange | XVBC4M5 | |
| | | Blue | XVBC4M6 | |
| | | Clear | XVBC4M7 | |
| | | Yellow | XVBC4M8 | |

Note: There are no replacement lenses units for the XVBC8•• strobes.

Table 19.333: XVB Lens Units with 10 Joule Strobe

| Description | Light Source and Voltage | Color | Catalog Number ▲ | $ Price |
|---|---|---|---|---|
| Lens unti with integral 10 Joule strobe | Strobe 24 Vac/Vdc (includes bulb) | Green | XVBC8B3 | 313.50 |
| | | Red | XVBC8B4 | |
| | | Orange | XVBC8B5 | |
| | | Blue | XVBC8B6 | |
| | | Clear | XVBC8B7 | |
| | | Yellow | XVBC8B8 | |
| | Strobe 120 Vac (includes bulb) | Green | XVBC8G3 | |
| | | Red | XVBC8G4 | |
| | | Orange | XVBC8G5 | |
| | | Blue | XVBC8G6 | |
| | | Clear | XVBC8G7 | |
| | | Yellow | XVBC8G8 | |

▲ For 5 Joule units, specify XVBC6••, instead of XVBC8•• ($155.00).
■ For bulbs, see Table 19.336 on page 19-112.

Table 19.334: Audible Sounder Units

| Description | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|
| Sounder unit 90 dB at 1 m | 12–48 Vac/Vdc | XVBC9B | 217.50 |
| Adjustable from 75–90 dB Continuous or intermittent modes | 120–230 Vac | XVBC9M | 342.00 |

Table 19.335: Base Units + Cover

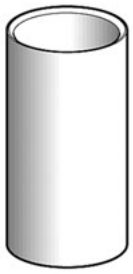
| Description | Catalog Number | $ Price |
|---|---|---|
| Base unit + cover for direct or tube mounting, bottom or side cable entry (includes gasket) | XVBC21 | 60.60 |



© 2012 Schneider Electric
All Rights Reserved



XVBZ0•



XVBC020



XVBC12

### Table 19.336: XVB Accessories

| Description | Characteristics | | Catalog Number | | $ Price |
|---|---|---|---|---|---|
| | in. | mm | | | |
| Black tube with integral black plastic mounting base (includes gasket) | 4.72 | 120 | XVBZ02 | XVBZ02A ▲ | **18.75** |
| | 15.75 | 400 | XVBZ03 | XVBZ03A ▲ | **37.50** |
| | 31.50 | 800 | XVBZ04 | XVBZ04A ▲ | **75.00** |
| Support tube concealment cover | 3.94 | 100 | XVBC020 | | **11.70** |
| | 15.75 | 400 | XVBC030 | | **34.50** |
| | 31.50 | 800 | XVBC040 | | **62.10** |
| Wall mount bracket (metal) | For direct mounting on base unit or with tulip XVBC11 + tube XVBC0• | | XVBC12 | | **48.45** |
| Incandescent bulbs bayonet type BA 15d, 10 Watts | 12 Vac/Vdc | | DL1BLJ | | **8.10** |
| | 24 Vac/Vdc | | DL1BLB | | |
| | 48 Vac/Vdc | | DL1BLE | | |
| | 120 Vac/Vdc | | DL1BLG | | |
| | 230 Vac/Vdc | | DL1BLM | | |
| Incandescent bulbs bayonet type BA 15d, 7 Watts | 12 Vac/Vdc | | DL1BEJ | | |
| | 24 Vac/Vdc | | DL1BEB | | |
| | 48 Vac/Vdc | | DL1BEE | | |
| | 120 Vac/Vdc | | DL1BEG | | |
| | 230 Vac/Vdc | | DL1BEM | | |
| Steady-On LED bulbs bayonet type BA 15d (sold as single) ■ | 24 Vac/Vdc | White | DL1BDB1 | | **108.00** |
| | | Green | DL1BDB3 | | |
| | | Red | DL1BDB4 | | |
| | | Blue | DL1BDB6 | | |
| | | Yellow | DL1BDB8 | | |
| | | Amber | DL1BDB5 | | |
| | 120 Vac | White | DL1BDG1 | | |
| | | Green | DL1BDG3 | | |
| | | Red | DL1BDG4 | | |
| | | Blue | DL1BDG6 | | |
| | | Yellow | DL1BDG8 | | |
| | | Amber | DL1BDG5 | | |
| Flashing LED bulbs | 24 Vac/Vdc | White | DL1BKB1 | | **139.50** |
| | | Green | DL1BKB3 | | |
| | | Red | DL1BKB4 | | |
| | | Amber | DL1BKB5 | | |
| | | Blue | DL1BKB6 | | |
| | | Yellow | DL1BKB8 | | |
| | 120 Vac | White | DL1BKG1 | | |
| | | Green | DL1BKG3 | | |
| | | Red | DL1BKG4 | | |
| | | Amber | DL1BKG5 | | |
| | | Blue | DL1BKG6 | | |
| | | Yellow | DL1BKG8 | | |
| Adapter for side entry through base unit | With CM12 (p. 13.5) cable gland, for cable size of 0.4 to 0.55 in. (10 to 14 mm) diameter | | XVBC14 | | **7.80** |
| Conduit adapter | 1/2 in. NPT (for customer supplied tubing) | | XVBC00 | | **3.15** |

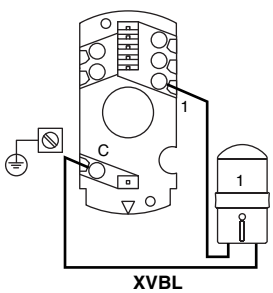
▲ Aluminum tube.
■ For 240 Vac, replace the B or G in the catalog number with M—for example, DL1BD**M**1. For flashing LEDs, refer to catalog 9001CT0001.

### Table 19.337: XVB Accessories

| Description | Characteristics | Catalog Number | $ Price |
|---|---|---|---|
| Set of colored markers | 6 colors | XVBC22 | **3.15** |
| Set of 5 legend holders | Identification of stacked units on base | XVBC23 | **12.45** |

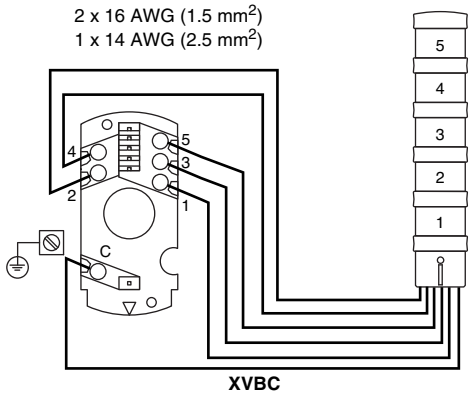
### Wiring Diagrams, Base Units

Screw terminals
Torque to 4.4 in-lb (0.5 N•m)




**XVBL**

2 x 16 AWG (1.5 mm$^2$)
1 x 14 AWG (2.5 mm$^2$)

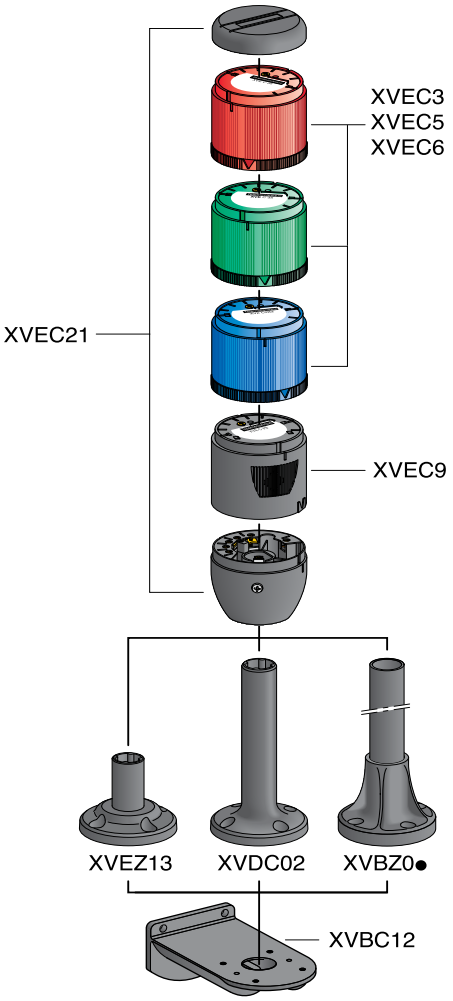



**XVBC**





© 2012 Schneider Electric
All Rights Reserved




### Table 19.338: XVE Lens Units with Steady Light

| Description | Light source | Supply voltage | Color of lens | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Lens units only for BA 15d base fitting bulb | 5 W max. (must order bulb separately ▲) | 24 Vac/Vdc to 240 Vac/Vdc (Maximum) | Green | XVEC33 | 24.00 |
| | | | Red | XVEC34 | |
| | | | Orange | XVEC35 | |
| | | | Blue | XVEC36 | |
| | | | Clear | XVEC37 | |
| Illuminated units | Integral LED on printed board circuit (separate bulb not required) | 24 Vac/Vdc | Green | XVEC2B3 | 60.00 |
| | | | Red | XVEC2B4 | |
| | | | Orange | XVEC2B5 | |
| | | | Blue | XVEC2B6 | |
| | | | Clear | XVEC2B7 | |
| | | 120 Vac | Green | XVEC2G3 | |
| | | | Red | XVEC2G4 | |
| | | | Orange | XVEC2G5 | |
| | | | Blue | XVEC2G6 | |
| | | | Clear | XVEC2G7 | |

▲ Order clear incandescent bulb separately. See Table 19.336 on Page 19-112.

### Table 19.339: XVE Lens Units with Flashing LED

| Description | Light source | Supply voltage | Color of lens | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Illuminated units | Integral LED on printed board circuit (separate bulb not required) | 24 Vac/Vdc | Green | XVEC5B3 | 90.00 |
| | | | Red | XVEC5B4 | |
| | | | Orange | XVEC5B5 | |
| | | | Blue | XVEC5B6 | |
| | | | Clear | XVEC5B7 | |
| | | 120 Vac | Green | XVEC5G3 | |
| | | | Red | XVEC5G4 | |
| | | | Orange | XVEC5G5 | |
| | | | Blue | XVEC5G6 | |
| | | | Clear | XVEC5G7 | |

### Table 19.340: XVE Lens Units with Strobe Light

| Description | Light source | Supply voltage | Color of lens | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Lens units with integral 1 Joule strobe light | Discharge tube, 1 Joule (separate bulb not required) | 24 Vac/Vdc | Green | XVEC6B3 | 105.00 |
| | | | Red | XVEC6B4 | |
| | | | Orange | XVEC6B5 | |
| | | | Blue | XVEC6B6 | |
| | | | Clear | XVEC6B7 | |
| | | 120 Vac | Green | XVEC6G3 | |
| | | | Red | XVEC6G4 | |
| | | | Orange | XVEC6G5 | |
| | | | Blue | XVEC6G6 | |
| | | | Clear | XVEC6G7 | |

### Table 19.341: XVE Audible Sounder Units

| Description | | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|---|
| Audible Sounder Units | 85dB | 24 Vac/Vdc | XVEC9B | 90.00 |
| | | 120 Vac | XVEC9G | |
| | | 230/240 Vac | XVEC9M | |

### Table 19.342: XVE Base Units and Covers

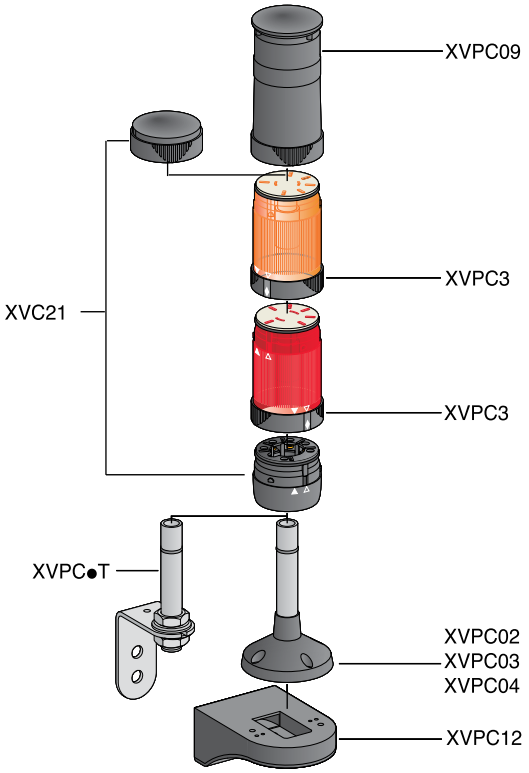
| Discription | Catalog Number | $ Price |
|---|---|---|
| Base unit + snap on cover for NEMA and UL Type 12, IP42 rating | XVEC21 | 24.00 |
| Base unit + screw mounting cover for IP54 rating (includes 5 O-ring seals for lens units and 1 gasket for base unit) | XVEC21P | 30.00 |

### Table 19.343: XVE Accessories

| Description | Height under base unit in. (mm) | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Plastic mounting bases | 0.78 (20) | Black | XVEZ13 | 12.00 |
| | 3.93 (100) | Black | XVDC02 | 15.00 |
| Mounting bases comprising: Ø 25 mm aluminium support tube + black plastic mounting support | 3.15 (80) | Black aluminium | XVBZ02 | 18.75 |
| | | Aluminium | XVBZ02A | |
| | 15.7 (400) | Black aluminium | XVBZ03 | 37.50 |
| | | Aluminium | XVBZ03A | |
| | 31.5 (800) | Black aluminium | XVBZ04 | 75.00 |
| | | Aluminium | XVBZ04A | |
| **Description** | **Electrical characteristics** | | **Catalog Number** | **$ Price** |
| Clear incandescent bulbs with BA 15d base fitting for lens units type XVE C3p | 4 W, z 24 Vac/Vdc | | DL1BEBS | 6.15 |
| | 5 W, z 120 Vac/Vdc | | DL1EDGS | |
| | 5 W, z 230 Vac/Vdc | | DL1BEMS | |
| **Description** | | | **Catalog Number** | **$ Price** |
| Wall mount bracket (metal) | | | XVBC12 | 48.45 |



© 2012 Schneider Electric
All Rights Reserved




### Table 19.344: Base Units + Covers

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Base unit and cover | Black | XVPC21 | **48.00** |
| Base unit and cover | Off-white | XVPC21W | |
| Base unit and cover (with ring-tongue compatible terminal) | Off-white | XVPC21WR | |

### Table 19.345: XVP Lens Units

| Description | Ring Color | Light Source and Voltage | Lens Color | Catalog Number | $ Price |
|---|---|---|---|---|---|
| **Steady or Flashing** | | | | | |
| 50 mm steady lens unit<br><br>(See Table 19.347 on page 19-115 and Table 19.348 on page 19-115 for LEDs and incandescent bulbs) | Black | Bulb (7 W max) not included 250 V (must order bulb separately ▲) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC33<br>XVPC34<br>XVPC35<br>XVPC36<br>XVPC37<br>XVPC38 | **43.50** |
| | Off-white | Bulb (7 W max) not included 250 V max (must order bulb separately ▲) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC33W<br>XVPC34W<br>XVPC35W<br>XVPC36W<br>XVPC37W<br>XVPC38W | |
| **Strobe** | | | | | |
| Lens unit with integral strobe | Black | Strobe 24 Vdc 0.3 Joule (separate bulb not required) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC6B3<br>XVPC6B4<br>XVPC6B5<br>XVPC6B6<br>XVPC6B7<br>XVPC6B8 | **186.00** |
| | | Strobe 120 Vac 0.6 Joule (separate bulb not required) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC6G3<br>XVPC6G4<br>XVPC6G5<br>XVPC6G6<br>XVPC6G7<br>XVPC6G8 | |
| | Off-white | Strobe 24 Vdc 0.3 Joule (separate bulb not required) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC6B3W<br>XVPC6B4W<br>XVPC6B5W<br>XVPC6B6W<br>XVPC6B7W<br>XVPC6B8W | |
| | | Strobe 120 Vac 0.6 Joule (separate bulb not required) | Green<br>Red<br>Amber<br>Blue<br>Clear<br>Yellow | XVPC6G3W<br>XVPC6G4W<br>XVPC6G5W<br>XVPC6G6W<br>XVPC6G7W<br>XVPC6G8W | |

▲For bulbs see Table 19.336 on page 19-112.

### Table 19.346: XVP Audible Sounder Units

| Description | Ring Color | Supply Voltage | Catalog Number | $ Price |
|---|---|---|---|---|
| 50 mm sounder unit (IP40 NEMA 1) | Black | 24 Vdc | XVPC09B | **156.00** |
| | | 120 Vac | XVPC09G | |
| | | 230 Vac | XVPC09M | |
| Ten tone selections, 75–85 dB at 1 m | Off-white | 24 Vdc | XVPC09BW | |
| | | 120 Vac | XVPC09GW | |
| | | 230 Vac | XVPC09MW | |





© 2012 Schneider Electric
All Rights Reserved


DL1BEJ


DL1BDB1


XVPC03T


XVPC02


XVPC12

### Table 19.347: XVP LED Bulbs

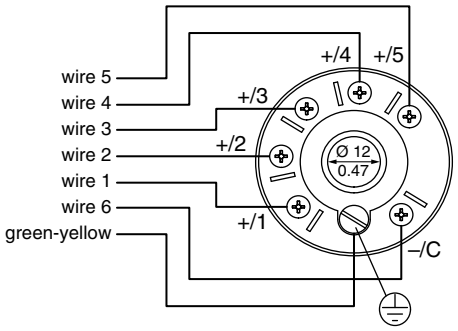
| Description | Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Steady-On LED bulb | 24 Vac/Vdc | White<br>Green<br>Red<br>Amber<br>Blue<br>Yellow | DL1BDB1<br>DL1BDB3<br>DL1BDB4<br>DL1BDB5<br>DL1BDB6<br>DL1BDB8 | **108.00** |
| | 120 Vac | White<br>Green<br>Red<br>Amber<br>Blue<br>Yellow | DL1BDG1<br>DL1BDG3<br>DL1BDG4<br>DL1BDG5<br>DL1BDG6<br>DL1BDG8 | |
| Flashing LED bulb | 24 Vac/Vdc | White<br>Green<br>Red<br>Amber<br>Blue<br>Yellow | DL1BKB1<br>DL1BKB3<br>DL1BKB4<br>DL1BKB5<br>DL1BKB6<br>DL1BKB8 | **139.50** |
| | 120 Vac | White<br>Green<br>Red<br>Amber<br>Blue<br>Yellow | DL1BKG1<br>DL1BKG3<br>DL1BKG4<br>DL1BKG5<br>DL1BKG6<br>DL1BKG8 | |
| Incandescent bulbs<br>Bayonet type BA 15d, 7 W | 12 Vac/Vdc<br>24 Vac/Vdc<br>48 Vac/Vdc<br>120 Vac/Vdc<br>230 Vac/Vdc | Clear<br>Clear<br>Clear<br>Clear<br>Clear | DL1BEJ<br>DL1BEB<br>DL1BEE<br>DL1BEG<br>DL1BEM | **8.10** |

### Table 19.348: XVP Accessories

| Description | Color | Characteristics | | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | | IN | mm | | |
| Mounting tube with bracket | Silver | 4 | 100 | XVPC02T | **32.55** |
| | | 10 | 250 | XVPC03T | **40.35** |
| | | 16 | 400 | XVPC04T | **48.00** |
| Mounting tube with tulip base | Black | 4 | 100 | XVPC02 | **32.55** |
| | | 10 | 250 | XVPC03 | **48.00** |
| | | 16 | 400 | XVPC04 | **48.00** |
| | Off-white | 4 | 100 | XVPC02W | **40.35** |
| | | 10 | 250 | XVPC03W | **40.35** |
| | | 16 | 400 | XVPC04W | **48.00** |
| Wall mounting bracket (plastic) | Black | — | | XVPC12 | **15.60** |
| | Off-white | — | | XVPC12W | |
| Bulb mounting and removal tool | — | — | | XVPCX13 | **7.80** |

## Wiring Diagram

**Cable Connections, Supply line maximum: 1.5 mm$^2$ (16 AWG)**




**XVPC21**



© 2012 Schneider Electric
All Rights Reserved



XVS14BMW

**Table 19.349: XVS Sirens and Electronic Alarms**

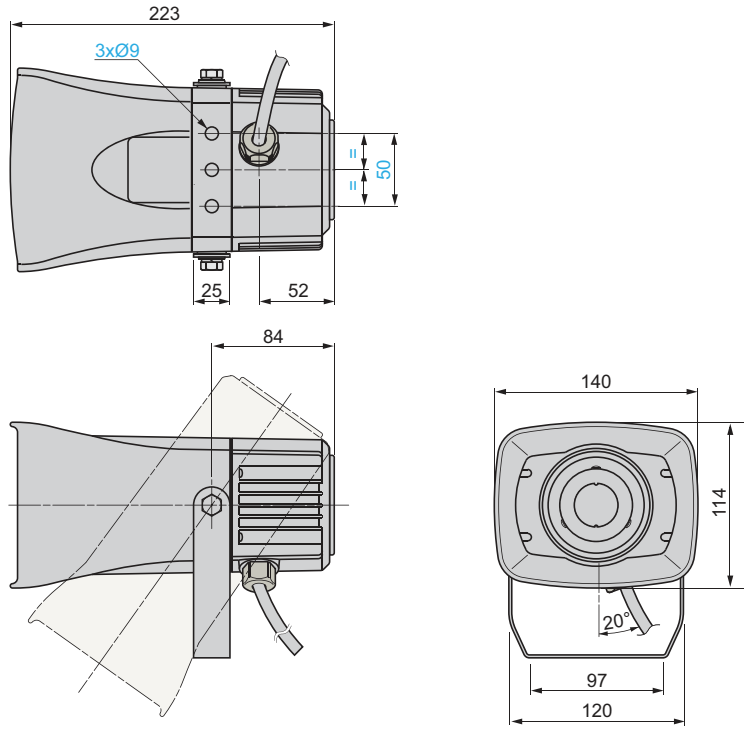
| Description | Voltage | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Multisound siren<br>105 dB, 43 tones | 12/24 Vdc | White | XVS 14BMW | **360.00** |
| Electronic alarms<br>90 dB, 16 tones<br>Panel Mount DIN72 | 12/24 Vac/Vdc | PNP, Black | XVS 72BMBP | **180.00** |
| | | PNP, White | XVS 72BMWP | |
| | | NPN, Black | XVS 72BMBN | |
| | | NPN, White | XVS 72BMWN | |



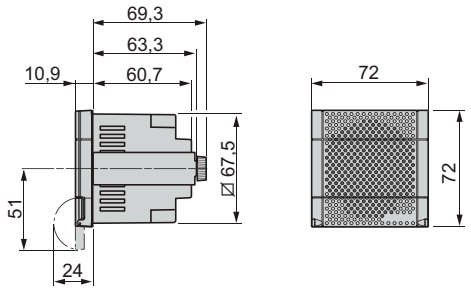
XVS72BM

**Table 19.350: Dimensions (mm)**

**XVS 14BMW**




**XVS 72BM●●**








© 2012 Schneider Electric
All Rights Reserved

This pre-assembled, two-button station now comes complete with internal and external strain relief. Oversized finger grips on the rear of the enclosure make it easy to grip and operate.

- Well suited for standard hoist applications
- Push button legend inserts
- Field-installable mushroom button
- Full cover gasket, to exclude harmful contaminants



BW90 / BW100

### Table 19.351: BW90 and BW100 Pendant Stations – with cord connector and strain relief

| Description | Legend Insert Markings | Mechanical Interlock | Enclosure Color | | | $ Price | Contact Symbol | Replacement Interior ■ | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Yellow | Black | Red | | | 9001 Type | Contact Symbol | $ Price |
| Single Speed | Up-Down | Yes | BW92Y | BW92B | BW92R | **136.00** | 146 | BOC368 | 146 | **90.00** |
| | Forward-Reverse | Yes | BW93Y | BW93B | BW93R | | 146 | BOC368 | 146 | |
| | On-Off ▲ | Yes | BW94Y | BW94B | BW94R | **180.00** | 10 | BOC358 | 147 | |
| | Start-Stop | No | BW95Y | BW95B | BW95R | **136.00** | 145 | BOC359 | 25 | |
| | Start-Stop ▲ | Yes | BW96Y | BW96B | BW96R | **180.00** | 10 | BOC358 | 147 | |
| | On-Off ▲ | No | BW97Y | BW97B | BW97R | **136.00** | 146 | BOC359 | 25 | |
| | Up-Down | Yes | BW98Y | BW98B | — | **147.00** | 100 | — | — | — |
| | without Inserts | Yes | BW90YU | BW90BU | BW90RU | **130.00** | 147 | BOC366 | 25 | **90.00** |
| | without Inserts | No | BW91YU | BW91BU | BW91RU | | 25 | BOC359 | 25 | |
| | without Inserts ▲ | Yes | BW94YU | BW94BU | BW94RU | **172.00** | 147 | BOC358 | 147 | |
| Two Speed | without Inserts | Yes | BW100YU | BW100BU | BW100RU | **195.00** | 150 | BOC367 | 150 | **158.00** |
| | Up-Down | Yes | BW102Y | BW102B | BW102R | **202.00** | 150 | BOC367 | 150 | |

▲ Maintained Contact
■ Includes gasket


Y236

### Table 19.352: Hanger Bracket

| Description | Form | $ Price |
|---|---|---|
| External Bracket (cannot be field installed) | Y236 | **10.50** |

### Table 19.353: Interchangeable Legend Inserts ♦

| Marking | Type | $ Price |
|---|---|---|
| Start | B259 | **3.60** |
| Stop | B260 | |
| Forward | B255 | |
| Reverse | B256 | |
| Open | B263 | |
| Close | B264 | |
| Raise | B261 | |
| Lower | B262 | |
| Up | B253 | |
| Down | B254 | |
| On | B257 | |
| Off | B258 | |
| Blank - black | B251 | |
| Blank - red | B252 | |

♦ Order must specify a quantity of 10 or multiples of 10.

### Table 19.354: Replacement Enclosures

| Description | Color | Type | $ Price |
|---|---|---|---|
| Box & Cover with 4 screws | Yellow | BWRY | **54.00** |
| | Red | BWRR | |
| | Black | BWRB | |


BWSR

### Table 19.355: Strain Relief Replacement

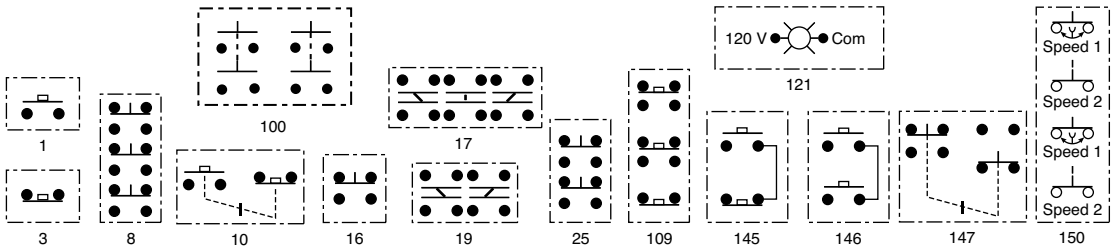
| Description | Type | $ Price |
|---|---|---|
| Strain Relief Replacement | BWSR | **10.00** |

### Table 19.356: Electrical Contact Ratings ★

| Volts | AC—NEMA B600 | | | | | | DC—NEMA P600 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Inductive 35% Power Factor | | | | | Resistive 75% Power Factor | Volts | Inductive and Resistive | |
| | Make | | Break | | Continuous Carrying Amperes | Make, Break and Continuous Carrying Amperes | | Make and Break Amperes | Continuous Carrying Amperes |
| | A | VA | A | VA | | | | | |
| 120 | 30.5 | 3600 | 3.75 | 360 | 5 | 5 | 120 | 1.1 | 5 |
| 240 | 15 | 3600 | 1.5 | 360 | 5 | 5 | 240 | 0.55 | 5 |
| 480 | 7.5 | 3600 | .75 | 360 | 5 | 5 | 600 | 0.2 | 5 |
| 600 | 6 | 3600 | .6 | 360 | 5 | 5 | | | |

★ OSHA Regulation, Section 1910.70, Overhead and Gantry Cranes, limits the voltage of pendant push buttons to 150 Vac or 300 Vdc.

## Contact Symbols




***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*



© 2012 Schneider Electric
All Rights Reserved

# XAC Standard Duty Pistol Grips, Enclosures, Contact Blocks

Refer to Catalog **9001CT1001**



XAC pendant stations are designed for standard- or medium-duty control circuit applications.

- Single- or two-speed versions
- Double insulated
- Shock and corrosion resistant
- 2, 4, 6, 8, 12 element versions
- Ease of operation



XACA201



XACA06



XACA03 with operators

## Table 19.357: Pistol Grip Stations

| Description | Speeds | Function 1 speed/2 speed | Catalog Number | $ Price |
|---|---|---|---|---|
| 1 N.O. contact per operator<br>2 Mechanically interlocked operators | 1 | | XACA201▲ | **150.00** |
| 2 N.O. (staggered) contacts per operator<br>2 Mechanically interlocked operators | 2 | | XACA207▲ | **222.00** |
| 1 N.O. + 1 N.C.<br>2 Mechanically interlocked operators | 1 | | XACA205▲ | **187.00** |
| 1 N.O. contact per direction<br>1 Mechanically interlocked 2 way toggle | 1 | | XACD21A0101■ | **167.00** |
| 1 N.O. + 1 N.O. staggered<br>1 Mechanically interlocked 2 way toggle | 2 | | XACD21A1231■ | **451.00** |
| 1 N.O. & 1 N.C. contact per direction<br>1 Mechanically interlocked 2 way toggle | 1 | | XACD21A0105■ | **202.00** |
| 1 N.C. + 1 N.O. + 1 N.O. staggered<br>1 Mechanically interlocked 2 way toggle | 2 | | XACD21A1241■ | **480.00** |

▲ These units are available with factory installed E-stops. Add a "3" to the end of the catalog number for standard E-stop or add a "4" for a trigger action E-stop.

■ These units are available with a factory installed E-stop. Use XACD22••• for a standard E-stop or XACD24••• for a trigger action E-stop.

Note: Legends are required to achieve NEMA4 rating.

## Table 19.358: General Purpose Pendants♦★

| Enclosures | Catalog Number | $ Price |
|---|---|---|
| 2 hole enclosure | XACA02H7 | **192.00** |
| 3 hole enclosure | XACA03H7 | **220.00** |
| 4 hole enclosure | XACA04H7 | **250.00** |
| 6 hole enclosure | XACA06H7 | **306.00** |
| 8 hole enclosure | XACA08H7 | **382.00** |
| 12 hole enclosure | XACA12H7 | **478.00** |

♦ Standard enclosures include internal mounting plate, cable sleeve for 8 to 26 mm, internal cable clamp, suspension ring and cable tie.

★ For ordering information on custom built XACA pendants, visit our website at www.Schneider-Electric.us.

**To place a custom pendant order, use the worksheet on page 19-121 as a guide. Orders must be placed through the Product Selector in Quote to Cash. There is a 10% charge for assembly.**





© 2012 Schneider Electric
All Rights Reserved


ZB2BE10


XENG37

### Table 19.359: Contact Blocks for Operators in Cover

| Description | Wiring Diagram | Catalog Number | $ Price |
|---|---|---|---|
| 1 N.O./spring return/1 speed | — | ZB2BE101 | 16.40 |
| 1 N.C./spring return/1 speed | — | ZB2BE102 | |
| 1 N.O. early close & 1 N.C. & 1 N.O./spring return/2 speed | Figure 1 | XENG1191 | 49.00 |
| 1 N.C. & 2 N.O./spring return/1 speed | Figure 2 | XENG1491 | |
| 1 N.O. & 1 N.O. latching/1 speed/interlocked | Figure 3 | XENG3781 | |
| 1 N.O. & 1 N.C. latching/1 speed/interlocked | Figure 4 | XENG3791 | |
| 3 N.C.—all ⊖ direct acting | Figure 5 | XENT1192 | |


XENG1191


XACS10

### Table 19.360: Contact Blocks for Operators in Base of Enclosure ▲

| | | |
|---|---|---|
| 1 N.O./1 speed | XACS101 | 28.60 |
| 1 N.C./1 speed | XACS102 | |
| 2 N.O./1 speed | XACS103 | 38.20 |
| 2 N.C./1 speed | XACS104 | |
| 1 N.O. & 1 N.C./1 speed | XACS105 | |

▲ Cannot be used with **XACA03** pendant.

## Wiring Diagrams

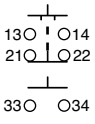


Figure 1

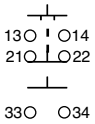


Figure 2

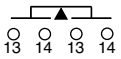


Figure 3

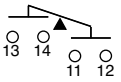


Figure 4

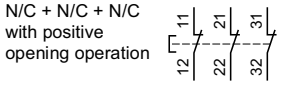


Figure 5

### Table 19.361: Operators ■

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Booted push button | White | XACA9411 | 8.20 |
| | Black | XACA9412 | |
| | Green | XACA9413 | |
| | Red | XACA9414 | |
| | Yellow | XACA9415 | |
| | Blue | XACA9416 | |
| | Brown | XACA9419 | |


Booted Push Button

### Table 19.362: Mushroom Operators

| Description | Mushroom Size | Color | Catalog Number | $ Price |
|---|---|---|---|---|
| Mushroom head, momentary | 30 mm | Red | ZA2BC44 | 36.80 |
| Mushroom head, push to maintain/turn-to-release | 30 mm | Red | ZA2BS44 | 79.00 |
| | 40 mm | Red | ZA2BS54 | |
| Mushroom head, push to maintain/turn-to-release (trigger action)♦ | 30 mm | Red | ZA2BS834 | 112.00 |
| | 40 mm | Red | ZA2BS844 | |
| Mushroom head, push to maintain/key turn-to-release | 30 mm | Red | ZA2BS74 | |
| | 40 mm | Red | ZA2BS14 | |
| Mushroom head, push to maintain/key turn-to-release (trigger action)♦ | 40 mm | Red | ZA2BS944 | |


Mushroom Head

### Table 19.363: Selector Switches and Wobble Stick

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Selector switch/2 position—maintained★ | Black | ZA2BD2 | 30.00 |
| Selector switch/3 position—maintained★ | Black | ZA2BD3 | |
| Selector switch/2 position—maintained key operated—key removal from LT or RT position★ | NA | ZA2BG4 | 112.00 |
| Selector switch/3 position—maintained key operated—key removal from LT or RT position★ | NA | ZA2BG5 | |
| Wobble stick (bottom mounting recommended) | Black | ZA2BB2 | 102.00 |
| | Red | ZA2BB4 | |


Selector Switch

### Table 19.364: Pilot Light Components

| Description | Color | Catalog Number | $ Price |
|---|---|---|---|
| Direct supply base/without lamp (for 6 to 120 V applications) (AC/DC) ▼ | — | ZB2BV006 | 24.60 |

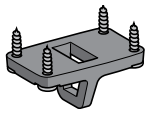

Selector Switch
(key operated)

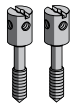
■ Booted push buttons are for cover mounting only. All other operators can be mounted on cover or bottom.
♦ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator.
★ Not for use with XEN G contact blocks.
▼ For lamps, see page 19-120.

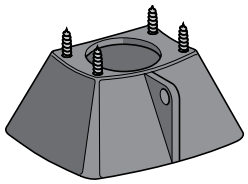

Wobble Stick

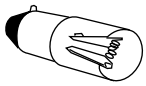


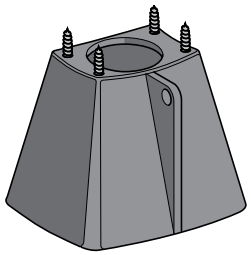
© 2012 Schneider Electric
All Rights Reserved

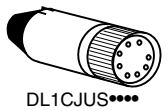

XACA971


XACB961


XACA982


DL1CE0••
(Incandescent)


XACA983


DL1CJUS••••
(LED)

### Table 19.365: Enclosure Accessories

| Description | Catalog Number | $ Price |
|---|---|---|
| Blank hole plug | ZB2SZ3 | **13.60** |
| Mechanical interlock (momentary). For use with XAC booted operators only | XACA009 | **8.20** |
| Screw adapter for self-supporting cable | XACB961 | **6.80** |
| Low suspension ring for single row station | XACA971 | **19.20** |
| Protective guard for bottom mounted mushroom head | XACA982 | |
| Protective guard for bottom mounted selector switch or key switch | XACA983 | **27.40** |

### Table 19.366: Lamps

| Type | Voltage | Watts | Catalog Number | $ Price |
|---|---|---|---|---|
| Replacement bulbs (Type BA9s) Incandescent | 6 Vac/Vdc | 1.2 | DL1CB006 | **11.00** |
| | 12 Vac/Vdc | 2.0 | DL1CE012 | |
| | 24 Vac/Vdc | 2.0 | DL1CE024 | |
| | 48 Vac/Vdc | 2.4 | DL1CE048 | |
| | 130 Vac/Vdc | 2.6 | DL1CE130 | |

### Table 19.367: LED, BA9s Base

| Type | Color | Voltage | Catalog Number | $ Price |
|---|---|---|---|---|
| LED, BA9s base for Direct Supply blocks | Green | 6 Vac/Vdc | DL1CJUS0063 | **25.00** |
| | Red | 6 Vac/Vdc | DL1CJUS0064 | |
| | Amber | 6 Vac/Vdc | DL1CJUS0065 | |
| | Green | 24 Vac/Vdc | DL1CJUS0243 | |
| | Red | 24 Vac/Vdc | DL1CJUS0244 | |
| | Amber | 24 Vac/Vdc | DL1CJUS0245 | |
| | White | 24 Vac/Vdc | DL1CJ0241 | |
| | Blue | 24 Vac/Vdc | DL1CJ0246 | |
| | Green | 120 Vac/Vdc | DL1CJUS1203 | |
| | Red | 120 Vac/Vdc | DL1CJUS1204 | |
| | Amber | 120 Vac/Vdc | DL1CJUS1205 | |

### Table 19.368: PVC Standard Legend Plates 30 x 40 mm

| Text▲ | Catalog Number | $ Price | Text▲ | Catalog Number | $ Price | Text▲ | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|
| Bridge Forward | ZB2BY2343 | | Left | ZB2BY2310 | | Stop | ZB2BY2304 | |
| Bridge Reverse | ZB2BY2344 | | Low | ZB2BY2336 | | Stop Start | ZB2BY2366 | |
| Close | ZB2BY2314 | | Lower | ZB2BY2337 | | Trolley Right | ZB2BY2345 | |
| Down | ZB2BY2308 | | Man Auto | ZB2BY2372 | | Trolley Left | ZB2BY2346 | |
| Emergency Stop | ZB2BY2330 | | Off | ZB2BY2312 | | Up | ZB2BY2307 | |
| Fast | ZB2BY2328 | | On | ZB2BY2311 | | Up Down | ZB2BY2370 | |
| Forward | ZB2BY2305 | | Off On | ZB2BY2367 | | Up-O-Down | ZB2BY2389 | |
| For Rev | ZB2BY2371 | | Open | ZB2BY2313 | | North | 6516002379 | |
| For-O-Rev | ZB2BY2384 | | Open Close | ZB2BY2376 | | South | 6516002380 | |
| Hand Off Auto | ZB2BY2387 | **4.20** | Open-O-Close | ZB2BY2388 | **4.20** | East | 6516002381 | **4.20** |
| High | ZB2BY2338 | | Out | ZB2BY2339 | | West | 6516002382 | |
| High Low | ZB2BY2369 | | Power On | ZB2BY2326 | | | | |
| Hoist Down | ZB2BY2342 | | Raise | ZB2BY2335 | | | | |
| Hoist Up | ZB2BY2341 | | Reset▲ | ZB2BY2323 | | | | |
| In | ZB2BY2503 | | Reverse | ZB2BY2306 | | | | |
| Inch | ZB2BY2321 | | Right | ZB2BY2309 | | | | |
| Jog For | ZB2BY2381 | | Run | ZB2BY2334 | | | | |
| Jog Rev | ZB2BY2380 | | Slow | ZB2BY2327 | | | | |
| Jog Run | ZB2BY2365 | | Start | ZB2BY2303 | | | | |

▲ All nameplates are black with white lettering except “Stop”, “Emergency Stop” and “Reset” which are red with white lettering. For black “Reset” change final digit of catalog number to 2.

| Type | Description | | Catalog Number | $ Price |
|---|---|---|---|---|
| **PVC blank legend** | Blank | Black or red background—30 mm x 40 mm | ZB2BY2101 | **4.20** |
| | Blank | Yellow or white background—30 mm x 40 mm | ZB2BY4101 | |
| **PVC custom engraved** | Special engraving■ | Black background, white letters—30 mm x 40 mm | ZB2BY2002 | **17.80** |
| | Special engraving■ | White background, black letters—30 mm x 40 mm | ZB2BY4001 | |

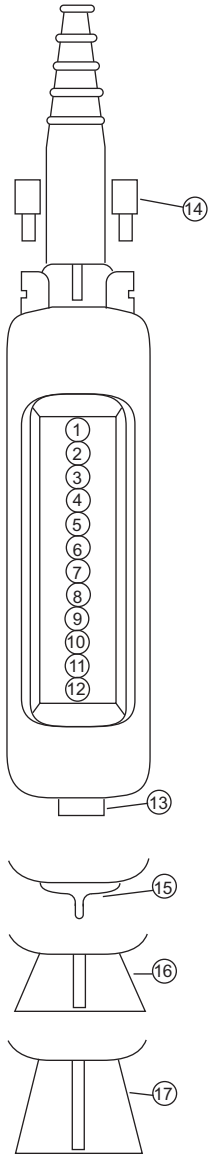
■ Please specify lettering when ordering. Two lines with 11 characters (including spaces) maximum on each plate.





© 2012 Schneider Electric
All Rights Reserved

# Type XACA Worksheet




Use this worksheet to assist in component selection. Custom orders for XACA pendant stations must be placed through the Product Selector in Quote to Cash. There is a 10% charge for assembly.

## XACA Order Guide Instructions

Custom built pendant stations

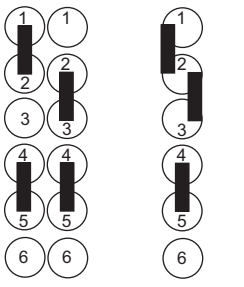
1. Determine the number of operators needed, then choose an enclosure with a corresponding number of holes.
2. Select the type of operator, contact block, and appropriate nameplate for each function required.
3. Check for special functions that may be required. These items could include mechanical interlocks, adapters for self-supporting cable, lower support rings, protective guards, etc.

**Catalog number of enclosure** **XACA** ☐ ☐ ☐ ☐

| Functions (optional) | Mechanical interlock (draw a vertical line between the 2 units to be interlocked ▲) | Legends | Contact blocks and pilot light bodies | Push button Pilot light or Blanking plug |
|---|---|---|---|---|
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 5 | | | |
| | 6 | | | |
| | 7 | | | |
| | 8 | | | |
| | 9 | | | |
| | 10 | | | |
| | 11 | | | |
| | 12 | | | |

▲ Mechanical interlock XACA009 — Number of XACA009 required

**Mechanical Interlock (XACA009)**




**Unit mounted in base of station** (facing downwards)

| | | | | |
|---|---|---|---|---|
| | 13 | | | |

### Attachments

| Position | Type | Catalog No. |
|---|---|---|
| 14 | Adapters for self-supporting cable type BBAP (available only with cable sleeve Ø8–26 mm) | **XACB961** |
| 15 | Lower support ring | **XACA971** |
| 16 | Protective guard for base mounted selector switch or 40 mm emergency-stop push button | **XACA982** |
| 17 | Protective guard for key switch | **XACA983** |



© 2012 Schneider Electric
All Rights Reserved

This line of pendant stations consists of polymeric enclosures (2 through 10 units), push button units (1 through 5 speed) and laminated legend plates. All enclosures have an extra single unit space near the top which permits the installation of a toggle switch, a Type SK operator or pilot light, or a warning label. All enclosures come with a stainless steel hanger bracket and internal strain relief post. Enclosures are yellow and have a threaded opening in the top.

***NOTE:*** *When ordering, add prefix 9001 to the catalog number.*

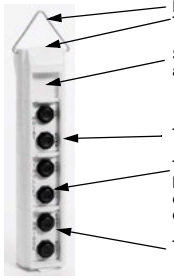
### Table 19.369: Enclosure Catalog Numbers

| Number of Buttons | Conduit Entrance Size | Enclosure Only▲ Cat. No. | $ Price | Enclosure For Assembled Station■ Cat. No. | $ Price |
|---|---|---|---|---|---|
| 2 | 3/4"-14 NPT | SKYP2 | **189.00** | SKYP20 | ♦ |
| 4 | 3/4"-14 NPT | SKYP4 | **239.00** | SKYP40 | |
| 6 | 1"-11 1/2 NPT | SKYP6 | **287.00** | SKYP60 | |
| 8 | 1 1/4"-11 1/2 NPT | SKYP8 | **356.00** | SKYP80 | |
| 10 | 1 1/4"-11 1/2 NPT | SKYP10 | **428.00** | SKYP100 | |

▲ Class 9001 SK push-to-test pilot lights and remote test pilot lights will not fit in these enclosures.

■ Assembled pendant stations consist of an enclosure, operators and legend plates. All custom orders must include the pendant key sheet available as shown on page 19-123.

♦ The price of an assembled pendant SKYP station includes the enclosure and components plus a 10% assembly charge. (Example: 9001 SKYP2 ($189), + SKRU1 ($129), + SKN201 ($8.60) = $326.60 + 10% = $360.



Hanger bracket (Part no. 65091-061-01)
Threaded conduit hole
Space for toggle switch, a type SK operator or pilot light. Use appropriate legend plates.
Type SKYP enclosure
Type SKRU1 through SKRU11 operators. Any Type SK pilot light▲ or operator can be mounted in this enclosure. The enclosure depth will accommodate 1 Type KA1 thru KA6 (total of 2) contact blocks.
Type SKN2 legend plate

### Table 19.370: Push Button Units

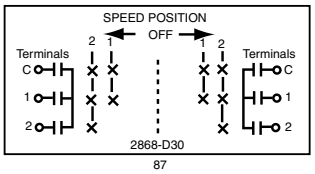
| | Number of Buttons per Unit | Description | Contact Symbol – See Below | Cat. No.★ | $ Price |
|---|---|---|---|---|---|
|  | 2 | Single Speed – Momentary Interlocked | 7 | SKRU1 | **129.00**▼ |
| | 2 | Single Speed – Momentary Non-Interlocked | 5 | SKRU10 | **107.00**▼ |
| | 2 | Single Speed – Maintained Interlock | 10 | SKRU11 | **149.00**▼ |
|  | 2 | Two Speed – Momentary Interlocked | 87 | SKRU2 | **270.00**△ |
| | 2 | Three Speed – Momentary Interlocked | 88 | SKRU3 | **320.00**△ |
| | 2 | Four Speed – Momentary Interlocked | 89 | SKRU4 | **341.00**△ |
| | 2 | Five Speed – Momentary Interlocked | 90 | SKRU5 | **356.00**△ |

★ Types SKRU 1, 10 and 11 use Type KA contact blocks. Types SKRU 2 thru 5 are factory enclosed contact blocks.

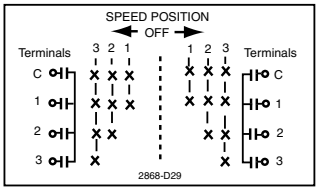
▼ Boot part number is 9001KU1.

△ Boot part number is 9001KU37.

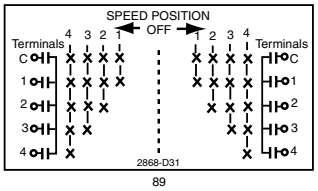
### Figure 19.3: Multispeed Contact Symbols (X = Contact Closed)



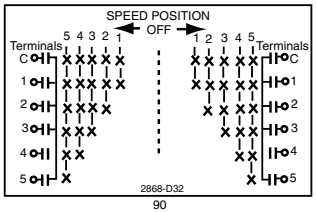

87



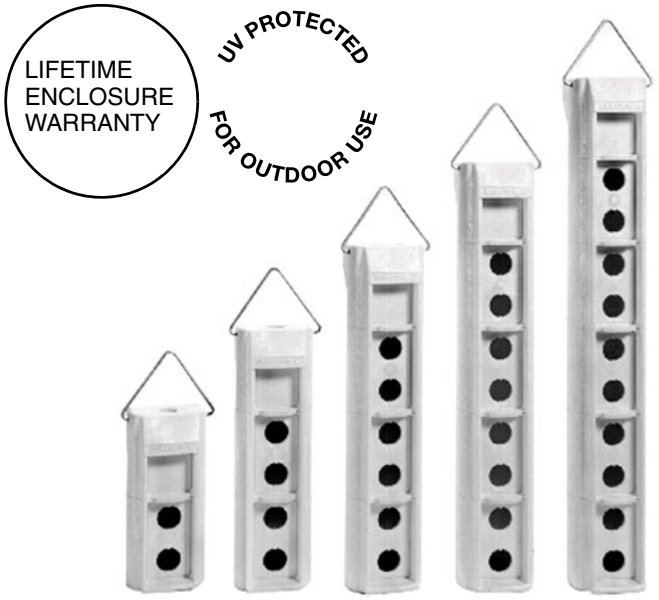

88




89




90




### Table 19.371: Legend Plate Catalog Numbers

| | Where Used | Marking | Cat. No. | $ Price |
|---|---|---|---|---|
|  | For SKRU1 through SKRU11 | Blank-Blank<br>Hoist: Up-Down<br>Trolley: East-West<br>Trolley: Fwd.-Rev.<br>Trolley: North-South<br>Bridge: Fwd.-Rev.<br>Bridge: East-West<br>Bridge: North-South<br>Start-Stop<br>Reset-Stop<br>Aux Hoist: Up-Down<br>Power: On-Off | SKN200◒<br>SKN201<br>SKN202<br>SKN203<br>SKN204<br>SKN205<br>SKN206<br>SKN207<br>SKN208<br>SKN209<br>SKN210<br>SKN211 | **8.60** |
| | | Specify Marking | SKN299◒ | **37.20** |
|  | With toggle switch□ in top space of enclosure | Blank<br>Off-On<br>On-Off | SKN500☆<br>SKN544☆<br>SKN545☆ | **12.90** |
| | | Specify Marking | SKN599☆ | **27.00** |
|  | With 9001SK◊ operator or pilot light in top space of enclosure | Blank<br>On<br>Off<br>Emerg. Stop<br>Run<br>Power On<br>Off-On | SKN100▽<br>SKN103<br>SKN104<br>SKN105<br>SKN124<br>SKN138<br>SKN144 | **4.40** |
| | | Specify Marking | SKN199▽ | **18.50** |

□ Can be supplied by Square D as Class 9001 Type SKSTS1- includes boot for NEMA Type 4X.

◊ See 9001SK on pages 19-77 thru 19-84.

☆ Includes legend plate, gasket and ground plate to be used with toggle switch.

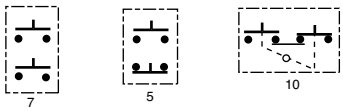
▽ Tri-laminated legend plate having a yellow or red background on a black core.

◒ 19 characters each side max.

### Table 19.372: Closing Plate Catalog Number

| | Cat. No. | $ Price |
|---|---|---|
|  | SK52 | **14.30** |

### Figure 19.4: Single Speed Contact Symbols



7 5 10

Worksheet for Custom Assembled Pendant . . . . . Page 19-123





© 2012 Schneider Electric
All Rights Reserved

# Type SKYP Worksheet

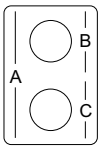
**Control Products**

Use this worksheet to assist in component selection. SKYP Custom Pendant orders must be placed through the Product Selector in Quote to Cash. There is a 10% charge for assembly.

Class **9001** Type **SKYP -_____**

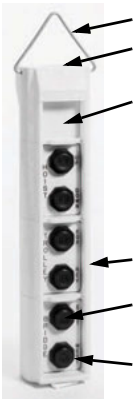
1. Operator or Closing Plate. Example - SKRU1
2. Legend Plate Type Number Example - SKN201
3. Legend Plate Marking ▲ – Used Only if Special Marking is Required Example:
   Line 2 - SKN299
   Line 3 - A.) Hoist
   B.) FWD
   C.) REV

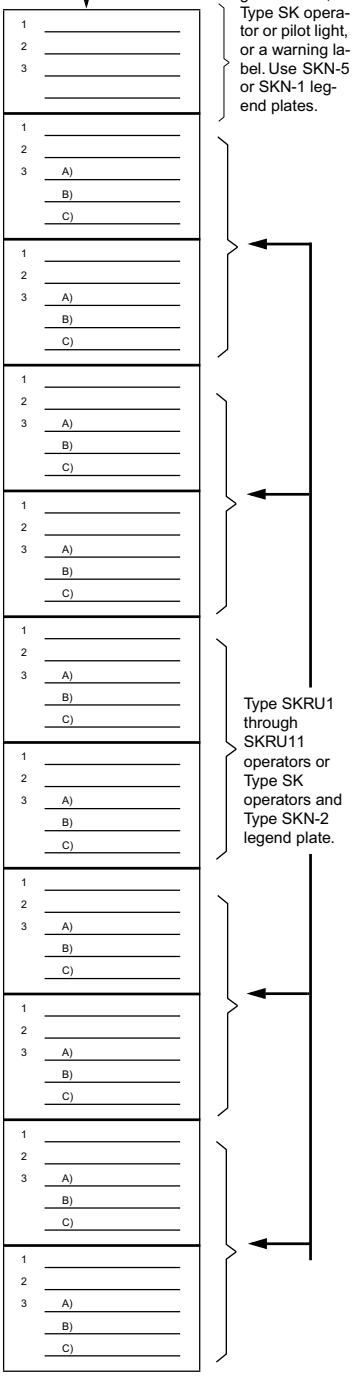
When operator and legend plate use 2 adjacent holes - specify same in both locations. Example:




| | |
|---|---|
| 1 | SKRU1 |
| 2 | SKN201 |
| 3 | |
| 1 | SKRU1 |
| 2 | SKN201 |
| 3 | |

TYPE NUMBER KEY




## ENCLOSURES – NEMA 4X, 13

| Size | Conduit Entrance Size | Enclosure for Assembled Station ▲ Type |
|---|---|---|
| 2 Button | $^{3}/_{4}$" -14 NPT | SKYP20 |
| 4 Button | $^{3}/_{4}$" -14 NPT | SKYP40 |
| 6 Button | 1" -14 NPT | SKYP60 |
| 8 Button | $1^{1}/_{4}$" -11 $^{1}/_{2}$ | SKYP80 |
| 10 Button | $1^{1}/_{4}$" -11 $^{1}/_{2}$ | SKYP100 |

▲ Assembled pendant stations consist of an enclosure, operators, and legend plates.

## PUSH BUTTON UNITS – NEMA / UL 4X, 13

| Number of Buttons per Unit | Description | Contact Symbol | Type |
|---|---|---|---|
| 2 | Single Speed - Momentary Interlocked | 7 | SKRU1 |
| 2 | Single Speed - Momentary Non-Interlocked | 5 | SKRU10 |
| 2 | Single Speed - Maintained Interlocked | 10 | SKRU11 |
| 2 | Two Speed - Momentary Interlocked | 87 | SKRU2 |
| 2 | Three Speed - Momentary Interlocked | 88 | SKRU3 |
| 2 | Four Speed - Momentary Interlocked | 89 | SKRU4 |
| 2 | Five Speed - Momentary Interlocked | 90 | SKRU5 |

## LEGEND PLATES – NEMA / UL 4X, 13

| Where Used | Marking | Type |
|---|---|---|
| For SKRU1 through SKRU11 | Blank-Blank<br>Hoist: Up-Down<br>Trolley: East-West<br>Trolley: Fwd.-Rev.<br>Trolley: North-South<br>Bridge: Fwd.-Rev.<br>Bridge: East-West<br>Bridge: North-South<br>Start-Stop<br>Reset-Stop<br>Specify Marking | SKN200④<br>SKN201<br>SKN202<br>SKN203<br>SKN204<br>SKN205<br>SKN206<br>SKN207<br>SKN208<br>SKN209<br>SKN299④ |
| With Toggle Switch ① in Top Space of Enclosure | Blank<br>Off-On<br>On-Off<br>Specify Marking | SKN500 ②<br>SKN544 ②<br>SKN545 ②<br>SKN599 ② |
| With Type SK Operator ▲ or Pilot Light in Top Space of Enclosure | Blank<br>On<br>Off<br>Emerg. Stop<br>Run<br>Power On<br>Off-On<br>Specify Marking<br>Specify Marking (Red Background) | SKN100 ③<br>SKN103<br>SKN104<br>SKN105<br>SKN124<br>SKN138<br>SKN144<br>SKN199 ③<br>SKN199R ③ |

① Available as 9001SKSTS1
② Includes legend plate, gasket and ground plate to be used with toggle switch.
③ Tri-laminated legend plate having a yellow or red background on a black core.
④ 19 characters each side.
▲ Class 9001 Type SK Push-To-Test Pilot lights and Remote Test Pilot lights will not fit in these enclosures.

## CLOSING PLATE

| Type |
|---|
| SK52 |

The price of the total station consists of the price of each individual component plus a 10% charge for assembly.



© 2012 Schneider Electric
All Rights Reserved

## Heavy Duty Industrial Foot Switches—Oiltight, Watertight, Dusttight and Driptight Enclosure, NEMA 2, 4 and 13

**⚠ DANGER**

**HAZARDOUS APPLICATIONS**

Do not use foot switches on machines without point-of-operation protection.

**Failure to follow these instructions will result in death, serious injury, or equipment damage.**



AW2
Type AW Foot Switch with Top Pedal Shield and Side Shields

### Foot Switch Selection

Foot switches are used to control many industrial processes, while leaving the operator's hands free to perform other functions. The type or model of foot switch suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications more than one foot switch may be required, as when two or more persons are operating a machine. In these cases, safe practice and regulations require that the foot switches be wired in series making it necessary that each operator's foot switch be actuated before the machine will cycle.

Only the user can be aware of all the conditions and factors present during setup, operation and maintenance of the machine; therefore, only the user can determine which foot switch(es) can be properly used. When selecting a foot switch for a particular application, the user should refer to the applicable ANSI standards and OSHA regulations. The National Safety Council's Accident Prevention Manual also provides much useful information.



AW132
Type AW with Oversized Pedal Shield and Side Shields

In some applications, such as power presses, additional operator protection such as point-of-operation guarding must be provided when a foot switch is used as an actuator. This is necessary since the operator's hands and other parts of the body are free to enter the pinch point area and serious injury can occur. The shielding provided on foot switches cannot protect an operator from injury. For this reason the foot switch cannot be substituted for or take the place of point-of-operation protection.

A Trilingual Danger Sign regarding the need for point-of-operation protection is supplied with each foot switch. The sign incorporates three languages: English, Spanish and French. Additional copies of the sign are available by contacting your Square D sales office.



AW124

**Type AW Fully Shielded Foot Switch with Oversized Pedal Shield, Side Shields and Safety Door.** The Safety Door is interlocked with the pedal to prevent operation due to shock or vibration. It prevents accidental pedal operation by requiring a simple but intentional motion to lift the door before inserting the foot.



AW117
Type AW with Oversized Pedal Shield, Side Shields and Safety Door

**Operating Temperature**: –30 to +60 °C (–22 to +140 °F)

***NOTE:*** *When ordering, add prefix "9002" to the catalog number.*

**Table 19.373: Foot Switch Catalog Numbers**

| Description | Features | Fully Shielded with Oversized Pedal Shield, Side Shields and Safety Door | | With Oversized Pedal Shield and Side Shields | | With Pedal Shield and Side Shields | | UNSHIELDED (See Warning note★) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price | Cat. No. | $ Price |
| Single Pole■ Double Throw | Spring Return<br>With Mechanical Latch | AW117<br>— | **750.00**<br>— | AW132<br>— | **750.00**<br>— | AW2<br>AW7 | **363.00**<br>**527.00** | AW1<br>— | **396.00**<br>— |
| Two Pole ■ Double Throw | Spring Return<br>With Mechanical Latch | AW124▲<br>— | **903.00**<br>— | AW133<br>— | **903.00**<br>— | AW14<br>AW15 | **527.00**<br>**692.00** | AW13<br>— | **575.00**<br>— |
| Two Stage ■ (One Pole Each Stage) Table 1 | Spring Return<br>With Mechanical Latch in 1st Stage<br>With Mechanical Latch in 2nd Stage | AW119<br>—<br>— | **930.00**<br>—<br>— | AW134<br>—<br>— | **930.00**<br>—<br>— | AW6<br>AW9<br>AW10 | **543.00**<br>**705.00**<br>**705.00** | AW5<br>—<br>— | **590.00**<br>—<br>— |
| Four Stage ■ (One Pole Each Stage) Table 2 | Spring Return | AW123 | **1295.00** | — | — | AW22 | **912.00** | AW21 | **995.00** |
| Single Pole Single Throw | Maintained Contact—Push On/Push Off | — | — | — | — | AW12 | **527.00** | AW11 | **575.00** |
| Replacement Cover Assembly | — | AC5 | **363.00** | AC7 | **363.00** | AC8♦ | **140.00** | AC1 | **153.00** |

▲ 2 N.O. and 2 N.C. isolated, direct acting contacts.

■ A single pole snap switch that contains two double break contact elements (1 N.O. and 1 N.C.) must be used on circuits of same polarity. A double pole snap switch contains two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set that contains two double break contact elements (1 N.O. and 1 N.C.) must be used on circuits of same polarity.

♦ For replacement cover drilled to accept latch. For Series C foot switches order AC9. Price is **$182.00** No replacement cover available for Series A or B devices drilled to accept latch. AC8 is spring return only.

★ WARNING: These foot switches must not be used to operate machines or equipment where the possibility of operator injury exists. Typical uses include Emergency Stop functions, "Dead Man" controls, signal functions (lights, bells, etc.).



AW1
Type AW Foot Switch without Pedal Shield

File CCN E42259 NKCR

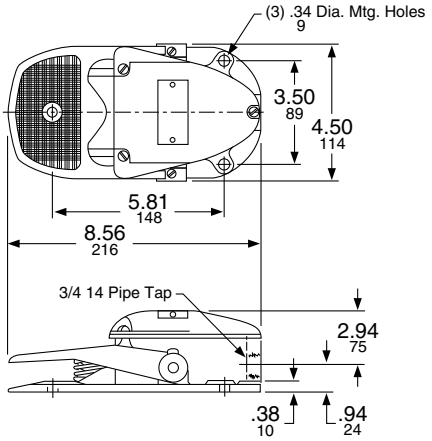
File Class LR25490 184 N 13.1U

For **replacement parts** for Class 9002 Type AW: See instruction bulletin 65013-010-31.
For **contact symbol tables**, see page 19-125

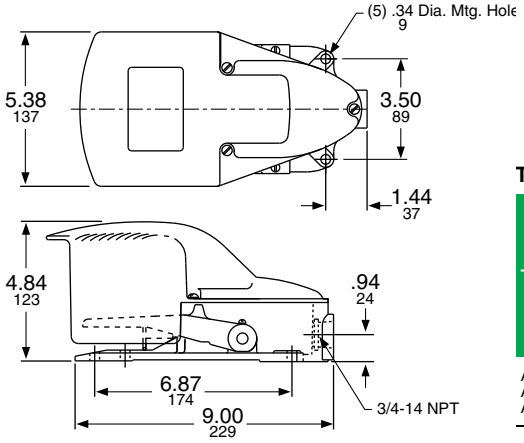




© 2012 Schneider Electric
All Rights Reserved



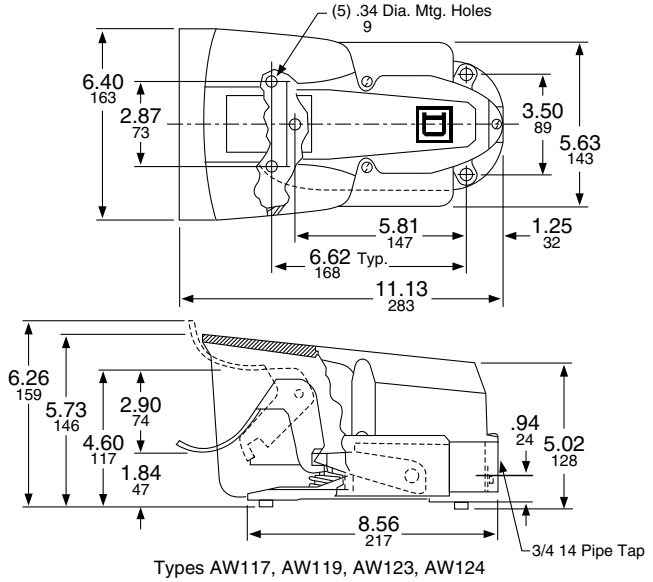

Types AW1, AW5, AW11, AW13 and AW21




Types AW2, AW6, AW12, AW14 and AW22

Dual Dimensions: **INCHES** Millimeters

## Approximate Dimensions




Types AW117, AW119, AW123, AW124
Types AW132, AW133 and AW134 (without safety door)

### Table 19.374: Maximum Current Ratings For Control Circuit Contacts

| Type | Volts | AC Amperes | | | Volts | DC Amperes | | |
|---|---|---|---|---|---|---|---|---|
| | | Inductive 35% Power Factor | | Resistive 75% Power Factor | | Inductive and Resistive | | |
| | | | | | | Make and Break | | |
| | | Make | Break | Make, Break and Continuous | | Single Throw | Double Throw | Continuous |
| AW1 through AW10, AW117, AW119, AW132 | 120<br>240<br>480<br>600 | 40<br>20<br>10<br>8 | 15<br>10<br>6<br>5 | 15<br>10<br>6<br>5 | 125<br>250<br>600 | 2.0<br>0.5<br>0.1 | 0.5<br>0.2<br>0.02 | 15<br>15<br>15 |
| AW13, AW14, AW15, AW133 | 120<br>240<br>480<br>600 | 30<br>15<br>7.5<br>6 | 3<br>1.5<br>0.75<br>0.6 | 3<br>1.5<br>0.75<br>0.6 | 125<br>250<br>600<br>— | 1.0<br>0.3<br>0.1<br>— | 0.2<br>0.1<br>—<br>— | 10<br>10<br>10<br>— |
| AW11, AW12 | 115<br>230 | 36<br>18 | 6<br>3 | —<br>— | 125<br>250 | 2.2<br>1.1 | —<br>— | —<br>— |
| AW21, AW22, AW123 | 120<br>240<br>480<br>600 | 15.0<br>7.5<br>3.75<br>3.0 | 1.5<br>0.75<br>0.375<br>0.3 | 10<br>10<br>10<br>10 | —<br>—<br>—<br>— | —<br>—<br>—<br>— | —<br>—<br>—<br>— | —<br>—<br>—<br>— |
| AW124 | 120<br>240<br>480<br>600 | 60<br>30<br>15<br>12 | 6<br>3<br>1.5<br>1.2 | 10<br>10<br>10<br>10 | 120<br>240<br>600 | 1.1<br>0.55<br>0.2 | —<br>—<br>— | 10<br>10<br>10 |

Note: Double throw switches are rated 250 Vdc maximum.

### Table 19.375: Contact Symbol—Two Stage

| Snap Switch | | Pedal | | |
|---|---|---|---|---|
| Unit | Circuit | Up | Half Down | Full Down |
| 1 | A1<br>B1 | 0<br>1 | 1<br>0 | 1<br>0 |
| 2 | A2<br>B2 | 1<br>0 | 1<br>0 | 0<br>1 |

Note: 0 = Open 1 = Closed

### Table 19.376: Contact Symbol—Four Stage

| Snap Switch | | Pedal Position | | | | |
|---|---|---|---|---|---|---|
| Unit | Circuit | Up → Down | | | | |
| 1 | 1A1 | 0 | 0 | 1 | 1 | 1 |
| | 1B1 | 1 | 1 | 0 | 0 | 0 |
| | 2A1 | 0 | 1 | 1 | 1 | 1 |
| | 2B1 | 1 | 0 | 0 | 0 | 0 |
| 2 | 1A2 | 1 | 1 | 1 | 0 | 0 |
| | 1B2 | 0 | 0 | 0 | 1 | 1 |
| | 2A2 | 1 | 1 | 1 | 1 | 0 |
| | 2B2 | 0 | 0 | 0 | 0 | 1 |



© 2012 Schneider Electric
All Rights Reserved

## Table 19.377: Rotary Cam Switches

| Applications | | Used in building control panels and consoles, Type K cam switches allow control of processes and utilities in industry and buildings, and direct control for simple machines. | | | | | |
|---|---|---|---|---|---|---|---|
| | |  |  | | | | |
| **Functions** | Off-On/On-Off switches | 1 to 6-pole | 1 to 6-pole | | | | |
| | Stepping switches | 2 to 12-position, 1 to 4-pole | – | | | | |
| | Changeover switches | 1 to 5-pole | 1 to 4-pole | | | | |
| | Measurement switches | Voltmeter and ammeter | – | | | | |
| | Reversing switches | 2 and 3-pole | 2 and 3-pole | | | | |
| | Reversing star-delta switches | Star-delta | Star-delta | | | | |
| | Pole change switches | 2 and 3-speed | 2-speed | | | | |
| **Conventional rated thermal current (Ith)** | | 20 A | 32 A | 50 A | 63 A | 115 A | 150 A |
| **Rated insulation voltage (Ui)** | | 690 V | 690 V | 690 V | 690 V | 690 V | 690 V |
| **Electrical operating characteristics** | | AC-3 - 3-phase | AC-3 - 3-phase | AC-3 - 3-phase | AC-3 - 3-phase | AC-3 - 3-phase | AC-3 - 3-phase |
| | | 230 V - 2.2 kW - 8.3 A | 230 V - 5.5 kW | 230 V - 7.5 kW | 230 V - kW | 230 V - 5 kW | 230 V - 22 kW |
| | | AC - 15 | AC - 15 | AC - 15 | – | – | – |
| | | 230 V - 4 A | 230 V - 14 A | 230 V - 6 A | | | |
| **Front plate degree of protection** | | IP 40 | IP 40 | | | | |
| | | IP 65 (with seal) | | | | | |
| **Product composition** | | Complete switches and custom | Complete switches | | | | |
| | | Adaptable sub-assemblies | | | | | |
| **Compatibility** | | Ø 22 control and signalling units | – | | | | |
| **Mounting** | Front mounting | Multi-fixing | By 4 holes on 48 mm centers | | | By 4 holes on 68 mm centers | |
| | | Single Ø 22 hole | | | | | |
| | Rear mounting | Screw fixing, 4 holes on 36 mm centers | Screw fixing, 4 holes on 48 mm centers | | | Screw fixing, 4 holes on 68 mm centers | |
| **Front plate dimensions (mm)** | | 45 x 45 | 64 x 64 | | | 88 x 88 | |
| | | 60 x 60 (adaptable sub-assemblies) | | | | | |
| **Operating heads** | | Black and red standard and long handles | Black standard handle<br>Metallic legend, black marking | | | | |
| | | Key operator | | | | | |
| | | Metallic head | | | | | |
| | | Metallic legend with black marking or | | | | | |
| | | black legend with white marking | | | | | |
| **Approvals** | | UL-CSA | cULus<br>EN/IEC 60947-3 | | | | |
| | | EN/IEC 60947-3 | | | | | |
| | | EN/IEC 60947-5-1 | | | | | |
| **Type** | | Type K2 | Type K30–K150 | | | | |
| **Cam switch model ▲** | | **Class 9003, K2** | **K30** | **K50** | **K63** | **K115** | **K150** |

## Instructions for the Key Sheet on page 19-127

1. From the chart below, choose the switching angle as determined on the key sheet (see page 19-127). This identifies the angular location and the position numbers for the various positions of the rotary cam switch. **Zero degrees or straight up is always position 1**. Use these position numbers when completing the target table.
2. Terminals on the cam switch have the same numbers as the terminal numbers on the target table. **Contact 1-2 is a single contact.**

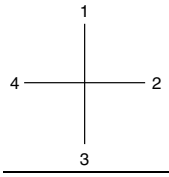
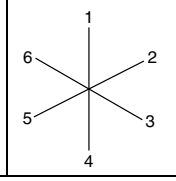
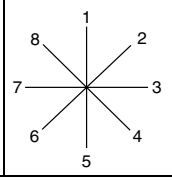
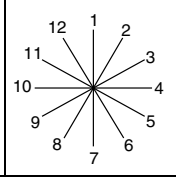
***NOTE:*** *When indicating a contact closure, place "X" within the square as shown in the contact sequence example.*

## Explanation of the Contact Sequence Example Below

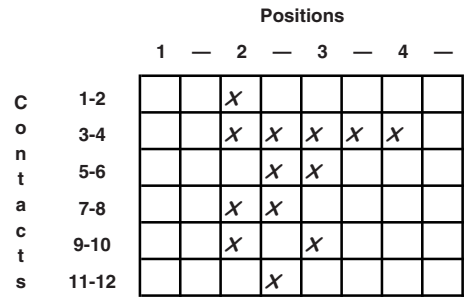
1. Contact 1-2 is open in all positions except position 2.
2. Contact 3-4 is closed from the 2nd through the 4th position. The contact does not open while switching from one position to another.
3. Contacts 5-6 and 7-8 overlap between positions 2 and 3.
4. Contact 9-10 is closed in positions 2 and 3. It is open momentarily while switching between positions 2 and 3.
5. Contact 11-12 closes mementarily when switching from position 2 to positiion 3. This contact is not closed in position 2 or position 3.

***NOTE:*** *Position 1 is an off position*

## Table 19.378: Switching Angle Chart

| 90 ° | 60 ° | 45 ° | 30 ° |
|---|---|---|---|
|  |  |  |  |

## Figure 19.5: Contact Sequence Example




▲ Incomplete part numbers. Contact your local supplier for assistance.



© 2012 Schneider Electric
All Rights Reserved

**See Instructions on page 19-126.**

| Customer | | | F,O. NO. | |
|---|---|---|---|---|
| Date | | P.O. Number | Qty | |

**To order custom cam switches:**

1. Indicate the contact size at right (9003 K2)
2. Indicate the desired switching angle at right. **If the switching angle is not indicated, the factory will determine the angle from the table to the right.**
3. From the example shown on page 19-126, fill in the target table on page 19-128.
4. Indicate the operator/handle type.
5. If the operator/handle bezel has a legend and legend marking is desired, indicate the legend marking on the back of this form.
6. If a separate legend is required, indicate the legend type on the right and the marking on the back of this form.

| Switching Angle | Maximum Number of Positions | See Ordering Instructions at Left |
|---|---|---|
| 90 ° | 4 | 2-3 |
| 60 ° | 6 | 4-5 |
| 45 ° | 8 | 6-7 |
| 30 ° | 12 | 8-12 |

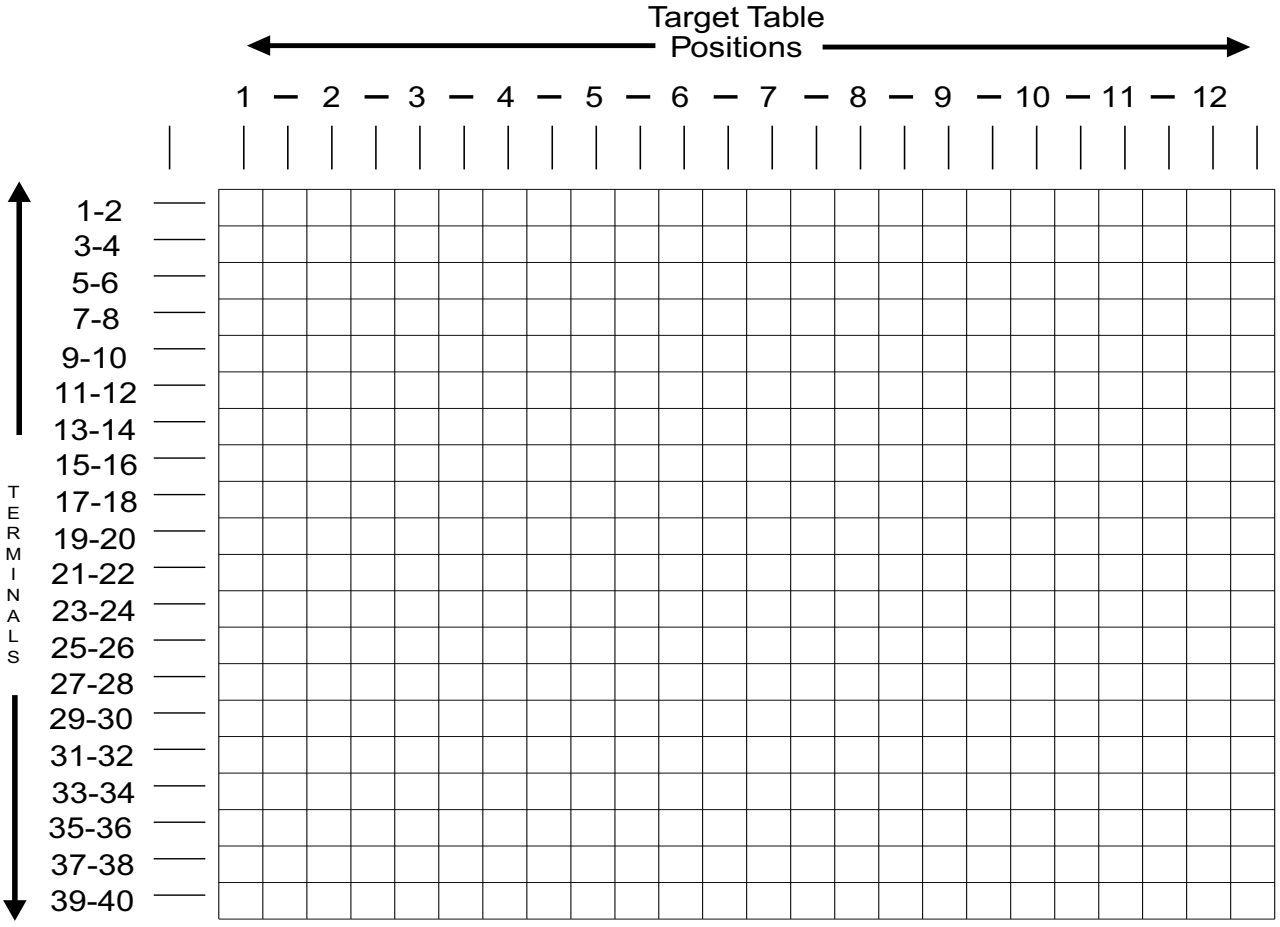
| | | | |
|---|---|---|---|
| Contact size | Class 9003 | Type | **K** 2 |
| Switching angle | | Type | |
| Operator/Handle type | Class 9003 | Type | |
| Separate legend | Class 9003 | Type | |

***NOTE:*** *See page 19-126 for target table explanation*



© 2012 Schneider Electric
All Rights Reserved

**Figure 19.6: Target Table**








© 2012 Schneider Electric
All Rights Reserved

# Section 20

## Electronic Sensors and Machine Cabling



**Photoelectric Sensors,** p. 20-2



**Proximity Sensors,** p. 20-5



**Ultrasonic Sensors,** p. 20-10

### Osisense Photoelectric Sensors


| | |
|---|---|
| XUB Tubular | **20-2** |
| XUM Miniature | **20-4** |
| XUK and XUX Compact | **20-4** |


### Osisense Inductive Proximity Sensors


| | |
|---|---|
| XS Plastic Rectangular | **20-5** |
| XS General Purpose Tubular | **20-6** |
| XS Basic and Basic Plus Series | **20-8** |


### Osisense Capacitive Proximity Sensors


| | |
|---|---|
| XT Proximity | **20-9** |

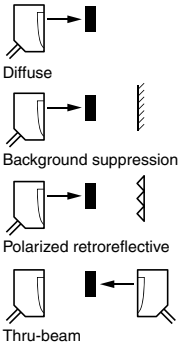

### Ultrasonic Sensors


| | |
|---|---|
| Accessories | **20-10** |
| XUV Label Sensor | **20-10** |
| XXV18—Barrel, Ø18 mm | **20-10** |
| Virtu™ VM1—Dual Mount, Ø 18 mm and Flat Format | **20-11** |
| Virtu™ VM18—Barrel, Ø18 mm | **20-11** |
| Virtu™ 30—Barrel, Ø30 mm | **20-12** |
| SM900 (1, 2, and 8 m) | **20-12** |




© 2012 Schneider Electric
All Rights Reserved

## Table 20.1: XUB Tubular Sensors




**A single product that adapts to most environments.**

For multi-mode models (XUB0, XUM0, XUK0, and XUX0) that are programmable to function as Diffuse, Diffuse/Background Suppression, Polarized Retroreflective, or Thru-Beam Receivers, consult the factory.



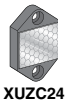


| XUB Tubular Sensors | | XUB•A 18 mm plastic | XUB•B 18 mm metal |
|---|---|---|---|
| Usable sensing distance | Proximity diffuse (adjustable) | 0.6 m (2.0 ft) | 0.6 m (2.0 ft) |
| | Polarized retroreflective | 2 m (6.6 ft) | 2 m (6.6 ft) |
| | Retroreflective | 4 m (13.1 ft) | 4 m (13.1 ft) |
| | Thru-beam | 15 m (49 ft) | 15 m (49 ft) |
| Mounting (mm) | | M 18 x 1 | M 18 x 1 |
| Enclosure: M (metal), P (plastic) / Dimensions (mm) Ø x L or W x H x D | | P / M 18 x 46 | P / M 18 x 46 |
| Setup LEDs | | — | — |
| Temperature range | | –25 to +55 °C (–13 to +131 °F) | |
| Degree of protection (conforming to IEC 60529): | | IP65, IP67 (XUK: IP65) | |

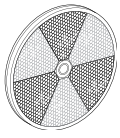
## Table 20.2: Sensors for DC Applications (Solid State Output: Transistor)

| Connection | | | Precabled, PvR, 2 m ♦ Catalog No. | M12 connector Catalog No. | Precabled, PvR, 2 m ♦ Catalog No. | M12 connector Catalog No. |
|---|---|---|---|---|---|---|
| Receiver or Transmitter/Receiver, 3-wire PNP ▲ | Proximity diffuse, adjustable | N.O. | XUB5APANL2 | XUB5APANM12 | XUB5BPANL2 | XUB5BPANM12 |
| | | N.C. | XUB5APBNL2 | XUB5APBNM12 | XUB5BPBNL2 | XUB5BPBNM12 |
| | Polarized retroreflective | N.O. | XUB9APANL2 | XUB9APANM12 | XUB9BPANL2 | XUB9BPANM12 |
| | | N.C. | XUB9APBNL2 | XUB9APBNM12 | XUB9BPBNL2 | XUB9BPBNM12 |
| | Retroreflective | N.O. | XUB1APANL2 | XUB1APANM12 | XUB1BPANL2 | XUB1BPANM12 |
| | | N.C. | XUB1APBNL2 | XUB1APBNM12 | XUB1BPBNL2 | XUB1BPBNM12 |
| | Thru-beam | N.O. | XUB2APANL2R | XUB2APANM12R | XUB2BPANL2R | XUB2BPANM12R |
| | | N.C. | XUB2APBNL2R | XUB2APBNM12R | XUB2BPBNL2R | XUB2BPBNM12R |
| Transmitter | | | XUB2AKSNL2T | XUB2AKSNM12T | XUB2AKSNL2T | XUB2AKSNM12T |
| Supply voltage limits, min/max (V) including ripple | | | 10–36 | 10–36 | 10–36 | 10–36 |
| Switching frequency (Hz) | | | 500 | 500 | 500 | 500 |
| Common characteristics for DC versions | | | Switching capacity, max (mA): 100 / Overload and short-circuit protection / LED output state | | | |

▲ For version with NPN output, change "P" to "N". For example: XUB1A**P**ANL2 would become XUB1A**N**ANL2.
■ These sensors do not incorporate overload or short-circuit protection. A 0.4 A fast-acting fuse must be connected in series with the load.
♦ For a 5 m cable, change L2 to L5. For example, XUMB5APAN**L2** becomes XUMB5APAN**L5**.


**XUZC24**


**XUZC50**


**XUZC80**

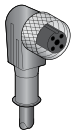
## Table 20.3: Metal Body Sensors for Two-Wire AC ■ or DC Applications (Solid-State Output: Transistor)

| Connection | | | Precabled, PvR, 2 m ♦ Catalog No. | 1/2"-20UNF Connector Catalog No. |
|---|---|---|---|---|
| System<br>*New!* | Diffuse with adjustable background suppression | NO | XU8M18MA230 | XU8M18MA230K |
| | | NC | XU8M18MB230 | XU8M18MB230K |
| | Diffuse | NO | XU5M18MA230 | XU5M18MA230K |
| | | NC | XU5M18MB230 | XU5M18MB230K |
| | Polarized retrofeflective ★ | NO | XU9M18MA230 | XU9M18MA230K |
| | | NC | XU9M18MB230 | XU9M18MB230K |
| | Thru-beam▼ | NO | XU2M18MA230 | XU2M18MA230K |
| | | NC | XU2M18MB230 | XU2M18MB230K |
| Rated supply voltage (Vac/Vdc) | | | 24–240 | 24–240 |
| Switching frequency (Hz) | | | 25 | 25 |
| Switching capacity (mA) ■ | | | 10–200 | 10–200 |

★ A 50 x 50 mm reflector XUZC50 is included with a polarized retroreflective system.
▼ Includes a thru-beam transmitter and receiver.


**XUZA118**


**XUZA218**


**XZCP1241L2**


**XZCP1141L2**

## Table 20.4: Accessories

| | | mm | Catalog No. |
|---|---|---|---|
| **Reflectors** | | 24 x 21 | XUZC24 |
| | | Ø 80 | XUZC80 |
| | | 50 x 50 | XUZC50 |
| | | **Material** | **Catalog No.** |
| **Mounting brackets for XUB** | | Die Cast Zinc | XUZA118 |
| | | Plastic | XUZA218 |
| | | **90°** | **Straight** |
| | | **Catalog No.** | **Catalog No.** |
| **Cables, 2 m, without LED** △<br>Suitable plug-in female connectors, including pre-wired versions | **M8 (4-Pin)** | XZCP1041L2 | XZCP0941L2 |
| | **M12 (4-pin)** | XZCP1241L2 | XZCP1141L2 |
| | **1/2"-20UNF** | XZCP1965L2 | XZCP1865L2 |

△ For 5 or 10 meter lengths, replace 2 in the cable catalog number with 5 or 10.

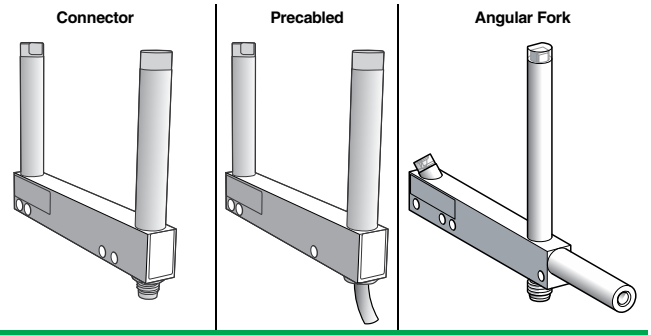




© 2012 Schneider Electric
All Rights Reserved

## Table 20.5: XUVR / XUVA Optical fork without adjustment

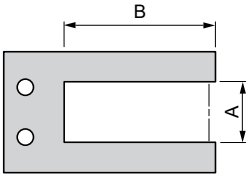
*New!*




| Sensing Characteristics | | Thru-beam | |
|---|---|---|---|
| Sensing range, mm (in.) | | 2–180 (0.08 –7.09) | |
| Sensing frequency | | 4000 Hz | |
| Minimum size of object detected, mm (in.) | Passageway 2–120 mm | 0.8 (0.03) | 1.2 (0.05) |
| | Passageway ≥ 150 mm | 1 (0.04) | 1.5 (0.06) |
| Fork type | | XUVR• | XUVA• |
| **Power Requirements** | | | |
| Supply voltage | | 12–24 Vdc | |
| Max. load | | 100 mA with overload and short-circuit protection | |
| **Environmental** | | | |
| Operating temperature range | | –10 to +60 °C (+14 to +140 °F) | |
| Environmental protection ratings | | IP65 and IP67 | |
| **Construction** | | | |
| Materials<br>Case | | Painted aluminum and polyamide | |

**Catalog numbers of forks type XUVR•**

3-Wire
NO or NC function
PNP or NPN ouput



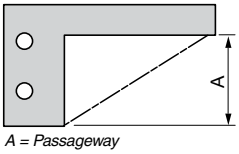

*A = Passageway*
*B = Depth*

| Passageway (A) | Function | Output | Catalog Number |
|---|---|---|---|
| **Connection—Precabled, length 2 m. Depth (B): 40 mm (1.18 in.)** | | | |
| 30 mm (1.18 in.) | NO | PNP | XUVR0303PANL2 |
| **Connection—M8, 3-Pin. Depth (B): 60 mm (2.36 in.)** | | | |
| 50 mm (1.97 in.) | NO | PNP | XUVR0605PANM8 |
| | | NPN | XUVR0605NANM8 |
| | NC | PNP | XUVR0605PBNM8 |
| | | NPN | XUVR0605NBNM8 |
| 80 mm (3.15 in.) | NO | PNP | XUVR0608PANM8 |
| | | NPN | XUVR0608NANM8 |
| | NC | PNP | XUVR0608PBNM8 |
| | | NPN | XUVR0608NBNM8 |
| **Connection—M8, 3-Pin. Depth (B): 120 mm (4.72 in.)** | | | |
| 120 mm (4.72 in.) | NO | PNP | XUVR1212PANM8 |
| | | NPN | XUVR1212NANM8 |
| | NC | PNP | XUVR1212PBNM8 |
| | | NPN | XUVR1212NBNM8 |
| 180 mm (7.09 in.) | NO | PNP | XUVR1218PANM8 |
| | | NPN | XUVR1218NANM8 |
| | NC | PNP | XUVR1218PBNM8 |
| | | NPN | XUVR1218NBNM8 |

**Catalog numbers of forks type XUVA•**

Connection—M8 connector, 3-Pin

3-wire
NO function
PNP ouput



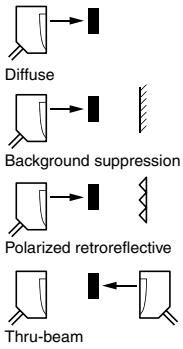

*A = Passageway*

| Passageway (A) | Function | Output | Catalog Number |
|---|---|---|---|
| 50 mm (1.97 in.) | NO | PNP | XUVA0505PANM8 |
| 80 mm (3.15 in.) | NO | PNP | XUVA0808PANM8 |
| 120 mm (4.72 in.) | NO | PNP | XUVA1212PANM8 |
| 150 mm (5.91 in. ) | NO | PNP | XUVA1515PANM8 |



© 2012 Schneider Electric
All Rights Reserved

## Table 20.6: XUM Miniature, XUK and XUX Compact




**A single product that adapts to most environments.**

For multi-mode models (XUB0, XUM0, XUK0, and XUX0) that are programmable to function as Diffuse, Diffuse/Background Suppression, Polarized Retroreflective, or Thru-Beam Receivers, consult the factory.



| Sensors | | XUM Miniature Design | XUK Compact Design 50 x 50 | XUX Compact Design |
|---|---|---|---|---|
| **Usable sensing distance** | Proximity diffuse (adjustable sensitivity) | 1 m (3.28 ft) | 1 m (3.2 ft) ▲ | 2.1 m (6.8 ft) |
| | Polarized retroreflective | 5 m (16.40 ft)♦ | 5 m (16.4 ft) ▲ | 11 m (36 ft) |
| | Retroreflective | — | 7 m (23.0 ft) ▲ | 14 m (46 ft) |
| | Thru-beam | 15 m (49.21 ft) | 30 m (98 ft) ▲ | 40 m (131.2 ft) |
| **Mounting (mm)** | | direct: mounting centers 25.5, M3 screws | direct: mounting centers 40 x 40, M4 screws | direct: mounting centers 30/36 to 40/50/74, M5 screws |
| **Enclosure: M (metal) P (plastic) / Dimensions (mm) Ø x L or W x H x D** | | P / 10.8 x 34 x 20 | P / 18 x 50 x 50 | P / 30 x 92 x 71 |
| **Setup LEDs** | | ⊗ | ⊗ | ⊗ |
| **Common characteristics** | | LED output state indicator and power on LED (⊗): yes | | |

▲ Excess gain of 2.

| Sensors for DC Applications (Solid State Output: Transistor) | | | Catalog No. | | | | | |
|---|---|---|---|---|---|---|---|---|
| Connection | | | Precabled, PVC, 2 m | M8 connector | Precabled, PVC, 2 m | M12 connector | Screw terminals, ISO 16 cable gland | M12 connector |
| Transmitter | | | XUM2AKCNL2T | XUM2AKCNM8T | XUK2AKSNL2T | XUK2AKSNM12T | XUX0AKSAT16T | XUX0AKSAM12T |
| Receiver or Transmitter/ Receiver, 3-wire PNP ■ | Proximity diffuse, adjustable | N.O. | — | — | XUK5APANL2 | XUK5APANM12 | XUX5APANT16 | XUX5APANM12 |
| | | N.C. | — | — | XUK5APBNL2 | XUK5APBNM12 | XUX5APBNT16 | XUX5APBNM12 |
| | | N.O./N.C. convertible | XUM5APCNL2 | XUM5APCNM8 | — | — | — | — |
| | Polarized retroreflective | N.O. | — | — | XUK9APANL2 | XUK9APANM12 | XUX9APANT16 | XUX9APANM12 |
| | | N.C. | — | — | XUK9APBNL2 | XUK9APBNM12 | XUX9APBNT16 | XUX9APBNM12 |
| | | N.O./N.C. convertible | XUM9APCNL2 | XUM9APCNM8 | — | — | — | — |
| | Retroreflective | N.O. | — | — | XUK1APANL2 | XUK1APANM12 | XUX1APANT16 | XUX1APANM12 |
| | | N.C. | — | — | XUK1APBNL2 | XUK1APBNM12 | XUX1APBNT16 | XUX1APBNM12 |
| | Thru-beam | N.O. | — | — | XUK2APANL2R | XUK2APANM12R | XUX2APANT16R | XUX2APANM12R |
| | | N.C. | — | — | XUK2APBNL2R | XUK2APBNM12R | XUX2APBNT16R | XUX2APBNM12R |
| | | N.O./N.C. convertible | XUM2APCNL2R | XUM2APCNM8R | — | — | — | — |
| Supply voltage limits, min/max (V) including ripple | | | 10–30 | 10–30 | 10–30 | 10–30 | 10–36 | 10–36 |
| Switching frequency (Hz) | | | 1000 | 1000 | 250 | 250 | 250 | 250 |
| Common characteristics for DC versions | | | indicator (⊗): yes / power on LED (⊗): yes | | | | | |
| **Multi-current/multi-voltage sensors for AC/DC applications, 20–264 Vac/Vdc, including ripple (relay output, 1 C/O, 3 A)** | | | | | | | | |
| Connection | | | — | — | Precabled, 2 m | — | Screw terminals ISO 16 cable gland | — |
| Transmitter | | | — | — | XUK2ARCNL2T | — | XUX0ARCTT16T | — |
| Receiver or Transmitter/ Receiver | Diffuse | N.O. + N.C. | — | — | XUK5ARCNL2 | — | XUX5ARCNT16 | — |
| | Polarized retroreflective | N.O. + N.C. | — | — | XUK9ARCNL2 | — | XUX9ARCNT16 | — |
| | Retroreflective | N.O. + N.C. | — | — | XUK1ARCNL2 | — | XUX1ARCNT16 | — |
| | Thru-beam | N.O. + N.C. | — | — | XUK2ARCNL2R | — | XUX2ARCNT16R | — |
| Switching frequency (Hz) | | | — | — | 20 | — | 20 | — |
| LED output state indicator(⊗) / power on LED (⊗) | | | — | — | ⊗ / ⊗ | — | ⊗ / ⊗ | — |

■ For version with NPN output, change "P" to "N". For example, XUM5A**P**CNL2 would become XUM5A**N**CNL2.

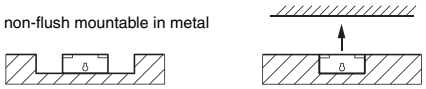
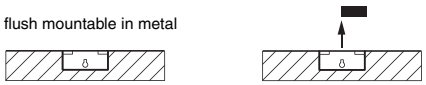
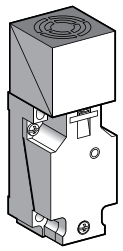
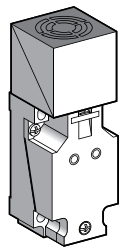
♦ With XUZC50 reflector.

Note: M8 is not Snap-C compatible.
See page 20-2 for suitable plug-in cables with female connectors.





© 2012 Schneider Electric
All Rights Reserved

| Sensor | Flush mountable in metal | Non-flush mountable in metal |
|---|---|---|
| **A single product that automatically adapts to most environments.**<br>**Accurate position detection via teach mode.**<br>non-flush mountable in metal  <br>flush mountable in metal  |  |  |

## New! General Purpose, Plastic Case, Limit Switch Style, 5-Position Turret Head

### Table 20.7: General Specifications

| | |
|---|---|
| **Product certifications** | UL, CSA, CE |
| **Degree of protection** conforming to IEC 60529 | IP67 |
| **Operating temperature** | –25 to +70 °C (–13 to +158 °F) |

## DC Supply

### Table 20.8: Catalog Numbers

| **Nominal sensing distance Sn, mm (in.)** | | 15 (0.59) | Increased range 20 (0.79) | 15 (0.59) | 20 (0.79) | Increased range 40 (1.57) | 20 (0.79) |
|---|---|---|---|---|---|---|---|
| **4-wire** ⎓ | PNP, NO + NC | XS7C40PC440H7 | XS7C40PC449H7 | — | XS8C40PC440H7 | XS8C40PC449H7 | — |
| **(complementary outputs)** | NPN, NO + NC | XS7C40NC440H7 | XS7C40NC449H7 | — | XS8C40NC440H7 | XS8C40NC449H7 | — |
| **2-wire** ⎓ | NO | — | — | XS7C40DA210H7 | — | — | XS8C40DA210H7 |
| **(non-polarized)** | NO or NC programmable | — | — | XS7C40DP210H7 | — | — | XS8C40DP210H7 |
| **Weight, kg (lb)** | | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) |

### Table 20.9: Supplemental Specifications

| **Connection** ▲ | | Screw terminals, clamping capacity: 2 or 4 x 1.5 mm² (16 AWG) ■ | | | | | |
|---|---|---|---|---|---|---|---|
| **Operating zone, mm (in.)** | | **0–12 (0–0.47)** | **0–16 (0–0.63)** | **0–12 (0–0.47)** | **0–16 (0–0.63)** | **0–32 (0–1.26)** | **0–16 (0–0.63)** |
| **Repeat accuracy** | | ≤3% of effective sensing distance (Sr) | | | | | |
| **Differential travel** | | 3–20% of effective sensing distance (Sr) | | | | | |
| **Status indication** | Output | Yellow LED | | Yellow LED | Yellow LED | | Yellow LED |
| | Supply on | Green LED | | — | Green LED | | — |
| **Rated supply voltage** | | 12–48 Vdc with protection against reverse polarity | | | | | |
| **Voltage limits (including ripple)** | | 10–58 Vdc | | | | | |
| **Current consumption, no-load** | | ≤ 10 mA | | — | ≤ 10 mA | | — |
| **Switching capacity** with overload and short-circuit protection | | 0–200 mA | | 1.5–100 mA | 0–200 mA | | 1.5–100 mA |
| **Residual current, open state** | | — | | ≤ 0.5 mA | — | | ≤ 0.5 mA |
| **Voltage drop, closed state** | | ≤ 2 V | | ≤ 4 V | ≤ 2 V | | ≤ 4 V |
| **Maximum switching frequency** | | 1000 Hz | | 1500 Hz | 1000 Hz | 500 Hz | 800 Hz |
| **Delays** | First-up | ≤ 5 ms | | ≤ 5 ms | ≤ 5 ms | ≤ 5 ms | ≤ 5 ms |
| | Response | ≤ 0.3 ms | | ≤ 2 ms | ≤ 0.3 ms | < 1 ms | ≤ 2 ms |
| | Recovery | ≤ 0.7 ms | | ≤ 5 ms | ≤ 0.7 ms | < 1 ms | ≤ 7 ms |

## Plug-in, AC or DC supply

### Table 20.10: Catalog Numbers

| | | **AC** | **AC/DC** | **AC** | **AC/DC** |
|---|---|---|---|---|---|
| **Nominal sensing distance Sn, mm (in.)** | | 15 (0.59) | | 20 (0.79) | |
| **2-wire AC** | NO or NC programmable | XS7C40FP260H7 | — | XS8C40FP260H7 | — |
| **2-wire AC or DC universal model** | NO or NC programmable | — | XS7C40MP230H7 | — | XS8C40MP230H7 |
| **Weight, kg (lb)** | | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) |

### Table 20.11: Supplemental Specifications

| **Connection** | | Screw terminals, clamping capacity 2 x 1.5 mm² (16 AWG) ▲■ | | | |
|---|---|---|---|---|---|
| **Operating zone, mm (in.)** | | 0–12 (0–0.47) | | 0–16 (0–0.63) | |
| **Repeat accuracy** | | ≤3% of effective sensing distance (Sr) | | | |
| **Differential travel** | | 3–20% of effective sensing distance (Sr) | | | |
| **Output state indication** | | Yellow LED | | | |
| **Rated supply voltage with protection against reverse polarity** | | 24–240 Vac, 50/60 Hz | 24–240 Vac, 50/60 Hz or 24–210 Vdc | 24–240 Vac, 50/60 Hz | 24–240 Vac, 50/60 Hz or 24–210 Vdc |
| **Voltage limits (including ripple)** | | 20–264 Vac | 20–264 Vac or Vdc | 20–264 Vac | 20–264 Vac or Vdc |
| **Current consumption, no-load** | | — | | | |
| **Switching capacity** ♦ | | 5–500 mA (2 A inrush) ♦ | 5–300 mA AC or 5–200 mA DC ♦ | 5–500 mA (2 A inrush) ♦ | 5–300 mA AC or 5–200 mA DC ♦ |
| **Residual current, open state** | | ≤ 1.5 mA | 0.8 mA on 24 V<br>1.5 mA on 120 V | ≤ 1.5 mA | 0.8 mA on 24 V<br>1.5 mA on 120 V |
| **Voltage drop, closed state** | | ≤ 5.5 V | | | |
| **Maximum switching frequency** | | 25 Hz | **AC**: 25 Hz; **DC**: 50 Hz | 25 Hz | **AC**: 25 Hz; **DC**: 50 Hz |
| **Delays** | First-up | ≤ 120 ms | | | |
| | Response | ≤ 30 ms | | | |
| | Recovery | ≤ 20 ms | | | |

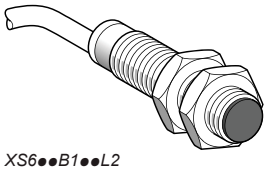
▲ Delete H7 suffix for PG13 conduit entry.
■ Cable gland not included with sensor. For suitable metric version PG13 cable gland (XSZPE13), see page 2/131 of 9006CT1007.
♦ These sensors do not incorporate overload or short-circuit protection. A 0.4 mA fast-acting fuse (XUZE04) must be connected in series with the load.



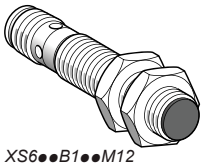
© 2012 Schneider Electric
All Rights Reserved

New!

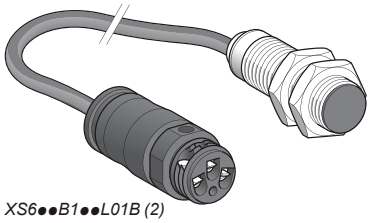
## Table 20.12: General Purpose, Long Case, Increased Range, Flush Mountable, 3-Wire DC, Solid-State Output



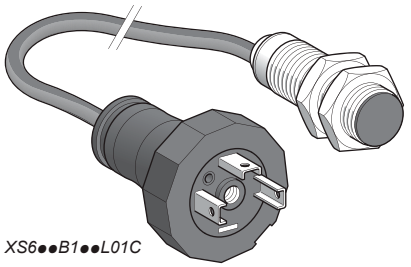
*XS6●●B1●●L2*



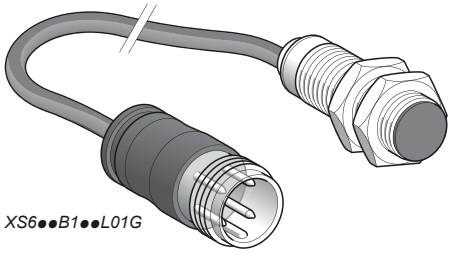
*XS6●●B1●●M12*



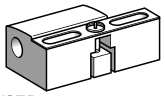
*XS6●●B1●●L01B (2)*



*XS6●●B1●●L01C*



*XS6●●B1●●L01G*



*XSZB●●●*

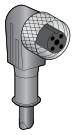
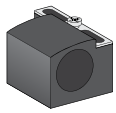
| Sensors, 3-wire 12–48 V ⎓, long case model | | | | | | |
|---|---|---|---|---|---|---|
| Sensing Distance Sn, mm (in.) | Function | Output | Connection | Weight kg | Weight (lb) | Catalog No. |
| **Ø 8, threaded M8 x 1** | | | | | | |
| 2.5 (0.10) | NO | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS608B1PAL2 |
| | | | M12 connector | 0.015 | (0.03) | XS608B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS608B1NAL2 |
| | | | M12 connector | 0.015 | (0.03) | XS608B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS608B1PBL2 |
| | | | M12 connector | 0.015 | (0.03) | XS608B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS608B1NBL2 |
| | | | M12 connector | 0.015 | (0.03) | XS608B1NBM12 |
| **Ø 12, threaded M12 x 1** | | | | | | |
| 4 (0.16) | NO | PNP | Precabled (2 m) ▲ | 0.075 | (0.17) | XS612B1PAL2 |
| | | | M12 connector | 0.020 | (0.04) | XS612B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.075 | (0.17) | XS612B1NAL2 |
| | | | M12 connector | 0.020 | (0.04) | XS612B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.075 | (0.17) | XS612B1PBL2 |
| | | | M12 connector | 0.020 | (0.04) | XS612B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.075 | (0.17) | XS612B1NBL2 |
| | | | M12 connector | 0.020 | (0.04) | XS612B1NBM12 |
| **Ø 18, threaded M18 x 1** | | | | | | |
| 8 (0.31) | NO | PNP | Precabled (2 m) ▲ | 0.100 | (0.22) | XS618B1PAL2 |
| | | | M12 connector | 0.040 | (0.09) | XS618B1PAM12 |
| | | | Remote screw term. connector | 0.100 | (0.22) | XS618B1PAL01B ■ |
| | | | Remote DIN 43650 connector | 0.100 | (0.22) | XS618B1PAL01C |
| | | | Remote M18 connector | 0.100 | (0.22) | XS618B1PAL01G |
| | | NPN | Precabled (2 m) ▲ | 0.100 | (0.22) | XS618B1NAL2 |
| | | | M12 connector | 0.040 | (0.09) | XS618B1NAM12 |
| | | | Remote screw term. connector | 0.100 | (0.22) | XS618B1NAL01B ■ |
| | | | Remote DIN 43650 connector | 0.100 | (0.22) | XS618B1NAL01C |
| | NC | PNP | Precabled (2 m) ▲ | 0.100 | (0.22) | XS618B1PBL2 |
| | | | M12 connector | 0.040 | (0.09) | XS618B1PBM12 |
| | | | Remote screw term. connector | 0.100 | (0.22) | XS618B1PBL01B ■ |
| | | | Remote DIN 43650 connector | 0.100 | (0.22) | XS618B1PBL01C |
| | | NPN | Precabled (2 m) ▲ | 0.100 | (0.22) | XS618B1NBL2 |
| | | | M12 connector | 0.040 | (0.09) | XS618B1NBM12 |
| | | | Remote screw term. connector | 0.100 | (0.22) | XS618B1NBL01B ■ |
| | | | Remote DIN 43650 connector | 0.100 | (0.22) | XS618B1NBL01C |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| 15 (0.59) | NO | PNP | Precabled (2 m) ▲ | 0.205 | (0.45) | XS630B1PAL2 |
| | | | M12 connector | 0.145 | (0.32) | XS630B1PAM12 |
| | | | Remote screw term. connector | 0.205 | (0.45) | XS630B1PAL01B ■ |
| | | | Remote DIN 43650 connector | 0.205 | (0.45) | XS630B1PAL01C |
| | | | Remote M18 connector | 0.205 | (0.45) | XS630B1PAL01G |
| | | NPN | Precabled (2 m) ▲ | 0.205 | (0.45) | XS630B1NAL2 |
| | | | M12 connector | 0.145 | (0.32) | XS630B1NAM12 |
| | | | Remote screw term. connector | 0.205 | (0.45) | XS630B1NAL01B ■ |
| | | | Remote DIN 43650 connector | 0.205 | (0.45) | XS630B1NAL01C |
| | NC | PNP | Precabled (2 m) ▲ | 0.205 | (0.45) | XS630B1PBL2 |
| | | | M12 connector | 0.145 | (0.32) | XS630B1PBM12 |
| | | | Remote screw term. connector | 0.205 | (0.45) | XS630B1PBL01B ■ |
| | | | Remote DIN 43650 connector | 0.205 | (0.45) | XS630B1PBL01C |
| | | | Remote M18 connector | 0.205 | (0.45) | XS630B1PBL01G |
| | | NPN | Precabled (2 m) ▲ | 0.205 | (0.45) | XS630B1NBL2 |
| | | | M12 connector | 0.145 | (0.32) | XS630B1NBM12 |
| | | | Remote screw term.connector | 0.205 | (0.45) | XS630B1NBL01B ■ |
| | | | Remote DIN 43650 connector | 0.205 | (0.45) | XS630B1NBL01C |

▲ For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**. For example, XS608B1PA**L2** becomes XS608B1PA**L5** with a 5 m cable.

■ Protective cable gland included with remote screw terminal connector.

## Table 20.13: Accessories

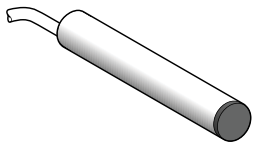
| Description | For use with sensors | Weight kg | Weight (lb) | Catalog No. |
|---|---|---|---|---|
| 90° metal mounting brackets | Ø 8 | 0.006 | (0.01) | 9006PA08 |
| | Ø 12 | 0.006 | (0.01) | 9006PA12 |
| | Ø 18 | 0.010 | (0.02) | 9006PA18 |
| | Ø 30 | 0.020 | (0.02) | 9006PA30 |

| Description | Cables 90° | Cables Straight | Mounting Bracket with Indexing Pin for Tubular Sensors |
|---|---|---|---|
| Plug-in female connectors, including pre-wired versions<br>2 m, without LED |  |  |  |
| | Catalog No. | Catalog No. | Catalog No. |
| M8 | XZCP0666L2 | XZCP0566L2 | M12 XSZB112 |
| M12 | XZCP1241L2 | XZCP1141L2 | M18 XSZB118 |
| U20 | XZCP1965L2 | XZCP1865L2 | M30 XSZB130 |

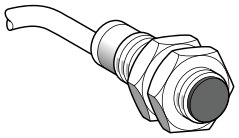




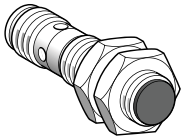
© 2012 Schneider Electric
All Rights Reserved



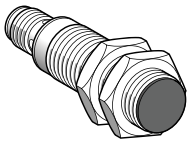
*XS506B1●●L2*



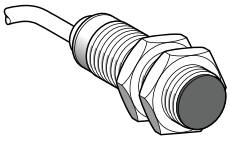
*XS508B1●●L2*



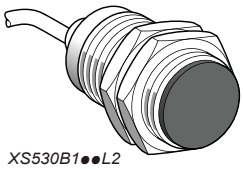
*XS512B1●●M12*



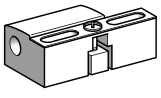
*XS518B1●●M12*



*XS518B1●●●L2*



*XS530B1●●L2*



*XSZB1●●*

### Table 20.14: Sensors, 3-wire 12–24 Vdc, Short Case Model

| Sensing Distance Sn, mm (in.) | Function | Output | Connection | Weight kg | Weight (lb) | Catalog Number |
|---|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | | |
| 1.5 (0.06) | NO | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS506B1PAL2 |
| | | | M8 connector | 0.025 | (0.06) | XS506B1PAM8 |
| | | | M12 connector | 0.025 | (0.06) | XS506B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS506B1NAL2 |
| | | | M8 connector | 0.025 | (0.06) | XS506B1NAM8 |
| | NC | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS506B1PBL2 |
| | | | M8 connector | 0.025 | (0.06) | XS506B1PBM8 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS506B1NBL2 |
| | | | M8 connector | 0.025 | (0.06) | XS506B1NBM8 |
| **Ø 8, threaded M8 x 1** | | | | | | |
| 1.5 (0.06) | NO | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS508B1PAL2 |
| | | | M8 connector | 0.025 | (0.06) | XS508B1PAM8 |
| | | | M12 connector | 0.025 | (0.06) | XS508B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS508B1NAL2 |
| | | | M8 connector | 0.025 | (0.06) | XS508B1NAM8 |
| | | | M12 connector | 0.025 | (0.06) | XS508B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.035 | (0.08) | XS508B1PBL2 |
| | | | M8 connector | 0.025 | (0.06) | XS508B1PBM8 |
| | | | M12 connector | 0.025 | (0.06) | XS508B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.035 | (0.08) | XS508B1NBL2 |
| | | | M8 connector | 0.025 | (0.06) | XS508B1NBM8 |
| | | | M12 connector | 0.025 | (0.06) | XS508B1NBM12 |
| **Ø 12, threaded M12 x 1** | | | | | | |
| 2 (0.08) | NO | PNP | Precabled (2 m) ▲ | 0.075 | (0.17) | XS512B1PAL2 |
| | | | M12 connector | 0.035 | (0.08) | XS512B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.075 | (0.17) | XS512B1NAL2 |
| | | | M12 connector | 0.035 | (0.08) | XS512B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.075 | (0.17) | XS512B1PBL2 |
| | | | M12 connector | 0.035 | (0.08) | XS512B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.075 | (0.17) | XS512B1NBL2 |
| | | | M12 connector | 0.035 | (0.08) | XS512B1NBM12 |
| **Ø 18, threaded M18 x 1** | | | | | | |
| 5 (0.20) | NO | PNP | Precabled (2 m) ▲ | 0.120 | (0.26) | XS518B1PAL2 |
| | | | M12 connector | 0.060 | (0.13) | XS518B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.120 | (0.26) | XS518B1NAL2 |
| | | | M12 connector | 0.060 | (0.13) | XS518B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.120 | (0.26) | XS518B1PBL2 |
| | | | M12 connector | 0.060 | (0.13) | XS518B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.120 | (0.26) | XS518B1NBL2 |
| | | | M12 connector | 0.060 | (0.13) | XS518B1NBM12 |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| 10 (0.39) | NO | PNP | Precabled (2 m) ▲ | 0.205 | (0.45) | XS530B1PAL2 |
| | | | M12 connector | 0.145 | (0.32) | XS530B1PAM12 |
| | | NPN | Precabled (2 m) ▲ | 0.205 | (0.45) | XS530B1NAL2 |
| | | | M12 connector | 0.145 | (0.32) | XS530B1NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 0.205 | (0.45) | XS530B1PBL2 |
| | | | M12 connector | 0.145 | (0.32) | XS530B1PBM12 |
| | | NPN | Precabled (2 m) ▲ | 0.205 | (0.45) | XS530B1NBL2 |
| | | | M12 connector | 0.145 | (0.32) | XS530B1NBM12 |

▲ For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.
Example: XS508B1PAL2 becomes **XS508B1PAL5** with a 5 m cable.

### Table 20.15: Accessories

| Description | For use with sensors | Weight kg | Weight (lb) | Catalog Number |
|---|---|---|---|---|
| Mounting brackets | Ø 6.5 (plain) | 0.005 | (0.01) | XSZB165 |
| | Ø 8 | 0.006 | (0.01) | XSZB108 |
| | Ø 12 | 0.006 | (0.01) | XSZB112 |
| | Ø 18 | 0.010 | (0.02) | XSZB118 |
| | Ø 30 | 0.020 | (0.02) | XSZB130 |



© 2012 Schneider Electric
All Rights Reserved

New!

## Table 20.16: Basic Plus, XS•••B3

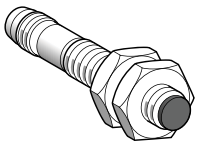
**Basic, Tubular, Flush-Mountable, Increased Range, 3-Wire DC, Solid-State Output**



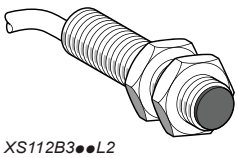
| Sensing Characteristics | Ø 6.5 Plain Flush Mountable | Ø M8 Flush Mountable | Ø M12 Flush Mountable | Ø M18 Flush Mountable | Ø M30 Flush Mountable |
|---|---|---|---|---|---|
| Sensing range | 2 mm (0–0.08 in.) | 2 mm (0–0.08 in.) | 4.0 mm (0–0.15 in.) | 8.0 mm (0.31 in.) | 15.0 mm (0.59 in.) |
| Switching frequency | 2500 Hz | 2500 Hz | 2500 Hz | 1000 Hz | 500 Hz |
| Shock resistance | 50 gn, duration 11 ms | 50 gn, duration 11 ms | 50 gn, duration 11 ms | 50 gn, duration 11 ms | 50 gn, duration 11 ms |
| Vibration resistance (10–55 Hz) | 25 gn, amplitude ± 2 mm | 25 gn, amplitude ± 2 mm | 25 gn, amplitude ± 2 mm | 25 gn, amplitude ± 2 mm | 25 gn, amplitude ± 2 mm |
| **Power Requirements** | | | | | |
| Supply voltage | 12–24 (10–36 max) Vdc with protection against reverse polarity, overload, and short circuit | | | | |
| Switching capacity | 50 mA | 50 mA | 100 mA | | |
| **Specifications** | | XS1••B3••M8, XS1••B3••M12, XS1••B3••L2 | | | |
| Operating zone | Ø 6.5 and Ø 8 | 0–2.0 mm ( 0–0.07 in.) | | | |
| | Ø 12 | 0–4.0 mm (0–0.15 in.) | | | |
| | Ø 18 | 0–8.0 mm ( 0–0.31 in.) | | | |
| | Ø 30 | 0–15 mm (0–0.59 in.) | | | |
| Degree of protection | Conforming to IEC 60529 | IP65 and IP67 | | | |
| Operating temperature | | –25 to +70 °C (–13 to +158 °F) | | | |
| Materials | Case | Nickel-plated brass | | | |
| | Cable (XS1••B3••L• only) | PvR 3 x 0.34 $mm^2$ (22 AWG), except Ø 6.5 and Ø 8: 3 x 0.11 $mm^2$ (27 AWG) | | | |
| Vibration resistance | Conforming to IEC 60068-2-6 | 25 gn, amplitude ± 2 mm (10 to 55 Hz) | | | |
| Shock resistance | Conforming to IEC 60068-2-27 | 50 gn, duration 11 ms | | | |
| Rated supply voltage | | 12–24 Vdc with protection against reverse polarity | | | |
| Switching capacity | | ≤ 200 mA with overload and short-circuit protection | | | |
| Maximum switching frequency | Ø 6.5, Ø 8, and Ø 12 | 2500 Hz | | | |
| | Ø 18 | 1000 Hz | | | |
| | Ø 30 | 500 Hz | | | |

| Sensing Distance Sn, mm (in.) | Function | Output | Connection | Sold in lots of | Weight kg | Weight (lb) | Catalog Number |
|---|---|---|---|---|---|---|---|
| **Ø 8, threaded M8 x 1** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| 2 (0.07) | NO | PNP | Precabled (2 m) ▲ | 1 | 0.070 | (0.15) | XS108B3PAL2 |
| | | | M8 connector | 1 | 0.030 | (0.06) | XS108B3PAM8 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS108B3PAM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.070 | (0.15) | XS108B3NAL2 |
| | | | M8 connector | 1 | 0.030 | (0.06) | XS108B3NAM8 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS108B3NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 1 | 0.070 | (0.15) | XS108B3PBL2 |
| | | | M8 connector | 1 | 0.030 | (0.06) | XS108B3PBM8 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS108B3PBM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.070 | (0.15) | XS108B3NBL2 |
| | | | M8 connector | 1 | 0.030 | (0.06) | XS108B3NBM8 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS108B3NBM12 |
| **Ø 12, threaded M12 x 1** | | | | | | | |
| **Three-wire 12–24 Vdc, flush mountable** | | | | | | | |
| 4 (0.15) | NO | PNP | Precabled (2 m) ▲ | 1 | 0.090 | (0.19) | XS112B3PAL2 |
| | | | M12 connector | 1 | 0.030 | (0.06) | XS112B3PAM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.090 | (0.19) | XS112B3NAL2 |
| | | | M12 connector | 1 | 0.030 | (0.06) | XS112B3NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 1 | 0.090 | (0.19) | XS112B3PBL2 |
| | | | M12 connector | 1 | 0.030 | (0.06) | XS112B3PBM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.090 | (0.19) | XS112B3NBL2 |
| | | | M12 connector | 1 | 0.030 | (0.06) | XS112B3NBM12 |
| **Ø 18, threaded M18 x 1** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| 8 (0.31) | NO | PNP | Precabled (2 m) ▲ | 1 | 0.110 | (0.24) | XS118B3PAL2 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS118B3PAM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.110 | (0.24) | XS118B3NAL2 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS118B3NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 1 | 0.110 | (0.24) | XS118B3PBL2 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS118B3PBM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.110 | (0.24) | XS118B3NBL2 |
| | | | M12 connector | 1 | 0.060 | (0.13) | XS118B3NBM12 |
| **Ø 30, threaded M30 x 1.5** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| 15 (0.59) | NO | PNP | Precabled (2 m) ▲ | 1 | 0.180 | (0.39) | XS130B3PAL2 |
| | | | M12 connector | 1 | 0.130 | (0.28) | XS130B3PAM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.180 | (0.39) | XS130B3NAL2 |
| | | | M12 connector | 1 | 0.130 | (0.28) | XS130B3NAM12 |
| | NC | PNP | Precabled (2 m) ▲ | 1 | 0.180 | (0.39) | XS130B3PBL2 |
| | | | M12 connector | 1 | 0.130 | (0.28) | XS130B3PBM12 |
| | | NPN | Precabled (2 m) ▲ | 1 | 0.180 | (0.39) | XS130B3NBL2 |
| | | | M12 connector | 1 | 0.130 | (0.28) | XS130B3NBM12 |

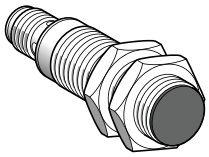
▲ For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with L10. Example: XS106B3PA**L2** becomes XS106B3PA**L5** with a 5 m cable.



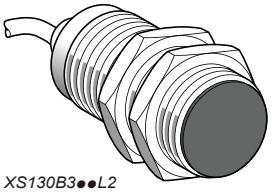
*XS108B3••M8*



*XS112B3••L2*



*XS118B3••M12*



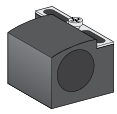
*XS130B3••L2*





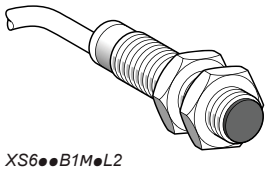
© 2012 Schneider Electric
All Rights Reserved

## Table 20.17: Acessories, Basic Plus, XS•••B3

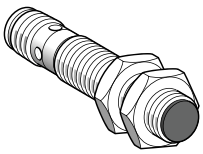
| Mounting Bracket | | | Mounting Bracket w/ Indexing Pin for Cylindrical Sensors | | |
|---|---|---|---|---|---|
|  | **Sensor Body** | **Catalog No.** |  | **Diameter** | **Catalog No.** |
| | M8 | 9006PA08 | | M6 | XSZB165 |
| | M12 | 9006PA12 | | M8 | XSZB108 |
| | M18 | 9006PA18 | | M12 | XSZB112 |
| | M30 | 9006PA30 | | M18 | XSZB118 |
| | | | | M30 | XSZB130 |
| **Cables** | See M8 and M12 connector cables on page 20-6. | | | | |

New!

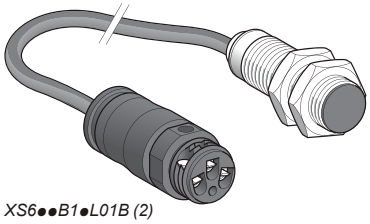
## Table 20.18: General Purpose, Long Case, Tubular, Increased Range, Flush Mountable, 2-Wire AC or DC



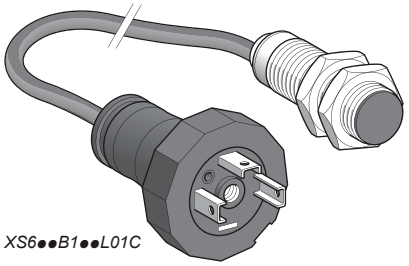
*XS6••B1M•L2*



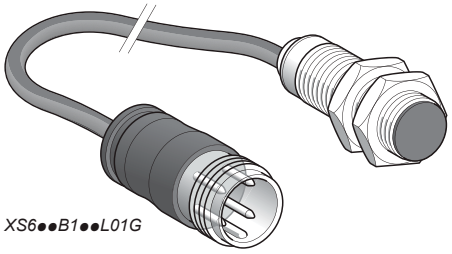
*XS6••B1••U20*



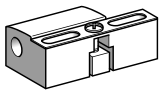
*XS6••B1•L01B (2)*



*XS6••B1••L01C*



*XS6••B1••L01G*



*XSZB1••*

| Sensors, 2-wire 24–240 V ≂, long case model | | | | | |
|---|---|---|---|---|---|
| **Sensing Distance Sn, mm (in.)** | **Function** | **Connection** | **Catalog Number** | **Weight kg** | **(lb)** |
| **Ø 12, threaded M12 x 1** | | | | | |
| 4 (0.16) | NO | Precabled (2 m) ▲ | XS612B1MAL2 | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | XS612B1MAU20 | 0.025 | (0.06) |
| | NC | Precabled (2 m) ▲ | XS612B1MBL2 | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | XS612B1MBU20 | 0.025 | (0.06) |
| **Ø 18, threaded M18 x 1** | | | | | |
| 8 (0.31) | NO | Precabled (2 m) ▲ | XS618B1MAL2 | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | XS618B1MAU20 | 0.060 | (0.13) |
| | | Remote screw terminal connector | XS618B1MAL01B ♦ | 0.100 | (0.22) |
| | | Remote DIN 43650A connector | XS618B1MAL01C | 0.100 | (0.22) |
| | | Remote M18 connector | XS618B1MAL01G | 0.100 | (0.22) |
| | NC | Precabled (2 m) ▲ | XS618B1MBL2 | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | XS618B1MBU20 | 0.060 | (0.13) |
| | | Remote screw terminal connector | XS618B1MBL01B ♦ | 0.100 | (0.22) |
| | | Remote DIN 43650A connector | XS618B1MBL01C | 0.100 | (0.22) |
| | | Remote M18 connector | XS618B1MBL01G | 0.100 | (0.22) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| 15 (0.59) | NO | Precabled (2 m) ■ | XS630B1MAL2 | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | XS630B1MAU20 | 0.145 | (0.32) |
| | | Remote screw terminal connector | XS630B1MAL01B ♦ | 0.205 | (0.45) |
| | | Remote DIN 43650A connector | XS630B1MAL01C | 0.205 | (0.45) |
| | | Remote M18 connector | XS630B1MAL01G | 0.205 | (0.45) |
| | NC | Precabled (2 m) ■ | XS630B1MBL2 | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | XS630B1MBU20 | 0.145 | (0.32) |
| | | Remote screw terminal connector | XS6 30B1MBL01B ♦ | 0.205 | (0.45) |
| | | Remote DIN 43650A connector | XS6 30B1MBL01C | 0.205 | (0.45) |
| | | Remote M18 connector | XS6 30B1MBL01G | 0.205 | (0.45) |

| Accessories | | | | |
|---|---|---|---|---|
| **Description** | **For use with sensors** | **Catalog Number** | **Weight kg** | **(lb)** |
| Mounting brackets | Ø 12 | XSZB112 | 0.006 | (0.01) |
| | Ø 18 | XSZB118 | 0.010 | (0.02) |
| | Ø 30 | XSZB130 | 0.020 | (0.04) |

▲ For a 5 m cable, replace **L2** with **L5**; for a 10 m cable, replace **L2** with **L10**.
Example: XS612B1MA**L2** becomes XS612B1MA**L5** with a 5 m cable.
■ Available in ø8 plastic with double insulation. See page 2/30 of 9006CT1007.
♦ Protective cable gland included with remote screw terminal connector.

New!

## Table 20.19: Osisense Capacitive Proximity Sensors, Cylindrical Stainless Steel, DC



**Ø M12 threaded M12 x 1**



**Ø M18 threaded M18 x 1**



**Ø M30 threaded M30 x 1.5**

| Sensing Characteristics | | | |
|---|---|---|---|
| Sensing Range | 2 mm (0.078 in.) | 5 mm (0.197 in.) | 10 mm (0.394 in.) |
| Switching Frequency | 300 | 200 | 150 |
| Shock Resistance | Conforming to IEC 60068-2-27: 30 gn, 11 ms | | |
| Vibration Resistance | Conforming to IEC 60068-2-6 10 gn, +/- 1 mm (10–55 Hz) | | |
| **Power Requirements** | | | |
| Supply Voltage | 30 mm: 24 Vdc (12–30 Vdc limits) | | 32 mm: 24–240 Vac (20–264 Vac limits) |
| Max. Load | 200 mA | | |
| **Environment** | | | |
| Operating Temperature Range | –25 +70 °C (–13 +158 °F) | | |
| Product Certification | CE, ETL | | |
| Environmental Protection Ratings | IP67, NEMA 4X (Indoor Use Only), IP65 (Ø M12 PCM and Ø18 PCM) | | |
| **Connection** | Precabled, PvC (2 m) | | |

| Catalog Numbers | | | |
|---|---|---|---|
| Housing Material | Stainless Steel | Nickel Plated Brass | |
| **Cable** (flush mountable) | **Catalog No.** | **Catalog No.** | **Catalog No.** |
| 3-wire / PNP / N.O. function | XT112S1PAL2 | XT118B1PAL2 | XT130B1PAL2 |
| 3-wire / NPN / N.O. function | XT112S1NAL2 | XT118B1NAL2 | XT130B1NAL2 |
| 4-wire / PNP / N.O./N.C. function | XT112S1PCL2 | XT118B1PCL2 | XT130B1PCL2 |
| **Connector** (flush mountable) | | **M12** | |
| 4-wire / PNP / N.O./N.C. function | XT112S1PCM12 | XT118B1PCM12 | XT130B1PCM12 |



© 2012 Schneider Electric
All Rights Reserved

### Table 20.20: XUV Label Sensor



| | |
|---|---|
| **Sensing Characteristics** | |
| Nominal Sensing Distance | 3 mm (0.12 in.) |
| Switching Frequency | 500 Hz |
| **Power Requirements** | |
| Supply Voltage | 12–24 Vdc (10–30 Vdc limits) |
| Max. Load | 100 mA |
| **Environmental** | |
| Operating Temperature Range | +5 to +55 °C (+41 to +131 °F) |
| Environmental Protection Ratings | IP65, NEMA 4X (indoor use only), 5, 12, 12k, 13 |
| **Construction** | |
| Flat Profile Dimensions (W x H x D) | 92.5 x 47.3 x 16.0 mm (3.64 x 1.86 x 0.63 in.) |
| Housing Material | Aluminium |
| Transducer | Glass Epoxy |
| **Connection** | **Catalog No.** |
| M8 Connector | XUVU06M3KCNM8 |
| Precabled (2 m) | XUVU06M3KCNL2 |

### Table 20.21: XXV 18 mm Ultrasonic Sensor



| | | |
|---|---|---|
| **Sensing Characteristics** | | |
| Nominal Sensing Distance | | 2 mm to 50.8 mm (0.08 in. to 2.0 in.) |
| Switching Frequency | | 80 Hz |
| **Power Requirements** | | |
| Supply Voltage | | 12–24 Vdc |
| Max. Load | | 200 mA |
| **Environmental** | | |
| Operating Temperature Range | | 0 to 60 °C (32 to 140 °F) |
| Environmental Protection Ratings | | NEMA Type 4 and 13, and IP67 |
| **Construction** | | |
| Barrel Dimensions (Ø x L) | | 18 x 1 x 43.2 mm (0.71 x 0.04 x 1.70 in.) |
| Housing Material | | Nickel Plated Brass |
| Transducer | | Glass Epoxy |
| **Connection** | | **Catalog No.** |
| **Cable** | | **Precabled, PvC (2 m)** |
| PNP | N.O. | XXV18B1PAL2 |
| | N.C. | XXV18B1PBL2 |
| NPN | N.O. | XXV18B1NAL2 |
| | N.C. | XXV18B1NBL2 |
| **Connection** | | **M12** |
| PNP | N.O. | XXV18B1PAM12 |
| | N.C. | XXV18B1PBM12 |
| NPN | N.O. | XXV18B1NAM12 |
| | N.C. | XXV18B1NBM12 |

### Table 20.22: Sensor Accessories



| Teachable Pushbutton Accessory for Virtu Series |
|---|
| **Catalog No.** |
| XXZPB100 |



| Python AC/DC Power Convertor |
|---|
| **Catalog No.** |
| XXZPM100M12 |

### Table 20.23: Mounting Brackets



| Body Type | Catalog No. |
|---|---|
| M12 | 9006PA12 |
| M18 | 9006PA18 |
| M30 | 9006PA30 |

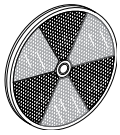
### Table 20.24: Accessories



**XUZC24**



**XUZC50**



**XUZC80**

| | | mm | Catalog No. |
|---|---|---|---|
| **Reflectors** | | 24 x 21 | XUZC24 |
| | | Ø 80 | XUZC80 |
| | | 50 x 50 | XUZC50 |
| | | **Material** | **Catalog No.** |
| **Mounting Brackets for XUB** | | Die Cast Zinc | XUZA118 |
| | | Plastic | XUZA218 |
| | | **90°** | **Straight** |
| | | **Catalog No.** | **Catalog No.** |
| **Cables (PUR), 2 m, without LED ★**<br>Suitable plug-in female connectors, including pre-wired versions | **M8 (4-Pin)** | XZCP1041L2 | XZCP0941L2 |
| | **M12 (4-pin)** | XZCP1241L2 | XZCP1141L2 |
| | **1/2- 20UNF** | XZCP1965L2 | XZCP1865L2 |

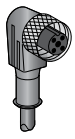
★ For 5 or 10 meter lengths, replace 2 in the cable catalog number with 5 or 10.



**XUZA118**



**XUZA218**



**XZCP1241L2**



**XZCP1141L2**





© 2012 Schneider Electric
All Rights Reserved

## Table 20.25: Specifications and Catalog Numbers



**Virtu™ VM1 and VM18**

| Specifications | | | | | | |
|---|---|---|---|---|---|---|
| **Sensing Characteristics** | | | | | | |
| Sensing Range | 51–508 mm (2–20 in.) | | | | | |
| Max. Switching Frequency | 300 Hz | | | | | |
| **Power Requirements** | | | | | | |
| Supply Voltage | 12–24 Vdc | | | | | |
| Supply Current | 40 mA (excluding load) | | | | | |
| **Environmental Ratings** | | | | | | |
| Operating Temperature | –30 to 70 °C (–22 to 158 °F) | | | | | |
| Environment | NEMA 4X (indoor use only), IP67 | | | | | |
| **Construction** | | | | | | |
| VM18 Barrel, ØxL | 18 x 1 x 77.62 mm (0.709 x 3.06 in.) | | | | | |
| VM1 Dual Mount | Ø 18 mm and Flat Format 43.7 x 18 x 59.7 mm (1.72 x 0.70 x 2.35 in.) | | | | | |
| Housing Material | PBT Resin | | | | | |
| Transducer | Glass Epoxy | | | | | |
| **Output Type** | **Catalog Number** | | | | | |
| | **Output** | | **Cable** | | **Quick Disconnect** | |
| | | | **Dual Mount** | **Barrel** | **Dual Mount** | **Barrel** |
| **Proximity** | PNP Sourcing | N.O. | VM1PNO | VM18PNO | VM1PNOQ | VM18PNOQ |
| | | N.C. | VM1PNC | VM18PNC | VM1PNCQ | VM18PNCQ |
| | NPN Sinking | N.O. | VM1NNO | VM18NNO | VM1NNOQ | VM18NNOQ |
| | | N.C. | VM1NNC | VM18NNC | VM1NNCQ | VM18NNCQ |
| | PNP Sourcing | N.O. | VM1PTO | VM18PTO | VM1PTOQ | VM18PTOQ |
| | | N.C. | | | | |
| | NPN Sinking | N.O. | VM1NTO | VM18NTO | VM1NTOQ | VM18NTOQ |
| | | N.C. | | | | |
| **Dual-Level Pump In Normally Open** | Off at loss of echo and at powerup | PNP | VM1PPI0000 | VM18PPI0000 | VM1PPI0000Q | VM18PPI0000Q |
| | | NPN | VM1NPI0000 | VM18NPI0000 | VM1NPI0000Q | VM18NPI0000Q |
| | On at loss of echo and at powerup | PNP | VM1PPI1000 | VM18PPI1000 | VM1PPI1000Q | VM18PPI1000Q |
| | | NPN | VM1NPI1000 | VM18NPI1000 | VM1NPI1000Q | VM18NPI1000Q |
| | Hold on loss of echo, Off at powerup | PNP | VM1PPI2000 | VM18PPI2000 | VM1PPI2000Q | VM18PPI2000Q |
| | | NPN | VM1NPI2000 | VM18NPI2000 | VM1NPI2000Q | VM18NPI2000Q |
| **Dual-Level Pump Out Normally Open** | Off at loss of echo and at powerup | PNP | VM1PPO0000 | VM18PPO0000 | VM1PPO0000Q | VM18PPO0000Q |
| | | NPN | VM1NPO0000 | VM18NPO0000 | VM1NPO0000Q | VM18NPO0000Q |
| | On at loss of echo and at powerup | PNP | VM1PPO1000 | VM18PPO1000 | VM1PPO1000Q | VM18PPO1000Q |
| | | NPN | VM1NPO1000 | VM18NPO1000 | VM1NPO1000Q | VM18NPO1000Q |
| | Hold on loss of echo, Off at powerup | PNP | VM1PPO2000 | VM18PPO2000 | VM1PPO2000Q | VM18PPO2000Q |
| | | NPN | VM1NPO2000 | VM18NPO2000 | VM1NPO2000Q | VM18NPO2000Q |
| **Analog** | **Voltage 0–10 Vdc with Temperature Compensation** For Direct/Inverse models, change VD or VI to VA. | | | | | |
| | Direct, 0 V at loss of echo and at powerup | | VM1VD0000 | VM18VD0000 | VM1VD0000Q | VM18VD0000Q |
| | Inverse, 0 V at loss of echo and at powerup | | VM1VI0000 | VM18VI0000 | VM1VI0000Q | VM18VI0000Q |
| | Direct, 10 V at loss of echo and at powerup | | VM1VD1000 | VM18VD1000 | VM1VD1000Q | VM18VD1000Q |
| | Inverse, 10 V at loss of echo and at powerup | | VM1VI1000 | VM18VI1000 | VM1VI1000Q | VM18VI1000Q |
| | Direct, hold on loss of echo, 0 V at powerup | | VM1VD2000 | VM18VD2000 | VM1VD2000Q | VM18VD2000Q |
| | Inverse, hold on loss of echo, 0 V at powerup | | VM1VI2000 | VM18VI2000 | VM1VI2000Q | VM18VI2000Q |
| | Direct, hold on loss of echo, 10 V at powerup | | VM1VD3000 | VM18VD3000 | VM1VD3000Q | VM18VD3000Q |
| | Inverse, hold on loss of echo, 10 V at powerup | | VM1VI3000 | VM18VI3000 | VM1VI3000Q | VM18VI3000Q |
| | **Current 4–20 mA with Temperature Compensation** For Direct/Inverse models, change CD or CI to CA | | | | | |
| | Direct, 4 mA at loss of echo and at powerup | | VM1CD0000 | VM18CD0000 | VM1CD0000Q | VM18CD0000Q |
| | Inverse, 4 mA at loss of echo and at powerup | | VM1CI0000 | VM18CI0000 | VM1CI0000Q | VM18CI0000Q |
| | Direct, 20 mA at loss of echo and at powerup | | VM1CD1000 | VM18CD1000 | VM1CD1000Q | VM18CD1000Q |
| | Inverse, 20 mA at loss of echo and at powerup | | VM1CI1000 | VM18CI1000 | VM1CI1000Q | VM18CI1000Q |
| | Direct, hold on loss of echo, 4 mA at powerup | | VM1CD2000 | VM18CD2000 | VM1CD2000Q | VM18CD2000Q |
| | Inverse, hold on loss of echo, 4 mA at powerup | | VM1CI2000 | VM18CI2000 | VM1CI2000Q | VM18CI2000Q |
| | Direct, hold on loss of echo, 20 mA at powerup | | VM1CD3000 | VM18CD3000 | VM1CD3000Q | VM18CD3000Q |
| | Inverse, hold on loss of echo, 20 mA at powerup | | VM1CI3000 | VM18CI3000 | VM1CI3000Q | VM18CI3000Q |



© 2012 Schneider Electric
All Rights Reserved

## Table 20.26: Specifications and Catalog Numbers



**Virtu™ 30 mm**



**M30**
**30 mm (1 or 2 m)**



**M30**
**30 mm (8 m)**

| **Specifications** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sensing Characteristics** | | | | | | | | |
| Sensing Range | 102–1000 mm (4–39 in.) | | 51 mm to 1 m (2–39 in.); 119 mm to 2 m (4.7–79 in.) | | | 304.8 mm to 8 m (12–315 in.) | | |
| Sensing Frequency | 180 kHz | | 200 kHz | | | 75 kHz | | |
| **Power Requirements** | | | | | | | | |
| Supply Voltage | 12–24 Vdc discrete, 15–24 Vdc analog | | 12–24 Vdc discrete; 15–24 Vdc analog | | | 12–24 Vdc discrete; 15–24 Vdc analog | | |
| Supply Current | 40 mA discrete, 90 mA analog (excluding load) | | 80 mA (excluding load) | | | 80 mA (excluding load) | | |
| **Environmental Ratings** | | | | | | | | |
| Operating Temperature | 0 to 70 °C (32 to 158 °F) | | 0 to 50 °C (32 to 122 °F) discrete<br>–20 to 60 °C (–4 to 140 °F) analog | | | –20 to 60 °C (–4 to 140 °F)<br>TF option: –40 to 60 °C (–40 to 140 °F) | | |
| Environment | NEMA 4X (indoor use only), IP67 | | NEMA 4X (indoor use only), IP67 | | | NEMA 4X (indoor use only), IP67 | | |
| **Construction** | | | | | | | | |
| Barrel, ØxL | 30 x 1 x 95.26 mm (1.18 x 3.75 in.) | | 30 x 1 x 95 mm (1.18 x 3.74 in.) | | | 30 x 1 x 116 mm (9.18 x 4.58 in.) | | |
| Housing Material | PBT Resin | | PEI Resin | | | PEI Resin | | |
| Transducer | Glass Epoxy | | Silicon Rubber or Fluorosilicone | | | Glass Epoxy | | |
| **Output Type** | | | **1 m / 2 m** | | | **8 m** | | |
| | **Description** | **Catalog No.** | **Description** | | **Catalog No.** | **Description** | **Catalog No.** | |
| **Proximity Output** | PNP Sourcing N.O. | XX6V3A1PAM12 | **1 m** | Connector | SM950A100000 | **Cable** | SM900A800000 | |
| | PNP Sourcing N.C. | XX6V3A1PBM12 | | Cable | SM900A100000 | | | |
| | NPN Sinking N.O. | XX6V3A1NAM12 | **2 m** | Connector | SM950A400000 | **Connector** | SM950A800000 | |
| | NPN Sinking N.C. | XX6V3A1NBM12 | | Cable | SM900A400000 | | | |
| | **Connector** | | **Cable 1 m ▲** | | **PNP, NO** | **Cable 8 m** | **PNP, NO** | |
| **Dual-Level Pump In** | Normally Open | | Pump-out latch | | SM902A100000 | Pump-out latch | SM902A800000 | |
| | Hold on loss of echo; Off on power up | | Pump-out latch w/alarm | | SM902A1560000 | Pump-out latch w/alarm | SM902A8560000 | |
| | PNP | XX2V3A1PGM12 | Pump-out latch, w/setpoint | | SM902A1760000 | Pump-out latch, w/setpoint | SM902A8760000 | |
| | NPN | XX2V3A1NGM12 | Pump-in latch | | SM902A110000 | Pump-in latch | SM902A810000 | |
| | Off on loss of echo; Off on power up | | Pump-in latch w/alarm | | SM902A1460000 | Pump-in latch w/alarm | SM902A8460000 | |
| | PNP | XX2V3A1PFM12 | Pump-in latch, w/setpoint | | SM902A1660000 | Pump-in latch, w/setpoint | SM902A8660000 | |
| | NPN | XX2V3A1NFM12 | Dual setpoint | | SM902A1260000 | Dual setpoint | SM902A8260000 | |
| **Dual-Level Pump Out** | Hold on loss of echo; Off on power up | | Dual alarm | | SM902A1360000 | Dual alarm | SM902A8360000 | |
| | PNP | XX2V3A1PJM12 | **Connector** | | **PNP, NO** | **Connector** | **PNP, NO** | |
| | NPN | XX2V3A1NJM12 | Pump-out latch | | SM952A100000 | Pump-out latch | SM952A800000 | |
| | Off on loss of echo; Off on power up | | Pump-out latch w/alarm | | SM952A1560000 | Pump-out latch w/alarm | SM952A8560000 | |
| | PNP | XX2V3A1PHM12 | Pump-out latch, w/setpoint | | SM952A1760000 | Pump-out latch, w/setpoint | SM952A8760000 | |
| | NPN | XX2V3A1NHM12 | Pump-in latch | | SM952A110000 | Pump-in latch | SM952A810000 | |
| | | | Pump-in latch w/alarm | | SM952A1460000 | Pump-in latch w/alarm | SM952A8460000 | |
| | | | Pump-in latch, w/setpoint | | SM952A1660000 | Pump-in latch, w/setpoint | SM952A8660000 | |
| | | | Dual setpoint | | SM952A1260000 | Dual setpoint | SM952A8260000 | |
| | | | Dual alarm | | SM952A1360000 | Dual alarm | SM952A8360000 | |
| | **Quick Disconnect** | | **Cable 1 m ▲** | | | **Cable 8 m** | | |
| **Analog** | **0–20 mA** | **Catalog No.** | **Voltage** | | **Catalog No.** | **Voltage** | **Catalog No.** | |
| | Direct/Inverse slope | XX9V3A1C4M12 | Auto slope | | SM906A180000 | Auto slope | SM906A880000 | |
| | Direct output | XX9V3A1D4M12 | Direct slope | | SM906A110000 | Direct slope | SM906A810000 | |
| | Inverse output | XX9V3A1E4M12 | Inverse slope | | SM906A100000 | Inverse slope | SM906A800000 | |
| | **4–20 mA** | | **Current** | | | **Current** | | |
| | Direct/Inverse slope | XX9V3A1C2M12 | Auto slope | | SM906A190000 | Auto slope | SM906A890000 | |
| | Direct output | XX9V3A1D2M12 | Direct slope | | SM906A130000 | Direct slope | SM906A830000 | |
| | Inverse output | XX9V3A1E2M12 | Inverse slope | | SM906A120000 | Inverse slope | SM906A820000 | |
| | **0–5 Vdc** | | **Connector** | | | **Connector** | | |
| | Direct/Inverse slope | XX9V3A1F3M12 | **Voltage** | | | **Voltage** | | |
| | Direct output | XX9V3A1G3M12 | Auto slope | | SM956A180000 | Auto slope | SM956A880000 | |
| | Inverse output | XX9V3A1H3M12 | Direct slope | | SM956A110000 | Direct slope | SM956A810000 | |
| | **0–10 Vdc** | | Inverse slope | | SM956A100000 | Inverse slope | SM956A800000 | |
| | Direct/Inverse slope | XX9V3A1F1M12 | **Current** | | | **Current** | | |
| | Direct output | XX9V3A1G1M12 | Auto slope | | SM956A190000 | Auto slope | SM956A890000 | |
| | Inverse output | XX9V3A1H1M12 | Direct slope | | SM956A130000 | Direct slope | SM956A830000 | |
| | | | Inverse slope | | SM956A120000 | Inverse slope | SM956A820000 | |

▲ For the 2 m version, change model from SMxxx**A1**xxxxx to SMxxx**A4**xxxxx.





© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

**Encapsulated Miniature**



**9007MS**, 21-8

**Industrial Snap Switches**



**9007A**, p. 21-6

**Modular, Miniature and Compact**



**XCMD**, 21-14



**XCKD**, 21-14



**XCKP**, 21-14



**XCKT**, 21-15

**Compact General Duty**



**XCKL**, 21-22



**9007C**, p. 21-32

**Heavy Duty Industrial**



**9007C**, p. 21-26



**XCKJ**, 21-40

**Severe Duty**



**9007T**, 21-37



**L100**, 21-39

## Part Numbers


| | | |
|---|---|---|
| **9007A and 9007C** | Basic snap switch without enclosures with or without operators | **21-6** |
| **9007MS and 9007ML** | Encapsulated switches with NEMA 6P rating and 10 A contacts | **21-8** |
| **XCMD** | Osisense miniature metal modular | **21-14** |
| **XCMN** | Osisense compact non-modular | **21-14** |
| **XCKD** | Osisense compact metal modular | **21-14** |
| **XCKP** | Osisense compact plastic modular | **21-14** |
| **XCKT** | Osisense compact plastic with 2 side-cable entries and modular head | **21-15** |
| **XCDR** | Osisense compact metal with manual reset | **21-15** |
| **XCPR** | Osisense compact plastic with manual reset | **21-15** |
| **ZCE, ZCY** | Osisense component heads and lever arms | **21-16** |
| **ZCD, ZCMC, ZCMD, ZCP, ZCPE** | Osisense component bodies, cable plug assemblies, and conduit entries | **21-17** |
| **XCKN, XCNR** | Osisense compact, plastic, non-modular | **21-18** |
| **XCKS** | Standard body, plastic, double insulated | **21-19** |
| **XCKL** | Compact general duty, metal, with direct opening contacts | **21-22** |
| **XCKJ** | Precision switches with direct acting contacts to meet most international standards | **21-26** |
| **9007C** | Heavy duty, oiltight, watertight switches, with compact types available | **21-32** |
| **9007T and 9007FT** | Severe duty, oiltight mill and foundry switches with 20 A contacts | **21-37** |
| **L100/L300** | Severe duty, oiltight mill and foundry switches with up to 3 circuits | **21-39** |


© 2012 Schneider Electric
All Rights Reserved

| Design | Miniature | | | | Compact | | |
|---|---|---|---|---|---|---|---|
| Catalog number | 9007 A/O | 9007 MS/ML | XCMN | XCMD | XCKP | XCKD | XCKL |
| Page | 21-6 | 21-8 | 21-14 | 21-14 | 21-14 | 21-14 | 21-22 |
| |  |  |  |  |  |  |  |
| **Enclosure** | Open, plastic | Metal body, metal head | Plastic, double insulated | Metal | Plastic, double insulated | Metal | Metal |
| **Features** | A variety of operators are available. | Bottom or side cable entry. Full range of operating heads. See page 21-8. | Mounting by the body or by the head | | | | 1 conduit entry |
| **Modularity** | Selected operators | Operator | — | Head, body, lever, and connector | | | Head, body, and lever |
| **Conforming to standards** | | | — | — | CENELEC: EN 50047 | | — |
| **Body dimensions (w x h x d), mm (in.)** | 29.0 x 63.5 x 21.0 (1.14 x 2.5 x 0.83) | 40.1 x 44.4 x 15.8 (1.58 x 1.75 x 0.62) | 30 x 50 x 16 (1.18 x 1.97 x 0.63) | | 31 x 65 x 30 (1.22 x 2.56 x 1.18) | | 52 x 72 x 30 (2.05 x 2.83 x 1.18) |
| **Head** | Linear | Linear or rotary | Linear movement, plunger<br>Rotary movement, lever<br>Rotary movement, multi-directional ▲<br>Same heads for ranges XCMD, XCKD, XCKP and XCKT | | | | Linear movement, plunger<br>Rotary movement, lever<br>Rotary movement, multi-directional ▲ |
| **Contact blocks** | | | | | | | |
| 2 snap action contacts ⊕ | — | — | N.C. + N.O. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O. |
| 2 snap action contacts | — | — | N.C. + N.O. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O.;<br>N.C. + N.C. | N.C. + N.O. |
| 3 snap action contacts ⊕ | — | — | — | N.C. + N.C. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. |
| 3 snap action contacts | — | — | — | N.C. + N.C. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. |
| 4 snap action contacts ⊕ | — | — | — | N.C. + N.C. + N.O. + N.O. | — | — | — |
| 4 snap action contacts | — | — | — | N.C. + N.C. + N.O. + N.O. | — | — | — |
| 2 slow break contacts break before make ⊕ | — | — | — | N.C. + N.O. | N.C. + N.O. | N.C. + N.O. | N.C. + N.O. |
| 2 slow break contacts break before make | — | — | — | N.C. + N.O. | N.C. + N.O. | N.C. + N.O. | N.C. + N.O. |
| 2 slow break contacts make before break ⊕ | — | — | — | — | N.O. + N.C. | N.O. + N.C. | N.O. + N.C. |
| 2 slow break contacts make before break | — | — | — | — | N.O. + N.C. | N.O. + N.C. | N.O. + N.C. |
| 2 slow break contacts simultaneous ⊕ | — | — | — | — | N.C. + N.C. | N.C. + N.C. | N.C. + N.C. |
| 2 slow break contacts simultaneous | — | — | — | — | N.O. + N.O. | N.O. + N.O. | N.O. + N.O. |
| 3 slow break contacts break before make ⊕ | — | — | — | N.C. + N.C. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. |
| 3 slow break contacts break before make | — | — | — | N.C. + N.C. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. |
| 2 snap action contacts | N.C. + N.O.,<br>N.O. + N.O. | N.C. + N.O. | — | — | — | — | — |
| 4 snap action contacts | N.C. + N.C.,<br>N.O. + N.O. | — | — | — | — | — | — |
| **Insulation voltage (Ui) / thermal current (Ithe)** | See page 21-6 | 300 Vac/Vdc<br>10 A (standard) | Screw terminal<br>2 contacts:<br>400 V/6 A | Pre-cabled<br>2 contacts: 400 V/6 A<br>3 contacts: 400 V/4 A<br>4 contacts: 400 V/3 A | Screw terminal:<br>2 contacts: 500 V/10 A<br>3 contacts: 400 V/6 A<br>Connector:<br>Integral M12,<br>4-pin: 250 V/3 A | Screw terminal:<br>2 contacts: 500 V/10 A<br>3 contacts: 400 V/6 A<br>Connector:<br>Integral M12,<br>5-pin: 60 V/4 A | Screw terminal:<br>2 contacts: 500 V/10 A<br>3 contacts: 400 V/6 A |
| **Enclosure rating**<br>IP = IEC enclosure rating<br>IK = EN shock test standard | None | NEMA Types 1, 2, 4, 6, 6P, 12, 13<br>IP67 | NEMA Types 1, 2, 13<br>IP 65, IK 04 | NEMA Types 1, 2, 4X, 6, 12<br>IP 66, IP 67, IP 68, IK 06 | NEMA Types 1, 2, 4, 6, 6P, 12, 13<br>IP 66, IP 67, IK 04 | NEMA Types 1, 2, 4, 6, 12, 13<br>IP 66, IP 67, IK 06 | NEMA Types 1, 2, 4, 6, 6P, 12, 13<br>IP 66, IK 06 |
| **Electrical connection** | Screw terminal or Faston® connector | Pre-wired cable or M12 connector | Pre-wired cable | Pre-cabled.<br>Connector:<br>Integral or remote M12 or remote 7/8" 16UN | Screw terminal:<br>M16, M20, Pg 11, PG 13, 1/2" NPT, or PF 1/2<br>Connector:<br>Integral M12 | | Screw terminal:<br>M20 or 1/2" NPT |

▲ Flexible operators do not guarantee direct (positive) opening operation.



© 2012 Schneider Electric
All Rights Reserved

| Design | Standard Duty Industrial | | | Severe Duty Mill and Foundry | |
|---|---|---|---|---|---|
| Catalog number | 9007C | XCKJ | XCKS | 9007T/FT | L100/L300 |
| Page | 21-32 | 21-32 | 21-19 | 21-37 | 21-39 |
| |  |  |  |  |  |
| **Enclosure** | Metal, diecast, zinc alloy | Metal | Plastic, double insulated | Metal | Metal |
| **Features** | Plug-in body | Fixed or plug-in body, -40 °C (-40 °F) or +120 °C (+248 °F) versions | — | Extra heavy duty contact ratings | • Extra heavy duty contact ratings<br>• High temperature option, unique in the marketplace |
| **Modularity** | Head, body, and lever | | | Lever | |
| **Conforming to standards / Product certifications** | UL 508, C22-2-14-95, NEMA 250, IEC 60947, EN 60947-1, EN 60947-5-1 | CENELEC: EN 50041 | CENELEC: EN 50041 | NEMA A600 UL508 UL Listed, CSA Certified | NEMA A600 UL508 UL Listed, CSA Certified |
| **Body dimensions (w x h x d), mm (in.)** | Standard: 39 x 102 x 45 (1.54 x 4.02 x 1.77) Compact: 39 x 80 x 45 (1.54 x 3.15 x 1.77) | 40 x 77 x 44 (1.57 x 3.03 x 1.73) 42.5 x 84 x 36 (1.67 x 3.31 x 1.42) | 40 x 72.5 x 36 (1.57 x 2.85 x 1.42) | 58.7 x 114.3 x 64.5 (2.31 x 4.5 x 2.54) | 58.7 x 126 x 53.3 (2.31 x 4.95 x 2.10) |
| **Head** | Linear movement, plunger<br>Rotary movement, lever<br>Multi-directional movement (wobble stick, cat whisker) ♦ | Linear movement, plunger<br>Rotary movement, lever<br>Rotary movement, multi-directional ♦ | Linear movement, plunger<br>Rotary movement, lever<br>Rotary movement, multi-directional ♦ | Rotary movement, lever | Rotary movement, lever |
| **Contact blocks** | | | | — | Various options available for L100, 2- and 3-pole devices. |
| 2 snap action contacts → | — | N.C. + N.O.; N.C. + N.C. | N.C. + N.O.; N.C. + N.C. | — | — |
| 2 snap action contacts | — | N.C. + N.O.; N.C. + N.C. | N.C. + N.O.; N.C. + N.C. | — | — |
| 3 snap action contacts → | — | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | — | — |
| 3 snap action contacts | — | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | — | — |
| 4 snap action contacts → | — | — | — | — | — |
| 4 snap action contacts | — | — | — | — | — |
| 2 slow break contacts break before make → | — | N.C. + N.O. | — | — | — |
| 2 slow break contacts break before make | — | N.C. + N.O. | — | — | — |
| 2 slow break contacts make before break → | — | N.O. + N.C. | — | — | — |
| 2 slow break contacts make before break | — | N.O. + N.C. | — | — | — |
| 2 slow break contacts simultaneous → | — | N.C. + N.C. | — | — | — |
| 2 slow break contacts simultaneous | — | N.O. + N.O. | N.O. + N.O. | — | — |
| 3 slow break contacts break before make → | — | N.C. + N.C. + N.O. ;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | — | — |
| 3 slow break contacts break before make | — | N.C. + N.C. + N.O. ;<br>N.C. + N.O. + N.O. | N.C. + N.C. + N.O.;<br>N.C. + N.O. + N.O. | — | — |
| 1 slow break contact Form Y1561 ▲ → | 1 N.C | — | — | — | — |
| 2 snap action contacts | 1 N.O. + 1 N.C. | 2 C/O | 2 C/O | 1 N.C. + 1 N.O.■ convertible sequence | 1 N.C. + 1 N.O.■ Some conversions possible |
| 4 snap action contacts | 2 N.O. + 2 N.C. ;<br>2 N.O. + 2 N.C. , neutral position;<br>2 N.O. + 2 N.C. , two stage | — | — | — | — |
| **Insulation voltage (Ui) and thermal current (Ithe)** | Ui = 600 V, except: 9007C62, 9007C66, 9007C68 (Ui = 250 V) and 9007C84, 9007C86 (Ui = 125 V)<br>Ithe = 10 A, except: 9007C84, 9007C86 (Ithe = 2.5 A) | **Screw terminal**<br>2 contacts: 500 V/10 A<br>3 contacts: 400 V/6 A<br>**Connector**<br>Integral M12, 5-pin: 60 V / 4 A<br>Integral 7/8" 16UN: 250 V / 6 A | **Screw terminal**<br>2 contacts: 500 V/10 A<br>3 contacts: 400 V/6 A | 600 V<br>20 A (AC/DC) | 600 V<br>20 A (AC), 5 A (DC) |
| **Enclosure rating**<br>IP = IEC enclosure rating<br>IK = EN shock test standard | IP 67 conforming to IEC 60529, NEMA Types 2, 4, 6, 6P, 12, 13 | NEMA Types 1, 2, 4, 12<br>IP 66, IK 07 | IP 65, IK 03 | NEMA Types 1, 2, 4, 12, 13<br>IP65, 66, 67 | NEMA Types 1, 4, 13<br>IP65, 66 |
| **Electrical connection** | **Cable entry**<br>1/2"-14 NPT,<br>M20 x 1.5 ISO cable entry<br>**Connector**<br>Integral 5-pin mini-connector | **Screw terminal**<br>M20 x 1.5, PG13, or 1/2" PT<br>**Connector**<br>Integral M12 or 7/8" 16UN | **Screw terminal**<br>M20 x 1.5 or PG13 | **Cable entry**<br>1/2" NPT or PG13.5 | **Cable entry**<br>1/2" NPT or 3/4" NPT<br>Other options available<br>**Connector**<br>7/8" 16UN or<br>Cannon MS3102E20-AP or equal; other options available |

▲ Single pole only. Refer to page 21-29 for details.
■ For other contact options, see catalog 9006CT1007.
♦ Flexible operators do not guarantee direct (positive) opening operation.

© 2012 Schneider Electric
All Rights Reserved

### Table 21.1: Enclosure Ratings

| Type | NEMA Style | | | | | | | | | | | IEC Style | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 4X | 6 | 6P | 7 | 9 | 12 | 13 | IP65 | IP66 | IP67 |
| **9007C** | ▲ | ▲ | | ▲ | | ▲ | ▲ | | | ▲ | ▲ | ▲ | ▲ | ▲ |
| **9007CR** | ▲ | ▲ | | ▲ | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | |
| **9007FT** | ▲ | ▲ | | ▲ | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ |
| **L100/L300** | ▲ | | | ▲ | | | | | | | ▲ | ▲ | ▲ | |
| **9007MS/ML ♦** | ▲ | ▲ | ▲ | ▲ | | ▲ | ▲ | | | ▲ | ▲ | | | ▲ |
| **9007T** | ▲ | ▲ | | ▲ | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ |
| **XCKJ** | ▲ | ▲ | ▲ | ▲ | | | | | | ▲ | | | ▲ | |
| **XCKL** | ▲ | ▲ | ▲ | ▲ | | | | | | ▲ | | | ▲ | |
| **XCKN & XCNR** | | | | | ▲ | | | | | ▲ | | ▲ | | |
| **XCKP & XCKT ■** | ▲ | | | ▲ | | | | | | ▲ | | ▲ | | |
| **XCKS, XCMN** | | | | | | | | | | | | ▲ | | |
| **XCMD, XCKD** | | | | | ▲ | | ▲ | | | ▲ | ▲ | | ▲ | ▲ |

▲ Indicates NEMA or IEC Type Rating available for each product.
■ For indoor use only—not UV protected.
♦ Enclosure ratings are NEMA 1, 2, 3, 4, 6, 6P, 12, and 13 except for option 21 (low force) which is NEMA 1 only. The 9007 MS/ML05 (omni-directional operation) enclosure ratings are NEMA 1, 2, 12, and 13

### Table 21.2: Sealing

| Type | | Material |
|---|---|---|
| **9007C, CR** | Standard shaft seals on lever types | Fluorocarbon rubber (FKM) |
| | Plunger and wobble stick boots | Neoprene; Fluorocarbon optional |
| | All other seals | Nitrile (Buna N); Fluorocarbon optional |
| **R.B.Denison™ L** | | PVC |
| **9007T and FT** | Shaft seal | Nitrile (Buna N) |
| | Cover gasket | Nitrile (Buna N) |
| | Base plate gasket | Cellulose fiber laminate |
| **XCKJ, XCKL, XCKS** | | Nitrile (Buna N) |
| **XCMD, XCKD, XCKP, XCKT, XCKN, XCNR** | | Nitrile (Buna N) and silicon |

### Table 21.3: Ambient Temperature Ranges

The low temperatures listed below are based on the absence of freezing moisture or water. Care should be taken to avoid sub-freezing temperatures where dripping or splashing water is present and to avoid bringing a cold switch into a warm humid atmosphere and then back into sub-freezing temperatures. The water or moisture can freeze around the switch lever arm or plunger and cause jamming.

| Type | Low Temperature | High Temperature at Full Rated Load |
|---|---|---|
| **9007 C** | | |
| Lever Type | -20 °F (-28.9 °C) | +185 °F (+85 °C) |
| Plunger & Wobble Stick Type | 0 °F (-17.8 °C) | +185 °F (+85 °C) |
| **9007 FT★, T** | -10 °F (-23 °C) | +185 °F (+85 °C) |
| **HL100/HL300** | 0 °F (-17.8 °C) | +350 °F (+177 °C) |
| **L100/L300** | 0 °F (-17.8 °C) | +200 °F (+93 °C) |
| **9007 MS/ML** | -4 °F (-20 °C) | +221 °F (+105 °C) |
| **XCKJ, XCKL, XCKP, XCKT** | -13 °F (-25 °C) | +158 °F (+70 °C) |
| **XCMN, XCKN, XCNR** | -13 °F (-25 °C) | +158 °F (+70 °C) |
| **XCKS** | -13 °F (-25 °C) | +158 °F (+70 °C) |
| **XCMD** | -13 °F (-25 °C) | +158 °F (+70 °C) |

★ The Type FT will withstand hot falling sand up to +300°F (+149 °C); **however,** ambient temperature for the FT switch is the same as the Type T above (+185 °F, +85 °C). **Do not use in higher temperature ambients.**

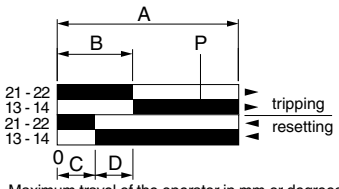
Some switches are available with higher or lower temperature limits, by selecting special versions or special options. Refer to the respective product sections for further information.
(Ex.: 9007MS/ML, see page 21-9.)

### Table 21.4: Electrical Contact Ratings

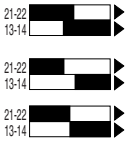
| AC—NEMA A600 | | | | | | DC | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Max. Current—35% Power Factor | | | | | | Maximum Current | | |
| Volts | Make | | Break | | Continuous Carrying Amperes | Volts | Make or Break | | Continuous Carrying Amperes |
| | A | VA | A | VA | | | A | VA | |
| **120** | 60 | 7200 | 6 | 720 | 10 | 125 | 1.1/0.55 ▼ | 138/69 ▼ | 5/2.5 ▼ |
| **240** | 30 | 7200 | 3 | 720 | 10 | — | — | — | — |
| **480** | 15 | 7200 | 1.5 | 720 | 10 | 250 | 0.27 | 67.5 | 2.5 |
| **600** | 12 | 7200 | 1.2 | 720 | 10 | 600 | 0.10 | 60 | 2.5 |

▼ Type C52 compact unit ratings at 125 Vdc—same ratings as C54, CF53 and CR53 at other voltages.

### Table 21.5: Contact Function Diagrams




A=Maximum travel of the operator in mm or degrees.
B=Tripping travel of the contact.
C=Reset travel.
D=B-C=Differential travel.
P=Point from which positive opening is assured

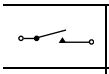



**Make-before-break (overlapping) SPDT**
The normally open contact closes before the normally closed contact opens.

**Break-before-make (offset) SPDT**
The normally closed contact opens before the normally open contact closes.

**Simultaneous make and break—SPDT**
The normally closed contact opens at the same time as the normally open contact closes.

### Table 21.6: Wiring Diagrams

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Form A | Form B | Form C | Form AA | Form BB | Form CC | Form X | Form Y | Form Zb | Form Z | Form XX | Form YY | Form ZZ |
| SPST-NO | SPST-NC | SPDT | DPST-NO | DPST-NC | DPDT | SPST-NO-DB | SPST-NC-DB | SPDT-DB Isolated Contacts | SPDT-DB | DPST-NO-DB | DPST-NC-DB | DPDT-DB |



© 2012 Schneider Electric
All Rights Reserved

**Contact Configurations**—Direct opening contacts meet IEC 60947-5-1 requirements.

For contacts used in safety applications (end of travel, emergency stop device, etc.) the assurance of direct opening is required (see IEC 204, EN 60204 or NF C 79-130) after each test. The opening of the contact must be verified by testing with an impulse voltage (2500 V).

### Table 21.7: Maximum Current Ratings for Control Circuit Contacts—All Types

| Switch Type | Contacts | Direct Opening Contacts Meet IEC 60947-5-1 Requirements ⊕ | AC—50 or 60 Hz | | | | | | DC | | | AC/DC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | V | Inductive 35% Power Factor | | | | Resistive 75% Power Factor | V | Inductive and Resistive | | Continuous Carrying Amperes |
| | | | | Make | | Break | | Make and Break Amperes | | Make and Break Amperes | | |
| | | | | A | VA | A | VA | | | Single Pole | Double Pole | |
| L100/L300 | SPDT with 2 or 3 Contacts Form Z | No | 120<br>240<br>480<br>600 | 150<br>75<br>37.5<br>30 | 18000<br>18000<br>18000<br>18000 | 20<br>12.5<br>6.25<br>5 | 2400<br>3000<br>3000<br>3000 | 6<br>3<br>1.5<br>1.2 | 125<br>250<br>600<br>— | 1.1<br>0.55<br>0.2<br>— | — | 20/5 |
| XCKD 2 Contacts | SPDT Form Zb | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5 |
| XCKD 3 Contacts | 3 Pole Form Zb | Yes | 120<br>240 | 30<br>15 | 3600<br>3600 | 3<br>1.5 | 360<br>360 | 3<br>1.5 | 125<br>250 | 0.22<br>0.11 | — | 5/1.0 |
| XCKJ Plug-in | SPDT Form Z | No | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10 |
| | 2 SPDT Form ZZ | No | 480<br>600 | 15<br>12 | 7200<br>7200 | 1.5<br>1.2 | 720<br>720 | 1.5<br>1.2 | 600<br>— | 0.1<br>— | — | 10<br>10 |
| XCKJ Non-plug-in | SPDT Form Zb | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5<br>10 |
| | 2 SPDT Form ZZ | No | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5<br>10 |
| XCKL | SPDT Form Zb | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10 |
| XCKN | 2 Pole | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5 |
| XCKP 2 Contacts | SPDT Form Zb | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5 |
| XCKP 3 Contacts | 3 Pole Form Zb | Yes | 120<br>240 | 30<br>15 | 3600<br>3600 | 3<br>1.5 | 360<br>360 | 3<br>1.5 | 125<br>250 | 0.22<br>0.11 | — | 5/1.0 |
| XCKT 2 Contacts | SPDT Form Zb | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5 |
| XCKT 3 Contacts | 3 Pole Form Zb | Yes | 120<br>240 | 30<br>15 | 3600<br>3600 | 3<br>1.5 | 360<br>360 | 3<br>1.5 | 125<br>250 | 0.22<br>0.11 | — | 5/1.0 |
| XCMD 2-4 Contacts | 2,3 or 4 Pole Form Zb | Yes | 120<br>240 | 30<br>15 | 3600<br>3600 | 3<br>1.5 | 360<br>360 | 3<br>1.5 | 125<br>250 | 0.22<br>0.11 | — | 5/1.0 |
| XCMN 2 Contacts | SPDT Form Zb | Yes | 120<br>240 | 30<br>15 | 3600<br>3600 | 3<br>1.5 | 360<br>360 | 3<br>1.5 | 125<br>250 | 0.22<br>0.11 | — | 5/1.0 |
| XCNR | 2 Pole | Yes | 120<br>240 | 60<br>30 | 7200<br>7200 | 6<br>3 | 720<br>720 | 6<br>3 | 125<br>250 | 0.55<br>0.27 | — | 10/2.5 |
| 9007AO1, AC | SPST, Form X or Y (rated 0.5 hp @ 110 and 200 Vac)<br>SPDT, Form Z | No | 120<br>240<br>480<br>600 | 40<br>20<br>10<br>8 | 4800<br>4800<br>4800<br>4800 | 15<br>10<br>6<br>5 | 1800<br>2400<br>2880<br>3000 | 15<br>10<br>6<br>5 | 125<br>250<br>600<br>— | 0.5<br>0.25<br>0.05<br>— | 0.25<br>0.1<br>—<br>— | 15 |
| 9007AO2, AO6, AB, AP | SPST, Form X or Y (rated 0.5 hp @ 110 and 200 Vac)<br>SPDT, Form Z | No | 120<br>240<br>480<br>600 | 40<br>20<br>10<br>8 | 4800<br>4800<br>4800<br>4800 | 15<br>10<br>6<br>5 | 1800<br>2400<br>2880<br>3000 | 15<br>10<br>6<br>5 | 125<br>250<br>600<br>— | 2.0<br>0.5<br>0.1<br>— | 0.5<br>0.2<br>0.02<br>— | 15 |
| 9007CO3, CO6, CB, CC, CP | DPST Form AA or BB<br>DPDT Form ZZ | No | 120<br>240<br>480<br>600 | 30<br>15<br>7.5<br>6 | 3600<br>3600<br>3600<br>3600 | 3<br>1.5<br>0.75<br>0.6 | 360<br>360<br>360<br>360 | 3<br>1.5<br>0.75<br>0.6 | 125<br>250<br>600<br>— | 1.0<br>0.3<br>0.1<br>— | 0.2<br>0.1<br>—<br>— | 10 |
| 9007C | SPST Form Y1561 Slow break | Yes | 120<br>240<br>480<br>600 | 60<br>30<br>15<br>12 | 7200<br>7200<br>7200<br>7200 | 6<br>3<br>1.5<br>1.2 | 720<br>720<br>720<br>720 | 6<br>3<br>1.5<br>1.2 | 125<br>250<br>600<br>— | 0.55<br>0.27<br>0.1<br>— | — | 10/2.5 |
| | SPDT Form Z | No | 120<br>240<br>480<br>600 | 60<br>30<br>15<br>12 | 7200<br>7200<br>7200<br>7200 | 6<br>3<br>1.5<br>1.2 | 720<br>720<br>720<br>720 | 6<br>3<br>1.5<br>1.2 | 125<br>250<br>600<br>— | 0.55<br>0.27<br>0.1<br>— | 0.22<br>0.11<br>—<br>— | 10/2.5 |
| | DPDT Form ZZ | No | 120<br>240<br>480<br>600 | 60<br>30<br>15<br>12 | 7200<br>7200<br>7200<br>7200 | 6<br>3<br>1.5<br>1.2 | 720<br>720<br>720<br>720 | 6<br>3<br>1.5<br>1.2 | 125<br>250<br>600<br>— | 0.22<br>0.11<br>—<br>— | 0.22<br>0.11<br>—<br>— | 10/1.0 |
| 9007MS | SPDT Form C | No | 120<br>240 | 60.0<br>30.0 | 7200<br>7200 | 6.0<br>3.0 | 720<br>720 | — | — | — | — | 10 (AC) /<br>5 (Res. @ 28 Vdc) |
| 9007ML | SPDT Form Z | No | 120<br>240 | 60.0<br>30.0 | 7200<br>7200 | 6.0<br>3.0 | 720<br>720 | — | — | — | — | 10 (AC) /<br>5 (Res. @ 28 Vdc) |
| 9007T and FT | SPDT Quick Make and Break Form Z | No | 120<br>240<br>480<br>600 | 150<br>75<br>37.5<br>30 | 18000<br>18000<br>18000<br>18000 | 20<br>12.5<br>6.25<br>5 | 2400<br>3000<br>3000<br>3000 | 20<br>12.5<br>6.25<br>5.0 | 125<br>250<br>600<br>— | 5.0<br>1.0<br>0.2<br>— | — | 20 |
| | All Slow Make and Break Form Z | No | 120<br>240<br>480<br>600 | 60<br>30<br>15<br>12 | 7200<br>7200<br>7200<br>7200 | 6<br>3<br>1.5<br>1.2 | 720<br>720<br>720<br>720 | 6<br>3<br>1.5<br>1.2 | — | — | — | 20 |

| | | |
|---|---|---|
| **Electrical Symbols For Contacts** | Form Za: the 2 contacts are the same polarity. | Form Zb: the 2 contacts are electrically separate. |
| **Symbols for Direct Opening** | ⊕ Simplified Version | ⊕ Complete symbol |

Note: Alternate Current Ratings—Several product lines offer special versions or options with alternate contact configurations or contact materials, which may result in current ratings that differ from those listed above. Refer to the respective product sections for further information.

© 2012 Schneider Electric
All Rights Reserved

## Industrial Snap Switches Without Enclosures

Industrial snap switches have been incorporated in many Square D products such as timers, specialty push buttons, foot switches, operating mechanisms, door interlocks, motor control centers, limit switches, and many other control products.



Type AO2



Type AB21



Type AP222
with 2358C22G6
mushroom button

**Recommended Actuator**: An adjustable actuator is recommended. If nonadjustable actuator is used, a resilient type or a mechanical stop should be used to prevent "bottoming" of button mechanism.

**Adjustable Actuator Overtravel**: Minimum recommended overtravel in both trip and reset directions is 0.015 in.

**Adjustable Actuator Total Travel**: Maximum differential limit plus 0.030 in. (Example: 0.076 in. for Type AO2.)

**Nonadjustable Actuator Total Travel**: Fully retracted—at least 0.139 in. for Type AO1 and 0.160 in. for Types AO2 and CO3 from mounting surface. Fully engaged—at least 0.061 in. but not closer than 0.045 in. from mounting surface.

**Contact Configurations**: Single-pole snap switches that contain two double-break contact elements (1 N.O. and 1 N.C.) must be used on circuits of the same polarity. Double-pole snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements (1 N.O. and 1 N.C.) that must be used on circuits of the same polarity.

### Table 21.8: Quick Make and Break—600 Volts Max. AC and DC

| Operator Style | Contact Arrangement | Type |
|---|---|---|
| Basic Snap Switch | 1 N.O. 1 N.C. | AO1 |
| | 1 N.C. | AO1A |
| | 1 N.O. | AO1B |
| | 1 N.O. 1 N.C. | AO2 |
| | | AO6 (Plug-in) |
| | 1 N.C. | AO2A |
| | 1 N.O. | AO2B |
| | 2 N.O. 2 N.C. | CO3 |
| | 2 N.O. | CO6 (Plug-in) |
| | Two Stage 2 N.O. 2 N.C. | CO7 |
| Rigid Roller Lever Style | 1 N.O. 1 N.C. 7/32" width roller | AB21 (RH) |
| | | AB22 (LH) |
| | | AB41 (without side mtg. bracket) |
| | 1 N.O. 1 N.C. 15/32" width roller | AB23 (RH) |
| | | AB24 (LH) |
| | 2 N.O. 2 N.C. 7/32" width roller | CB31 (RH) |
| | | CB41 (without side mtg. bracket) |
| | 2 N.O. 2 N.C. 15/32" width roller | CB33 (RH) |
| | | CB34 (LH) |
| Rigid Roller Lever Style One Way Roller | 1 N.O. 1 N.C. | AB25 (RH) |
| | | AB26 (LH) |
| | 2 N.O. 2 N.C. | CB35 (RH) |
| | | CB36 (LH) |

| Operator Style | Contact Arrangement | Type |
|---|---|---|
| Cabinet Door Style | 1 N.O. 1 N.C. | AC1 |
| | 2 N.O. 2 N.C. | CC1 |
| Plunger Style Panel Mounting | 1 N.O. 1 N.C. | AP221 |
| | 2 N.O. 2 N.C. | CP221 |
| | Operator Only | AP201 □ |
| Roller Plunger Style Panel Mounting Non-Oiltight | 1 N.O. 1 N.C. | AP321 |
| | 2 N.O. 2 N.C. | CP321 |
| | | CP324 △ |
| | Operator Only | AP301 □ |
| | | AP304 △□ |
| Roller Plunger Style Panel Mounting Oiltight | 1 N.O. 1 N.C. | AP323 |
| | | AP325 △ |
| | 2 N.O. 2 N.C. | CP323 |
| | | CP325 △ |
| | Operator Only | AP303 □ |
| | | AP305 △□ |
| Mushroom Button Style Panel Mounting | 1 N.O. 1 N.C. | AP222 |
| | 2 N.O. 2 N.C. | CP222 |
| | Operator Only | AP202 □ |

△ Roller turned 90° from standard (perpendicular to mounting holes).
□ For use with Type AO and CO basic switches.

### Table 21.9: Maximum Current Ratings For Control Contacts—All Types

| Switch Type | Contacts ◊ | AC—50 or 60 Hz | | | | | | DC | | | AC or DC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Voltage | Inductive 35% Power Factor | | | | Resistive 75% Power Factor | Voltage | Inductive and Resistive | | |
| | | | Make | | Break | | Make and Break Amperes | | Make and Break Amperes | | Continuous Carrying Amperes |
| | | | A | VA | A | VA | | | Single Pole | Double Pole | |
| AO1, AC | SPDT | 120 | 40 | 4800 | 15 | 1800 | 15 | 125 | 0.5 | 0.25 | 15 |
| | Form Z | 240 | 20 | 4800 | 10 | 2400 | 10 | 250 | 0.25 | 0.1 | 15 |
| | SPST | 480 | 10 | 4800 | 6 | 2880 | 6 | 600 | 0.05 | — | 15 |
| | Form X or Y | 600 | 8 | 4800 | 5 | 3000 | 5 | — | — | — | 15 |
| AW, AO2, and AO6, AB, AP | SPDT | 120 | 40 | 4800 | 15 | 1800 | 15 | 125 | 2.0 | 0.5 | 15 |
| | Form Z | 240 | 20 | 4800 | 10 | 2400 | 10 | 250 | 0.5 | 0.2 | 15 |
| | SPST | 480 | 10 | 4800 | 6 | 2880 | 6 | 600 | 0.1 | 0.02 | 15 |
| | Form X or Y | 600 | 8 | 4800 | 5 | 3000 | 5 | — | — | — | 15 |
| AW, CO3, and CO6, CB, CC, CP | DPDT | 120 | 30 | 3600 | 3 | 360 | 3 | 125 | 1.0 | 0.2 | 10 |
| | Form ZZ | 240 | 15 | 3600 | 1.5 | 360 | 1.5 | 250 | 0.3 | 0.1 | 10 |
| | DPST | 480 | 7.5 | 3600 | 0.75 | 360 | 0.75 | 600 | 0.1 | — | 10 |
| | Form AA or BB | 600 | 6 | 3600 | 0.6 | 360 | 0.6 | — | — | — | 10 |

◊ Do **not** meet IEC 60947-5-1 requirements for direct opening contacts.

Acceptable Wire Size . . . . . 14–22 AWG
Recommended Terminal Clamp Torque . . . . . 6–9 lb-in (0.7–1.0 N•m)

File E42259
CCN NKCR2

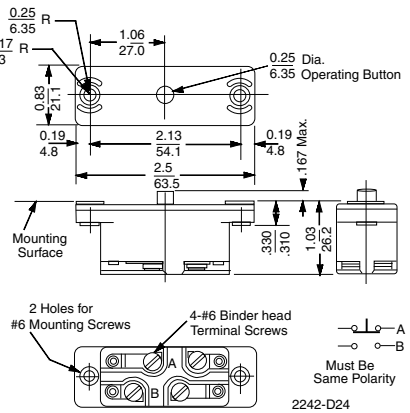
File LR25490
Class 3211-03



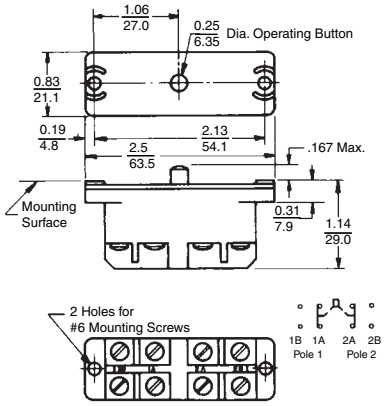
© 2012 Schneider Electric
All Rights Reserved

## Approximate Dimensions and Operating Data, 9007AO, CO, AP, and CP

### 9007AO, Single-Pole Snap Switch




### 9007CO, Two-Pole Snap Switch




Dual Dimensions inches / mm

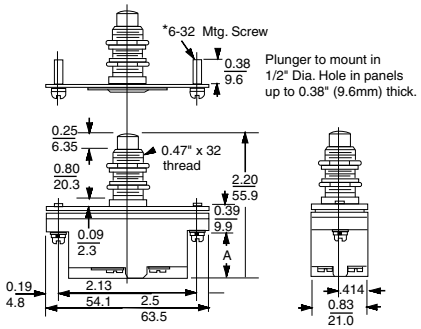
| | Operating Data, in. (mm) | |
|---|---|---|
| | AO1, 1A, 1B | AO2, 2A, 2B |
| Pre-travel | 0.057–0.074 (1.4–1.8) | 0.057–0.074 (1.4–1.8) |
| Differential | 0.015–0.025 (0.6–0.6) | 0.035–0.046 (0.9–1.16) |
| Total travel | 0.103–0.125 2.6–3.2) | 0.103–0.125 (2.6–3.2) |
| Operating force | 7–11 oz (0.05–0.08 N) | 10–14 oz (0.07–0.1 N) |
| Shipping weight | 0.25 lb (0.11 kg) | 0.25 lb (0.11 kg) |

| | Operating Data, in. (mm) | |
|---|---|---|
| | CO3 | C07 |
| Pre-travel 1st stage | 0.057–0.074 (1.4–1.8) | 0.035–0.060 (0.9–1.5) |
| Pre-travel 2nd stage | — | 0.060–0.085 (1.5–2.1) ▲ |
| Differential | 0.025–0.046 (0.6–1.16) | 0.010–0.020 (0.25–0.50) |
| Total travel | 0.103–0.125 (2.6–3.2) | — |
| Operating force | 7–12 oz (0.05–0.084 N) | 7–12 oz (0.05–0.084 N) |
| Shipping weight | 0.25 lb (0.11 kg) | 0.25 lb (0.11 kg) |

▲ Separation between first and second stage trip points is 0.020–0.025 (0.5–0.6).

### 9007AP201, 221, and CP221

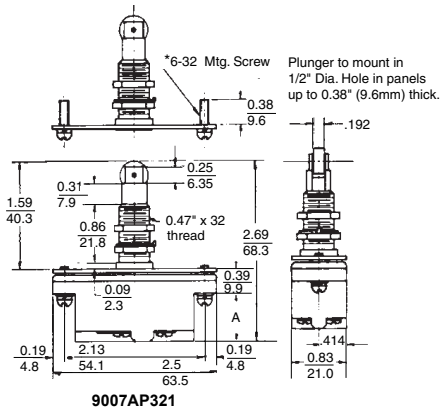
**9007AP201**




**9007AP221**

### 9007AP301, 303, 304, 305, 321, 323, 324, 325, and CP321, 323, 324, 325

**9007AP301**




**9007AP321**

| Type | Dimension A |
|---|---|
| AP221 | 0.70 (17.8) |
| CP221 | 0.80 (20.3) |

| | Operating Data, in. (mm) | |
|---|---|---|
| | AP221 | CP221 |
| Pretravel | 0.070–0.089 (1.8–2.2) | 0.070–0.089 (1.8–2.2) |
| Differential | 0.035–0.046 (0.9–1.2) | 0.025–0.046 (0.9–1.2) |
| Overtravel | 0.161–0.180 (4.1–4.6) | 0.161–0.180 (4.1–4.6) |
| Total travel | 0.231–0.269 (5.8–6.8) | 0.231–0.269 (5.8–6.8) |
| Operating force | 10–14 oz (0.07–0.1 N) | 7–12 oz (0.05–0.08 N) |
| Shipping weight | 0.25 lb (0.11 kg) | 0.25 lb (0.11 kg) |

| Type | Dimension A |
|---|---|
| AP321, 323, 324, 325 | 0.70 (17.8) |
| CP321, 323, 324, 325 | 0.80 (20.3) |

| | Operating Data, in. (mm) | | | |
|---|---|---|---|---|
| | AP321, 324 | AP323, 325 | CP321, 324 | CP323, 325 |
| Pretravel | 0.060–0.150 (1.5–3.8) | 0.060–0.150 (1.5–3.8) | 0.060–0.150 (1.5–3.8) | 0.060–0.150 (1.5–3.8) |
| Differential | 0.035–0.046 (0.9–1.2) | 0.035–0.046 (0.9–1.2) | 0.025–0.046 (0.9–1.2) | 0.035–0.046 (0.9–1.2) |
| Total travel | 0.200–0.340 (5.1–8.6) | 0.200–0.340 (5.1–8.6) | 0.200–0.340 (5.1–8.6) | 0.200–0.340 (5.1–8.6) |
| Operating force | 20 oz (0.14 N) | 28 oz (0.2 N) | 26 oz (0.18 N) | 28 oz (0.2 N) |

© 2012 Schneider Electric
All Rights Reserved



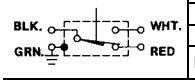
9007MS

The heavy-duty, miniature MS limit switch is completely encapsulated and intended for difficult applications such as machine tools, earth moving equipment, and general transportation. 9007MS04S0084

The switch has 40 mm mtg hole centers.

### Table 21.10: Specifications

| | |
|---|---|
| Temperature range<br>(The minimum temperatures listed are based on the absence of freezing moisture or water.) | -4 °F to +221 °F (-20 °C to +105 °C)<br>For -40 °F / -40 °C minimum temperature, see Forms 21 and 80 in Table 21.13 on page 21-9. |
| Enclosure rating | NEMA 1, 2, 4, 6, 6P, 12, 13, IP67 |
| Vibration resistance | 10 G (75–1200 Hz) |
| Shock resistance | 35 G |
| **Contact Characteristics** | |
| Rated thermal current | 10 A (standard) |
| Rated insulation voltage | 300 Vac and Vdc (standard) |
| Gold contact switching ratings | 0.1A, 24 Vdc; 0.24 VA |
| Cable | #18 AWG SJTO |

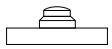
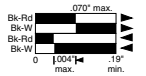
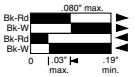
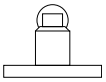
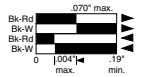
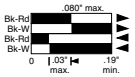
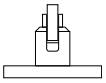
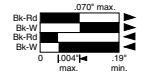
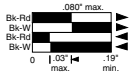
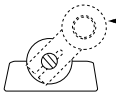
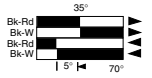
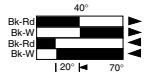
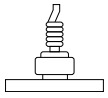
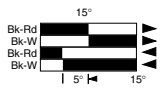
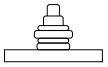
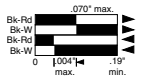
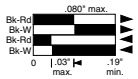
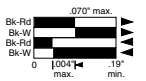
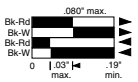
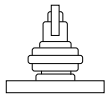
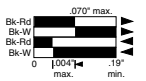
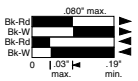
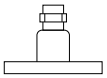
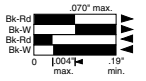
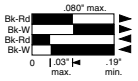
| MS Circuit—Form C | Electrical Ratings/SPDT Form C (MS Type) | | | |
|---|---|---|---|---|
| | Silver Contacts | | | Gold Contacts |
| 1 N.O.–1 N.C. | Vac | Make | Break | |
|  | 120 | 60 A | 6 A | 100 mA @ 125 Vac 30 mA 28 Vdc |
| | 240 | 30 A | 3 A | |
| | 10.0 Amperes Continuous | | | |
| | DC Contact Rating: 5 A (Res), 28 Vdc | | | |



| ML Circuit—Form Z | Electrical Ratings/SPDT-DB Form Z (ML Type) | | |
|---|---|---|---|
| | Silver Contacts | | |
| 1 N.O.–1 N.C. | Vac | Make | Break |
|  | 120 | 60 A | 6 A |
| | 240 | 30 A | 3 A |
| | 10.0 Amperes, Continuous | | |
| | DC Contact Rating: 5 A (Res), 28 Vdc | | |



### Table 21.11: Selection (append prefix 9007 to the catalog number)

| Description / Functional Diagram ■ | MS | ML | Operating Force/Torque | Contact Form | Contact Type | Catalog Number ▲ |
|---|---|---|---|---|---|---|
| **Top plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS01S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS01G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML01S0100 |
| **Parallel roller plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS02S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS02G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML02S0100 |
| **Cross roller plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS03S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS03G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML03S0100 |
| **Rotary lever, CW and CCW** | | | | | | |
|  ← Not included (see Table 21.14 on page 21-9) |  |  | 48 oz-in | SPDT Form C | Silver | MS04S0100 |
| | | | 48 oz-in | SPDT Form C | Gold | MS04G0100 |
| | | | 48 oz-in | SPDT Form Z | Silver | ML04S0100 |
| **Omnidirectional—wire whisker (NEMA 1, 2, 12, 13 only)** | | | | | | |
|  |  | | 15 oz-in | SPDT Form C | Silver | MS05S0100 |
| | | | 15 oz-in | SPDT Form C | Gold | MS05G0100 |
| **Bushing mounted—top plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS06S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS06G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML06S0100 |
| **Bushing mounted—parallel roller plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS07S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS07G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML07S0100 |
| **Bushing mounted—cross roller plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS08S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS08G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML08S0100 |
| **Adjustable top plunger** | | | | | | |
|  |  |  | 80 oz | SPDT Form C | Silver | MS09S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS09G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML09S0100 |

▲ For available options and part number explanations, see page 21-9. Add options to the end of the catalog number. Up to three options may be added, if applicable.

■ If the application includes oil, booted switches are recommended. See page 21-9.

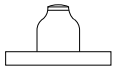
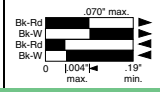
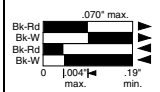
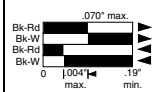
File CCN E42259 NKCR

File Class LR 25490 3211-03



© 2012 Schneider Electric
All Rights Reserved

## Table 21.12: Selection—Booted Devices (append prefix 9007 to the catalog number)

| Description / Functional Diagram | MS | ML | Operating Force/Torque | Contact Form | Contact Type | Catalog▲ Number ■ |
|---|---|---|---|---|---|---|
| **Booted top plunger** | | | | | | |
|  |  | | 80 oz | SPDT Form C | Silver | MS10S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS10G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML10S0100 |
| **Booted parallel roller plunger** | | | | | | |
|  |  | | 80 oz | SPDT Form C | Silver | MS12S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS12G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML12S0100 |
| **Booted cross roller plunger** | | | | | | |
|  |  | | 80 oz | SPDT Form C | Silver | MS13S0100 |
| | | | 80 oz | SPDT Form C | Gold | MS13G0100 |
| | | | 80 oz | SPDT Form Z | Silver | ML13S0100 |

▲ See available options below. Add to the end of the catalog number. Up to three options may be added, if applicable.
■ This catalog number is for devices with a standard cable and no options.See Table 21.13 for other cable length selections and general options.



Shown with side entrance cable, option 06

## Table 21.13: Cable Length and General Options Designators: 9007MS01Sxxyy

Replace xx and yy in the catalog number above with the designators in the tables below.
*Some combinations of cable lengths and options are unavailable; consult Schneider Electric.*

| Cable Length (xx)▲ | Designator |
|---|---|
| **No cable ♦** | 00 |
| **3 ft—standard** | 01 |
| **6 ft** | 02 |
| **9 ft** | 03 |
| **12 ft** | 04 |
| **18 ft** | 05 |
| **33 ft** | 13 |

♦ Use with options 54, 55, and 82.

| General Options (yy) ▲ | Designator |
|---|---|
| #16 AWG SJTO cable (MS only) | 02 |
| Side entrance #18 AWG SJTO cable | 06 |
| Gray #18 AWG SJTO cable | 10 |
| #18 AWG individual conductors | 11 |
| Male 4 pin mini-connector with 3 ft cable (MS only) | 12 |
| Low force (18 oz), low temp (-40 °F / -40 °C ), NEMA 1 only | 21 |
| High Pre-travel—adds 0.030 | 30 |
| Male 4 pin micro-connector in housing (DC type) (MS only) | 54 |
| Male 5 pin micro-connector (DC type) (ML only) | 55 |
| Low temperature (-40 °F / -40 °C), 9007MS04 (NEMA 1 only) | 80 |
| Tapped holes in top of plunger housing (MS and ML) | 81 |
| Male 4 pin micro-connector in housing (AC type) (MS only) | 82 |
| Black #18 AWG SJTO cable (ML only) | 83 |
| Male 4-pin micro-connector in housing (AC type) (no cable | 84 |



Lever

## Table 21.14: Style 7 Levers—0.75 in. (19 mm) diameter, nylon or steel roller (9007 prefix is not required on lever catalog numbers)

| Length | | Catalog Number 1/4 in. (6 mm) Wide | | Catalog Number 1/2 in. (13 mm) Wide | | Catalog Number 3/4 in. (19 mm) Wide | Catalog Number 1 in. (25 mm) Wide |
|---|---|---|---|---|---|---|---|
| inch | (mm) | Nylon | Steel | Nylon | Steel | Nylon | Nylon |
| 0.875 | (22.23) | 7A2N | 7A2 | 7B2N | 7B2 | 7F2N | 7J2N |
| 1.375 | (34.93) | 7A3N | — | 7B3N | — | 7F3N | 7J3N |
| 1.5 | (38.10) | 7A1N | 7A1 | 7B1N | — | 7F1N | 7J1N |
| 1.75 | (44.45) | 7A7N | — | 7B7N | — | 7F7N | 7J7N |
| 2.00 | (50.8) | 7A4N | — | 7B4N | — | 7F4N | 7J4N |

Note: Lever tightening torque for mounting the lever on the shaft: minimum **17 lb-in**.
Other levers available. See catalog 9006CT1007. For inside (reverse) roller option at no charge, replace 7 with 7X. (Ex: 7A2N changes to 7XA2N.)



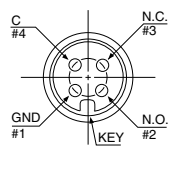
9007MS04S0084

## Table 21.15: Specialty Arms (9007 prefix is not required on lever catalog numbers)

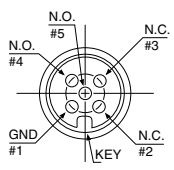
| Description | Catalog Number |
|---|---|
| Style 7D adjustable length 1-3/8" to 3-3/8"—0.75" diameter, 1/4" wide, metal roller | 7D |
| Style 7DN adjustable length 1-3/8" to 3-3/8"—0.75" diameter, 1/4" wide, nylon roller | 7DN |
| Style 7S spring nylon, 6" rod, 0.3" diameter | 7S |
| Style 7N nylon rod, 5" long, 0.3" diameter | 7N |

Note: Lever tightening torque for mounting the lever on the shaft: minimum **17 lb-in**.

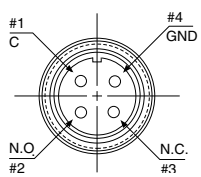
**Male plug (face) pin-outs**



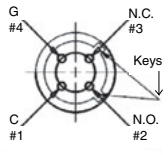

Option 54 (MS only)—DC



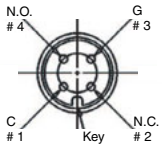

Option 55 (ML only)—DC




Option 12 (MS only)—AC or DC (3 Amps)



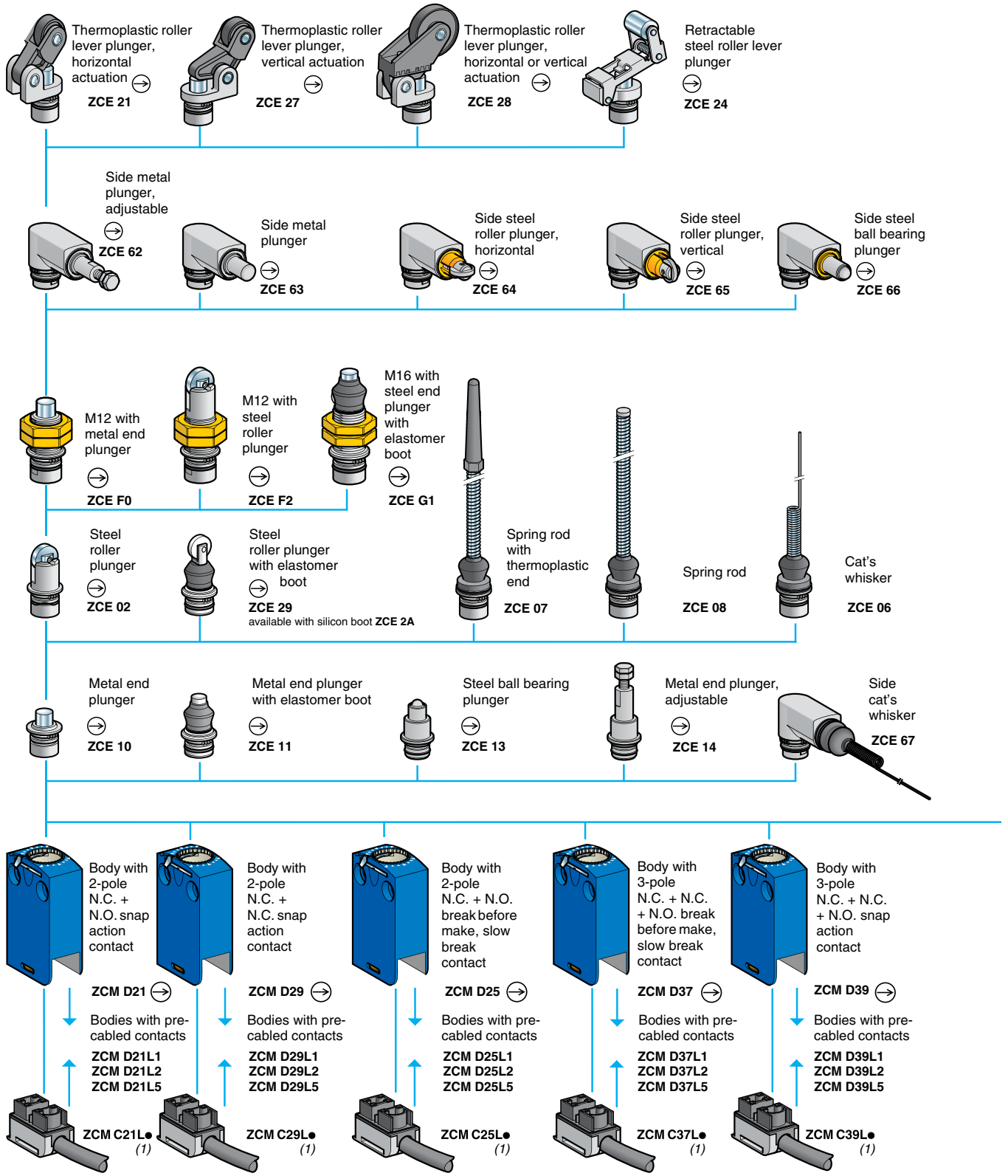

Option 82 (MS only)—AC




Option 84 (MS only)—AC

Note: DC connectors are rated 3 A, 250 Vac/Vdc.

© 2012 Schneider Electric
All Rights Reserved

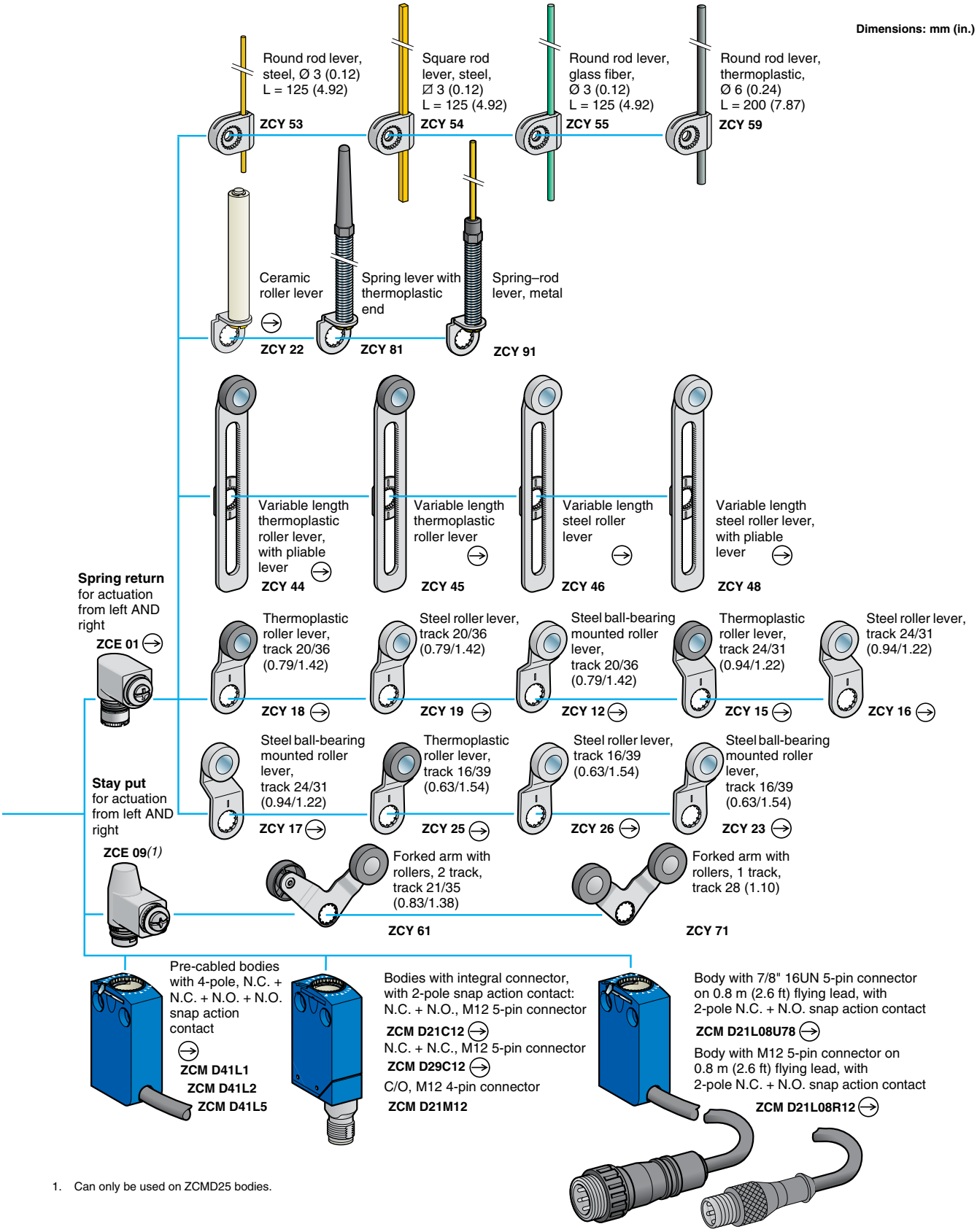



1. Pre-cabled connection components: replace the "•" in the catalog number with the required cable length in meters, either 1, 2, 3, 5, 7 or 10.
Example: ZCMC21L• becomes ZCMC21L7 for a 7 m (23.0 ft) cable.
Note: only cable lengths of 1, 2 and 5 m (3.3, 6.6, and 16.4 ft) are available for pre-cabled connection components ZCMC37L• and ZCMC39L•.



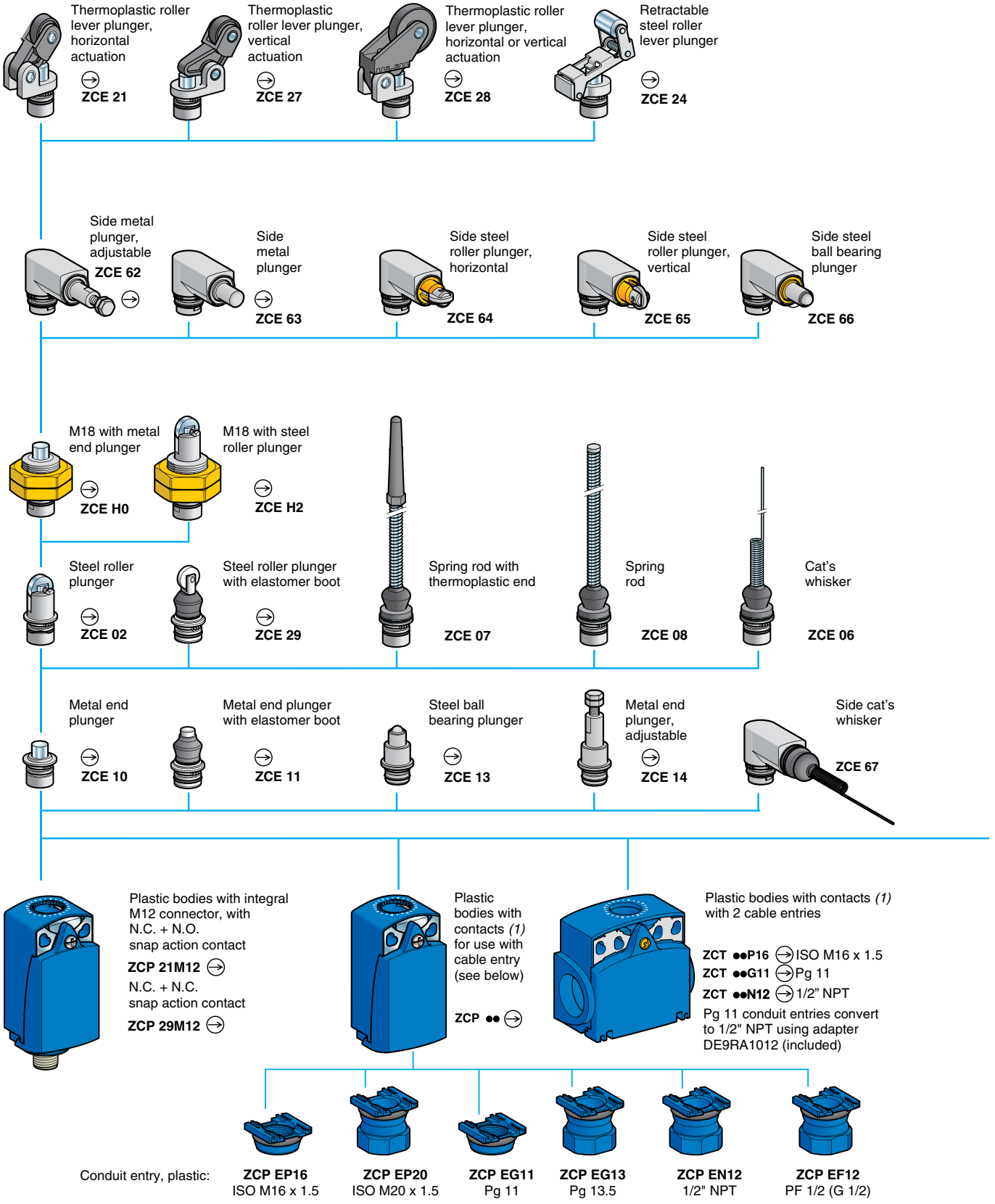
© 2012 Schneider Electric
All Rights Reserved

**Dimensions: mm (in.)**




1. Can only be used on ZCMD25 bodies.

© 2012 Schneider Electric
All Rights Reserved

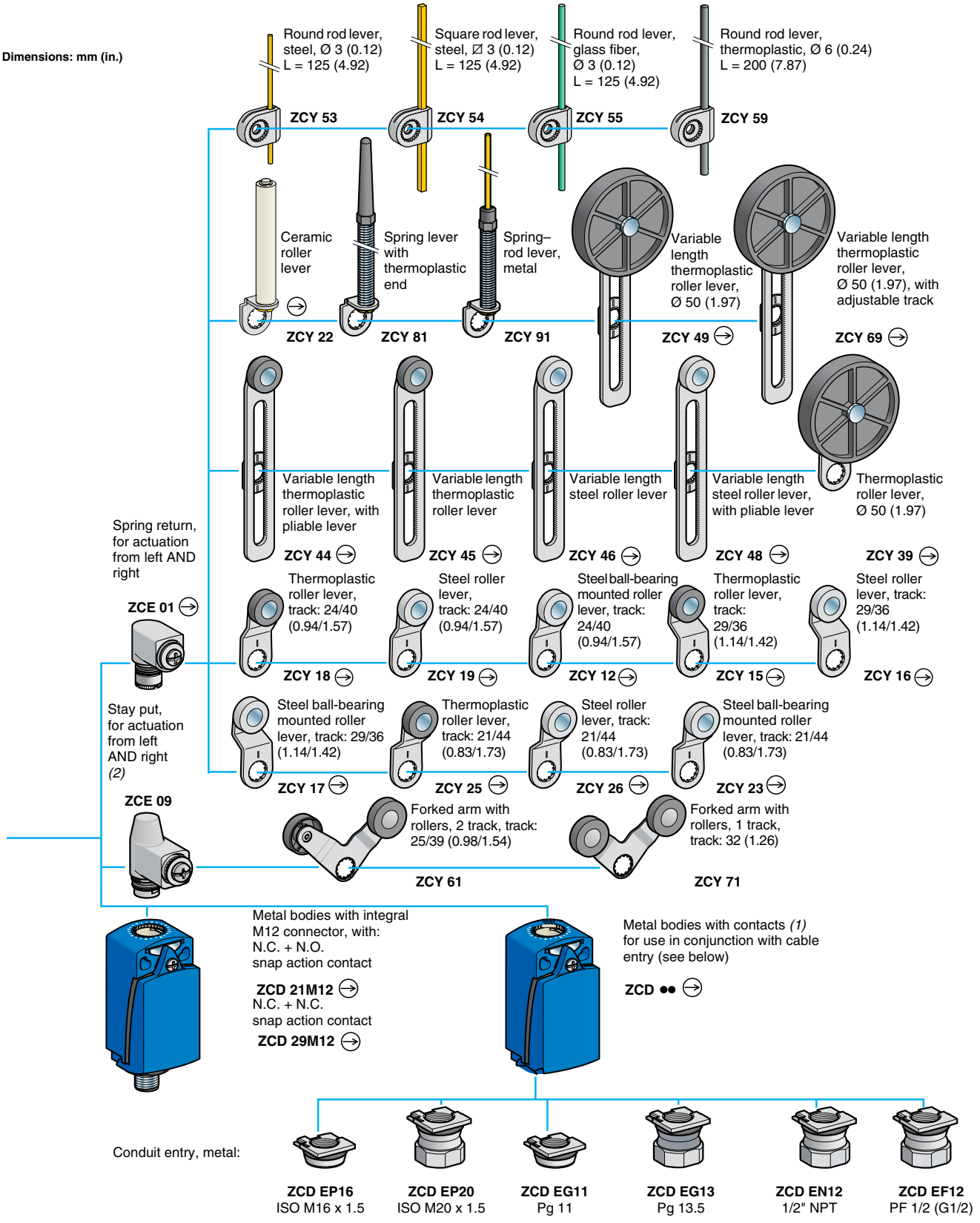



1. For further details, see catalog 9006CT1007.



© 2012 Schneider Electric
All Rights Reserved

**Dimensions: mm (in.)**

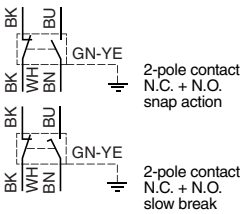



1. For further details, see catalog 9006CT1007.

© 2012 Schneider Electric
All Rights Reserved

## Miniature, Precabled Limit Switches, Metal

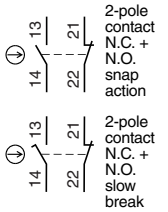
### Table 21.16: XCMD Modular and XCMN Non-Modular

| OsiSense XCMD, XCMN | Steel Roller Plunger | Plastic Roller Lever | Variable Length Plastic Roller Lever | M12 Head Steel Roller Plunger | Cat Whisker | End Plunger (non-modular) |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| Actuation speed (m/s) | 0.5 | 1.5 | 1.5 | 0.1 | 1 | 0.5 |
| Switches conforming to IEC 60947-5-1 section 3 ⊕ | yes | yes | yes | yes | no | yes |
| Degree of protection conforming to IEC 60529 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP65 |
| Rated operational characteristics | Vac 15; B 300 (Ue = 240 V, Ie = 1.5 A) / Vdc 13; R 300 (Ue = 250 V, Ie = 0.1 A) | | | | | |
| Cable entry | pre-cabled, adjustable direction, length = 1 m (other lengths available on request) | | | | | pre-cabled length = 1 m |
| Mounting holes—in. (mm) | 0.79 (20) | 0.79 (20) | 0.79 (20) | 0.79 (20) | 0.79 (20) | 0.79 (20) |
| Body dimensions—in. (mm), W x D x H | 1.18 x 0.63 x 2.32 (30 x 16 x 59) | 1.18 x 0.63 x 2.32 (30 x 16 x 59) | 1.18 x 0.63 x 2.32 (30 x 16 x 59) | 1.18 x 0.63 x 2.32 (30 x 16 x 59) | 1.18 x 0.63 x 2.32 (30 x 16 x 59) | 1.18 x 0.63 x 2.32 (30 x 16 x 59) |
| **Ordering information** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| 2-pole, N.C. + N.O. snap action | XCMD2102L1 | XCMD2115L1 | XCMD2145L1 | XCMD21F2L1 | XCMD2106L1 | XCMN2110L1 |
| 2-pole, N.C. + N.O. break before make, slow break | XCMD2502L1 | XCMD2515L1 | XCMD2545L1 | XCMD25F2L1 | XCMD2506L1 | — |

Exploded view . . . . . page 21-10

## Compact, Modular Limit Switches, Metal or Plastic

### Table 21.17: XCKD and XCKP Compact, 30 mm Wide, Conforming to Standard EN 50047

| OsiSense XCKP | Metal End Plunger | Plastic Roller Lever Horizontal Actuation | M18 Head Metal End Plunger | Plastic Roller Lever | Variable Length Plastic Roller Lever | Rubber Roller Lever Ø 50 mm | Cat Whisker |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |
| Actuation speed (m/s) | 0.5 | 1 | 0.5 | 1.5 | 1.5 | 1.5 | 1 |
| Switches conforming to IEC 60947-5-1 section 3 ⊕ | yes | yes | yes | yes | yes | yes | no |
| Degree of protection conforming to IEC 50 529 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 |
| Rated operational characteristics | Vac 15; A 300 (Ue = 240 V, Ie = 3 A) / Vdc 13; Q 300 (Ue = 250 V, Ie = 0.27 A) | | | | | | |
| Cable entry | 1 tapped entry for 1/2" NPT | | | | | | |
| Mounting holes (mm) | 20 | 20 | M18 x 1 | 20 | 20 | 20 | 20 |
| Body dimensions (mm) W x D x H | 30 x 30 x 73 | 30 x 30 x 73 | 30 x 30 x 73 | 30 x 30 x 73 | 30 x 30 x 73 | 30 x 30 x 73 | 30 x 30 x 73 |
| **Ordering information** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **XCKD Metal, 30 mm Wide** | | | | | | | |
| 2-pole, N.C.+ N.O. snap action | XCKD2110N12 | XCKD2121N12 | XCKD21H0N12 | XCKD2118N12 | XCKD2145N12 | XCKD2139N12 | XCKD2106N12 |
| 2-pole, N.C.+ N.O. break before make, slow break | XCKD2510N12 | XCKD2521N12 | XCKD25H0N12 | XCKD2518N12 | XCKD2545N12 | XCKD2539N12 | XCKD2506N12 |
| **XCKP Plastic, 30 mm Wide, Double Insulated** | | | | | | | |
| 2-pole, N.C.+ N.O. snap action | XCKP2110N12 | XCKP2121N12 | XCKP21H0N12 | XCKP2118N12 | XCKP2145N12 | XCKP2139N12 | XCKP2106N12 |
| 2-pole, N.C.+ N.O. break before make, slow break | XCKP2510N12 | XCKP2521N12 | XCKP25H0N12 | XCKP2518N12 | XCKP2545N12 | XCKP2539N12 | XCKP2506N12 |

Exploded view . . . . . page 21-12



© 2012 Schneider Electric
All Rights Reserved

## Compact Limit Switches with 2 Cable Entries and Modular Head

### Table 21.18: XCKT Compact, Plastic, 2 Cable Entries, Standard, 40 mm

| **OsiSense XCKT** | **Metal End Plunger** | **Metal Roller Plunger** | **Plastic Roller Lever** |
|---|---|---|---|
|  2-pole contact N.C. + N.O. snap action |  |  |  |
| Actuation speed (m/s) | 0.5 | 0.5 | 1.5 |
| Switches conforming to IEC 60947-5-1 section 3 | yes | yes | yes |
| Degree of protection conforming to IEC 60529 | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 |
| Rated operational characteristics | Vac 15; A 300 (Ue = 240 V, Ie = 3 A) / Vdc 13; Q 300 (Ue = 250 V, Ie = 0.27 A) | | |
| Cable entry | Two Pg 11 cable entries. One 1/2" NPT adapter, DE9RA1012, is included. | | |
| Mounting holes—in. (mm) | 0.79 or 1.57 (20 or 40) | 0.79 or 1.57 (20 or 40) | 0.79 or 1.57 (20 or 40) |
| Body dimensions—in. (mm), W x D x H | 2.36 x 1.18 x 2.4 (60 x 30 x 61) | 2.36 x 1.18 x 2.4 (60 x 30 x 61) | 2.36 x 1.18 x 2.4 (60 x 30 x 61) |
| **Ordering information** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| Complete switch 2-pole, N.C. + N.O. snap action | XCKT2110N12 | XCKT2102N12 | XCKT2118N12 |

## Modular, Compact Limit Switches with Manual Reset

### Table 21.19: XCDR and XCPR Compact, Metal or Plastic, with Manual Reset, 30 mm

| **OsiSense XCDR and XCPR** | | **Metal End Plunger** | **Plastic Roller Lever Horizontal Actuation** | **Plastic Roller Lever Vertical Actuation** |
|---|---|---|---|---|
| | |  |  |  |
| Actuation speed (m/s) | | 0.5 | 1 | 1 |
| Switches conforming to IEC 60947-5-1 section 3 | | yes | yes | yes |
| Degree of protection conforming to IEC 60529 | | IP66 and IP67 | IP66 and IP67 | IP66 and IP67 |
| Rated operational characteristics | | Vac 15; A 300 (Ue = 240 V, Ie = 3 A) / Vdc 13; Q 300 (Ue = 250 V, Ie = 0.27 A) | | |
| Cable entry | | 1 tapped entry for 1/2" NPT | | |
| Mounting holes—in. (mm) | | 0.79 (20) | 0.79 (20) | 0.79 (20) |
| Body dimensions—in. (mm), W x D x H | | 1.18 x 1.18 x 3.74 (30 x 30 x 95) | 1.18 x 1.18 x 3.74 (30 x 30 x 95) | 1.18 x 1.18 x 3.74 (30 x 30 x 95) |
| **Ordering information** | | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **XCDR Metal** | | | | |
| Complete switch | 2-pole, N.C. + N.O. snap action | XCDR2110N12 | XCDR2121N12 | XCDR2127N12 |
| | 2-pole, N.C. + N.O. break before make, slow break | XCDR2510N12 | XCDR2521N12 | XCDR2527N12 |
| **XCPR Plastic, Double Insulated** | | | | |
| Complete switch | 2-pole, N.C. + N.O. snap action | XCPR2110N12 | XCPR2121N12 | XCPR2127N12 |
| | 2-pole, N.C. + N.O. break before make, slow break | XCPR2510N12 | XCPR2521N12 | XCPR2527N12 |

© 2012 Schneider Electric
All Rights Reserved

## Common Head and Levers for XCMD, XCKD, XCKP, XCKT

### Table 21.20: Metal Plunger and Multi-Directional Heads

| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| **Metal End Plunger** | **Metal End Plunger with Elastomer Protective Boot** | **Steel Roller Plunger** | **Retractable Steel Roller Lever** | **Plastic Roller Lever, Horizontal Actuation** | **Plastic Roller Lever, Vertical Actuation** |
| **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| ZCE10 | ZCE11 | ZCE02 | ZCE24 | ZCE21 | ZCE27 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Bushing Mounted  | Bushing Mounted  | Bushing Mounted  | Bushing Mounted  |  |  |  |
| **M12 Head Metal Plunger■** | **M18 Head Metal Plunger▲** | **M12 Head Steel Roller Plunger▲** | **M18 Head Steel Roller Plunger▲** | **Spring Lever** | **Spring Lever with Plastic End** | **Cat Whisker** |
| **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| ZCEF0 | ZCEH0 | ZCEF2 | ZCEH2 | ZCE08 | ZCE07 | ZCE06 |

### Table 21.21: Metal Rotary Heads and Levers

| | | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| **Rotary Head without Lever, Spring Return, for Actuation from RH or LH Side** | **Rotary Head without Lever, Stay Put, for Actuation from RH or LH Side ♦** | **Plastic Roller Lever, Track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)■** | **Steel Roller Lever, Track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)■** | **Plastic Roller Lever, Track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)■** | **Steel Roller Lever, Track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)■** | **Plastic, Roller Lever, Track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)▲** |
| **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| ZCE01 | ZCE09 | ZCY15 | ZCY16 | ZCY25 | ZCY26 | ZCY18 |

| | | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| **Steel Roller Lever, for Track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)▲** | **Ceramic Roller Lever** | **Variable Length, Rigid Plastic Roller Lever** | **Variable Length, Bendable Plastic Roller Lever** | **Variable Length, Rigid Steel Roller Lever** | **Variable Length, Bendable Steel Roller Lever** | **Metal Spring Lever** |
| **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| ZCY19 | ZCY22 | ZCY45 | ZCY44 | ZCY46 | ZCY48 | ZCY91 |

| | | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  | Recommended for Use with ZCE09 Head  | Recommended for Use with ZCE09 Head  |
| **Plastic Roller Lever Ø 50 mm** | **Adjustable Plastic Roller Lever Ø 50 mm** | **Square Steel Rod Lever, ☑ 3 mm, length = 125 mm** | **Round, Glass Fiber Rod Lever, Ø 3 mm length = 125 mm** | **Round Plastic Rod Lever, Ø 6 mm, length = 200 mm** | **Forked Lever Arm with 2 Tracks: 25/39 mm** | **Forked Lever Arm with 1 Track: 32 mm** |
| **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| ZCY39 | ZCY49 | ZCY54 | ZCY55 | ZCY59 | ZCY61 | ZCY71 |

▲ Recommended for use with body ZCD... / ZCP... / ZCT...
■ Recommended for use with body: ZCMD...
♦ Can only be used on ZCMD25 bodies.

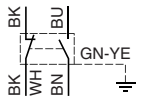
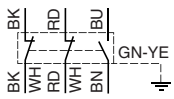
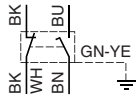
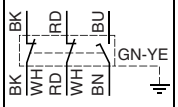
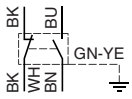
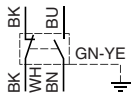


© 2012 Schneider Electric
All Rights Reserved

***NOTE:*** *Metal components must be used with metal bodies. Plastic components must be used with plastic bodies.*

### Table 21.22: Miniature, Metal Body/Contact Assemblies

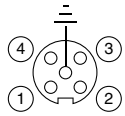



| Type of contact | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.C. Snap action | 3-pole N.C. + N.C. + N.O. Snap action | 4-pole N.C. + N.C. + N.O. + N.O. Snap action | 2-pole N.C. + N.O. Slow break | 3-pole N.C. + N.C. + N.O. Slow break | 2-pole N.C. + N.O. Snap action 5-pin connector | 1 SPDT contact Snap action 4-pin connector |
|---|---|---|---|---|---|---|---|---|
| |  | |  | |  |  |  |  |
| | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| Metal body | ZCMD21 | ZCMD29 | ZCMD39 | ZCMD41 | ZCMD25 | ZCMD37 | ZCMD21C12 | ZCMD21M12 |

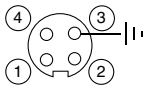
### Table 21.23: Connection of Miniature Body/Contact Assemblies

Specific pre-cabled connection components





1 – 2 = N.C.
3 – 4 = N.O.
5 = Ground



1 = Common
2 = N.C.
3 = Ground
4 = N.O.

| Length (m) | Cat. No. | Cat. No. | Cat. No. | | Cat. No. | Cat. No. |
|---|---|---|---|---|---|---|
| 1 | ZCMC21L1 | ZCMC29L1 | ZCMC39L1 | | ZCMC25L1 | ZCMC37L1 |
| 2 | ZCMC21L2 | ZCMC29L2 | ZCMC39L2 | | ZCMC25L2 | ZCMC37L2 |
| 5 | ZCMC21L5 | ZCMC29L5 | ZCMC39L5 | | ZCMC25L5 | ZCMC37L5 |

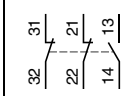
Exploded view . . . . . page 21-10

### Table 21.24: Compact, Metal or Plastic Body/Contact Assemblies







| Type of contact | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.O. Snap action | 3-pole N.C. + N.C. + N.O. Snap action | 2-pole N.C. + N.O. Slow break | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.O. Snap action | 2-pole N.C. + N.O. Slow break |
|---|---|---|---|---|---|---|---|---|---|
| |  | |  |  |  |  | |  |  |
| | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| Metal | ZCD21 | ZCD29 | ZCD39 | ZCD25 | — | ZCD21M12 | — | — | — |
| Plastic | ZCP21 | ZCP29 | ZCP39 | ZCP25 | ZCP21D44 | — | ZCP21M12 | ZCT21P16 | ZCT25P16 |

### Table 21.25: Connection of Compact Body/Contact Assemblies

Interchangeable cable entry









| | ISO M16 | ISO M20 | Pg 11 | Pg 13.5 | 1/2" NPT | PF 1/2 NPSF | Deutsch Connector |
|---|---|---|---|---|---|---|---|
| | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| Metal | ZCDEP16 | ZCDEP20 | ZCDEG11 | ZCDEG13 | ZCDEN12 | ZCDEF12 | — |
| Plastic | ZCPEP16 | ZCPEP20 | ZCPEG11 | ZCPEG13 | ZCPEN12 | ZCPEF12 | ZCPED44 |

Note: Plastic conduit entries shown. Order **plastic** conduit entries for **plastic** bodies (XCKP/ZCP).
Order **metal** conduit entries (chrome color) for **metal** bodies (XCKD/ZCD). *Metal conduit entries do not fit on plastic bodies.*

Exploded view . . . . . page 21-12

© 2012 Schneider Electric
All Rights Reserved

## Table 21.26: XCKN Compact Plastic, Non-Modular, 30 mm Wide

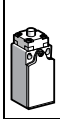
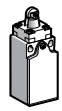
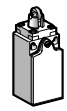
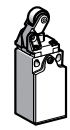
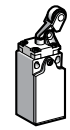
### Osisense Limit Switches



2 pole
snap action



2 pole
break before make, slow break

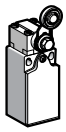
| | | | | | | |
|---|---|---|---|---|---|---|
| | | Metal end plunger | Plastic roller plunger for lateral cam approach | Plastic roller plunger for cross cam approach | Thermoplastic roller-lever plunger | |
| | | | | | Horizontal actuation in 1 direction | Vertical actuation in 1 direction |
| **Switch actuation** | | On end | By 30° cam | | | |
| **Type of actuation** | |  |  | |  |  |
| **Maximum actuation speed** | | 0.5 m/s (1.64 ft/s) | 0.3 m/s (0.99 ft/s) | | 0.1 m/s (3.28 ft/s) | |
| **Minimum force of torque** | For tripping | 15 N (3.37 lb) | 12 N (2.70 lb) | | 6 N (1.35 lb) | |
| | For positive opening | 30 N (6.75 lb) | 20 N (4.50 lb) | | 10 N (2.25 lb) | |
| **Weight, kg (lb)** | | 0.065 (0.143) | 0.065 (0.143) | 0.065 (0.143) | 0.070 (0.154) | 0.070 (0.154) |
| **Ordering Information (sold in packs of 20)** | | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **2 pole N.C. + N.O. snap action** | | XCKN2110P20 | XCKN2102P20 | XCKN2103P20 | XCKN2121P20 | XCKN2127P20 |
| **2 pole N.C. + N.O., break before make, slow break** | | XCKN2510P20 | XCKN2502P20 | XCKN2503P20 | XCKN2521P20 | XCKN2527P20 |
| **2 pole N.C. + N.C. snap action** | | XCKN2910P20 | XCKN2902P20 | XCKN2903P20 | XCKN2921P20 | XCKN2927P20 |

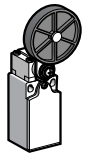
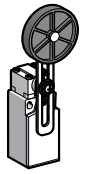


2 pole
snap action

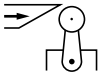
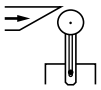


2 pole
break before make, slow break





| | | | | | | |
|---|---|---|---|---|---|---|
| | | **Rotary, thermoplastic roller-lever** | **Rotary, variable length thermoplastic roller-lever** | **Rotary, thermoplastic roller-lever, Ø 50 mm** | **Rotary, variable length, thermoplastic roller-lever, Ø 50 mm** | **Multi-directional, spring rod** | **Multi-directional, cat's whisker** |
| **Switch actuation** | | By 30° cam | | | | By any moving part | |
| **Type of actuation** | |  |  | | |  | |
| **Maximum actuation speed** | | 1.5 m/s (4.92 ft/s) | | | | 1 m/s (3.28 ft/s), any direction | |
| **Minimum force of torque** | For tripping | 0.1 N•m (0.89 lb-in) | | | | 0.13 N•m (0.11 lb-in) | |
| | For positive opening | 0.15 N•m (1.33 lb-in) | | | | – | |
| **Weight, kg (lb)** | | 0.085 (0.187) | 0.090 (0.198) | 0.110 (0.243) | 0.115 (0.254) | 0.085 (0.187) | 0.075 (0.165) |
| **Ordering Information (sold in packs of 20)** | | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **2 pole N.C. + N.O. snap action** | | XCKN2118P20 | XCKN2145P20 | XCKN2139P20 | XCKN2149P20 | XCKN2108P20 | XCKN2106P20 |
| **2 pole N.C. + N.O., break before make, slow break** | | XCKN2518P20 | XCKN2545P20 | XCKN2539P20 | XCKN2549P20 | XCKN2508P20 | XCKN2506P20 |
| **2 pole N.C. + N.C. snap action** | | XCKN2918P20 | XCKN2945P20 | XCKN2939P20 | XCKN2949P20 | XCKN2908P20 | XCKN2906P20 |

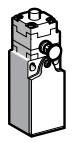
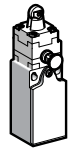
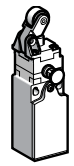
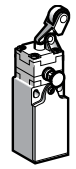
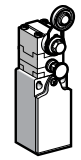
## Table 21.27: XCNR Compact Plastic, Non-Modular, with Manual Reset, 30 mm Wide

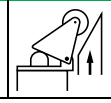
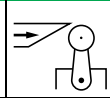


**2 pole N.C. + N.O.**



**2 pole N.C. + N.C.**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Metal end plunger | Plastic roller plunger | Thermoplastic roller-lever plunger | | Rotary head, thermoplastic roller-lever plunger |
| | | | | Horizontal actuation in 1 direction | Vertical actuation in 1 direction | |
| **Switch actuation** | | On end | By 30° cam | | | |
| **Type of actuation** | |  |  |  |  |  |
| **Maximum actuation speed** | | 0.5 m/s (1.64 ft/s) | 0.3 m/s (0.99 ft/s) | 0.1 m/s (3.28 ft/s) | | 1.5 m/s (4.92 ft/s) |
| **Minimum force of torque** | For tripping | 15 N (3.37 lb) | 12 N (2.70 lb) | 6 N (1.35 lb) | | 0.1 N•m (0.89 lb-in) |
| | For positive opening | 30 N (6.74 lb) | 20 N (4.50 lb) | 10 N (2.25 lb) | | 0.15 N•m (1.33 lb-in) |
| **Weight, kg (lb)** | | 0.080 (0.18) | 0.080 (0.18) | 0.085 (0.19) | 0.090 (0.20) | 0.100 (0.22) |
| **Ordering Information (sold in packs of 20)** | | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **2 pole N.C. + N.O.snap action** | | XCNR2110P20 | XCNR2102P20 | XCNR2121P20 | XCNR2127P20 | XCNR2118P20 |
| **2 pole N.C. + N.O. break before make, slow break** | | XCNR2510P20 | XCNR2502P20 | XCNR2521P20 | XCNR2527P20 | XCNR2518P20 |
| **2 pole N.C. + N.C. snap action** | | XCNR2910P20 | XCNR2902P20 | XCNR2921P20 | XCNR2927P20 | XCNR2918P20 |

## Table 21.28: Cable Entries and Contact Configurations

| | | |
|---|---|---|
| **Cable entry** | M20 | Order with suffix P20 for 1 entry tapped to M20 x 1.5 mm for ISO cable entry. Clamping capacity 7 to 13 mm (0.28 to 0.51 in.) |
| | Pg 11 | Replace P20 suffix with G11suffix, 18.6 x 1.41 |
| | 1/2" NPT | Replace P20 suffix with G11 suffix. Order 1/2" NPT adapter DE91012 |
| | Other cable entries | For other cable entries, including complete switches with ISO M16 x 1.5 or PF 1/2 (G 1/2) cable entry, please consult your local sales office. |
| **Other contact configurations** | | For other 2- and 3-pole configurations, please consult your local sales office. |
| **Function diagrams** | | See catalog 9006CT1007. |



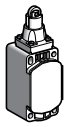
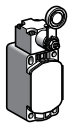
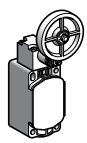
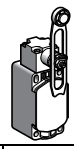
© 2012 Schneider Electric
All Rights Reserved

## XCKS Standard Body, Plastic, Double Insulated

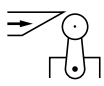
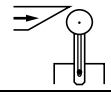
### Table 21.29: Environmental Specifications

| | | |
|---|---|---|
| **Conforming to standards** | Products | IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14 |
| | Machine assemblies | IEC 60204-1, EN 60204-1 |
| **Approvals** | | UL, CSA, CCC |
| **Ambient air temperature** | For operation | - 25 to +70 °C (-13 to +158 °F) |
| | For storage | - 40 to +70 °C (-40 to +158 °F) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | 25 gn (10–500 Hz) |
| **Shock resistance** | Conforming to IEC 60068-2-27 | 50 gn (11 ms) |
| **Electric shock protection** | | Class II conforming to IEC 61140 and NF C 20-030 |
| **Degree of protection** | | IP 65 conforming to IEC 60529; IK 03 conforming to EN 50102 |
| **Repeat accuracy** | | 0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger |
| **Cable entry** | Depending on model | Tapped entry for PG 13 conduit thread. To convert to 1/2" NPT, use adapter **DE9RA1212**.<br>For ISO M20 x 1.5, add **H29** to the end of the catalog number. Example: **XCKS101** becomes **XCKS101H29**. |
| **Materials** | | Plastic (body and head) |

### Table 21.30: Selection, Plunger and Rotary Heads

| | Form B ▲ | Form C ▲ | Form A ▲ | | | | Form D ▲ |
|---|---|---|---|---|---|---|---|
| 13 21 / 14 22 **2-pole N.C. + N.O. snap action** |  |  |  |  |  |  |  |
| 13 21 / 14 22 **2-pole N.C. + N.O. break before make, slow break** | | | | | | | |
| 11 21 / 12 22 **2-pole N.C. + N.C.** | **Metal end plunger** | **Steel roller plunger** | **Thermoplastic roller lever ♦** | **Elastomer roller lever, Ø 50 mm (1.97 in.) ♦** | **Variable length thermoplastic roller lever ♦** | **Variable length elastomer roller lever, Ø 50 mm (1.97 in.) ♦** | **Round thermoplastic rod lever, Ø 6 mm (0.24 in.) ★ ▼** |
| **Ordering Information ■** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** | **Cat. No.** |
| **2-pole N.C. + N.O. snap action (XE2SP2151)** | XCKS101 ⊖ | XCKS102 ⊖ | XCKS131 ⊖ | XCKS139 | XCKS141 | XCKS149 | XCKS159 |
| **2-pole N.C. + N.O. break before make, slow break (XE2NP2151)** | XCKS501 ⊖ | XCKS502 ⊖ | XCKS531 ⊖ | XCKS539 | XCKS541 | XCKS549 | XCKS559 |
| **2-pole N.C. + N.C. snap action (XE2SP2141)** | ZCKS9 + ZCKD01 ⊖ | ZCKS9 + ZCKD02 ⊖ | ZCKS9 + ZCKD31 ⊖ | ZCKS9 + ZCKD39 | ZCKS9 + ZCKD41 | ZCKS9 + ZCKD49 | ZCKS9 + ZCKD59 |
| **2-pole N.C. + N.C. simultaneous, slow break (XE2NP2141)** | ZCKS7 + ZCKD01 ⊖ | ZCKS7 + ZCKD02 ⊖ | ZCKS7 + ZCKD31 ⊖ | ZCKS7 + ZCKD39 | ZCKS7 + ZCKD41 | ZCKS7 + ZCKD49 | ZCKS7 + ZCKD59 |
| **Weight, kg (lb)** | 0.095 (0.209) | 0.105 (0.231) | 0.145 (0.320) | 0.150 (0.331) | 0.155 (0.342) | 0.155 (0.342) | 0.150 (0.331) |
| **Contact operation** | ⊖ N.C. contact with positive opening operation, when properly mounted and using a conforming operator. | | | — | | | |

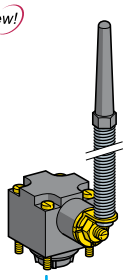
### Table 21.31: Specifications

| **Switch actuation** | | **On end** | **By 30° cam** | | | **By any moving part** |
|---|---|---|---|---|---|---|
| **Type of actuation** | |  |  |  |  |  |
| **Maximum actuation speed** | | 0.5 m/s (1.64 ft/s) | | 1.5 m/s (4.92 ft/s) | | 1 m/s (3.28 ft/s) |
| **Minimum force or torque** | For tripping | 15 N (3.37 lb) | 12 N (2.70 lb) | 0.15 N•m (1.33 lb-in) | | |
| | For positive opening | 45 N (10.12 lb) | 36 N (8.09 lb) | 0.3 N•m (2.66 lb-in) | — | — |
| **Cable entry** | | 1 entry tapped M20 x 1.5 mm for ISO cable entry, clamping capacity 7 to 13 mm (0.28 to 0.51 in.)<br>To convert PG 13 to 1/2" NPT, use adapter **DE9RA1212**. For ISO M20 x 1.5, add **H29** to the end of the catalog number. Example: **XCKS101** becomes **XCKS101H29**. | | | | |

▲ Form conforming to EN 50041. See page 6/92 of catalog 9006CT1007.
■ Switches with gold contacts or eyelet type connections: please consult your local sales office.
♦ Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.
★ Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
▼ Value taken with actuation by moving part at 100 mm (3.94 in.) from the mounting.

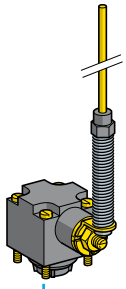
© 2012 Schneider Electric
All Rights Reserved

New!



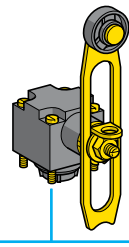
Spring-rod lever with thermoplastic end *(1)*

**ZCKD81**



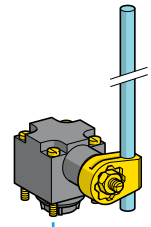
Spring-rod lever, metal *(1)*

**ZCKD91**



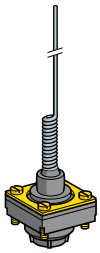
Variable-length thermoplastic roller lever *(1)*

**ZCKD41**



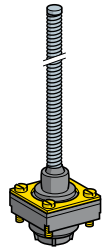
Round rod lever, thermoplastic,Ø 6 mm*(1)*

**ZCKD59**



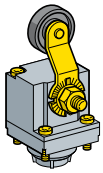
Cat's whisker

**ZCKD06**



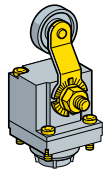
Spring rod

**ZCKD08**



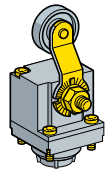
Thermoplastic roller lever *(1)*

**ZCKD15** →



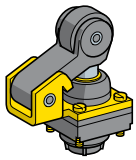
Steel roller lever *(1)*

**ZCKD16** →



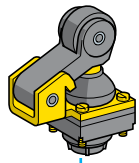
Steel ball bearing mounted roller lever *(1)*

**ZCKD17** →



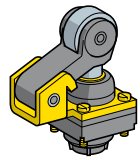
Thermoplastic roller lever, 1 direction of actuation

**ZCKD21** →



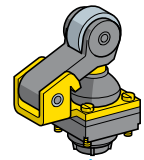
Thermoplastic roller lever plunger with protective boot, 1 direction of actuation

**ZCKD219** →



Steel roller lever plunger, 1 direction of actuation

**ZCKD23** →



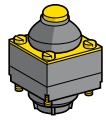
Steel roller lever plunger with protective boot, 1 direction of actuation

**ZCKD239** →



Metal end plunger

**ZCKD10** →



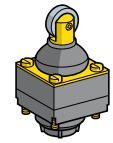
Metal end plunger with protective boot

**ZCKD109** →



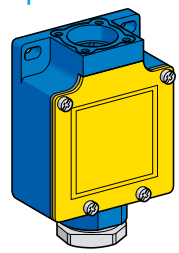
Steel roller plunger

**ZCKD02** →



Steel roller plunger with protective boot

**ZCKD029** →



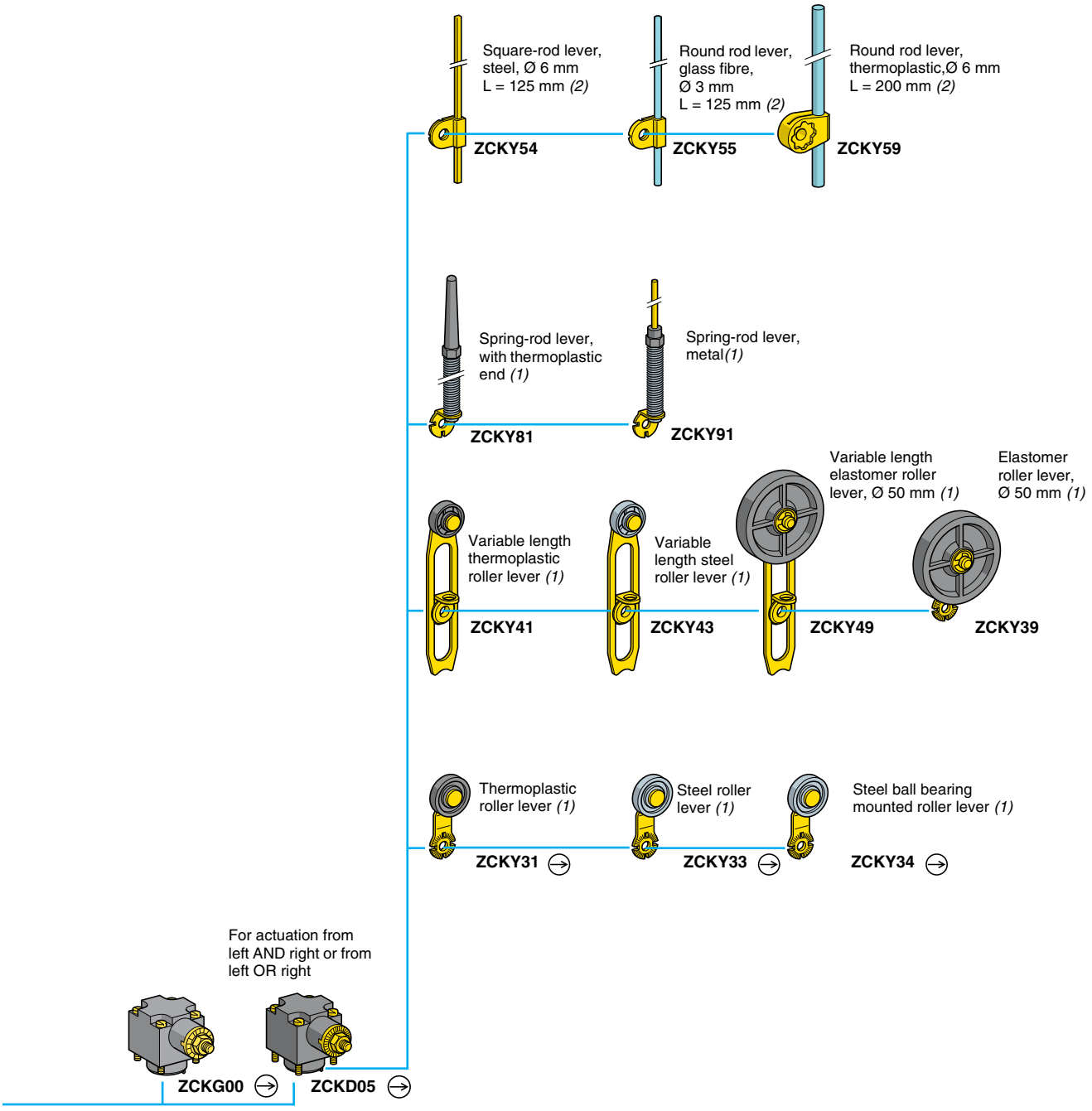
Body with 2-pole contact and one 1/2" NPT cable entry using the included adapter, DE9RA1012

**ZCKL1 / L5 / L6 / L7** →
**ZCKL8H7**



© 2012 Schneider Electric
All Rights Reserved

New!




⊖ Head assuring positive opening operation when used with a conforming lever.
*(1)* Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.
*(2)* Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

© 2012 Schneider Electric
All Rights Reserved

## XCKL

XCKL is a compact, general-duty limit switch for applications such as machine tools and material handling.

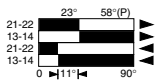
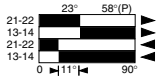
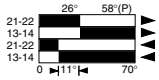
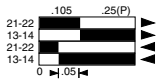

XCKL110H7

### Table 21.32: Specifications

| Rated Power (conforms to IEC 947-5-1, duty categories AC15 and DC13) | |
|---|---|
| **Temperature range** | -13 to +158 °F (-25 to +70 °C)<br>The minimum temperatures listed are based on the absence of freezing moisture or water. |
| **Enclosure rating** | NEMA Type 1, 2, 3, 4, 12 |
| | IP66 |
| **Vibration resistance** | 25 G (10–500 Hz), conforming to IEC 68-2-6 |
| **Shock resistance** | 50 G, conforming to IEC 68-2-27 |
| **Repeatability** | 0.002 in. (0.05 mm) |
| **Cable entry** | Standard: Pg 11 with DE9RA1012 adapter for 1/2" NPT conduit entry |
| **Contact Characteristics** | |
| **Rated thermal current** | 10 A |
| **Rated insulation voltage** | 300 Vac and dc (A300 and Q300) |
| **Contact resistance (max.)** | 25 mΩ |
| **Cable (max.)** | 2 x #16 AWG (1.5 $mm^2$) per terminal |
| **Short circuit protection (customer supplied)** | 10 A fuse type SC. Outside U.S. use gl or N. |

## Complete Switches

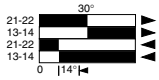
### Table 21.33: Lever Operated

| Description ▲ | Functional Diagram | Operating Torque/Force | Contact Configuration | Catalog Number |
|---|---|---|---|---|
| Programmable head CW and/or CCW–snap action Delrin® roller lever–adjustable in 5° or 45° in increments (reversible mounting). |  | 14.2 oz-in | SPDT (N.O. + N.C.) snap | XCKL10011H7 |
| | | 14.2 oz-in | SPDT (N.O. + N.C.) slow | XCKL50011H7 |
| Adjustable length roller lever–adjustable in 5° or 45° increments (reversible mounting). |  | 14.2 oz-in | SPDT (N.O. + N.C.) snap | XCKL10041H7 |
| | | 14.2 oz-in | SPDT (N.O. + N.C.) slow | XCKL50041H7 |
| CW and CCW, Delrin roller lever |  | 21.3 oz-in | SPDT (N.O. + N.C.) snap | XCKL115H7 |
| | | 21.3 oz-in | SPDT (N.O. + N.C.) slow | XCKL515H7 |
| One way lever-Delrin roller |  | 25.3 oz-in | SPDT (N.O. + N.C.) snap | XCKL121H7 |
| | | 25.3 oz-in | SPDT (N.O. + N.C.) slow | XCKL521H7 |

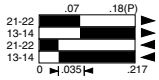
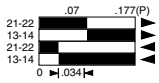

XCKL10011H7


XCKL115H7

### Table 21.34: Omnidirectional

| Description ▲ | Functional Diagram | Operating Torque/Force | Contact Configuration | Catalog Number |
|---|---|---|---|---|
| Wobble stick-steel rod |  | 1.84 oz-in | SPDT (N.O. + N.C.) snap | XCKL106H7 |
| | | 1.84 oz-in | SPDT (N.O. + N.C.) slow | XCKL506H7 |

### Table 21.35: Plunger Operated

| Description ▲ | Functional Diagram | Operating Torque/Force | Contact Configuration | Catalog Number |
|---|---|---|---|---|
| Rod plunger |  | 35.6 oz | SPDT (N.O. + N.C.) snap | XCKL110H7 |
| | | 35.6 oz | SPDT (N.O. + N.C.) slow | XCKL510H7 |
| Roller plunger |  | 35.6 oz | SPDT (N.O. + N.C.) snap | XCKL102H7 |
| | | 35.6 oz | SPDT (N.O. + N.C.) slow | XCKL502H7 |


XCKL110H7


XCKL102H7

▲ Diagrams shown are for XCKL1•••.

Exploded view . . . . . page 21-20
Lever arms . . . . . page 21-23

File CCN E39281 NKCR

File Class LR44087 3211-03

**Acceptable Wire Sizes: 14–24 AWG**
**Recommended Terminal Clamp Torque: 13 lb-in**



© 2012 Schneider Electric
All Rights Reserved


ZCKL1H7, ZCKL5H7


ZCKG00H7


ZCKD15,16,17H7


ZCKD10H7


ZCKD02H7


ZCKD21,23H7


ZCKY43H7


ZCKY11H7


ZCKY71H7


ZCKY51H7


ZCKY91H7


ZCKY81H7

### Table 21.36: Bodies—Electric

| Components | Contacts | Catalog Number |
|---|---|---|
| Body: Single pole, double break, 1 N.O. + 1 N.C. Snap action, positive opening, same polarity | Silver | ZCKL1H7 |
| | Gold Flashed | ZCKL18H7 |
| Body: Single pole, double break, 1 N.O. + 1 N.C. Slow make, slow break isolated | Silver | ZCKL5H7 |

### Table 21.37: Rotary Heads

| Components | | Catalog Number |
|---|---|---|
| Programmable head ■ CW and/or CCW | Select lever arm separately | ZCKG00 |
| Offset Delrin roller lever▲ | | ZCKD15 |
| Offset steel roller lever▲ | | ZCKD16 |
| Offset ball-bearing roller lever▲ | | ZCKD17 |

▲ Replacement arms are not available separately. Order complete head as a replacement.
■ See page 21-22.

### Table 21.38: Plunger Heads

| Description | Catalog Number |
|---|---|
| Rod plunger | ZCKD10 |
| Booted rod plunger | ZCKD109 |
| Roller plunger | ZCKD02 |
| Booted roller plunger | ZCKD029 |
| One-way lever—Delrin roller | ZCKD21 |
| Steel roller | ZCKD23 |

### Table 21.39: Omnidirectional Heads

| Description | Catalog Number |
|---|---|
| Cat whisker—steel rod♦ | ZCKD06 |
| Wobble spring—steel spring♦ | ZCKD08 |

♦ Replacement cat whiskers and wobble extensions are not available separately. Order complete head as a replacement.

### Table 21.40: Replacement Parts

| Description | Catalog Number |
|---|---|
| Contact block for ZCKL1 | XESP2151 |
| Contact block for ZCKL5 | XENP2151 |
| Gold flashed contact block for ZCKL18 | XESP2158 |
| Pg 11 to 1/2" NPT conduit entry adapter | DE9RA1012 |

### Table 21.41: Levers (for use with ZCKG00 heads only—these arms will not fit ZCKD heads)

| Description | Size | Adjustment ▼ Increments | Catalog Number |
|---|---|---|---|
| Delrin roller | 0.9 in. diameter, 0.2 in. wide, 1.6 in. long | 5° or 45° | ZCKY11 |
| Steel roller | 0.9 in. diameter, 0.2 in. wide, 1.6 in. long | 5° or 45° | ZCKY13 |
| Ball bearing roller | 0.9 in. diameter, 0.2 in. wide, 1.6 in. long | 5° or 45° | ZCKY14 |
| Adjustable length Delrin roller★ | 0.74 in. diameter, 0.2 in. wide, 4.2 in. long (max.) | 5° or 90° | ZCKY41 |
| Steel roller | 0.74 in. diameter, 0.2 in. wide, 4.2 in. long (max.) | 5° or 90° | ZCKY43 |
| Steel rod, square★ | 1/8 in. side, 5.4 in. long (max.) | 5° or 45° | ZCKY51 |
| Fiberglass rod, round★ | 1/8 in. diameter, 5.4 in. long (max.) | 5° or 45° | ZCKY52 |
| Steel rod, round★ | 1/8 in. diameter, 5.4 in. long (max.) | 5° or 45° | ZCKY53 |
| Plastic rod, round★ | 1/4 in. diameter, 8.4 in. long (max.) | 5° or 45° | ZCKY59 |
| Fork, 2 track Delrin roller | 0.9 in. diameter, 0.2 in. wide for ZCKE092 | 5° or 45° | ZCKY71 |
| Coil spring lever ★ | 4.41 in. (112 mm) | 5° or 45° | ZCKY81 |
| Spring rod lever★ | 7.05 in. (179 mm) | 5° or 45° | ZCKY91 |

★ Flexible operators do not guarantee positive opening operation.
▼ Reverse mounting (for ZCKG00 head)—The higher increment (45° or 90°) is a positive opening contact feature which ensures no loss of mechanical effort between the actuation point and the moving contact bridge of the N.C. contact even if the lever is loosely mounted on the head shaft.

**Acceptable Wire Sizes: 14–24 AWG**

**Recommended Terminal Clamp Torque: 13 lb-in**

### Building a Complete Switch

**Complete Switch =**
Body (with contact assembly)
+ Head
+ Lever

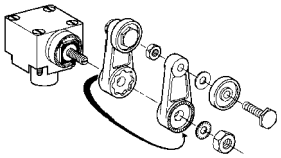
**Examples:**

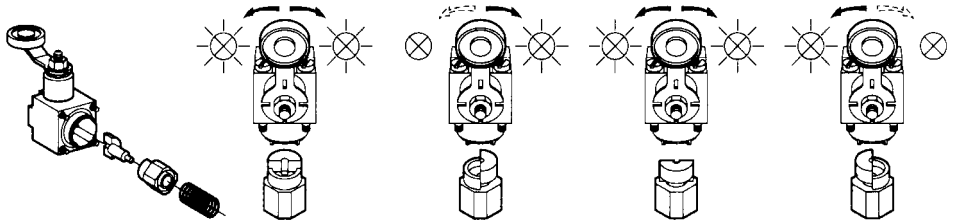
| Body | Head | | |
|---|---|---|---|
| ZCKL1H7 + | ZCKD15 = | **XCKL115H7** | |
| **Body** | **Head** | | |
| ZCKL5 H7+ | ZCKD02 = | **XCKL502H7** | |
| **Body** | **Head** | **Lever** | |
| ZCKL1H7 + | ZCKG00 + | ZCKY11 = | **XCKL10011H7** |

Note: Some combinations are not available as complete switches.

## ZCKG00 Programming

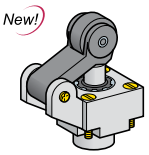
The ZCKG00 head is field convertible to CW, CCW, or CW/CCW.


Reverse Lever Mounting



File CCN 42259 NKCR
File Class LR25490 3211 03

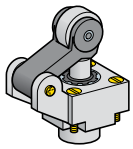
© 2012 Schneider Electric
All Rights Reserved



New!

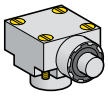
Thermoplastic roller lever plunger, 1 direction of actuation

**ZCKE21**



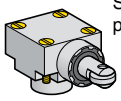
Steel roller lever plunger, 1 direction of actuation

**ZCKE23**



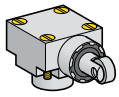
Side metal plunger

**ZCKE63**



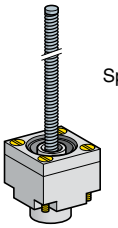
Side steel roller plunger, horizontal *(1)*

**ZCKE64**



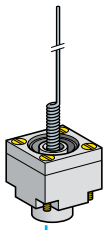
Side steel roller plunger, horizontal *(1)*

**ZCKE65**



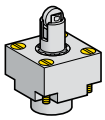
Spring rod

**ZCKE08**



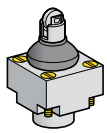
Cat's whisker

**ZCKE06**



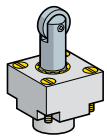
End reinforced steel roller plunger

**ZCKE67**



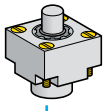
End steel roller plunger with protective boot

**ZCKE629**



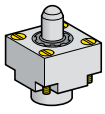
End steel roller plunger

**ZCKE62**



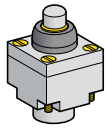
End metal plunger

**ZCKE61**



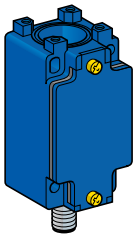
End steel ball bearing plunger

**ZCKE66**



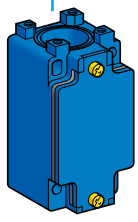
End metal plunger with protective boot

**ZCKE619**



Body with 2-pole contact, fixed, 1 step, M12 connector *(2)*

**ZCKJ1D / J5D / J6D / J7D**
**ZCKJ8D**



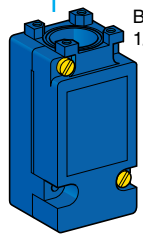
Body with contact, cable entry for 1/2" NPT fixed, 1 step *(2) (3)*

**ZCKJD3●**
**ZCKJ1 / J5 / J6 / J7 / J9H7**

Body with contact, cable entry for 1/2" NPT fixed, 1 step *(2) (3)*

**ZCKJ2 / J8H7**
Body with contact, cable entry for 1/2" NPT fixed, 2 step *(2) (3)*

**ZCKJ4H7**
2 CO snap action



Body with contact, cable entry for 1/2" NPT plug-in, 1 or 2 step *(2) (3)*

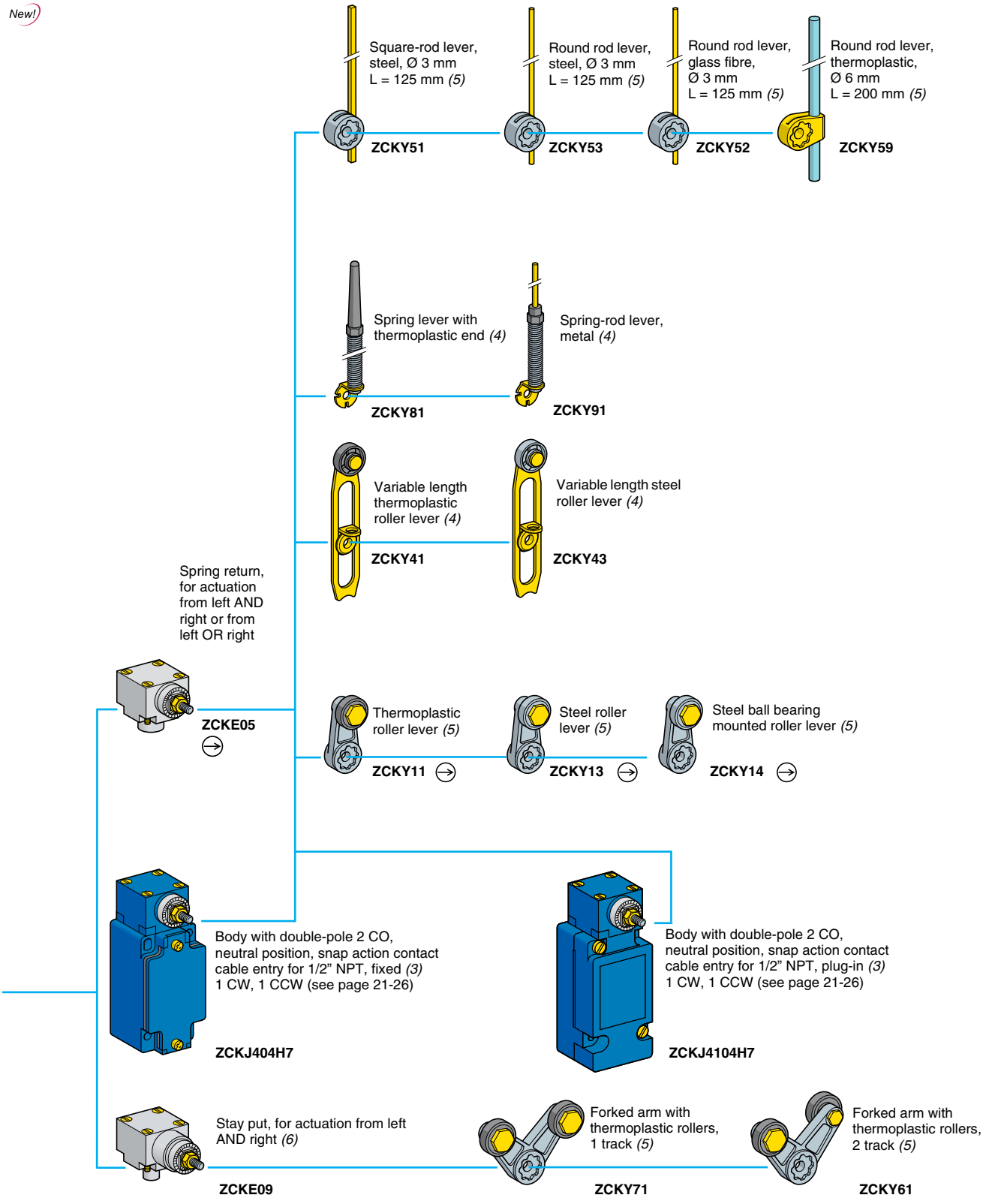
**ZCKJ11 / J21 / J41H7**

*(1)* Cannot be used with bodies ZCKJ4H7 and ZCKJ41H7.
*(2)* For further information, see page 21-27.
*(3)* For a cable entry tapped ISO M20 x 1.5, change H7 to H29. Example: ZCKJ1**H7** becomes ZCKJ1**H29**.
For a cable entry tapped Pg 13.5, delete H7 from the catalog number. Example: JCKJ1H7 becomes ZCKJ1.



© 2012 Schneider Electric
All Rights Reserved

New!




Ⓣ Head assuring positive opening operation when used with a conforming lever.
(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.
(5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
(6) Suitable for bodies with contacts ZCKJ1 / J2 / J31 / J39H7.

© 2012 Schneider Electric
All Rights Reserved

XCKJ fixed body type precision switches with an SPDT configuration have direct opening contacts to meet most international standards.


XCKJ10511H7


XCKJ10541H7


XCKJ161H7


XCKJ110511H7

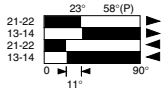
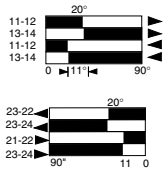
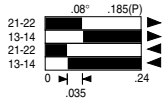
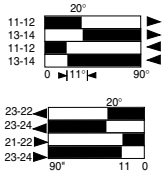
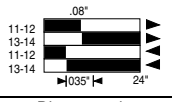

XCKJ1167H7


XCKJ167H7

### Table 21.42: Specifications

| | |
|---|---|
| **Rated Power (conforms to IEC 947-5-1, duty categories AC15 and DC13)** | |
| **Temperature range** | –13 to +158 °F (–25 to +70 °C); optional –40 to +248 °F (–40 to +120 °C).<br>The minimum temperatures listed are based on the absence of freezing moisture or water. |
| **Enclosure rating** | NEMA 1,2,3,4,12; IEC Type IP66 |
| **Vibration resistance** | 25 G (10–500 Hz), conforming to IEC 68-2-6 |
| **Shock resistance** | 50 G, conforming to IEC 68-2-27 |
| **Repeatability (max.)** | 0.0004 in. (0.01 mm) |
| **Cable entry** | 1/2" NPT standard |
| **Contact Characteristics** | |
| **Rated thermal current** | 10 A, conforming to UL 508, CSA C22-2 No.14, IEC 337-1, NFC 63-140, VDE 0660-200 |
| **Rated insulation voltage** | Non-plug-in: 300 Vac (A300) and DC (Q300) Plug-in: 600 Vac (A600) and DC (Q600) |
| **Contact resistance (max)** | Non-plug-in: 25 m Ω  Plug-in: 45 m Ω |
| **Cable (max.)** | 2 x 16 AWG (1.5 $mm^2$) per terminal—1 x #16 AWG for 2 SPDT (2 N.O., 2 N.C.) |
| **Short circuit protection** | 10 A fuse type SC; Form I Class J or equivalent. Outside US use type gl or N. |

### Table 21.43: Complete Switches, XCKJ

| Description and Functional Diagram | Operating Torque | Contact Type | | Direct Opening ⊖ | Catalog Number |
|---|---|---|---|---|---|
| **Non-plug-in Housings** | | | | | |
| **Lever operated** | **Delrin roller lever adjustable in 5° or 45° increments (reversible mountings)** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | Y ▲ | XCKJ10511H7 |
| | 33.3 oz-in | 2 SPDT | (2 N.O. + 2 N.C.) | N | XCKJ20511H7 |
|  | **Adjustable length—Delrin roller lever adjustable in 5° or 90° increments** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | N | XCKJ10541H7 |
| | 33.3 oz-in | 2 SPDT | (2 N.O. + 2 N.C.) | N | XCKJ20541H7 |
| | **Adjustable length—1/8 in. diameter steel rod adjustable in 5° or 45° increments** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | N | XCKJ10553H7 |
| | **Adjustable length—1/4 in. plastic rod adjustable in 5° or 45° increments** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | N | XCKJ10559H7 |
| **Neutral Position**<br>**One SPDT contact switch per direction. Past 20° CW, contact 1 (11-12 / 13-14) switches.**<br>**Past 20° CCW, contact 2 (21-22 / 23-24) switches. Levers not included.** | | | | | |
|  | 26.6 oz-in | 2 SPDT (2 N.O. + 2 N.C.) | | N | ZCKJ404H7 |
| **Plunger Operated** | Rod plunger<br>48 oz | SPDT | (N.O. + N.C.) | Y ▲ | XCKJ161H7 |
|  | Steel roller plunger<br>48 oz | SPDT | (N.O. + N.C.) | Y ▲ | XCKJ167H7 |
| **Plug-in Housings** | | | | | |
| **Lever Operated** | **Delrin roller lever adjustable in 5° or 45° increments (reversible mountings)** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | N | XCKJ110511H7 |
|  | **Adjustable length Delrin roller lever adjustable in 5° or 90° increments** | | | | |
| | 33.3 oz-in | SPDT | (N.O. + N.C.) | N | XCKJ110541H7 |
| **Neutral Position**<br>**One SPDT contact switch per direction. Past 20° CW, contact 1 (11-12 / 13-14) switches. Past 20° CCW, contact 2 (21-22 / 23-24) switches.**<br>**Levers not included.** | | | | | |
|  | 26.6 oz-in | 2 SPDT | (2 N.O. + 2 N.C.) | N | ZCKJ4104H7 |
| **Plunger Operated** | Rod plunger<br>48 oz | SPDT | (N.O. + N.C.) | N | XCKJ1161H7 |
|  | Steel roller plunger<br>48 oz | SPDT | (N.O. + N.C.) | N | XCKJ1167H7 |

▲ Direct opening contacts meet IEC 947-5-1 requirements for positive opening contacts. ⊖

Exploded view . . . . . page 21-24



© 2012 Schneider Electric
All Rights Reserved



ZCKJ1H7
Non-plug-in

### Table 21.44: Non-plug-in

| Silver Contacts (10 A) | | | | Direct Opening ⊖ | Catalog Number |
|---|---|---|---|---|---|
| 1 Step | SPDT | (N.O. + N.C.) | Snap action | Y▲ | ZCKJ1H7 |
| 1 Step | SPDT | (isolated N.O. + N.C.) | Slow break-before-make | Y▲ | ZCKJ5H7 |
| 1 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ2H7 |
| 2 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ4H7 |
| **Gold Flashed Contacts (low power circuits max. 12 V, 0.1 A)** | | | | | |
| 1 Step | SPDT | (N.O. + N.C.) | Snap action | Y▲ | ZCKJ18H7 |
| 1 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ28H7 |
| **High Temperature: +248 °F (+120 °C)** | | | | | |
| 1 Step | SPDT | (N.O. + N.C.) | Snap action | Y▲ | ZCKJ15H7 |
| 1 Step | 2 SPDT | (N.O. + N.C.) | Snap action | N | ZCKJ25H7 |
| Neutral Position | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ4045H7 |



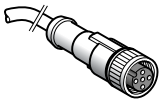
ZCKJ11H7
Plug-in

### Table 21.45: Plug-in

| Silver Contacts (10 A) | | | | Direct Opening ⊖ | Catalog Number |
|---|---|---|---|---|---|
| 1 Step | SPDT | (N.O. + N.C.) | Snap action | N | ZCKJ11H7 |
| 1 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ21H7 |
| 2 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ41H7 |
| **High Temperature: +248 °F (+120 °C)** | | | | | |
| 1 Step | SPDT | (N.O. + N.C.) | Snap action | N | ZCKJ115H7 |
| 1 Step | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ215H7 |
| Neutral Position | 2 SPDT | (2 N.O. + 2 N.C.) | Snap action | N | ZCKJ41045H7 |

### Table 21.46: Wiring Options

| | Catalog Number | Pins | Suffix |
|---|---|---|---|
| Mini style male receptacle | ZCKJ1/J11/J5H7 | 5 pins | 547 |
| (For example, to order a ZCKJ1H7 body with a mini-style connector option, the part number is ZCKJ1547.) | ZCKJ2/J4/J21/J41H7 | 9 pins | 947 |



XZCP1141L*
Cable

### Table 21.47: Plug and Cable Assemblies

Matching plug and cable assemblies for the mini style receptacle options may be ordered as follows:

| Description | Cable Length | Pins | Matches Receptacle Option | Catalog Number |
|---|---|---|---|---|
| Plug and cable | 3 ft | 5 | 547 | BH2053 |
| | 6 ft | | | BH2056 |
| | 12 ft | | | BH20512 |
| | 3 ft | 9 | 947 | BH2093 |
| | 6 ft | | | BH2096 |
| | 12 ft | | | BH20912 |
| Pre-wired connector, female | 6.56 ft | 4 | XCSDMR•L / XCSDMP•L | XZCP1141L2 |
| | 16.40 ft | | | XZCP1141L5 |
| | 32.81 ft | | | XZCP1141L10 |

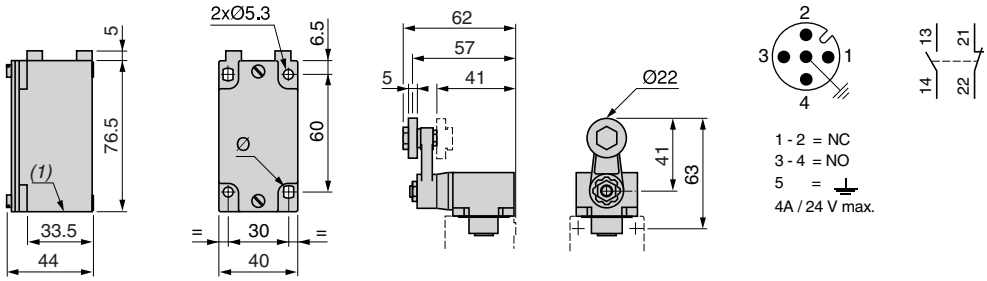
▲ Direct opening contacts meet IEC 947-5-1 requirements for positive opening contacts when using ⊖ head.

## Building a Complete Switch

**Complete Switch = Body** (with contact assembly) **+ Head + Lever**
**Example:**

| Body | | Head | | Lever | | |
|---|---|---|---|---|---|---|
| ZCKJ1H7 | + | ZCKE05 | + | ZCKY11 | = | XCKJ10511H7 |

| Non-Plug-in Body ZCKJ1H7 | Rotary Head ZCKE05 with Operating Lever ZCKY11 | ZCKJ*D |
|---|---|---|



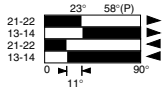
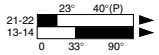
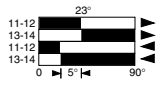
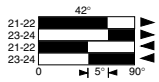
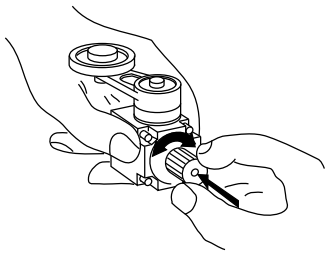
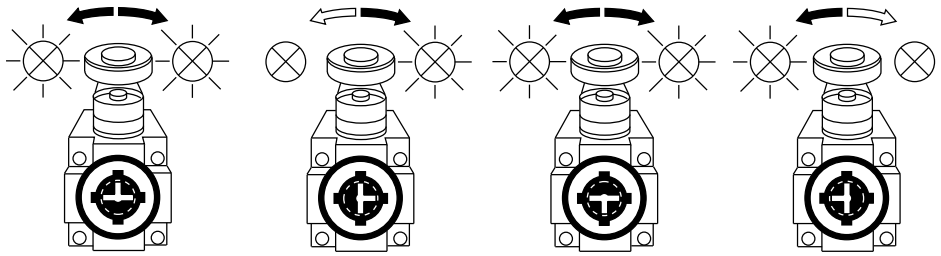
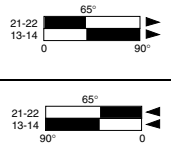

File CCN E39281 NKCR

File Class LR44087 3211-03

**Acceptable Wire Sizes: 14–24 AWG**
**Recommended Terminal Clamp Torque: 13 lb-in**

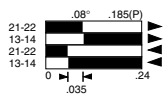
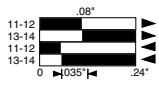
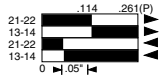
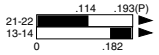
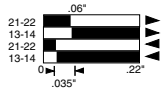
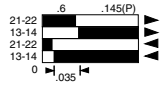
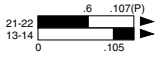
© 2012 Schneider Electric
All Rights Reserved

## Table 21.48: Lever-Operated Heads

| Contact Operation with Switch Bodies: | 1 Step ZCKJ1▲ / J11 / J2 / J21H7 | 2 Step ZCKJ4 / J41H7 | 1 Step ZCKJ5H7 ▲ | Operating Force/Torque | Catalog Number |
|---|---|---|---|---|---|
| Standard operation<br>1 Step<br>CW and/or CCW |  | |  | 33 oz-in, 0.25 N | ZCKE05 |
| 2 Step<br>11-12, 13-14 first step | |  | | | |
| 21-22, 23-24 second step | |  | | | |
| **ZCKE05 Programming** | | | | | |
| |  |  | | | |
| | **CW and CCW** | **CW** | **CW and CCW** | **CCW** | |
| Maintained operation |  | | | 33 oz-in, 0.25 N | ZCKE09 |

*Note: Neutral position head ZCKE04 is not available separately. Order the head and body subassemblies from page 21-26.*

## Table 21.49: Plunger-Operated Heads

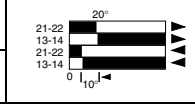
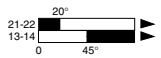
| Contact Operation with Switch Bodies: | 1 Step ZCKJ1▲ / J11 / J2 / J21 / H7 | 2 Step ZCKJ4 / J41H7 | 1 Step ZCKJ5H7 ▲ | Operating Force/Torque | Catalog Number |
|---|---|---|---|---|---|
| Top rod plunger |  |  |  | 48 oz<br>18 N | ZCKE61 |
| Ball-bearing top plunger | |  | | 48 oz<br>18 N | ZCKE66 |
| Steel roller plunger | | | | 48 oz<br>18 N | ZCKE67 |
| One-way Delrin roller<br>based on actuation by 30° cam |  | |  | 48 oz<br>18 N | ZCKE21 |
| One way steel roller<br>based on actuation by 30° cam | | | | 48 oz<br>18 N | ZCKE23 |
| Side rod plunger |  | |  | 48 oz<br>18 N | ZCKE63 |
| Side steel roller-plunger, horizontal<br>based on actuation by 30° cam |  | |  | 48 oz<br>18 N | ZCKE64 |
| Side steel roller-plunger, vertical<br>based on actuation by 30° cam | | | | 48 oz<br>18 N | ZCKE65 |

▲ Direct opening ⊖ when used with any head on this page except ZCKE09 (maintained operation).



© 2012 Schneider Electric
All Rights Reserved

### Table 21.50: Omnidirectional Heads

| Contact Operation with Switch Bodies: | 1 Step ZCKJ1, J11,J2,J21 | 2 Step ZCKJ4, J41 | 1 Step ZCKJ5 | Operating Force/Torque | Catalog Number |
|---|---|---|---|---|---|
| Cat whisker-steel ▲ |  | |  | 18.4 oz-in, 0.13 N | ZCKE06 |
| Wobble coil springs ▲ | | | | 18.4 oz-in, 0.13 N | ZCKE08 |



▲ Flexible operators do not guarantee direct (positive) opening operation.

### Table 21.51: Operating Heads—for extended temperature ranges

| Description | | Catalog Number | |
|---|---|---|---|
| | | Low temperature ■ -40 °F to +158 °F (-40 °C to +70 °C) | High temperature ■ -13 °F to +248 °F (-25 °C to +120 °C) |
| **Lever operated** | Standard operations | ZCKE056 | ZCKE055 |
| | Maintained operations | ZCKE096 | ZCKE095 |
| **Plunger operated** | Top rod plunger | ZCKE616 | ZCKE615 |
| | Ball-bearing top plunger | ZCKE666 | ZCKE665 |
| | Top roller plunger | ZCKE676 | ZCKE675 |
| | One way Delrin roller | ZCKE216 | ZCKE215 |
| | One way steel roller | ZCKE236 | ZCKE235 |
| | Side rod plunger | ZCKE636 | ZCKE635 |
| | Side steel roller plunger-horizontal | ZCKE646 | ZCKE645 |
| | Side steel roller plunger-vertical | ZCKE656 | ZCKE655 |
| **Omnidirectional** | Cat whisker | ZCKE066 | ZCKE065 |
| | Wobble coil spring | ZCKE086 | ZCKE085 |

■ The minimum temperatures listed are based on the absence of freezing moisture or water.

Non-plug-in Style Contact Block



XE2SP2151



ZCKY11/13/14



ZCKY43/41



ZCKY51/52/53/59



ZCKY61



ZCKY71



ZCKY81



ZCKY91

### Table 21.52: Replacement Parts

| Description (see page 21-27 for contact description) | Direct Opening ⊕ | Catalog Number |
|---|---|---|
| Contact block for ZCKJ1H7 | Y | XE2SP2151 |
| Contact block for ZCKJ2H7 | N | XESP2021 |
| Contact block for ZCKJ4H7 | N | XESP2031 |
| Contact block for ZCKJ5H7 | Y | XE2NP2151 |
| Contact block for ZCKJ18H7 (gold flashed) | Y | XE2SP2158 |
| Contact block for ZCKJ28H7 (gold flashed) | N | XESP2028 |
| Plug-in module for ZCKJ11H7 (includes contact block) | N | ZCKJ01H7 |
| Plug-in module for ZCKJ21 (includes contact block) | N | ZCKJ02H7 |
| Plug-in module for ZCKJ41 (includes contact block) | N | ZCKJ04H7 |
| Base receptacle for ZCKJ11H7 | — | ZCKJ019H7 |
| Base receptacle for ZCKJ21H7 | — | ZCKJ029H7 |
| Base receptacle for ZCKJ41H7 | — | ZCKJ029H7 |

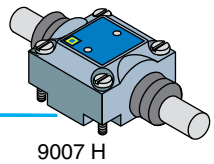
### Table 21.53: Lever Arms

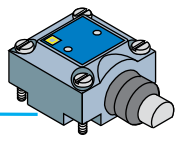
| Description | Adjustment Increments | Catalog Number |
|---|---|---|
| **Adjustable or Flexible Operators ♦** | | |
| Adjustable Delrin roller, 0.74 in. diameter, 0.2 in. wide, 3 in. long (max.) | 5° or 90° | ZCKY41 |
| Adjustable steel roller, 0.74 in. diameter, 0.2 in. wide, 3 in. long (max.) | 5° or 90° | ZCKY43 |
| Adjustable rod-square, steel, 1/8 in. side, 5.4 in. long (max.) | 5° or 45° | ZCKY51 |
| Adjustable rod-round, fiberglass, 1/8 in. diameter, 5.4 in. long (max.) | 5° or 45° | ZCKY52 |
| Adjustable rod-round, steel, 1/8 in. diameter, 5.4 in. long (max.) | 5° or 45° | ZCKY53 |
| Adjustable rod-round, plastic, 1/4 in. diameter, 8.4 in. long (max.) | 5° or 45° | ZCKY59 |
| Coil spring lever | 5° or 90° | ZCKY81 |
| Spring rod lever | 5° or 90° | ZCKY91 |
| **Reverse Mounting** | | |
| Delrin roller 0.9 in. diameter, 0.2 in. wide, 1.6 in. long ⊕ | 5° or 45° ★ | ZCKY11 |
| Steel roller 0.9 in. diameter, 0.2 in. wide, 1.6 in. long ⊕ | 5° or 45° ★ | ZCKY13 |
| Ball bearing roller 0.9' diameter, 0.2 in. wide, 1.6 in. long ⊕ | 5° or 45° ★ | ZCKY14 |
| Fork, 2 track, Delrin roller, 0.9 in.diameter, 0.2 in. wide for ZCK-E09 | 5° or 45° ★ | ZCKY61 |
| Fork, 1 track, Delrin roller, 0.9 in. diameter, 0.2 in. wide for ZCK-E09 | 5° or 45° ★ | ZCKY71 |

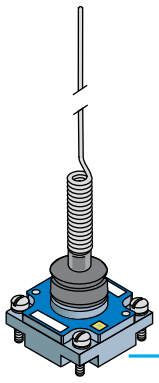
♦ Adjustable and flexible operators do not guarantee positive opening operation.
★ Reverse mounting: The higher increment (45°) is a direct (positive) opening contact feature which ensures no loss of mechanical effort between the actuation point and the moving contact bridge of the direct (positive) contact (N.C.) even if the lever is loosely mounted.

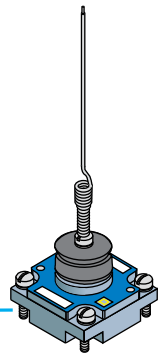
© 2012 Schneider Electric
All Rights Reserved

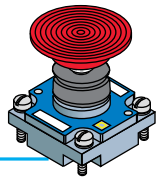
New!

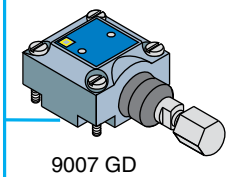

9007 H

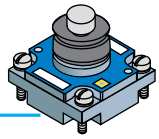

9007 G

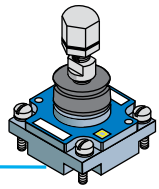

9007 K

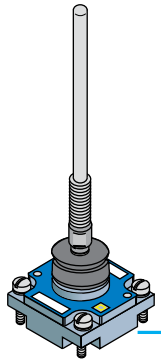

9007 L

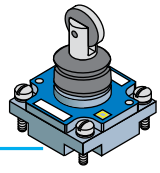

9007 R + mushroom button

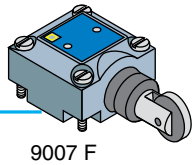

9007 GD

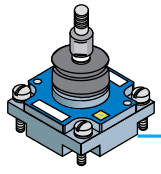

9007 E

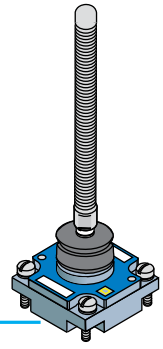

9007 ED

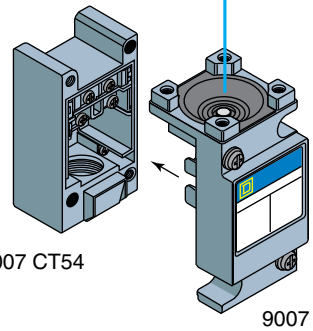

9007 J


9007 D

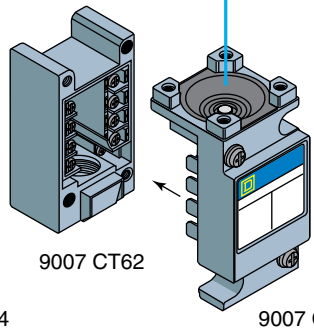

9007 F


9007 JKC

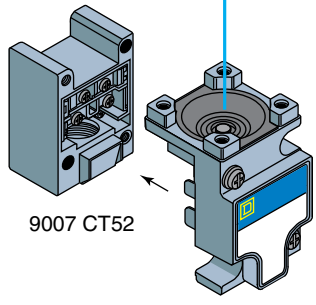

9007 KC


9007 CT54

9007 CO54


9007 CT62

9007 CO62


9007 CT52

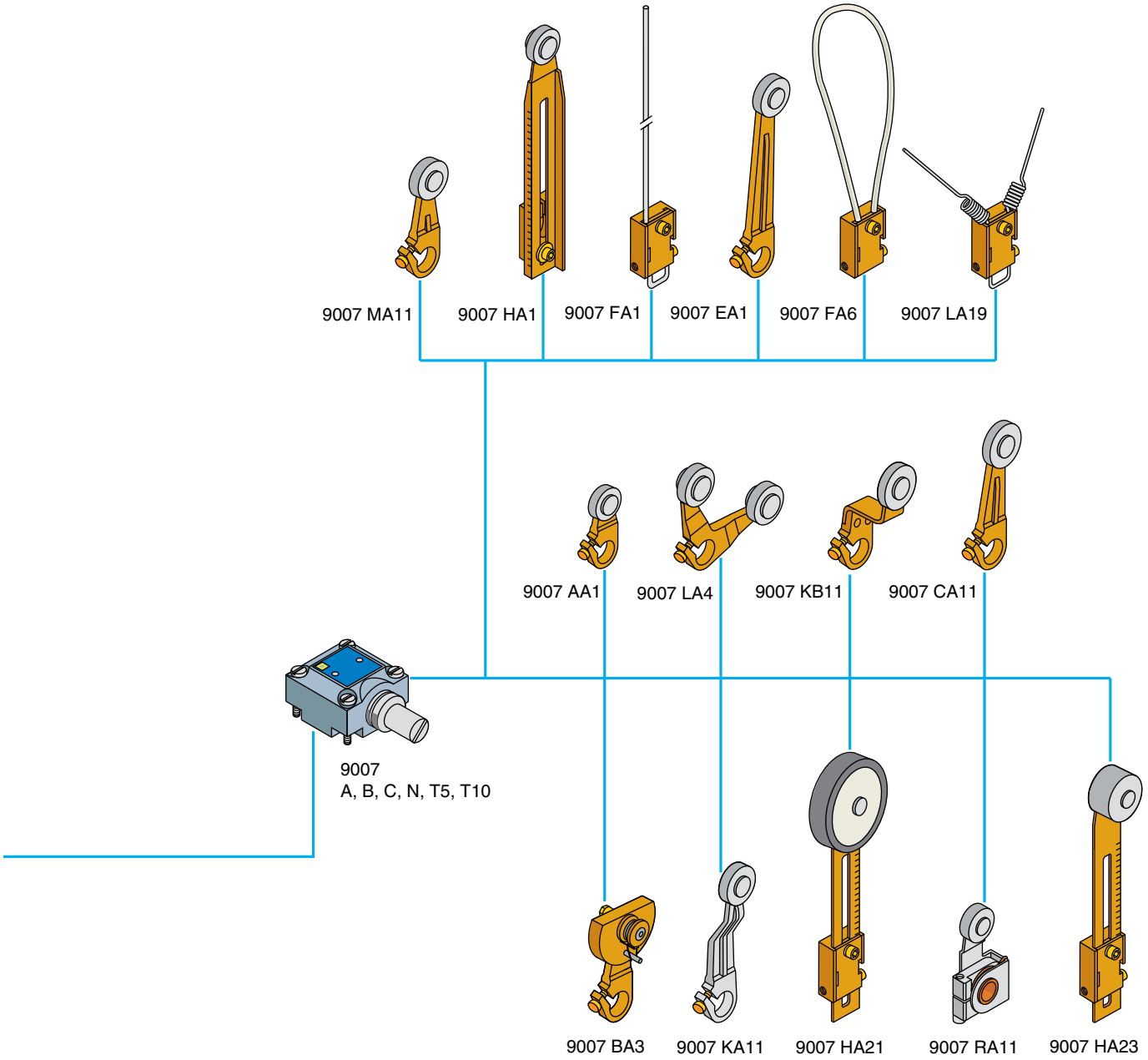
9007 CO52

***NOTE:*** *Order the mushroom operator cap from Table 21.56 on page 21-33.*



© 2012 Schneider Electric
All Rights Reserved

New!




***NOTE:*** *Head 9007C is for use with levers LA19 and LA4.*

© 2012 Schneider Electric
All Rights Reserved

## Oiltight, Watertight Switches—Standard and Compact Bodies

### Table 21.54: All Type C Switches Rated NEMA 6P and UL Type 6P



Select Turret Head



Rotary Lever Arm

| Select Basic Switch | Contacts | Rotary Lever Arm: Standard Pre-travel Spring Return CW & CCW ▲ | Rotary Lever Arm: Low Differential Spring Return CW & CCW ▲ | Rotary Lever Arm: Neutral Position Standard Pre-travel Spring Return CW & CCW | Rotary Lever Arm: Neutral Position Low Differential Spring Return CW & CCW | Rotary Lever Arm: Light Operating Torque Spring Return CW & CCW ▲ | Rotary Lever Arm: Maintained Contact CW (Trip) CCW (Reset) | Side Plunger: Side Roller-Plunger Spring Return Vertical Roller ■ Type | Side Plunger: Side Push-Rod Plunger Spring Return | Side Plunger: Side Push-Rod Plunger Adjustable ♦ Spring Return | Side Plunger: Side Push-Rod Plunger Maintained Contact |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | |  | | | | | |  |  |  | |
| **Select Basic Switch** | **Contacts** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** |
| **Standard Box Plug-in** | 1 N.O. 1 N.C. | C54B2 | C54A2 | — | — | C54N2 | C54C | C54F | C54G | C54GD | C54H |
| | 2 N.O. 2 N.C. | C62B2 | C62A2 | — | — | C62N2 | C62C | C62F | C62G | C62GD | C62H |
| | 2 N.O.–2 N.C. Neutral Position | — | — | C68T10 | C68T5 | — | — | — | — | — | — |
| | 2 N.O.–2 N.C. Two Stage | C66B2 | C66A2 | — | — | C66N2 | — | C66F | C66G | C66GD | — |
| **Compact Box Plug-in** | 1 N.O. 1 N.C. | C52B2 | C52A2 | — | — | C52N2 | C52C | C52F | C52G | C52GD | C52H |
| **UL Listed for Hazardous Location Division I Class I Groups B, C, D Class II Groups E, F, G** | 1 N.O. 1 N.C. | CR53B2 | CR53A2 | — | — | CR53N2 | CR53C | CR53F | CR53G | CR53GD | CR53H |
| | 2 N.O. 2 N.C. | CR61B2 | CR61A2 | — | — | CR61N2 | CR61C | CR61F | CR61G | CR61GD | CR61H |
| | 2 N.O.–2 N.C. Neutral Position | — | — | CR67T10 | CR67T5 | — | — | — | — | — | — |
| | 2 N.O. –2 N.C. Two Stage | CR65B2 | CR65A2 | — | — | CR65N2 | — | CR65F | CR65G | CR65GD | — |
| **Head Only (Example: 9007B)** | | **B** | **A** | **T10** | **T5** | **N** | **C** | **F** | **G** | **GD** | **H** |
| **Nominal Operating Data** | Pre-travel | 10° | 5° | 10° | 5° | 10° | 45° | 0.08 in. (2 mm) | | | 0.14 in. (3.6 mm) |
| | Pre-travel Two Stage: First Stage | 10° | 5° | — | — | 10° | — | 0.08 in. (2 mm) | | | — |
| | Pre-travel Two Stage: First to Second Stage | 2-1/2° | 1-1/2° | — | — | 2-1/2° | — | 0.02 in. (0.5 mm) | | | — |
| | Total Travel | 90° | 90° | 90° | 90° | 90° | 90° | 0.25 in. (6.3 mm) | | | 0.25 in. (6.3 mm) |
| | Differential | 4° | 2° | 4° | 2° | 4° | — | 0.03 in. (0.8 mm) | | | — |
| | Reverse Overtravel | 90° | 90° | 90° | 90° | 90° | — | — | | | — |
| | Operating Torque/Force—1 Pole & 2 Pole | 4 lb-in (0.45 N•m) | 4 lb-in (0.45 N•m) | 4 lb-in (0.45 N•m) | 4 lb-in (0.45 N•m) | 25 oz-in (0.18 N•m) | 3 lb-in (0.34 N•m) | 4 lb (0.45 N•m) | | | 7 lb (0.80 N•m) |
| | Repeat Accuracy — Linear travel of cam (1-1/2 in. lever arm) | ± 0.002 in. (0.05 mm) | ± 0.001 in. (0.03 mm) | ± 0.002 in. (0.05 mm) | ± 0.002 in. (0.05 mm) | ± 0.002 in. (0.05 mm) | ± 0.002 in. (0.05 mm) | 0.001 in. (0.3 mm) | | | — |
| **Plug-in Replacement Units** | | **To order the basic switch and head without the plug-in receptacle base, substitute the letters "CO" for the first "C" in the type number. Example:** Open type replacement for Type C54B2 is Type **CO54B2.** | | | | | | | | | |

Acceptable Wire Sizes: 12–22 AWG

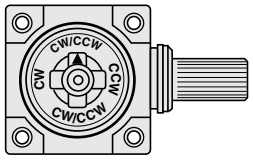
Recommended Terminal Clamp Torque: 7 lb-in (0.80 N•m)

▲ These devices are factory set to operate the contacts in **both** the **CW and CCW** directions. **Mode of operation** is field convertible to CW only or CCW only. **To order factory converted devices**—for CCW only operation, change the "2" at the end of the type number to "1" (Example: C54B**2** becomes C54B**1**); for CW only operation, delete the "2" at the end of the type number (Example: C54B**2** becomes C54B).

■ Can be converted to horizontal roller type in the field. To order horizontal roller version add the letter "H" at the end of the equivalent vertical roller version type number (Example: C54F would become C54F**H**).

♦ To lock the nut in the desired position, crimp the slot near the bottom of the nut.

Selection Mode Arrow




## Mode Change—Lever Arm Type

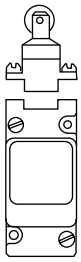
Mode of operation is easily convertible to clockwise, counterclockwise, or both. Simply point the arrow to the letters representing the desired direction—CW, CCW, or CW/CCW. All parts are captive.

Exploded view . . . . . page 21-30
Lever arms . . . . . page 21-34, 21-35
Electrical ratings . . . . . page 21-5
Special features . . . . . page 21-35, 21-36



© 2012 Schneider Electric
All Rights Reserved

## Table 21.55: All Type C Switches Rated NEMA 6P And UL Type 6P

| Select Turret Head | | Top Plunger | | | | Wobble Stick | | | | | Plug-In | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | Top Roller-Plunger Spring Return  | Top Push-Rod Plunger Spring Return  | Top Push-Rod Plunger Adjustable ■ Spring Return  | Palm Operated ▲  | Universal ★  | Wobble Stick Delrin ♦ Extension ★  | Wobble Stick Wire Extension ★  | Wobble Stick Coil Spring Extension ★  | Cat Whisker  | Plug-in Unit without Head  | Plug-in Receptacle Only  |
| Select Basic Switch | Contacts | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| Standard Box Plug-in | 1 N.O. 1 N.C. | C54D | C54E | C54ED | C54R▲ | C54JKC | C54J | C54K | C54KC | C54L | CO54 | CT54 |
| | 2 N.O. 2 N.C. | C62D | C62E | C62ED | C62R▲ | C62JKC | C62J | C62K | C62KC | C62L | CO62 | CT62 |
| | 2 N.O.–2 N.C. Neutral Position | — | — | — | — | — | — | — | — | — | CO68 | CT62 |
| | 2 N.O.–2 N.C. Two Stage | C66D | C66E | C66ED | C66R▲ | C66JKC | C66J | C66K | C66KC | C66L | CO66 | CT62 |
| Compact Box Plug-in | 1 N.O. 1 N.C. | C52D | C52E | C52ED | C52R▲ | C52JKC | C52J | C52K | C52KC | C52L | CO52 | CT52 |
| UL Listed for Hazardous Location Division I Class I Groups B, C, D Class II Groups E, F, G | 1 N.O. 1 N.C. | CR53D | CR53E | CR53ED | CR53R▲ | CR53JKC | CR53J | CR53K | CR53KC | CR53L | — | — |
| | 2 N.O. 2 N.C. | CR61D | CR61E | CR61ED | CR61R▲ | CR61JKC | CR61J | CR61K | CR61KC | CR61L | — | — |
| | 2 N.O.–2 N.C. Neutral Position | — | — | — | — | — | — | — | — | — | — | — |
| | 2 N.O.–2 N.C. Two Stage | CR65D | CR65E | CR65ED | CR65R▲ | CR65JKC | CR65J | CR65K | CR65KC | CR65L | — | — |
| Head Only | | D | E | ED | R ▲ | JKC | J | K | KC | L | — | — |
| Nominal Operating Data | Pre-travel | 0.08 in. (2 mm) | | | | 10° (Any Direction) | | | | 20° | — | — |
| | Pre-travel Two Stage First Stage | 0.08 in. (2 mm) | | | | 10° (Any Direction) | | | | 20° | — | — |
| | Pre-travel Two Stage First to Second Stage | 0.01 in. (0.06 mm) | | | | 4° | | | | 5° | — | — |
| | Total Travel | 0.25 in. (6.3 mm) | | | | 90° | | | | 90° | — | — |
| | Differential | 0.02 in. (0.5 mm) | | | | 3° | | | | 6° | — | — |
| | Reverse Overtravel | — | | | | — | | | | — | — | — |
| | Operating Torque/ Force— 1 Pole and 2 Pole | 3 lbs. (0.34 N•m) | | | | 3 lb-in (0.34 N•m) | | | | 7 oz-in (0.05 N•m) | — | — |
| | Repeat Accuracy — Linear travel of cam | ± 0.001 in. (0.03 mm) | | | | — | | | | — | — | — |
| Plug-in Replacement Units | | To order the basic switch and head without the plug-in receptacle base, substitute the letters CO for the first C in the Type number. Example: Open type replacement for Type C54D is Type CO54D. | | | | | | | | | | |
| Acceptable Wire Sizes: 12–22 AWG Recommended Terminal Clamp Torque: 7 lb-in (0.80 N•m) | | ▲ Mushroom button must be ordered separately. See Table 21.56.<br>■ To lock the nut in the desired position, crimp the slot near the bottom of the nut.<br>♦ Delrin® is a registered trademark of DuPont. Not for use outdoors.<br>★ Wobble stick extensions are available separately for the universal head or as replacements for complete devices. See Table 21.57. | | | | | | | | | | |

## Table 21.56: Mushroom Button For Palm Operated Turret Head

| Color | 1-3/8 in. Dia. Button Type No. | 2-1/4 in. Dia. Button Type No. |
|---|---|---|
| Black | 2358C6G3 | 2358C22G2 |
| Red | 2358C6G2 | 2358C22G3 |
| Green | 2358C6G6 | 2358C22G6 |
| Yellow | 2358C6G8 | 2358C22G8 |

## Table 21.57: Wobble Stick Extensions

| Description | Catalog Number |
|---|---|
| Delrin extension | 9007WJ |
| Wire extension | 9007WK |
| Coil spring extension | 9007WKC |

Type C — File CCN E42259 NKCR — File Class LR25490 3211-03

Type CR — File CCN E10054 NOIV — File Class LR26817 3218-02


Compact Body


Hazardous Location


Standard Body

© 2012 Schneider Electric
All Rights Reserved

## Lever Arms for 9007AW and 9007C Heavy Duty / Industrial Limit Switches

Standard roller is hardened oil-impregnated sintered iron. Bold-face Type numbers indicate the most commonly used lever arms.

### Table 21.58: Cast Zinc Lever Arms



Cast Lever Arm

| Length of Arm (A) | Roller | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Standard 3/4" Dia. (B) 1/4" Wide (C) | Standard 3/4" Dia. (B) 5/8" Wide (C) | Standard 5/8" Dia. (B) 1/4" Wide (C) | Standard 5/8" Dia. (B) 5/8" Wide (C) | Nylon 3/4" Dia. (B) 1/4" Wide (C) | Nylon 5/8" Dia. (B) 1/4" Wide (C) | Nylon 5/8" Dia. (B) 5/8" Wide (C) | Nylon ▲ 1" Dia. (B) 5/8" Wide (C) |
| | Type | Type | Type | Type | Type | Type | Type | Type |
| 7/8" | — | — | **AA1** | AA2 | — | AA8 | AA17 | — |
| 1-3/8" | **BA11** | BA12 | **BA1** | BA2 | BA18 | BA8 | BA17 | BA13 |
| 1-1/2" | **MA11** | MA12 | **MA1** | MA2 | **MA18** | MA8 | MA17 | MA13 |
| 2" | **CA11** | CA12 | **CA1** | CA2 | CA18 | CA8 | CA17 | CA13 |
| 2-1/2" | **DA11** | DA12 | **DA1** | DA2 | DA18 | DA8 | DA17 | DA13 |
| 3" | **EA11** | EA12 | **EA1** | EA2 | EA18 | EA8 | EA17 | EA13 |

| Length of Arm (A) | Nylon 1" Dia. (B) 1/4" Wide (C) | Ball Bearing 11/16" Dia. (B) 1/4" Wide (C) | Standard 3/4" Dia. (B) 1/4" Wide (C) Roller on Opposite Side to Standard | Standard 5/8" Dia. (B) 1/4" Wide (C) Roller on Opposite Side to Standard | Standard 5/8" Dia. (B) 5/8" Wide (C) Roller on Opposite Side to Standard | Without Roller | Standard 3/4" Dia. (B) 1/4" Wide (C) (Countersunk Roller Pin) | Cable Operated With Eyebolt (3/8" I.D.) Instead of Roller |
|---|---|---|---|---|---|---|---|---|
| | Type | Type | Type | Type | Type | Type | Type | Type |
| 7/8" | — | AA9 | — | AA5 | AA6 | AA0 | — | — |
| 1-3/8" | BA4 | BA9 | BA15 | BA5 | BA6 | BA0 | — | — |
| 1-1/2" | MA4 | MA9 | MA15 | MA5 | MA6 | MA0 | MA31 | MA22 |
| 2" | CA4 | CA9 | CA15 | CA5 | CA6 | CA0 | CA31 | — |
| 2-1/2" | DA4 | DA9 | DA15 | DA5 | DA6 | DA0 | DA31 | — |
| 3" | EA4 | EA9 | EA15 | EA5 | EA6 | EA0 | — | — |

▲ Recommended in place of Types BA7, CA7, DA7, EA7 and MA7 lever arms with steel rollers. If necessary, the latter arms can be furnished at an additional cost.

### Table 21.59: Flat Steel Lever Arms



Flat Steel Lever Arm

| Length of Arm (A) | Standard Roller 5/8" Dia. (B) 1/4" Wide (C) | Standard Roller 5/8" Dia. (B) 5/8" Wide (C) | Nylon Roller 3/4" Dia. (B) 1/4" Wide (C) | Nylon Roller 1" Dia. (B) 1/4" Wide (C) | No Roller |
|---|---|---|---|---|---|
| | Type | Type | Type | Type | Type |
| 7/8" | AA1S | AA2S | — | — | AA0S |
| 1-3/8" | BA1S | BA2S | — | BA4S | BA0S |
| 1-1/2" | — | — | MA18S | — | — |
| 2" | CA1S | CA2S | — | CA4S | CA0S |
| 2-1/2" | DA1S | DA2S | — | DA4S | DA0S |
| 3" | EA1S | EA2S | — | EA4S | EA0S |

### Table 21.60: 90° Forked Cast Zinc Lever Arms

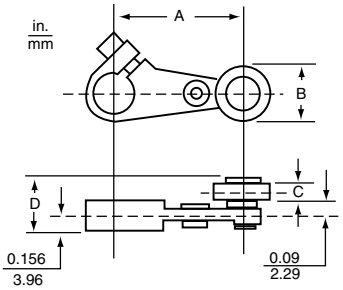


90° Forked Arm 1-1/2" Length

| Roller Position | Standard Rollers 3/4" Dia. (B) 1/4" Wide (C) | Standard) Rollers 5/8" Dia. (B) 1/4" Wide (C | Nylon Rollers 3/4" Dia. (B) 1/4" Wide (C) | Nylon Rollers 3/4" Dia. (B) 1" Wide (C) | Ball Bearing Rollers 11/16" Dia. (B) 1/4" Wide (C) |
|---|---|---|---|---|---|
| | Type | Type | Type | Type | Type |
| Rollers on Same Side | LA4 | LA1 | LA16 | LA10 | LA7 |
| R.H. Roller on Opposite Side | LA5 | LA2 | LA17 | LA11 | LA8 |
| L.H. Roller on Opposite Side | LA6 | LA3 | LA18 | LA12 | LA9 |

Approximate shipping weights range from 1/8 to 1/4 lb.

**Cast Zinc Lever Arm Dimensions**




A = Length of Lever Arm
B = Roller Diameter
C = Roller Width
D = C + 5/16"

See the tables on this page for A, B, and C dimensions.

### Table 21.61: One-Way Cast Zinc Roller Lever Arm



One-Way Roller Lever Arm

| Length of Arm | Roller, 1-1/4" Dia. (B) 1/4" Wide (C) | |
|---|---|---|
| | Cast Arm | Flat Steel Arm |
| | Type | Type |
| 1-3/8" | BA3 | BA3S |
| 1-1/2" | MA3 | — |
| 2" | CA3 | CA3S |
| 2-1/2" | DA3 | DA3S |
| 3" | EA3 | EA3S |

### Table 21.62: One-Way Lever Arms



One-Way Lever Arm

| Length of Arm | Roller | | | Rod Type |
|---|---|---|---|---|
| | Standard 3/4" Dia. (B) 1/4" Wide (C) | Nylon 3/4" Dia. (B) 1/4" Wide (C) | Ball Bearing 1-1/16" Dia. (B) 1/4" Wide (C) | |
| | Type | Type | Type | Type |
| 1-1/2" | RA11 | RA18 | RA9 | — |
| 5" | — | — | — | FA2 |

### Table 21.63: Offset-style Cast Zinc Lever Arms

| Offset Lever Arm | Dia. (B) | Width (C) | Type |
|---|---|---|---|
| | Standard Roller | | |
| 2" Length 7/16" Offset | 5/8 | 1/4 | **KA1** |
| | 5/8 | 5/8 | KA2 |
| | 3/4 | 1/4 | KA11 |
| | 3/4 | 5/8 | KA12 |
| | Ball Bearing | | |
| | 11/16 | 1/4 | KA9 |
| | Nylon | | |
| | 3/4 | 1/4 | KA18 |
| | 3/4 | 1 | KA21 |
| 1-1/2" Length 7/8" Offset | Standard Roller | | |
| | 3/4 | 1/4 | KB11 |
| | 3/4 | 1/4 | KB15 ■ |

■ Roller inside.

### Table 21.64: Rod Type Lever Arms

| Rod, in. (mm) | Type |
|---|---|
| 10 (254) Stainless Steel Rod | **FA1** |
| 12 (304) Spring Rod, Steel | **FA3** |
| 18 (304) Spring Rod, Steel | FA4 |
| 12 Spring Rod, Delrin | **FA5** |
| Looped Delrin Rod | FA6 |
| 90° Forked Rod 2-1/2" Spring Rods, Steel | LA19 |

Dimensions . . . . . page 21-35
For more information on LA19, refer to catalog 9006CT1007.



© 2012 Schneider Electric
All Rights Reserved

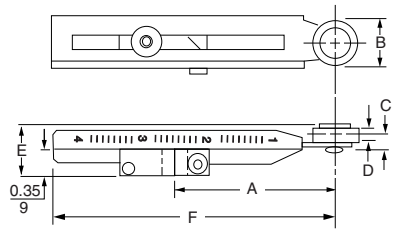
## Lever Arms

Standard roller is hardened oil-impregnated sintered iron.
Bold-face type numbers indicate the most commonly used lever arms.

### Table 21.65: Adjustable Length Lever Arms

| Description | Lever Arm, Length Adjustable from 7/8" to 4" | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Roller | | | | | | | | |
| | Without Roller | Standard 5/8" Dia. 1/4" Wide | Standard 5/8" Dia. 5/8" Wide | Nylon 5/8" Dia. 1/4" Wide | Ball Brg. 11/16" Dia. 1/4" Wide | Nylon ▲ 1" Dia. 5/8" Wide | Delrin 1-5/8" Dia. 1/4" Wide | Nylon 2" Dia. 1/4" Wide | Rubber Tire 2-1/8" Dia. 1/2" Wide |
| | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| Non-bendable | HA0 | **HA1** | **HA2** | **HA4** | HA24 | HA22 | — | — | — |
| Bendable | HA9 | **HA5** | HA6 | HA8 | HA25 | HA23 | HA20 | HA26 | HA21 |

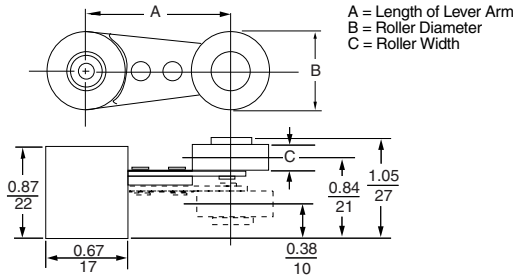
▲ Recommended in place of Types HA3 and HA7 lever arms with steel rollers. If necessary these arms can be furnished at an additional cost.




### Table 21.66: 360° Angular Adjustable Lever Arms

| Length of Arm | Standard 5/8" Dia. 1/4" Wide | | Standard 3/4" Dia. 1/4" Wide | Nylon 5/8" Dia. 1/4" Wide | Nylon 3/4" Dia. 1/4" Wide | Ball Bearing 11/16" Dia. 1/4" Wide |
|---|---|---|---|---|---|---|
| | Roller Outside | Roller Inside | Roller Outside | | | Roller Outside |
| | Type | Type | Type | Type | Type | Type |
| 7/8" | AA1M | AA5M | AA11M | AA8M | AA18M | AA9M |
| 1-3/8" | BA1M | BA5M | BA11M | BA8M | BA18M | BA9M |
| 1-1/2" | MA1M | MA5M | MA11M | MA8M | MA18M | MA9M |
| 2 " | CA1M | CA5M | CA11M | CA8M | CA18M | CA9M |
| 2-1/2" | DA1M | DA5M | DA11M | DA8M | DA18M | DA9M |
| 3 " | EA1M | EA5M | EA11M | EA8M | EA18M | EA9M |

Note: Roller can be changed in the field from roller outside to roller inside position or vice versa.
Approximate shipping weights range from 1/8 to 1/4 lb.




A = Length of Lever Arm
B = Roller Diameter
C = Roller Width

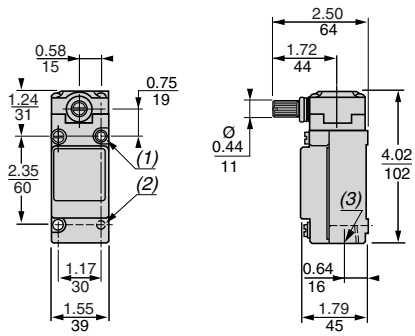
## Special Features

### Table 21.67: Special Features (do not apply to Type CR unless noted)—Field Installable

| Description | | Part Number |
|---|---|---|
| **Conduit Seal Only**<br>Conduit seal fits in conduit entrance and excludes liquids | 5 hole seal<br>9 hole seal | 3103248801<br>3103281501 |
| **Adapters** | | |
| Switch with adapter plate permitting substitution of any Type C switch with standard box for any Type T switch with Style B baseplate | | Form Y147 |
| Adapter plate kit only (plate plus mounting screws) for above | | Class 9007 Type BT1 |
| Adapter plate to allow direct substitution of Type C plunger switches for Type B plug-in plunger switches—**use only** if there is a problem in lining up cam tracks | Standard Box<br>Compact Box | Class 9007 Type CT10 ■<br>Type CT13 ♦ |
| Adapter plate kit permitting direct substitution of any Type C lever arm switch with standard box for **ANY** Type AW lever arm switch | | Class 9007 Type CT11 |
| Metric conduit-connection adapter—male 1/2" NPT on one end, female 20 mm on the other end | | Class 9007 Type CT12 |

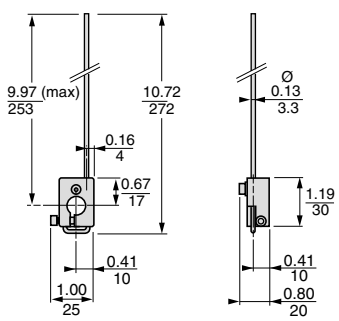
■ Dimensions: 0.22 x 2.94 x 1.54 in.
♦ Dimensions: 0.22 x 2.07 x 1.54 in.

### Rotary lever arms
### 9007C•••• A, B, C, N, T5, T10

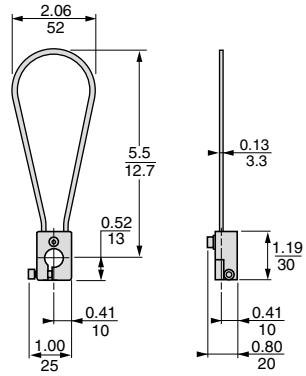



Dual dimensions: in. / mm

### Rod type lever arms
### 9007FA1



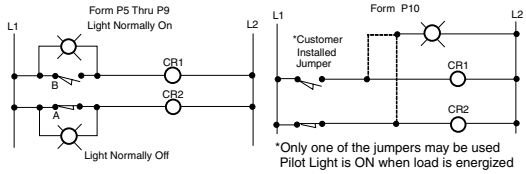
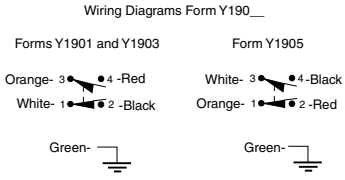
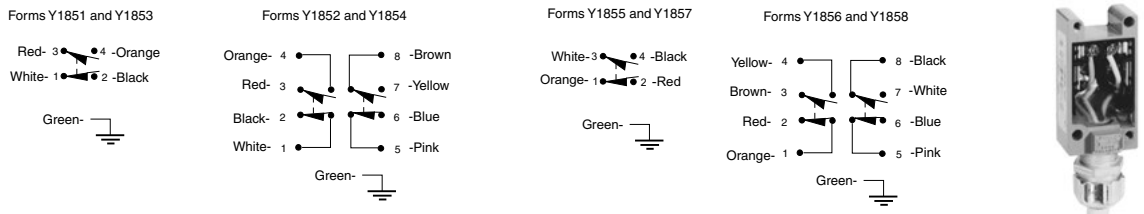

### 9007FA9




1. 2 x 0.20/5 x 0.22/6 HLS.
2. 2 x 10-24 Tapped HLS Back Mtg 0.29/7 DP.
3. 1/2 14 NPT.

© 2012 Schneider Electric
All Rights Reserved

## Table 21.68: Special Features (do not apply to Type CR unless noted)—Not Field Installable, Except Where Noted

| Special Features | Form |
|---|---|
| **Optional Shaft Equipped With 9007T / 9007FT Hub:**<br>Any lever arm Type C, CF or CR switch can be furnished with an optional shaft and hub combination which will accept the lever arms normally used with Type T and FT limit (position) switches. To order, add S9 as suffix to the device type number. For example, to order a 9007 C54B2 with this modification, order as a 9007 C54B2-S9. For details about the switches and lever arms that can be furnished with this modification, see catalog **9007CT1007**.  | Add **S9** as a suffix to the catalog number |
| **Hub Only:**<br>Can be field installed on any Type C lever type switch. | Cat. No. 9007S9 |
| **LED Pilot Light**, 24-120 Volts AC or DC on Plug-In Type Switch (Type C52, C54, C62, C64, C66, or C68): | |
|  | |
| Addition of LED pilot light in parallel with N.O. contact (light normally on) | P5 |
| Addition of LED pilot light in parallel with N.C. contact (light normally off) | P6 |
| Addition of two LED pilot lights, one in parallel with N.O. contact (light normally on), one in parallel with N.C. contact (light normally off) | P7 |
| Addition of two LED pilot lights in parallel with N.O. contacts (lights normally on) (Types C62, C64, C66 or C68 only) | P8 |
| Addition of two LED pilot lights in parallel with N.C. contacts (lights normally off) (Types C62, C64, C66, or C68 only) | P9 |
| Addition of one isolated LED pilot light (light on when load is energized) (Type C54 only. Not available with Y1901.) | P10 |
| **Pre-Wired Receptacle**<br>Plug-in limit (position) switch furnished with pre-wired mini 5 pin male receptacle. For use with Brad Harrison female portable plug No. 41306, 41307, or 41308 (or equal). (Not available with P10 or for hazardous locations.) | Y1901 |
| **Single Pole**<br>Same as Y1901 but with different wire color coding | Y1905 |
| **Tamperproof Screws—Complete Switch Only**<br>Same as Y1901 but with tamperproof screws on head and body | Y1903 |
| Other versions with different wiring diagrams per automotive requirements are available. Contact your local Schneider Electric field office. | |
| **Mating plug and cables available.**<br>  <br>  | |
| **Potted Limit (Position) Switch Or Plug-In Receptacle Only:** | |
| **With Individual Wires**<br>• **Single pole** plug-in limit (position) switch or receptacle pre-wired with **five #16 wires** 5 ft long and wire entry completely sealed with epoxy resin<br>• **Double pole** plug-in limit (position) switch or receptacle pre-wired with **nine #16 wires** 5 ft long and wire entry completely sealed with epoxy resin | Y1841<br>Y1842 |
| **With STOWA Cord**<br>• **Single pole** plug-in limit (position) switch or receptacle pre-wired with **five conductor #16 STOWA cord** 8 ft long and wire entry completely sealed with epoxy resin<br>• Same as Y1851 but with different wire color coding<br>• **Double pole** plug-in limit (position) switch or receptacle pre-wired with **nine conductor #16 STOWA cord** 8 ft long and wire entry completely sealed with epoxy resin<br>• Same as Y1852 but with different wire color coding | Y1851<br>Y1855<br>Y1852<br>Y1856 |
| **Tamperproof Screws—Complete Switch Only** | |
| **With Individual Wires**<br>• Same as Y1841 but with tamperproof screws on head and body<br>• Same as Y1842 but with tamperproof screws on head and body | Y1843<br>Y1844 |
| **With STOWA Cord**<br>• Same as Y1851 but with tamperproof screws on head and body<br>• Same as Y1852 but with tamperproof screws on head and body<br>• Same as Y1855 but with tamperproof screws on head and body<br>• Same as Y1856 but with tamperproof screws on head and body | Y1853<br>Y1854<br>Y1857<br>Y1858 |
| Other versions with different wiring diagrams for automotive requirements are available. | |
|  <br> | |
| **Low Temperature—Lever Types Only:** Limit (Position) switch will operate in an ambient temperature range of -40 to +185 °F (standard limit switch ambient temperature range is -20 to +185 °F). Minimum temperature is based on the absence of freezing moisture or water. | Y128 |
| **Fluorocarbon Rubber (FKM) Gaskets And Seals**<br>Substitute fluorocarbon rubber gaskets and seals on:<br>Lever arm type, standard box (shaft seals on lever arm types are fluorocarbon rubber as standard)<br>Lever arm type, compact box (shaft seals on lever arm types are fluorocarbon rubber as standard)<br>Plunger type, standard box<br>Plunger type, compact box<br>Substitute fluorocarbon rubber boot only on plunger type switches<br>Note: Fluorocarbon rubber has been shown to resist sunlight aging problems. | Y140<br>Y140<br>Y140<br>Y140<br>Y1401 |
| **Direct Acting Contacts** ⊖<br>Substitution of direct acting contact unit for snap switch of single-pole switch:<br>One pole, normally closed, slow-make slow-break, direct acting contact mechanism substituted for standard snap switch on Types C52, C54, CF53, and CR53 devices.<br>This mechanism was designed for use in emergency overtravel applications. The movable contact of this basic switch unit is acted upon directly by the actuating mechanism of the limit switch—it does not depend on the force exerted by a snap-switch blade or a spring to open the circuit. Because these contacts are slow-make slow-break, they are best suited for applications where they are not actuated during normal operation, but only if abnormal overtravel is encountered.<br>★ The direct acting contacts described above come standard on the 9007CLS1 hoist overtravel switch.<br>  Direct Acting Contact Mechanism (shown without cover) | Y1561 |



© 2012 Schneider Electric
All Rights Reserved

**Table 21.69: Complete with Base Plate, Without Lever Arm (bold type numbers indicate the most commonly used switches)**

| Select the Operating Sequence | | Universal Type | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **No. 1** | **No. 2** | **No. 3★** | **No. 4** | **No. 5** | **No. 6** | **No. 7★** |
| | | Single-Pole Double-Throw Spring-Return CW Only | Single-Pole Double-Throw Spring-Return CW Only | Single-Pole Double-Throw Maintained Contact | Single-Pole Double-Throw Spring-Return Neutral Position | Single-Pole Double-Throw Spring-Return CCW Only | Single-Pole Double-Throw Spring-Return CCW Only | Single-Pole Double-Throw Maintained |
| Select the Basic Switch | |  | | | | | | |
| | | Initial Position and CCW<br>A B<br>CW<br>A B | Initial Position and CCW<br>Initial Position and CCW<br>A B<br>Inter-mediate Pos. CW<br>Final Pos. CW<br>A B A B | Spring return of arm to initial position, contact position maintained until operated in reverse direction<br>CCW CW<br>A B A B<br>If high speed cam or snap-back is present **use No. 12** | Initial Position<br>A B<br>CCW CW<br>A B A B | Initial Position and CW<br>A B<br>CCW<br>A B | Initial Position and CW<br>A B<br>Intermediate Position CCW<br>Final Position CCW<br>A B A B | If high speed cam or snap-back is present **use No. 12**<br>A B<br>CW<br>A B |
| | **Base Plate** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** |
| Surface Mounting | A | TUA1 | TUA2 | TUA3 | TUA4 | TUA5 | TUA6 | TUA7 |
| | B | **TUB1** | TUB2 | TUB3 | **TUB4** | **TUB5** | TUB6 | TUB7 |
| | C | TUC1 | TUC2 | TUC3 | TUC4 | TUC5 | TUC6 | TUC7 |
| | D | TUD1 | TUD2 | TUD3 | TUD4 | TUD5 | TUD6 | TUD7 |
| Nominal Operating Data – Pre-travel | | 14° | Int. Pos. 9°, Final 16° | 7° | 6° | 14° | Int. Pos. 9°, Final 16° | 10° |
| Nominal Operating Data – Total-travel | | 88° | 88° | 81° | 81° | 88° | 88° | 85° |
| Nominal Operating Data – Differential | | 12° | 5° | 7° | 5° | 12° | 5° | 12° |
| Nominal Operating Data – Oper. Torque | | 12 lb-in | 12 lb-in | 12 lb-in | 12 lb-in | 12 lb-in | 12 lb-in | 2.5 lb-in |
| Nominal Operating Data – Repeat Accuracy ■ | | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. |
| To convert sequences, remove the base plate, positioning plate and latches. Reassemble the positioning plate and latches as shown. | |  |  |  |  |  |  |  |

| Select Operating Sequence | | Universal Type | | | | | Standard Type | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **No. 8★** | **No. 9** | **No. 10** | **No. 11** | **No. 12** | **No. 1** | **No. 2** | **No. 3** |
| | | Single-Pole Maintained Double-Throw Neutral Position | Single-Pole Double-Throw Spring-Return Slow Make Slow Break | Single-Pole Double-Throw Spring-Return Slow Make Slow Break | Single-Pole Double-Throw Spring-Return Slow Make Slow Break | Single-Pole Double-Throw Maintained | Single-Pole Double-Throw Spring-Return CW & CCW | Single-Pole Double-Throw Spring-Return CW & CCW | Single-Pole Double-Throw Spring-Return CW & CCW Slow Make Slow Break |
| Select Basic Switch | |  | | | | | | | |
| | | Initial Position If high speed cam or snap-back is present **use No. 12**<br>A B<br>CCW CW<br>A B A B | Initial Position and CCW<br>A B<br>CW<br>A B | Initial Position<br>A B<br>CCW CW<br>A B A B | Initial Position and CW<br>A B<br>CCW<br>A B | CCW<br>A B<br>CW<br>A B | Initial Position<br>A B<br>CCW & CW<br>A B | Initial Position<br>A B<br>CW & CCW<br>Intermediate Position Final Position<br>A B A B | Initial Position<br>A B<br>CW & CCW<br>A B |
| | **Base Plate** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** | **Type** |
| Surface Mounting | A | TUA8 | TUA9 | TUA10 | TUA11 | TUA12 | TSA1 | TSA2 | TSA3 |
| | B | TUB8 | TUB9 | TUB10 | TUB11 | **TUB12** | **TSB1** | TSB2 | TSB3 |
| | C | TUC8 | TUC9 | TUC10 | TUC11 | TUC12 | TSC1 | TSC2 | TSC3 |
| | D | TUD8 | TUD9 | TUD10 | TUD11 | TUD12 | TSD1 | TSD2 | TSD3 |
| Nominal Operating Data – Pre-travel | | 6° | 12° | 3° | 12° | 45° | 14° | Int. Pos. 9°, Final 16 | 9° |
| Nominal Operating Data – Total-travel | | 81° | 87° | 81° | 87° | 90° | 89° | 89° | 89° |
| Nominal Operating Data – Differential | | 10° | 0° | 0° | 0° | 0° | 12° | Int. Pos. 5.5°, Final 7.5° | 5° |
| Nominal Operating Data – Oper. Torque | | 2.5 lb-in | 12 lb-in | 12 lb-in | 12 lb-in | 8 lb-in | 10 lb-in | 10 lb-in | 10 lb-in |
| Nominal Operating Data – Repeat Accuracy ■ | | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. | ±0.004 in. |
| To convert sequences, remove the base plate, positioning plate and latches. Reassemble the positioning plate and latches as shown. | |  |  |  |  | Not Adjustable |  |  |  |

▲ Pre-travel listed may vary up to 5° additional for universal switches or up to 2° additional for standard switches due to the free travel of the lever arm at the initial position.

■ Linear travel of cam on 1-1/2 in. lever arm.

♦ Remove the spring from the positioning plate.

★ Sequence 3, 7, and 8 devices are available but are not recommended where high speed cams or lever arm snap-back is present. The application should be checked and No. 12 sequence substituted where possible.

Note: To obtain a Type FT Foundry Switch, change the "T" at the beginning of the equivalent Type number to "FT" (for example, TUB1 changes to FTUB1).

Lever arms. . . . . .page 21-38

© 2012 Schneider Electric
All Rights Reserved

## Class 9007 Type T and FT, Oiltight




**9007TUB4**




**9007FTUB4**

### Table 21.70: Lever Arms for Types T and FT Limit Switches or Type C with S9 Hub

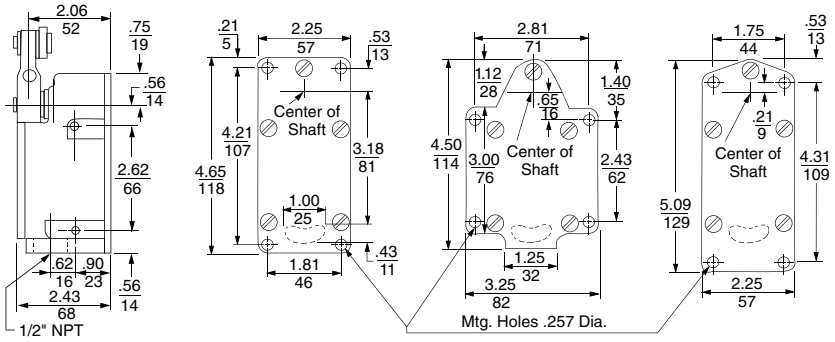
| Description | | | | Type | | |
|---|---|---|---|---|---|---|
| Type of Arm | Length of Arm (in.) | Roller Position | Roller Width | Roller Dia. (in.) | | |
| | | | | 3/4 | 1 | 1-3/8 |
| Straight | 1-1/2 | Front or Back | 1/4 | B1 | B2 | B3 |
| | 1-1/2 | Front or Back | 1/2 | B12 | B13 | B14 |
| | 2-1/2 | Front or Back | 1/4 | B7 | B8 | B9 |
| | 2-1/2 | Front or Back | 1/2 | B22 | B23 | B24 |
| | 2-7/8 | None | None | Without Roller B21 | — | — |
| | 5 | Front or Back | 1/4 | B19 | — | — |
| | Adj. | Does not include a lever arm clamp or rod. Lever arm clamp is required—use 9007 R16 or R17, plus a customer-supplied rod. | 1/4 | R18 | R19 | R20 |
| Offset | 1-1/2 | Inside Offset | 1/4 | C1 | C2 | C3 |
| | | Outside Offset | 1/4 | D1 | D2 | D3 |
| | 1-7/8 | Outside Offset | 1/4 | E4 | E5 | E6 |
| | | Inside Offset | 1/4 | F4 | F5 | F6 |
| 120° Forked | 1-1/2 | Rollers on Same Side | 1/4 | J1 | J2 | — |
| | 1-1/2 | LH Roller on Opposite Side | 1/4 | K1 | K2 | — |
| | 1-1/2 | RH Roller on Opposite Side | 1/4 | N1 | N2 | — |
| 90° Forked | 1-1/2 | Rollers on Same Side | 1/4 | X1 | X2 | — |
| | 1-1/2 | RH Roller on Opposite Side | 1/4 | Y1 | Y2 | — |
| | 1-1/2 | LH Roller on Opposite Side | 1/4 | Z1 | Z2 | — |
| Cable Operated | 1-1/2 | None | None | Y3 | | |
| | 2-1/2 | With eyebolt (1/4 in. I.D.) instead of roller | None | B27 | | |
| Rod | Adj. | Clamp for 3/16 in. Rod (rod not included) | None | R16 | | |
| | Adj. | Clamp for 1/4 in. Key Stock (key stock not included) | None | R17 | | |
| Weld-On | 3-1/2 | None | None | G10 | | |
| 1-Way Roller | 1-1/2 | Outside Offset | 1/4 | D4 | | |
| Conveyor Side Guide | 8-7/16 | 1-1/2 in. dia. 3-3/4 in. Delrin roller. For use with Type T and FT only. | | R21 | | |
| | | 7/8 in. dia. 3-3/4 in. Delrin roller. For use with Type T, FT, or C with S9. | | R22 | | |

### Table 21.71: Separate Base Plates

| Style | Mounting Holes | Part Number |
|---|---|---|
| A | None▲ | 2934D32G1 |
| B | End | 2934D14G1 |
| C | Side | 2934D33G1 |
| D | End | 2934D34G1 |

▲ No mounting holes in base plate. Side mounting holes in switch case must be used.

For all Type T and FT:
Acceptable Wire Sizes: 14–18 AWG
Recommended Terminal Clamp Torque: 13–16 lb-in




**Style A Baseplate Shown** **Style B** **Style C** **Style D**

Dual Dimensions: INCHES Millimeters

File 42259
CCN NKCR

File LR25490
Class 3211 03



© 2012 Schneider Electric
All Rights Reserved

## R.B.Denison™ Lox-Switch™ L




**L300WS2M1**

### Table 21.72: General Specifications

| | |
|---|---|
| **Temperature range** | 0 to +200 °F (-17 to +93 °C) standard. For high and low temperature options, see Table 21.79 on page 21-40. Minimum temperatures are based on the absence of freezing moisture or water. |
| **Enclosure rating** | NEMA 1, 4, and 13; IP 65, 66 |
| **Vibration resistance** | 30G max. (10–55Hz) |
| **Repeatability** | .03° |
| **Cable entry** | 1/2" NPT standard double circuit, 3/4" NPT triple circuit |
| **Contact Characteristics** | |
| **Rated thermal current** | 20 A |
| **Rated insulation voltage** | 600 Vac and Vdc |
| **Wire (max.)** | 1 x 12 AWG or 2 x 14 AWG per screw terminal |

### Table 21.73: Switching Ratings: A600 (AC), P600 (DC)

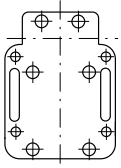
| Contact Rating Designation | Maximum current (A) | | | | | | | | | | | | Maximum VA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 120 V | | 125 V | | 240 V | | 250 V | | 480 V | | ≤ 600 V | | | |
| (M=Make, B=Break) | M | B | M | B | M | B | M | B | M | B | M | B | M | B |
| A600 (AC) | 60 | 6.00 | — | — | 30 | 3.00 | — | — | 15 | 1.50 | 12 | 1.20 | 7200 | 720 |
| P600 (DC) | — | — | 1.1 | 1.1 | — | — | 0.55 | 0.55 | | | 0.2 | 0.2 | 138 | 138 |

### Table 21.74: Type L Selection

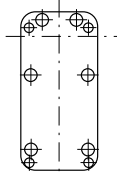
Other selections are available. Refer to catalog 9006CT1007.

**Mounting Plates, L100 and L300 Models**

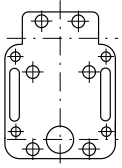
**Style 1**



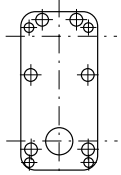
**Style 2**

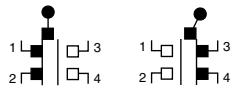
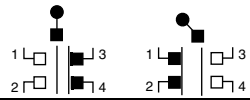
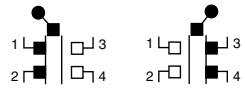
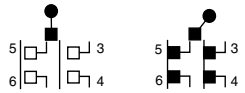
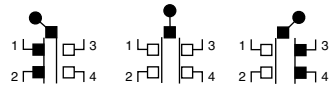
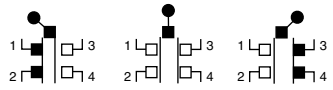
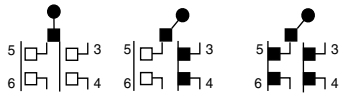
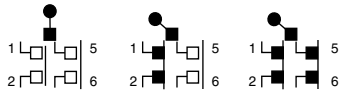
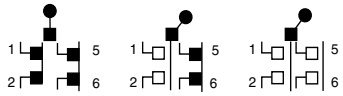
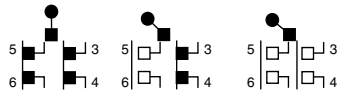
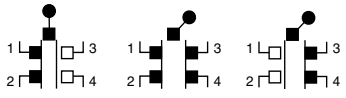


**Style 3**



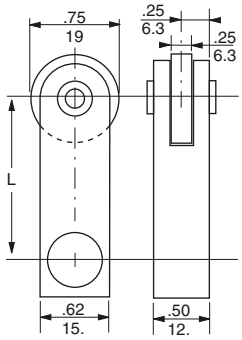
**Style 4**



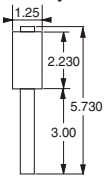
| Description | Contact Diagram | Operating Torque | Cat. No. |
|---|---|---|---|
| **Snap-action CW**<br>**Spring return** |  | 190 oz-in (1.34 N•m) | L100WS2M1 |
| | | 190 oz-in (1.34 N•m) | L300WS2M1 |
| **Snap-action CCW**<br>**Spring return** |  | 190 oz-in (1.34 N•m) | L100WS2M2 |
| | | 190 oz-in (1.34 N•m) | L300WS2M2 |
| **Maintained contact ▲**<br>**CW and CCW**<br>**Snap action** |  | 45 oz-in (0.32 N•m) | L100WS2M3 |
| | | 45 oz-in (0.32 N•m) | L300WS2M3 |
| **Snap action CW**<br>**Spring return** |  | 190 oz-in (1.34 N•m) | L100WDR2M4 |
| | | 190 oz-in (1.34 N•m) | L300WDR2M4 |
| **Neutral position ▲**<br>**N.O.-CW, N.O.-CCW**<br>**Spring return**<br>**Snap action** |  | 170 oz-in (1.2 N•m) | L100WNS2M26 |
| | | 170 oz-in (1.2 N•m) | L300WNS2M26 |
| **Neutral position ▲**<br>**N.O.-CW, N.O.-CCW**<br>**Maintained**<br>**in CW only** |  | 170 oz-in (1.2 N•m) | L100WNSL2M29 |
| | | 170 oz-in (1.2 N•m) | L300WNSL2M29 |
| **2 Step Sequence CW**<br>**Spring return,**<br>**Snap action,**<br>**2 N.O.** |  | 150 oz-in (1.06 N•m) | L525WDR2M56 |
| **2 Step Sequence CCW**<br>**Spring return,**<br>**Snap action,**<br>**2 N.O.** |  | 150 oz-in (1.06 N•m) | L525WDL2M57 |
| **2 Step Sequence CW**<br>**Spring return,**<br>**Snap action,**<br>**2 N.C.** |  | 150 oz-in (1.06 N•m) | L525WDL2M58 |
| **2 Step Sequence CCW**<br>**Spring return,**<br>**Snap action,**<br>**2 N.C** |  | 150 oz-in (1.06 N•m) | L525WDR2M59 |
| **2 Step Sequence CW**<br>**Spring return**<br>**Snap action**<br>**N.O./N.C** |  | 150 oz-in (1.06 N•m) | L100WS0S2M60 |

▲ The lever must not be allowed to snap freely from any overtravel position.

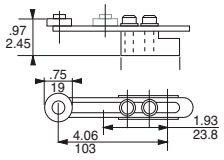
© 2012 Schneider Electric
All Rights Reserved



Style A



Rolling Pin



Adjustable Roller


Ministyle male receptacle


Straight male receptacle


90° angle male receptacle

## Interpreting the Catalog Numbers

Use the table below to interpret the catalog numbers of the L100/L300 switches. Do **not** generate new catalog numbers from the table. If the required contact sequence is not listed, contact your local field office.

The only modifications to the existing catalog numbers are:

- Mounting Plates—Style 1, 2, 3 or 4
- Front Covers—Metal, transparent plastic, or transparent plastic with a neon light.
- Special Features—Select from catalog **9006CT1007** and add to the type number.

| Style | Housing | | | Function | | Mounting Plate | Front Cover | | Contact Arrangement | |
|---|---|---|---|---|---|---|---|---|---|---|
| **L** | **1** | **0** | **0** | **W** | **S** | **2** | **P** | **F** | | |

| Housing | |
|---|---|
| Standard (mill) | **100** |
| Extra heavy duty (foundry) | **300** |

| Function | |
|---|---|
| Two circuit single operation | **WS** |
| Two circuit dual operation | **WD** |
| Triple circuit | **WT** |
| Neutral | **WN** |

| Mounting Plate |
|---|
| **1** |
| **2** |
| **3** |
| **4** |

| Front Cover | |
|---|---|
| **M** | Standard metal |
| **PF** | Transparent plastic |
| **GF** | Transparent plastic with neon light |

See catalog **9006CT1007**

### Table 21.75: Steel Roller Lever Arms
(0.25 in. wide, 0.75 in. dia.)

| Length (L) | | Lever Number |
|---|---|---|
| in. | mm | |
| 1.50 | (38.1) | AA |
| 2.00 | (50.8) | AH |
| 2.50 | (63.5) | AO |
| 2.75 | (69.8) | AK |
| 3.00 | (76.2) | AB |
| 4.00 | (101.6) | AM |
| 6.00 | (152.4) | AR |

### Table 21.76: Lever Arm Options

| Description | Suffix |
|---|---|
| 1 in. diameter roller | 1 |
| 1-1/4 in. diameter roller | 4 |
| 1-1/2 in. diameter roller | 2 |
| Nylon roller | N |
| Ball bearing roller (3/4 in. diameter) | R |
| Stainless steel roller pin nylon roller | NS |
| Ex: AB1; ABR | |

### Table 21.77: Rolling Pin
For use with 2 step switches for conveyor or belt applications

| Length (L), In. (mm) | | Lever Number |
|---|---|---|
| **2.25 (75.1)** | | AL1650 |
| **2.25 (75.1)** | (Teflon for high temperature applications) | AL16501 |
| **3 (50.8)** | | AL1802 |

### Table 21.78: Roller, Adjustable
from 2 to 4 in. (0.25 in. wide, 0.75 in. diameter)

| Length (L), In. (mm) | Lever Number |
|---|---|
| Adjustable<br>2 to 4 (50.8 to 101.6) | AL2820 |

### Table 21.79: Housing options ▲

| Description | Examples | Prefix Adder or Modifier |
|---|---|---|
| 3/4" conduit opening: Available on 2 circuit switches. Standard on 3 circuit switches. | L100WS2M1 changes to **G**L100WS2M1 | G |
| High temperature 0 to +350 °F ★ Metal front cover only | L100WS2M1 changes to **H**L100WS2M1 | H |
| Low temperature -20 to +200 °F ★ | L100WS2M1 changes to **T**L100WS2M1 | T |
| High shock. Available only on operating sequences 1, 2, 4, 5, 7-11, 13, 14. | L100WS2M1 changes to L**526**WS2M1<br>L300WS2M1 changes to L**326**WS2M1 | 526/326 |
| Gold contacts | L100WS2M1 changes to L**522**WS2M1<br>L300WS2M1 changes to L**322**WS2M1 | 522/322 |

### Table 21.80: Wiring

| Description | | Examples | Prefix Adder or Modifier |
|---|---|---|---|
| **Straight male receptacle 4 pin ■** | Factory prewired | L100WS2M1 changes to **P**L100WS2M1 | P |
| **90° Angle male receptacle 4 pin ■** | Factory prewired—facing right | L100WS2M1 changes to **AP**L100WS2M1 | AP |
| **Ministyle male receptacle ♦** | 8 A max., 5 pin (double circuit)<br>7 A max., 7 pin (triple circuit) | L100WS2M1 changes to **B**L100WS2M1 | B<br>B |
| **Potted and prewired** | 5 wires, 6 ft long<br>5 wires, 12 ft long<br>5 wires 18 ft long | L100WS2M1 changes to L100WS2M1**P**<br>L100WS2M1 changes to L100WS2M1**P12**<br>L100WS2M1 changes to L100WS2M1**P18** | P<br>P12<br>P18 |

### Table 21.81: Accessories

| Description | | Catalog Number |
|---|---|---|
| **Sealed female plug and cable for P and AP receptacles** | | |
| 4 pins, 16 AWG STO cable, 60 °C | 4 ft | 1010004 |
| | 6 ft | 1010006 |
| | 10 ft | 10100010 |
| **Sealed female plug and cable for ministyle receptacle (B)** | | |
| 5 pins, 16 AWG STO cable, 105 °C | 3 ft cable | BH2053 |
| | 6 ft cable | BH2056 |
| | 12 ft cable | BH20512 |

### Table 21.82: Front covers

| Description | Designator |
|---|---|
| Standard metal | M |
| Transparent plastic cover with metal frame | PF |
| Transparent plastic cover with metal frame and Neon indicator light (not connected) | GF |

Example: L100WS2M1 changes to L100WS2**PF**1

▲ Other options available—contact your Schneider Electric representative for details.
■ Receptacle is a 4 pin male APL/PL-SWTS, Cannon part # MS3102E20-4P-F79 or equal.
♦ Ministyle male receptacles are: **5-pin**, Brad Harrison #41310 (or equal); **7-pin**, Brad Harrison #42805 (or equal)
★ The minimum temperatures listed are based on the absence of freezing moisture or water.



© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 22

## Pressure, Vacuum, and Float Switches



**Electronic Pressure Sensors**
**XMLG** (p. 22-4), **XMLK** (p. 22-4), **XMLF** (p. 22-8)



**9012G**
**Industrial Pressure Switch**
p. 22-13



**9012G Machine Tool**
**Pressure Switch**
p. 22-14



**XMLA Electromechanical**
**Pressure Switch**
p. 22-10



**9016G**
**Vacuum Switch**
p. 22-19



**9013F**
**Water Pump Switch**
p. 22-21



**9013G**
**Air Compressor Switch**
p. 22-22



**9036D**
**Open Tank Float Switch**
p. 22-23



**9037H**
**Closed Tank Float Switch**
p. 22-25

### Electronic—Industrial


| | | | |
|---|---|---|---|
| | Electronic Pressure Sensors | XMLG | **22-4** |
| New! | Electronic Pressure Transmitters | XMLK | **22-6** |
| | Electronic Pressure Sensors | XMLF | **22-8** |


### Electromechanical—Industrial


| | | |
|---|---|---|
| Pressure Switches | XMLA, B, C, D Compact International | **22-10** |
| | 9012G General Industrial | **22-13** |
| | 9012G Machine Tool | **22-14** |
| | 9012G Dual Stage and Differential | **22-15** |
| Vacuum Switches | 9016GAW, GAR | **22-19** |


### Electromechanical—Commercial


| | | |
|---|---|---|
| Vacuum Switches | 9016GVG | **22-19** |
| Pressure Switches | 9013FHG—Air Compressor | **22-20** |
| | 9013FRG, FSG, FYG—Water Pump | **22-21** |
| | 9013G—Air Compressor | **22-22** |
| Float Switches | 9036D, G—Open Tank | **22-23** |
| | 9036FG—Open Tank | **22-24** |
| | 9037E—Closed Tank | **22-24** |
| | 9037H—Closed Tank | **22-25** |
| | 9038A—Alternators, Open Tank | **22-26** |
| | 9038C—Alternators, Closed Tank | **22-26** |
| | 9038D—Alternators, Closed Tank | **22-27** |


### Accessories and Renewal Parts


| | | |
|---|---|---|
| Accessories and Renewal Parts Kits | Class 9998, for Class 9012–9038 | **22-28** |




© 2012 Schneider Electric
All Rights Reserved

| Application | Electronic | | | Electromechanical Control | | |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| **Product Family** | **XMLG** | **XMLK** | **XMLF** | **XMLA, B, C, D** | **9012G** | **9016G** |
| **Type of Installation/ Application** | Control circuits | Control circuits<br>Pumping applications | Control circuits | Control circuits | Control circuits | Control/power circuits |
| **Fluids Controlled** | Air, water, hydraulic oils, corrosive fluids | Air, fresh water, 0 to + 80 °C (32 to 176 °F) | Air, water, hydraulic oils, corrosive fluids | | | |
| **Type of Operation and Features** | Pressure/vacuum switches and transmitters<br>Analog output 4–20 mA or 0–10 V | Pressure transmitters<br>Analog output, 4–20 mA or 0–10 V | Pressure/vacuum switches and transmitters<br>Configurable units with digital display<br>Analog output 4–20 mA<br>Regulation between 2 trip points (adjustable differential) | Pressure/vacuum switches<br>Detection of single trip point (nonadjustable differential)<br>Regulation between 2 trip points (adjustable differential) | Pressure switches<br>Detection of single trip point (nonadjustable differential)<br>Regulation between 2 trip points (adjustable differential)<br>2-stage | Vacuum switches<br>Regulation between 2 trip points (adjustable differential) |
| **Size/Range** | –14.5 to 5800 psi | 0 to 25 bar or 0 to 300 psi, depending on the model | –14.5 to 8700 psi | –14.5 to 7250 psi | 0.2 to 9000 psi | 0 to 29 in. of Hg |
| **Type of Output** | Analog, 4–20 mA or 0–10 V<br>Digital, PNP or NPN normally closed ( N.C.) output | Analog, 4–20 mA or 0–10 V | Analog, 4–20 mA<br>Digital, PNP or NPN, 200 mA, relay output 2 A | Snap action contacts<br>SPDT or DPDT<br>10 A continuous | Snap action contacts<br>SPDT or DPDT<br>10 A continuous | Snap action contacts<br>SPDT 10 A continuous<br>DPST horsepower rated |
| **Electrical Connection** | M12 connector or Integrated quick connection | M12, DIN 43650 A or Metri-Pack connector ▲ | M12 connector, Snap-C compatible<br>SAE 7/8-16 UN2A | Cable entry for Pg 13 (DIN PG13.5) cable gland, ISO M20, 1/2" NPT, and 1/2" PF | 1/2" -14 NPT<br>Cable entry 20 mm | **9016G**: 1/2" -14 NPT<br>Cable entry 20 mm<br>9016GVG<br>**NEMA Type 1 and 3R**: 3 knockouts for 1/2 in. conduit<br>**NEMA Type 7 and 9**: 2 conduit entries, 3/4"-14 NPT |
| **Fluid Connection** | G 1/4" BSP internal,<br>1/4" NPT internal<br>SAE 7/16"-20 UNF female | G 1/4 A (male) conforming to ISO7 or 1/4"-18 NPT male ▲ | G 1/4" BSP internal,<br>1/4" NPT internal<br>SAE 7/16"-20 UNF female | G 1/4" BSP internal,<br>1/4" NPT internal<br>1/4"-18 NPT external | 1/4" - 18 NPTF internal<br>7/16"-20 UNF-2B internal<br>G 1/4" BSP internal<br>G 1/4"-19 BSP internal | G 1/4" BSP internal,<br>1/4" NPT internal<br>1/4"-18 NPT external |
| **Fluid Characteristics** | Hydraulic oils, air, fresh water, sea water, corrosive fluids from –15 to +125 °C (5 to +257 °F) | Air, fresh water, 0 to + 80 °C (32.0 to 176.0 °F) | Hydraulic oils, air, fresh water, sea water, corrosive fluids from –15 to +80 °C (5 to +176 °F) | Hydraulic oils, air, fresh water, sea water, steam, corrosive fluids, viscous products, 32 to 320 °F (0 to 160 °C) depending on the model | Hydraulic oils, air, fresh water, sea water, corrosive fluids from –26 to +120 °C (–15 to +250 °F) depending on the model | Hydraulic oils, air, fresh water, sea water, from –26 to +120 °C (–15 to +250 °F) depending on the model |
| **Enclosure Rating** | IP66, IP67 conforming to IEC/EN 60529, NEMA 4 | IP65 conforming to IEC/EN60529, NEMA 4 | IP67 conforming to IEC/EN 60529, NEMA 4/6/12/13 | Screw terminal models: IP66 conforming to IEC 529, NEMA 4 | NEMA Type 4, 4X, 7, 9, 13 | **9016G**: NEMA Type 4, 4X, 7, 9, 13<br>**9016GVG**: NEMA Type 1 |
| **Dimensions of Case, in. (mm) width x height x depth** | dia. 0.90 x 2.76<br>(dia. 22.8 x 70.1 mm) | dia. 1.40 x 3.10<br>(dia. 36 x 79.5) | 1.81 x 4.45 x 2.28 in.<br>(46 x 113 x 58 mm) | 4.45 x 1.38 x 2.95 in.<br>(113 x 35 x 75 mm)<br>NEMA 4: 3.50 x 3.60 x 2.63 in. (89 x 91 x 67 mm) | NEMA 1: 2.06 x 5.03 x 2.75 in.<br>(52 x 128 x 70 mm)<br>NEMA 4: 3.50 x 3.60 x 2.63 in.<br>(89 x 91 x 67 mm) | Control circuit:<br>same as 9012G<br>Power circuit:<br>same as 9013G |
| **Conforming to Standards** | CE,<br>IEC/EN 60947-1,<br>IEC/EN 60947-5-1,<br>EN 50081-1, EN 50082-2,<br>EN 61000-6-2 | CE,<br>IEC/EN 60947-1,<br>IEC/EN 60947-5-1<br>EN 50081-1, EN 50082-2,<br>EN 61000-6-2 | CE,<br>IEC/EN 60947-1,<br>IEC/EN 60947-5-1,<br>EN 50081, EN 50082,<br>EN 61000-6-2,<br>EN 61000-4-2/3/4/5/6/8/11 | CE,<br>IEC/EN 60947-5-1,<br>VDE 0660-200,<br>UL 508,<br>CSA C22-2 No. 14 | NEMA A600 UL508 | NEMA A600 UL508 |
| **Certifications** | UL Listed,<br>CSA Certified | UL: File E97729, CCN NKPZ<br>CSA: File 240515,<br>Class 3211-03 | UL Listed,<br>CSA Certified | UL B300 - R300 Listed.<br>CSA B300 - R300,<br>(BV, GL, RINA, LROS pending) | UL Listed,<br>CSA Certified | UL Listed,<br>CSA Certified |
| **Catalog Number** | XMLG | XMLK | XMLF | XMLA, XMLB, XMLC, XMLD | 9012GA, 9012GC, 9012GG, 9012GH, 9012GK, 9012GM, 9012GR, 9012GS, 9012GT, 9012GN, 9012GP, 9012GQ | 9016GA, 9016GV |

▲ For other connections, consult the Sensor Competency Center.



© 2012 Schneider Electric
All Rights Reserved

| Application | Electromechanical Pressure Switches | | Electromechanical Float Switches | | | |
|---|---|---|---|---|---|---|



| Product Family | 9013F | 9013G | 9036D, 9036F | 9036G | 9037 | 9038 |
|---|---|---|---|---|---|---|
| **Type of Installation/ Application** | Power circuits | Power circuits | Power circuits | Power circuits | Power circuits | Power circuits |
| **Fluids Controlled** | Fresh water, air | | Fresh or sea water, hydraulic oils; suitable for corrosive fluids except for cast iron bushing (shown above) | | | |
| **Type of Operation and Features** | Pressure switches<br>Detection of single trip point (fixed differential)<br>Regulation between 2 trip points (adjustable differential) | Pressure switches<br>Regulation between 2 trip points (adjustable differential) | Liquid level control in **Open** tanks—either pumping in or pumping out of tank | Liquid level control in **Open** tanks—either pumping in or pumping out of tank | Liquid level control in **Closed** tanks for condensate, return heating water, fuel oil, etc. | Liquid level control in **Open** or **Closed** tanks—two pumps alternate, and both pumps run in peak demand<br>Non-alternating option also available |
| **Size/Range (psi)** | 6 to 200 psi | 10 to 250 psi | Light duty | Medium duty | — | — |
| **Type of Output** | 2-pole, snap action contacts HP rated | 2-pole, snap action contacts HP rated | 2-pole, snap action contacts HP rated | 2-pole, snap action contacts HP rated | 2-pole, snap action contacts HP rated | 2 sets of 2-pole, snap action contacts HP rated |
| **Electrical Connection** | 2 open side entries, 0.88 in. diameter, with two flats | **NEMA Type 1 and 3R**: 3 knockouts for 1/2 in. conduit<br>**NEMA Type 7 and 9**: 2 conduit entries, 3/4"-14 NPT | 4 screw terminals<br>**NEMA Type 1**: 2 open side entries, 0.88 in. diameter, with two flats<br>**NEMA Type 4, 7, 9**: 2 cable entries, 3/4-14 conduit entry<br>**9036FG**: 2 cable entries, 0.88 in. (22.4 mm) with 0.84 in. (21.3 mm) across flat | 4 screw terminals<br>**NEMA Type 1**: 3 knockouts for 1/2 in. conduit entry<br>**NEMA Type 4, 7, 9**: 2 cable entries, 3/4-14 conduit entry | 4 screw terminals<br>**NEMA Type 1**: 2 open side entries, 0.88 in. diameter, with two flats<br>**NEMA Type 4, 7, 9**: 2 cable entries, 3/4-14 conduit entry | 8 screw terminals<br>**NEMA Type 1**: 4 knockouts for 1/2 in. (9038 AG) or 3/4 in. conduit entry<br>**NEMA Type 4, 7, 9**: 2 cable entries, 3/4-14 conduit entry |
| **Fluid Connection** | 1/4" NPSF internal, 1/4" NPT external, plus other options | 1/4" NPSF internal, 1/4" NPT external | Open tank | Open tank | Closed tank | Open tank (9038A)<br>Closed tank (9038C, D) |
| **Fluid Characteristics** | Fresh water, air | | Fresh water, sea water, hydraulic oils (and corrosive fluids, depending on the model) with a density ≥ 0.8 | | | |
| **Enclosure Rating** | NEMA Type 1<br>NEMA Type 3R<br>IP20 | NEMA Type 1, 3R, 7, 9<br>IP20 | NEMA Type 1, 4 , 7, 9 | NEMA Type 1, 4 , 7, 9 | NEMA Type 1, 4 , 7, 9 | NEMA Type 1, 4 , 7, 9 |
| **Dimensions of Case width x height x depth in. (mm)** | 3.76 x 2.8 x 2.78 in. (95.5 x 71.12 x 70.6 mm) | 3.68 x 3.85 x 3.44 in. (93.47 x 97.79 x 87.37 mm) | See page 22-23 | See page 22-23 | See pages 22-24, 22-25 | See page 22-26 |
| **Conforming to Standards** | NEMA A600 UL508 | NEMA A600 UL508 | NEMA A600 UL508 | NEMA A600 UL508 | NEMA A600 UL508 | NEMA A600 UL508 |
| **Certifications** | UL Listed, CSA Certified | UL Listed, CSA Certified | UL Listed, CSA Certified | UL Listed, CSA Certified | UL Listed, CSA Certified | UL Listed, CSA Certified |
| **Catalog Number** | 9013FS, 9013FR, 9013FH, 9013FT, 9013FY | 9013GS, 9013GH, 9013GM | 9036DG, 9036DW, 9036DR, 9036FG | 9036GG, 9036GW, 9036GR | 9037EG, 9037EW, 9037ER, 9037HG, 9037HW, 9037HR | 9038AG, 9038AW, 9038AR, 9038CG, 9038CW, 9038CR, 9038DG, 9038DW, 9038DR |



© 2012 Schneider Electric
All Rights Reserved

XMLG pressure transmitters and pressure switches are characterized by their ceramic pressure-measuring cell. The deformation caused by the pressure is transmitted to the resistors of a Wheatstone bridge silk-screened on the ceramic. The change in resistance is then processed by the integrated electronics, providing either a digital or analog output signal.







XMLG•••D
M12 Connector



XMLG•••Q
Quick Connect

### Table 22.1: Specifications

| | |
|---|---|
| **Enclosure Rating** | IP66, IP67 conforming to IEC/EN 60529, NEMA 4 |
| **Ambient Temperature (Operation)** | -15 to +85 °C (+5 to +185 °F) |
| **Media Temperature** | -15 to +125 °C (+5 to +257 °F) |
| **Precision (Linearity, Repeat Accuracy, Hysteresis)** | Transmitters: <0.3%; pressure/vacuum switches: <1% |
| **Repeat Accuracy (PNP/NPN output)** | 0.1% of the measuring range |
| **Current Consumption** | Transmitters: < 20 mA<br>Pressure/vacuum switches: < 4 mA |
| **Maximum Load Current** | Transmitters: < 20mA<br>Pressure/vacuum switches: 150 mA switching capacity |
| **Rated Voltage** | 12/24 V for transmitters and pressure/vacuum switches |
| **Voltage Limits** | 24 V for transmitters and pressure/vacuum switches |
| **Fluids Controlled** | Hydraulic oils, air, fresh/sea water, corrosive fluids from -15 to +125 °C (+5 to +257 °F) |
| **Materials in Contact with Fluid** | Ceramic $Al_2O_3$, stainless steel type AISI 303, Viton® FPM, PPS (leakage protection for P> 40 bar) |
| **Output Response Time** | < 2 ms |

### Table 22.2: Interpretation of the Catalog Number (example: XMLG100D23TQ)

| XMLG | 100 | | D | 2 | 3 | TQ |
|---|---|---|---|---|---|---|
| **Units without Display, 22.8 mm diameter** | **Rated Pressure Range** | | **Electrical Connection** | **Output** | **Fluid Connection** | **Bulk Pack** |
| | **Code** | **psi** / **bar** | | | | |
| | **M01** | –14.5 to 0 / –1 to 0 | **D**: M12 | **1**: DC Analog, 4–20 mA, shunt calibration | **1**: G 1/4 A (BSP male) | |
| | **001** | 0 to 14.5 / 0 to 1 | **Q**: Integrated quick connect | **2**: Analog, 4–20 mA | **3**: 1/4" NPT male | |
| | **006** | 0 to 87.0 / 0 to 6 | | **3**: Solid state, NPN | **7**: 7/16-20 UNF male | |
| | **010** | 0 to 145 / 0 to 10 | | **4**: Solid state, PNP | | |
| | **016** | 0 to 232.1 / 0 to 16 | | **7**: Analog, 0–10 V (bulk packs only) | | |
| | **025** | 0 to 362.5 / 0 to 25 | | **11**: DC Analog, 0–10 V shunt calibration | | |
| | **100** | 0 to 1450 / 0 to 100 | | | | |
| | **160** | 0 to 2329.6 / 0 to 160 | | | | |
| | **250** | 0 to 3625 / 0 to 250 | | | | |
| | **400** | 0 to 5800 / 0 to 400 | | | | |

***NOTE:*** *Use this table only to interpret the catalog number. Some combinations are not available.*

### Table 22.3: Selection

| Rated Pressure Range | | Fluid Connection | Electrical Connection | Catalog Number ▲■ | |
|---|---|---|---|---|---|
| | | | | Analog Output, 4–20 mA | Analog Output, 0–10 Vdc |
| -14.5 to 0 psi | -1 to 0 bar | 1/4" NPT Male | M12 | XMLGM01D23 | XMLGM01D73 |
| 0 to 14.5 psi | 0 to 1 bar | | | XMLG001D23 | XMLG001D73 |
| 0 to 87 psi | 0 to 6 bar | | | XMLG006D23 | XMLG006D73 |
| 0 to 145 psi | 0 to 10 bar | | | XMLG010D23 | XMLG010D73 |
| 0 to 232 psi | 0 to 16 bar | | | XMLG016D23 | XMLG016D73 |
| 0 to 362.5 psi | 0 to 25 bar | | | XMLG025D23 | XMLG025D73 |
| 0 to 1450 psi | 0 to 100 bar | | | XMLG100D23 | XMLG100D73 |
| 0 to 2320 psi | 0 to 160 bar | | | XMLG160D23 | XMLG160D73 |
| 0 to 3625 psi | 0 to 250 bar | | | XMLG250D23 | XMLG250D73 |
| 0 to 5800 psi | 0 to 400 bar | | | XMLG400D23 | XMLG400D73 |

▲ For devices with a switch output or 0–10 Vdc analog output, contact the Sensor Competency Center at 1-800-435-2121.

■ For a bulk package (25 units), add TQ to the end of the catalog number. The minimum order quantity is 50 units (two bulk packs). When ordering, specify the individual number of units, NOT the number of bulk packs. Minimum order quantity for factory ordered individual items (non-stock) is 50 pieces.

***NOTE:*** *For units with a solid-state output, the settings must be specified for each order.*

### Table 22.4: Wiring Configurations (M12)

| Output | Pin 1 | Pin 3 | Pin 4 |
|---|---|---|---|
| **Analog, 4–20 mA** | + Power supply | Output | — |
| **Analog, 0–10 Vdc** | + Power supply | Output | Ground |
| **Solid State, NPN** | + Power supply | Ground | Output |
| **Solid State, PNP** | + Power supply | Ground | Output |

UL E164865
CCN NKPZ

LR 44087
Class 3211-03

For wiring diagrams, refer to Table 22.5 on page 22-5.

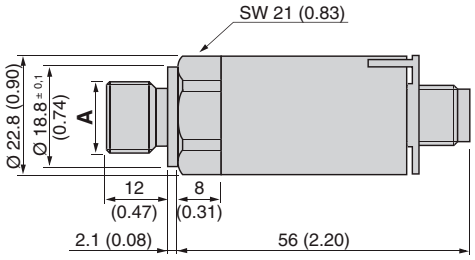


© 2012 Schneider Electric
All Rights Reserved

**For connectors and cables, see Table 22.15 on page 22-9.**

**Figure 22.1: Dimensions, in. (mm)**

**XMLG●●●D●●, M12 x 1 Connection**




| Dimension A | |
|---|---|
| **XMLG•••D2••1** | G 1/4 A (BSAP Male) |
| **XMLG•••D2••3** | 1/4" NPT Male |
| **XMLG•••D2••7** | 7/16-20 UNF Male |

**XMLG●●●Q●●, Integrated Quick Connection**

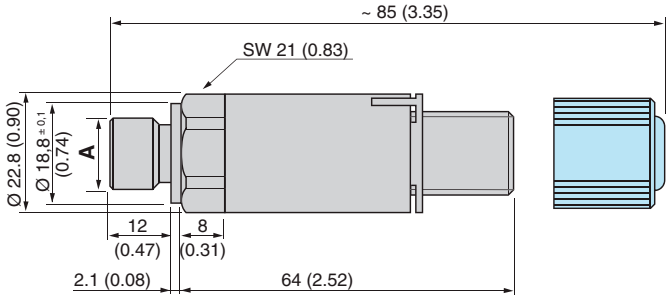
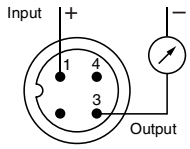
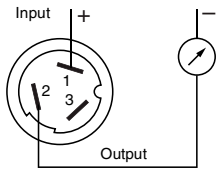
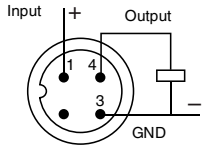
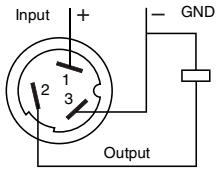
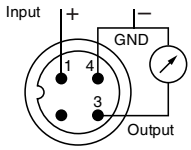
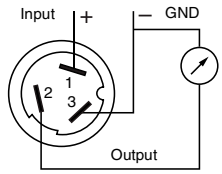
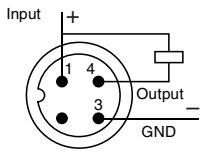
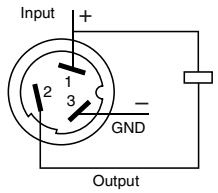



**Table 22.5: Connector Wiring**

| Pressure Transmitters | | Electronic Pressure Switches | |
|---|---|---|---|
| **M12** | **Integrated Quick Connection** | **M12** | **Integrated Quick Connection** |
| **2-wire (4–20 mA)** | **2-wire (4–20 mA)** | **3-wire (PNP)** | **3-wire (PNP)** |
|  |  |  |  |
|  |  |  |  |
| **3-wire (0–10 V)** | **3-wire (0–10 V)** | **3-wire (NPN)** | **3-wire (NPN)** |
|  |  |  |  |
|  |  |  |  |

For wiring configurations, refer to Table 22.4 on page 22-4.



© 2012 Schneider Electric
All Rights Reserved

New!

Type XMLK pressure transmitters are characterized by their ceramic pressure-measuring cell. The deformation caused by the pressure is transmitted to the resistors of a Wheatstone bridge silk-screened on the ceramic. The change in resistance is then processed by the integrated electronics to provide an analog output signal.



XMLK•••••C
DIN 43650A Connector



XMLK•••••D
M12 Connector



XMLK•••••P
Metri-Pack Connector



**Table 22.6: Environmental Specifications**

| | | |
|---|---|---|
| **Enclosure Rating** | | IP65 conforming to IEC/EN 60529, NEMA 4 |
| **Ambient Air Temperature** | **For Operation** | 0 to + 80 °C (32 to 176 °F) |
| | **For Storage** | –25 to + 85 °C (13 to 185 °F) |
| **Precision (Resolution)** | | Combined sum of linearity, hysteresis, and repeat accuracy <± 0.5% of the measuring range |
| | | Setting tolerance of zero point and measuring range limit < ± 1% of the measuring range |
| **Repeat Accuracy** | | ± 0.3% of the measuring range |
| **Current Consumption** | | 4–20 mA: < 20 mA<br>0–10 V: < 6 mA |
| **Rated Supply Voltage** | | 24 Vdc |
| **Voltage Limits** | | 4–20 mA: 8–33 V ⎓<br>0–10 V: 16.2–33 V ⎓ |
| **Fluids or Products Controlled** | | Air, fresh water (0 to + 80 °C / 32 to 176 °F) |
| **Materials in Contact with Fluid** | | Steel, type AISI 303 (stainless steel)<br>nitrile (NBR) |
| **Output Response Time** | | < 2 ms |

**Table 22.7: Interpretation of the Catalog Number**

| XMLK | 100 | | | P | 2 | D | 2 | 3 | TQ |
|---|---|---|---|---|---|---|---|---|---|
| **Units Without Display** | **Rated Pressure** | | | **Unit of Pressure** | **O-Ring** | **Electrical Connection** | **Output** | **Fluid Connection** | **Bulk Pack** |
| | **Code** | **psi** | **bar** | | | | | | |
| 36 mm (1.42 in.) diameter | 006 | | 0–6 | B: bar | 2: NBR (Nitrile) | C: DIN 43650A | 2: Analog, 4–20 mA | 1: G 1/4 A (male) | |
| | 010 | | 0–10 | P: psi | | D: M12 | 7: Analog, 0-10 V | 3: 1/4"-18 NPT (male) | |
| | 016 | | 0–16 | | | P: Metri-Pack | | | |
| | 025 | | 0–25 | | | | | | |
| | 100 | 0–100 | | | | | | | |
| | 150 | 0–150 | | | | | | | |
| | 200 | 0–200 | | | | | | | |
| | 300 | 0–300 | | | | | | | |

***NOTE:*** *Use this table only to interpret the catalog number. Some combinations are not available.*

**Table 22.8: Selection**

| Rated Pressure Range | Catalog Number ▲ | | | | | |
|---|---|---|---|---|---|---|
| | 4–20 mA Analog Output | | | 0–10 Vdc Analog Output | | |
| | DIN | M12 | Metri-Pack | DIN | M12 | Metri-Pack |
| Bar Version, G 1/4 A Male Fluid Connector | | | | | | |
| 0–6 bar (0–87 psi) | XMLK006B2C21 | XMLK006B2D21 | — | XMLK006B2C71 | XMLK006B2D71 | — |
| 0–10 bar (0–145 psi) | XMLK010B2C21 | XMLK010B2D21 | — | XMLK010B2C71 | XMLK010B2D71 | — |
| 0–16 bar (0–232 psi) | XMLK016B2C21 | XMLK016B2D21 | — | XMLK016B2C71 | XMLK016B2D71 | — |
| 0–25 bar (0–362.5 psi) | XMLK025B2C21 | XMLK025B2D21 | — | XMLK025B2C71 | XMLK025B2D71 | — |
| PSI Version, 1/4"-18 NPT Male Fluid Connector | | | | | | |
| 0–100 psi (0–6.9 bar) | XMLK100P2C23 | XMLK100P2D23 | XMLK100P2P23 | XMLK100P2C73 | XMLK100P2D73 | XMLK100P2P73 |
| 0–150 psi (0–10.3 bar) | XMLK150P2C23 | XMLK150P2D23 | XMLK150P2P23 | XMLK150P2C73 | XMLK150P2D73 | XMLK150P2P73 |
| 0–200 psi (0–13.8 bar) | XMLK200P2C23 | XMLK200P2D23 | XMLK200P2P23 | XMLK200P2C73 | XMLK200P2D73 | XMLK200P2P73 |
| 0–300 psi (0–.20.7 bar) | XMLK300P2C23 | XMLK300P2D23 | XMLK300P2P23 | XMLK300P2C73 | XMLK300P2D73 | XMLK300P2P73 |

▲ For a bulk package (25 units), add TQ to the end of the catalog number. The minimum order quantity is 50 units (two bulk packs). When ordering, specify the individual number of units, **not** the number of bulk packs. Minimum order quantity for factory ordered individual items (non-stock) is 50 pieces.

**Table 22.9: Wiring Configurations (M12)**

| Output | Pin 1 | Pin 3 | Pin 4 |
|---|---|---|---|
| **Analog, 4–20 mA** | + Power supply | Output | — |
| **Analog, 0–10 Vdc** | + Power supply | Output | Ground |
| **Solid State, NPN** | + Power supply | Ground | Output |
| **Solid State, PNP** | + Power supply | Ground | Output |

UL E164865
CCN NKPZ

LR 44087
Class 3211-03

For wiring diagrams, refer to Table 22.5 on page 22-5.



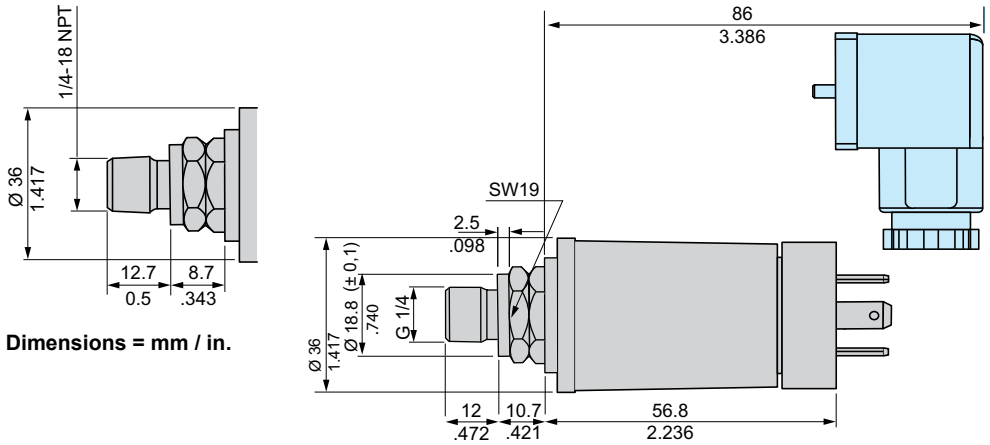
© 2012 Schneider Electric
All Rights Reserved

**For connectors and cables, see Table 22.15 on page 22-9.**

**Table 22.10: Dimensions**

**XMLK, DIN connector**

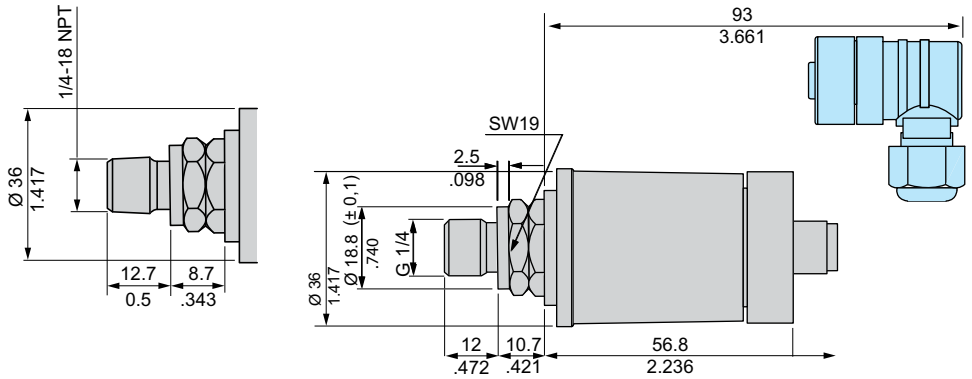
| NPT | G 1/4 A (male) |
|---|---|




**Dimensions = mm / in.**

**XMLK, M12 connector**

| NPT | G 1/4 A (male) |
|---|---|




**XMLK, Metri-Pack connector**

| NPT | G 1/4 A (male) |
|---|---|

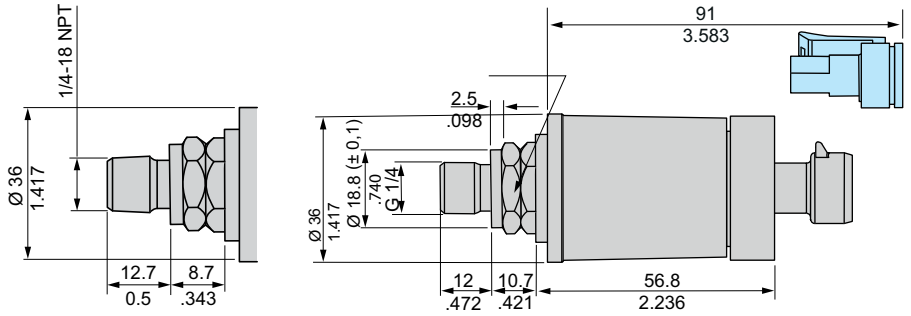
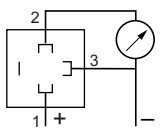
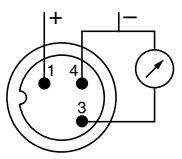
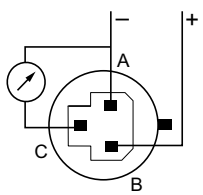



**Table 22.11: Connector Wiring**

| DIN 43650A | M12 | Metri-Pack |
|---|---|---|
|  |  |  |









© 2012 Schneider Electric
All Rights Reserved

XMLF is a user-friendly electronic pressure switch with an easy-to-read four digit display and finger-operated adjustment buttons for scrolling up and down through the menu functions. Burst pressure is six times the nominal pressure (up to 1,800 bar or 26,100 psi).

- DC versions are protected against reverse polarity, short circuit, and overvoltage.
- DC versions are double insulated.
- Response time display: 3 levels (slow-normal-fast).

**Available in four versions:**

- Universal sensor with 1 analog output (4–20 mA) and 1 digital output
- Universal sensor with 1 analog output (1–10 V) and 1 digital output
- Dual stage sensor, 2 digital outputs, 24 Vdc (17-33 Vdc)
- Electronic pressure switch with relay output, 120 Vac (102–132 Vac)

The XMLF electronic pressure switch can be set without any tools once connected to a 24 Vdc power supply. It is ergonomically designed to be easy to hold and to set. The pressure connection is on the bottom of the switch and the electrical connector on the top, giving the switch a slim, straight-through profile. It has built-in water hammer resistance. It is available in AC and DC versions, each of which feature a 4-digit LED display. It is programmable to display either bar or psi. Digital solid state outputs are programmable as NPN or PNP, and N.O. or N.C.

Window mode (FEN) allows the switch to operate between selected minimum and maximum settings. Outputs change state when the pressure ranges outside the window settings.










**Table 22.12: Specifications**

| | | |
|---|---|---|
| **Enclosure Rating** | | IP67<br>NEMA 4, 6, 12, 13 |
| **Ambient Air Temperature for Operation** | | DC Models: –25 to +80 °C (–13 to + 176 °F)<br>AC Models: –25 to +80 °C (–13 to + 176 °F) |
| **Media Temperature** | | –15 to +80 °C (+5 to + 176 °F) |
| **Precision** | **Analog Output** | ≤0.6% of the measurement range, output offset < 200 mV |
| | **Digital Output** | ≤0.6% of the measurement range |
| **Repeat Accuracy (PNP/NPN output)** | | ≤0.5% of the measurement range |
| **Maximum Load Current** | | **DC:** 200 mA for 17–33 Vdc; **AC:** 2.5A AC15 C300 |

**Table 22.13: Interpretation of the Catalog Number (example: XMLF100D2026)**

| **XMLF** | **100** | | **D** | **2** | **02** | **6** |
|---|---|---|---|---|---|---|
| **Configurable** | **Rated pressure** | | **Electrical Connection** | **With Viewing Window** | **Output** | **Fluid Connection** |
| | **Code** | **psi** / **bar** | | | | |
| | M01 | -14.5 to 0 / -1 to 0 | D: M12 DC only | | 01: DC Analog 4–20 mA, shunt calibration | 5: 1/4" BSP female |
| | 002 | 0 to 36.25 / 0 to 2.5 | E: 7/8-16 UN2A AC only | | 02: DC Analog 4–20 mA, digital single stage | 6: 1/4" NPTF female |
| | 010 | 0 to 145 / 0 to 10 | | | 11: DC Analog 0–10 V, shunt calibration | 9: SAE 7/16-20 UNF female |
| | 016 | 0 to 232 / 0 to 16 | | | 12: DC Analog 0–10 V, digital single stage | |
| | 025 | 0 to 362.5 / 0 to 25 | | | 03: DC digital dual stage | |
| | 040 | 0 to 580 / 0 to 40 | | | 04: AC Relay 120 V | |
| | 070 | 0 to 1015 / 0 to 70 | | | | |
| | 100 | 0 to 1450 / 0 to 100 | | | | |
| | 160 | 0 to 2320 / 0 to 160 | | | | |
| | 250 | 0 to 3625 / 0 to 250 | | | | |
| | 400 | 0 to 5800 / 0 to 400 | | | | |
| | 600 | 0 to 8700 / 0 to 600 | | | | |

***NOTE:*** *Use this table only to interpret the catalog number. Some combinations are not available.*

**Table 22.14: Selection**

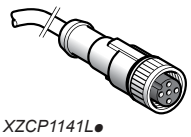
| Catalog Number | Range | Output | Pressure Connection | Electrical Connection |
|---|---|---|---|---|
| **AC Versions** | | | | |
| XMLF010E2046 | 0 to 145 psi | Relay (2.5 A) | 1/4" NPT Female | SAE7/8-16UNF |
| XMLF070E2046 | 0 to 1015 psi | Relay (2.5 A) | 1/4" NPT Female | SAE7/8-16UNF |
| **DC Versions** | | | | |
| XMLFM01D2026 | -14.5 to 0 psi | Analog with single stage | 1/4" NPT Female | M12 |
| XMLF010D2026 | 0 to 145 psi | | 1/4" NPT Female | M12 |
| XMLF070D2029 | 0 to 1015 psi | | SAE7/16-20 Female | M12 |
| XMLF400D2029 | 0 to 5800 psi | | SAE7/16-20 Female | M12 |
| XMLF010D2039 | 0 to 145 psi | Dual stage Relay (2.5 A) | SAE7/16-20 Female | M12 |
| XMLF070D2039 | 0 to 1015 psi | | SAE7/16-20 Female | M12 |
| XMLF400D2039 | 0 to 5800 psi | | SAE7/16-20 Female | M12 |
| XMLF010D2036 | 0 to 145 psi | | 1/4" NPT Female | M12 |
| XMLF070D2036 | 0 to 1015 psi | | 1/4" NPT Female | M12 |

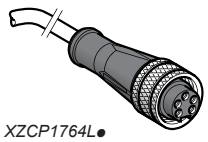
File E164865
CCN NKPZ

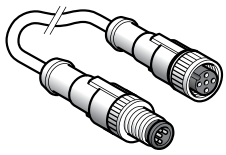
File LR44087
Class 3211-03

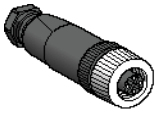


© 2012 Schneider Electric
All Rights Reserved

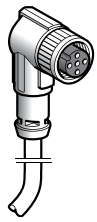

XZCP1141L●

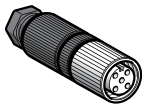

XZCP1764L●

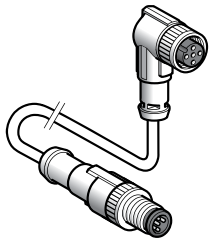

XZCR1511041C●

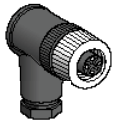

XZCC12FDM40B


XZCC43FCP40B


XZCP1241L●


XZCC12FDM40V


XZCR1512041C●


XZCC12FCM40B

## Table 22.15: Connectors and Cables

| Description | | Cable Length m (ft) | Weight g (oz) | Catalog Number |
|---|---|---|---|---|
| **Phoenix Contact QUICKON connector ▲** | | — | — | XMLGZ001 |
| **Pre-wired M12 female connector with cable** | **Straight black PUR** | 2 (6.6) | 115 (4.06) | XZCP1141L2 |
| | | 5 (16.4) | 270 (9.52) | XZCP1141L5 |
| | | 10 (32.8) | 520 (18.34) | XZCP1141L10 |
| | **Straight yellow PVC** | 2 (6.6) | 90 (3.17) | XSZCD101Y |
| | | 5 (16.4) | 190 (6.70) | XSZCD102Y |
| | | 10 (32.8) | 370 (13.05) | XSZCD103Y |
| | **90°** | 2 (6.6) | 115 (4.06) | XZCP1241L2 |
| | | 5 (16.4) | 270 (9.52) | XZCP1241L5 |
| | | 10 (32.8) | 520 (18.34) | XZCP1241L10 |
| **Pre-wired 7/8" 16UN, female connector with cable** | **Straight** | 2 (6.6) | 185 (6.53) | XZCP1764L2 |
| | | 5 (16.4) | 460 (16.23) | XZCP1764L5 |
| | | 10 (32.8) | 900 (31.75) | XZCP1764L10 |
| **M12–M12 jumper cables with straight male connector, for splitter box** | **Straight female connector** | 1 (3.3) | 65 (2.29) | XZCR1511041C1 |
| | | 2 (6.6) | 95 (3.35) | XZCR1511041C2 |
| | **90° female connector** | 1 (3.3) | 65 (2.29) | XZCR1512041C1 |
| | | 2 (6.6) | 95 (3.35) | XZCR1512041C2 |

▲ Connector incorporating IDCs (insulation displacement connectors) for quick, direct, in-line connection to cable without a screwdriver or soldering iron.

## Table 22.16: Accessories

| Description | | Weight g (oz) | Catalog Number |
|---|---|---|---|
| M12 female connector, metal clamping ring, with screw terminal connections | Straight | 20 (0.71) | XZCC12FDM40B |
| | Elbowed | 20 (0.71) | XZCC12FCM40B |
| DIN 43650A female connector, with screw terminal connections | | 35 (1.23) | XZCC43FCP40B |
| Sealing gasket | | 15 (0.48) | XMLZL010 |
| Mounting bracket | | 37 (1.19) | XMLZL008 |
| Cooler for versions with 1/4" BSP fluid connection | | 370 (11.90) | XMLZL009 |

## Table 22.17: Wiring Configurations

| Version | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 |
|---|---|---|---|---|---|
| AC (5-pin E) | Power supply | Power supply | Ground | + Relay | – Relay |
| DC (4-pin D), analog or single stage | + Power supply | 4–20 mA | – Power supply | Single stage | |
| DC (4-pin D), dual stage | + Power supply | Second stage | – Power supply | First stage | |

## Table 22.18: Electrical Connections

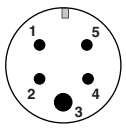
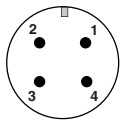
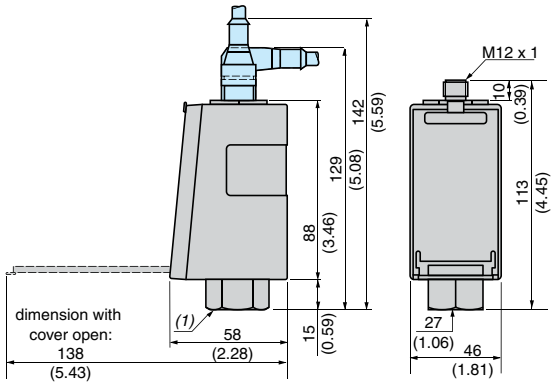
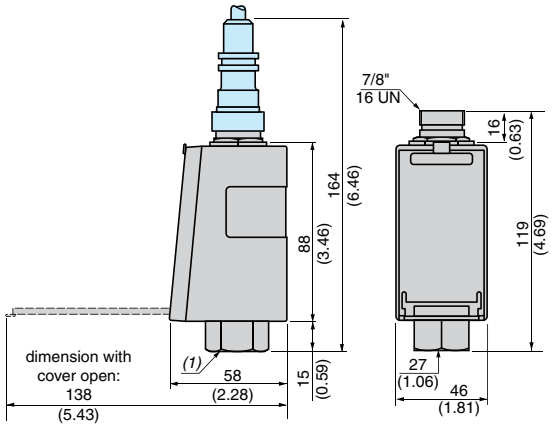
| | AC Connector | DC Connector | |
|---|---|---|---|
| **Wiring** |  1. L1 Power 2. L2 Power 3. Ground 4. Relay 5. Relay |  **Analog** 1. + Power Supply 2. 4–20 mA 3. – Power Supply 4. Solid State, PNP or NPN | **Dual Stage** 1. + Power Supply 2. 2nd Stage Solid-State Output 3. – Power Supply 4. 1st Stage Solid-State Output |
| **Rated Supply Voltage** | 120 Vac (102–132 Vac), N.O. – N.C. Relays, Output 2.5 A, 5 Wire | 24 Vdc (17–33 Vdc), Analog PNP–NPN, N.O. Outputs, 4 Wire | |
| | | 24 Vdc (17–33 Vdc), Analog + Shunt Calibration, 4 Wire | |
| | | 24 Vdc (17–33 Vdc), Dual Stage N.O. –N.C., PNP–NPN Outputs, 4 Wire | |
| **Display** | The display shows the pressure in the circuit up to a value of twice the maximum pressure size of the device (for example, XMXF.6000… displays values up to 1200 bar). If the pressure is higher than 130% of the pressure range, the display blinks. The display shows two digits after the decimal point from –1 to 2.5 bar (–14.5 to 36.25); one digit after the decimal from 10 to 70 bar (145 to 1015); and no digits after the decimal from 100 to 600 bar (1450 to 8700). In all cases, the display shows no values below 2% at the beginning of the scale. | | |

**Figure 22.2: XMLF•••D2•••**




*(1)* Female fluid entry:
XMLF••• D2••5, XMLF••• E2••5: G 1/4 A (BSP)
XMLF••• D2••6, XMLF••• E2••6: 1/4" NPTF
XMLF••• D2••9, XMLF••• E2••9: SAE 7/16-20UNF

**Figure 22.3: XMLF•••E2•••**




Dimensions: in. (mm)



© 2012 Schneider Electric
All Rights Reserved

XML international pressure switches meet IEC, Cenelec, UL, and CSA standards. They are CE marked.

- Fixed differential (XMLA), adjustable differential single-pole (XMLB) or double-pole (XMLC), and dual stage (XMLD)
- Range listed is on increasing pressure (psi, bar, kPa)
- External pressure setting window available
- 1 N.O.–1 N.C. snap acting contacts standard
- Temperature range: –13 to +158 °F (–25 to +70 °C)
- Enclosure rating: IP65 with plug-in connector, IP66 with terminal connections
- Operating rate: up to 120 operations per minute for diaphragm and 60 per minute for piston
- Media connection: 1/4" NPT
- Conduit connection: 1/2" NPT





XMLB



XMLD

**Table 22.19: Specifications**

| | | |
|---|---|---|
| **Enclosure Rating** | | Screw terminal models: IP66 conforming to IEC/EN 60529<br>Connector models: IP65 conforming to IEC/EN 60529 |
| **Ambient Temperature** | **Operation** | –25 to +70 °C (–13 to +158 °F) |
| | **Storage** | –40 to +70 °C (–40 to 158 °F) |
| **Repeat Accuracy** | | < 2% |
| **Fluids Controlled** | | Hydraulic oils, air, fresh water, sea water, 32 to 320 °F (0 to +160 °C), depending on the model<br>Steam, corrosive fluids, viscous products, 32 to 320 °F (0 to +160 °C), depending on the model |
| **Operating Rate (operating cycles/minute)** | | Piston version switches: up to 60 cycles/minute for temperatures above 32 °F (0 °C)<br>Diaphragm version switches: up to 120 cycles/minute for temperatures above 32 °F (0 °C) |
| **Operational Characteristics** | | ∿ AC-15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A)<br>⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1) conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1 |
| **Type of Contacts** | | Silver tipped contacts<br>XMLA & XMLB: 1 C/O single-pole contact (4 terminal), snap action<br>XMLC: 2 C/O single-pole contacts (8 terminals), simultaneous snap action<br>XMLD: 2 C/O single-pole contacts (8 terminals), staggered snap action |
| **Resistance Across Terminals** | | < 25 mΩ conforming to NF C 93-050 method A or IEC 255-7 category 3 |
| **Terminal Referencing** | | Conforming to CENELEC EN 50013 |
| **Short-Circuit Protections** | | 10 A cartridge fuse type gG (gI) recommended |
| **Connection** | | Screw clamp terminals<br>Clamping capacity, min: 1 x 0.2 $mm^2$, max: 2 x 2.5 $mm^2$ |

**Table 22.20: Component Materials in Contact with Fluid**

| Pressure Switch Catalog Number | Zinc Alloy | Stainless Steel | Brass | Steel | Nitrile | PTFE | FPM, FKM | Aluminum |
|---|---|---|---|---|---|---|---|---|
| XMLAM01V•••• / XML•M02V•••• | X | X ▲ | — | — | X | — | — | — |
| XMLBM03S•••• | — | X ▲ | — | — | — | X | — | — |
| XML•M05A•••• | X | X ▲ | — | — | X | — | — | — |
| XMLBL05S•••• | — | X ■ | — | — | — | X | — | — |
| XML•L35R•••• | — | X ■ | — | X | — | — | X | — |
| XML•L35S•••• | — | X ■ | — | — | — | X | — | — |
| XML•001S•••• | — | X ■ | — | — | — | X | — | — |
| XML•002A•••• | X | — | — | — | X | — | — | — |
| XML•002B•••• | — | — | — | X | — | — | X | — |
| XMLA004A•••• | X | — | — | — | X | — | — | — |
| XMLB004A•••• | X | — | — | — | X | — | — | — |
| XML•004B•••• | — | — | — | X | — | — | X | — |
| XML•010A•••• | X | — | — | — | X | — | — | — |
| XML•010B•••• | — | — | X | — | — | — | X | — |
| XML•020A•••• / XML•035A•••• | X | — | — | — | X | — | — | X |
| XML•020B•••• / XML•035B•••• | — | — | X | — | — | — | X | — |
| XML•070D•••• / XML•160D•••• | — | — | X | X | — | X | X | — |
| XML•300D•••• | — | — | X | X | — | X | X | — |
| XML•500D•••• | — | — | X1 | X | — | X | X | — |

▲ X2GNiMo 17-12-2 (AISI 316L)

■ X8GNiS 18-09 (AISI 303)

**Table 22.21: Interpretation of the Catalog Number (example: XMLD070D1S13)**

| XML | D | 070 | D | 1 | S | 1 | 3 |
|---|---|---|---|---|---|---|---|

| Contacts | Rated Pressure | | | Actuator | Scale | Electrical Connection | Output | Fluid Connection | |
|---|---|---|---|---|---|---|---|---|---|
| | Code | psi | bar | ***Diaphragm*** | 1 Without | S Without connector (not available on solid-state devices) | 1 Contacts | **Fluid** | **Electrical** |
| A Fixed differential, single-pole contact | **L05** | 0 to 0.725 | 0 to 0.05 | A Hydraulic oil, air, fresh water, sea water (0 to 70 °C) | 2 With | C Square / DIN 43650 | | 1 1/4 Gas | Type 13 (PG 13,5) |
| | **L35** | 0 to 5.075 | 0 to 0.35 | | | D M12 Micro connector | | | |
| B Adjustable differential, single-pole contact | **M01** | -14.5 to -4.06 | -1 to -0.28 | B Hydraulic oil, air, fresh water, sea water (0 to 160 °C) | | | | 2 1/4 Gas | ISO M20 |
| | **M02** | -14.5 to -2.03 | -1 to -0.14 | | | | | | |
| | **M03** | -2.9 to -.029 | -0.2 to -0.02 | C Corrosive fluids | | | | 3 1/4 in. NPTF | 1/2 in. NPT |
| C 2 adjustable differential, single-pole contacts, simultaneous | **M05** | -7.25 to 72.5 | -0.5 to 5 | P Viscous fluids | | | | | |
| | **001** | 0 to 14.5 | 0 to 1 | R Hydraulic oil, air (0 to 160 °C) | | | | 4 PT 1/4 (JIS B0203) | 1/2 in. PF (JIS B0202) |
| | **002** | 0 to 36.25 | 0 to 2.5 | S Fresh/sea water, corrosive fluids (0 to 160 °C) | | | | | |
| | **004** | 0 to 58 | 0 to 4 | | | | | | |
| D 2 fixed differential, single-pole contacts, staggered | **010** | 0 to 145 | 0 to 10 | ***Vacuum*** | | | | | |
| | **020** | 0 to 290 | 0 to 20 | V Hydraulic oil, air, fresh water, sea water (0 to 70 °C) | | | | | |
| | **035** | 0 to 507.5 | 0 to 35 | | | | | | |
| | **040** | 0 to 580 | 0 to 40 | T Hydraulic oil, air, fresh water, sea water (0 to 160 °C) | | | | | |
| | **070** | 0 to 1015 | 0 to 70 | | | | | | |
| | **160** | 0 to 2320 | 0 to 160 | ***Piston*** | | | | | |
| | **300** | 0 to 4350 | 0 to 300 | D Hydraulic oil | | | | | |
| | **500** | 0 to 7250 | 0 to 500 | E Fresh / sea water | | | | | |

***NOTE:*** *Use this table only to interpret the catalog number. Some combinations are not available.*



© 2012 Schneider Electric
All Rights Reserved

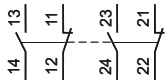
## Terminal Diagrams

### XMLA, XMLB



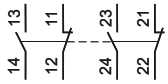

1 C/O single-pole contact, snap action

### XMLC

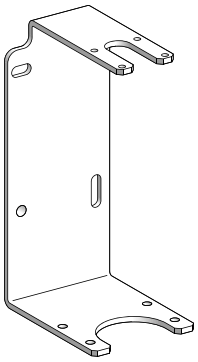



2 C/O single-pole contacts, simultaneous snap action

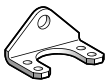
### XMLD



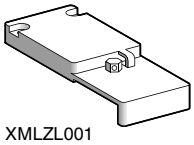

2 C/O single-pole contacts, snap action (1 per stage)



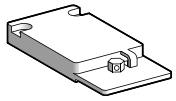
XMLZL006



XMLZL002



XMLZL001



XMLZL011

### Table 22.22: Fixed Differential Catalog Numbers

| Range on Increasing Pressure (psi) | Approximate Differential Across Range | Maximum Allowable Pressure | Catalog Number |
|---|---|---|---|
| **Fixed, 1 Single-Pole Contact (XMLA)** | | | |
| -4.06 to -14.5 | 3.5 | 130.5 | XMLAM01V2S13 |
| 0.435 to 14.5 | 0.29 low / 0.58 high | 32.62 | XMLA001S2S13 |
| 2.17 to 36.25 | 1.88 | 130.5 | XMLA002A2S13 |
| 5.8 to 58 | 5.07 | 130.5 | XMLA004A2S13 |
| 8.7 to 145 | 7.25 | 326.25 | XMLA010A2S13 |
| 10.2 to 290 | 5.8 low / 14.5 high | 652.5 | XMLA020A2S13 |
| 21.75 to 507.5 | 18.12 | 1160 | XMLA035A2S13 |
| 72.5 to 1015 | 43.5 low / 108.75 high | 2320 | XMLA070D2S13 |
| 145 to 2320 | 79.75 low / 261 high | 5220 | XMLA160D2S13 |
| 290 to 4350 | 239.25 low / 507.5 high | 9787.5 | XMLA300D2S13 |
| 435 to 7250 | 290 low / 652.5 high | 16312.5 | XMLA500D2S13 |
| **Fixed, 2 Single-Pole Contacts, Staggered (XMLD)** | | | |
| 0.84 to 5.07 | 0.44 | 32.62 | XMLDL35S1S13 |
| -1.74 to -14.5 | 1.45 | 130.5 | XMLDM02V1S13 |
| 1.74 to 14.5 | 0.44 low / 1.02 high | 32.62 | XMLD001S1S13 |
| 4.93 to 36.25 | 2.03 low / 2.76 high | 130.5 | XMLD002B1S13 |
| 5.8 to 58 | 2.18 low / 2.76 high | 130.5 | XMLD004B1S13 |
| 17.4 to 145 | 6.53 low / 8.7 high | 326.25 | XMLD010B1S13 |
| 2.14 to 20 | 10.15 low / 18.85 high | 652.5 | XMLD020B1S13 |
| 63.8 to 507.5 | 21.75 low / 37.7 high | 1160 | XMLD035B1S13 |
| 136.3 to 1015 | 72.5 low / 137.75 high | 2320 | XMLD070D1S13 |
| 239.25 to 2320 | 127.6 low / 290 high | 5220 | XMLD160D1S13 |
| 522 to 4350 | 246.5 low / 609 high | 9787.5 | XMLD300D1S13 |
| 594.5 to 7250 | 304.5 low / 942.5 high | 16312.5 | XMLD500D1S13 |

### Table 22.23: Adjustable Differential Catalog Numbers

| Range on Increasing Pressure (psi) | Approximate Differential Across Range | Maximum Allowable Pressure | Catalog Number |
|---|---|---|---|
| **Adjustable, 1 Single-Pole Contact (XMLB)** | | | |
| 0.038 to 0.72 | 0.02 low / 0.06 high | 1.63 | XMLBL05S2S13 |
| 0.65 to 5.07 | 0.6 low / 0.72 high | 32.62 | XMLBL35R2S13 |
| -2 to -14.5 | 1.9 | 130.5 | XMLBM02V2S13 |
| -0.29 to -2.9 | 0.26 | 29 | XMLBM03S2S13 |
| -7.25 to 72.5 | 7.25 | 163.12 | XMLBM05A2S13 |
| 0.72 to 14.5 | 0.58 low / 0.87 high | 32.62 | XMLB001S2S13 |
| 4.35 to 36.25 | 2.32 low / 3.04 high | 130.5 | XMLB002A2S13 |
| 3.62 to 58 | 2.9 low / 3.62 high | 130.5 | XMLB004A2S13 |
| 10.15 to 145 | 8.26 low / 12.32 high | 326.25 | XMLB010A2S13 |
| 18.9 to 290 | 14.5 low / 23.2 high | 652.5 | XMLB020A2S13 |
| 50.75 to 507.5 | 24.65 low / 36.97 high | 1160 | XMLB035A2S13 |
| 101.5 to 1015 | 68.15 low / 127.6 high | 2320 | XMLB070D2S13 |
| 145 to 2320 | 134.85 low / 301.6 high | 5220 | XMLB160D2S13 |
| 319 to 4350 | 281.3 low / 536.5 | 9787.5 | XMLB300D2S13 |
| 435 to 7250 | 333.5 low / 762.7 high | 16312.5 | XMLB500D2S13 |
| **Adjustable, 2 Single-Pole Contacts, Simultaneous (XMLC)** | | | |
| 0.65 to 5.07 | 0.29 low / 0.51 high | 32.62 | XMLCL35S2S13 |
| -2 to -14.5 | 1.89 low / 2.03 high | 130.5 | XMLCM02V2S13 |
| -7.97 to 72.5 | 6.52 | 163.12 | XMLCM05S2S13 |
| 0.725 to 14.5 | 0.43 low / 0.58 high | 32.62 | XMLC001S2S13 |
| 4.35 to 36.25 | 1.89 low / 2.47 high | 130.5 | XMLC002B2S13 |
| 4.35 to 58 | 2.18 low / 2.47 high | 130.5 | XMLC004B2S13 |
| 10.15 to 145 | 6.53 low / 10.15 high | 326.25 | XMLC010B2S13 |
| 18.85 to 290 | 10.15 low / 14.5 high | 652.5 | XMLC020B2S13 |
| 50.75 to 507.5 | 14.5 low / 21.75 high | 1160 | XMLC035B2S13 |
| 101.5 to 1015 | 65.25 low / 129.05 high | 2320 | XMLC070D2S13 |
| 174 to 2320 | 130.5 low / 304.5 high | 5220 | XMLC160D2S13 |
| 319 to 4350 | 232 low / 507.5 high | 9787.5 | XMLC300D2S13 |
| 435 to 7250 | 275.5 low / 754 high | 16312.5 | XMLC500D2S13 |

### Table 22.24: Accessories for XML Pressure and Vacuum Switches

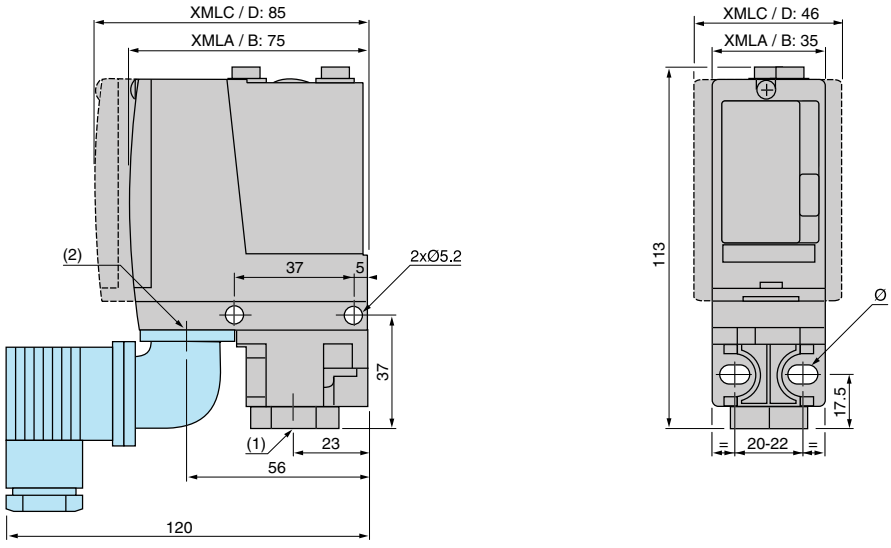
| Description | For Use with Switches | Catalog Number |
|---|---|---|
| **Rear mounting bracket**<br>For vibrations > 2 gn | XML•L35<br>XML•001 | XMLZL006 |
| **Additional top support bracket**<br>For vibrations > 4 gn | XMLAM01<br>XML•M05<br>XMLA004<br>XML•010 … XML•500 | XMLZL002 |
| **Lead sealable protective cover**<br>To prevent unauthorized access to the adjustment screws and the switch cover mounting screw | XMLA<br>XMLB | XMLZL001 |
| **Lead sealable protective cover**<br>To prevent unauthorized access to adjustment screws | All models | XMLZL011 |



© 2012 Schneider Electric
All Rights Reserved

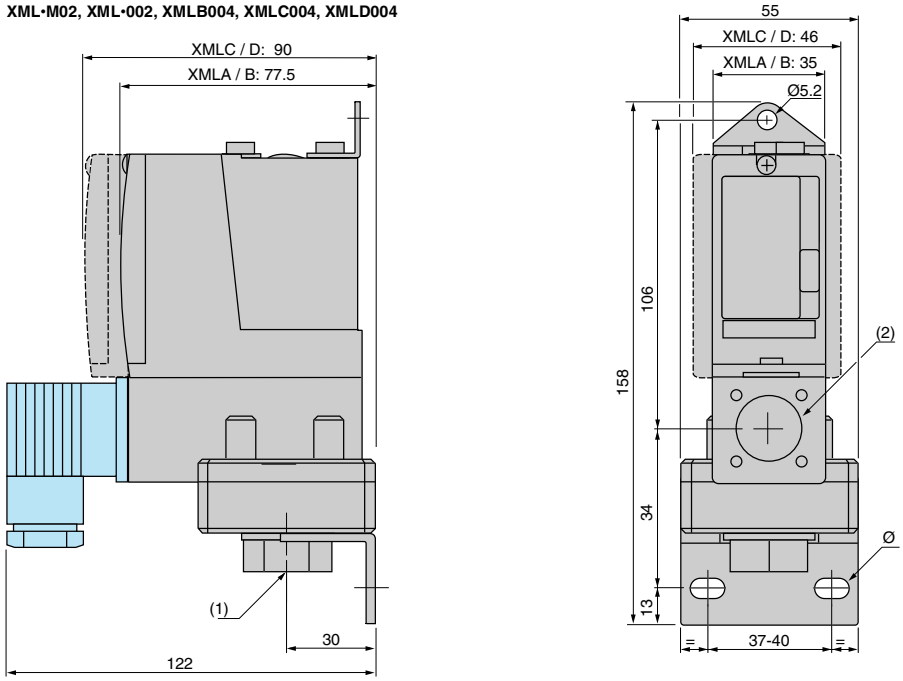
**Figure 22.4: Dimensions**

**XMLAM01, XMLBM05, XMLCM05, XMLA004, X•ML010…500**




*(1) 1 fluid entry, tapped G 1/4 (BSP female) or 1/4" NPT*
*(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5, or 1/2" NPT*
Ø: 2 elongated holes Ø 5.2 x 6.7

**XML•M02, XML•002, XMLB004, XMLC004, XMLD004**




*(1) 1 fluid entry, tapped G 1/4 (BSP female) or 1/4" NPT*
*(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5, or 1/2" NPT*
Ø: 2 elongated holes Ø 10.2 x 5.2



© 2012 Schneider Electric
All Rights Reserved



NEMA 1

### Table 22.25: Fixed Differential, Open Type or NEMA 1 Enclosure

UL Listed and CSA Certified As Industrial Control Equipment

| Range On Decreasing Pressure psig | Approximate Differential at Mid-Range psig▲ | Maximum Allowable Pressure psig | Open Type Type | NEMA 1 Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| 0.2–10 | 0.4 ±0.1 | 100 | GRO1 | GRG1 |
| 1–40 | 1.2 ±0.3 | 100 | GRO3 | GRG3 |
| 1.5–75 | 2.2 ±0.4 | 240 | GRO4 | GRG4 |
| 3–150 | 4.2 ±1 | 475 | GRO5 | GRG5 |
| 5–250 | 7.4 ±2 | 750 | GRO6 | GRG6 |
| 13–425 | 13 ±3 | 850 | GSO1 | GSG1 |
| 20–675 | 19 ±5 | 2000 | GSO2 | GSG2 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-Ring, Teflon® Retaining Ring** | | | | |
| 20–1000 | 49 ±10 | 10000 | GTO1 | GTG1 |
| 90–2900 | 141 ±15 | 15000 | GTO2 | GTG2 |
| 170–5600 | 200 ±40 | 20000 | GTO3 | GTG3 |
| 270–9000 | 350 ±45 | 25000 | GTO4 | GTG4 |



Open Type

### Table 22.26: Adjustable Differential, Open Type orNEMA 1 Enclosure

UL Listed and CSA Certified As Industrial Control Equipment

| Range On Decreasing Pressure psig | Approximate Mid-Range Differential Adds to Decreasing Set Point▲ | Maximum Allowable Pressure psig | Open Type Type | NEMA 1 Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| 0.2–10 | 0.4–0.9 | 100 | GNO1 | GNG1 |
| 1–40 | 1.2–3.6 | 100 | GNO3 | GNG3 |
| 1.5–75 | 2.2–6.6 | 240 | GNO4 | GNG4 |
| 3–150 | 4.2–13.2 | 475 | GNO5 | GNG5 |
| 5–250 | 7.4–33.6 | 750 | GNO6 | GNG6 |
| 13–425 | 13–37.2 | 850 | GPO1 | GPG1 |
| 20–675 | 19–58.8 | 2000 | GPO2 | GPG2 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton Fluorocarbon Diaphragm and O-Ring, Teflon Retaining Ring** | | | | |
| 20–1000 | 49–150 | 10000 | GQO1 | GQG1 |
| 90–2900 | 141–455 | 15000 | GQO2 | GQG2 |
| 170–5600 | 200–950 | 20000 | GQO3 | GQG3 |
| 270–9000 | 350–1400 | 25000 | GQO4 | GQG4 |

▲ Determines operating point on rising pressure.

### Table 22.27: Available Modifications

| Modification | Applies to | Form |
|---|---|---|
| Standard Nitrile (Buna-N) diaphragm in #316 stainless steel housing | GNG1, GNO1, GRG1, GRO1 only | Q1 |
| | All other GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO | Q1 |
| Ethylene propylene diaphragm in #316 stainless steel housing | Not available on GNG1, GNO1, GRG1, GRO1. Available on all other GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO | Q3 |
| Viton fluorocarbon diaphragm in #316 stainless steel housing | GNG1, GNO1, GRG1, GRO1 only | Q4 |
| | All other GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO | Q4 |
| 1/4–18 NPT external thread pressure connection | GNG, GNO, GRG, GRO | Z |
| 1/2–14 NPT external thread, 1/4–18 NPTF internal thread pressure connection. Standard actuator only. | GNG, GNO, GRG, GRO | Z16 |
| 7/16–20 UNF-2B internal thread pressure connection | GNG, GNO, GPG, GPO, GQG, GQO, GRG, GRO, GSG, GSO, GTG, GTO | Z18 |

### Table 22.28: Class 9049 Accessories for Class 9012 Pressure Switches

| Description | Applies to | Type |
|---|---|---|
| Stainless steel surge reducer for use on oils, coolants, and hydraulic fluids (not recommended for air or water) | 9012G | A26S |

Acceptable Wire Sizes . . . . . 12-22 AWG
Recommended Terminal Clamp Torque. . . . . 7 lb-in

Electrical Rating. . . . . .page 22-16
Temperature Rating. . . . . .page 22-16
Renewal Parts Kits . . . . . .page 22-28

File CCN NKPZ E12158

File Class 3211-03 LR25490



© 2012 Schneider Electric
All Rights Reserved



9012GAW5
NEMA 4, 4X, 13

Class 9012 single stage pressure switches are control circuit rated devices used in pneumatic or hydraulic systems on a wide variety of machine and process applications to protect the equipment and control or monitor the system pressure.

- Type G machine tool switches are available with NEMA Type 4, 4X, and 13 (IEC IP66) enclosure ratings.
- The NEMA 7 and 9 devices are UL listed for use in the following hazardous locations: Class I, Divisions 1 and 2, Groups C and D; and Class II, Divisions 1 and 2, Groups E, F, and G.
- Enclosure materials are cast aluminum.
- To ensure repeatability and minimize setting drift, pressure settings should fall within the middle 80 percent of the pressure range.



### Table 22.29: Fixed Differential ▲ NEMA 4, 4X, 13 Enclosure

UL Listed and CSA Certified As Industrial Control Equipment

| Range on Decreasing Pressure psig | ■Approximate Differential at Mid-Range psig | Maximum Allowable Pressure psig | Single Pole Double Throw Type | Double Pole Double Throw Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| .2–10 | 0.6 ±0.1 | 100 | GDW1 | GDW21 |
| 1–40 | 1.6 ±0.4 | 100 | GDW2 | GDW22 |
| 1.5–75 | 3.0 ±0.5 | 240 | GDW4 | GDW24 |
| 3–150 | 6.0 ±0.8 | 475 | GDW5 | GDW25 |
| 5–250 | 10.0 ±1.5 | 750 | GDW6 | GDW26 |
| 13–425 | 16 ±3.5 | 850 | GEW1 | GEW21 |
| 20–675 | 27 ±5 | 2000 | GEW2 | GEW22 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | |
| 20–1000 | 59 ±9 | 10000 | GFW1 | GFW21 |
| 90–2900 | 170 ±15 | 15000 | GFW2 | GFW22 |
| 170–5600 | 289 ±55 | 20000 | GFW3 | GFW23 |
| 270–9000 | 495 ±70 | 25000 | GFW4 | GFW24 |

### Table 22.30: Fixed Differential NEMA 7 & 9 Enclosure Class I & II, Division 1 & 2, Groups C, D, E, F, G

UL Listed As Industrial Control Equipment.
UL Marine Listed for use on vessels greater than 65 feet long where ignition protection is required.

| Range on Decreasing Pressure psig | ■Approximate Differential at Mid-Range psig | Maximum Allowable Pressure psig | Single Pole Double Throw Type | Double Pole Double Throw Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| 0.2–10 | 1.0 ±0.1 | 100 | GDR1 | GDR21 |
| 1–40 | 2.4 ±0.8 | 100 | GDR2 | GDR22 |
| 1.5–75 | 4.5 ±1 | 240 | GDR4 | GDR24 |
| 3–150 | 9 ±1.5 | 475 | GDR5 | GDR25 |
| 5–250 | 15 ±3 | 750 | GDR6 | GDR26 |
| 13–425 | 25 ±7 | 850 | GER1 | GER21 |
| 20–675 | 41 ±10 | 2000 | GER2 | GER22 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | |
| 20–1000 | 89 ±18 | 10000 | GFR1 | GFR21 |
| 90–2900 | 255 ±30 | 15000 | GFR2 | GFR22 |
| 170–5600 | 578 ±110 | 20000 | GFR3 | GFR23 |
| 270–9000 | 788 ±140 | 25000 | GFR4 | GFR24 |

Acceptable Wire Sizes: 12–22 AWG
Recommended Terminal Clamp Torque: 7 lb-in

Electrical Rating . . . . . page 22-16
Temperature Rating . . . . . page 22-16
Modifications . . . . . page 22-18
Accessories . . . . . page 22-18
Renewal Parts Kits . . . . . page 22-28
Dimensions . . . . . page 22-17

### Table 22.31: Adjustable Differential ▲ NEMA 4, 4X, 13 Enclosure

UL Listed and CSA Certified As Industrial Control Equipment

| Range on Decreasing Pressure psig | ■Adjustable Differential Approximate at Mid-Range | Maximum Allowable Pressure psig | Single Pole Double Throw Type | Double Pole Double Throw Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| .2–10 | 0.6–2 | 100 | GAW1 | GAW21 |
| 1–40 | 1.6–8 | 100 | GAW2 | GAW22 |
| 1.5–75 | 3.5–15 | 240 | GAW4 | GAW24 |
| 3–150 | 6.0–30 | 475 | GAW5 | GAW25 |
| 5–250 | 10.0–49 | 750 | GAW6 | GAW26 |
| 13–425 | 16–90 | 850 | GBW1 | GBW21 |
| 20–675 | 27–130 | 2000 | GBW2 | GBW22 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | |
| 20–1000 | 59–200 | 10000 | GCW1 | GCW21 |
| 90–2900 | 170–560 | 15000 | GCW2 | GCW22 |
| 170–5600 | 289–1260 | 20000 | GCW3 | GCW23 |
| 270–9000 | 495–1900 | 25000 | GCW4 | GCW24 |

### Table 22.32: Adjustable Differential NEMA 7 & 9 Enclosure Class I & II, Division 1 & 2, Groups C, D, E, F, G

UL Listed As Industrial Control Equipment.
UL Marine Listed for use on vessels greater than 65 feet long where ignition protection is required.

| Range on Decreasing Pressure psig | ■Adjustable Differential Approximate at Mid-Range | Maximum Allowable Pressure psig | Single Pole Double Throw Type | Double Pole Double Throw Type |
|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | |
| 0.2–10 | 1.0–2 | 100 | GAR1 | GAR21 |
| 1–40 | 2.4–8 | 100 | GAR2 | GAR22 |
| 1.5–75 | 4.5–15 | 240 | GAR4 | GAR24 |
| 3–150 | 9–35 | 475 | GAR5 | GAR25 |
| 5–250 | 15–49 | 750 | GAR6 | GAR26 |
| 13–425 | 25–90 | 850 | GBR1 | GBR21 |
| 20–675 | 41–130 | 2000 | GBR2 | GBR22 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | |
| 20–1000 | 89–200 | 10000 | GCR1 | GCR21 |
| 90–2900 | 255–560 | 15000 | GCR2 | GCR22 |
| 170–5600 | 578–1260 | 20000 | GCR3 | GCR23 |
| 270–9000 | 788–1900 | 25000 | GCR4 | GCR24 |

▲ For metric threads, add **M** after the **W** on all types (offered at an additional cost). To order a Pg13.5 electrical conduit entry and a 1/4"-19 BSP pressure connection, add M12 to the end of the catalog number, as well as adding "M" after "W" for metric threads. For example:
9012GAW1 = 1/2" NPT electrical conduit entry
9012GAWM1 = 20 x 1.5 mm electrical conduit entry
9012GAWM1M12 = Pg13.5 electrical conduit entry and 1/4-19 BSP pressure connection.

■ The differential adds to the range setting and determines the operating point on rising pressure.

File E12443 Haz. Loc. CCN NOWT G•R
File E12158 CCN NKPZ G•O, G•G, G•W
File E12158 CCN NTHT Marine Use, G•W

File LR25490 Class 3211-03 G•W, G•O, G•G
File LR26817 Class 3218-02 G*R

Complies with IEC 60957.5.1, 5C8.3.4 when protected with a Bussmann CCKTK-R-10 fuse.



© 2012 Schneider Electric
All Rights Reserved

## Differential-Pressure Operation



9012GGW1

Pressure switches for differential-pressure operation monitor the change in the difference between two pressures. Type G differential-pressure switches are used in applications to signal that a predetermined pressure difference has been reached as a result of a widening or increasing difference between the two pressures. They can also signal that a predetermined pressure difference has been reached as a result of a narrowing or decreasing difference between the two pressures.

### Table 22.33: Differential-Pressure Switches NEMA 4, 4X, 13 Enclosures

UL Listed and CSA Certified As Industrial Control Equipment ▲

| Working Pressure Range on Decreasing X (upper) Actuator | Adjustable Difference on Decreasing Pressure (adds to working pressure) Y (lower) Actuator | Adjustable Differential Actuates on Increasing Pressure (adds to adjustable difference) | Maximum Allowable Pressure psi | Single Pole Double Throw Type | Double Pole Double Throw Type |
|---|---|---|---|---|---|
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | | |
| 0–75 | 0.25–10 | 0.8–2 | 100 | GGW1 | GGW21 |
| 0–175 | 0.5–36 | 5–15 | 240 | GGW4 | GGW24 |
| 0–500 | 3–175 | 22–90 | 850 | GHW1 | GHW21 |
| **Piston Actuated—#440 Stainless Steel Piston. #303 Stainless Steel Housing, Viton® Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | | |
| 0–5000 | 15–825 | 80–200 | 7500 | GJW1 | GJW21 |

## Dual-Stage Operation

Type G dual stage pressure switches are designed for use in applications where two separate pressure operations must be controlled by a single pressure monitoring device. These controls are most commonly used where dual functions are required or in sequencing applications such as alarm, followed by shutdown.



9012GKW1

### Table 22.34: Dual-Stage Pressure Switch NEMA 4, 4X, 13 Enclosure

UL Listed and CSA Certified As Industrial Control Equipment ▲

| Range Setting Limits of Pressure Between Which Stage 1 Can Be Adjusted to Operate on Decreasing Pressure | Add Adjustable Spread to Range Setting to Obtain Decreasing Operating Point of Stage 2 | Fixed Differential—Add to Low (Decreasing) Operating Point to Obtain Approximate High (Rising) Operating Point of Each Stage | | Maximum Allowable Pressure psi | SPDT Each Stage Type |
|---|---|---|---|---|---|
| | | Stage 1 | Stage 2 | | |
| **Diaphragm Actuated—Nitrile (Buna-N) Diaphragm, Zinc Plated Steel Housing** | | | | | |
| .2–10 | 1–5 | 1.0 ±0.2 | 1.5 ±0.4 | 100 | GKW1 |
| 1–40 | 4–20 | 4.0 ±1.0 | 6.0 ±1.5 | 100 | GKW2 |
| 1.5–75 | 6–30 | 5.0 ±1.5 | 8.0 ±2.0 | 240 | GKW4 |
| 3–150 | 12–75 | 8.0 ±2.0 | 12 ±3 | 475 | GKW5 |
| 5–250 | 22–110 | 14 ±3 | 21 ±5 | 750 | GKW6 |
| 13–425 | 40–180 | 20 ±4 | 30 ±7.5 | 850 | GLW1 |
| 20–675 | 45–250 | 30 ±6 | 45 ±11 | 2000 | GLW2 |
| **Piston Actuated—#400 Stainless Steel Piston. #300 Stainless Steel Housing, Viton Fluorocarbon Diaphragm and O-ring, Teflon® Retaining Ring** | | | | | |
| 20–1000 | 50–300 | 50 ±10 | 75 ±19 | 10000 | GMW1 |
| 90–2900 | 140–800 | 140 ±30 | 210 ±52 | 15000 | GMW2 |
| 170–5600 | 300–1700 | 275 ±60 | 400 ±100 | 20000 | GMW3 |
| 270–9000 | 500–2500 | 400 ±80 | 800 ±150 | 25000 | GMW4 |

▲ UL Marine Listed for use on vessels greater than 65 feet long where ignition protection is not required.

## Ordering Dual-Stage Pressure Switches

1. Specify Class 9012 Type..., and indicate the high or low operating point for each stage within the limits shown in the above table.
   **Example**:
   Class 9012 Type GKW4
   Set: Stage 1 at 30 psi decreasing pressure
   Stage 2 at 50 psi decreasing pressure
   (20 psi spread)
   Differential of each stage will be approximately as shown in the table above.

2. For available modifications see page 22-18. If one or more of these modifications are desired, add the appropriate Form to the Class and Type. Arrange form letters in alphabetical order when ordering more than one modification.

Acceptable Wire Sizes . . . . . 12-22 AWG
Recommended Terminal Clamp Torque. . . . . 7 lb-in

Electrical Rating. . . . . .page 22-16
Temperature Rating. . . . . .page 22-16
Modifications . . . . . .page 22-18
Accessories . . . . . .page 22-18
Renewal Parts Kits . . . . . .page 22-28
Dimensions . . . . . .page 22-17

File E12158 CCN NKPZ
File E12158 CCN NTHT - Marine Use

File LR25490 Class 3211-03



© 2012 Schneider Electric
All Rights Reserved

### Table 22.35: Control Duty Circuit Ratings

| Contacts | AC—50 or 60 Hz | | | | | | DC | | | AC or DC |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | Inductive, 35% Power Factor | | | | Resistive 75% Power Factor | V | Inductive and Resistive | | Continuous Carrying Amperes |
| | | Make | | Break | | | | Make and Break Amperes | | |
| | | A | VA | A | VA | Make and Break Amperes | | Single Throw | Double Throw | |
| SPDT | 120 | 60 | 7200 | 6 | 720 | 6 | 120 | 0.55 | 0.22 | 10 |
| | 240 | 30 | 7200 | 3 | 720 | 3 | 250 | 0.27 | 0.11 | 10 |
| | 480 | 15 | 7200 | 1.5 | 720 | 1.5 | 600 | 0.10 | — | 10 |
| | 600 | 12 | 7200 | 1.2 | 720 | 1.2 | — | — | — | — |
| DPDT | 120 | 60 | 7200 | 6 | 720 | 6 | 125 | 0.22 | 0.22 | 10 |
| | 240 | 30 | 7200 | 3 | 720 | 3 | 250 | 0.11 | 0.11 | 10 |
| | 480 | 15 | 7200 | 1.5 | 720 | 1.5 | 600 | — | — | 10 |
| | 600 | 12 | 7200 | 1.2 | 720 | 1.2 | — | — | — | — |

### Table 22.36: Type G Industrial

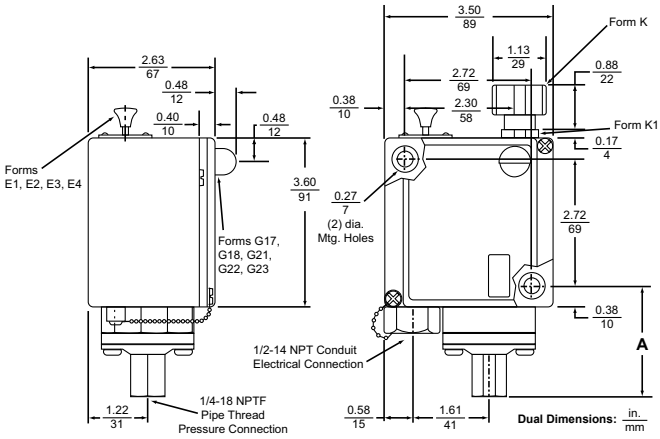
| Contact Arrangement | Contact Symbol |
|---|---|
| 1 N.O. – 1 N.C.<br>(600 Vdc rating does not apply) |  |

Note: Contacts are single pole, double throw—one circuit normally open and one circuit normally closed. These circuits are not electrically separate and can not be used on opposite polarities.

### Table 22.37: Temperature Ratings

| | Actuator | Minimum | Maximum |
|---|---|---|---|
| Ambient | All | -23 °C (-10 °F) | +85 °C (+185 °F) |
| Media | Diaphragm | -40 °C (-40 °F) | +120 °C (+250 °F) |
| | Piston | -26 °C (-15 °F) | |
| | All with Forms Q4 and Q14 | -26 °C (-15 °F) | |

### Figure 22.5: Types GAW, GBW, GCW, GDW, GEW, GFW, GKW, GLW, and GMW Machine Tool Switches (except 1, 21)



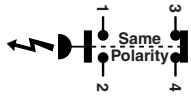

### Table 22.38: Dimension A for G•W Switches

| Type | Dimension A, in. (mm) |
|---|---|
| GAW, GDW, GKW 2, 4, 5, 6 22, 24, 25, 26, 52, 54, 55, 56 | 2.33 (59) |
| GBW, GEW, GLW 1, 2, 21, 22, 51, 52 | 2.23 (57) |
| GCW, GFW, GMW 1, 2, 3, 4 21, 22, 23, 24, 51, 52, 53, 54 | 3.15 (80) |

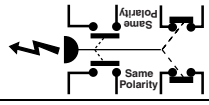
### Table 22.39: Dimension A for G•R, Switches

| Type / Tipo / Type | Dimension A, in. (mm) |
|---|---|
| GAR1, 2, 21, 22 | 2.02 (51.3) |
| GAR4, 5, 6, 24, 25, 26 | 1.42 (36.1) |
| GBR1, 2, 21, 22; GCR1, 21 | 1.32 (33.5) |
| GCR2, 3, 4, 22, 23, 24 | 2.24 (56.9) |
| GDR1, 2, 21, 22 | 2.02 (51.3) |
| GDR4, 5, 6, 24, 25, 26 | 1.42 (36.1) |
| GER1, 2, 21, 22; GFR1, 21 | 1.32 (33.5) |
| GFR2, 3, 4, 22, 23, 24 | 2.24 (56.9) |

### Table 22.40: Type G Machine Tool and Vacuum (except GVG)

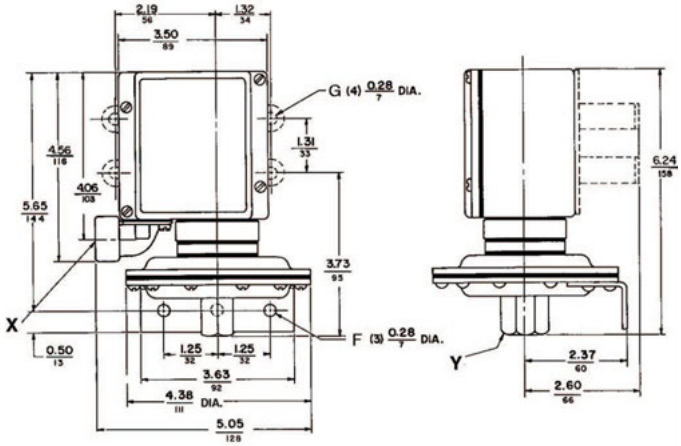
| Type | Contact Arrangement | Contact Symbol |
|---|---|---|
| Single Pole Double Throw | 1 N.O.–1 N.C. |  |

Note: Snap switch contains two double-break contact elements (1 N.O. and 1 N.C.) that must be used on circuits of same polarity.

| Type | Contact Arrangement | Contact Symbol |
|---|---|---|
| Double Pole Double Throw | 2 N.O.–2 N.C. |  |

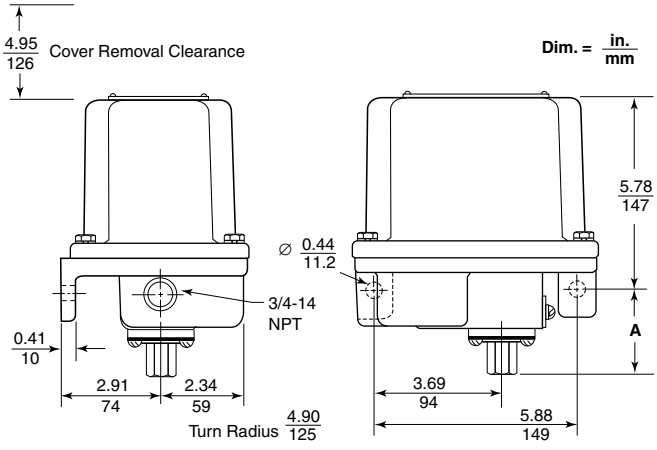
Note: Snap switch contains two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double break contact elements (1 N.O. and 1 N.C.) that must be used on circuits of the same polarity.

### Figure 22.6: Types GAW, GDW, GKW 1, 21




**X**: Conduit connection: G•W = 1/2-14 NPT; G•WM = 20MMBGS4568, Form M12 = Pg13.5; DIN40430.
**Y**: Pressure connection: G•W = 1/4-18 NPTF; G•WM = 8; Form M14 = G 1/4 BS 2779; RP1/4 ISO 711; R 1/4 DIN 2999; GJ 1/4 UN1339.

### Figure 22.7: Types GAR, GBR, GCR, GDR, GER, and GFR






© 2012 Schneider Electric
All Rights Reserved

**Figure 22.8: 9012G Dimensions, in. (mm)**

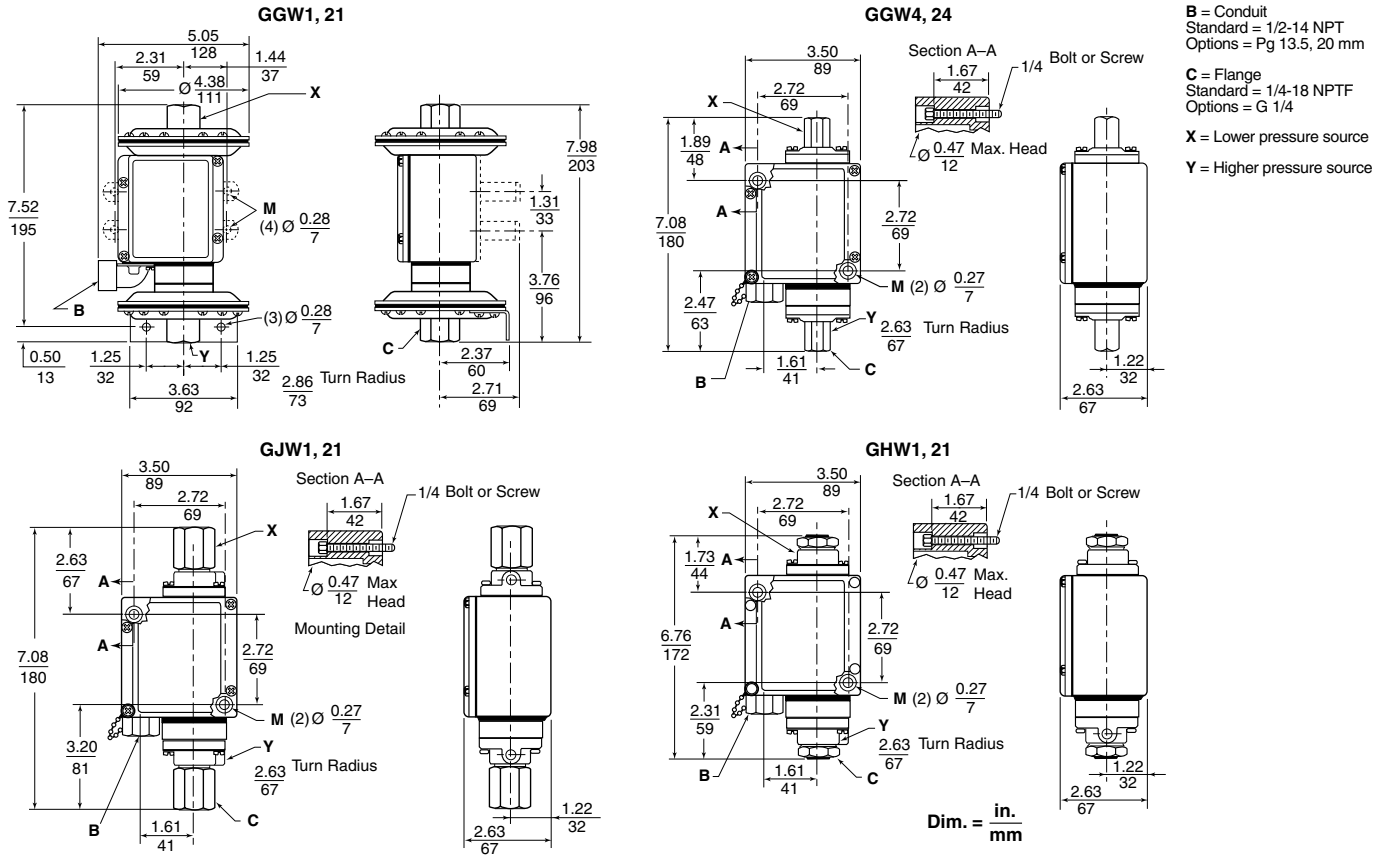



**Figure 22.9: 9012GNO1, GRO1**

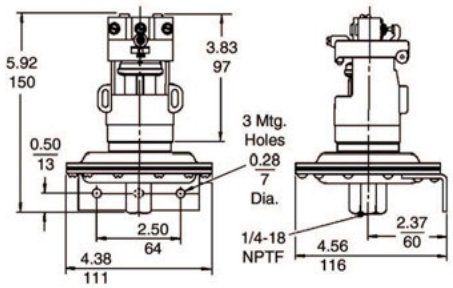



**Figure 22.10: 9012GNG1, GRG1**

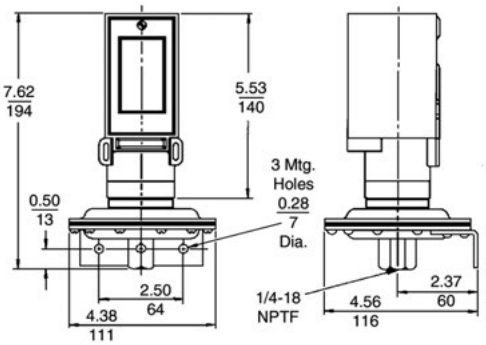



**Figure 22.11: 9012GNO, GRO**

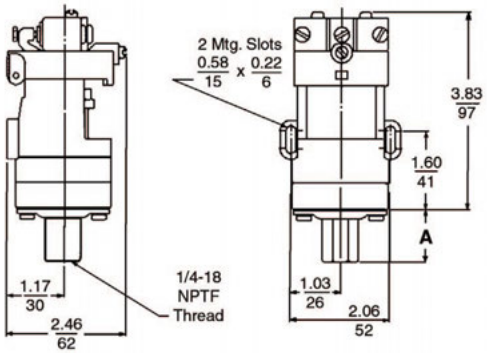
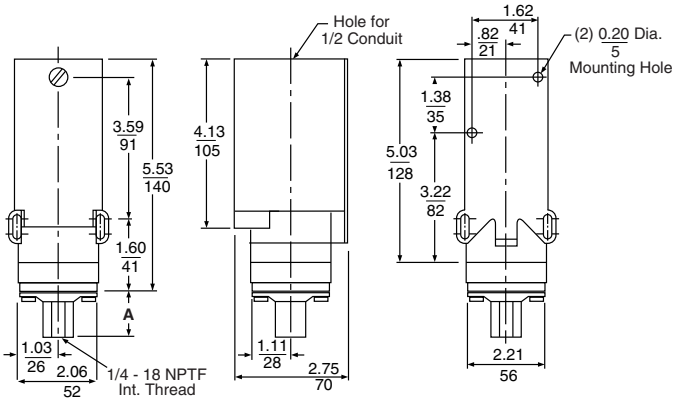



**Figure 22.12: 9012GNG, GRG**




| Type | Dimension A, in. (mm) |
|---|---|
| GNO, GRO 3, 4, 5, 6 | 1.41 (35.8) |
| GPO, GSO 1, 2, 3 | 1.31 (33.3) |
| GQO, GTO 1, 2, 3, 4 | 2.24 (56.9) |

| Type | Dimension A, in. (mm) |
|---|---|
| GNG, GRG 3, 4, 5, 6 | 1.41 (35.8) |
| GPG, GSG 1, 2, 3 | 1.31 (33.3) |
| GQG, GTG 1, 2, 3, 4 | 2.24 (56.9) |



© 2012 Schneider Electric
All Rights Reserved

### Table 22.41: Factory Modifications for Class 9012 Pressure Switches

| Modification | Applies to Pressure Switch Type | | Form |
|---|---|---|---|
| Lock on rising pressure, manual reset only | Available on GDW, GDWM, GEW, GEWM, GFW, GFWM only | | E3 |
| 120 Vac or Vdc neon pilot light | Available on all GAW–GMW, GAWM–GFWM | with clear lens | G17 |
| | | with red lens | G18 |
| 24 Vdc only LED | For pilot light conversion kits:<br>See 9998 PC-306–308.<br>Complete Class and Type information required | with clear lens | G21 |
| | | with red lens | G22 |
| 24 Vdc LED pilot light with green lens | Class 9012 GAW–GMW and GAWM–GFWM, or<br>Class 9016 GAW and Class 9025G | | G23 |
| SPDT snap switch rated 1.1 A at 125 Vdc<br>(minimum differential doubles) | Available on GAR–GFR, GAW–GJW, GAWM–GFWM | | H3 |
| Prewired 5-pin Brad Harrison male receptacle #41310 or interchangeable Crouse-Hinds receptacle.<br>For use with Brad Harrison female portable plug #41306, 41307, 41308, or equivalent. | Available on GAW–GJW single pole devices only | | H10<br>or<br>H11 |
| Micro connector, 4-pin, for 24 Vdc pilot light | G•W (single pole only), except GAW2 and Form B2. | | H17 |
| External range adjustment (includes knob and range scale window) | GAW–GFW, GAWM–GFWM, GKW–GMW | | K |
| External range adjustment slotted for screwdriver<br>(includes range scale window) | GAW–GFW, GAWM–GFWM, GKW–GMW | | K1 |
| Pg 13.5 conduit thread and 1/4—19 BSP pressure connection | G•WM only | | M12 |
| Standard Nitrile (Buna-N) diaphragm in #316 stainless steel flange | GGW1, GGW 21 only | | Q1 |
| | All other GGW, GHW only | | Q1 |
| | GAR, GAW, GDR, GDW, GAWM, GDWM, GKW1, 21 only | | Q1 |
| | All other GAR, GBR, GDR, GER, GAW, GBW, GDW, GEW, GAWM, GBWM, GDWM, GEWM, GKW, GLW | | Q1 |
| Ethylene propylene diaphragm in #316 stainless steel flange | Available on all GGW, GHW except GGW1, 21 | | Q3 |
| | Available on all GAR, GBR, GDR, GER, GAW, GBW, GDW, GEW, GAWM, GBWM, GDWM, GEWM, GKW, and GLW, except Types 1 and 21 | | Q3 |
| Viton® fluorocarbon diaphragm in #316 stainless steel flange | GGW1, 21 only | | Q4 |
| | All other GGW, GHW | | Q4 |
| | GAR, GAW, GBR, GBW, GDR, GDW, GER, GEW, GAWM, GBWM, GDWM, GEWM, GKW1, 21 only | | Q4 |
| | All other GAR, GAW, GBR, GBW, GDR, GDW, GER, GEW, GAWM, GBWM, GDWM, GEWM, GKW, GLW | | Q4 |
| Range scale window (standard with Forms K and K1) | GAW–GMW, GAWM–GFWM | | V1 |
| Special setting specified<br>(If indicating only a fixed differential setting, specify whether this setting is on increasing or decreasing pressure. ) | All 9012G | | Y1 |
| 1/4"-18 NPT external thread pressure connection | GAR, GAW, GDR, GDW, GGW, GKW<br>Not available in combination with Forms Q1, Q3, Q4. | | Z |
| 1/2"-14 NPT external thread, 1/4"-18 NPTF internal thread pressure connection | GAR, GAW, GDR, GDW, GGW, GKW<br>Not available in combination with Forms Q1, Q3, Q4. | | Z16 |
| 7/16"-20 UNF-2B internal thread pressure connection | GAR–GFR; GAW–GMW<br>Not available in combination with Forms Q1, Q3, Q4. | | Z18 |

### Table 22.42: Factory Modifications for Renewal Parts Kits for Class 9012 Pressure Switches

Suffixes for renewal parts kits, see page 22-28.

| Modification | Applies to Parts Kit Type | Form |
|---|---|---|
| SPDT snap switch rated 1.1 A at 125 Vdc<br>(minimum differential doubles) | PC313 | H3 |
| Standard Nitrile (Buna-N) diaphragm in #316 stainless steel flange | PC177–179, PC268, 269 | Q1 |
| | PC265–267 | |
| Ethylene propylene diaphragm in #316 stainless steel flange | PC177–178, PC268, 269 | Q3 |
| | PC266, 267 | |
| Viton® fluorocarbon diaphragm in #316 stainless steel flange | PC177–178, PC268, 269 | Q4 |
| | PC265–267 | |
| 1/4"-18 NPT external thread pressure connection | PC265–269 | Z |
| 1/2"-14 NPT external thread, 1/4"-18 NPTF internal thread pressure connection | PC265–269 | Z16 |
| 7/16"-20 UNF-2B internal thread pressure connection | PC177, 178, PC265–273 | Z18 |

### Table 22.43: Class 9049 Accessories for Class 9012 Pressure Switches

| Description | Applies to Class | Type |
|---|---|---|
| Stainless steel surge reducer for use on oils, coolants, and hydraulic fluids (not recommended for air or water) | 9012G | A26S |



© 2012 Schneider Electric
All Rights Reserved



## Type GAW—Sensitive Control Applications

9016GAW vacuum switches are provided with double throw contacts; normally open and normally closed circuits allow these controls to be used for standard or reverse action applications.

Standard devices can be mounted from the front with the bracket provided. Two mounting screws are required for a firm attachment to any smooth, flat surface. Allowance must be made for flange projection. Controls with Form F modification include two mounting feet with 9/32" mounting holes on 3-3/4" centers. Range and Differential adjustments are internal and exposed by removal of the front cover.

Maximum allowable positive pressure: 100 psig.
Diaphragms are oil resistant, nitrile butadiene (Buna N) rubber.
Electrical Ratings and Temperature Limitations—See page 22-14 for Type G machine tool.
Dimensions—See page 22-17.

**Table 22.44: Class 9016, Diaphragm Actuated**

| Range on Decreasing Vacuum (In. of Hg) | Adjustable Differential Adds to Range▲ (In. of Hg) | Contact Arrangement | Pipe Tap (NPTF) | Enclosure | |
|---|---|---|---|---|---|
| | | | | NEMA 4, 4X & 13 | NEMA 7 & 9 ■ |
| | | | | Type | Type |
| 0–28.7 | At Minimum Range: 0.8–9<br>At Mid-Range: 1.3–7.4 | 1 N.O., 1 N.C. | 1/4"-18 | GAW1 | GAR1 |
| 0–25 | 5–20 | 1 N.O., 1 N.C. | 1/4"-18 | GAW2 | N/A |
| 0–28.3 | At Minimum Range: 1–9<br>At Mid-Range: 1.7–7.4 | 2 N.O., 2 N.C. | 1/4"-18 | GAW21 | GAR21 |
| 0–25 | 5–20 | 2 N.O., 2 N.C. | 1/4"-18 | GAW22 | N/A |

▲ Add Differential to Range to obtain the operating point on increasing vacuum (within vacuum limitations). The differential increases linearly over its range.
■ The minimum differential doubles with NEMA 7 & 9 enclosures.

**Table 22.45: Available Modifications**

| Description | Form |
|---|---|
| Mounting feet (GAW1 and GAW21 only) | F |
| Range scale window | V1 |
| 1/4"-18 NPT external thread pressure connection | Z |
| 1/2"-14 NPT external thread, 1/4"-18 NPTF internal thread pressure connection (standard actuator only) | Z16 |

File E12443 Haz Loc CCN NOWT G*R
File E12158 CCN NKPZ G*W
File E12158 CCN NTHT Marine Use, G*W

File LR25490 Type GAW only
File LR26817 Type GAR only
(NEMA 7 and 9 Haz Loc)

PUMPTROL™
Vacuum Switch



Class 9016 Type GVG1
Forms E, F

## Type GVG—Power Circuit Applications

The 9016GVG1 vacuum switch is a companion to the 9036GG and 9037GG float switches commonly used on vacuum heating pumps. Electrical ratings of float and vacuum switch types are equal.

**Table 22.46: Class 9016, Contacts Open on Increasing Vacuum**

| Cut-out Range (In. of Hg) | Approximate Adjustable Differential (In. of Hg) | Cut-in Range (In. of Hg) | Poles | Pressure Connection | NEMA 1 Enclosure |
|---|---|---|---|---|---|
| | | | | | Type |
| 5–25 | 5–10 | 0–20 | 2 | 1/4"-18 NPSF | GVG1 |

Note: Maximum allowable positive pressure: 150 psig. In. of Hg = inches of mercury.

**Table 22.47: Available Modifications**

| Description | Form |
|---|---|
| 3-way lever—nameplate marked: Float only—Vacuum and Float—Continuous (factory modification only) | E |
| Mounting bracket (for retrofit, order 9049A53 bracket kit) | F |
| Reverse action—normally open contacts | R |
| 1/4" male pipe connection (1/4"-18 NPT, external thread) (for retrofit, use 1/4" pipe nipple) | Z |

**Table 22.48: Electrical Ratings—9016GVG**

| Voltage | AC | | DC |
|---|---|---|---|
| | Single Phase | Polyphase | |
| 110 V | 2 hp | 3 hp | 1 hp |
| 220 V | 3 hp | 5 hp | 1 hp |
| 440–550 V | 5 hp | 5 hp | — |
| 32 V | — | — | 1/2 hp |

Note: Control Circuit Rating: A600

**Table 22.49: Vacuum Codes**

| Settings (In. of Hg) | Code |
|---|---|
| 3–8 | J09 |
| 16.5–25 | J10 |
| 17–22 | J11 |
| 18–23 | J12 |
| 20–25 | J13 |
| Specify other setting (minimum order quantity is 4 pieces) | J99 |

**Ordering Information:** Specify Class 9016 Type G. Give vacuum settings within the limits of the listings above.
**For Setting Codes**, see Table 22.49. If special features are desired, add the appropriate Form letter to the Class and Type. Arrange the Form letters in alphabetical order when ordering more than one special feature.

File E12158
CCN NKPZ

File LR25490

Dimensions . . . . . .page 22-16



© 2012 Schneider Electric
All Rights Reserved

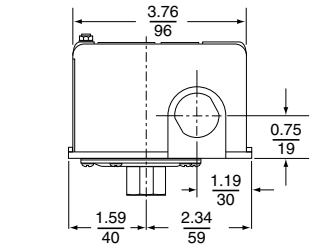
# Type FHG—Pumptrol™ Compressor Pressure Switch

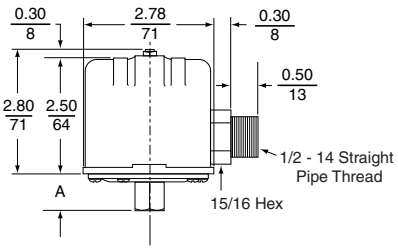
Class **9013** / Refer to Catalog **9013CT9701**





PUMPTROL™
Pressure Switch




Shown with Form T

Class 9013 Type FHG pressure switches are designed for the control of small electrically driven air compressors.

- Contacts open on pressure rise.
- Diaphragm actuated.
- For application data, see page 22-16.
  For repair parts kits, see page 22-28.

### Table 22.50: Selection Table

| Description | | | | NEMA 1 Enclosure | |
|---|---|---|---|---|---|
| Adjustable Cut-out Range Increasing Pressure (psig) | Approximate Differential Fixed (psig) | Poles | Pressure Connection | Lower hp Type | Higher hp Type |
| 40-100 | 20 | 2 | 1/4" NPSF internal | FHG2 | FHG22 |
| | | | 3/8" NPSF internal | FHG3 | — |
| | | | 1/4" four way | FHG4 | FHG24 |
| | | | 1/4" NPT external | FHG9 | FHG29 |
| 70-150 | 30 | 2 | 1/4" NPSF internal | FHG12 | FHG32 |
| | | | 3/8" NPSF internal | FHG13 | FHG33 |
| | | | 1/4" four way | FHG14 | FHG34 |
| | | | 1/4" NPT external | FHG19 | FHG39 |
| 100-200 | 40 | 2 | 1/4" NPSF internal | FHG42 | FHG52 |
| | | | 1/4" four way | FHG44 | FHG54 |
| | | | 1/4" NPT external | FHG49 | FHG59 |

### Table 22.51: Special Features and Modifications for Type FHG

| Description | Form |
|---|---|
| Bulk pack | ▲ |
| Addition of a second ground screw | G4■ |
| Maintained manual cut-out lever (Auto-Off) | M1 |
| Pulsation plug—factory order only (available only on 1/4-inch fittings, not to include 4-way) | P |
| 1/2" conduit bushing—1/2" long thread—on left | T |
| Slip-on connectors (load side terminals only) | U |
| Slip-on connectors (line and load terminals) | U2 |
| Factory sealed range stud | W |
| Two-way pressure release valve | X |
| Quick connect two-way pressure release valve (for use with Polyflow® tubing) | X1 |
| Black cover | Z22 |

▲ For bulk package quantities and Form numbers, see Table 22.61 on page 22-21. If a Form is not specified, devices will be shipped individually packaged.
■ Can be field installed. Nameplate should then be marked with the Form letter and maintenance and ordering records corrected.

### Table 22.52: Type F—Net Weight, 1-1/8 lb

| Switch Type | A | |
|---|---|---|
| | in. | mm |
| FHG2, 12, 22, 32, 42, 52 FRG2, FSG2, FYG2 | 2-29/32 | 23 |
| FHG3, 13, 33 FRG3, FSG3, FYG3 | 1-9/32 | 33 |
| FHG9, 19, 29, 39, 49, 59 FSG9, FYG9 | 1-3/32 | 28 |

### Table 22.53: Pressure Code (fixed differential)

| Off at... | Code |
|---|---|
| 80 psi | J43 |
| 100 psi | J27 |
| 110 psi | J37 |
| 115 psi | J38 |
| 120 psi | J69 |
| 125 psi | J52 |
| 135 psi | J39 |
| 140 psi | J68 |
| 155 psi | J40 |
| 150 psi | J55 |
| 175 psi | J59 |
| Specify other pressure (minimum order quantity is 4 pieces) | J99 |

Note: The existence of a code does not imply that the code is available for any or all devices.

### Table 22.54: Electrical Ratings For All 9013 Switches

| Switch Type | Voltage | Single Phase AC | Polyphase AC ▼ | DC | Control Circuit Rating |
|---|---|---|---|---|---|
| FHG2, 9, 12, 13, 14, 19, 42, 43, 44, 49 | 115 | 1-1/2 hp | 2 hp | 1/4 hp♦ | A600 |
| | 230 | 2 hp | 3 hp | 1/4 hp♦ | |
| FSG, FSW | 460/575 | — | 1 hp | — | |
| FHG22, 29, 32, 33, 34, 39, 52, 54, 59 | 115 | 2 hp | 3 hp | 1/2 hp★ | A600 |
| | 230 | 3 hp | 5 hp | 1/2 hp★ | |
| FYG, FYW | 460/575 | — | 1 hp | — | |
| FRG One Pole All Form H | 32 | — | — | — | A300 |
| | 115 | 1 hp | — | 1/4 hp | |
| | 230 | 1 hp | — | 1/4 hp | |
| FRG Two Pole | 32 | — | — | 1/4 hp | A300 |
| | 115 | 1 hp | 1 hp | 1/4 hp | |
| | 230 | 1 hp | 1 hp | 1/4 hp | |
| All 9013G Form H | 115 | 1 hp | — | 1/2 hp | A600 |
| | 230 | 2 hp | — | 1/2 hp | |
| | 460/575 | 2 hp | — | — | |
| All 9013G, except Form H | 115 | 2 hp | 3 hp | 1 hp | A600 |
| | 230 | 3 hp | 5 hp | 1 hp | |
| | 460/575 | 5 hp | 5 hp | — | |

♦ DC rating does not apply to Form M4.
★ 1/4 hp with Form MI.
▼ See 1993 NEC Article 430-84

UL® File E12158 CCN NKPZ

CSA® File LR25490

Note: UL Listed control equipment. Type 4 must have Form T; otherwise these Types are component recognized. If conduit or pressure line is rigid, UL; if both are flexible, UR.

## Ordering Information

1. Specify Class 9013 Type FHG.
2. Select pressure code from Table 22.53, and add the code designation to end of the Type number. Ensure that the pressure rating of the code falls within the limits of the device as shown in Table 22.50.
3. To order special features, add the appropriate Form designation to the Class and Type. Arrange Forms in alphabetical order when specifying more than one feature or modification.

Accessories . . . . . page 22-22





© 2012 Schneider Electric
All Rights Reserved

- Designed for the control of electrically driven water pumps. Diaphragm actuated.
- Type FSG is the standard water pump switch, suitable for all types of pumps: jets, submersible, reciprocating, etc.
- Type FYG is designed to meet higher horsepower and pressure requirements.
- Type FRG is reverse acting: contacts open on falling pressure.



PUMPTROL™
Pressure Switch

### Table 22.55: Pressure Codes▲

| Standard Action Devices | | Reverse Action Devices | |
|---|---|---|---|
| Settings | Code | Settings | Code |
| 5–21 psi | J15 | 8.5–5.5 psi | J17 |
| 8–20 psi | J16 | 10–5 psi | J36 |
| 20–40 psi | J20 | 22–12 psi | J22 |
| 20–50 psi | J18 | 22–16 psi | J19 |
| 30–50 psi | J21 | 35–20 psi | J70 |
| 40–60 psi | J24 | 40–20 psi | J23 |
| 50–70 psi | J33 | 50–30 psi | J35 |
| 55–85 psi | J34■ | 80–60 psi | J32■ |
| 60–80 psi | J25 | 100–80 psi | J51■ |
| Specify other pressure | J99■ | 150–120 psi | J64■ |
| | | Specify other pressure | J99■ |

### Table 22.56: Maximum Allowable Pressure for All 9013 Switches

| Type | Pressure |
|---|---|
| FHG, FSG, FYG, FSW, FYW, FRG<br>GHB, GHG, GSB, GSG<br>GMG, GSR, GSW<br>GHR, GHW | 220 psig<br>300 psig<br>100 psig<br>250 psig |

### Table 22.57: Temperature Limitations for All 9013 Switches

| Operation (Media) | Storage |
|---|---|
| Min. -36 °C (-33 °F)<br>Max. +125 °C (+257 °F) | Min. -36 °C (-33 °F)<br>Max. +125 °C (+257 °F) |

**Ordering Information**

- Specify Class 9013 Type F.
- Select the pressure code from Table 22.55, and add the code designation to the end of the Type number. Ensure that the pressure rating of the code falls within the limits of the device as shown in Tables 22.58 and 22.59.
- To order special features, add the appropriate Form letter to the Class and Type. Arrange the Form letters in alphabetical order when ordering more than one special feature.

Electrical Ratings: . . . . . page 22-20
Dimensions: . . . . . page 22-20
Renewal Parts Kits: . . . . . page 22-28

File E12158 CCN NKPZ

File LR25490

Note: Products on this page are UL Listed, however type numbers ending in 8, 10 or 20 (non rigid pressure lines) must have Form T or TI—otherwise these are UL component recognized.

▲ Existence of a code does not imply that the code is available for any or all devices.
■ Minimum order quantity is 4 pieces.
♦ Must be mounted in vertical position to maintain enclosure rating.
★ For bulk package quantities and Form numbers, see Table 22.61. If Form C•• is not specified, devices will be shipped individually packaged.
▼ Nylon pulsation plug can be field installed on types having 1/4" NPSF internal connector.
Part number 1530S6G1 is one bag of 50 plugs.

### Table 22.58: Standard Action: Contacts Open On Rising Pressure

| Cut-out Range (psig) | Approximate Adjustable Differential (psig) | Cut-in Range (psig) | Pressure Connection | 2 Pole | |
|---|---|---|---|---|---|
| | | | | NEMA 1 | NEMA 3R♦ |
| | | | | Type | Type |
| 20–65 | 15–30 | 5–45 | 1/4" NPSF internal | FSG2 | FSW2 |
| | | | 1/4" NPT external | FSG9 | FSW9 |
| | | | 1/4" bayonet (barbed) | FSG10 | FSW10 |
| | | | 90° elbow 1/4" bayonet | FSG20 | FSW20 |
| 20–50 | 10–30 | 10–30 | 1/4" NPSF internal | FSG22 | FSW22 |
| 20–60 | 10–30 | 10–45 | 1/4" NPT external | FSG29 | FSW29 |
| 9–30 | 6–20 | 3–10 | 1/4" NPSF internal | FSG42 | FSW42 |
| 9–30 | 6–20 | 3–10 | 1/4" NPT external | FSG49 | FSW49 |
| 25–80 | 20–30 | 5–60 | 1/4" NPSF internal | FSG52 | — |
| | | | 1/4" NPT external | FSG59 | — |
| 34–65 | 15–30 | 19–45 | (FSG1 through 20 with Form M4 is only available in this range) | | |
| 25–80 | 20–30 | 5–60 | 1/4" NPSF internal | FYG2 | FYW2 |
| | | | 1/4" NPT external | FYG9 | FYW9 |
| | | | 1/4" bayonet (barbed) | FYG10 | FYW10 |
| | | | 90° elbow 1/4" bayonet | FYG20 | FYW20 |
| 39–80 | 20–30 | 19–60 | (FYG1 through 20 with Form M4 is only available in this range) | | |
| 20–50 | 10–30 | 10–30 | 1/4" NPSF internal | FYG22 | FYW22 |
| 20–60 | 10–30 | 10–45 | 1/4" NPT external | FYG29 | FYW29 |
| 9–40 | 6–30 | 3–10 | 1/4" NPSF internal | FYG42 | FYW42 |
| 9–40 | 6–30 | 3–10 | 1/4" NPT external | FYG49 | FYW49 |

### Table 22.59: Reverse Action: Contacts Open On Falling Pressure

| Cut-in Range (psig) | Approximate Adjustable Differential (psig) | Cut-out Range (psig) | Pressure Connection | 1-Pole | 2-Pole |
|---|---|---|---|---|---|
| | | | | Type | Type |
| 23–65 | 15–30 | 8–45 | 1/4" NPSF internal | FRG12 | FRG2 |
| | | | 3/8" NPSF internal | FRG13 | FRG3 |
| | | | 1/4" NPT external | FRG19 | FRG9 |
| 10–45 | 6–20 | 4–25 | 1/4" NPSF internal | FRG32 | FRG22 |
| | | | 3/8" NPSF internal | FRG33 | FRG23 |
| | | | 1/4" NPT external | FRG39 | FRG29 |
| 6–14 | 5<br>Fixed | 1–9 | 1/4" NPSF internal | FRG52 | FRG42 |
| | | | 3/8" NPSF internal | FRG53 | FRG43 |
| | | | 1/4" NPT external | FRG59 | FRG49 |
| 40–100 | 20–30 | 20–80 | 1/4" NPSF internal | FRG72 | FRG62 |
| | | | 3/8" NPSF internal | FRG73 | FRG63 |
| 65–150 | 30–45 | 35–120 | 1/4" NPSF internal | FRG92 | FRG82 |
| | | | 3/8" NPSF internal | FRG93 | FRG83 |
| | | | 1/4" NPT external | FRG99 | FRG89 |

### Table 22.60: Special Features and Modifications for Type FSG, FYG & FRG Devices

| Description | Applies to Types | Form |
|---|---|---|
| Bulk package | All Type F | ★ |
| One normally open—one normally closed contact | FRG 2-Pole only | H |
| Maintained manual cut-out lever (Auto-Off) | FSG, FYG | M1 |
| Momentary manual cut-in lever (Auto-Start) | FRG2-59 only | M3 |
| Low pressure cut-off (Auto-Start-Off)<br>Operates at approximately 10 psig below cut-in and will turn off the pump | FSG, FYG | M4 |
| Maintained manual cut-in lever (Auto-On) | FRG2-59 only | M5 |
| Pulsation plug (Type 2 & 9 only) | FRG, FSG, FYG | P▼ |
| Plastic flange (max. temp. 120 °F) (max. pressure 80 psi)<br>Available only on Types FSG2, FYG2, FRG2, FSG•2, FYG•2, FRG•2 | FSG•, FYG•, FRG• | Q8<br>1/4" NPSF internal only |
| 1/2" conduit bushing, 1/2" long thread—on left | All Type F | T |
| Slip-on connectors (load side terminals *only*) | FSG, FYG | U |
| Slip-on connectors (line *and* load terminals) | FSG, FYG | U2 |
| Black cover | FSG, FYG | Z22 |

### Table 22.61: Bulk Package Form Numbers for 9013F Pressure Switches

| Description | | Bulk Package Quantity | | | | | |
|---|---|---|---|---|---|---|---|
| | | 16 | 20 | 40 | 50 | 400 | 500 |
| **Product without Forms M1, M3, M4, M5, T, X1** | 9013FHG (without 1/4" four-way) | — | C20 | | C50 | — | — |
| | 9013FHG4, 14, 24, 34, 44, 54 (with 1/4" four-way) | — | C20 | — | C50 | C400 | — |
| | 9013FRG | — | C20 | — | C50 | — | — |
| | 9013FSG | — | C20 | — | C50 | — | — |
| | 9013FYG | — | C20 | — | C50 | — | — |
| **Product with Forms M1, M3, M4, M5** | 9013FHG (without 1/4" four-way) | — | C20 | C40 | — | — | — |
| | 9013FHG4, 14, 24, 34, 44, 54 (with 1/4" four-way) | — | C20 | C40 | — | — | — |
| | 9013FRG | — | C20 | C40 | — | — | — |
| | 9013FSG | — | C20 | C40 | — | — | — |
| | 9013FYG | — | C20 | C40 | — | — | — |
| **Product with Forms T, X1** | 9013FHG (without 1/4" four-way) | C16 | — | C40 | — | — | — |
| | 9013FHG4, 14, 24, 34, 44, 54 (with 1/4" four-way) | C16 | — | C40 | — | — | — |
| | 9013FRG | C16 | — | C40 | — | — | — |
| | 9013FSG | C16 | — | C40 | — | — | — |
| | 9013FYG | C16 | — | C40 | — | — | — |
| **9013FHG9 Special with Extended Flange** | | C16 | — | — | — | — | C500 |



© 2012 Schneider Electric
All Rights Reserved

# Type G—Pumptrol Pressure Switch

Class **9013** / Refer to Catalog **9013CT9701**





Shown with Form X

PUMPTROL™

Pressure Switch

Class 9013 Type G Pumptrol pressure switches are designed to control electrically driven water pumps and air compressors. These devices cover higher electrical ratings for directly controlling motors in pump and compressor applications.

- Contacts open on pressure rise.
- Diaphragm actuated.
- For electrical ratings, see page 22-20.
  For repair parts kits, see page 22-28.

File E12158 CCN NKPZ

File E12443 CCN NOWT Haz Loc

File 25490 File 26817 Haz. Loc.



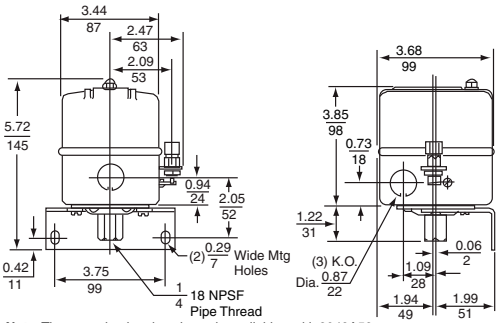
## Table 22.62: Pressure Codes

| Code | Pressure Setting (Close-Open), psi |
|---|---|
| J20 | 20–40 |
| J21 | 30–50 |
| J23 | 40–20 (reverse action) |
| J24 | 40–60 |
| J25 | 60–80 |
| J26 | 70–90 |
| J28 | 70–100 |
| J29 | 75–100 |
| J30 | 80–100 |
| J31 | 90–120 |
| J50 | 135–175 |
| J51 | 100–80 (reverse action) |
| J53 | 100–125 |
| J54 | 110–125 |
| J56 | 110–150 |
| J57 | 120–150 |
| J58 | 125–150 |
| J60 | 125–175 |
| J61 | 130–175 |
| J62 | 140–175 |
| J63 | 145–175 |
| J64 | 150–120 (reverse action) |
| J65 | 215–250 |
| J99 | Specify the required setting |

**Ordering Information**

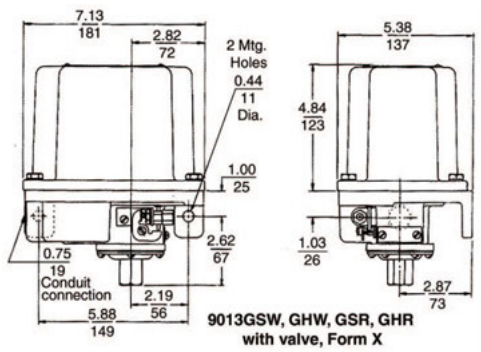
- Specify Class 9013 Type G.
- Select the pressure code from Table 22.62, and add the code to the end of the Type number. Ensure that the pressure rating of the code falls within the limits of the device. See Table 22.63.
- To order special features, add the appropriate Form letter to the Class and Type. Arrange Form letters in alphabetical order when ordering more than one special feature.

Electrical Ratings . . . . . .page 22-20




**Note**: The mounting bracket shown is available as kit 9049A52.

**9013GHG, GSG - with or without Form X**




**9013GSW, GHW, GSR, GHR with valve, Form X**

## Table 22.63: Selection Tables

| Cut-out Range (psig) | Approximate Adjustable Differential (psig) | Cut-in Range (psig) | Enclosure | Poles | NPSF Internal Pressure Connection | Type |
|---|---|---|---|---|---|---|
| 10–35 | 4–8 | 5.5–30.5 | NEMA 1 (General Purpose) | 2 | 1/4 | GMG2 |
| 20–80 | 15–30 | 5–60 | NEMA 3R ▲ (Rainproof) | 2 | 1/4 | GSB2 |
| 20–80 | 15–30 | 5–60 | NEMA 1 (General Purpose) | 2 | 1/8 | GSG1 |
| | | | | | 1/4 | GSG2 |
| | | | | | 3/8 | GSG3 |
| 20–80 | 20–40 | 5–50 | NEMA 7 & 9 (Hazardous Locations) | 2 | 1/8 | GSR1 |
| | | | | | 1/4 | GSR2 |
| | | | | | 3/8 | GSR3 |
| | | | NEMA 4 (Watertight) | | 1/8 | GSW1 |
| | | | | | 1/4 | GSW2 |
| | | | | | 3/8 | GSW3 |
| 65–200 | 20–40 | 40–170 | NEMA 3R ▲ (Rainproof) | 2 | 1/4 | GHB2 |
| 65–200 | 20–40 | 40–170 | NEMA 1 (General Purpose) | 2 | 1/8 | GHG1 |
| | | | | | 1/4 | GHG2 |
| | | | | | 3/8 | GHG3 |
| 65–200 | 30–50 | 35–150 | NEMA 7 & 9 (Hazardous Locations) | 2 | 1/8 | GHR1 |
| | | | | | 1/4 | GHR2 |
| | | | | | 3/8 | GHR3 |
| | | | NEMA 4 (Watertight) | | 1/8 | GHW1 |
| | | | | | 1/4 | GHW2 |
| | | | | | 3/8 | GHW3 |
| 80–250 | 25–45 | 32–215 | NEMA 3R ▲ (Rainproof) | 2 | 1/4 | GHB5 |
| 80–250 | 24–45 | 32–215 | NEMA 1 (General Purpose) | 2 | 1/8 | GHG4 |
| | | | | | 1/4 | GHG5 |
| | | | | | 3/8 | GHG6 |
| 80–250 | 40–60 | 30–190 | NEMA 7 & 9 (Hazardous Locations) | 2 | 1/8 | GHR4 |
| | | | | | 1/4 | GHR5 |
| | | | | | 3/8 | GHR6 |
| | | | NEMA 4 (Watertight) | | 1/8 | GHW4 |
| | | | | | 1/4 | GHW5 |
| | | | | | 3/8 | GHW6 |

▲ Must be mounted in vertical position to maintain enclosure rating.

## Table 22.64: Special Features and Modifications for Type G Devices

| Description | Applies to | Form |
|---|---|---|
| Standard pack of 10 switches■ | All Type G | C10 |
| 3-way lever (On-Auto-Off) (not compatible with Form X) | GHG, GMG, GSG | E |
| 1 N.O., 1 N.C. contact | All Type G | H |
| Pulsation plug (not field replaceable.) | All Type G | P |
| Reverse action (Select pressure code from reverse action table on page 22-21) | All Type G | R |
| Slip-on connectors (load side terminals only) | All Type G | U |
| Slip-on connectors (line and load terminals) | All Type G | U2 |
| Two-way pressure release valve (Not compatible with Form E) | GHB, GMG, GSB, GHG, GSG | X |
| | GHR, GHW, GSR, GSW | X |
| 1/4" male pipe thread on pressure connection | All Type G | Z |
| 1/2"-14 NPT external 1/4"-18 NPT internal♦ | All Type G | Z16 |

■ Available on GHB, GHG, GSB, and GSG.
If Form C10 is not speciied, devices will be shipped individually packaged

♦ UL Listed industrial control equipment.

## Table 22.65: Class 9049 Accessories for Class 9013 Pressure Switches

| Type | Description | Applies to Class |
|---|---|---|
| A12 | Two-way pressure release valve, replacement only. Cannot be added to switch that originally had no valve. | 9013GHG, GSG, Form X only |
| A52 | Mtg. bracket—replacing obsolete 9013A with 9013G | 9013GHG, GSG |
| A53 | Mtg. bracket—replacing obsolete 9013A with 9013G, or for current 9016GVG | 9013GMG, 9016GVG |
| A56 | Two-way pressure release valve. Replacement only. Cannot be added to switch that originally had no valve. | 9013FHG, Form X only |



© 2012 Schneider Electric
All Rights Reserved



Type DG2



Type GG

File No. E12158
File No. E12443
Haz Loc

File LR25490
File LR26817
Haz Loc

## Open Tank or Sump Applications

Ambient temperature ratings: Min. -30 °C (-22 °F); Max. +105 °C (+220 °F).

For accessories, refer to page 22-28.

### Table 22.66: Class 9036, 2-Pole, Single Lever Operated

| Contact Operation | NEMA 1 Type | NEMA 4 Type | NEMA 7, 9 Type |
|---|---|---|---|
| Close on liquid rise | DG2 | DW31 | DR31 |
| Open on liquid rise | DG2R | DW31R | DR31R |
| Close on liquid rise | GG2 | GW1 | GR1 |
| Open on liquid rise | GG2R | GW1R | GR1R |

Order the universal mounting bracket and float accessory kits separately from the Class 9049 Accessories section on page 22-28. Types GW and GR use a center-hole float. Devices with Form C use a center-hole float. All others use a tapped-at-top float.

### Table 22.67: Modifications

| Description | Factory Installed Form | Field Installed Class 9049 Kit |
|---|---|---|
| **Types DG, DW, DR** | | |
| Reverse action (Type DG) | R | A58 |
| Compensating spring (Type DG) | C | A19 |
| Compensating spring (Type DR, DW) | C | A20 |
| Compensating spring and reverse action | CR | Not available |
| **Types GG, GW, GR** | | |
| Compensating spring for Type GG2 | C | 9049A13 |
| Combination of compensating spring and reverse action (Type GG2) | CR | 9049A13 |
| 1 N.O., 1 N.C. contact configuration | H | Not available |
| Combination of comp. spring & 1 N.O., 1 N.C. contact for Type GG2 | CH | Not available |
| Reverse action (Type GR, GW) | R | Not available |

### Table 22.68: Class 9049 Float Accessory Specifications (oz)

| Item | Type A6 | Type A6S | Type A6C | Type A6CS | Type A6A | Type A6CA |
|---|---|---|---|---|---|---|
| Net buoyancy■ (in water) 7" float | 60▲ | 60▲ | 70▲ | 70▲ | 60▲ | 70▲ |
| Weight of 5 ft rod | 18.5 | 16.9 | 18.5 | 16.9 | 6 | 6 |
| Weight of extra ft of rod (per ft) | 3.7 | 3.4 | 3.7 | 3.4 | 1.2 | 1.2 |
| Total weight of stops | 3 (2 stops) | 3 (2 stops) | 6 (4 stops) | 6 (4 stops) | 3 (2 stops) | 6 (4 stops) |

▲ Net buoyancy of float has been calculated with float 80% submerged, thus allowing 20% factor of safety.

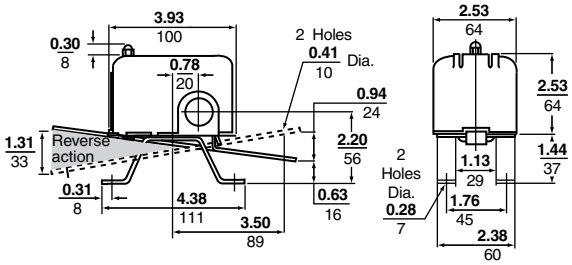
■ Buoyancy data is calculated for use in water. Consult factory for buoyancy data in media with a different specific gravity than water. **When ordering float accessories,** first specify the desired float accessory package, such as 9049A6 or 9049A6CS, then as a second item give the number of additional rod kits required. For example, for a 9049A6 with 15 ft of rod, order as follows: Item A = 9049A6, quantity = 1; Item B = 9049T1, quantity = 4.

### Table 22.69: Maximum Forces at Which Switches Are Tested (oz)

| Type | Force Up To Trip | Force Down To Trip | Weight Supported with Compensating Spring | Type (with or without Form H) | Lever Length Position | Force Up to Trip | Force Down to Trip | Weight Supported with Compensating Spring at Max. Adjustment (oz) |
|---|---|---|---|---|---|---|---|---|
| DG2 | 9 | 8 | 60 | GG2 | Short | 33 | 39 | ♦ |
| DG2 Form R | 8 | 8 | 60 | GG2 | Long | 21 | 27 | 100 |
| DW31 | 8 | 8 | 66 | GG2 Form R | Short | 30 | 24 | ♦ |
| DW31 Form R | 8 | 8 | 66 | GG2 Form R | Long | 22 | 16 | 150 |
| DR31 | 8 | 8 | 66 | GR1, GW1 | Short | 24 | 31 | 80 |
| DR31 Form R | 8 | 8 | 66 | GR1, GW1 | Medium | 22 | 29 | 72 |
| | | | | GR1, GW1 | Long | 20 | 27 | 64 |

♦ Compensating spring not effective in combination with Short lever length position.

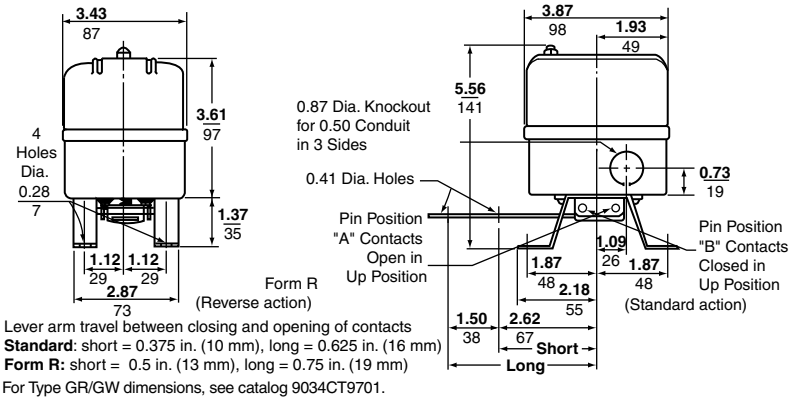
### Figure 22.13: Type DG Dimensions




Float lever travel between closing and opening of contacts: short = 1 in. (25 mm), medium = 1.12 (28 mm), long = 1.25 in. (31.8)

For Type DR/DW dimensions, see catalog 9034CT9701.

### Figure 22.14: Type GG Dimensions




Lever arm travel between closing and opening of contacts
**Standard**: short = 0.375 in. (10 mm), long = 0.625 in. (16 mm)
**Form R:** short = 0.5 in. (13 mm), long = 0.75 in. (19 mm)

For Type GR/GW dimensions, see catalog 9034CT9701.

### Table 22.70: Electrical Ratings for All Float Switches

| Applies to Class and Type | Control Circuit | Single Phase AC | | | Polyphase AC ★ | | | DC | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 115 V | 230 V | 460/ 575 V | 115 V | 230 V | 460/ 575 V | 32 V | 115 V | 230 V |
| 9036DG, DR, DW (2-pole), FG | A600 | 2 hp | 3 hp | — | 3 hp | 5 hp | 1 hp | 1/4 hp | 1/2 hp | 1/2 hp |
| 9036GG, GR, GW (2-pole) | A600 | 2 hp | 3 hp | 5 hp | 3 hp | 5 hp | 5 hp | 1/2 hp | 1 hp | 1 hp |
| 9036G Form H (1 N.O., 1 N.C.) | A300 | 1 hp | 2 hp | 2 hp | — | — | — | — | 1/2 hp | 1/2 hp |
| 9037EG, ER, EW; HG, HR, HW (2-pole) | A600 | 2 hp | 3 hp | — | 3 hp | 5 hp | 1 hp | 1/4 hp | 1/2 hp | 1/2 hp |
| 9038 All Devices (2-pole) | A600 | 2 hp | 3 hp | — | 3 hp | 5 hp | 1 hp | 1/4 hp | 1/2 hp | 1/2 hp |

★ See 1993 NEC Article 430-84



© 2012 Schneider Electric
All Rights Reserved

## Open Tank or Sump Applications, Float Switch, Class 9036 Type FG

The Class 9036 Type FG30 pedestal style float switch is designed for liquid level control with electric motor operated pumps either directly or through a magnetic starter. It can also be used to activate alarms in liquid level control systems. The upward or downward movement of the lever arm of the Class 9036 Type FG30 float switch controls the On and Off positions corresponding to the water level changes required to turn the pump or alarm on and off.

Ambient temperature ratings: Min. -30 °C (-22 °F); Max. +105 °C (+220 °F)



9036FG
9049A60
9049A61

**Table 22.71: Type FG Float Switch and Accessories**

| Description | Class | Type |
|---|---|---|
| 2-pole, NEMA 1, contacts close on liquid rise | 9036 | FG30 |
| Plastic center hole float (1 required) | 9049 | A60 |
| 33.75 inch aluminum rod, 2 float stop assemblies and attaching hardware (1 required) | 9049 | A61 |

## Closed Tank, Class 9037 Type E

Type E switches are flange mounted and float movement is transmitted through a Quad-Ring® seal.

Build up the switch to meet your exact requirements from the **basic switch, float rod,** and **float** groups below. Switch may be assembled in the field to give contacts that open on liquid rise or close on liquid rise. Consult Schneider Electric for use in media with a different specific gravity than water.

Ambient temperature ratings: Min. -30 °C (-22 °F); Max. +105 °C (+220 °F)



9037EG with
9049ER3 Rod Kit

**Table 22.72: Class 9037 Type E**

| Application | Post Length L (in.) | NEMA 1 Type | NEMA 4 Type | NEMA 7 & 9 Type |
|---|---|---|---|---|
| For minimum water level change | 2-5/8 | EG8 | EW8 | ER8 |
| | 4-11/16 | EG10 | — | — |
| For maximum water level change | 2-5/8 | EG9 | EW9 | ER9 |
| | 4-11/16 | EG13 | EW13 | — |

**Table 22.73: Class 9049 Floats for Type E Switches**

| Description | Type |
|---|---|
| #304 stainless steel | EF1 |
| #316 stainless steel | EF2 |

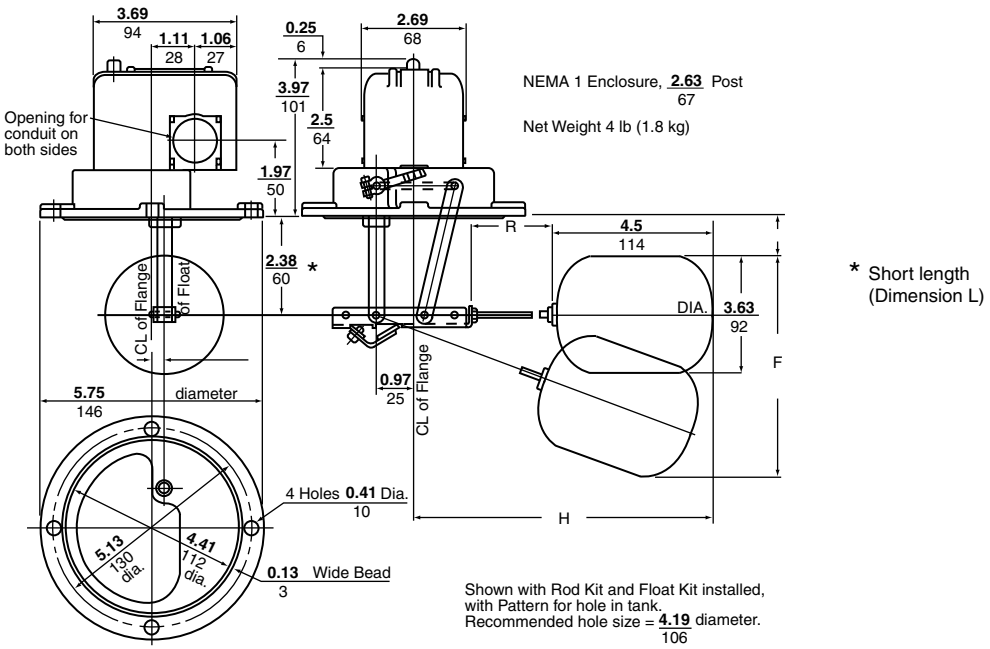
**Table 22.74: Class 9049 Float Rod Kits**

| Type | A (in.) | F (in.) | R (in.) | H (in.) |
|---|---|---|---|---|
| ER1 | 1.00 | 4.75 | 1.75 | 8.25 |
| ER2 | 1.00 | 4.75 | 2.5 | 9.00 |
| ER3 | 1.00 | 4.75 | 3.50 | 9.50 |
| ER5 | 1.00 | 4.75 | 5.25 | 11.75 |
| ER7 | 1.00 | 5.00 | 7.25 | 13.75 |
| ER12 | 1.00 | 5.75 | 12.25 | 18.75 |

File No.
E12158 and
E12443 Haz Loc

File 25490
except
Types ER8, ER9

**Figure 22.15: Type EG Dimensions, in. (mm)**
For 9037ER/EW dimensions and rod positions, see catalog 9034CT9701






© 2012 Schneider Electric
All Rights Reserved

Type H switches are attached to the tank by means of a 2-1/2 in. screw-in bushing. An external pointer indicates the float position within the tank when the unit is mounted. Switches come complete with stainless steel float and rod. A Buna N Quad-Ring® seal is used between the float rod and sealing connector. Normal application is at atmospheric pressure, but where higher pressures are encountered, the switch will withstand tank pressures up to 50 psi at temperatures up to +220 °F. Occasional replacement of the Quad-Ring seal may be necessary.
Ambient temperature ratings: Min. -30 °C (-22 °F); Max. +105 °C (+220 °F)



Type HG35
Float on Right
90° Offset Rod

**Table 22.75: Class 9037 Type H Contacts Close On Liquid Rise**

| Float Position (viewed from front of switch, facing indicator scale) | Float Rod Angle | Approximate Water Level Change (Field Adjustable) Min. (in.) | Max. (in.) | NEMA 1 Type | NEMA 4 Type | NEMA 7 & 9 Type |
|---|---|---|---|---|---|---|
| Right | 45° | 2 | 5 | HG33 | HW33 | HR33 |
| | 90° Offset | 2 | 5 | HG35 | HW35 | HR35 |
| | | | 7 | HG37 | HW37 | HR37 |
| | | | 8-1/4 | HG39 | HW39 | HR39 |
| | | | 11-1/2 | HG31 | HW31 | HR31 |
| Left | 45° | 2 | 5 | HG34 | HW34 | HR34 |
| | 90° Offset | 2 | 5 | HG36 | HW36 | HR36 |
| | | | 7 | HG38 | HW38 | HR38 |
| | | | 8-1/4 | HG30 | HW30 | HR30 |
| | | | 11-1/2 | HG32 | HW32 | HR32 |

Note: For replacement floats, see Class 9049 Type H on page 22-28. Types shaded in gray are available with Form Z19; see Table 22.77.

**Table 22.76: Type H Float Travel Distances**

| Float Rod Angle | R in. (mm) | H ▲ in. (mm) | f1 in. (mm) Minimum | f1 Maximum | f2 in. (mm) Minimum | f2 Maximum | F in. (mm) Minimum | F Maximum |
|---|---|---|---|---|---|---|---|---|
| 45° | — | 6.22 (158) | 2.25 (57) | 4.50 (114) | 2.00 (52) | 4.50 (110) | 4.25 (108) | 9.00 (229) |
| 90° offset | 3.00 (76) | 4.25 (108) | 2.75 (70) | 4.25 (108) | 2.25 (57) | 4.25 (108) | 5.00 (127) | 7.50 (191) |
| | 4.25 (108) | 5.50 (140) | 3.50 (89) | 5.50 (140) | 2.75 (70) | 4.00 (102) | 6.25 (159) | 9.50 (241) |
| | 5.00 (127) | 6.25 (159) | 3.75 (95) | 6.25 (159) | 3.00 (76) | 4.50 (110) | 6.75 (171) | 10.75 (273) |
| | 7.00 (178) | 8.25 (210) | 4.75 (121) | 8.25 (210) | 3.75 (95) | 5.75 (146) | 8.50 (216) | 14.00 (356) |

▲ Clearance from the centerline of the hub to the side of the tank.

File No.
E12158 and
E12443 Haz Loc

File LR25490

File LR26817
Haz Loc

**Table 22.77: Available Modifications For Class 9037 Type H**

| Description | Form |
|---|---|
| Omit 2-1/2" tank connecting bushing | F3 |
| Omit float | L |
| Reverse action, contacts open on rise | R |
| Viton® packing: 5 oz. float (diesel fuel) for Types shaded in gray in Table 22.75 above. | Z19 |
| Viton packing (suitable for applications up to +250 °F) | Z20 |
| #316 stainless steel float and Viton packing | Z21 |

**Figure 22.16: Type HG—45° Angle Dimensions**

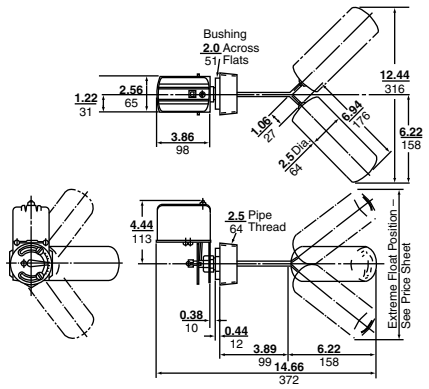



**Figure 22.17: Type HG—90° Offset Dimensions**

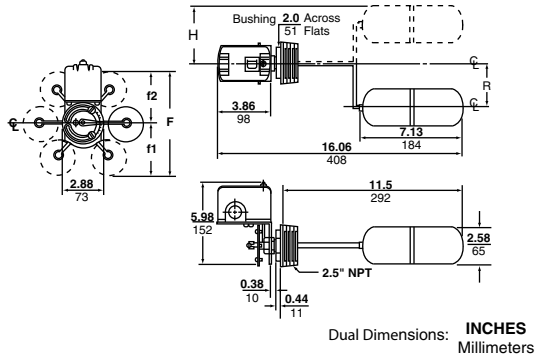



**Figure 22.18: Type HR/HW—45° Angle Dimensions**

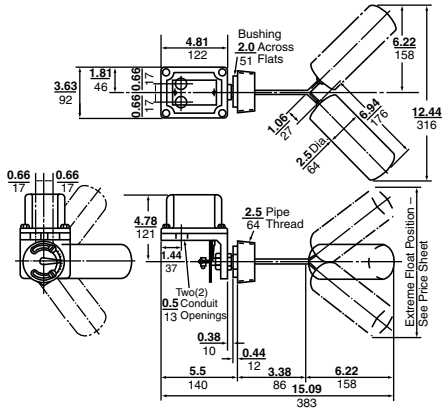
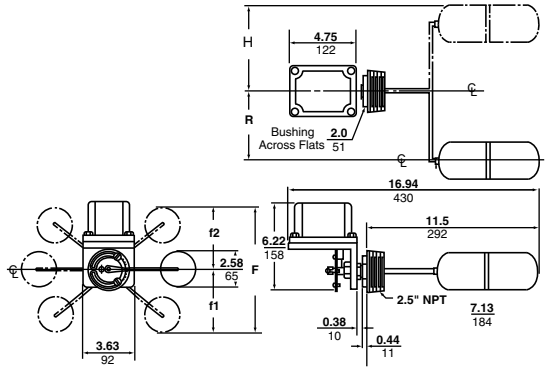



**Figure 22.19: Type HR/HW—90° Offset Dimensions**






© 2012 Schneider Electric
All Rights Reserved



Type AG1
Mechanical Alternator, Float Operated

## Type A, Open Tank

Alternators are designed to provide motor alternation in the operation of two motors.

**Table 22.78: Class 9038 Type A**

| Application | Description | NEMA 1 Type | NEMA 4 Type | NEMA 7 and 9 Type |
|---|---|---|---|---|
| For open tank or sump systems using duplex pumps | Mechanical alternator float operated | AG1 | AW1 | AR1 |

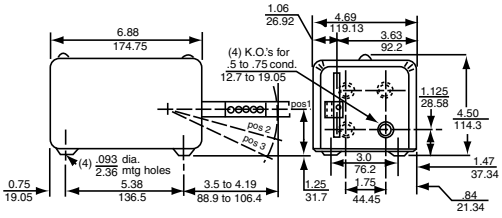
Note: For use with Class 9049 float accessories listed on page 22-28.
Type AW and AR alternators **must** use center hole floats.

**Table 22.79: Operating Forces—Types AG, AR and AW**

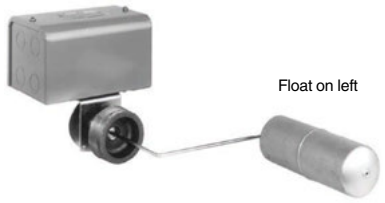
| Type | Without Compensating Spring (No Form C) | | With Compensating Spring (Form C) | | | |
|---|---|---|---|---|---|---|
| | | | Maximum Weight of Rod and Stops Supported | Length of Rod Supported at the Maximum Adjustment | | |
| | Force Up ■ | Force Down | Note: AW1 and AR1 have compensating spring standard. | Brass ▲ | Stainless Steel ▲ | Aluminum ▲ |
| AG1 (min. lever ext.) | 18 oz | 20 oz | 47 oz. | 10 ft | 12 ft | 25 ft |
| AG1 (max. lever ext.) | 16 | 17 | 41 | 8 | 10 | 21 |
| AG1 Form R (min. lever ext.) | 14 | 16 | 33 | 7 | 8 | 17 |
| AG1 Form R (max. lever ext.) | 11 | 12 | 30 | 6 | 7 | 15 |
| AR1, AW1 (standard lever) | — | — | 74 | 16 | 20 | 41 |
| AR1, Form R, AW1 Form R (std. lever) | — | — | 85 | 19 | 23 | 47 |

▲ Rod length has been determined using the weight of the rod material furnished on Class 9049 accessories (3/8" O.D. tubing).
Other types of rod should be weighed and compared to the Maximum Weight of Rod column in Table 22.79.
■ Add 2 oz for Form N5 High Water alarm.

**Figure 22.20: Type A Dimensions, in. (mm)**




Front



Float on left

Type CG36

## Type C, Closed Tank, with Bushing

Flange mounted with bushing for control of liquid level within a closed tank. Build up the switch to meet your requirements from the basic switch, rod kit, and float kit groups below.

Type C switches are attached to the tank by means of a 2-1/2 in. screw-in bushing. An external pointer indicates the float position within the tank when the unit is mounted. Switches come complete with screw-in connector, stainless steel float and rod.

**Table 22.80: Class 9038 Type C**

| Float Position Viewed from Front of Switch Facing Indicator Scale | R in. (mm) | Approx. Water Level Change | | NEMA Type 1 | NEMA Type 4 | NEMA Type 7, 9 |
|---|---|---|---|---|---|---|
| | | Min. (in.) | Max. (in.) | Type | Type | Type |
| Right | 7 (178) | 6.5 (165) | 13 (330) | CG31 | CW31 | CR31 |
| Left | 7 (178) | 6.5 (165) | 13 (330) | CG32 | CW32 | CR32 |
| Right | 4.25 (108) | 4 (102) | 7.75 (197) | CG33 | CW33 | CR33 |
| Left | 4.25 (108) | 4 (102) | 7.75 (197) | CG34 | — | CR34 |
| Right | 5 (127) | 4.75 (121) | 9.25 (235) | CG35 | — | — |
| Left | 5 (127) | 4.75 (121) | 9.25 (235) | CG36 | CW36 | CR36 |

**Table 22.81: Type C Float Travel Adjustments**

| R in. (mm) | A in. (mm) | | B in. (mm) | | C in. (mm) | | D in. (mm) | | F in. (mm) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 7 (178) ♦ | 2.5 (64) | 5 (127) | 5 (127) | 7 (178) | 2 (51) | 4 (102) | 5 (152) | 7 (178) | 10 (254) | 14 (495) |
| 5 (127) ■ | 2.25 (57) | 3.75 (95) | 4 (102) | 5.25 (133) | 2.75 (70) | 3 (76) | 4 (102) | 5.25 (133) | 8 (203) | 10.5 (267) |
| 4.25 (108) ▲ | 2 (51) | 3.5 (89) | 3.5 (89) | 4.75 (121) | 2.5 (64) | 3.75 (95) | 3.5 (89) | 4.75 (121) | 7 (178) | 9.5 (241) |

▲ CG33, CG34, CW33, CW34, CR33, CR34
■ CG35, CG36, CW35, CW36, CR35, CR36
♦ CG31, CG32, CW31, CW32, CR31, CR32



File No. E12158
excludes NEMA 7 & 9 products
(9038AR, CR, and DR)

File LR25490
excludes NEMA 7 & 9 products
(9038AR, CR, and DR)

**Figure 22.21: Travel Dimensions**

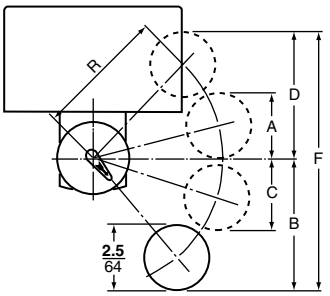
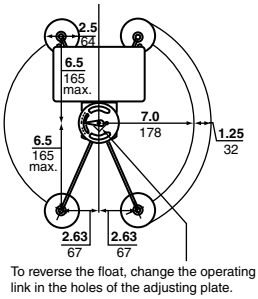
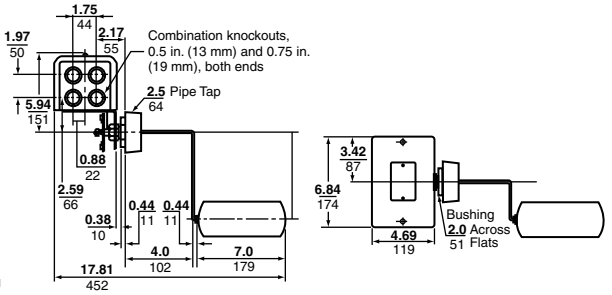



**Figure 22.22: Type CG Dimensions**




To reverse the float, change the operating link in the holes of the adjusting plate.




Replacement Float:
9049HF . . . . . page 22-28



© 2012 Schneider Electric
All Rights Reserved



Type DG Shown with Rod Kit 9049ER5 and Float Kit 9049HF3 Installed.

File No. E12158
excludes NEMA 7 & 9 products
(9038AR, CR, and DR)

File LR25490
excludes NEMA 7 & 9 products
(9038AR, CR, and DR)

## Type D, Closed Tank, Top Mounted

Designed for applications where mounting is to be made at the top of a closed tank.

**Table 22.82: Class 9038 Type D Contacts Close On Liquid Rise**

| Water Level Change | Hinge Post Dimension "V" (in.) | NEMA 1 Type | NEMA 4 Type | NEMA 7 and 9 Type |
|---|---|---|---|---|
| Min. | 2-5/8 | DG7 | DW7 | — |
| Max. | | DG8 | DW8 | DR8 |
| Min. | 4-11/16 | DG9 | — | — |
| Max. | | DG10 | — | — |

**Table 22.83: Float Kits, For Use with Type D Switches**

| Size and Material Diameter x Length (in.) | Class and Type |
|---|---|
| 3.625 x 4.50, #304 stainless steel | 9049EF1 |
| 3.625 x 4.50, #316 stainless steel | 9049EF2 |
| 2.50 x 7, #304 stainless steel | 9049HF3 |
| 2.50 x 7, #316 stainless steel | 9049HF4 |

**Table 22.84: Float Rod Kit, Class 9049**

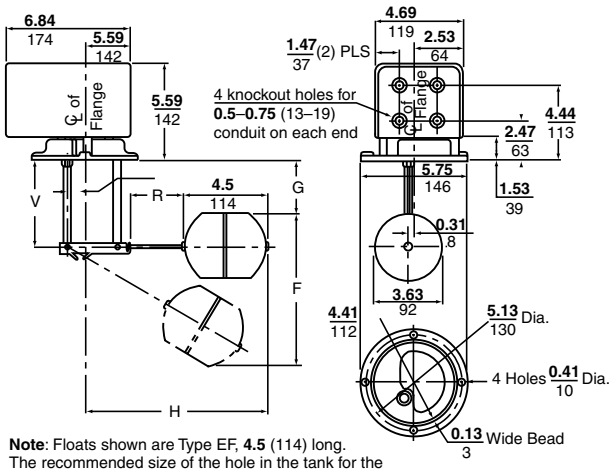
| Type | R (in.) | H (in.) | G (in.) | F (in.) |
|---|---|---|---|---|
| ER1 | 1.75 | 8.25 | 3.25 | 8.75 |
| ER2 | 2.50 | 9.00 | 3.50 | 10.50 |
| ER3 | 3.25 | 9.50 | 3.50 | 11.00 |
| ER5 | 5.25 | 11.75 | 3.75 | 12.75 |
| ER7 | 7.25 | 13.75 | 4.00 | 14.50 |
| ER12 | 12.25 | 18.75 | 4.75 | 19.00 |

**Table 22.85: Available Modifications for All Mechanical Alternators**

Consult Schneider Electric for use in media with a different specific gravity than water.

| Description | Form |
|---|---|
| Compensating spring (Type AG) | C |
| Omit 2-1/2 in. connecting bushing (Type CG, CR, CW) | F3 |
| Omit float (Type CG, CR, CW) | L |
| Two-level non-alternating unit | N4 |
| Addition of a third, high-water alarm circuit (Type AG, AR, AW, CG, DG only) | N5 |
| High-water alarm circuit, 2-pole (Type CG only) | N25 |
| Reverse action (contacts open on Rise) | R |
| Viton® packing, 5 oz. float (diesel fuel) (Type CG) | Z19 |
| Viton packing (Type CG, CR, CW) | Z20 |
| #316 stainless steel float and Viton packing (Type CG, CR, CW) | Z21 |

**Figure 22.23: Type DG Dimensions, in. (mm)**




**Note**: Floats shown are Type EF, **4.5** (114) long.
The recommended size of the hole in the tank for the entry of the float and the mounting of the control is **4.19** (106).
Add **2.5** (64) to "H" if using Type HF Floats, which are **7.0** (178) long.

**Table 22.86: Temperature Ratings for Class 9038**

| Description | | Rating |
|---|---|---|
| Ambient Temperature | | -22 to 200 °F (-30 to 93 °C) |
| Media | Buna-N Seal | Up to 215 °F (102 °C) |
| | Viton® Seal | Up to 250 °F (121 °C |



© 2012 Schneider Electric
All Rights Reserved

## Accessories for Float Switches

To order, specify the Class and Type number of the kit.

**Table 22.87: Class 9049 Accessories for Float Switches**

| Description | | | Applies to Class | Type |
|---|---|---|---|---|
| Compensating Spring | | | 9036GG | A13 |
| | | | 9038AG | A15 |
| | | | 9036DR, DW | A20 |
| Float | Dia. 3.62 in. (92 mm), length 4.5 in. (114 mm) | #304 stainless steel | 9037E, 9038D | EF1 |
| | | #316 stainless steel | 9037E, 9038D | EF2 |
| | Dia. 2.5 in. (64 mm), length 7 in. (178 mm) | #304 stainless steel | 9037H, 9038C | HF3 |
| | | #316 stainless steel | 9037H, 9038C | HF4 |
| Float Kit | 7 in. tapped-at-top #304 stainless steel float, 5 ft rod, 2 stops | Brass rod | All 9036, 9038A | A6 |
| | | Aluminum rod | All 9036, 9038A | A6A |
| | 7 in. center-hole #304 stainless steel float, 5 ft rod, 4 stops | Brass rod | All 9036, 9038A | A6C |
| | | Aluminum rod | All 9036, 9038A | A6CA |
| | 7 in. center-hole #316 stainless steel float, 5 ft stainless steel rod, 4 stainless steel stops | | All 9036, 9038A | A6CS |
| | 7 in. tapped-at-top #316 stainless steel float, 5 ft stainless steel rod, 2 stainless steel stops | | All 9036, 9038A | A6S |
| | Replacement float—7 in. round center-hole #304 stainless steel | | 9049A6C, A6CA | AF1 |
| Lever | Form R | | 9036DG | A58 |
| Mounting Bracket | Replacing obsolete 9036A with 9036G | | 9036GG | A54 |
| | Replacing 9036A (S or F1) with 9036G | | 9036GG | A55 |
| | Universal | | All 9036, 9038AG, AR, AW | UMS1 |
| Rod | Stainless steel | 1-3/4 in. long | 9037E, 9038D | ER1 |
| | | 2-1/2 in. long | 9037E, 9038D | ER2 |
| | | 3-1/4 in. long | 9037E, 9038D | ER3 |
| | | 5-1/4 in. long | 9037E, 9038D | ER5 |
| | | 7-1/4 in. long | 9037E, 9038D | ER7 |
| | | 12-1/4 in. long | 9037E, 9038D | ER12 |
| Rod Kit | Additional 2-1/2 ft section with connector | Brass rod | 9049A6, A6C | T1 |
| | | Aluminum rod | 9049A6A, A6CA | T1A |
| | | Stainless steel rod | 9049A6S, A6CS | T1S |

## Renewal Parts for Class 9012–9038 Devices

Renewal parts are generally available for Pump Control Products with a numerical date code—for example, 172 (first quarter, 1972)—or a current date code. Parts are no longer available for devices manufactured before 1965.

To order, specify the Class and Type number of the kit.

**Table 22.88: Class 9998 Renewal Parts Kits for Class 9012–9038 Devices**

| Description / Equipment To Be Serviced9thl | | Parts Kit Type |
|---|---|---|
| Actuator Assembly | 9012GA, GD, GG, GK, GN, GR 5, 25, 55 Series C only | PC268▲ |
| | 9012GA, GD, GG, GK, GN, GR 6, 26, 36, 46, 56 Series C only | PC269▲ |
| | 9012GB, GE, GH1, 21, 31, 41, 51; GL, GP, GS1 | PC177▲ |
| | 9012GB, GE, GH2, 22, 32, 42, 52; GL, GP, GS2 | PC178▲ |
| Contact Kit (2-Pole Contacts) | 9013FHG22, 29, 32, 39, 52, 59; 9013 FYG; 9036DG, DR, DW; 9037EG, ER, EW, HG, HR, HW30–39; 9038 All Types (2 Kits Required); obsolete 9013HHGY, HSGY; HSWY; 9037HEG, HSG3, 4; 9035DG10, DW10 (This kit also contains a replacement diaphragm for pressure switches. The diaphragm fits pressure switch only.) | PC242 |
| | 9013GHG, GSG, GHR, GSR, GMG; 9036GG, GR, GW; 9037GG Series C All except Forms H & R; 9016GVG, Form R | PC205 |
| | 9013GHG, GSG, GSR, GMG; 9036GG, GR, GW; 9037GG, GR, GW Series C Form H only; 9016GVG, Form H | PC206 |
| | 9013GHG, GSG, GHR, GSR, GMG; 9036GR, GW: Series C Form R only; 9016GVG | PC207 |
| Contact Replacement Kit | 9013FHG2 thru 19, 42 thru 49, all FSG Complete contact replacement kit—includes new diaphragm | PC241 |
| Diaphragm Assembly | 9012GA, GD, GN, GR1, 21 Series C only | PC265▲ |
| | 9012GA, GD, GG, GK, GN, GR 2, 3, 22, 52 Series C only | PC266▲ |
| | 9012GA, GD, GG, GK, GN, GR4, 24, 54 Series C only | PC267▲ |
| | Convoluted diaphragm assembly for 9013GHG, GSG: Series C | PC208 |
| | 9013GHW, GSW; and GSW, GHR: Series C | PC211 |
| | 9016 GAW-1, 21 | PC233 |
| Gasket Kit | Contains all replaceable gaskets for all 9012 open, NEMA 1, 4, 4X, 13 devices | PC184 |
| Pilot Light, 24 Vdc | 9012, 9016G Forms G7, G8, G9, G10, G21, G22 | PC305 |
| Piston Assembly | 9012GC, GF, GJ, GQ, GT1, 21, 31, 41, 51 Series C only | PC270▲ |
| | 9012GC, GF, GJ, GQ, GT2, 22, 32, 42, 52 Series C only | PC271▲ |
| | 9012GC, GF, GQ, GT4, 24, 34, 44, 54 Series C only | PC273▲ |
| Seal Kit | Buna N, for Series A devices: 9037HG/HW/HR30–39; 9038CG/CW/CR31–36 | PC337 |
| | Viton®, for Series A devices with Form Z19 or Z20: 9037HG/HW/HR30–39; 9038CG/CW/CR31–36 | PC338 |
| Seal Tube Kit | Buna N Quad-Ring®, for Series C devices: 9037HG/HW/HR3–12; 9038CG/CW/CR1–6 | PC282 |
| | Viton Quad-Ring, for Series C devices: 9 037HG/HW/HR3–12; 9038CG/CW/CR1–6 | PC333 |
| Snap Switch | SPDT, for 9012GA, GB, GC, GD, GE, GF, GG, GH, GJ single pole; except Forms E2, E3, E4, H3: Series C only | PC313▲ |
| | DPDT, for 9012GA, GB, GC, GD, GE, GF, GG, GH, GJ double pole; except Forms E2, E3, H6, H7: Series C only | PC314▲ |
| Switch Mechanism | 9036DR1, DW1 Series B | PC285 |

▲ If one of these **Form** designations appears on the pressure switch nameplate, complete the 9998 PC number by adding that same **Form suffix** from page 22-18, and add the Form price to the kit price.



© 2012 Schneider Electric
All Rights Reserved

# Section 23

## Relays and Timers



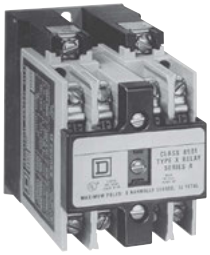
**RXM**, p. 23-8



**RSL**, p. 23-2 /**RSB**, p. 23-3



**SSR**, p. 23-25



**8501X**, p. 23-22



**CAD32**, p. 23-16



**9050JCK**, p. 23-30



**RE7**, p. 23-28



**ABL8**, p. 23-37



**REG24, REG48, REG96**
p. 23-31



**CA2SKE**, p. 23-21



**SR2, SR3,** p. 23-39



**RM17, RM35** p. 23-32

### General Purpose Relays


| | | |
|---|---|---|
| Zelio™ Interface Relays | RSL, RSB | **23-2** |
| Zelio™ Plug-in Relays, Sockets & Access. | RXM, RPM, RUM, RPF | **23-4** |
| Square D™ Plug-in | Class 8501 Type K | **23-10** |
| Square D™ Alternating Plug-in | Class 8501 Type KA | **23-11** |
| Square D™ Miniature Plug-in | Class 8501 Type R | **23-12** |
| Square D™ Sockets | Class 8501 Type N | **23-14** |
| Square D™ Power | Class 8501 Type C | **23-15** |


### Industrial Relays


| | | |
|---|---|---|
| TeSys™ IEC Style Relays | TeSys D | **23-16** |
| | TeSys K | **23-19** |
| | TeSys SK | **23-21** |
| TeSys™ IEC Style - Alternating Relays | CA2SKE | **23-21** |
| Square D™ NEMA Style Relays | Class 8501 Type X™ | **23-22** |


### Solid State Relays


| | | |
|---|---|---|
| Panel Mount | SSRP | **23-25** |
| DIN Mount | SSRD | **23-25** |
| SSR Accessories | SSRAH1, SSRAT1 | **23-25** |


### Timers


| | | |
|---|---|---|
| Zelio™ IEC Style—17.9 mm | RE11 | **23-26** |
| Zelio™ Panel Mounting | RE48 | **23-26** |
| Zelio™ Miniature Plug-in | REXL | **23-26** |
| Zelio™ IEC Style—22.5 mm | RE7, RE8, and RE9 | **23-27** |
| Square D™ General Purpose Plug-in | Class 9050 Type JCK | **23-30** |


### Control and Measurement Relays


| | | |
|---|---|---|
| Zelio™ Temperature Controllers—24x48 | REG24 | **23-31** |
| Zelio™ Temperature Controllers—48x48 | REG48 | **23-31** |
| Zelio™ Temperature Controllers—48x96 | REG96 | **23-31** |
| Zelio™Current Measurement Relays | RM17JC andRM35JA | **23-32** |
| Zelio™ Phase Measurement Relays | RM17T and RM35T | **23-33** |
| Zelio™ Voltage Measurement Relays | RM17U and RM35U | **23-34** |
| Zelio™ Level Control Relays | RM35L | **23-35** |
| Zelio™ Pump Control Relays | RM35BA | **23-35** |
| Zelio™ Speed Control Relays | RM35S | **23-36** |
| Zelio™ Frequency Control Relays | RM35HZ | **23-36** |
| Zelio™ Temperature Control Relays | RM35AT | **23-36** |


### Other Products


| | | |
|---|---|---|
| Phaseo™ DC Power Supplies | ABL1, ABL7, and ABL8 | **23-37** |
| Zelio™ Analog Interface Modules | RM | **23-38** |
| Zelio™ Logic 2 Smart Relays | SR2, SR3 | **23-39** |
| Zelio™ Solid-State Interface Modules | ABS | **23-41** |
| Zelio™ Electromechanical Interface | ABR | **23-42** |




© 2012 Schneider Electric
All Rights Reserved


RSL 1PV••


RSL 1PR••

## Zelio™ Interface Relays

Zelio RSL slim interface relays save valuable panel space with a 6 mm width and have a 6 Amp general purpose load rating. Features include:

- Pre-assembled option: relay and socket are combined into one catalog number.
- Universal AC/DC sockets have built-in protection from transients and reverse polarity voltages (see catalog DIA3ED2090304EN-US for more detailed information).
- Accessories, which include isolators, ID tags, and bus jumper save valuable installation time.

**Table 23.1: Zelio RSL Slim Interface: Pre-assembled Relay + Socket** (sold in lots of 10)

| Socket Supply Voltage (Vac/Vdc) | Socket Type | | | | Replacement Relays |
|---|---|---|---|---|---|
| | Screw Connector | | Spring Terminal | | |
| | Catalog Number▲ | $ Price ea. | Catalog Number▲ | $ Price ea. | Catalog No. |
| 12 | RSL1PVJU | **12.00** | RSL1PRJU | **12.00** | RSL1AB4JD |
| 24 | RSL1PVBU | **14.60** | RSL1PRBU | **15.70** | RSL1AB4BD |
| 48 | RSL1PVEU | **14.90** | RSL1PREU | **16.10** | RSL1AB4ED |
| 110 | RSL1PVFU | **14.90** | RSL1PRFU | **16.10** | RSL1AB4ND |
| 230 | RSL1PVPU | **14.90** | RSL1PRPU | **16.10** | RSL1AB4ND |

▲ Relays are mounted on sockets equipped with LED and protection circuit.


RSL 1AB••

**Table 23.2: Zelio RSL Slim Interface: Relay Only** (sold in lots of 10)

| Relay Coil Voltage (Vdc) | Catalog Number | $ Price ea. |
|---|---|---|
| 12 | RSL1AB4JD | **6.20** |
| 24 | RSL1AB4BD | **7.70** |
| 48 | RSL1AB4ED | **7.90** |
| 60 | RSL1AB4ND | **7.90** |


RSL ZVA•

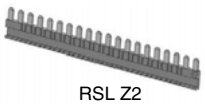

RSL ZRA•

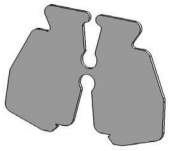
**Table 23.3: Zelio RSL Slim Interface: Socket Only** (sold in lots of 10)

| Socket Supply Voltage (Vac/Vdc) | Socket Type | | | | For use with relays: |
|---|---|---|---|---|---|
| | Screw Connector | | Spring Terminal | | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | |
| 12 | RSLZVA1 | **7.20** | RSLZRA1 | **8.30** | RSL1AB4JD |
| 24 | | | | | RSL1AB4BD |
| 48 | RSLZVA2 | **7.20** | RSLZRA2 | **8.30** | RSL1AB4ED |
| 60 | | | | | RSL1AB4ND |
| 110 | RSLZVA3 | **7.40** | RSLZRA3 | **8.60** | RSL1AB4ND |
| 230 | RSLZVA4 | **7.40** | RSLZRA4 | **8.60** | RSL1AB4ND |

**Table 23.4: Socket Accessories**

| Description | Compatibility | Catalog Number | $ Price ea. |
|---|---|---|---|
| ID tags (2 sheets of 64 tags) | With all sockets | RSLZ5 | **4.60** |
| Bus jumper (10 x 20-pole jumpers) | With all sockets | RSLZ2 | **3.80** |
| Butterfly isolator (10 isolators) | With all sockets | RSLZ3 | **3.70** |


RSL Z2


RSL Z3

### Approvals for RSL relays:

c UL us File CCN E173076 NRNT2, NRNT8 — CSA File Class 240278 3211 04 — CE IEC 61810-1 — RoHS Compliant

### Approvals for RSLZ sockets:

c UL us File CCN E172326S SWIV2 SWIV8 — CSA File Class 247510 3211 07 — CE IEC 61810-1 — RoHS Compliant





© 2012 Schneider Electric
All Rights Reserved



RSB1A120JD Relay
+ RZM031FPD Socket
+ RSZE1S35M Module



RSB2A080BD Relay
+ RSZE1S48M Socket



RSB1A160BD Relay
+ RSZE1S48M Socket

## Zelio™ Plug-In Interface Relays

Zelio RSB interface relays and sockets provide the optimum combination of robust performance and space saving for the most demanding applications. Relays are rated at 8 A, 12 A, and 16 A (250 Vac / 28 Vdc). Features include:

- Optional protection modules for protection against electrical spikes
- Optional plastic hold-down ejector clips
- Socket or printed circuit board installation options

**Table 23.5: Relays** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | |
|---|---|---|---|---|---|---|
| | 1 C/O -12 A Res. | | 1 C/O -16 A Res. | | 2 C/O -8 A Res. | |
| | Catalog Number▲ | $ Price ea. | Catalog Number▲ | $ Price ea. | Catalog Number▲ | $ Price ea. |
| 6 Vdc | RSB1A120RD | 3.50 | RSB1A160RD | 4.20 | RSB2A080RD | 4.20 |
| 12 Vdc | RSB1A120JD | 3.50 | RSB1A160JD | 4.20 | RSB2A080JD | 4.20 |
| 24 Vdc | RSB1A120BD | 3.50 | RSB1A160BD | 4.20 | RSB2A080BD | 4.20 |
| 48 Vdc | RSB1A120ED | 3.50 | RSB1A160ED | 4.20 | RSB2A080ED | 4.20 |
| 60 Vdc | RSB1A120ND | 3.50 | RSB1A160ND | 4.20 | RSB2A080ND | 4.20 |
| 110 Vdc | RSB1A120FD | 3.50 | RSB1A160FD | 4.20 | RSB2A080FD | 4.20 |
| 24 Vac | RSB1A120B7 | 3.50 | RSB1A160B7 | 4.20 | RSB2A080B7 | 4.20 |
| 48 Vac | RSB1A120E7 | 3.50 | RSB1A160E7 | 4.20 | RSB2A080E7 | 4.20 |
| 120 Vac | RSB1A120F7 | 3.50 | RSB1A160F7 | 4.20 | RSB2A080F7 | 4.20 |
| 220 Vac | RSB1A120M7 | 3.50 | RSB1A160M7 | 4.20 | RSB2A080M7 | 4.20 |
| 230 Vac | RSB1A120P7 | 3.50 | RSB1A160P7 | 4.20 | RSB2A080P7 | 4.20 |
| 240 Vac | RSB1A120U7 | 3.50 | RSB1A160U7 | 4.20 | RSB2A080U7 | 4.20 |

▲ To order a relay complete with socket (sold in lots of 20): add suffix S to the catalog numbers selected above.
Example: RSB 2A080RD + RSZ E1S48M becomes RSB 2A080RDS.

**Table 23.6: Sockets – 12 A, 300 Vac**
(sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| **Separate** | Box lug connector | RSB1A120•• | RSZE1S35M | 4.80 |
| | | RSB1A160••■<br>RSB2A080•• | RSZE1S48M | 5.30 |

■ When using the relay with socket RSZ E1S48M, terminals must be jumpered.

**Table 23.7: Protection modules** (sold in lots of 10)

| Description | For use with | Voltage | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Diode | All sockets | 6–230 Vdc | RZM040W | 2.40 |
| RC circuit | All sockets | 24–60 Vac | RZM041BN7 | 4.80 |
| | | 110–240 Vac | RZM041FU7 | 4.80 |
| Diode + green LED | All sockets | 6–24 Vdc | RZM031RB | 4.20 |
| | | 24–60 Vdc | RZM031BN | 4.20 |
| | | 110–230 Vdc | RZM031FPD | 6.00 |
| Varistor + green LED | All sockets | 6–24 Vac/Vdc | RZM021RB | 6.00 |
| | | 24–60 Vac/Vdc | RZM021BN | 6.00 |
| | | 110–230 Vac/Vdc | RZM021FP | 6.00 |

**Table 23.8: Accessories** (sold in lots of 10)

| Description | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|
| Plastic hold-down ejector clip | All sockets | RSZR215 | .42 |
| ID tags | All sockets | RSZL300 | .30 |

### Approvals for RSB relays:

c UL us File CCN E173076 NRNT2, NRNT8 — CSA File Class 215736 3211 07 — CE — IEC 61810-1 — RoHS Compliant as of date code 0401

### Approvals for RSB sockets:

c UL us File CCN SWIV2 E172326 — CSA File Class 212916 3211 07 — CE — IEC 61984 — RoHS Compliant as of date code 0501

**RZM modules are RoHS compliant as of date code 0610.**

For mounting track, see page 24-16.



© 2012 Schneider Electric
All Rights Reserved

## Zelio™ Plug-In Relays

Zelio RXM miniature plug-in relays and sockets provide a complete system solution in response to the most demanding applications ranging from 3A to 12A. Some of the features include:

- Test button with removable lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional protection modules to protect against electrical spikes
- Bus jumpers for connecting multiple terminals reduce installation time

**Table 23.9: Miniature relays without LED, with Test Button and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | |
|---|---|---|---|---|---|---|
| | 2 C/O -12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RXM2AB1JD | **5.30** | RXM3AB1JD | **5.70** | RXM4AB1JD | **6.00** |
| 24 Vdc | RXM2AB1BD | **5.30** | RXM3AB1BD | **5.70** | RXM4AB1BD | **6.00** |
| 48 Vdc | RXM2AB1ED | **5.30** | RXM3AB1ED | **5.70** | RXM4AB1ED | **6.00** |
| 110 Vdc | RXM2AB1FD | **5.30** | RXM3AB1FD | **5.70** | RXM4AB1FD | **6.00** |
| 220 Vdc | — | — | — | — | RXM4AB1MD | **6.00** |
| 24 Vac | RXM2AB1B7 | **5.30** | RXM3AB1B7 | **5.70** | RXM4AB1B7 | **6.00** |
| 48 Vac | RXM2AB1E7 | **5.30** | RXM3AB1E7 | **5.70** | RXM4AB1E7 | **6.00** |
| 120 Vac | RXM2AB1F7 | **5.30** | RXM3AB1F7 | **5.70** | RXM4AB1F7 | **6.00** |
| 230 Vac | RXM2AB1P7 | **5.30** | RXM3AB1P7 | **5.70** | RXM4AB1P7 | **6.00** |
| 240 Vac | — | — | — | — | RXM4AB1U7 | **6.00** |



RXM2AB2F7

**Table 23.10: Miniature relays with LED, Test Button, and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | |
|---|---|---|---|---|---|---|
| | 2 C/O -12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RXM2AB2JD | **6.20** | RXM3AB2JD | **6.60** | RXM4AB2JD | **6.80** |
| 24 Vdc | RXM2AB2BD | **6.20** | RXM3AB2BD | **6.60** | RXM4AB2BD | **6.80** |
| 48 Vdc | RXM2AB2ED | **6.20** | RXM3AB2ED | **6.60** | RXM4AB2ED | **6.80** |
| 110 Vdc | RXM2AB2FD | **6.20** | RXM3AB2FD | **6.60** | RXM4AB2FD | **6.80** |
| 125 Vdc | — | — | — | — | RXM4AB2GD | **6.80** |
| 24 Vac | RXM2AB2B7 | **6.20** | RXM3AB2B7 | **6.60** | RXM4AB2B7 | **6.80** |
| 48 Vac | RXM2AB2E7 | **6.20** | RXM3AB2E7 | **6.60** | RXM4AB2E7 | **6.80** |
| 120 Vac | RXM2AB2F7 | **6.20** | RXM3AB2F7 | **6.60** | RXM4AB2F7 | **6.80** |
| 230 Vac | RXM2AB2P7 | **6.20** | RXM3AB2P7 | **6.60** | RXM4AB2P7 | **6.80** |

**Table 23.11: Miniature relays with LED, without Test Button and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | | | |
|---|---|---|---|---|---|---|
| | 2 C/O -12 A Res. | | 3 C/O - 10 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RXM2AB3JD | **5.70** | — | — | RXM4AB3JD | **6.30** |
| 24 Vdc | RXM2AB3BD | **5.70** | — | — | RXM4AB3BD | **6.30** |
| 48 Vdc | RXM2AB3ED | **5.70** | — | — | RXM4AB3ED | **6.30** |
| 110 Vdc | RXM2AB3FD | **5.70** | — | — | RXM4AB3FD | **6.30** |
| 125 Vdc | — | — | — | — | RXM4AB3GD | **6.30** |
| 24 Vac | RXM2AB3B7 | **5.70** | — | — | RXM4AB3B7 | **6.30** |
| 48 Vac | RXM2AB3E7 | **5.70** | — | — | RXM4AB3E7 | **6.30** |
| 120 Vac | RXM2AB3F7 | **5.70** | — | — | RXM4AB3F7 | **6.30** |
| 230 Vac | RXM2AB3P7 | **5.70** | — | — | RXM4AB3P7 | **6.30** |

**Table 23.12: Miniature relays with low level contacts, without LED, with Test Button and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | 4 C/O -3 A Res. | | |
| | Catalog Number | $ Price ea. | |
| 12 Vdc | RXM4GB1JD | **6.00** | |
| 24 Vdc | RXM4GB1BD | **6.00** | |
| 48 Vdc | RXM4GB1ED | **6.00** | |
| 110 Vdc | RXM4GB1FD | **6.00** | |
| 24 Vac | RXM4GB1B7 | **6.00** | |
| 48 Vac | RXM4GB1E7 | **6.00** | |
| 120 Vac | RXM4GB1F7 | **6.00** | |
| 230 Vac | RXM4GB1P7 | **6.00** | |



RXM4GB2F7

**Table 23.13: Miniature relays with low level contacts, with LED, Test Button and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | 4 C/O -3 A Res. | | |
| | Catalog Number | $ Price ea. | |
| 12 Vdc | RXM4GB2JD | **6.80** | |
| 24 Vdc | RXM4GB2BD | **6.80** | |
| 48 Vdc | RXM4GB2ED | **6.80** | |
| 110 Vdc | RXM4GB2FD | **6.80** | |
| 24 Vac | RXM4GB2B7 | **6.80** | |
| 48 Vac | RXM4GB2E7 | **6.80** | |
| 120 Vac | RXM4GB2F7 | **6.80** | |
| 230 Vac | RXM4GB2P7 | **6.80** | |
| 240 Vac | RXM4GB2U7 | **6.80** | |

**Table 23.14: Miniature relays with low level contacts, with LED, without Test Button and Lock-Down Door** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | |
|---|---|---|---|
| | 4 C/O -3 A Res. | | |
| | Catalog Number | $ Price ea. | |
| 12 Vdc | RXM4GB3JD | **6.30** | |
| 24 Vdc | RXM4GB3BD | **6.30** | |
| 48 Vdc | RXM4GB3ED | **6.30** | |
| 110 Vdc | RXM4GB3FD | **6.30** | |
| 125 Vdc | — | — | |
| 24 Vac | RXM4GB3B7 | **6.30** | |
| 48 Vac | RXM4GB3E7 | **6.30** | |
| 120 Vac | RXM4GB3F7 | **6.30** | |
| 230 Vac | RXM4GB3P7 | **6.30** | |

For sockets and accessories, see page 23-5.

**Approvals for Relays:**

c UL us LISTED File CCN ▲ E164862 NLDX, NLDX7

c UL us File CCN E164862 NLDX2, NLDX8

SP® File 230765 Class 3211 07

CE IEC 61810-1 RoHS Compliant

▲ When used with the appropriate socket.





© 2012 Schneider Electric
All Rights Reserved



RXZE2M114M Socket + RXM4AB2P7 Relay

**Table 23.15: Miniature relays** (sold in lots of 100)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | 2 C/O - 12 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| **Without LED, with Test Button, and Lock-Down Door** | | | | |
| 12 Vdc | — | — | RXM4AB1JDTQ | **6.00** |
| 24 Vdc | RXM2AB1BDTQ | **5.30** | RXM4AB1BDTQ | **6.00** |
| 48 Vdc | — | — | RXM4AB1EDTQ | **6.00** |
| 110 Vdc | — | — | RXM4AB1FDTQ | **6.00** |
| 220 Vdc | — | — | RXM4AB1MDTQ | **6.00** |
| 24 Vac | RXM2AB1B7TQ | **5.30** | RXM4AB1B7TQ | **6.00** |
| 48 Vac | — | — | RXM4AB1E7TQ | **6.00** |
| 120 Vac | RXM2AB1F7TQ | **5.30** | RXM4AB1F7TQ | **6.00** |
| 230 Vac | RXM2AB1P7TQ | **5.30** | RXM4AB1P7TQ | **6.00** |
| **With LED, Test Button, and Lock-Down Door** | | | | |
| 24 Vdc | — | — | RXM4AB2BDTQ | **6.80** |
| 24 Vac | RXM2AB2B7TQ | **6.20** | RXM4AB2B7TQ | **6.80** |
| 230 Vac | RXM2AB2P7TQ | **6.20** | RXM4AB2P7TQ | **6.80** |

**Table 23.16: Miniature relays with LED without Test Button and Lock-Down Door** (sold in lots of 100)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | 2 C/O - 12 A Res. | | 4 C/O - 8 A Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 24 Vdc | RXM2AB3BDTQ | **5.70** | RXM4AB3BDTQ | **6.30** |
| 24 Vac | RXM2AB3B7TQ | **5.70** | RXM4AB3B7TQ | **6.30** |
| 230 Vac | RXM2AB3P7TQ | **5.70** | RXM4AB3P7TQ | **6.30** |



RXZE2S114M Socket + RXM4AB2F7 Relay

**Table 23.17: Sockets** (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Mixed | Screw clamp terminals | RXM2•••••▲ RXM4•••••▲ | RXZE2M114■ | **5.00** |
| | Box lug connector | RXM2••••• RXM4••••• | RXZE2M114M■ | **5.00** |
| Separate | Box lug connector | RXM2••••• | RXZE2S108M♦ | **5.00** |
| | | RXM3••••• | RXZE2S111M■ | **5.00** |
| | | RXM4••••• | RXZE2S114M■ | **5.00** |

▲ When mounting relay RXM2••••• on socket RXZE2M••••, the thermal current must not exceed 10 A.
■ Thermal current Ith: 10 A
♦ Thermal current Ith: 12 A

**Table 23.18: Protection modules** (sold in lots of 10)

| Description | Voltage | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Diode | 6–250 Vdc | All sockets | RXM040W | **1.90** |
| RC circuit | 24–60 Vac | All sockets | RXM041BN7 | **1.90** |
| | 110–240 Vac | All sockets | RXM041FU7 | **1.90** |
| Varistor | 6–24 Vac/Vdc | All sockets | RXM021RB | **1.90** |
| | 24–60 Vac/Vdc | All sockets | RXM021BN | **1.90** |
| | 110–240 Vac/Vdc | All sockets | RXM021FP | **1.90** |



RXM041BN7

**Table 23.19: Accessories** (sold in lots of 10)

| Description | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|
| Metal hold-down clip | All sockets | RXZ400 | **.50** |
| Plastic hold-down ejector clip | All sockets | RXZR335 | **.50** |
| Bus jumper, 2-pole (Ith: 5 A) | All sockets with separate contacts | RXZS2 | **.70** |
| DIN rail mounting adapter | All relays | RXZE2DA | **.70** |
| Panel mounting adapter | All relays | RXZE2FA | **.50** |
| ID tags | All relays (sheet of 108 tags) | RXZL520 | **.10** |
| | All sockets except RXZE2M114 | RXZL420 | **.10** |



RXZ400

**Approvals for Sockets:**

c UL us File CCN E172326 SWIV2, SWIV8 — CSA File 230765 Class 3211 07 — CE IEC 61984 — RoHS Compliant



© 2012 Schneider Electric
All Rights Reserved

## Zelio™ Plug-In Relays

Zelio RPM plug-in relays and sockets provide a complete system solution in response to the most demanding applications up to 15 A. Some of the features include:

- Test button with removable lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional modules to protect against electrical spikes



RPM22F7

**Table 23.20: Power relays without LED, with Test Button and Lock-Down Door** (sold in lots of 10)

| | Number and type of contacts - Thermal current (Ith) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| Coil Voltage | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RPM11JD | 4.50 | RPM21JD | 6.00 | RPM31JD | 8.10 | RPM41JD | 10.00 |
| 24 Vdc | RPM11BD | 4.50 | RPM21BD | 6.00 | RPM31BD | 8.10 | RPM41BD | 10.00 |
| 48 Vdc | RPM11ED | 4.50 | RPM21ED | 6.00 | RPM31ED | 8.10 | RPM41ED | 10.00 |
| 110 Vdc | RPM11FD | 4.50 | RPM21FD | 6.00 | RPM31FD | 8.10 | RPM41FD | 10.00 |
| 24 Vac | RPM11B7 | 4.50 | RPM21B7 | 6.00 | RPM31B7 | 8.10 | RPM41B7 | 10.00 |
| 48 Vac | RPM11E7 | 4.50 | RPM21E7 | 6.00 | RPM31E7 | 8.10 | RPM41E7 | 10.00 |
| 120 Vac | RPM11F7 | 4.50 | RPM21F7 | 6.00 | RPM31F7 | 8.10 | RPM41F7 | 10.00 |
| 230 Vac | RPM11P7 | 4.50 | RPM21P7 | 6.00 | RPM31P7 | 8.10 | RPM41P7 | 10.00 |



RPM42BD

**Table 23.21: Power relays with LED, Test Button and Lock-Down Door** (sold in lots of 10)

| | Number and type of contacts - Thermal current (Ith) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| Coil Voltage | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RPM12JD | 5.30 | RPM22JD | 6.80 | RPM32JD | 9.00 | RPM42JD | 10.90 |
| 24 Vdc | RPM12BD | 5.30 | RPM22BD | 6.80 | RPM32BD | 9.00 | RPM42BD | 10.90 |
| 48 Vdc | RPM12ED | 5.30 | RPM22ED | 6.80 | RPM32ED | 9.00 | RPM42ED | 10.90 |
| 110 Vdc | RPM12FD | 5.30 | RPM22FD | 6.80 | RPM32FD | 9.00 | RPM42FD | 10.90 |
| 24 Vac | RPM12B7 | 5.30 | RPM22B7 | 6.80 | RPM32B7 | 9.00 | RPM42B7 | 10.90 |
| 48 Vac | RPM12E7 | 5.30 | RPM22E7 | 6.80 | RPM32E7 | 9.00 | RPM42E7 | 10.90 |
| 120 Vac | RPM12F7 | 5.30 | RPM22F7 | 6.80 | RPM32F7 | 9.00 | RPM42F7 | 10.90 |
| 230 Vac | RPM12P7 | 5.30 | RPM22P7 | 6.80 | RPM32P7 | 9.00 | RPM42P7 | 10.90 |

**Table 23.22: Power relays with LED, without Test Button and Lock-Down Door** (sold in lots of 10)

| | Number and type of contacts - Thermal current (Ith) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 C/O - 15 A Res. | | 2 C/O - 15 A Res. | | 3 C/O - 15 A Res. | | 4 C/O - 15 A Res. | |
| Coil Voltage | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RPM13JD | 5.00 | RPM23JD | 6.30 | RPM33JD | 8.30 | RPM43JD | 10.10 |
| 24 Vdc | RPM13BD | 5.00 | RPM23BD | 6.30 | RPM33BD | 8.30 | RPM43BD | 10.10 |
| 48 Vdc | RPM13ED | 5.00 | RPM23ED | 6.30 | RPM33ED | 8.30 | RPM43ED | 10.10 |
| 110 Vdc | RPM13FD | 5.00 | RPM23FD | 6.30 | RPM33FD | 8.30 | RPM43FD | 10.10 |
| 125 Vdc | — | — | — | — | — | — | — | — |
| 24 Vac | RPM13B7 | 5.00 | RPM23B7 | 6.30 | RPM33B7 | 8.30 | RPM43B7 | 10.10 |
| 48 Vac | RPM13E7 | 5.00 | RPM23E7 | 6.30 | RPM33E7 | 8.30 | RPM43E7 | 10.10 |
| 120 Vac | RPM13F7 | 5.00 | RPM23F7 | 6.30 | RPM33F7 | 8.30 | RPM43F7 | 10.10 |
| 230 Vac | RPM13P7 | 5.00 | RPM23P7 | 6.30 | RPM33P7 | 8.30 | RPM43P7 | 10.10 |



RPZF2 Socket + RPM22F7 Relay

### Approvals for relays:

c UL us LISTED File CCN ▲ E164862 NLDX, NLDX7 — c UL us File CCN E164862 NLDX2, NLDX8 — CSA File 230765 Class 3211 07 — CE IEC 61810-1 — RoHS Compliant

▲ When used with the appropriate socket

**Table 23.23: Sockets** (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Mixed | Screw terminals | RPM1••• | RPZF1 | 4.30 |
| | | RPM2••• | RPZF2 | 5.50 |
| | | RPM3••• | RPZF3 | 6.30 |
| | | RPM4••• | RPZF4 | 7.30 |

### Approvals for Sockets:

c UL us File CCN E172326 SWIV2, SWIV8 — CSA File 230765 Class 3211 07 — CE IEC 61984 — RoHS Compliant





© 2012 Schneider Electric
All Rights Reserved


RXM041BN7

**Table 23.24: Protection modules (sold in lots of 10)**

| Description | Voltage | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Diode | 6–250 Vdc | RPZF1<br>RPZF2 | RXM040W | **1.90** |
| | | RPZF3<br>RPZF4 | RUW240BD | **2.60** |
| RC circuit | 24–60 Vac | RPZF1<br>RPZF2 | RXM041BN7 | **1.90** |
| | 110–240 Vac | RPZF1<br>RPZF2 | RXM041FU7 | **2.20** |
| | | RPZF3<br>RPZF4 | RUW241P7 | **2.20** |
| Varistor | 6–24 Vac/Vdc | RPZF1<br>RPZF2 | RXM021RB | **1.90** |
| | 24–60 Vac/Vdc | RPZF1<br>RPZF2 | RXM021BN | **1.90** |
| | 110–240 Vac/Vdc | RPZF1<br>RPZF2 | RXM021FP | **1.90** |
| | 24 Vac/Vdc | RPZF3<br>RPZF4 | RUW242B7 | **2.70** |
| | 240 Vac/Vdc | RPZF3<br>RPZF4 | RUW242P7 | **2.70** |



**Table 23.25: Timer module▲** (sold in lots of 1)

| Description | Voltage | For Use With | Catalog Number | $ Price |
|---|---|---|---|---|
| On-delay timer, interval timer,<br>repeat cycle timer/starting on-delay,<br>repeat cycle timer/starting off-delay,<br>off-delay timer, one-shot timer,<br>timing on de-energization, on-delay timer | 24–240 Vac/Vdc | RPZF3<br>RPZF4 | RUW101MW | **47.10** |

▲ See timer module description (selection of functions and time delays) in catalog **DIA3ED2090304EN-US**.


RPZ1DA

**Table 23.26: Accessories** (sold in lots of 10)

| Description | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|
| Metal hold-down clip (for single-pole relays) | RPZF1 | RPZR235 | **0.50** |
| DIN rail mounting adapter ■ | RPM1••• | RPZ1DA | **0.70** |
| | RPM2••• | RXZE2DA | **0.70** |
| | RPM3••• | RPZ3DA | **0.70** |
| | RPM4••• | RPZ4DA | **0.70** |
| Panel mounting adapter | RPM1••• | RPZ1FA | **0.50** |
| | RPM2••• | RXZE2FA | **0.50** |
| | RPM3••• | RPZ3FA | **0.50** |
| | RPM4••• | RPZ4FA | **0.50** |
| ID tags (sheet of 108 tags) | All relays | RXZL520 | **0.10** |

■ Test button and lock-down door become inaccessible


RPZ3FA



© 2012 Schneider Electric
All Rights Reserved

## Zelio™ Plug-In Relays

Zelio RUM plug-in relays and sockets provide a complete system solution in response to the most demanding applications up to 16 A. Some of the features include:

- Test button with lock-down door for testing the contacts (depending on model)
- Green LED indication of relay status (depending on model)
- Mechanical indication of relay status (standard)
- Optional protection modules to protect against electrical spikes
- Bus jumpers for connecting multiple terminals reduce installation time

**Table 23.27: Relays for standard applications without LED, with Test Button and Lock-Down Door**
(sold in lots of 10)

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|---|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB1JD | 10.10 | RUMC3AB1JD | 11.30 |
| | 24 Vdc | RUMC2AB1BD | 10.10 | RUMC3AB1BD | 11.30 |
| | 48 Vdc | RUMC2AB1ED | 10.10 | RUMC3AB1ED | 11.30 |
| | 60 Vdc | — | — | RUMC3AB1ND | 11.30 |
| | 110 Vdc | RUMC2AB1FD | 10.10 | RUMC3AB1FD | 11.30 |
| | 125 Vdc | — | — | RUMC3AB1GD | 11.30 |
| | 220 Vdc | — | — | RUMC3AB1MD | 11.30 |
| | 24 Vac | RUMC2AB1B7 | 10.10 | RUMC3AB1B7 | 11.30 |
| | 48 Vac | RUMC2AB1E7 | 10.10 | RUMC3AB1E7 | 11.30 |
| | 120 Vac | RUMC2AB1F7 | 10.10 | RUMC3AB1F7 | 11.30 |
| | 230 Vac | RUMC2AB1P7 | 10.10 | RUMC3AB1P7 | 11.30 |
| Flat | 12 Vdc | RUMF2AB1JD | 10.10 | RUMF3AB1JD | 11.30 |
| | 24 Vdc | RUMF2AB1BD | 10.10 | RUMF3AB1BD | 11.30 |
| | 48 Vdc | RUMF2AB1ED | 10.10 | RUMF3AB1ED | 11.30 |
| | 110 Vdc | RUMF2AB1FD | 10.10 | RUMF3AB1FD | 11.30 |
| | 24 Vac | RUMF2AB1B7 | 10.10 | RUMF3AB1B7 | 11.30 |
| | 48 Vac | RUMF2AB1E7 | 10.10 | RUMF3AB1E7 | 11.30 |
| | 120 Vac | RUMF2AB1F7 | 10.10 | RUMF3AB1F7 | 11.30 |
| | 230 Vac | RUMF2AB1P7 | 10.10 | RUMF3AB1P7 | 11.30 |



RUMF3AB2P7
Universal Relay

**Table 23.28: Relays for standard applications, with LED, Test Button, and Lock-Down Door**
(sold in lots of 10)

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|---|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB2JD | 11.30 | RUMC3AB2JD | 12.50 |
| | 24 Vdc | RUMC2AB2BD | 11.30 | RUMC3AB2BD | 12.50 |
| | 48 Vdc | RUMC2AB2ED | 11.30 | RUMC3AB2ED | 12.50 |
| | 60 Vdc | — | — | RUMC3AB2ND | 12.50 |
| | 110 Vdc | RUMC2AB2FD | 11.30 | RUMC3AB2FD | 12.50 |
| | 125 Vdc | — | — | RUMC3AB2GD | 12.50 |
| | 24 Vac | RUMC2AB2B7 | 11.30 | RUMC3AB2B7 | 12.50 |
| | 48 Vac | RUMC2AB2E7 | 11.30 | RUMC3AB2E7 | 12.50 |
| | 120 Vac | RUMC2AB2F7 | 11.30 | RUMC3AB2F7 | 12.50 |
| | 230 Vac | RUMC2AB2P7 | 11.30 | RUMC3AB2P7 | 12.50 |
| Flat | 12 Vdc | RUMF2AB2JD | 11.30 | RUMF3AB2JD | 12.50 |
| | 24 Vdc | RUMF2AB2BD | 11.30 | RUMF3AB2BD | 12.50 |
| | 48 Vdc | RUMF2AB2ED | 11.30 | RUMF3AB2ED | 12.50 |
| | 110 Vdc | RUMF2AB2FD | 11.30 | RUMF3AB2FD | 12.50 |
| | 24 Vac | RUMF2AB2B7 | 11.30 | RUMF3AB2B7 | 12.50 |
| | 48 Vac | RUMF2AB2E7 | 11.30 | RUMF3AB2E7 | 12.50 |
| | 120 Vac | RUMF2AB2F7 | 11.30 | RUMF3AB2F7 | 12.50 |
| | 230 Vac | RUMF2AB2P7 | 11.30 | RUMF3AB2P7 | 12.50 |

**Table 23.29: Relays for standard applications with LED, without Push Button, and Lock-Down Door**
(sold in lots of 10)

| Pins | Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|---|
| | | 2 C/O -16 A Res. | | 3 C/O -16 A Res. | |
| | | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| Cylindrical | 12 Vdc | RUMC2AB3JD | 10.40 | RUMC3AB3JD | 11.60 |
| | 24 Vdc | RUMC2AB3BD | 10.40 | RUMC3AB3BD | 11.60 |
| | 48 Vdc | RUMC2AB3ED | 10.40 | RUMC3AB3ED | 11.60 |
| | 60 Vdc | — | — | RUMC3AB3ND | 11.60 |
| | 110 Vdc | RUMC2AB3FD | 10.40 | RUMC3AB3FD | 11.60 |
| | 125 Vdc | — | — | RUMC3AB3GD | 11.60 |
| | 24 Vac | RUMC2AB3B7 | 10.40 | RUMC3AB3B7 | 11.60 |
| | 48 Vac | RUMC2AB3E7 | 10.40 | RUMC3AB3E7 | 11.60 |
| | 120 Vac | RUMC2AB3F7 | 10.40 | RUMC3AB3F7 | 11.60 |
| | 230 Vac | RUMC2AB3P7 | 10.40 | RUMC3AB3P7 | 11.60 |
| Flat | 12 Vdc | RUMF2AB3JD | 10.40 | RUMF3AB3JD | 11.60 |
| | 24 Vdc | RUMF2AB3BD | 10.40 | RUMF3AB3BD | 11.60 |
| | 48 Vdc | RUMF2AB3ED | 10.40 | RUMF3AB3ED | 11.60 |
| | 110 Vdc | RUMF2AB3FD | 10.40 | RUMF3AB3FD | 11.60 |
| | 125 Vdc | — | — | RUMF3AB3GD | 11.60 |
| | 24 Vac | RUMF2AB3B7 | 10.40 | RUMF3AB3B7 | 11.60 |
| | 48 Vac | RUMF2AB3E7 | 10.40 | RUMF3AB3E7 | 11.60 |
| | 120 Vac | RUMF2AB3F7 | 10.40 | RUMF3AB3F7 | 11.60 |
| | 230 Vac | RUMF2AB3P7 | 10.40 | RUMF3AB3P7 | 11.60 |

## Approvals for Relays:

c UL us LISTED File CCN ▲ E164862 NLDX, NLDX7

c UL us File CCN E164862 NLDX2, NLDX8

SP® File 230765 Class 3211 07

CE IEC 61810-1

RoHS Compliant

▲ When used with appropriate socket





For sockets and accessories, see page 23-9

© 2012 Schneider Electric
All Rights Reserved



RUZ C3M Socket+
RUMC3●●●●● Relay

**Table 23.30: Sockets** (sold in lots of 10)

| Contact terminal arrangement | Connection | Relay type | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Mixed ▲ | Box lug connector (screw terminals) | RUMC2••••• | RUZC2M | 3.50 |
| | | RUMC3••••• | RUZC3M | 4.20 |
| Separate ■ | | RUMC2••••• | RUZSC2M | 4.50 |
| | | RUMC3••••• | RUZSC3M | 5.00 |
| | | RUMF2••••• | RUZSF3M | 5.60 |
| | | RUMF3••••• | | |

▲ The inputs are mixed with the relay coil terminals, with the outputs located on the opposite side of the socket.
■ The inputs and outputs are separated from the relay coil terminals.



RUW241P7

**Table 23.31: Protection modules** (sold in lots of 10)

| Description | For use with | Voltage | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Diode | All sockets | 6–250 Vdc | RUW240BD | 2.20 |
| RC circuit | | 110–240 Vac | RUW241P7 | 2.20 |
| Varistor | | 24 Vac/Vdc | RUW242B7 | 2.70 |
| | | 240 Vac/Vdc | RUW242P7 | 2.70 |



RUW101MW

**Table 23.32: Timer module♦** (sold in lots of 1)

| Description | For use with | Voltage | Catalog Number | $ Price |
|---|---|---|---|---|
| On-delay timer, interval timer, repeat cycle timer/starting on-delay, repeat cycle timer/starting off-delay, off-delay timer, one-shot timer, timing on de-energization, on-delay timer. | All sockets | 24–240 Vac/Vdc | RUW101MW | 47.10 |

♦ See timer module description (selection of functions and time delays) in catalog **8501CT0601**.



RUZS2

**Table 23.33: Accessories** (sold in lots of 10)

| Description | For use with | Catalog Number | $ Price ea. |
|---|---|---|---|
| Metal hold-down clip | All sockets | RUZC200 | 1.20 |
| Bus jumper, 2-pole (Ith: 5 A) | All sockets with separate contacts | RUZS2 | 0.70 |
| ID tags | All relays (sheet of 108 tags) | RXZL520 | 0.10 |
| | All sockets with separate contacts | RUZ420 | 0.10 |



RUZC200

## Approvals for Sockets:

c UL us LISTED — File CCN E172326 SWIV2, SWIV8 — CSA — File Class 230765 3211 07 — CE — IEC 61810-1 — RoHS Compliant

## Zelio™ RPF Power Relays

RPF Zelio power relays respond to the most demanding applications up to 30 A. Features include:

- UL Listed
- Sealed construction
- Motor load ratings: 1hp @ 120 Vac / 3hp @ 240 Vac (N/O contacts only)
- Dual DIN rail and panel mounting capability
- Short circuit rating of 5,000 A @ 240 Vac (N/O contacts only)



RPF2BJD

**Table 23.34: Power relays** (sold in lots of 10)

| Coil Voltage | Number and type of contacts - Thermal current (Ith) | | | |
|---|---|---|---|---|
| | 2 N/O - 30 A▲ Res. | | 2 C/O - 30 A on N.O. / 3 A on N.C. ▲ Res. | |
| | Catalog Number | $ Price ea. | Catalog Number | $ Price ea. |
| 12 Vdc | RPF2AJD | 10.40 | RPF2BJD | 10.90 |
| 24 Vdc | RPF2ABD | 10.40 | RPF2BBD | 10.90 |
| 110 Vdc | RPF2AFD | 10.40 | RPF2BFD | 10.90 |
| 24 Vac | RPF2AB7 | 10.40 | RPF2BB7 | 10.90 |
| 120 Vac | RPF2AF7 | 10.40 | RPF2BF7 | 10.90 |
| 230 Vac | RPF2AP7 | 10.40 | RPF2BP7 | 10.90 |

▲ 30 A when mounted with 13 mm gap between two relays.
25 A when mounted side by side without a gap.

## Approvals for Relays:

c UL us LISTED — File CCN E43641 NLDX, NLDX7 — CSA — File 040787 Class 3211-07 — CE — IEC 61810-1 — RoHS Compliant

For mounting track, see page 24-16



© 2012 Schneider Electric
All Rights Reserved

## Square D™ Plug-In Relays

8501K relays are designed for multipole switching applications at 240 Vac or lower. These relays have industry standard wiring and pin terminal arrangements which allow for their use as replacements for many competitive relays without wiring or hardware modifications.

- 12 A relays
- DPDT or 3PDT
- Manual operator/ green pilot light options
- Motor load (hp) ratings
- DPDT latching models available
- AC or DC operation
- RoHS Compliant

### Table 23.35: Type KF —Flange Mounted—Spade Terminals

| | Input Voltage | Contact Arrangement | Options | Type | $ Price |
|---|---|---|---|---|---|
|  | AC 50/60 Hz | DPDT | None Available | KF12★ | **24.60** |
| | | 3PDT | | KF13★ | **26.70** |
| | DC | DPDT | None Available | KFD12★ | **24.60** |
| | | 3PDT | | KFD13★ | **26.70** |

### Table 23.36: Type KL—Latching Relay—Spade Terminals

| | Input Voltage | Contact Arrangement | Options | Type | $ Price |
|---|---|---|---|---|---|
|  | AC 50/60 Hz | DPDT | None Available | KL12★ | **45.00** |
| | DC | DPDT | None Available | KLD12★ | **45.00** |

### Table 23.37: Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | Type | DC Voltage | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 12 | 24 | 120 | 240 | | 6 | 12 | 24 | 48 | 110 | 125 |
| Voltage Codes | V35 | V36 | V14 | V20 | V24 | Voltage Codes | V50 | V51 | V53 | V56 | V60 | V63 |
| KP12 | S | S | S | S | S | KPD12 | S | S | S | S | | S |
| KP12P14 | | S | S | S | S | KPD12P14 | | S | S | | S | S |
| KP13 | | S | S | S | S | KPD13 | | S | S | S | S | S |
| KP13P14 | | | S | S | S | KPD13P14 | | | S | | | |
| KU12 | | S | S | S | S | KUD12 | | S | | | | |
| KU12M1 | | | | | | KUD12M1 | | | S | | | |
| KU12P14 | | | S | S | | KUD12P14 | | | S | | | |
| KU12M1P14 | | | S | S | | KUD12M1P14 | | | S | | | |
| KU13 | | S | S | S | S | KUD13 | | S | S | | | S |
| KU13M1 | | | | | | KUD13M1 | | | | | | |
| KU13P14 | | | S | S | | KUD13P14 | | | | | | |
| KU13M1P14 | | | S | S | S | KUD13M1P14 | | | S | | | S |
| KF12 | | | S | S | S | KFD12 | | S | S | | | |
| KF13 | | | S | S | | KFD13 | | | S | | | |
| KL12 | | | S | S | | KLD12 | | S | S | | | |

Note: S = Stocked.
Factory order items require a minimum order quantity of 25 and have a lead time of 12 weeks.

### For 8501 KP, KU, and KF:

c UL us File CCN E78351 NLDX2 NLDX8 — CSA File 211269 Class 3211 04

### For 8501 KP, KU, and KL:

c UL us LISTED File CCN E78351 NLDX NLDX7 — When used with the appropriate 8501NR socket.

### For 8501 KL:

c UL us File CCN E78351 NLDX2 NLDX8 — CSA File 211268 Class 3211 04

**Pilot Light Option**—Available on Types KP and KU. Internal pilot lights are available in both AC and DC versions for positive indication of power to the coil. The pilot light is a green LED.

**Manual Operator Option**—Available on Type KU only. To facilitate speed circuit testing, a manual operator (test button) can be provided.

Coil VAC—3.0 VA

Coil VDC—1.4 Watts

### Table 23.38: Type KP—Tubular Terminals

| | Input Voltage | Contact Arrangement | Options | Type | $ Price |
|---|---|---|---|---|---|
|  | AC 50/60 Hz | DPDT | None | KP12★ | **39.00** |
| | | DPDT | Pilot Light | KP12P14★ | **45.00** |
| | | 3PDT | None | KP13★ | **47.30** |
| | | 3PDT | Pilot Light | KP13P14★ | **53.30** |
| | DC | DPDT | None | KPD12★ | **39.00** |
| | | DPDT | Pilot Light | KPD12P14★ | **45.00** |
| | | 3PDT | None | KPD13★ | **47.30** |
| | | 3PDT | Pilot Light | KPD13P14★ | **53.30** |

### Table 23.39: Type KU—Spade Terminals

| | Input Voltage | Contact Arrangement | Options | Type | $ Price |
|---|---|---|---|---|---|
|  | AC 50/60 Hz | DPDT | None | KU12★ | **22.70** |
| | | DPDT | Manual Operator | KU12M1★ | **26.70** |
| | | DPDT | Pilot Light | KU12P14★ | **28.70** |
| | | DPDT | Manual Operator and Pilot Light | KU12M1P14★ | **30.80** |
| | | 3PDT | None | KU13★ | **24.60** |
| | | 3PDT | Manual Operator | KU13M1★ | **28.70** |
| | | 3PDT | Pilot Light | KU13P14★ | **30.80** |
| | | 3PDT | Manual Operator and Pilot Light | KU13M1P14★ | **35.00** |
| | DC | DPDT | None | KUD12★ | **22.70** |
| | | DPDT | Manual Operator | KUD12M1★ | **26.70** |
| | | DPDT | Pilot Light | KUD12P14★ | **28.70** |
| | | DPDT | Manual Operator and Pilot Light | KUD12M1P14★ | **30.80** |
| | | 3PDT | None | KUD13★ | **24.60** |
| | | 3PDT | Manual Operator | KUD13M1★ | **28.70** |
| | | 3PDT | Pilot Light | KUD13P14★ | **30.80** |
| | | 3PDT | Manual Operator and Pilot Light | KUD13M1P14★ | **35.00** |

### Table 23.40: Contact Ratings (Contacts are Silver Tin Oxide)

| | AC | | | DC | |
|---|---|---|---|---|---|
| Type | AC Volts | Resistive 75% PF Continuous Amperes | Hp | DC Volts | Resistive Amperes |
| KP | 120 | 10 ♦ | 1/3 | 28 | 12 |
| | 240 | 6.5 ■ | 1/2 | | |
| KU KF★ | 120 | 12 | 1/3 | 28 | 12 |
| | 240 | 12 | 1/2 | | |
| KL | 120 | 10 | 1/3 | 28 | 10 |
| | 240 | 10 | 1/2 | | |

Note: All 8501 K relays have a B300 rating.

- ▲ Socket is not required with Type KF relays.
- ■ 3 pole devices have a 20 A max. total (sum of currents in all 3 poles), continuous rating.
- ♦ 3 pole devices have a 30 A max. total (sum of currents in all 3 poles), continuous rating.
- ★ Voltage code must be specified to order this product. Refer to standard voltage codes listed in Table 23.37 and insert as shown in Table 23.41: How to Order.

### Table 23.41: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code (See Stocked Relay Table above) | 8501 | KP12 | V20 |

For sockets and accessories, see page 23-14.
For track, see page 24-16.





© 2012 Schneider Electric
All Rights Reserved

## Square D™ Alternating Plug-In Relays



8501KA alternating relay is designed to minimize pump and motor wear by equalizing run time between parallel components in a multi-pump system.

The relay is controlled by an external control switch. The switch may be any type of contact closure; for example the contacts of a timing relay or the closure of a float switch. The 8501KA relay also has a toggle switch that allows the operator to lock one side of the duplex system in the “on” position.

- 12 A Resistive Rating
- SPDT or DPDT
- Toggle switch for load control
- LED Load Indicators
- Horsepower Rated
- AC and DC Control
- UL Listed w/ Square D Socket
- Rohs Compliant

### Table 23.42: Type KA — Alternating Relay

| | Input Voltage | Contact Arrangement | Options | Type | $ Price |
|---|---|---|---|---|---|
|  | AC & DC | SPDT | LED + Toggle | 8501KA81••• | **93.00** |
| | AC & DC | DPDT | LED + Toggle + Cross Wired | 8501KA82••• | **95.00** |
| | AC & DC | DPDT (N.C.) | LED + Toggle | 8501KA112••• | **94.00** |
| | AC & DC | DPDT (N.O.) | LED + Toggle | 8501KA112A••• | **94.00** |

### Table 23.43: Relay Availability

| Type | AC & DC Voltage | | | AC Voltage |
|---|---|---|---|---|
| | 12 | 24 | 120 | 240 |
| Voltage Code | V36 | V14 | V20 | V24 |
| 8501KA81••• | | | S | |
| 8501KA82••• | | | S | |
| 8501KA112••• | | | S | |
| 8501KA112A••• | | | S | |

**Notes:**

- AC Voltage is 50/60 Hz
- S = Stocked. “S” items have a 2 week lead time and nominimum order requirement.
- All other part numbers are considered factory order (FO) and require a minimum order quantity of 25 and have a lead-time of 18 weeks

### Table 23.44: Contact Ratings

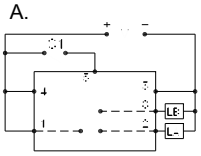
| Type | AC | | | | DC | |
|---|---|---|---|---|---|---|
| | AC Volts | Resistive Amperes | HP | Pilot Duty | DC Volts | Resistive Amperes |
| 8501KA81••• | 120 | 12 | 1/3 | — | 30 | 12 |
| | 240 | 12 | 1/2 | B300 | | |

### Table 23.45: Alternating Functions

| Diagram | Toggle Switch Position | Detail S1 = Control Switch 1 S2 = Control Switch 2 LA = Load 1 LB = Load 2 |
|---|---|---|
| A, C & D | Alternate | Closing S1 alternates the loads between LA and LB. |
| | Lock 1 | LA is ON and LB is OFF. S1 is not used in this mode. |
| | Lock 2 | LA is OFF and LB is ON. S1 is not used in this mode. |
| B | Alternate | Closing S1 alternates the loads between LA an dLB. S2 will only control LA. |
| | Lock 1 | S1 will control LA and S2 will control LB |
| | Lock 2 | S1 will control LB and S2 will control LA. |
| | The cross wired option allows extra system load capacity through simultaneous operation of both motors when needed (LA and LB energize simultaneously when both S1 and S2 are closed–relay contacts are not isolated) | |
| ALL | Input voltage must applied at all times for proper alternation. Use of a solid state control switch for S1 or S2 may not initiate alternation corredtly. S1 or S2 voltage must be from the same supply as the unit’s input voltage (see wiring diagrams). Loss of input voltage resets the unit; LA becomes the lead load for the next operation. | |

## Wiring Diagrams and Dimensions

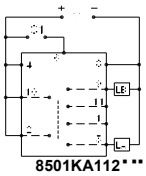
A.



**8501KA81••**

**Socket = 8501NR51 or NR52**

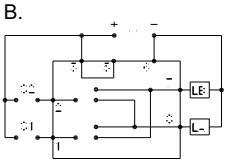
C.



**8501KA112••**

**Socket = 8501NR61 or NR62**

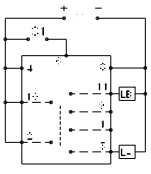
B.



**8501KA82••**

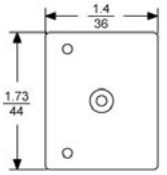
**Socket = 8501NR51 or NR52**

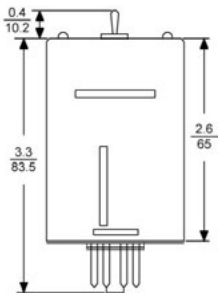
D.



**8501KA112A••**

**Socket = 8501NR61 or NR62**




## Approvals

c UL us LISTED File Class E78351 NLDX

c SP us File Class E78351 NLDX2

SA File Class 242675 3211-07

CE IEC 61810-1



© 2012 Schneider Electric
All Rights Reserved



## Square D™ Miniature Plug-in Relays

8501R miniature plug-in relays have a 10 A resistive rating, the same as the Type K plug-in relays, but are much smaller. The compact size of these relays makes them ideal for downsizing equipment and applications where space is at a premium.

- SPDT through 4PDT
- AC or DC operated
- Horsepower rated
- Socket compatible
- Manual operator/ green LED pilot light options
- Silver tin oxide contacts

### Table 23.46: Contact Ratings (Contact material is Silver Tin Oxide)

| Type | Voltage | Resistive Rating | Voltage | General Use Rating | Horsepower Rating |
|---|---|---|---|---|---|
| 8501RS41 ▲ | 120 Vac | 15 | 120 Vac | 10 | 1/3 @120 Vac |
| | 240 Vac | 12 | 240 Vac | 10 | 1/3 @240 Vac |
| 8501RSD41▲ | 28 Vdc | 15 | 28 Vdc | 15 | — |
| 8501RS42▲ | 120 Vac | 10 | 120 Vac | 10 | 1/3 @120 Vac |
| | 240 Vac | 10 | 240 Vac | 10 | 1/2 @240 Vac |
| 8501RSD42▲ | 30 Vdc | 10 | 28 Vdc | 10 | — |
| 8501RS43▲ | 120 Vac | 10 | 150 Vac | 10 | — |
| | 277 Vac | 10 | 250 Vac | 6.6 | — |
| 8501RSD43▲ | 28 Vdc | 10 | 28 Vdc | 10 | — |
| 8501RS44▲ | 120 Vac | 10 | 150 Vac | 7.5 | — |
| | 277 Vac | 10 | 250 Vac | 5 | — |
| 8501RSD44▲ | 28 Vdc | 10 | 28 Vdc | 10 | — |

▲ Relays have a B300 rating with UL.

### Table 23.47: Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | Type | DC Voltage | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 12 | 24 | 120 | 240 | | 6 | 12 | 24 | 110 |
| Voltage Code | V35 | V36 | V14 | V20 | V24 | Voltage Code | V50 | V51 | V53 | V60 |
| RS41 | | | S | S | | RSD41 | | S | S | |
| RS41M1 | | | | | | RSD41M1 | | | | |
| RS41P14 | | | S | S | | RSD41P14 | | | S | |
| RS41M1P14 | | | S | S | | RSD41M1P14 | | | S | |
| RS42 | | S | S | S | S | RSD42 | | S | S | |
| RS42M1 | | | | | | RSD42M1 | | | | |
| RS42P14 | | | S | S | | RSD42P14 | | S | S | |
| RS42M1P14 | | | | S | | RSD42M1P14 | | | S | |
| RS43 | | | S | S | | RSD43 | | | S | |
| RS43M1 | | | | | | RSD43M1 | | | | |
| RS43P14 | | | | S | | RSD43P14 | | | | |
| RS43M1P14 | | | | S | | RSD43M1P14 | | | | |
| RS44 | | | S | S | S | RSD44 | | S | S | |
| RS44M1 | | | | | | RSD44M1 | | | | |
| RS44P14 | | | | S | | RSD44P14 | | | S | |
| RS44M1P14 | | | | S | | RSD44M1P14 | | | | |

Note: S = Stocked.
Factory order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

### Table 23.48: SPDT with Silver Tin Oxide Contacts



| Input Voltage | Options | Type | $ Price |
|---|---|---|---|
| AC 50/60 Hz | None | RS41■ | 29.60 |
| | Manual Operator | RS41M1■ | 31.70 |
| | Pilot Light | RS41P14■ | 37.20 |
| | Manual Operator and Pilot Light | RS41M1P14■ | 39.30 |
| DC | None | RSD41■ | 29.60 |
| | Manual Operator | RSD41M1■ | 31.70 |
| | Pilot Light | RSD41P14■ | 37.20 |
| | Manual Operator and Pilot Light | RSD41M1P14■ | 29.60 |

### Table 23.49: DPDT with Silver Tin Oxide Contacts



| Input Voltage | Options | Type | $ Price |
|---|---|---|---|
| AC 50/60 Hz | None | RS42■ | 35.00 |
| | Manual Operator | RS42M1■ | 37.10 |
| | Pilot Light | RS42P14■ | 43.10 |
| | Manual Operator and Pilot Light | RS42M1P14■ | 45.20 |
| DC | None | RSD42■ | 35.00 |
| | Manual Operator | RSD42M1■ | 37.10 |
| | Pilot Light | RSD42P14■ | 43.10 |
| | Manual Operator and Pilot Light | RSD42M1P14■ | 45.20 |

### Table 23.50: 3PDT with Silver Tin Oxide Contacts



| Input Voltage | Options | Type | $ Price |
|---|---|---|---|
| AC 50/60 Hz | None | RS43■ | 39.30 |
| | Manual Operator | RS43M1■ | 41.40 |
| | Pilot Light | RS43P14■ | 47.60 |
| | Manual Operator and Pilot Light | RS43M1P14■ | 49.90 |
| DC | None | RSD43■ | 39.30 |
| | Manual Operator | RSD43M1■ | 41.40 |
| | Pilot Light | RSD43P14■ | 47.60 |
| | Manual Operator and Pilot Light | RSD43M1P14■ | 49.90 |

### Table 23.51: 4PDT with Silver Tin Oxide Contacts



| Input Voltage | Options | Type | $ Price |
|---|---|---|---|
| AC 50/60 Hz | None | RS44■ | 44.30 |
| | Manual Operator | RS44M1■ | 46.20 |
| | Pilot Light | RS44P14■ | 52.30 |
| | Manual Operator and Pilot Light | RS44M1P14■ | 54.50 |
| DC | None | RSD44■ | 44.30 |
| | Manual Operator | RSD44M1■ | 46.20 |
| | Pilot Light | RSD44P14■ | 52.30 |
| | Manual Operator and Pilot Light | RSD44M1P14■ | 54.50 |

■ Voltage code must be specified to order this product. Refer to standard voltage codes listed in Table 23.47 and insert as shown in Table 23.53: How to Order.

### Table 23.52: Application Data

| Class 8501 Type | | RS41 | RSD41 | RS42 | RSD42 | RS43 | RSD43 | RS44 | RSD44 |
|---|---|---|---|---|---|---|---|---|---|
| Operating Data | Pick-Up Time | 20 ms Maximum | | 25 ms Maximum | | | | 20 ms Maximum | |
| | Drop-Out Time | 20 ms Maximum | | | | | | | |
| | Operating Temperature | -40°C to +70°C (-40°F to +158°F) | | | | | | | |
| Coil | Duty Cycle | Continuous | | | | | | | |
| | Voltage Range | AC coils +10%, -15% of nominal DC coils +10%, -20% of nominal | | | | | | | |
| | AC Coils–Inrush | 9 VA | — | 6.2 VA | — | 10.3 VA | — | 11.9 VA | — |
| | AC Coils–Sealed | 1.5 VA | — | 1.2 VA | — | 1.7 VA | — | 2.1 VA | — |
| | DC Coils | — | 0.9 watts | — | 0.9 watts | — | 1.4 watts | — | 1.5 watts |
| UR | File<br>CCN | E78351<br>NLDX2, NLDX8 | | | | | | | |
| CSA | File<br>Class | 211268<br>3218 07 | | | | | | | |
| CE marked | | yes | | | | | | | |
| RoHS Compliant | | yes | | | | | | | |
| UL Listed | File<br>CCN | E78351♦<br>NLDX, NLDX7 | | | | | | | |

♦ When used with the appropriate 8501NR socket.

### Table 23.53: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code (see Table 23.47) | 8501 | RS42 | V20 |

For sockets and accessories, see page 23-14.
For track, see page 24-16.





© 2012 Schneider Electric
All Rights Reserved

## Square D™ Miniature Plug-in Relays

8501R relays are suited for use as logic elements and power switching output devices. The short stroke motion of the armature provides long mechanical life required for high speed operation of control systems. Different contact compositions allow these relays to be used in a variety of applications. Fine silver (gold flashed) and bifurcated crossbar (gold overlay silver) are suitable for high contact reliability and low level switching requirements. Silver tin oxide is best suited for inductive loads. Class I Division II sealed relays can be used in specified hazardous locations.



8501RSD14P14V53

- 1, 3, or 5 A versions
- 4PDT
- Complete socket line
- Horsepower rated
- AC or DC operation
- Manual operator/pilot light options



8501RS14M1V14



8501RSD34V51

### Table 23.54: 5 A Version

| 5 A | Input Voltage | Options | Type | $ Price |
|---|---|---|---|---|
| For switching inductive loads | AC 50/60 Hz | None | RS14▲ | **32.70** |
| | | Manual Operator | RS14M1▲ | **35.00** |
| | | Pilot Light | RS14P14▲ | **40.90** |
| | | Manual Operator and Pilot Light | RS14M1P14▲ | **43.10** |
| Contacts: Silver Tin Oxide | DC | None | RSD14▲ | **27.70** |
| | | Manual Operator | RSD14M1▲ | **30.80** |
| | | Pilot Light | RSD14P14▲ | **36.80** |
| | | Manual Operator and Pilot Light | RSD14M1P14▲ | **39.00** |

### Table 23.55: 3 A Version

| 3 A | Input Voltage | Options | Type | $ Price |
|---|---|---|---|---|
| For low level switching | AC 50/60 Hz | None | RS4▲ | **32.70** |
| | | Manual Operator | RS4M1▲ | **35.00** |
| | | Pilot Light | RS4P14▲ | **40.90** |
| | | Manual Operator and Pilot Light | RS4M1P14▲ | **43.10** |
| Contacts: Fine Silver (Gold Flashed) | DC | None | RSD4▲ | **28.70** |
| | | Manual Operator | RSD4M1▲ | **30.80** |
| | | Pilot Light | RSD4P14▲ | **36.80** |
| | | Manual Operator and Pilot Light | RSD4M1P14▲ | **39.00** |

### Table 23.56: 1 A Version

| 1 A | Input Voltage | Type | $ Price |
|---|---|---|---|
| Best for Low Level Switching | AC 50/60 Hz | RS24▲ | **53.00** |
| Bifurcated Silver Gold-Plated Contacts | DC | RSD24▲ | **53.00** |

### Table 23.57: 5 A Version, Class I Division II

| 5 A, Hermetically Sealed | Input Voltage | Type | $ Price |
|---|---|---|---|
| 5 Ampere Resistive■ Silver Tin Oxide Contacts | AC 50/60 Hz | RS34▲ | **53.00** |
| Suitable for Class I Division 2 Locations | DC | RSD34▲ | **53.00** |

▲ Voltage code must be specified to order this product. Refer to standard voltage codes shown in Table 23.59.

■ Do not ground the frame.

## Pilot Light Option

An internal green **pilot light** is available in both AC and DC versions for positive indication of power to the coil.

## Manual Operation Option

To speed circuit testing, a manual operator (test button) can be provided. The relay can be manually switched to simulate normal operation.

***NOTE:*** *All Type R relays with a manual operator must be used on circuits of the same polarity.*

### Table 23.58: Contact Ratings (Contact material is Silver Tin Oxide)

| Type | Voltage | Continuous Current Rating | Horsepower Rating |
|---|---|---|---|
| RS4 ♦ RSD4♦ | 120/240 Vac | 3 | 1/10 |
| | 30 Vdc | 3 | — |
| RS14♦ RSD14♦ | 120/240 Vac | 5 | 1/6 |
| | 28 Vdc | 5 | — |
| RS24 RSD24 | 120/240 Vac | 1 | 1/16 (2.8 FLA) |
| | 30 Vdc | 1 | — |
| RS34 RSD34 | 120/240 Vac | 5 | — |
| | 30 Vdc | 5 | — |

♦ RS4/RSD4, RS14/RSD14 have NEMA C300 pilot duty rating.

### Table 23.59: AC Voltage Codes and Stocked Relays

| Type | AC Voltage 50/60 Hz | | | | | |
|---|---|---|---|---|---|---|
| | 6 | 12 | 24 | 48 | 120 | 240 |
| Voltage Code | V35 | V36 | V14 | V17 | V20 | V24 |
| RS4 | | | S | | S | |
| RS4M1 | | | | | S | |
| RS4P14 | | | | | S | |
| RS4M1P14 | | | | | S | |
| RS14 | | S | S | | S | |
| RS14M1 | | | | | S | |
| RS14P14 | | | | | S | |
| RS14M1P14 | | | | | S | S |
| RS24 | | | | | S | |
| RS34 | | | | | S | |

### Table 23.60: DC Voltage Codes and Stocked Relays

| Type | DC Voltage | | | | |
|---|---|---|---|---|---|
| | 6 | 12 | 24 | 48 | 110 |
| Voltage Code | V50 | V51 | V53 | V56 | V60 |
| RSD4 | | S | S | | |
| RSD4M1 | | | | | |
| RSD4P14 | | | S | | |
| RSD4M1P14 | | | S | | |
| RSD14 | | S | S | | S |
| RSD14M1 | | | S | | |
| RSD14P14 | | S | S | | S |
| RSD14M1P14 | | S | S | | |
| RSD24 | | | S | | |
| RSD34 | | S | S | | |

Note: S = Stocked.
Factory Order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

### Table 23.61: Application Data

| Class 8501 Type | | RS4 | RSD4 | RS14 | RSD14 | RS24 | RSD24 | RS34 | RSD34 |
|---|---|---|---|---|---|---|---|---|---|
| Operating Data | Pick-Up Time | 20 ms Maximum | | | | | | 13 ms Max. | |
| | Drop-Out Time | 20 ms Maximum | | | | | | 6 ms Max. | |
| | Operating Temperature Range | -40°C to +70°C (-40°F to +158°F) | | | | | | -40°C to +70°C (-40°F to +158°F) | |
| Coil | Duty Cycle | Continuous | | | | | | | |
| | Voltage Range | **AC coils +10%, -15% of nominal and DC coils +10%, -20% of nominal** | | | | | | | |
| | AC Coils—Sealed | 1.2 VA | — | 1.2 VA | — | 1.2 VA | — | 1.2 VA | — |
| | AC Coils—Inrush | 6.2 VA | — | 6.2 VA | — | 6.2 VA | — | 6.0 VA | — |
| | DC Coils | — | 0.9 watt | — | 0.9 watt | — | 0.9 watt | — | 0.9 watt |
| Approvals | UR | File: E197072 | | CCN: NRNT2 | | | | N/A | |
| | C UR US | File: E197072 | | CCN: NRNT8 (Approved but not marked) | | | | File: E196809 CCN: NQMJ2, NQMJ8 | |
| | CSA | File: 211268 | | Class: 3218 07 | | | | File: 211268 Class: 3218 06 | |
| | CE marked | Yes | | | | | | | |
| | RoHS Compliant | Yes | | | | | | | |
| | UL Listed | File E78351 CCN NLDX, NLDX7★ | | | | | | | |

★ When used with the appropriate 8501 NR Socket.

For sockets and accessories, see page 23-14.

For track, see page 24-16.



© 2012 Schneider Electric
All Rights Reserved

## Square D™ Sockets

8501NR sockets are designed for use with plug-in Class 8501 Type K, KA, and R relays, and 9050JCK timers. The 8501NR45 screw terminal sockets have pressure wire clamps that accept 1 or 2 #16–22 wires. All other sockets have pressure clamps that will accept 1 or 2 #12–22 wires.

The recommended tightening torque for all terminals is 7-8 lb-in.

- All devices stocked in central warehouse
- DIN track mount or direct panel mount
- Tubular sockets available in easy-to-wire single tier or double tier versions
- RoHS compliant



8501NR51



8501NR61



8501NR52



8501NR62



8501NR82



8501NR45



8501NR41



8501NR42

**Table 23.62: Snapmount Sockets**

| For Use With Class: | | Description | Socket Rating | | Type | $ Price ea. | Std. Qty.▲ |
|---|---|---|---|---|---|---|---|
| 8501 Type | 9050 Type | | UL | CSA | | | |
| KP12<br>KPD12<br>KA81<br>KA82 | JCK11–19<br>JCK31–39<br>JCK51–59<br>JCK60<br>JCK1 F<br>JCK3 F<br>JCK5 F | 8 Pin Tubular<br>Single Tier Screw Terminal | 600 V, 10 A | 300 V, 10 A | NR51 | **12.30** | 1 |
| | | | 300 V, 15 A | | NR51B | **10.20** | 10 |
| | | 8 Pin Tubular<br>Double Tier Screw Terminal | 600 V, 5 A | 300 V, 10 A | NR52■ | **12.30** | 1 |
| | | | 300 V, 16 A | | NR52B■ | **10.20** | 10 |
| KP13<br>KPD13<br>KA112 | JCK21–29<br>JCK41–49<br>JCK70<br>JCK2F<br>JCK4F | 11 Pin Tubular<br>Single Tier Screw Terminal | 600 V, 5 A | 300 V, 10 A | NR61 | **18.50** | 1 |
| | | | 300 V, 15 A | | NR61B | **16.50** | 10 |
| | | 11 Pin Tubular<br>Double Tier Screw Terminal | 600 V, 5 A | 300 V, 10 A | NR62■ | **18.50** | 1 |
| | | | 300 V, 16 A | | NR62B■ | **16.50** | 10 |
| KL<br>KU | — | 11 Pin Spade<br>Double Tier Screw Terminal | 300 V, 15 A | 300 V, 15 A | NR82 | **20.60** | 1 |
| | | | | | NR82B | **18.50** | 10 |
| RS41<br>RSD41 | — | 5 Pin Spade<br>Double Tier Screw Terminal | 300 V, 15 A | 300 V, 15 A | NR41■ | **28.70** | 1 |
| | | | | | NR41B■ | **26.70** | 10 |
| RS42<br>RSD42 | — | 8 Pin Spade<br>Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR42 | **28.70** | 1 |
| | | | | | NR42B | **26.70** | 10 |
| RS43<br>RSD43 | — | 11 Pin Spade<br>Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR43 | **26.70** | 1 |
| | | | | | NR43B | **26.70** | 10 |
| RS44<br>RSD44 | — | 14 Pin Spade<br>Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR34 | **28.70** | 1 |
| | | | | | NR34B | **26.70** | 10 |
| RS4<br>RSD4<br>RS14<br>RSD14<br>RS24<br>RSD24<br>RS34<br>RSD34 | — | 14 Pin Spade<br>Double Tier Screw Terminal | 300 V, 10 A | 300 V, 10 A | NR45 | **28.70** | 1 |
| | | | | | NR45B | **26.70** | 10 |

▲ Must be ordered in multiples of the quantity listed. Units provided in standard quantity of one are individually packaged; devices with B suffix have a standard quantity of 10 per bulk pack.
■ Finger Safe

For DIN 3 mounting track and end clamps, see page 24-16, or refer to:

- NEMA Style terminal block section of catalog 9080CT9601
- IEC Style terminal block section of catalog 9080CT9901

**Table 23.63: Socket Accessories**

| Socket | For Use With | Description | Type | $ Price ea. | Std. Pack ♦ |
|---|---|---|---|---|---|
| 8501NR51 | 8501KP12, KPD12 | Hold Down Clip | NH51 | **1.00** | 10 |
| | 9050JCK | Hold Down Spring | NH7 | **8.30** | 1 |
| 8501NR52 | 8501KP12, KPD12 | Hold Down Clip | NH52 | **1.00** | 10 |
| | 9050JCK | Hold Down Spring | NH7 | **8.30** | 1 |
| 8501NR61 | 8501KP13, KPD13 | Hold Down Clip | NH61 | **1.00** | 10 |
| | 9050JCK | Hold Down Spring | NH7 | **8.30** | 1 |
| 8501NR62 | 8501KP13, KPD13 | Hold Down Clip | NH52 | **1.00** | 10 |
| | 9050JCK | Hold Down Spring | NH7 | **8.30** | 1 |
| 8501NR82 | 8501KU and KL | Hold Down Clip | NH82 | **1.00** | 10 |
| 8501NR41 | 8501RS41, RSD41 | Hold Down Clip | Supplied with socket as standard | — | — |
| 8501NR42 | 8501RS42, RSD42 | Hold Down Clip | 8501NH42 | **1.00** | 10 |
| 8501NR43 | 8501RS43, RSD43 | Hold Down Clip | 8501NH42 | **1.00** | 10 |
| 8501NR34 | 8501RS44, RSD44 | Hold Down Clip | 8501NH42 | **1.00** | 10 |
| 8501NR45 | 8501RS4, RSD4<br>8501RS14, RSD14<br>8501RS24, RSD24<br>8501RS34, RSD34 | Hold Down Clip | 8501NH45 | **1.00** | 10 |

♦ Must be ordered in multiples of the quantity listed.



8501NH7



8501NR34



8501NR43

### How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 8501 | NR51B |

### Approvals:

c UL us File CCN E66924 SW1V2

CSA File Class 211268 3211 07

CE IEC 61984

RoHS Compliant as of date code 0639





© 2012 Schneider Electric
All Rights Reserved



8501CDO6V51

## Square D™ Power Relays

8501C relays are ideally suited for controlling single-phase motors, electric heaters, pumps, conveyors, material handling equipment, and other applications.

- 40 A contact rating
- Motor load (hp) ratings
- Durable open-frame construction
- UL listed
- CSA certified
- CE approved
- RoHS compliant

### Table 23.64: Selection Table and Application Data

| Selection Table | | | | | | | Application Data | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact Arrangement | Number of Fixed Contacts | | AC Operated Coil Open Type | | DC Operated Coil Open Type | | Maximum Contact Voltage | Resistive Ampere Rating 75% Power Factor | | Maximum Single Phase Horsepower | | | Maximum Coil Power Consumption | |
| | N.O. | N.C. | Type | $ Price | Type | $ Price | | 277 Vac | 600 V | 120 V | 230 V | 600 V | AC Coil | DC Coil |
| **AC Rated Contacts** | | | | | | | | | | | | | | |
| SPST | 1 | 0 | CO6▲ | **32.70** | CDO6▲ | **32.70** | 600 | 40 | 10 | 2 | 2 | 2 | 10 VA | 4 W |
| DPST | 2 | 0 | CO7▲ | **51.30** | CDO7▲ | **51.30** | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| SPST | 0 | 1 | CO8▲ | **32.70** | CDO8▲ | **32.70** | 600 | 40 | 10 | 2 | 2 | 2 | 10 VA | 4 W |
| SPDT | 1 | 1 | CO15▲ | **57.30** | CDO15▲ | **57.30** | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| DPDT | 2 | 2 | CO16▲ | **69.60** | CDO16▲ | **69.60** | 600 | 40 | 5 | 1.5 | 1.5 | 1.5 | 10 VA | 4 W |
| **DC Rated Contacts** | | | | | | | | **110 V** | **220 V** | | | | | |
| SPST | 1 | 0 | CO21▲ | **71.70** | CDO21▲ | **71.70** | 500 | 20 | 8 | N.A. | | | 10 VA | 4 W |
| DPDT | 2 | 2 | CO22▲ | **84.00** | CDO22▲ | **84.00** | 325 | 10 | 4 | | | | 10 VA | 4 W |

▲ Voltage codes must be specified to order this product. Refer to standard voltage codes listed in Table 23.66 and insert as shown in Table 23.68: How to Order.

### Table 23.65: Operating Data

| | |
|---|---|
| **Operating Voltages/ Voltage Range** | AC coils – 6 through 480 volts, + 10/-15% of nominal at 25 °C<br>DC coils – 6 through 110 volts, + 10/-20% of nominal at 25 °C |
| **Coil Duty** | Continuous duty rated coils. (Non-replaceable) |
| **Operating Temp. Range** | AC: -67 °F to +131 °F (-55 °C to +55 °C)<br>DC: -67 °F to +131 °F (-55 °C to +55 °C) |
| **Storage Temp. Range** | -67 °F to +212 °F (-55 °C to +100 °C) |

**Approvals**:

File E78351 CCN NLDX

File 218139 Class 3211 04

IEC 60947-4-1

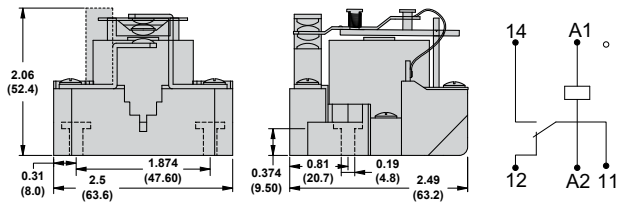
### Table 23.66: Voltage Codes and Stocked Relays

| Class 8501 Type | AC Voltage—50/60 Hz | | | | | | | | Class 8501 Type | DC Voltage | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 12 | 24 | 120 | 208 | 240 | 277 | 480 | | 6 | 12 | 24 | 110 |
| Voltage Code | V35 | V36 | V14 | V20 | V08 | V24 | V04 | V29 | Voltage Code | V50 | V51 | V53 | V60 |
| CO6 | | S | S | S | S | S | S | S | CDO6 | | S | S | |
| CO7 | | S | S | S | S | S | S | S | CDO7 | | S | S | |
| CO8 | | | S | S | | S | S | S | CDO8 | | | | |
| CO15 | | | S | S | S | S | S | S | CDO15 | | | S | |
| CO16 | | S | S | S | S | S | S | S | CDO16 | | S | S | S |
| CO21 | | | | S | | | | | CDO21 | | | S | S |
| CO22 | | | | S | | | | | CDO22 | | | S | S |

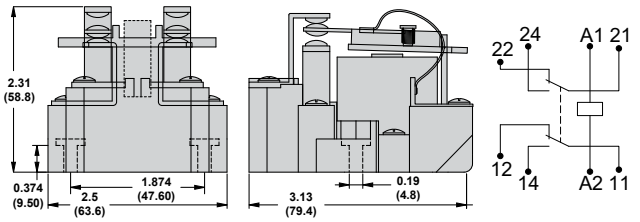
Note: S = Stocked.
Factory order items require a **minimum** order quantity of 25 and have a lead time of 12 weeks.

## Approximate Dimensions and Wiring Diagrams

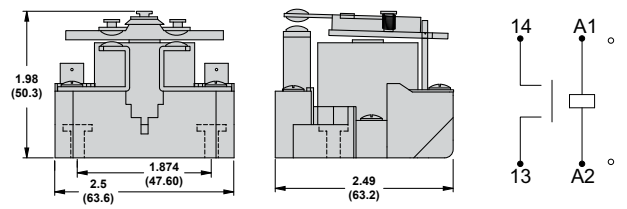
**8501CO15, 8501CDO15 (SPDT)**



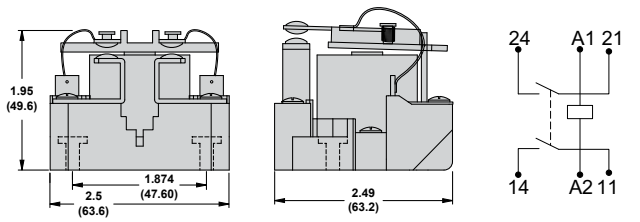

**8501CO16, 8501CDO16, 8501CO22, 8501CDO22 (DPDT)**




**8501CO6, 8501CDO6, 8501CO8, 8501CDO8, 8501CO21, 8501CDO21 (SPST)**




**8501CO7, 8501CDO7 (DPST)**




### Table 23.67: Class 9991 Enclosure

| Type | Description | $ Price |
|---|---|---|
| UE1 | NEMA 1 sheet steel enclosure | **29.60** |

### Table 23.68: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code<br>(See Stocked Relay Table above) | 8501 | CO6 | V20 |



© 2012 Schneider Electric
All Rights Reserved

## TeSys™ D IEC Style Relays



CAD32

These 600 volt relays are approved for use around the world. TeSys D relays are usually mounted on 35 mm DIN 3 track, but can also be mounted directly to a panel. The fixed contacts in these relays have a NEMA A600 and Q600 ratings, in addition to the standard IEC ratings, making them suitable for use in most any control circuit. Low consumption versions of this relay are available for use with low level DC signals from a computer or a PLC. Adder decks can be added to a basic five pole relay to make it up to an 11 pole relay. The serrated silver-nickel contacts with wiping action provide excellent reliability in 12 or 24 volt control circuits. Special auxiliary contacts are available for switching low power down to 5 volts at 10 mA. Timer and mechanical latch attachments are available.

**Table 23.69: Instantaneous Control Relays**

| Terminal Type | Number of Contacts | Contact Composition | | Catalog Number | $ Price | |
|---|---|---|---|---|---|---|
| | | Normally Open | Normally Closed | | AC Coil | DC or Low Consumption Coil |
| **Screw Clamp** | 5 | 5 | 0 | CAD50▲ | **62.00** | **110.00** |
| | | 3 | 2 | CAD32▲ | **62.00** | **110.00** |
| **Spring Terminal** | 5 | 5 | 0 | CAD503▲ | **62.00** | **110.00** |
| | | 3 | 2 | CAD323▲ | **62.00** | **110.00** |
| **Ring Tongue** | 5 | 5 | 0 | CAD506▲ | **62.00** | **110.00** |
| | 5 | 3 | 2 | CAD326▲ | **62.00** | **110.00** |

▲ Add the proper voltage code from Table 23.72 to the end of catalog number (for example, CAD50**B7**).



CAD503

**Table 23.70: Instantaneous Auxiliary Contact Blocks** (for use in normal operation environments)

| Number of Contacts | Maximum Number per Device Clip-on Mounting | | Termination Type | Contact Composition | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | Front | Left Side Only | | Normally Open | Normally Closed | | |
| 2 | 1 | — | Screw Clamp | 2 | 0 | LADN20 | **20.70** |
| | | | | 1 | 1 | LADN11 | **20.70** |
| | | | | 0 | 2 | LADN02 | **20.70** |
| | | | Spring Terminal | 2 | 0 | LADN203 | **20.70** |
| | | | | 1 | 1 | LADN113 | **20.70** |
| | | | | 0 | 2 | LADN023 | **20.70** |
| | — | 1 Not for DC devices | Screw Clamp | 2 | 0 | LAD8N20 | **20.70** |
| | | | | 1 | 1 | LAD8N11 | **20.70** |
| | | | | 0 | 2 | LAD8N02 | **20.70** |
| 4 ■ | 1 | — | Screw Clamp | 4 | 0 | LADN40 | **41.50** |
| | | | | 3 | 1 | LADN31 | **41.50** |
| | | | | 2 | 2 | LADN22 | **41.50** |
| | | | | 1 | 3 | LADN13 | **41.50** |
| | | | | 0 | 4 | LADN04 | **41.50** |
| | | | Spring Terminal | 4 | 0 | LADN403 | **41.50** |
| | | | | 3 | 1 | LADN313 | **41.50** |
| | | | | 2 | 2 | LADN223 | **41.50** |
| | | | | 1 | 3 | LADN133 | **41.50** |
| | | | | 0 | 4 | LADN043 | **41.50** |
| 4 ■ | 1 | — | Screw Clamp | 2 ♦ | 2 ♦ | LADC22 | **41.50** |
| | | | Spring Terminal | 2 ♦ | 2 ♦ | LADC223 | **41.50** |

■ Auxiliary contact blocks with four contacts cannot be used on relays with low consumption coils.
♦ Includes 1 N.O. and 1 N.C. overlapping contact.



CAD323

**Table 23.71: Instantaneous Auxiliary Contacts with Dust and Damp Protected Contacts**
(for use in particularly harsh industrial environments)

| Number of Contacts | Maximum Number per Device | Contact Composition | | | | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|---|
| | Front Mounting | Sealed | | ★ | Normal | | | |
| 2 | 1 | 2 | — | — | — | — | LA1DX20 | **65.00** |
| | | — | 2 | — | — | — | LA1DX02 | **65.00** |
| | | 2 | — | 2 | — | — | LA1DY20 | **77.00** |
| 4 ▼ | 1 | 2 | — | — | 2 | — | LA1DZ40 | **82.00** |
| | | 2 | — | — | 1 | 1 | LA1DZ31 | **82.00** |

★ Grounding terminal points (2 terminals jumpered together; see diagram on page 8 of Catalog **8501CT0101**).
▼ Auxiliary contact blocks with four contacts cannot be used on relays with low consumption coils.

**Approvals**:

File CCN E164353 NKCR

File Class LR43364 3211 03

**Table 23.72: Coil Voltage Codes** △

| **AC 50/60 Hz Coil (for additional voltage code options see page 7 of Catalog 8501CT0101).** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volts** | 12 | 24 | 48 | 120 | 208 | 240 | 277 | 480 | 600 | | |
| **Code** | J7 | B7 | E7 | G7 | LE7 | U7 | W7 | T7 | X7 | | |
| **DC Coil (coils have built in suppression as standard)** | | | | | | | | | | | |
| **Volts** | 12 | 24 | 36 | 48 | 60 | 72 | 110 | 125 | 220 | 250 | 440 |
| **Code** | JD | BD | CD | ED | ND | SD | FD | GD | MD | UD | RD |
| **DC Low Consumption Coil (coils have built in suppression as standard)** | | | | | | | | | | | |
| **Volts** | 5 | 12 | 24 | 48 | 72 | | | | | | |
| **Code** | AL | JL | BL | EL | SL | | | | | | |

△ Add the proper voltage code to the end of catalog number.

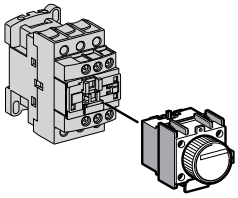
For replacement AC coils, see page 18-16. DC coils are not replaceable.





© 2012 Schneider Electric
All Rights Reserved

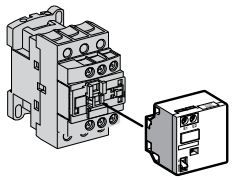
## TeSys™ D IEC Style


LADT

### Table 23.73: Time Delay Auxiliary Contact Blocks

| Number and Type of Contacts | Maximum Number per Device Front Mounting | Time Delay Type | Termination Type | Range | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| 1 N.C. and 1 N.O. | 1 | On-Delay | Screw Clamp | 0.1–3 s ▲ | LADT0 | 131.00 |
| | | | | 0.1–30 s | LADT2 | 131.00 |
| | | | | 10–180 s | LADT4 | 131.00 |
| | | | | 1–30 s ■ | LADS2 | 131.00 |
| | | | Spring Terminal | 0.1–3 s ▲ | LADT03 | 131.00 |
| | | | | 0.1–30 s | LADT23 | 131.00 |
| | | | | 10–180 s | LADT43 | 131.00 |
| | | | | 1–30 s ■ | LADS23 | 131.00 |
| | | Off-Delay | Screw Clamp | 0.1–3 s ▲ | LADR0 | 131.00 |
| | | | | 0.1–30 s | LADR2 | 131.00 |
| | | | | 10–180 s | LADR4 | 131.00 |
| | | | Spring Terminal | 0.1–3 s ▲ | LADR03 | 131.00 |
| | | | | 0.1–30 s | LADR23 | 131.00 |
| | | | | 10–180 s | LADR43 | 131.00 |
| (Lockout Cover, See page 7 of Catalog 8501CT0101.) | | | | | | |

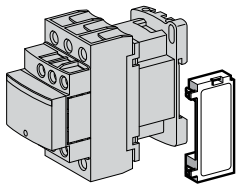
▲ With extended scale from 0.1 to 0.6 s.
■ With switching time of 40 ms ± 15 ms between opening of the N.C. contact and closing of the N.O. contact.


LA6DK

### Table 23.74: Mechanical Latch Blocks ♦

| Unlatching Control | Maximum Number per Device Front mounting | Catalog Number | $ Price |
|---|---|---|---|
| Manual or electrical | 1 | LA6DK10 ▼★ | 77.00 |
| | | LAD6K10 ▼ | 77.00 |

♦ Power should not be simultaneously applied or maintained to the mechanical latching block and the CAD relay. The duration of the control signal to the mechanical latching block and the CAD relay should be ≤ 100 ms.
★ Repair part for the preceeding version (non-TeSys) of this product. Not for use on CAD devices.
▼ Complete the catalog number by adding coil voltage code from Table 23.76. (for example, LA6DK10**B**)


LAD4

### Table 23.75: Coil Suppressor Modules

These modules clip onto the right hand side of the control relay and the electrical connection is instantly made. Adding an input module is still possible.

**RC Circuits (Resistor-Capacitor)**

- Effective protection for circuits highly sensitive to "high frequency" interference.
- Voltage limited to 3 Uc maximum and oscillating frequency limited to 400 Hz maximum.
- Slight increase in drop-out time (1.2 to 2 times the normal time).

| For Mounting On: | Operational Voltage | Catalog Number | $ Price |
|---|---|---|---|
| CAD (Vac) | 24 to 48 Vac | LAD4RCE | 26.20 |
| | 110 to 240 Vac | LAD4RCU | 26.20 |

**Varistors (Peak Limiting)**

- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.
- Slight increase in drop-out time (1.1 to 1.5 times the normal time).

| | | | |
|---|---|---|---|
| CAD (Vac) | 24 to 48 Vac | LAD4VE | 26.20 |
| | 50 to 127 Vac | LAD4VG | 26.20 |
| | 110 to 250 Vac | LAD4VU | 26.20 |

**Bidirectional Peak Limiting Diode**

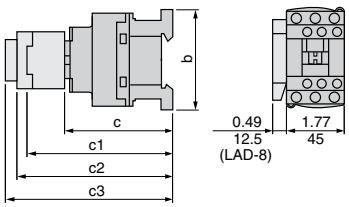
- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.

| | | | |
|---|---|---|---|
| CAD (Vac) | 24 Vac | LAD4TB | 26.20 |
| | 72 Vac | LAD4TS | 26.20 |

### Table 23.76: Coil Voltage Codes

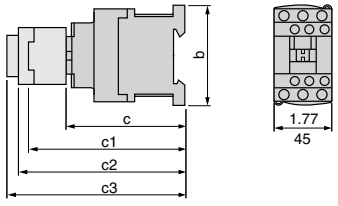
| Voltage | 24 Vac/Vdc | 32/36 Vac/Vdc | 42/48 Vac/Vdc | 60/72 Vac/Vdc | 100 Vac/Vdc | 110/127 Vac/Vdc | 220/240 Vac/Vdc | 256/277 Vac/Vdc | 380/415 Vac/Vdc |
|---|---|---|---|---|---|---|---|---|---|
| Voltage Code | B | C | E | EN | K | F | M | U | Q |

**CAD** (Vac Coil)




| CAD | | in. (mm) 32 50 | in. (mm) 323 503 |
|---|---|---|---|
| b | | 3.03 (77) | 3.90 (99) |
| c | Without cover or add-on blocks | 3.31 (84) | 3.31 (84) |
| | With cover, without add-on blocks | 3.39 (86) | 3.39 (86) |

**CAD** (Vdc Coil) or (Low Consumption Vdc Coil)




| CAD | | in. (mm) 32 50 | in. (mm) 323 503 |
|---|---|---|---|
| b | | 3.03 (77) | 3.90 (99) |
| c | Without cover or add-on blocks | 3.66 (93) | 3.66 (93) |
| | With cover, without add-on blocks | 3.74 (95) | 3.74 (95) |



© 2012 Schneider Electric
All Rights Reserved

# TeSys™ D IEC Style Relays

## Table 23.77: Cabling Accessory

| Description | | | Catalog Number | $ Price |
|---|---|---|---|---|
| Mounting Adapter<br>For adapting existing wiring to a new product | Without coil suppression | | LAD4BB | **23.00** |
| | With coil suppression | 24 to 48 Vac | LAD4BBVE | **23.00** |
| | | 50 to 127 Vac | LAD4BBVG | **23.00** |
| | | 110 to 250 Vac | LAD4BBVU | **23.00** |

## Table 23.78: Electronic Serial Timer Modules ▲

- Mounted using adaptor LAD4BB, to be ordered separately, see listing above.

| On-delay Type | | | |
|---|---|---|---|
| **Operational Voltage** | **Time Delay** | **Catalog Number** | **$ Price** |
| 24 to 250 Vac | 0.1 to 2 s | LA4DT0U | **82.00** |
| | 1.5 to 30 s | LA4DT2U | **82.00** |
| | 25 to 500 s | LA4DT4U | **82.00** |

▲ For 24 V operation, the relay must be fitted with a 21 V coil (code Z7).

## Table 23.79: Auto-Man-Stop Control Modules

**For local override operation tests with two-position "Auto-Man" switch and "O-I" switch**

- Mounted using adaptor LAD4BB, to be ordered separately, see listing above.

| Operational Voltage | Catalog Number | $ Price |
|---|---|---|
| 24 to 100 Vac | LA4DMK | **35.00** |

## Table 23.80: Accessories (ordered separately)

**For Connection**

| Description | For Mounting On: | Must be Ordered in Multiples of: | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| **For Marking** | | | | |
| Sheet of 64 self-adhesive blank labels 8 x 33 | CAD, LAD (4 contacts), LA6DK | 10 | LAD21 | **5.20** |
| Sheet of 112 self-adhesive blank labels 8 x 12 | LAD (2 contacts), LADT | 10 | LAD22 | **5.20** |
| **For Protection** | | | | |
| Lockout cover | LADT, LADR | 1 | LA9D901 | **5.50** |
| Relay cover preventing access to the moving contact carrier | CAD | 1 | LAD9ET1 | **5.20** |

## Table 23.81: Application Data

| Type | | CAD (Vac) | CAD (Vdc) | CAD (Vdc) Low Consumption |
|---|---|---|---|---|
| Rated Insulation Voltage (Ui) | Conforming to IEC 60947-1-1 Overvoltage category III and degree of pollution 3 | 690 V | 690 V | 690 V |
| | Conforming to UL, CSA | 600 V | 600 V | 600 V |
| Rated Impulse Withstand Voltage (Uimp) | Conforming to IEC 60947-1-1 | 6 kV | 6 kV | 6 kV |
| Separation of Electrical Circuits | To IEC 536 and VDE 0106 | Reinforced insulation up to 400 V | | |
| Conforming to Standards | | IEC 60947-1-1, N-F C 63-140, VDE 0660, BS 4794. EN 60947-5-15 | | |
| Approvals | | UL: File: E164353 CSA: File: LR43364 CE | CCN: NKCR Class: 3211 03 | |
| Protective Treatment | Conforming to IEC 68 | "TH" (Tropical Finish). See page 23 of Catalog 8501CT0101 for details. | | |
| Degree of Protection | Conforming to VDE 0106 | Front face protected against direct finger contact IP 2X | | Protection against direct finger contact |





© 2012 Schneider Electric
All Rights Reserved

## TeSys™ K IEC Style Relays


CA2KN22 • •


CA2KN403 • •


CA4KN405•••


CA3KN407 • •

### Table 23.82: Control Relays

- Mounting on 35 mm DIN 3 track or 4 screw direct mounting.
- Screws in open "ready-to-tighten" position.
- NEMA A600, Q600
- IEC AC15, DC13

| Control Circuit | | Type of Termination | Contact Configuration | | Catalog Number ▲ | $ Price |
|---|---|---|---|---|---|---|
| Supply | Consumption | | N.O. | N.C. | | |
| AC | 4.5 VA | Screw clamp | 4 | 0 | CA2KN40•• | **35.50** |
| | | | 3 | 1 | CA2KN31•• | **35.50** |
| | | | 2 | 2 | CA2KN22•• | **35.50** |
| | | Spring Termination | 4 | 0 | CA2KN403•• | **35.50** |
| | | | 3 | 1 | CA2KN313•• | **35.50** |
| | | | 2 | 2 | CA2KN223•• | **35.50** |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA2KN407•• | **35.50** |
| | | | 3 | 1 | CA2KN317•• | **35.50** |
| | | | 2 | 2 | CA2KN227•• | **35.50** |
| | | Solder pins for printed circuit board | 4 | 0 | CA2KN405•• | **35.50** |
| | | | 3 | 1 | CA2KN315•• | **35.50** |
| | | | 2 | 2 | CA2KN225•• | **35.50** |
| DC | 3 W | Screw clamp | 4 | 0 | CA3KN40•• | **49.20** |
| | | | 3 | 1 | CA3KN31•• | **49.20** |
| | | | 2 | 2 | CA3KN22•• | **49.20** |
| | | Spring Termination | 4 | 0 | CA3KN403•• | **49.20** |
| | | | 3 | 1 | CA3KN313•• | **49.20** |
| | | | 2 | 2 | CA3KN223•• | **49.20** |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA3KN407•• | **49.20** |
| | | | 3 | 1 | CA3KN317•• | **49.20** |
| | | | 2 | 2 | CA3KN227•• | **49.20** |
| | | Solder pins for printed circuit board | 4 | 0 | CA3KN405•• | **49.20** |
| | | | 3 | 1 | CA3KN315•• | **49.20** |
| | | | 2 | 2 | CA3KN225•• | **49.20** |

▲ Complete catalog number by adding proper voltage code from Table 23.84 or Table 23.85 (for example, CA2KN40**G7**).

### Table 23.83: Low Consumption Control Relays

**Compatible with programmable controller outputs.**

- LED indicator incorporated.
- Wide range coil (70 to 130% Uc), suppressor fitted as standard.
- Mounting on 35 mm DIN 3 track or 4 screw direct mounting.
- Screws in open "ready-to-tighten" position.

| | | | | | | |
|---|---|---|---|---|---|---|
| DC | 1.8 W | Screw clamp | 4 | 0 | CA4KN40••• | **64.00** |
| | | | 3 | 1 | CA4KN31••• | **64.00** |
| | | | 2 | 2 | CA4KN22••• | **64.00** |
| | | Spring Termination | 4 | 0 | CA4KN403••• | **64.00** |
| | | | 3 | 1 | CA4KN313••• | **64.00** |
| | | | 2 | 2 | CA4KN223••• | **64.00** |
| | | Faston 1 x 6.35 or 2 x 2.8 | 4 | 0 | CA4KN407••• | **64.00** |
| | | | 3 | 1 | CA4KN317••• | **64.00** |
| | | | 2 | 2 | CA4KN227••• | **64.00** |
| | | Solder pins for printed circuit board | 4 | 0 | CA4KN405••• | **64.00** |
| | | | 3 | 1 | CA4KN315••• | **64.00** |
| | | | 2 | 2 | CA4KN225••• | **64.00** |

▲ Complete catalog number by adding proper voltage code from Table 23.86 (for example, CA4KN40**BW3**).

### Table 23.84: Coil Voltage Codes for CA2K Control Relays (0.8–1.15 Uc) (0.85–1.1 Uc)

| **Vac 50/60 Hz** | 12 | 24 | 36 | 42 | 48 | 110 | 120 | 127 | 208 | *220/ 230* | 230 | *230/ 240* | 380/ 400 | 400 | *400/ 415* | 440 | 480 | 500 | *660/ 690* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Code** | J7 | B7 | C7 | D7 | E7 | F7 | G7 | FC7 | L7 | M7 | P7 | *U7* | *Q7* | V7 | *N7* | R7 | T7 | S7 | Y7 |

Note: Up to and including 240 V, coil with integral suppression device available: add **2** to the code required. Example: **J72**. (Price Adder **9.50**)

### Table 23.85: Coil Voltage Codes for CA3K Control Relays (0.8–1.15 Uc)

| **Vdc** | 12 | 20 | 24 | 36 | 48 | 60 | 72 | 100 | 110 | 125 | 200 | 220 | 230 | 240 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Code** | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | LD | MD | MPD | MUD | UD |

Note: Coil with integral suppression device available: add **3** to the code required. Example: **JD3**. (Price Adder **9.50**)

### Table 23.86: Coil Voltage Codes for CA4K, Low Consumption Control Relays (Wide Range Coil: 0.7–1.3 Uc)

| **Vdc** | 12 | 24 | 48 | 72 |
|---|---|---|---|---|
| **Voltage Code** | JW3 | BW3 | EW3 | SW3 |

### Approvals:

File CCN NKCR 164353

File Class 3211 03 LR43364



© 2012 Schneider Electric
All Rights Reserved

# TeSys™ K IEC Style Relays



LA1KN20

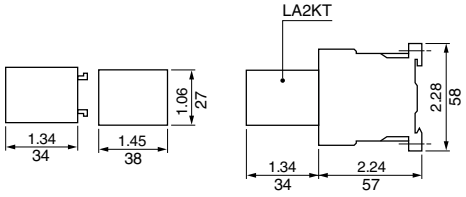


LA1KN40



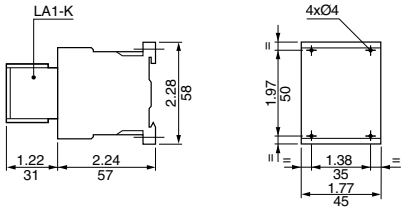
LA1KN403

LA2KT electronic time delay contact blocks

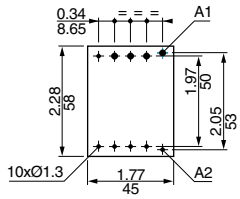



Approximate dimensions
for CA2, CA3, CA4K control relays

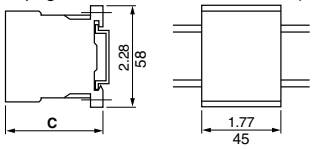
On panel




On printed circuit board




AM1DP200 or AM1DE200 mounting rail—35 mm DIN rail
(see page 22-16 for additional DIN rail)




in.
mm

| C | | Product |
|---|---|---|
| in. | mm | |
| 2.22 | 59 | AM1DP200 |
| 2.60 | 66 | AM1DE200 |

## Table 23.87: Instantaneous Auxiliary Contact Blocks ■♦

Clip-on Front Mounting, 1 Block Per Control Relay

| Type of Connection | Contact Configuration N.O. | Contact Configuration N.C. | Catalog Number | $ Price |
|---|---|---|---|---|
| Screw Clamp | 2 | 0 | LA1KN20 | **14.20** |
| | 0 | 2 | LA1KN02 | **14.20** |
| | 1 | 1 | LA1KN11 | **14.20** |
| | 4 | 0 | LA1KN40▲ | **27.30** |
| | 3 | 1 | LA1KN31▲ | **27.30** |
| | 2 | 2 | LA1KN22▲ | **27.30** |
| | 1 | 3 | LA1KN13▲ | **27.30** |
| | 0 | 4 | LA1KN04▲ | **27.30** |
| Spring Termination | 2 | 0 | LA1KN203 | **14.20** |
| | 1 | 1 | LA1KN113 | **14.20** |
| | 0 | 2 | LA1KN023 | **14.20** |
| | 4 | 0 | LA1KN403▲ | **27.30** |
| | 3 | 1 | LA1KN313▲ | **27.30** |
| | 2 | 2 | LA1KN223▲ | **27.30** |
| | 1 | 3 | LA1KN133▲ | **27.30** |
| | 0 | 4 | LA1KN043▲ | **27.30** |
| Faston 1 x 6.35 or 2 x 2.8 | 2 | 0 | LA1KN207 | **14.20** |
| | 0 | 2 | LA1KN027 | **14.20** |
| | 1 | 1 | LA1KN117 | **14.20** |
| | 4 | 0 | LA1KN407▲ | **27.30** |
| | 3 | 1 | LA1KN317▲ | **27.30** |
| | 2 | 2 | LA1KN227▲ | **27.30** |
| | 1 | 3 | LA1KN137▲ | **27.30** |
| | 0 | 4 | LA1KN047▲ | **27.30** |

▲ Not to be used on CA4KN relays.
■ Clip-on front mounting, 1 block per control relay.
♦ Auxiliary contact module not suitable for safety circuits.

## Table 23.88: Electronic Time Delay Contact Blocks

| | |
|---|---|
| **Relay output, with common point changeover contact** | 240 Vac/Vdc, 2 A maximum |
| **Control voltage** | 0.85–1.1 Uc |
| **Maximum switching capacity** | 250 VA or 150 W |
| **Operating temperature** | –10 to + 60°C (+14° F to 140° F) |
| **Reset time** | 1.5 s during the time delay period,<br>0.5 s after the time delay. |

## Table 23.89: Clip-on front mounting, 1 block per control Relay

| Voltage (V) | Type | Timing Range, s | Composition C.O. | Catalog No. | $ Price |
|---|---|---|---|---|---|
| AC or DC / 24 to 48 | On-delay | 1 to 30 | 1 | LA2KT2E | **32.80** |
| AC / 110 to 240 | | | | LA2KT2U | |

Note: For other electronic timers see Type RE7 and 9050 Type JCK, pages 23-28 and 23-30.

## Table 23.90: Accessories (supplied separately)

| Description | | | Sold in lots of | Catalog No. | $ Price ea. |
|---|---|---|---|---|---|
| Marker holder□ | Clips on front of relay | | 100 | LA9D90 | **0.06** |
| Clip-on markers□ | 4 maximum per device | Strip of 10 identical numbers, 0 to 9 | 25 | AB1R•□ | **0.70** |
| | | Strip of 10 identical capital letters A to Z | | AB1G•□ | |
| Suppressor modules with incorporated LED indicator | Clips onto front of relay with locating device. No tools required for connection. | For AC and DC voltages 12 to 24 V (varistor) | 5 | LA4KE1B★ | **9.80** |
| | | For AC and DC voltages 32 to 48 V (varistor) | | LA4KE1E★ | |
| | | For AC and DC voltages 50 to 129 V (varistor) | | LA4KE1FC★ | |
| | | For AC and DC voltages 130 to 250 V (varistor) | | LA4KE1UG ★ | |
| | | For DC voltages 12 to 24 V (diode + Zener diode) | | LA4KC1B▼ | |
| | | For DC voltages 32 to 48 V (diode + Zener diode) | | LA4KC1E▼ | |
| | | For AC voltages 220 to 250 V (RC) | | LA4KA1U△ | |

★ Protection by the limitation of the transient voltage to 2 Uc maximum. Maximum reduction of the transient voltage peaks. Slight time delay on drop-out (1.1 to 1.5 times normal).
▼ No overvoltage or oscillation frequency. Polarized component. Slight time delay on drop-out (1.1 to 1.5 times normal).
△ Protection by limitation of the transient voltage to 3 Uc max. and limitation of the oscillation frequency. Slight time delay on drop-out (1.2 times to twice normal).
□ See "Clip-in Marker Strips" in Catalog **8501CT0101** for information on completing the catalog number.

## Table 23.91: Environment

| | | |
|---|---|---|
| **Conforming to Standards** | | IEC 947, NF C 63-140, VDE 0660, BS 5424, CE |
| **Approvals** | | UL, CSA, DEMKO, NEMKO, SEMKO, FI |
| **Protective treatment** | Conforming to IEC 68 (DIN 50016) | "TC" (Climateproof) |
| **Degree of protection** | Conforming to VDE 0106 | Protection against direct finger contact |
| **Ambient air temperature** | Storage | -58 to 176 °F (-50 to 80°C) |
| | Operation | -13 to 122 °F (-25 to 50°C) |
| **Maximum operating altitude** | Without derating | 6562 ft (2000 m) |





© 2012 Schneider Electric
All Rights Reserved

## TeSys™ SK IEC Style Relays



CA2SK11G7

### Table 23.92: IEC Style Industrial Control Relays

- Miniature size saves space.
- Mounts on 35 mm DIN 3 track
- Up to 4 poles.

| Control Circuit Supply | Consumption | Type of Termination | Contact Configuration | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | N.O. | N.C. | | |
| AC | 4.2 VA | Screw clamp | 1 | 1 | CA2SK11•• ▲ | 43.70 |
| | | | 2 | 0 | CA2SK20•• ▲ | |
| DC | 2.2 W | | 1 | 1 | CA3SK11•• ▲ | 51.00 |
| | | | 2 | 0 | CA3SK20•• ▲ | |

▲ Use the appropriate voltage code to complete the catalog number (for example: CA2SK11**G7**)



LA1SK11

### Table 23.93: Contact Adder Decks (for CA2SK20 only)

| Type of Termination | Contact Configuration | | Catalog Number | $ Price |
|---|---|---|---|---|
| | N.O. | N.C. | | |
| Screw clamp | 2 | 0 | LA1SK20 | 16.90 |
| | 1 | 1 | LA1SK11 | |
| | 0 | 2 | LA1SK02 | |

## Transient Suppressor Module

Dampens the voltage spike that may occur when the relay coil is de-energized. The spike may adversely affect solid state equipment near the relay. The transient suppressor module snaps into a cavity located in the side of the relay. These modules can be used with CA2SK and CA3SK relays.

### Table 23.94: Transient Suppressor Module

| Control Circuit Voltage | Catalog Number | $ Price |
|---|---|---|
| 24–48 Vac 50/60 Hz, 24–48 Vdc | LA4SKEIE | 21.80 |
| 110–250 Vac 50/60 Hz, 110–250 Vdc | LA4SKEIU | |

### Table 23.95: Coil Voltage Codes for Control Relays

| Voltage | 12 | 24 | 36 | 48 | 72 | 110 | 120 | 220 | 230 | 240 | 380 | 400 | 480 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50/60 Hz | — | B7 ■ | — | E7 ■ | — | F7 | G7 ■ | M7 ■ | P7 | U7 ■ | Q7 | V7 | T7 ■ |
| DC | JD | BD | CD | ED | SD | — | — | — | — | — | — | — | — |

■ Alternating relays CA2SKE available in these voltages only. No other voltages are available.

Alternating Relays, CA2SKE

Refer to Catalog **8501CT9701**



CA2SKE20

These alternating relays are used to alternate the use of 2 motor circuits. When the coil is energized the first time, one contact closes and will open when the coil is de-energized. When the coil is energized again, the other contact will close and will open when the coil is de-energized. The contacts from these alternators are to be used in the control circuit of the starters that are controlling pump or compressor motors.

**Approvals**: UL File: E164353 CCN: NKCR; CSA File: LR43364 Class: 3211 03.

### Table 23.96: Alternating Relays

| Coil Voltage (Voltage-Hz) | Type | $ Price |
|---|---|---|
| 24–50/60 | CA2SKE20•▲ | 120.00 |

▲ Use the appropriate voltage code to complete the catalog number (for example, CAZSK11**G7**). Only available with voltages indicated above.

### Table 23.97: Contact Ratings for CA2SK, CA3SK, AND CA2SKE20 Relays

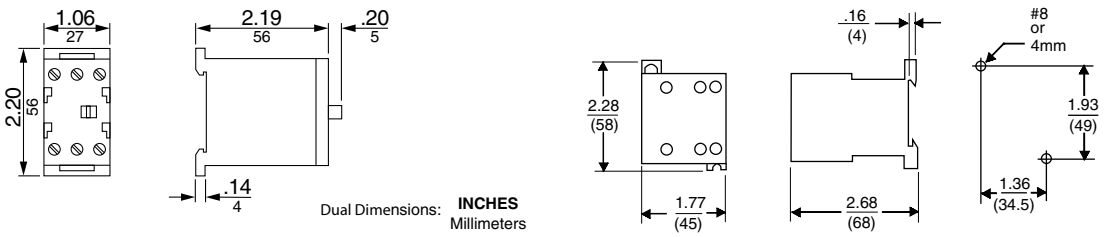
| AC | | | | | | | | DC | |
|---|---|---|---|---|---|---|---|---|---|
| Volts | Inductive 35% PF | | | | | Resistive 75% PF | | Volts | Continuous Amperes |
| | NEMA Rating | Make | | Break | | Continuous Amperes | Make, Break and Continuos Amperes | | |
| | | A | VA | A | VA | | | | |
| 120 | A600 | 60 | 7200 | 6 | 720 | 10 | 10 | 24 | 3 |
| 240 | | 30 | | 3 | | | | 60 | 2 |
| 480 | | 15 | | 1.5 | | | | 110 | 0.8 |
| 600 | | 12 | | 1.2 | | | | 240 | 0.2 |

**Approvals**:

File CCN E164353 NKCR

File Class LR43364 3211 03

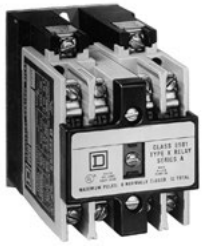
### Approximate Dimensions for CA2SKE Relay




Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved



Type XMO40
Control Relay

## AC Control Relays

- Straight-through wiring
- Plug-in contact cartridges for easy contact conversion and replacement
- Contact conversion without removing terminal screws or wires
- Self-lifting pressure wire connectors
- Replaceable coil

### Table 23.98: AC Control Relays

| Normally Open Convertible Instantaneous Contacts | Control Relay ▲ | |
|---|---|---|
| | Type♦ | $ Price |
| 0 | XO00 | **98.00** |
| 2 | XO20 | **144.00** |
| 3 | XO30 | **169.00** |
| 4 | XO40 | **192.00** |
| 6 | XO60 | **242.00** |
| 8 | XO80 | **288.00** |
| 10 | XO1000 | **336.00** |
| 12 | XO1200 | **385.00** |

▲ A maximum of 8 N.C. contacts is allowed on 9–12 pole relays.



Type XMO40
Master Relay

## AC Master Relays

- 20 ampere contact rating due to use of master contact cartridges. ★
- Provisions for standard cartridges to be used in contact cavities not occupied by master cartridges in 2-8 pole AC relay.

### Table 23.99: AC Master Relays

| Number of N.O. 20 Ampere Convertible Contacts | Open Type■ | |
|---|---|---|
| | Type♦ | $ Price |
| 2 | XMO20 | **204.00** |
| 4 | XMO40 | **336.00** |
| 6 | XMO60 | **457.00** |

■ Attachments not permitted on this relay.



Type XO40XTE1
Timing Relay

## AC Timing Relays

- Easily convertible On Delay or Off Delay
- Two adjustable timing ranges
- Repeat accuracy well above ±10%
- Convertible 1 N.O. and 1 N.C. timed contacts
- Large knob for easy adjustment of time delay
- Off Delay mode times out even after loss of power.

### Table 23.100: AC Timing Relays

| Timing Mode | N.O. Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay | | $ Price |
|---|---|---|---|---|---|---|
| | | N.O. | N.C. | 0.2–60 s | 5–180 s | |
| | | | | Type♦ | Type♦ | |
| On Delay | 0 | 1 | 1 | XO00XTE1 | XO00XTE2 | **432.00** |
| | 2 | 1 | 1 | XO20XTE1 | XO20XTE2 | **480.00** |
| | 4 | 1 | 1 | XO40XTE1 | XO40XTE2 | **529.00** |
| Off Delay | 0 | 1 | 1 | XO00XTD1 | XO00XTD2 | **432.00** |
| | 2 | 1 | 1 | XO20XTD1 | XO20XTD2 | **480.00** |
| | 4 | 1 | 1 | XO40XTD1 | XO40XTD2 | **529.00** |



Type XO40XL
Latching Relay

## AC Latching Relays

- Mechanical latch holds all contacts switched even after removal of power from replaceable latching coil.
- Provides sequence memory in the event of power loss. Ideal for press control, process control and punch presses.
- Replaceable unlatch coil to switch contacts back to original state.

### Table 23.101: AC Latching Relays

| N.O. Convertible Instantaneous Contacts | Latching Relay | |
|---|---|---|
| | Type♦ | $ Price |
| 2 | XO20XL | **313.00** |
| 3 | XO30XL | **336.00** |
| 4 | XO40XL | **360.00** |
| 6 | XO60XL | **408.00** |
| 8 | XO80XL | **457.00** |

♦ Voltage Code must be specified to order these products. Refer to Table 23.104 and insert the code as shown in Table 23.107: How to Order.

**Approvals:**

UL® File CCN E78403 NKCR

CSA® File Class 060905 3211 03

CE IEC 60947-1

### Table 23.102: AC Contact Ratings

(for DC ratings, see page 23-23)

| Type of Cartridge | V | Inductive 35% Power Factor | | | | | | Resistive 75% Power Factor |
|---|---|---|---|---|---|---|---|---|
| | | NEMA Rating | Make | | Break | | Continuous Amperes | Make, Break and Continuous Amperes |
| | | | A | VA | A | VA | | |
| Standard or Overlapping | 120<br>240<br>480<br>600 | A600 | 60<br>30<br>15<br>12 | 7200 | 6<br>3<br>1.5<br>1.2 | 720 | 10 | 10 |
| Master★ | — | A600 | Same as standard cartridge above except substitute 20 A for the continuous ampere rating | | | | | |
| Logic Reed | — | — | 150 Vac, 150 mA, 8 W Maximum | | | | | |

★ Maximum of six 8501 Type XC4 Master Cartridges may be used on only 7 and 8 pole AC Devices

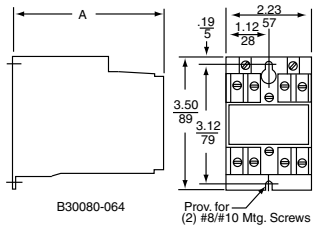
### Table 23.103: Average Operating Time (ms)

| Device | Pick-Up | Drop-Out |
|---|---|---|
| AC Relay | 15 | 16 |
| AC Latching Relay | 15 | 13 |

### Table 23.104: Voltage Codes

| AC Voltages - Hz | Code |
|---|---|
| 12–60 | V11 |
| 24–60 | V01 |
| 24–50 | V12 |
| 48–60 | V18 |
| 48–50 | V16 |
| 120–60/110–50 | V02 |
| 208–60 | V08 |
| 240–60/220–50 | V03 |
| 277–60 | V04 |
| 480–60/440–50 | V06 |
| 600–60/550–50 | V07 |

## AC Control Relays and AC Master Relays

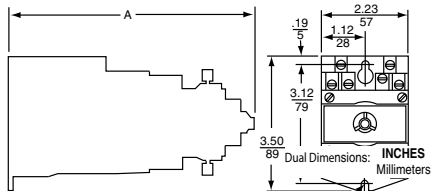



Dual Dimensions: **INCHES** Millimeters

### Table 23.105: Dimensions and Weight

| No. of Poles | Dim. A | | Shipping Weight, lb |
|---|---|---|---|
| | in. | mm | |
| 0–4 | 3.95 | 100 | 2.0 |
| 6–8 | 5.16 | 131 | 2.3 |
| 10–12 | 6.36 | 162 | 2.7 |

## AC Latching Relay Dimensions




### Table 23.106: Dimensions and Weight

| No. ofPoles | Dim. A | | Shipping Weight, lb |
|---|---|---|---|
| | in. | mm | |
| 2–4 | 6.54 | 166 | 2.8 |
| 6–8 | 7.74 | 197 | 3.1 |

For replacement coils, see page 23-24.

### Table 23.107: How to Order

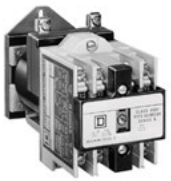
| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code | 8501 | XO40 | V02 |





© 2012 Schneider Electric
All Rights Reserved

## DC Control Relays



Type XDO40
Control Relay

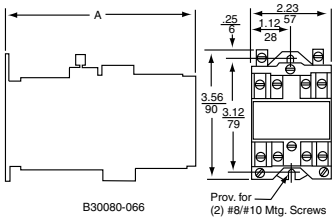
- Replaceable, highly reliable pure DC power plant: no economizing resistors, overlapping contacts or dual-wound coil.
- Utilizes the same Type XB adder decks and attachments as the AC version.
- Offers all the features of the AC relay.
- Available in up to 8 poles.
- All contact poles are usable since no overlapping contacts are needed.

### Table 23.108: DC Control Relays

| Normally Open Convertible Instantaneous Contacts | Control Relay | |
|---|---|---|
| | Type | $ Price |
| 0 | XDO00▼ | **216.00** |
| 2 | XDO20▼ | **264.00** |
| 4 | XDO40▼ | **313.00** |
| 6 | XDO60▼ | **360.00** |
| 8 | XDO80▼ | **408.00** |

## DC Control Relay Utility Auxiliary Relay

### Table 23.109: Dimensions




| No. of Poles | Dim. A | | Shipping Weight lb. |
|---|---|---|---|
| | in. | mm | |
| 0–4 | 5.17 | 131 | 3.1 |
| 6–8 | 6.37 | 162 | 3.4 |
| 10–12 | 7.60 | 193 | 3.8 |

## DC Timing Relays

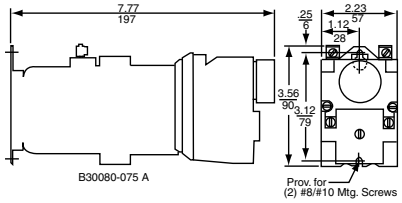


Type XDO40XTE2
Timing Relay

- Easily convertible On Delay or Off Delay.
- Two adjustable timing ranges.
- Repeat accuracy well above ±10%.
- Convertible 1 N.O. and 1 N.C. timed contacts.
- Large knob for easy adjustment of time delay.
- Off Delay mode times out even after loss of power.

### Table 23.110: DC Timing Relays

| Timing Mode | Normally Open Convertible Instantaneous Contacts | Timed Convertible Contacts | | Timing Relay | | $ Price |
|---|---|---|---|---|---|---|
| | | | | 0.2–60 s | 5–180 s | |
| | | N.O. | N.C. | Type | Type | |
| On Delay | 0 | 1 | 1 | XDO00XTE1▼ | XDO00XTE2▼ | **522.00** |
| | 2 | 1 | 1 | XDO20XTE1▼ | XDO20XTE2▼ | **601.00** |
| | 4 | 1 | 1 | XDO40XTE1▼ | XDO40XTE2▼ | **648.00** |
| Off Delay | 0 | 1 | 1 | XDO00XTD1▼ | XDO00XTD2▼ | **522.00** |
| | 2 | 1 | 1 | XDO20XTD1▼ | XDO20XTD2▼ | **601.00** |
| | 4 | 1 | 1 | XDO40XTD1▼ | XDO40XTD2▼ | **648.00** |




### Table 23.111: DC Contact Ratings (for AC ratings, see page 23-22)

| Type of Cartridge | DC Ratings | | | | | |
|---|---|---|---|---|---|---|
| | Volts | Inductive | | | Resistive | |
| | | NEMA Rating | Make and Break Amperes 138 VA Max. | Continuous Amperes | Make and Break Amperes | Continuous Amperes |
| Standard | 125<br>250 | P600 | 1.1<br>0.55 | 5<br>5 | 4<br>0.8 | 5<br>5 |
| Overlapping | 125 | P150 | 1.1 | 5 | 4 | 5 |
| Logic Reed | — | — | 30 Vdc, 60 ma | | | |

Note: Do not use any 8501 Type XC4 Master Cartridges on any DC-operated device.

## DC Latching Relays



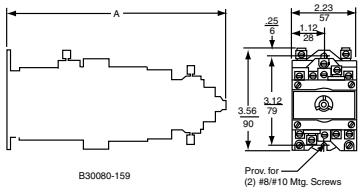
Type XDO40XDL
Latching Relay

- Mechanical latch holds all contacts switched even after removal of power from replaceable latching coil.
- Provides sequence memory in the event of power loss.
- Ideal for sequencing applications such as press control, process control and punch presses.
- Replaceable unlatch coil to switch contacts back to original state.

### Table 23.112: DC Latching Relays

| Normally Open Convertible Instantaneous Contacts | Latching Relay | |
|---|---|---|
| | Type | $ Price |
| 2 | XDO20XDL▼ | **485.00** |
| 4 | XDO40XDL▼ | **534.00** |
| 6 | XDO60XDL▼ | **582.00** |
| 8 | XDO80XDL▼ | **629.00** |

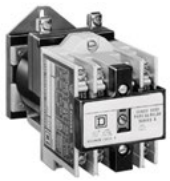
Note: Unlatch coil is rated for intermittent duty and should be connected through a N.O. contact of the relay if the input signal is maintained. Order one more N.O. contact than the application requires to use as a coil clearing contact.




### Table 23.113: Dimensions

| No. of Poles | Dim. A | | Shipping Weight, lb. |
|---|---|---|---|
| | in. | mm | |
| 2–4 | 7.76 | 197 | 3.9 |
| 6–8 | 8.98 | 228 | 4.2 |

## DC Utility Relays



Type XUDO40
Utility Relay

Ideal for utility plant applications where reliable performance and a pure DC power plant is required. In addition to the Type XDO relay features, the Type XUDO provides:

- Up to 12 poles N.O. or N.C.
- Nominal 125 Vdc coil, capable of handling 140 Vdc continuously and picking up at 105 Vdc after having been operated at 140 Vdc continuously. Other voltages with comparable operating characteristics are available.
- Enclosed device capable of operating in 145°F ambient.

### Table 23.114: DC Utility Relays

| Number of Convertible Contacts | | Open Type | |
|---|---|---|---|
| N.O. | N.C. | Type | $ Price |
| 4<br>0 | 0<br>4 | XUDO40▼<br>XUDO04▼ | **390.00** |
| 8<br>0 | 0<br>8 | XUDO80▼<br>XUDO08▼ | **510.00** |
| 12<br>0 | 0<br>12 | XUDO1200▼<br>XUDO0012▼ | **629.00** |

### Table 23.115: Average Operating Times (in ms)

| Device | Pick-Up | Drop-Out |
|---|---|---|
| DC Relay | 37 | 21 |
| DC Latching Relay | 37 | 45 |

### Table 23.116: Voltage Codes—8501 XUDO and XDO Relays

| DC Voltages for 8501 XUDO Relays ONLY | Code | DC Voltages for 8501 XDO Relays | Code |
|---|---|---|---|
| 6 | V50 | 6 | V50 |
| 12 | V51 | 12 | V51 |
| 24 | V53 | 24 | V53 |
| 48 | V56 | 32 | V54 |
| 125 | V63 | 48 | V56 |
| 250 | V67 | 72 | V58 |
| | | 90 | V59 |
| | | 115/125 | V62 |
| | | 230/250 | V66 |

▼ Voltage code must be specified to order these products. Refer to Table 23.116 and insert the appropriate code as shown in Table 23.117: How to Order.

### Table 23.117: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code | 8501 | XDO40 | V53 |

For Replacement coils, see page 23-24
For UL and CSA approvals, see page 23-22



© 2012 Schneider Electric
All Rights Reserved

## Table 23.118: Type X™ Relays

| | Description | Type | $ Price |
|---|---|---|---|
|  | **Mechanical Latch Attachment—**Mounts on any 2 through 8-pole relay (except XMO master relay). The Type XL and XDL latch attachments are identical in size and mounting provisions. The Type XLAC latch attachment has a continuous-duty-rated coil which is replaceable. **The Type XDLDC latch attachment has an intermittent–rated coil (replaceable) and should be connected through a N.O. contact of the basic relay if the input signal is maintained to the unlatch coil.**<br>AC Latch Attachment<br>DC Latch Attachment | <br><br><br>XL▲<br>XDL▲ | <br><br><br>**169.00**<br>**222.00** |
|  | **Pneumatic Timer Attachment—**Mounts only on any 0 through 4-pole AC or DC relays (except XMO master relay). It provides 1 N.O. and 1 N.C. convertible timed contacts, which are the same Type XC1 cartridges used on the basic relay. Two timing ranges are available, and conversion from On Delay to Off Delay or vice versa is easy.<br>**Off Delay**<br>0.2–60 seconds<br>5–180 seconds<br>**On Delay**<br>0.2–60 seconds<br>5–180 seconds | <br><br>XTD1<br>XTD2<br><br>XTE1<br>XTE2 | <br><br>**336.00**<br>**336.00**<br><br>**336.00**<br>**336.00** |
|  | **Timer Lockout Cover—**Fits over the time delay adjustment knob of any Type XT timing attachment. The Lockout Cover is designed to protect the time setting against accidental adjustment. It mounts directly to the timing attachment with two included screws. | XJ1 | **9.00** |
|  | **Adder Decks—**Adder decks are used to expand the number of poles on a relay. The basic 4-pole relay can be easily converted to an 8-pole or 12-pole relay by installing one or two adder decks. The Class 8501 Type XB20 comes with 2 convertible contact cartridges and will accept 2 additional convertible contact cartridges. The Class 8501 Type XB40 comes with 4 convertible contact cartridges. The same Type XB adder deck is used for both the middle and upper decks of the AC or DC relay.<br><br>With 2 N.O. contact cartridges<br>With 4 N.O. contact cartridges | <br><br><br>XB20<br>XB40 | <br><br><br>**48.00**<br>**98.00** |
|  | **Contact Cartridges—**The Type X relay offers 4 Types of contact cartridges. All are color–coded for visual identification of each Type. | | |
| | **Standard Cartridge—**The standard cartridge, used for most applications, has a black case. | XC1 | **24.20** |
| | **Overlapping Cartridge—**Same NEMA Type A600 AC rating as standard cartridge and a NEMA Type P150 DC rating. When it is used in the N.O. mode it will close early and when used in the N.C. mode it will open late. If two or more are used together, the N.O. contacts will close before the N.C. contacts open as the relay picks up. Overlap also occurs during dropout. Overlapping cartridge has a red case.<br>**May be ordered factory installed:**<br>• Substitute 1 N.O. and 1 N.C. overlapping cartridges for 2 standard cartridges.<br>• Substitute 2 N.O. and 2 N.C. overlapping cartridges for 4 standard cartridges.<br>• Substitute 3 N.O. and 3 N.C. overlapping cartridges for 6 standard cartridges.<br>• Substitute 4 N.O. and 4 N.C. overlapping cartridges for 8 standard cartridges. | XC2<br><br>**Form**<br>**Y1591**<br>**Y1592**<br>**Y1593**<br>**Y1594** | **24.20**<br><br><br>**Add 24.20**<br>**Add 24.20**<br>**Add 24.20**<br>**Add 24.20** |
| | **Master Cartridge—**Features the same contact ratings as the Type XC1 standard cartridge except it has a 20 ampere continuous current rating instead of 10 amperes. It can be used in circuits where a master relay is required. Master cartridge has a blue case. **Maximum of 6 master cartridges may be used on any 7 and 8-pole AC relays. Do not use any master cartridges on 9-12-pole AC or any DC-operated devices. Note: If master cartridges are added to a standard relay, attachments (latch mechanism, timers, etc.) cannot be used.** | XC4 | **60.00** |
| | **Logic Reed Cartridge**—See logic reed adder deck above. | | |
|  | **Mounting Track—**The mounting track has pre-punched mounting holes to simplify mounting the track on the control panel. The relay mounting screws are factory installed on the track so that the relays can be hung prior to tightening the screws.<br>9 in. long for 4 relays<br>18 in. long for 8 relays<br>27 in. long for 12 relays<br>36 in. long for 16 relays | <br>XM4<br>XM8<br>XM12<br>XM16 | <br>**19.70**<br>**29.80**<br>**36.40**<br>**42.90** |
|  | **Manual Test Tool—**Provides a means of manually switching the contacts of a basic relay or timing relay and holding all contacts in their switched state until the tool is removed. This simplifies the checking of control circuits without power on the coil or contacts. | XA1 | **6.10** |
| | **Transient Suppressor—**Consists of an R-C circuit designed to suppress coil generated transients to approximately 200 percent of peak voltage. It is particularly useful when switching the Type X relay near solid state equipment. It is designed for use on coils up to 120 Vac. | XS1 | **48.00** |
|  | **NEMA 1 Enclosure—**Formed from sheet steel to provide strength and rigidity. Two conduit knockouts are located in both the top and bottom of the enclosure. The enclosure is furnished with self tapping screws for mounting the relay inside the enclosure. Accommodates a single 4 or 8-pole AC or DC relay, 12-pole AC relay, 4-pole AC latching relay, and 4-pole AC timing relay.<br>Note: The 4-pole DC latching relay, 4-pole DC timing relay, 8-pole AC and DC latching relays and 12-pole utility auxiliary relay will not fit. | Class 9991 Type UE7 | **29.60** |

▲ See Mechanical Latch Attachment Voltage Codes table below:

## Table 23.119: Mechanical Latch Attachment Voltage Codes

| AC Voltage | Code | DC Voltage | Code |
|---|---|---|---|
| 24–60 | V01 | 6 | V50 |
| 24–50 | V12 | 12 | V51 |
| 120–60/110–50 | V02 | 18 | V99 |
| 208–60 | V08 | 24 | V53 |
| 240–60/220–50 | V03 | 48 | V56 |
| 277–60 | V04 | 72 | V58 |
| 480–60/440–50 | V06 | 90 | V59 |
| 600–60/550–50 | V07 | 115/125 | V62 |
| | | 230/250 | V66 |

## Table 23.120: How to Order

| To Order Specify: | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number<br>• Voltage Code for mechanical latch attachment<br>• Form for factory installed overlapping contacts | 8501 | XTE1 |

## Table 23.121: Relay Coil Selection and Pricing

| Device Type | Equipment To Be Serviced | | Coil Prefix, or Class and Type | Hz | SUFFIX (The complete coil number consists of prefix or the Class and Type, followed by suffix.) | | | | | | | | | | | | | Coil Burden Watts | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | | | 6 V | 12 V | 18 V | 24 V | 32 V | 48 V | 64 V | 72 V | 90 V | 110 V | 115/125 V | 220 V | 230/250 V | | |
| DC | 8501 | XD | 9998 XD | — | 19 | 28 | 34 | 37 | 40 | 46 | 49 | 52 | 55 | — | 58 | — | 67 | 18 | **168.00** |
| | | XDL | 9998 XDL | — | 19 | 28 | 34B | 37B | 40B | 46B | 49B | 52B | 55B | — | 58B | — | 67B | 50 | **216.00** |
| | | XUD | 9998 XUD | — | 19 | 28 | — | 37 | — | 46 | — | — | — | — | 58★ | — | 67♦ | 16 | **168.00** |

| Device Type | Equipment To Be Serviced | | Coil Prefix or Class and Type | | | | | | | | | | | | Coil Volt-Amperes | | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Type | | — | 24 V | 110-115 V | 120 V | 208 V | 220 V | 240 V | 277 V | 380 V | 440 V | 480 V | 550 V | 600 V | In-rush | Sealed | |
| AC | 8501 | XO, XMO | 9998 X ■ | 60 | 23 | — | 44 | 51 | 52 | 53 | 55 | — | — | 62 | — | 65 | 148 | 23 | **69.00** |
| | | | | 50 | 24 | 44 | — | 52 | 53 | — | — | — | 62 | — | 65 | — | 143 | 25 | |

■ To order an unlatch coil add the letter "L" to the type number and the letter "B" to the suffix number. Example: for a 120 V 60 Hz unlatch coil order a Class 9998 Type XL44B.
♦ Not dual rated—250 Vdc only
★ 125 Vdc only





© 2012 Schneider Electric
All Rights Reserved



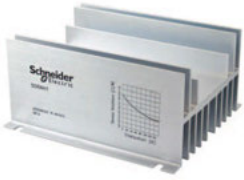
SSRPCDS25A1



SSRDCDS10A1



SSRDCDS45A1



SSRAH1




SSRAT1

## Schneider Electric Solid State Relays

Solid state relays do not have any moving parts to wear out. Combined with vibration resistance, arc-less switching and the lack of acoustical noise, you have the ideal product for switching applications that demand reliable execution. For added reliability the Zelio™ SSRP and SSRD solid state relays utilize Direct Copper Bonding (DCB) technology to decrease internal temperatures and improve the overall quality of the product.

Key features include:

- Input voltage range 3 to 32 Vdc, 90 to 280 Vac
- Breaking capacities up to 125 A
- Zero voltage turn on, low EMI / RFI
- No moving parts
- Shock and Vibration resistant
- No acoustical noise
- Fast response
- Arc-less switching
- Long life (>$10^9$ operations)

### Table 23.122: Solid State Relays

| Switching | Voltage Range | | Load Current Range | Catalog Number | $ Price ea. |
|---|---|---|---|---|---|
| | Input | Output | | | |
| | V | V | A | | |
| **Panel Mounted** | | | | | |
| **SCR Output** Zero voltage switching | 3•••32 DC | 24•••280 AC | 10 | SSRPCDS10A1 | **40.60** |
| | | | 25 | SSRPCDS25A1 | **41.90** |
| | | | 50 | SSRPCDS50A1 | **59.00** |
| | 4•••32 DC | 48•••530 AC | 75 | SSRPCDS75A2 | **100.00** |
| | | 48•••660 AC | 90 | SSRPCDS90A3 | **114.00** |
| | | | 125 | SSRPCDS125A3 | **144.00** |
| | 90•••280 AC | 24•••280 AC | 10 | SSRPP8S10A1 | **43.10** |
| | | | 25 | SSRPP8S25A1 | **45.70** |
| | | | 50 | SSRPP8S50A1 | **53.00** |
| | | 48•••530 AC | 75 | SSRPP8S75A2 | **114.00** |
| | | 48•••660 AC | 90 | SSRPP8S90A3 | **117.00** |
| | | | 125 | SSRPP8S125A3 | **134.00** |
| **MOSFET Output** Instant switching | 3.5•••32 DC | 0•••100 DC | 12 | SSRPCDM12D5 | **66.00** |
| | | | 25 | SSRPCDM25D5 | **82.00** |
| | | | 40 | SSRPCDM40D5 | **114.00** |
| **DIN Rail Mounted** | | | | | |
| **SCR Output** Zero voltage switching | 4•••32 DC | 24•••280 AC | 10 | SSRDCDS10A1 | **58.00** |
| | | | 20 | SSRDCDS20A1 | **81.00** |
| | | | 30 | SSRDCDS30A1 | **85.00** |
| | 3•••32 DC | 24•••280 AC | 45 | SSRDCDS45A1 | **100.00** |
| | 90•••280 AC | 24•••280 AC | 10 | SSRDP8S10A1 | **61.00** |
| | | | 20 | SSRDP8S20A1 | **70.00** |
| | | | 30 | SSRDP8S30A1 | **78.00** |
| | 90•••140 AC | 24•••280 AC | 45 | SSRDF8S45A1 | **106.00** |

### Table 23.123: Accessories For Panel Mount Solid State Relays

| Description | For Use With Relays | Load Current Range | Catalog Number | $ Price ea. |
|---|---|---|---|---|
| Heat Sink | SSRPP8S•••• | up to 50 A | SSRAH1 | **26.00** |
| | SSRPCDS•••• | | | |
| Pre-Cut Thermal Transfer Pad (sold in pack sof 10) | SSRPP8S•••• | up to 125 A | SSRAT1 | **2.30** |
| | SSRPCDS•••• | | | |



© 2012 Schneider Electric
All Rights Reserved

## Zelio ™ IEC Style—17.9 mm wide

### Table 23.124: RE11 Modular Timers—17.9 mm wide (Multi-range timers offering 7 selectable ranges)



RE11RLMU

| Output 1 C/O contact | | | | |
|---|---|---|---|---|
| **Functions** | **Supply Voltages** | **Rated Current** | **Catalog Number** | **$ Price** |
| On delay | 24 Vdc, 24–240 Vac | 8A | RE11RAMU | **42.90** |
| Interval | 24 Vdc, 24–240 Vac | 8A | RE11RHMU | **42.90** |
| Asymmetrical repeat cycle | 24 Vdc, 24–240 Vac | 8A | RE11RLMU | **53.00** |
| Asymmetrical repeat cycle | 12 Vac/Vdc | 8A | RE11RLJU | **75.00** |
| One shot | 24 Vdc, 24–240 Vac | 8A | RE11RBMU | **52.00** |
| Off delay with control start | 24 Vdc, 24–240 Vac | 8A | RE11RCMU | **52.00** |
| Multi-function ▲ | 24 Vdc, 24–240 Vac | 8A | RE11RMMU | **62.00** |
| Multi-function ▲ | 12–240 Vac/Vdc | 8A | RE11RMMW | **75.00** |
| Multi-function ▲ | 12–240 Vac/Vdc | 8A | RE11RMMWS | **75.00** |
| Multi-function ▲ | 12 Vac/Vdc | 8A | RE11RMJU | **75.00** |
| Multi-function ■ | 24 Vdc, 24–240 Vac | 8A | RE11RMEMU | **75.00** |
| Multi-function ▲ | 24 Vdc, 24–240 Vac | 8A | RE11RMXMU | **75.00** |

▲ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr
■ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr

| | | | |
|---|---|---|---|
| **Conforming to standards** | | | IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3) |
| **Approvals** | | cULus | File: E173076 CNN: NRNT |
| | | | File: E173076 CNN: NRNT7 |
| | | CSA | File: 217698 Class 3211 07 |
| | | CE | |
| | | GL except RE11 RMX MU and RE11 RME MU | |
| **Ambient air temperature around the device** | Storage | °F (°C) | –22 to +140 (–30 to +60) |
| | Operation | °F (°C) | –4 to +140 (–20 to +60) |



RE11LHBM

### Table 23.125: RE11 Modular Timers—17.9 mm wide (Multi-function, dual function or single function)

| Functions | Supply Voltages | Rated Current | Catalog Number | $ Price |
|---|---|---|---|---|
| **Solid state output** | | | | |
| On delay | 24–240 Vac/Vdc | 0.7A | RE11LAMW | **45.40** |
| Interval | 24–240 Vac | 0.7A | RE11LHBM | **42.90** |
| Off delay with control contact | 24–240 Vac | 0.7A | RE11LCBM | **52.00** |
| Asymmetrical repeat cycle | 24–240 Vac | 0.7A | RE11LLBM | **75.00** |
| Multi-function | 24–240 Vac | 0.7A | RE11LMBM | **62.00** |

Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr

| | | | |
|---|---|---|---|
| **Conforming to standards** | | | IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3) |
| **Approvals** | | cULus | File: E173076 CNN: NRNT |
| | | | File: E173076 CNN: NRNT7 |
| | | CSA | File: 217698 Class: 3211 07 |
| | | CE | |
| **Ambient air temperature around the device** | Storage | °F (°C) | –22 to 140 (–30 to +60 |
| | Operation | °F (°C) | –4 to 140 (–20 to +60) |



RE48A TM12MW

### Table 23.126: RE48 Panel Mount Timers (For required socket, refer to the catalog section)

| Functions | Supply Voltages | Rated Current | Catalog Number | $ Price |
|---|---|---|---|---|
| Single function: on delay, two relay outputs | 24–240 Vac/Vdc | 2 x 5 A | RE48ATM12MW | **73.00** |
| Repeat cycle: two relay outputs | 24–240 Vac/Vdc | 2 x 5 A | RE48ACV12MW | **88.00** |
| Multi-function: on delay, one shot, off delay, repeat cycle | 24–240 Vac/Vdc | 2 x 5 A | RE48AML12MW | **86.00** |
| Multi-function: on delay and interval, two relay outputs, of which one selectable and instantaneous | 24–240 Vac/Vdc | 2 x 5A | RE48AMH13MW | **86.00** |

| | | | |
|---|---|---|---|
| **Conforming to standards** | | | IEC 61812-1, EN 50081-1/2, EM 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + ENC directive (89/336/EEC + IEC 60669-2-3) |
| **Approvals** | | cURus | File: E173076 CNN: NRNT2 |
| | | | File: E173076 CNN: NRNT8 |
| | | CSA | File: 217698 Class: 3211 070 |
| | | CE, C-Tick, GL | |
| | | RoHS compliant as of date code 0625 | |
| **Ambient air temperature around the device** | Storage | °F (°C) | –40 to 158 (–40 to +70) |
| | Operation | °F (°C) | –4 to 122 (–20 to +50) |



REXL2TMJD

### Table 23.127: REXL Miniature Plug-in Timers (For required socket, refer to the catalog section)

| | | 4 pole | | | 2 pole | | |
|---|---|---|---|---|---|---|---|
| **Function** | **Supply Voltages** | **Rated Current** | **Catalog Number** | **$ Price** | **Rated Current** | **Catalog Number** | **$ Price** |
| Single function (On-Delay | 12 Vdc | 3A | REXL4TMJD | **56.00** | 5A | REXL2TMJD | **53.00** |
| | 24 Vdc ♦ | 3A | REXL4TMBD | **56.00** | 5A | REXL2TMBD | **53.00** |
| | 24 Vac 50/60 Hz ♦ | 3A | REXL4TMB7 | **56.00** | 5A | REXL2TMB7 | **53.00** |
| | 120 Vac 50/60 Hz | 3A | REXL4TMF7 | **56.00** | 5A | REXL2TMF7 | **53.00** |
| | 230 Vac 50/60 Hz | 3A | REXL4TMP7 | **56.00** | 5A | REXL2TMP7 | **53.00** |
| Timing Ranges | 0.1–1 s, 1–10 s, 0.1–1 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr | | | | | | |

For 48 Vac supply, additional resistor 390 ohm 4 W / 24 V
♦ For 48 Vac supply, additional resistor 560 ohm 2 W / 24 V

**Approvals:**

c UL us — File CCN E173076 NRNT2; File CCN E173076 NRNT8 — CSA — File Class 217698 321107 — CE — IEC 61812-1 — RoHS Compliant as of date code 0625



© 2012 Schneider Electric
All Rights Reserved

## Zelio ™ IEC Style—22.5 mm



RE7ML

These timers offer multi range timing from 0.05 to 300 hours, in 10 timing ranges.

**Table 23.128: RE7M 6 Function and 8 Function Timers**

| Function | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| **6 Function Timer** | | | | |
| On-Delay Timer<br>Off-Delay Timer<br>Interval Timer<br>• start on energization<br>• start on opening of remote control contact<br>Repeat Cycle Timer with start during the OFF period.<br>Repeat Cycle Timer with start during the ON period<br>External control possible for:<br>• start of time delay<br>• partial stop of time delay<br>• adjustment of time delay | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O, SPDT | RE7ML11BU | **226.00** |
| **8 Function Timer** | | | | |
| Same as 6 Function Timer ▲ plus<br>Timer for star-delta starting<br>• with double On-Delay timing<br>• with changeover contact to star connection | 24 Vdc or Vac<br>110–240 Vac | 2 C/O, DPDT | RE7MY13BU | **252.00** |
| | 24–240 Vdc or Vac | 2 C/O, DPDT | RE7MY13MW | **277.00** |

▲ Except control of partial stop of time delay for RE7MY13BU.



RE7T

**Table 23.129: RE7T On-Delay Timers**

| Functions | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| On-Delay Timer | 24 Vdc or Vac<br>110–240 Vac | 1 C/O, SPDT | RE7TL11BU | **138.00** |
| On-Delay Timer<br>External control possible for:<br>• start of time delay<br>• partial stop of time delay<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110-240 Vac | 1 C/O, SPDT | RE7TM11BU | **177.00** |
| On-Delay Timer<br>Remote control possible for:<br>adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O♦, DPDT | RE7TP13BU | **189.00** |



RE7M

**Table 23.130: RE7M Symmetrical and Asymmetrical Timers**

| Functions | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| **Symmetrical Timers: On and Off delay times are equal.** | | | | |
| On-Delay and Off-Delay Timer<br>External control possible for:<br>• partial stop of time delay<br>• adjustment of time delay ■<br>Start control via external contact only | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O, SPDT | RE7MA11BU | **194.00** |
| On-Delay and Off-Delay Timer<br>Start control via external contact only | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O ♦, DPDT | RE7MA13BU | **208.00** |
| **Asymmetrical Timers: On and Off delay times are adjusted separately.** | | | | |
| On-Delay and Off-Delay Timer<br>External control possible for:<br>• partial stop of time delay<br>• adjustment of time delay ■<br>Start control via external contact only | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O, SPDT | RE7MV11BU | **214.00** |

■ By external potentiometer, to be ordered separately (see page 3 of Catalog **9050CT0001** for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

♦ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

**Table 23.131: Output Circuit Specifications for RE7**

| | | | | |
|---|---|---|---|---|
| **Current Limit, Ith** | | 8 A | | |
| **Rated Operational Limits at 70°C** | | 24 V | 115 V | 250 V |
| **Conforming to IEC60947-5-1/1991 and VDE 060** | AC-15 N.C. contact | 3 A | 3 A | 3 A |
| | AC-15 N.O. contact | 5 A | 5 A | 5 A |
| | DC-13 N.O. contact | 2 A | 0.2 A | 0.1A |
| **UL and CSA Current** | Resistive Rating | 5A | | |
| **NEMA / UL B300** | Inductive Rating | 3600 VA Make, 360 VA Break, 5 A Carry | | |

**Table 23.132: Output Circuit Specifications for RE8**

| | | | | |
|---|---|---|---|---|
| **Maximum Switching Voltage** | | 250 Vac/Vdc | | |
| **Current Limit Ith** | | 8 A | | |
| **Rated Operational Limits at 150°F (70°C)** | | 24 V | 115 V | 250 V |
| **Conforming to IEC 60947-5-1/1991 and VDE 0660** | AC-15 | 3 A | 3 A | 3 A |
| | DC-13 | 2 A | 0.2 A | 0.1 A |
| **UL and CSA Current Ratings (Resistive)** | | 5 A | | |
| **NEMA / UL B300 Ratings (Inductive)** | | 3600 VA Make, 360 VA Break. 5 A Carry | | |

### RE7, RE8, and RE9 Timers comply to the following:

| | | |
|---|---|---|
| **Conforming to Standards** | | IEC 61812-1, EN 61812-1 |
| **Product Approvals** | | c UL us LISTED File E164353 NKCR; CSA File 089150 Class 3211-07; CE IEC 61812-1 |
| **CE Marking** | | RE7, RE8, and RE9 Timers conform to European regulations relating to CE Marking |
| **Ambient Air Temperature** | **Storage** | -40°F to +185°F (-40°C to +85°C) |
| | **Operation** | -4°F to +140°F (-20°C to +60°C) |



© 2012 Schneider Electric
All Rights Reserved

## Zelio ™ IEC Style—22.5 mm



RE7R

### Table 23.133: RE7R Timers Off-Delay Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| **On De-energization, Adjustable from 0.05 s to 10 min, in 7 Ranges** | | | | |
| Off-Delay Timer<br>(Times without power) | 24–240 Vdc or Vac | 1 C/O<br>SPDT | RE7RB11MW▲ | **189.00** |
| Off-Delay Timer<br>Remote control possible for:<br>• adjustment of time delay■ | 24–240 Vdc or Vac | 2 C/O<br>DPDT | RE7RB13MW▲ | **214.00** |
| **On Opening of External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges** | | | | |
| Off-Delay Timer<br>External control possible for:<br>• partial stop of time delay<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7RA11BU | **164.00** |
| **On opening of Low Level External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges** | | | | |
| Off-Delay Timer<br>External control possible for:<br>• partial stop of time delay<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7RM11BU | **177.00** |
| Off-Delay Timer | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O♦, DPDT | RE7RL13BU | **189.00** |

▲ If the device has been stored de-energized for more than a month, it must be energized for about 15 seconds to activate it. Subsequently, a time of > 1 s is enough to activate the time delay.
Note: If this time is not complied with, the relay will remain energized indefinitely.



RE7P

### Table 23.134: RE7P Interval Timers

| Functions | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| **Start on Energization** | | | | |
| Interval Timer | 24 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7PE11BU | **151.00** |
| Interval Timer<br>External control possible for:<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O ♦<br>DPDT | RE7PP13BU | **189.00** |
| **Start on Opening of External Control Contact** | | | | |
| Interval Timer<br>External control possible for:<br>• partial stop of time delay<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7PM11BU | **151.00** |
| Interval Timer | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O ♦<br>DPDT | RE7PD13BU | **189.00** |



RE7C

### Table 23.135: RE7C Timers Symmetrical and Asymmetrical Relays

| Functions | Supply Voltages | Relay Output | Catalog Number | $ Price |
|---|---|---|---|---|
| **Symmetrical Relays with Start during Off Period** | | | | |
| Repeat Cycle Timer | 24 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7CL11BU | **164.00** |
| Repeat Cycle Timer<br>External control possible for:<br>• adjustment of time delay ■ | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 2 C/O ♦<br>DPDT | RE7CP13BU | **202.00** |
| **Asymmetrical, with Separate Adjustment of On-Delay and Off-Delay** | | | | |
| Repeat Cycle Timer<br>External control possible for:<br>• start period<br>• adjustment of time delays ■<br>• partial stop | 24 Vdc or Vac<br>42–48 Vdc or Vac<br>110–240 Vac | 1 C/O<br>SPDT | RE7CV11BU | **214.00** |

■ By external potentiometer, to be ordered separately (see page 3 of Catalog **9050CT0001** for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.
♦ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

For conformance to standards, see page 23-32

RoHS Compliant as of date code 0626





© 2012 Schneider Electric
All Rights Reserved

## Zelio™ IEC Style—22.5 mm



RE8TA

### Table 23.136: On-Delay (timing starts on energization), TDE

| Relay Output | Supply Voltages | Timing Range ▲ | Catalog Number | Standard Pack Quantity ■ | $ Price |
|---|---|---|---|---|---|
| 1 C/O SPDT | 24 Vdc or Vac 110–240 Vac | 0.1–3 s | RE8TA61BUTQ | 10 | **75.00** |
| | | 0.1–10 s | RE8TA11BUTQ ★ | 10 | **75.00** |
| | | 0.3–30 s | RE8TA31BUTQ ★ | 10 | **75.00** |
| | | 3–300 s | RE8TA21BUTQ ★ | 10 | **75.00** |
| | | 20 s–30 min | RE8TA41BUTQ | 10 | **75.00** |

### Table 23.137: Off-Delay (timing starts on de-energization), TDD

| | | | | | |
|---|---|---|---|---|---|
| **Control Contact** | | | | | |
| 1 C/O SPDT | 24 Vdc or Vac | 0.1–10 s | RE8RA11BTQ ★ | 10 | **95.00** |
| | | 0.3–30 s | RE8RA31BTQ | 10 | **95.00** |
| | | 3–300 s | RE8RA21BTQ ★ | 10 | **95.00** |
| | 110–240 Vac | 0.1–10 s | RE8RA11FUTQ ★ | 10 | **95.00** |
| | | 0.3–30 s | RE8RA31FUTQ | 10 | **95.00** |
| | | 3–300 s | RE8RA21FUTQ ★ | 10 | **95.00** |
| | | 20 s–30 min | RE8RA41FUTQ | 10 | **95.00** |
| **Self-Powered (Times without power)** | | | | | |
| 1 C/O SPDT | 24 Vdc or Vac 110–240 Vac | 0.05–0.5 s | RE8RB51BUTQ | 10 | **105.00** |
| | | 0.1–10 s | RE8RB11BUTQ | 10 | **105.00** |
| | | 0.3–30 s | RE8RB31BUTQ | 10 | **105.00** |

★ Also available in pack of one; delete TQ from the end of the catalog number. Example: RE8TA11BU.

### Table 23.138: Repeat Cycle Timer

| Relay Output | Supply Voltages | Timing Range ▲ | Catalog Number | Standard Pack Quantity ■ | $ Price |
|---|---|---|---|---|---|
| 1 C/O SPDT | 24 Vdc or Vac 110–240 Vac | 0.1–10 s | RE8CL11BUTQ | 10 | **105.00** |



RE8PE

### Table 23.139: Interval Timer

| | | | | | |
|---|---|---|---|---|---|
| **On Energization** | | | | | |
| 1 C/O SPDT | 24 Vdc or Vac 110–240 Vac | 0.1–10 s | RE8PE11BUTQ | 10 | **87.00** |
| | | 0.3–30 s | RE8PE31BUTQ | 10 | **87.00** |
| | | 3–300 s | RE8PE21BUTQ | 10 | **87.00** |
| **By Control Contact** | | | | | |
| 1 C/O SPDT | 24 Vdc or Vac | 0.1–10 s | RE8PD11BTQ | 10 | **101.00** |
| | | 0.3–30 s | RE8PD31BTQ | 10 | **101.00** |
| | | 3–300 s | RE8PD21BTQ | 10 | **101.00** |
| | 110–240 Vac | 0.1–10 s | RE8PD11FUTQ | 10 | **101.00** |
| | | 0.3–30 s | RE8PD31FUTQ | 10 | **101.00** |
| | | 3–300 s | RE8PD21FUTQ | 10 | **101.00** |
| **On De-Energization** | | | | | |
| 1 C/O SPDT | 24 Vdc or Vac 110–240 Vac | 0.05–1 s | RE8PT01BUTQ | 10 | **107.00** |

▲ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE8TA11BUTQ timing range 0.1–10 s, recommended use 1–10 s.

■ Orders must specify standard pack quantity or multiples of that quantity.

For technical information, refer to . . . . . page 23-32.



RE9TA

### Table 23.140: On-Delay Timer (Solid State Output)

| Power Supply Circuit | Function | Timing Range ♦ | Catalog Number | $ Price |
|---|---|---|---|---|
| 24–240 Vac or Vdc | On-Delay | 0.1–10 s | RE9TA11MW | **87.00** |
| | | 0.3–30 s | RE9TA31MW | **87.00** |
| | | 3–300 s | RE9TA21MW | **87.00** |
| | | 40 s–60 min | RE9TA51MW | **87.00** |

### Table 23.141: Off-Delay Timer (Solid State Output)

| | | | | |
|---|---|---|---|---|
| 24–240 Vac | Off-Delay | 0.1–10 s | RE9RA11MW7 | **126.00** |
| | | 0.3–30 s | RE9RA31MW7 | **126.00** |
| | | 3–300 s | RE9RA21MW7 | **126.00** |
| | | 40 s–60 min | RE9RA51MW7 | **126.00** |

♦ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE9TA11MW timing range 0.1-10 s, recommended use 1-10 s.

RoHS Compliant as of date code 0626

For technical information, refer to catalog **9050CT0001**.



© 2012 Schneider Electric
All Rights Reserved

## Square D™ General Purpose Plug-In



9050JCK46V20

9050JCK timing relays are designed to provide low-cost timing in a plug-in housing. The Types JCK11 thru 59 provide ±1% repeat accuracy. The Types JCK60 and 70 offer ±0.1% repeat accuracy. These timers are directly interchangeable with many other 8 and 11 pin tube base timers.

- Up to ±0.1% repeat accuracy
- Timing from 0.05 seconds to 999 hours
- Available in 5 timing modes
- DPDT contacts (2 N.O. and 2 N.C.)
- 10 A contact rating
- Transient protected
- Hold down spring available
- Variable or fixed time delay
- Horsepower rated
- RoHS compliant

### Table 23.142: Variable Time Delay

| Knob Adjustable Timing Range | On Delay | $ Price | Off Delay■ | $ Price | Off Delay Power Trigger | $ Price | Interval | $ Price | One Shot■ | $ Price | One Shot Power Trigger | $ Price | Repeat Cycle▲ | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.1–10 seconds | JCK11△ | **78.00** | JCK21△ | **98.00** | JCK21PT△ | **98.00** | JCK31△ | **78.00** | JCK41△ | **98.00** | JCK41PT△ | **98.00** | JCK51△ | **140.00** |
| 0.3–30 seconds | JCK12△ | **78.00** | JCK22△ | **98.00** | JCK22PT△ | **98.00** | JCK32△ | **78.00** | JCK42△ | **98.00** | JCK42PT△ | **98.00** | JCK52△ | **140.00** |
| 0.6–60 seconds | JCK13△ | **78.00** | JCK23△ | **98.00** | JCK23PT△ | **98.00** | JCK33△ | **78.00** | JCK43△ | **98.00** | JCK43PT△ | **98.00** | JCK53△ | **140.00** |
| 1.2–120 seconds | JCK14△ | **78.00** | JCK24△ | **98.00** | JCK24PT△ | **98.00** | JCK34△ | **78.00** | JCK44△ | **98.00** | JCK44PT△ | **98.00** | JCK54△ | **140.00** |
| 1.8–180 seconds | JCK15△ | **78.00** | JCK25△ | **98.00** | JCK25PT△ | **98.00** | JCK35△ | **78.00** | JCK45△ | **98.00** | JCK45PT△ | **98.00** | JCK55△ | **140.00** |
| 0.1–10 minutes | JCK16△ | **87.00** | JCK26△ | **107.00** | JCK26PT△ | **107.00** | JCK36△ | **87.00** | JCK46△ | **107.00** | JCK46PT△ | **107.00** | JCK56△ | **147.00** |
| 0.3–30 minutes | JCK17△ | **87.00** | JCK27△ | **107.00** | JCK27PT△ | **107.00** | JCK37△ | **87.00** | JCK47△ | **107.00** | JCK47PT△ | **107.00** | JCK57△ | **98.00** |
| 0.6–60 minutes | JCK18△ | **87.00** | JCK28△ | **107.00** | JCK28PT△ | **107.00** | JCK38△ | **87.00** | JCK48△ | **107.00** | JCK48PT△ | **107.00** | JCK58△ | **98.00** |
| 1.2–120 minutes | JCK19△ | **87.00** | JCK29△ | **107.00** | JCK29PT△ | **107.00** | JCK39△ | **87.00** | JCK49△ | **107.00** | JCK49PT△ | **107.00** | JCK59△ | **98.00** |

▲ Two dials are provided for independently adjustable repeat cycle timing ranges.
■ Initiating contact can be up to 50 feet from the timer.

### Table 23.143: Fixed Time Delay

| Timing Mode | Type | Timing Range (seconds) | $ Price |
|---|---|---|---|
| On Delay | JCK1F(XXXX)♦△ | 0.1 to 180 | **78.00** |
| | | 181 to 3600 | **87.00** |
| Off Delay ▼ | JCK2F(XXXX)♦△ | 0.1 to 180 | **98.00** |
| | | 181 to 3600 | **107.00** |
| Off Delay with Power Trigger | JCK2F(XXXX)PT♦△ | 0.1 to 180 | **98.00** |
| | | 181 to 3600 | **107.00** |
| Interval | JCK3F(XXXX)♦△ | 0.1 to 180 | **78.00** |
| | | 181 to 3600 | **87.00** |
| One Shot▼ | JCK4F(XXXX)♦△ | 0.1 to 180 | **98.00** |
| | | 181 to 3600 | **107.00** |
| One Shot with Power Trigger | JCK4F(XXXX)PT♦△ | 0.1 to 180 | **98.00** |
| | | 181 to 3600 | **107.00** |
| Repeat Cycle | JCK5F(XXXX)♦★△ | 0.1 to 180 | **140.00** |
| | | 181 to 3600 | **147.00** |

♦ (XXXX) denotes the timing period in seconds.
Example: Class 9050 Type JCK1F60 is an On Delay timer fixed at 60 seconds.
★ Fixed repeat cycle timers can be supplied with the same or different On-Time and Off-Time.
▼ Initiating contact can be up to 50 feet from the timer.
△ Voltage code must be specified to order this product. Refer to standard voltage codes listed below and insert as shown in How To Order.

### Table 23.145: Contact Ratings

| AC Volts | AC Amperes | | | | hp | DC Volts | DC Amperes | | |
|---|---|---|---|---|---|---|---|---|---|
| | Inductive 35% P.F. | | | Res. 75% P.F. Make Break and Continuous | | | Inductive | | Res. Make Break and Continuous |
| | Make | Break | Continuous | | | | Make | Break | |
| 120 | 30 | 3 | 10 | 10 | 1/3 | 28 | 3 | 3 | 10 |
| 240 | 15 | 1.5 | 10 | 10 | 1/2 | | | | |

## AC15 / B300 (NO/NC)
## DC13 / R300 (NO)

### Type JCK60

This On Delay timer uses a 5 position rotary switch to select the timing range. The three pushbutton thumbwheels are used to select the time value.



### Table 23.146: Selection and Pricing

| Timing Modes | Timing Ranges | | Type | $ Price |
|---|---|---|---|---|
| On Delay | .01s | 0.05–9.99 seconds | JCK60△ | **152.00** |
| | 0.1s | 00.1–99.9 seconds | | |
| | S | 001–999 seconds | | |
| | 0.1m | 00.1–99.9 minutes | | |
| | M | 001–999 minutes | | |
| | 0.1h | 00.1–99.9 hours | | |
| | H | 001–999 hours | | |

### Type JCK70

Two 5 position rotary switches are used to select the timing mode and timing range. The three pushbutton thumbwheels are used to select the time value.



### Table 23.147: Selection and Pricing

| Timing Modes | Timing Range | Type | $ Price |
|---|---|---|---|
| On Delay<br>Off Delay<br>Interval<br>One Shot<br>Repeat Cycle□ | Same as JCK60 | JCK70△ | **173.00** |

□ The repeat cycle mode utilizes the same on-time and off-time.

### Table 23.148: Class 8501 Hold Down Spring

| For use on Class 9050 Type JCK Timers | Class | Type | $ Price ea. |
|---|---|---|---|
| Hold down spring holds timer in socket during heavy vibration. (See 9050JCK with 8501NH7 photo at the top of this page.) | 8501 | NH7 | **8.30** |

### Table 23.149: How to Order

| To Order Specify: | Catalog Number | | |
|---|---|---|---|
| | Class | Type | Voltage Code |
| • Class Number<br>• Type Number<br>• Voltage Code | 9050 | JCK11 | V20 |

## Class 8501 Sockets

For sockets, see page 23-14
For DIN rail, see page 24-16

### For all 9050JCK timers:

With appropriate 8501NR Socket:

File CCN E78351 NLDX — File Class 214768 3211 07

Without Socket

File CCN E78351 NLDX2 — IEC 60947-1 — RoHS Compliant as of date code — 9050JCK1-5 = 0627 9050JCK6070=0648

### Table 23.144: Voltage Codes

| Voltage | Code |
|---|---|
| 12 Vdc | V36 |
| 24 Vac/Vdc | V14 |
| 48 Vac/Vdc | V17 |
| 120 Vac/110 Vdc | V20 |
| 240–50/60 Vac | V24 |





© 2012 Schneider Electric
All Rights Reserved


REG24PTP1RHU


REG48PUN1RHU


REG96PUN1RHU

## Zelio™ Temperature Controllers

The new Zelio REG temperature controllers offer seamless interfacing with solid state relays, electromechanical relays, PLCs, variable speed drives and HMI displays make them a key component to controlling the temperature in your process.

Offer includes 3 versions:

- A 24x48 mm (1/32 DIN) cost effective solution for basic temperature control needs.
- A 48x48 mm (1/16 DIN) balanced version for optimal price and functionality.
- A 96x48 mm (1/8 DIN) full-featured version for complete performance and function.

Key features include:

- Modbus communication for easy data exchange with other automation products
- Simple parameter settings
- IP66 certification enables dust resistance
- Flash memory (saves configurations)
- Compatible with a wide range of sensors
- Advanced Functions (standard): PID, fuzzy logic, auto-tuning, soft start
- Optimized programming
  - — Common software for all products in the temperature relay range (freely downloadable from www.schneider-electric.us).
  - — A single cable enables connection to both a computer and PLCs.
  - — Simple adjustment of parameters.
  - — Saving of configurations.

### Table 23.150: Zelio Temperature Controllers

| Input Type | Supply Voltage | Number and Type of Outputs | Alarms | Communication on Modbus | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| **28 x 48 Size — 1/32 DIN Standard** | | | | | | |
| Thermocouple PT100 Probe | 100/240 Vac | 1 electromechanical relay | No | Yes | REG24PTP1RHU | **209.00** |
| | | 1 electromechanical relay | 1 | Yes | REG24PTP1ARHU | **186.00** |
| | | 1 solid state relay | No | Yes | REG24PTP1LHU | **216.00** |
| | | 1 solid state relay | 1 | No | REG24PTP1ALHU | **192.00** |
| | | 1 analog interface (4–20 mA) | No | Yes | REG24PTP1JHU | **219.00** |
| | 24 Vac/Vdc | 1 electromechanical relay | No | Yes | REG24PTP1RLU | **209.00** |
| | | 1 solid state relay | No | Yes | REG24PTP1LLU | **216.00** |
| | | 1 analog interface (4–20 mA) | No | Yes | REG24PTP1JLU | **219.00** |
| Voltage/current | 100/240 Vac | 1 electromechanical relay | No | Yes | REG24PUJ1RHU | **209.00** |
| | | 1 solid state relay | No | Yes | REG24PUJ1LHU | **216.00** |
| | 24 Vac/Vdc | 1 electromechanical relay | No | Yes | REG24PUJ1RLU | **219.00** |
| | | 1 solid state relay | No | Yes | REG24PUJ1LLU | **216.00** |
| **48 x 48 Size — 1/16 DIN Standard** | | | | | | |
| Universal | 100/240 Vac | 1 electromechanical relay | 2 | Yes | REG48PUN1RHU | **252.00** |
| | | | | No | REG48PUNL1RHU | **226.00** |
| | | 2 electromechanical relays | 2 | Yes | REG48PUN2RHU | **292.00** |
| | | 1 solid state relay | 2 | Yes | REG48PUN1LHU | **258.00** |
| | | | | No | REG48PUNL1LHU | **234.00** |
| | | 1 solid state relay + 1 electromechanical relay | 2 | Yes | REG48PUN2LRHU | **295.00** |
| | | 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN1JHU | **260.00** |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN2LJHU | **298.00** |
| | 24 Vac/Vdc | 1 electromechanical relay | 2 | Yes | REG48PUN1RLU | **252.00** |
| | | 2 electromechanical relays | 2 | Yes | REG48PUN2RLU | **292.00** |
| | | 1 solid state relay | 2 | Yes | REG48PUN1LLU | **258.00** |
| | | 1 solid state relay + 1 electromechanical relay | 2 | Yes | REG48PUN2LRLU | **295.00** |
| | | 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN1JLU | **260.00** |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 2 | Yes | REG48PUN2LJLU | **298.00** |
| **98 x 48 Size — 1/8 DIN Standard** | | | | | | |
| Universal | 100/240 Vac | 1 electromechanical relay | 3 | Yes | REG96PUN1RHU | **336.00** |
| | | | | No | REG96PUNL1RHU | **311.00** |
| | | 2 electromechanical relays | 3 | Yes | REG96PUN2RHU | **381.00** |
| | | 1 solid state relay | 3 | Yes | REG96PUN1LHU | **343.00** |
| | | | | No | REG96PUNL1LHU | **317.00** |
| | | 1 solid state relay + 1 electromechanical relay | 3 | Yes | REG96PUN2LRHU | **383.00** |
| | | 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN1JHU | **345.00** |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN2LJHU | **385.00** |
| | 24 Vac/Vdc | 1 electromechanical relay | 3 | Yes | REG96PUN1RLU | **336.00** |
| | | 2 electromechanical relays | 3 | Yes | REG96PUN2RLU | **381.00** |
| | | 1 solid state relay | 3 | Yes | REG96PUN1LLU | **343.00** |
| | | 1 solid state relay + 1 electromechanical relay | 3 | Yes | REG96PUN2LRLU | **384.00** |
| | | 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN1JLU | **345.00** |
| | | 1 solid state relay + 1 analog interface (4–20 mA) | 3 | Yes | REG96PUN2LJLU | **385.00** |

### Table 23.151: Temperature Controller Accessories

| Description | For Use With Relays | Sold In Lots Of | Catalog Number | $ Price |
|---|---|---|---|---|
| Bracket for mounting on DIN rail | 24 x 48 mm (1/32 DIN) | 4 | REG24PSOC | **21.90** |
| Terminal block cover | 48 x 48 mm (1/16 DIN) | 2 | REG48PCOV | **30.30** |
| | 96 x 48 mm (1/8 DIN) | 2 | REG96COV | **37.10** |



© 2012 Schneider Electric
All Rights Reserved



RM17JC00MW



RM35JA31MW



RM35JA32MW

1 C/O =

2 C/O =

## Zelio™ Current Measurement Relays

Zelio Current Measurement Relays are designed to measure under and overcurrent, without external sensors. Current measurement relays enable continuous monitoring of the operation of electrical and mechanical loads such as motors and resistors. They are DIN rail mountable and the control status is indicated by an LED.

### RM17JC Current Control Relay

- Monitors a.c. currents
- Designed to monitor overcurrent
- Equipped with an integrated current transfmormer

### RM35JA Current Control Relays

- Selection between overcurrent or undercurrent
- Automatic d.c. or a.c. recognition
- Selectable memory function

**Table 23.152:**

| Supply Voltage | Measurement Range | | Output 5Amps | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | Range▲ | Terminals | | Inches | mm | | |
| 24–240 Vac/dc | 2–20 A | N/A | 1 C/O | 0.69 | 17.50 | RM17JC00MW | **130.00** |
| | 2–20 mA | E1-M | 2 C/O | 1.38 | 35.00 | RM35JA31MW | **148.00** |
| | 10–100 mA | E2-M | | | | | |
| | 50–500 mA | E3-M | | | | | |
| | 0.15–1.5 A | E1-M | | | | RM35JA32MW | **177.00** |
| | 0.5–5 A | E2-M | | | | | |
| | 1.5–15 A | E3-M | | | | | |

▲ Above 15A, a current transformer can be connected (for RM35JA3•MW). See page 57 of the catalog for suggested wiring.

**Table 23.153: Output Characteristics and Measurement Circuit Characteristics**

| Type of Relay | | RM17JC00MW | RM35JA31MW | RM35JA32MW |
|---|---|---|---|---|
| Setting accuracy | | Plus or minus 10% of the full scale value | | |
| Repeat accuracy (with constant parameters) | | Plus or minus 0.5% | | |
| Hysteresis | | 15% of the threshold setting, fixed | 5 to 50% of the threshold setting, adjustable | |
| Time delay accuracy (with constant parameters) | | N/A | plus or minus 2% | |
| Time delay on pick-up | | 500ms | 300ms | |
| Conforming to standards | | NF EN 60255-6 | | |
| Ambient air temperature around the device | Storage | -40 to 158 degrees F (-40 to +70°C) | | |
| | Operational | -4 to 122 degrees F (-20 to +50°C) | | |

## Approvals:

c UL us LISTED — File CNN E173076 NRNT

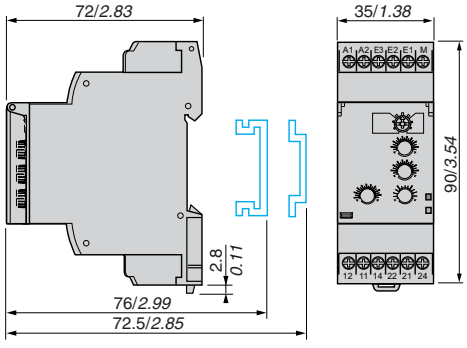
SA — File Class 217698 3211 07

CE — CE: 73/23/EEC and EMC 89/336/EEC

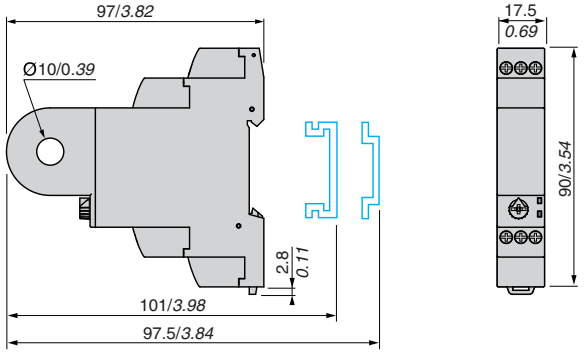
GL, C-Tick, GOST, RoHS

## Approximate Dimensions

RM35JA3•MW




RM17JC00MW




Dual Dimensions: **INCHES** Millimeters





© 2012 Schneider Electric
All Rights Reserved



RM17TG•0



RM17TA00



RM17TE00



RM35TM••MW



RM35TF30

1 C/O =

2 C/O =

2 N/O =

## Zelio™ Phase Measurement Relays

Zelio Phase Measurement Relays monitor their own power supply. Relay status is indicated by an LED and they are DIN rail mountable.

RM17TG•0 measurement and control relays are for monitoring of 3-phase supplies for the correct sequencing of phases L1, L2, and L3, as well as the total loss of one or more phases.

**Table 23.154: 3-Phase supply control relays**

| Supply Voltage | Detection Threshold | Output 5 Amps | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | inches | mm | | |
| 208–480 Vac | <100 Vac | 1 C/O | 0.69 | 17.50 | RM17TG00 | 114.00 |
| 208–440 Vac | | 2 C/O | | | RM17TG20 | 125.00 |

**Table 23.155: Multifunction 3-phase supply control relays**

| Supply Voltage | Voltage Range | Output 5 Amps | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | inch | mm | | |
| 208–480 Vac | Selectable voltages: 208, 220, 380, 400, 415, 440, 480 | 1 C/O | 0.69 | 17.50 | RM17TT00 | 136.00 |
| | | | | | RM17TA00 | 177.00 |
| | | | | | RM17TU00 | 131.00 |
| | | | | | RM17TE00 | 217.00 |

**Table 23.156: RM17TT, RM17TA, RM17TU, and RM17TE multifunction control relays monitor the following on 3-phase supplies:**

| Function | RM17TT | RM17TA | RM17TU | RM17TE |
|---|---|---|---|---|
| Sequence of phases L1, L2 and L3 | Yes | Yes | Yes | Yes |
| Phase failure with regeneration (0.7 x selected voltage range) | Yes | Yes | Yes | Yes |
| Asymmetry (phase imbalance) | No | Yes | No | Yes |
| Undervoltage | No | No | Yes | No |
| Overvoltage and undervoltage | No | No | No | Yes |

**Table 23.157: 3-phase supply and motor temperature control relays**

| Supply Voltage | Measurement Range | Output 5 Amps | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | inch | mm | | |
| 220–480 Vac | 208–480 Vac | 2 N.O. | 1.38 | 35.00 | RM35TM50MW | 221.00 |
| | | | | | RM35TM250MW | 231.00 |

**Table 23.158: RM35TM control relays monitor the following on 3-phase supplies:**

| Function | RM35TM50MW | RM35TM250MW |
|---|---|---|
| Sequence of phases L1, L2 and L3 | Yes | Yes |
| Phase failure | Yes | Yes |
| Motor temperature via PTC probe | Yes | Yes |
| Selection (with or without memory) | No | Yes |
| Test-reset button | No | Yes |

RM35TF30 measurement and control relay is for monitoring of phase sequence, phase failure, asymmetry, undervoltage and overvoltage in window mode.

**Table 23.159: Multifunction 3-phase supply control relays**

| Supply Voltage | Measurement Range | Output 5 Amps | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | inch | mm | | |
| 220–480 Vac | 194–528 Vac | 2 C/O | 1.38 | 35.00 | RM35TF30 | 273.00 |

## Approvals:

c UL us LISTED File CNN E173076 NRNT

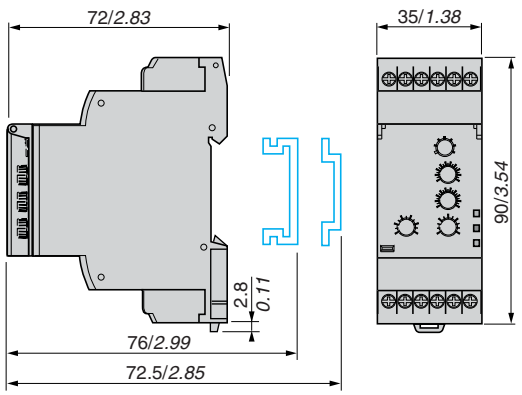
SP File Class 217698 3211 07

CE: 73/23/EEC and EMC 89/336/EEC

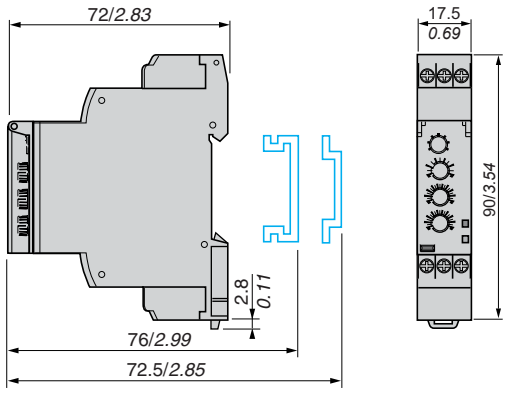
GL, C-Tick, GOST, RoHS

## Approximate Dimensions

RM35•




RM17•




Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved



RM17UB310



RM35UB3•••



RM17UAS••



RM35UA1•MW

## Zelio™ Voltage Measurement Relays

Zelio Voltage Measurement Relays are DIN rail mountable and relay status is indicated by an LED.

Single phase and d.c. voltage measurement and control relays RM17UAS•• and RM17UBE•• monitor:

- Overvoltage
- Undervoltage
- Overvoltage and undervoltage (window mode)
- Nominal voltages

**Table 23.160: Single-phase and d.c. voltage control relays**

| Supply Voltage | Ranges Controlled | Output 5 A | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | in. | mm | | |
| 12 Vdc | 9–15 Vdc | 1 C/O | 0.69 | 17.50 | RM17UAS14▲ | 138.00 |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UAS16▲ | 138.00 |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | | | | RM17UAS15▲ | 138.00 |
| 24–48 Vac/Vdc | 20–80 Vac/Vdc | | | | RM17UBE16■ | 146.00 |
| 110–240 Vac/Vdc | 65–260 Vac/Vdc | | | | RM17UBE15■ | 146.00 |

▲ Provides overvoltage or undervoltage protection.
■ Provides overvoltage and undervoltage protection in window mode.

Multifunction voltage control relays RM35UA1•MW monitor both a.c. and d.c. voltages.

- Automatic Vdc or Vac recognition
- Selection between overvoltage and undervoltage

**Table 23.161: Multifunction voltage control relays**

| Supply Voltage | Measurement Range | | Output 5 A | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| | Range★ | Terminals | | in. | mm | | |
| 24–240 Vac/Vdc | 0.05–0.5 V | E1-M | 2 C/O | 1.38 | 35.00 | RM35UA11MW | 157.00 |
| | 0.3–3 V | E2-M | | | | | |
| | 0.5–5 | E3-M | | | | | |
| | 1–10 | E1-M | | | | RM35UA12MW | 157.00 |
| | 5–50 | E2-M | | | | | |
| | 10–100 | E3-M | | | | | |
| | 15–150 | E1-M | | | | RM35UA13MW | 157.00 |
| | 30–300 | E2-M | | | | | |
| | 60–600 | E3-M | | | | | |

3-phase voltage control relays monitor:

- Failure of one or more phases
- Voltage between phases
- Absence of neutral
- Voltage between phases and neutral
- Overvoltage and undervoltage

**Table 23.162: Three-phase voltage control relays**

| Rated 3-Phase Supply Voltage Vac | Measurement Range | Output 5 A | Width | | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| | | | in. | mm | | |
| 220–480 phase-phase | 195–528 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB330♦ | 229.00 |
| 120–277 phase-neutral | 183–528 Vac | 1 C/O | 0.69 | 17.50 | RM17UB310♦ | 189.00 |
| 120–277 phase-neutral | 114–329 Vac | 1 C/O + 1 C/O 1 per threshold | 1.38 | 35.00 | RM35UB3N30★ | 254.00 |

♦ Provides overvoltage and undervoltage protection between phases.
★ Provides overvoltage and undervoltage protection between phases and neutral and absence of neutral.

## Approvals:

c UL us LISTED — File CNN E173076 NRNT

SA® — File Class 217698 3211 07

CE — CE: 73/23/EEC and EMC 89/336/EEC

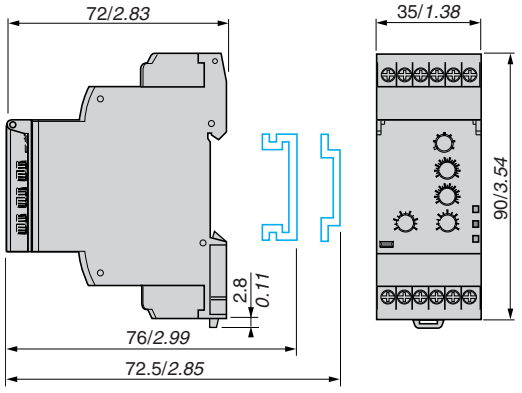
GL, C-Tick, GOST, RoHS

## Approximate Dimensions

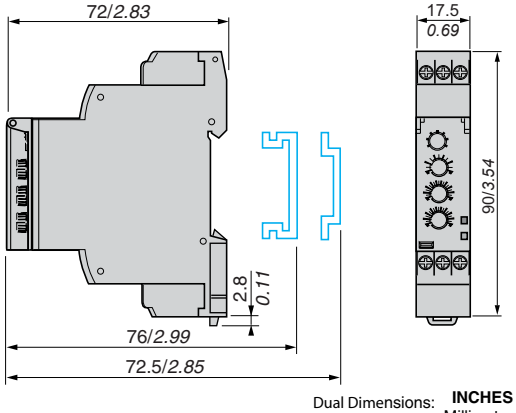
1 C/O =

2 C/O =

RM35•




RM17•




Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved



RM35LM33MW



RM35LV14MW



RM79696043



LA9RM201



RM79696006



RM35BA10

1 C/O =

2 C/O =

## Zelio™ Level Control Relays and Zelio™ Pump Control Relays

Zelio level control relays control one or two levels with fill or empty function. The settings are protected by a sealable cover, control status is indicated by an LED, and they are DIN rail mountable. RM35LM is designed to control levels of conductive liquid, and RM35LV is designed to control levels of other materials.

**Application examples for RM35LM:**

- Detecting pump seal failures
- Spring, town, industrial and sea water
- Metallic salt, acid or base solutions
- Liquid fertilizers
- Non-concentrated alcohol (<40%)
- Liquids in the food-processing industry: milk, beer, coffee, etc.

**Application examples for RM35LV:**

- Chemically pure water
- Fuels, liquid gasses (inflammable)
- Oil, concentrated alcohol (>40%)
- Ethylene, glycol, paraffin, varnish and paints

**Table 23.163: Level Control Relays**

| Time Delay on Crossing the Threshold | Function | Output Relay | Supply Voltage 50/60 Hz | Measurement Ranges | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| 0.1–5 seconds, 0 + 10% | Detection by resistive probes | 2 C/O, 5A | 24–240 Vac/Vdc | 250 Ω–5 kΩ<br>5 kΩ–100 kΩ<br>50 kΩ–1 MΩ | RM35LM33MW | 115.00 |
| | Detection by discrete sensors | 1 C/O, 5A | | — | RM35LV14MW | 146.00 |

**Table 23.164: Probes**

| Application | No. of probes | Operating temperature °F | Operating temperature °C | Maximum pressure kg/cm² | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Recommended for drink vending machines and where installation space is limited (stainless steel)▲ | 3 | 176 | 80 | 2 | RM79696044 | 78.00 |
| Suitable for boilers, pressure vessels, and under high temperature conditions (1) (304 stainless steel)▲ | 1 | 392 | 25 | 200 | RM79696014 | 95.00 |

▲ 3/8" BSP mounting thread with hexagonal head. Use a 24mm spanner for tightening.

**Table 23.165: Probes**

| Description | Catalog Number | $ Price |
|---|---|---|
| Protected probe for mounting by suspension, protective shell PUC (S7) Electrode: stainless steel | RM79696043 | 57.00 |
| Liquid level control probe, suspended by cable, maximum operating temperature 212°F/100°C■ | LA9RM201 | 83.00 |

■ 3/8" BSP mounting head.

**Table 23.166: Electrode Holders**

| Description | Material | Catalog Number | $ Price |
|---|---|---|---|
| Electrode for use up to 662°F (350°C) | Stainless steel isolated by ceramic | RM79696006 | 62.00 |

**Pump control relay** RM35BA10 can operate on a single-phase or 3-phase supply. It incorporates three functions in a signal unit:

- Over and under current measurement
- Phase presence control
- Single or three phase

It has two operating modes which are designed to control a pump via two external signal inputs (Y1 Y2). These two signals are controlled by volt-free contacts. Control inputs Y1 and Y2 can be connected to:

- Level sensor
- Level relay
- Pressure sensor
- Push button

**Table 23.167: Pump Control Relay**

| Description | Current Range Controlled | Supply Voltage | Output | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Pump Control Relay | 1–10 A | 208–480 Vac, 3 phase<br>230, single-phase | 1 C/O 5 A | RM35BA10 | 284.00 |

Approvals:

c UL us LISTED File CNN E173076 NRNT

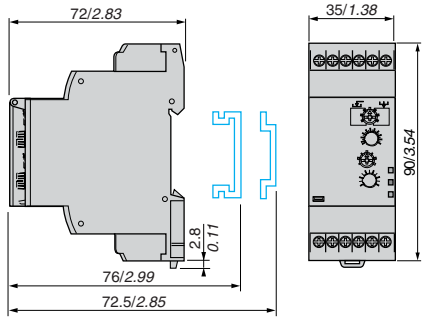
SP File Class 217698 3211 07

CE: 73/23/EEC and EMC 89/336/EEC

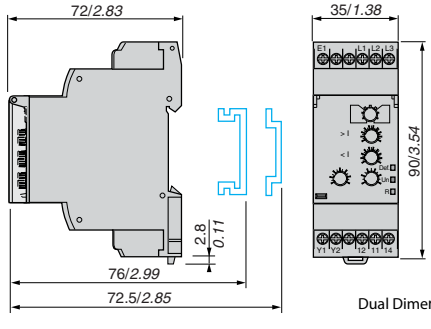
GL, C-Tick, GOST, RoHS

## Approximate Dimensions

RM35LM33MW, RM35LV14MW




RM35BA10




Dual Dimensions: **INCHES** Millimeters



© 2012 Schneider Electric
All Rights Reserved



RM35S0MW

## Zelio™ Speed Control Relays, Zelio™ Frequency Control Relays, and Zelio™ Temperature Control Relays

Zelio speed control relay RM35SOMW monitors underspeed and overspeed, with or without memory, with inhibition by an external contact. It operates with either N.O. or N.C. sensors. Adjustable time between impulses is 0.05s to 10m. Power-on inhibition time is adjustable from 0.6 to 60s. Inhibition is controlled by an external contact. Settings are protected by a sealable cover, control status is indicated by an LED, and it is DIN rail mountable.

**Table 23.168: Speed Control Relay**

| Function | Time Delay | Measurement Input | Supply | Output | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| Underspeed | 0.05s–10min | 3-wire PNP or NPN proximity sensor | 24–240 Vac/Vdc | 1 C/O 5A | RM35S0MW | **217.00** |
| Overspeed | | Namur proximity sensor 0–30 V voltage Volt-free contact | | | | |



RM35HZ21FM

Zelio frequency control relay RM35HZ monitors its own supply voltage. Settings are protected by a sealable cover, control status is indicated by an LED, and it is DIN rail mountable.

**Table 23.169: Frequency Control Relay**

| Function | Controlled | Supply Voltage | Output | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Over frequency and under frequency (50 or 60 Hz) | 40–60 Hz (50 Hz) / 50–70 Hz (60 Hz) | 120–277 Vac | 1 C/O + 1 C/O 5A | RM35HZ21FM | **222.00** |



RM35AT•0MW

Zelio temperature control relays are designed for monitoring the temperature in elevator (lift) pully rooms, in compliance with directive EN81. For use with PT100 input (customer supplied). Features adjustable control, control status is indicated by an LED, and it is DIN rail mountable.

**Table 23.170: Temperature Control Relays**

| Function | Supply Voltage | Vac | Output | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Over temperature 93 to 114°F (34 to 46°C) | 24–240 Vac/Vdc | — | 1 C/O 5A | RM35ATL0MW | **141.00** |
| Under temperature 30 to 51°F (-1 to 11°C) | | — | 2 N.O. 5A | RM35ATR5MW | **151.00** |
| Over temperature 93 to 114 °F (34 to 46°C)<br>Under temperature 30 to 51°F (-1 to 11°C)<br>Phase sequence<br>Phase failure | | 208–480 Vac | 2 N.O. 5A | RM35ATW5MW | **237.00** |

## Approvals:

c UL us LISTED File CNN E173076 NRNT

CSA File Class 217698 3211 07

CE: 73/23/EEC and EMC 89/336/EEC

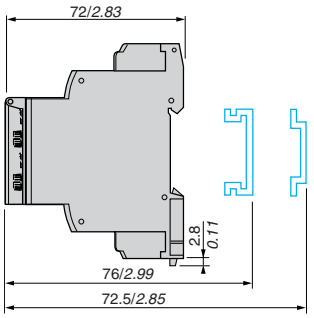
GL, C-Tick, GOST, RoHS

1 C/O =

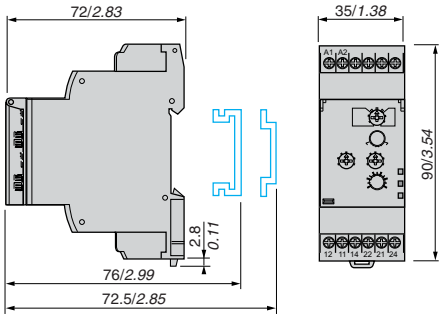
2 N/O =

## Approximate Dimensions

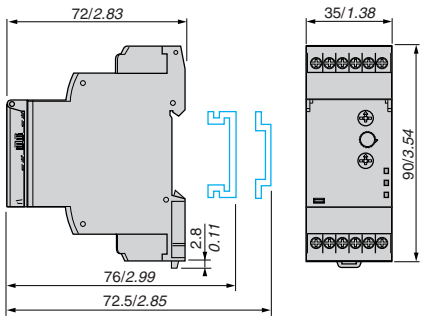
RM35S0MW




RM35HZ21FM




RM35AT••MW




Dual Dimensions: **INCHES** Millimeters





© 2012 Schneider Electric
All Rights Reserved

## Phaseo™ DC Power Supply

Phaseo switch mode power supplies are totally electronic and their output voltage is regulated. They offer:

- Compact size
- High degree of output voltage stability

For use with Universal power supplies, see optional function modules in catalog 8440CT0601/08, which offer a set of solutions to meet the needs for continuity of service such as:

- Immunity to microbreaks
- Voltage holding during power outages
- Voltage holding during power supply equipment failure



ABL8MEM12020

### Table 23.171: Modular, Single Phase

Meets all the needs of simple automation systems with power ratings from 7 to 60 W and an output voltage of 5 Vdc, 12 Vdc, or 24 Vdc.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 100–240 | 5 | 4 | Auto | ABL8MEM05040 | **128.** |
| | 12 | 2 | | ABL8MEM12020 | **132.** |
| | 24 | 0.3 | | ABL8MEM24003 | **71.** |
| | | 0.6 | | ABL8MEM24006 | **105.** |
| | | 1.2 | | ABL8MEM24012 | **141.** |
| | | 2.5 | | ABL7RM24025 | **180.** |



ABL8REM24030

### Table 23.172: Optimum, Single Phase

The low-cost solution for applications supplied at 12 Vdc, 24 Vdc, or 48 Vdc and requiring currents between 3 and 5 A.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 100–240 | 12 | 5 | Auto | ABL7RP1205 | **360.** |
| | 24 | 3 | | ABL8REM24030 | **195.** |
| | | 5 | | ABL8REM24050 | **300.** |
| | 48 | 3 | | ABL7RP4803 | **225.** |



ABL8RPS24100

### Table 23.173: Universal, Single Phase

Adapts to the majority of power distribution systems with power ratings from 72 to 480 W at 24 Vdc. The same power supply can be connected phase-to-neutral (N-L1) or phase-to-phase (L1-L2) for line supplies ranging from 100 to 500 Vac. Energy reserve, diagnostics, and choice of manual or auto reset are integrated into these units.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 100–120 / 200–500 | 24 | 3 | Auto/Manual | ABL8RPS24030 | **270.** |
| | | 5 | | ABL8RPS24050 | **360.** |
| | | 10 | | ABL8RPS24100 | **525.** |
| 100–120 / 200–240 | | 20 | | ABL8RPM24200 | **716.** |



ABL8WPS24200

### Table 23.174: Universal, Three Phase

This three-phase, 480 to 960 W, 24 Vdc output offering is particularly suited for complex machines and processes. Energy reserve, diagnostics and choice of manual or auto reset are integrated into these units.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Auto-Protection Reset | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 380–500 | 24 | 20 | Auto/Manual | ABL8WPS24200 | **735.** |
| | | 40 | | ABL8WPS24400 | **1173.** |



ABL1RPM24042

### Table 23.175: Dedicated, Single Phase

Designed for integration into repetitive equipment with power ratings from 60 to 240 W and an output voltage of 12 Vdc or 24 Vdc.

| Input Voltage (Vac) | Output Voltage (Vdc) | Nominal Current (I) | Protection Reset | Catalog Number | $ Price |
|---|---|---|---|---|---|
| 100–240▲ | 12 | 5 | Auto | ABL1REM12050 | **113.** |
| | 24 | 2.5 | | ABL1REM24025 | **93.** |
| | | 4.2 | | ABL1REM24042 | **132.** |
| 100–120 / 200–240■ | 24 | 6.2 | | ABL1REM24062 | **143.** |
| | | 10 | | ABL1REM24100 | **206.** |
| 100–240▲ | 12 | 8.3 | Auto | ABL1RPM12083 | **150.** |
| | 24 | 4.2 | | ABL1RPM24042 | **158.** |
| 100–120 / 200–240■ | 24 | 6.2 | | ABL1RPM24062 | **173.** |
| | | 10 | | ABL1RPM24100 | **270.** |

▲ Compatible input voltage 120-370 Vdc not indicated on the product.
■ Compatible input voltage 180-370 Vdc not indicated on the product.



ABL1RPM24100

**Approvals:**

c UL us LISTED File CCN E164867, NMTR, NMTR7 c UL us File CCN E164867, NMTR2, NMTR8 CSA File 238438 Class 5311-87 Class 5311-07 CE RoHS Compliant SEMI F47 Compliant for most units

See www.Schneider-Electric.us for UL and CSA compliances.
For additional information, refer to Catalog #8440CT0601R1/08.



© 2012 Schneider Electric
All Rights Reserved



RMTJ40BD



RMTK90BD



RMPT70BD



RMPT13BD



RMCN22BD

## Zelio™ Analog Interface Modules

The Zelio Analog range of converters is designed to convert signals emitted by sensors or electrical measurement devices, into standard electrical signals that are compatible with automation platforms and controllers. They also allow the connection distance between a sensor and a measurement device to be increased, for example, between a thermocouple and a programmable controller

**Table 23.176: Converters for Type J and K type thermocouples—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | °F | °C | | | |
| Type J | 32–302 | 0–150 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ40BD | 141.00 |
| | 32–572 | 0–300 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ60BD | 141.00 |
| | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTJ80BD | 141.00 |
| Type K | 32–1112 | 0–600 | 0–10 V, 0–20 mA, 4–20 mA | RMTK80BD | 141.00 |
| | 32–2192 | 0–1200 | 0–10 V, 0–20 mA, 4–20 mA | RMTK90BD | 141.00 |

**Table 23.177: Converters for Universal Pt100 probes—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | °F | °C | | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V, 0–20 mA, 4–20 mA | RMPT10BD | 141.00 |
| | - 148–212 | - 100–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT20BD | 141.00 |
| | 32–212 | 0–100 | 0–10 V, 0–20 mA, 4–20 mA | RMPT30BD | 141.00 |
| | 32–482 | 0–250 | 0–10 V, 0–20 mA, 4–20 mA | RMPT50BD | 141.00 |
| | 32–932 | 0–500 | 0–10 V, 0–20 mA, 4–20 mA | RMPT70BD | 141.00 |

**Table 23.178: Converters for Optimum Pt100 probes▲—supply voltage 24 Vdc ± 20%, non-isolated**

| Type | Temperature Range | | Switchable Output Signals | Catalog Number | $ Price |
|---|---|---|---|---|---|
| | °F | °C | | | |
| Pt100 2-wire, 3-wire, and 4-wire | - 40–104 | - 40–40 | 0–10 V or 4–20 mA | RMPT13BD | 113.00 |
| | - 148–212 | - 100–100 | 0–10 V or 4–20 mA | RMPT23BD | 113.00 |
| | 32–212 | 0–100 | 0–10 V or 4–20 mA | RMPT33BD | 113.00 |
| | 32–482 | 0–250 | 0–10 V or 4–20 mA | RMPT53BD | 113.00 |
| | 32–932 | 0–500 | 0–10 V or 4–20 mA | RMPT73BD | 113.00 |

▲ Converters dedicated to Zelio Logic smart relays.

**Table 23.179: Universal Voltage/Current Converters**

| Type | Input signal | Output signal | Catalog Number | $ Price |
|---|---|---|---|---|
| Supply voltage 24 Vdc ± 20%, non-isolated | 0–10 V or 4–20 mA | 0–10 V or 4–20 mA | RMCN22BD | 95.00 |
| Supply voltage 24 Vdc ± 20%, isolated | 0–10 V, ± 10 V, 0–20 mA, 4–20 mA | Switchable: 0–10 V, ± 10 V, 0–20 mA, 4–20 mA | RMCL55BD | 141.00 |
| | 0–50 V, 0–300 V, 0–500 V DC or AC, 50/60 Hz | Switchable: 0–10 V, 0—20 mA, 4–20 mA | RMCV60BD | 154.00 |
| | 0–1.5 A, 0–5 A, 0–15 A DC or AC, 50/60 Hz | 0–10 V, 0—20 mA, 4–20 mA | RMCA61BD | 154.00 |

## Approvals:

c UL us LISTED File CCN E164353 NKCR

CSA File Class 089150_S_000 3211 07

CE IEC 60947-1

RoHS Compliant

**Table 23.180: How to Order**

| To Order Specify: | Catalog Number |
|---|---|
| • Catalog Number | RMCN22BD |





© 2012 Schneider Electric
All Rights Reserved

## Zelio™ Logic 2 Smart Relays

Zelio Logic 2 smart relays meet the demands of applications that require more flexibility than a simple relay, timer, or counter, but are too small or simple for the smallest Nano PLC. The Zelio Logic SR2 range is an exact replacement for the obsolete SR1 range, but with an expanded feature set.

Designed to accept control outputs just like a relay, Zelio Logic 2 features dual language capability, using either Function Block Diagramming (FBD) or Ladder Logic Programming (LL), and can be programmed easily by using either the front panel or by using ZelioSoft software.

### Table 23.181: Compact Smart Relays with Display, DC Power Supply




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Supply voltage** | | 12 Vdc | | 24 Vdc | | | | | |
| **Number of inputs/outputs** | | 12 | 20 | 10 | 12 | 12 | 20 | 20 | 20 |
| **Number of inputs** | Discrete inputs | 8 | 12 | 6 | 8 | 8 | 12 | 12 | 12 |
| | Including 0-10 V analog inputs | 4 | 6 | — | 4 | 4 | 2 | 6 | 6 |
| **Number of outputs** | | 4 relay | 8 relay | 4 relay | 4 relay | 4 transistor | 8 relay | 8 relay | 8 transistor |
| **Dimensions, W x D x H (mm)** | | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2x59.5x107.6 | | | 124.6x59.5x107.6 | | |
| **Clock** | | yes | yes | no | yes | yes | no | yes | yes |
| **Catalog Number** | | SR2B121JD | SR2B201JD | SR2A101BD ♦ | SR2B121BD | SR2B122BD | SR2A201BD ♦ | SR2B201BD | SR2B202BD |
| **$ Price** | | **282.00** | **398.00** | **232.00** | **282.00** | **276.00** | **358.00** | **398.00** | **392.00** |

▲ Programming of smart relay in LADDER language only.
■ Please consult Schneider Electric representative for list prices.

### Table 23.182: Compact Smart Relays with Display, AC Power Supply




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Supply voltage** | | 24 Vac | | 100–240 Vac | | | |
| **Number of inputs/outputs** | | 12 | 20 | 10 | 12 | 20 | 20 |
| **Number of inputs** | Discrete inputs | 8 | 12 | 6 | 8 | 12 | 12 |
| **Number of outputs** | | 4 relay | 8 relay | 4 relay | 4 relay | 8 relay | 8 relay |
| **Dimensions, W x D x H (mm)** | | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2 x 59.5 x 107.6 | | 124.6 x 59.5 x 107.6 | |
| **Clock** | | yes | yes | no | yes | no | yes |
| **Catalog Number** | | SR2B121B | SR2B201B | SR2A101FU ▲ | SR2B121FU | SR2A201FU ▲ | SR2B201FU |
| **$ Price** | | **282.00** | **398.00** | **258.00** | **288.00** | **374.00** | **408.00** |

♦ Programming of smart relay in LADDER language only.

### Table 23.183: Compact Smart Relays without Display and without Buttons, DC and AC Power Supply




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Supply voltage** | | 24 Vdc | | | 100–240 Vac | | |
| **Number of inputs/outputs** | | 12 | 20 | 20 | 10 | 12 | 20 |
| **Number of inputs** | Discrete inputs | 6 | 8 | 12 | 6 | 8 | 12 |
| | Including 0-10 V analog inputs | — | 4 | 6 | — | — | — |
| **Number of outputs** | | 4 relay | 4 relay | 8 relay | 4 relay | 4 relay | 8 relay |
| **Dimensions, W x D x H (mm)** | | 71.2 x 59.5 x 107.6 | | 124.6x59.5x107.6 | 71.2 x 59.5 x 107.6 | | 124.6x59.5x107.6 |
| **Clock** | | no | yes | yes | no | yes | yes |
| **Catalog Number** | | SR2D101BD ★ | SR2E121BD ■ | SR2E201BD ■♦ | SR2D101FU ★ | SR2E121FU | SR2E201FU♦ |
| **$ Price** | | **214.00** | **222.00** | **338.00** | **218.00** | **226.00** | **344.00** |

★ Programming of smart relay in LADDER language only.
▼ To order a smart relay for a **24 Vac supply** (no analog inputs), delete the letter **D** from the end of the catalog number (**SR2E121B** and **SR2E201B**).
△ To order a smart relay without a clock, replace the letter **E** with the letter **D** (Example: SR2D201BD and SR2D201FU (these units can only be programmed in LADDER language.



© 2012 Schneider Electric
All Rights Reserved

## Zelio™ Logic 2 Smart Relays

### Table 23.184: Modular Smart Relays ▲ with Display, DC and AC Power Supply



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Supply voltage** | | 12 Vdc | 24 Vdc | | 24Vac | | 100-240 Vac | |
| **Number of inputs/outputs** | | 26 | 10 | 26 | 10 | 26 | 10 | 26 |
| **Number of inputs** | **Discrete inputs** | 16 | 6 | 16 | 6 | 16 | 6 | 16 |
| | **Including 0-10 V analog inputs** | 6 | 4 | 6 | — | — | — | — |
| **Number of outputs** | | 10 relay | 4 relay | 10 relay | 4 relay | 10 relay | 4 relay | 10 relay |
| **Dimensions, W x D x H (mm)** | | 124.6x59.5x107.6 | 71.2x59.5x107.6 | 24.6x59.5x107.6 | 71.2x59.5x107.6 | 124.6x59.5x107.6 | 71.2x59.5x107.6 | 124.6x59.5x107.6 |
| **Clock** | | yes | yes | yes | yes | yes | yes | yes |
| **Catalog Number** | | SR3B261JD | SR3B10pBD ■♦ | SR3B26pBD ■♦ | SR3B101B | SR3B261B | SR3B101FU | SR3B261FU |
| **$ Price** | | **380.00** | — | — | **282.00** | **476.00** | **292.00** | **486.00** |

▲ The modular base can be fitted with one I/O extension module. The 24 Vdc modular base can be fitted with one communication module and/or one I/O extension module.
■ Replace the p by the number **1** to order a smart relay with **relay output** or by **2** for a smart relay with **transistor output** (Example: SR3B101BD).
♦ Please consult local Schneider Electric representative for list prices.

### Table 23.185: Extension Modules for Zelio Logic 2 SR3B•••••▲





| | | Communication | | Discrete Inputs/Outputs | | | | | | Analog Inputs/Outputs | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Application** | | MODBUS network | | — | | | | | | — | |
| **Number of inputs/outputs** | | — | | 6 | | 10 | | 14 | | 4 | |
| **Number of inputs** | **Discrete inputs** | — | | 4 | | 6 | | 8 | | — | |
| | **Analog (0–10 V, 0–20 mA, PT100)** | — | | — | | — | | — | | 2■ | |
| **Number of outputs** | **Relay** | — | | 2relay | | 4 relay | | 6 relay | | — | |
| | **Analog (0-10 V)** | — | | — | | — | | — | | 2 | |
| **Dimensions, W x D x H (mm)** | | 35.5x59.5x107.6 | | 35.5x59.5x107.6 | | 72x59.5x107.6 | | 72x59.5x107.6 | | 35.5x59.5x107.6 | |
| | | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** |
| **Voltage** | 12 Vdc | — | — | SR3XT61JD | **80.00** | SR3XT101JD | **100.00** | SR3XT141JD | **140.00** | — | — |
| | 24 Vdc | SR3MBU01BD | **200.00** | SR3XT61BD | **106.00** | SR3XT101BD | **126.00** | SR3XT141BD | **164.00** | SR3XT43BD | **220.00** |
| | 24 Vac | — | — | SR3XT61B | **106.00** | SR3XT101B | **126.00** | SR3XT141B | **164.00** | — | — |
| | 100-240 Vac | — | — | SR3XT61FU | **106.00** | SR3XT101FU | **126.00** | SR3XT141FU | **164.00** | — | — |

▲ The power supply of the extension modules is provided via the Zelio Logic 2 modular relays.
■ max. 1 PT 100 input

### Table 23.186: Zelio Soft Software and Memory for SR2/SR3

| Multilingual Programming Software | | Connecting Cables | | | | | | Back-up Memory | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCCD-ROM (Windows 98, NT, 2000, XP, ME) ▲ | | PC Serial to Relay | | PC USB to SR2CBL01 | | PC USB to Relay | | EEPROM (< V3.0 ZelioSoft software and firmware) | | EEPROM (≥V3.0 ZelioSoft software and firmware) | |
| **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** | **Cat. No.** | **$ Price** |
| SR2SFT01 | **74.00** | SR2CBL01 | **136.00** | SR2CBL06 | **156.00** | SR2USB01 | **160.00** | SR2MEM01 | **38.00** | SR2MEM02 | **30.00** |

▲ CD-ROM includes Zelio Soft software, application library, self-training manual, installation instructions and user's manual

### Table 23.187: Communication interface for SR2/SR3

| Interface, Zelio Logic 2 Alarm Software | Communication Interface ▲ | Alarm Management Software | Zelio Logic GSM Modem |
|---|---|---|---|
| **Supply voltage** | 12-24 Vdc | — | 24 Vdc |
| **Description** | — | PC CD-ROM (Windows 98, NT, 2000, XP) | GSM modem |
| **Dimensions, W x D x H** | 72x59.5x107.6 mm | — | |
| **Catalog Number** | SR2COM01 | SR2SFT02 | SR2MOD02 |
| **$ Price** | **230.00** | **60.00** | **545.00** |

▲ Modems to be supplied by user.

**Approvals:**

File CCN E164866 NRAQ — File Class LR217698 2252 01





© 2012 Schneider Electric
All Rights Reserved

## Solid State Interface Modules



ABS2EA01EM

ABS solid state relay interface modules are for discrete digital input or output control signals exchanged in automated equipment. Features include:

- High operating rate
- 5 separate character places for marking
- Silent operation
- LED indication of the control signal state
- 35 mm DIN 3 or 32 mm DIN 1 track mountable

### Table 23.188: Solid State Interface Input Modules

| | Input Module Catalog Number | | | | | $ Price ea. |
|---|---|---|---|---|---|---|
| Input Module Catalog No. | ABS2EC01EA | ABS2EC01EB | ABS2EC01EE | ABS2EA02EF | ABS2EA02EM | **70.00** |
| Dimensions (WxDxH)▲ | Inches: 0.37 x 2.78 x 2.91 | | | mm: 9.5 x 70.5 x 74 | | |
| **Control Circuit Characteristics** | | | | | | |
| Rated Voltage US | 5 Vdc | 24 Vdc | 48 Vdc | 120/127 60Hz | 230/240 60Hz | |
| Maximum Voltage | 6 (TTL) | 28.8 Vdc | 57.6 Vdc | 140 Vac | 264 Vac | |
| Maximum Current at Us | 13.6 mA | 12 mA | 10.5 mA | 17 mA | 15 mA | |
| Internal Protection Against Reverse Polarity | Yes | Yes | Yes | N/A | N/A | |
| **Output Circuit Characteristics** | | | | | | |
| Rated Operational Voltage Ve | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc | 5 to 48 Vdc | |
| Min./Max. Voltage | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc | 2/60 Vdc | |
| Min./Max. Switching Current | 1/50 mA | 1/50 mA | 1/50 mA | 1/50 mA | 1/50 mA | |
| Rated Insulation Voltage | Conforming to IEC 60947-1: 300 V<br>Conforming to IEC 0110: 250 V group C | | | | | |
| Approvals | UL E164353, CSA 081630, IEC 60947-1 | | | | | |

### Table 23.189: Solid State Interface Output Modules



ABS2SA01MB

| | Output Module Catalog No. | | | | $ Price |
|---|---|---|---|---|---|
| | ABS2SC01EB<br>—<br>—<br>— | —<br>ABS2SC02EB<br>—<br>— | —<br>—<br>ABS2SA01MB<br>— | —<br>—<br>—<br>ABS2SA02MB | **80.00**<br>**80.00**<br>**90.00**<br>**101.00** |
| Dimensions (W x D x H)▲ | Inches: 0.69 x 2.78 x 2.91 | | mm: 17.5 x 70.5 x 74 | | |
| **Control Circuit Characteristics** | | | | | |
| Rated Voltage Us | 24 Vdc | 24 Vdc | 24 Vdc | 24 Vdc | |
| Maximum Voltage | 28.8 Vdc | 28.8 Vdc | 28.8 Vdc | 28.8 Vdc | |
| Maximum Current at Us | 12 mA | 12 mA | 13.6 mA | 13.6 mA | |
| Internal Protection against reverse polarity | Yes | Yes | Yes | Yes | |
| **Output Circuit Characteristics** | | | | | |
| Rated Operational Voltage Ve | 5 to 48 Vdc | 5 to 48 Vdc | 24 to 240 Vac | 24 to 240 Vac | |
| Maximum Voltage | 57.6 Vdc | 57.6 Vdc | 264 Vac | 264 Vac | |
| Internal Protection against reverse polarity | Yes | Yes | Yes | Yes | |
| External Protection | Against short-circuits for 1k, 1k (Ac) and <100 A (DC)<br>Quick-blow fuse with very high breaking capacity: 3.15 A | | | | |
| Rated insulation voltage | Conforming to IEC 60947-1: 300 V<br>Conforming to VDE 0110: 250 V group C | | | | |
| Approvals | UL E164353, CSA 081630, IEC 60947-1 | | | | |

▲ Dimensions mounted on DIN 3 (7.5 mm high) track.

For Mounting Track, see page 24-16.

### Table 23.190: How to Order

| To Order Specify: | Catalog Number |
|---|---|
| • Catalog Number | ABS2EC01EA |



© 2012 Schneider Electric
All Rights Reserved



ABR1E411F

## Electromechanical Interface Modules

ABR electromechanical relay modules are for discrete digital input or output control signals exchanged in automated equipment. Features include:

- High contact reliability
- LED indication of the control signal state
- 5 separate character places for marking
- 35 mm DIN 3 or 32 mm DIN 1 track mountable

### Table 23.191: Input Modules

| Coil Voltage | Options | 1 N.O. Contact | 1 C.O. Contact | 2 N.O. Contacts | $ Price |
|---|---|---|---|---|---|
| | | Catalog Number | Catalog Number | Catalog Number | |
| **24 Vac/Vdc** | Manual Operator and LED Indication | ABR1E118B▲ | ABR1E318B▲ | ABR1E418B▲ | **68.00** |
| **48 Vac/Vdc** | | ABR1E118E▲ | ABR1E318E▲ | ABR1E418E▲ | |
| **110–125 Vdc** | | ABR1E112F▲ | ABR1E312F▲ | ABR1E412F▲ | |
| **110–127 Vac 50/60 Hz** | | ABR1E111F▲ | ABR1E311F▲ | ABR1E411F▲ | |
| **230–240 Vac 50/60 Hz** | | ABR1E111M▲ | ABR1E311M▲ | ABR1E411M▲ | |
| **230–240 Vac 50/60 Hz** | Manual Operator | ABR1E101M▲ | ABR1E301M▲ | — | |
| **24 Vdc** | LED Indication | ABR2E112B | — | — | **52.00** |
| **48 Vdc** | | ABR2E112E | — | — | |
| **120–127 Vac 60 Hz** | | ABR2E116F | — | — | **60.00** |
| **230–240 Vac 50/60 Hz** | | ABR2E111M | — | — | |
| **24 Vdc** | | — | ABR2EB312B | — | **76.00** |

▲ RoHS Compliant



ABR2E112E

### Table 23.192: Output Modules

| Coil Voltage | Options | 1 N.O. Contact | 1 C.O. Contact | 2 N.O. Contacts | 1 N.C. & 1 N.O. Contact | $ Price |
|---|---|---|---|---|---|---|
| | | Catalog Number | Catalog Number | Catalog Number | Catalog Number | |
| **24 Vdc** | Manual Operator | ABR1S102B■ | ABR1S302B■ | ABR1S402B■ | ABR1S602B■ | **52.00** |
| **24 Vac/Vdc** | Manual Operator and LED Indication | ABR1S118B■ | ABR1S318B■ | ABR1S418B■ | ABR1S618B■ | **70.00** |
| **48 Vac/Vdc** | | ABR1S118E■ | ABR1S318E■ | ABR1S418E■ | ABR1S618E■ | |
| **110–127 Vac 50/60 Hz** | | ABR1S111F■ | ABR1S311F■ | ABR1S411F■ | ABR1S611F■ | |
| **24 Vdc** | LED Indication | ABR2S112B | — | — | — | **40.10** |
| **48 Vdc** | | — | ABR2SB312B | — | — | **80.00** |
| **24 Vdc** | — | ABR2S102B | — | — | — | **26.00** |

■ RoHS Compliant



ABR1S111F

### Table 23.193: Coil Data

| Relay | | ABR1E | | | | | ABR2E | | | | ABR2EB | ABR1S | | | | ABR2S | | ABR2SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coil Voltage Ue** | V | 24 Vac/Vdc | 48 Vac/Vdc | 127 Vdc | 127 Vac | 240 Vac | 24 Vdc | 48 Vdc | 127 Vac | 240 Vac | 24 Vdc | 24 Vdc | 24 Vdc | 48 Vac/Vdc | 127 Vac | 24 | 24 | 24 |
| **Maximum Voltage** | V | 30 | 53 | 137 | 140 | 255 | 28.8 | 56 | 140 | 264 | 28.8 | 30 | 30 | 53 | 140 | 28.8 | 28.8 | 28.8 |
| **Pick-up Voltage** | V | 17 | 38 | 97 | 93 | 195 | 16.9 | 37.3 | 97 | 186 | 16.9 | 17 | 17 | 38 | 83 | 16.9 | 16.9 | 16.9 |
| **Minimum Sealed Current** | mA | 5.2 | 5.4 | 1.5 | 2.4 | 2 | 2 | 2 | 2.5 | 2.5 | 2 | 6.6 | 6.2 | 5.4 | 2.4 | 2 | 2 | 2 |
| **Maximum Sealed Current** | mA | 62 | 36 | 15 | 8 | 7 | 19.5 | 11 | 16 | 15 | 29 | 62 | 62 | 36 | 8 | 28 | 17 | 29 |



ABR2S102B

### Table 23.194: Contact Ratings

| Relay | | ABR1E | ABR2E | ABR2EB | ABR1S | ABR2S | ABR2SB |
|---|---|---|---|---|---|---|---|
| **Rated Voltage Ue** | Vac | 250 | 115 | 48 | 250 | 230 | 48 |
| **Rated Voltage Ue** | Vdc | 125 | 100 | 48 | 125 | 120 | 48 |
| **Thermal Current Ith** | A | 2 | 1 | 0.05 | 5 | 5 | 0.05 |
| **Break Rating (AC14)** | A | 1 | 0.5 | 1 | 1 | 1 | — |
| **Break Rating (DC13)** | A | 1 | 1 | 1 | 1 | 1.5 | — |

### Table 23.195: Dimensions

| Modules | Approximate Dimensions (WxDxH)♦ | |
|---|---|---|
| | In. | mm |
| ABR1E, ABR2EB, ABR2SB | 0.69 x 2.91 x 2.78 | 17.5 x 74 x 70.5 |
| ABR2E | 0.37 x 2.91 x 2.78 | 9.5 x 74 x 70.5 |
| ABR2S1 | 0.47 x 2.91 x 2.78 | 12 x 74 x 70.5 |

♦ Dimensions mounted on DIN 3 track (7.5 mm high).

### Table 23.196: Approvals

| | |
|---|---|
| ABR1E, ABR2E | UL E164353, CSA 081630, IEC 60947-1 |
| ABR1S, ABR2S | UL E164353, CSA 081630, IEC 60947-1 |

ABR1 relays are RoHS compliant as of date code 0610.

For Mounting Track, see page 24-16





© 2012 Schneider Electric
All Rights Reserved

# Section 24
## Terminal Blocks

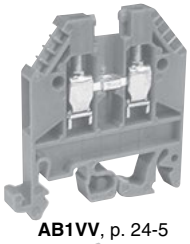
Back to Product Index
Section Listing



**AB1RRN**, p. 24-3



**AB1AA**, p. 24-10



**AB1VV**, p. 24-5



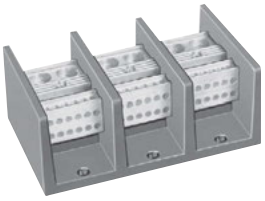
**9080GR6**, p. 24-13



**GB2**, p. 24-17



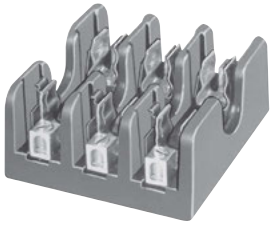
**9080GCB**, p. 24-17



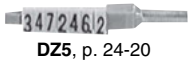
**9080LB**, p. 24-18



**9080GF6**, p. 24-14



**9080FB**, p. 24-19




**DZ5**, p. 24-20

## Product Panorama


| | | |
|---|---|---|
| Terminal Blocks | | **24-2** |


## Track-Mounting Terminal Blocks and Prewired Connectors


| | | |
|---|---|---|
| Advantys TELEFAST™ 2 | ABE7 Connection Systems | **24-22** |
| NEMA Style | Class 9080 Type G | **24-13** |
| IEC Style | AB1 | **24-3** |


## Direct-Mounting Terminal Blocks


| | | |
|---|---|---|
| NEMA Style | Class 9080 Type GK | **24-13** |


## Circuit Protectors


| | | |
|---|---|---|
| | Class 9080 Type GCB | **24-17** |
| | GB2 | **24-17** |


## Power Distribution Blocks (Splitter Blocks)


| | | |
|---|---|---|
| | Class 9080 Type LB | **24-18** |


## Fuseholders


| | | |
|---|---|---|
| Panel Mounting | Class 9080 Type FB | **24-19** |
| NEMA Style | Class 9080 Type GF6 | **24-14** |
| IEC Style | AB1FU, AB1SF | **24-8** |
| | AB1AASF | **24-10** |
| | AB1RRNSF | **24-4** |
| | DF | **24-8** |


## Cable Ends (Ferrules, Wire Markers)

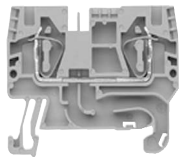
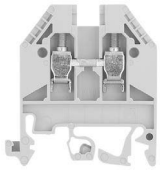
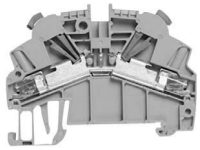
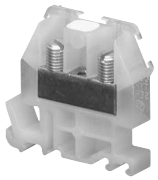

| | | |
|---|---|---|
| | DZ5 | **24-20** |
| | AZ5 | **24-20** |
| | AR1 | **24-21** |
| | AT1 | **24-21** |


## Mounting Track


| | | |
|---|---|---|
| | 9080GH (Square D) | **24-16** |
| | 9080MH (DIN) | **24-12** |




© 2012 Schneider Electric
All Rights Reserved

| |  |  |  |  |
|---|---|---|---|---|
| **Product Family** | **AB1RRN** | **AB1VV** | **AB1AA** | **9080G** |
| **Type of product** | IEC spring technology | IEC screw technology | IEC insulation displacement technology | NEMA screw technology |
| **Mounting** | DIN 3 | DIN 1 and DIN 3 | DIN 3 | DIN 3 and Square D track ▲ |
| **Maximum rated voltage (V)** | 600 | 600 | 600 | 600 ■ |
| **Maximum rated current per UL (A)** | 115 | 375 | 22 | 255 |
| **Ambient air temperature** | -40 to +266 °F (-40 to 130 °C) | | | -40 to +257 °F (-40 to 125 °C) |
| **Approvals ♦** | UL File 164359<br>CCN XCFR2 | UL File 164359<br>CCN XCFR2 | UL File 164359<br>CCN XCFR2 | UL File E60616<br>CCN XCFR2 |
| | CSA File 702070<br>Class 6228 01 | CSA File 702070<br>Class 6228 01 | CSA File 702070<br>Class 6228 01 | CSA File 025490<br>Class 3211 07 |
| **Color** | Gray<br>Blue<br>Green/Yellow<br>Black | Gray<br>Blue<br>Green/Yellow<br>Orange<br>Red<br>Green<br>White<br>Black | Gray<br>Blue<br>Green/Yellow<br>Orange<br>Red | Natural (White)<br>Black<br>Blue<br>Green<br>Gray<br>Orange<br>Red<br>Yellow<br>Brown |

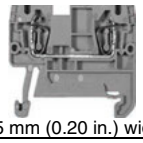
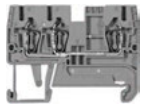
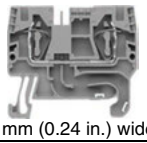
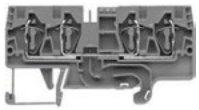
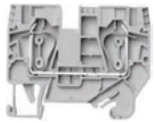
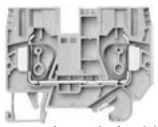
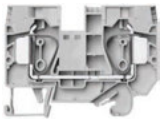
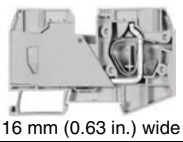
▲ 9080GK6 can be mounted directly to a panel or on Square D track.
■ 9080GT6 is 120 V.
♦ Refer to catalogs 9080CT9901R7/07 and 9080CT9601 for a complete list of certifications.





© 2012 Schneider Electric
All Rights Reserved

**Table 24.1: Spring-Clip, AB1RRN**

| Description | | Maximum Voltage | Maximum Current ■ | Block | | | | End Barrier♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Catalog Number | $ Price ea. | Std. Pack▲ | Color | Catalog Number | $ Price ea. | Std. Pack▲ |
|  5 mm (0.20 in.) wide | Spring-Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>22–12 AWG | 600 V | 20 A | Gray | AB1RRN235U2GR | **1.40** | 100 | Gray | AB1RRNAC242GR | **0.60** | 10 |
| | | | | Blue | AB1RRN235U2BL | **1.40** | 100 | Blue | AB1RRNAC242BL | **0.60** | 10 |
|  5 mm (0.20 in.) wide | Spring-Clip Style Block<br>Three Terminals<br>Solid or Stranded Copper Wire<br>22–12 AWG | 600 V | 20 A | Gray | AB1RRN235U3GR | **1.80** | 100 | | AB1RRNAC243GR | **0.68** | 10 |
| | | | | Blue | AB1RRN235U3BL | **1.80** | 100 | Blue | AB1RRNAC243BL | **0.68** | 10 |
|  5 mm (0.20 in.) wide | Spring-Clip Style Block<br>Four Terminals<br>Solid or Stranded Copper Wire<br>22–12 AWG | 600 V | 20 A | Gray | AB1RRN235U4GR | **2.30** | 100 | Gray | AB1RRNAC244GR | **0.75** | 10 |
| | | | | Blue | AB1RRN235U4BL | **2.30** | 100 | Blue | AB1RRNAC244BL | **0.75** | 10 |
|  6 mm (0.24 in.) wide | Spring-Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>24–10 AWG | 600 V | 30 A | Gray | AB1RRN435U2GR | **1.50** | 100 | Gray | AB1RRNAC442GR | **0.60** | 10 |
| | | | | Blue | AB1RRN435U2BL | **1.50** | 100 | Blue | AB1RRNAC442BL | **0.60** | 10 |
|  6 mm (0.24 in.) wide | Spring-Clip Style Block<br>Three Terminals<br>Solid or Stranded Copper Wire<br>24–10 AWG | 600 V | 30 A | Gray | AB1RRN435U3GR | **2.30** | 100 | Gray | AB1RRNAC443GR | **0.60** | 10 |
| | | | | Blue | AB1RRN435U3BL | **2.30** | 100 | Blue | AB1RRNAC443BL | **0.60** | 10 |
|  6 mm (0.24 in.) wide | Spring-Clip Style Block<br>Four Terminals<br>Solid or Stranded Copper Wire<br>24–10 AWG | 600 V | 30 A | Gray | AB1RRN435U4GR | **2.90** | 100 | Gray | AB1RRNAC444GR | **0.90** | 10 |
| | | | | Blue | AB1RRN435U4BL | **2.90** | 100 | Blue | AB1RRNAC444BL | **0.90** | 10 |
|  8 mm (0.31 in.) wide | Spring Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>24–8 AWG | 600 V | 50 A | Gray | AB1RRN635U2GR | **2.10** | 50 | Gray | AB1RRNAC642GR | **0.83** | 10 |
| | | | | Blue | AB1RRN635U2BL | **2.10** | 50 | Blue | AB1RRNAC642BL | **0.83** | 10 |
|  10 mm (0.39 in.) wide | Spring Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>16–6 AWG | 600 V | 60 A | Gray | AB1RRN1035U2GR | **2.70** | 50 | Gray | AB1RRNAC1042GR | **0.90** | 10 |
| | | | | Blue | AB1RRN1035U2BL | **2.70** | 50 | Blue | AB1RRNAC1042BL | **0.90** | 10 |
|  12 mm (0.47 in.) wide | Spring Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>16–4 AWG | 600 V | 85 A | Gray | AB1RRN1635U2GR | **4.40** | 50 | Gray | AB1RRNAC1642GR | **1.20** | 10 |
| | | | | Blue | AB1RRN1635U2BL | **4.40** | 50 | Blue | AB1RRNAC1642BL | **1.20** | 10 |
|  16 mm (0.63 in.) wide | Spring Clip Style Block<br>Two Terminals<br>Solid or Stranded Copper Wire<br>14–2 AWG | 600 V | 115 A | Gray | AB1RRN3535U2GR | **22.50** | 10 | None Required | | | |
| | | | | Blue | AB1RRN3535U2BL | **22.50** | 10 | | | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

File E164359 CCN XCFR2 File 702070 Class 6228 01 RoHS Compliant

For track and accessories, see pages 24-11 and 24-12.



© 2012 Schneider Electric
All Rights Reserved

**Table 24.1: Spring-Clip, AB1RRN (continued)**

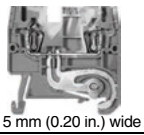
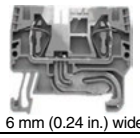
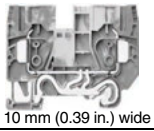
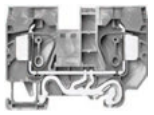
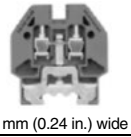
| Description | | Maximum Voltage | Maximum Current ■ | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  5 mm (0.20 in.) wide | Spring-Clip Style Grounding Block Two Terminals<br>Solid or Stranded Copper Wire 22–12 AWG | 600 V | 20 A | Green / Yellow | AB1RRNTP235U2 | **5.10** | 100 | Green | AB1RRNTPAC242 | **0.60** | 10 |
|  5 mm (0.20 in.) wide | Spring-Clip Style Grounding Block Four Terminals<br>Solid or Stranded Copper Wire 22–12 AWG | 600 V | 20 A | Green / Yellow | AB1RRNTP235U4 | **7.50** | 100 | Green | AB1RRNTPAC244 | **0.75** | 10 |
|  6 mm (0.24 in.) wide | Spring-Clip Style Grounding Block Two Terminals<br>Solid or Stranded Copper Wire 22–10 AWG | 600 V | 30 A | Green / Yellow | AB1RRNTP435U2 | **6.20** | 100 | Green | AB1RRNTPAC442 | **0.60** | 10 |
|  8mm (0.31 in.) wide | Spring-Clip Style Grounding Block Two Terminals<br>Solid or Stranded Copper Wire 24–8 AWG | 600 V | 50 A | Green / Yellow | AB1RRNTP635U2 | **6.90** | 50 | Green | AB1RRNTPAC642 | **0.83** | 10 |
|  10 mm (0.39 in.) wide | Spring-Clip Style Grounding Block Two Terminals<br>Solid or Stranded Copper Wire 16–6 AWG | 600 V | 60 A | Green / Yellow | AB1RRNTP1035U2 | **7.80** | 50 | Green | AB1RRNTPAC1042 | **0.90** | 10 |
|  12 mm (0.47 in.) wide | Spring-Clip Style Grounding Block Two Terminals<br>Solid or Stranded Copper Wire 22–10 AWG | 600 V | 85 A | Green / Yellow | AB1RRNTP1635U2 | **9.30** | 50 | Green | AB1RRNTPAC1642 | **1.20** | 10 |
|  6 mm (0.24 in.) wide | Spring-Clip Style Diode/Fuseholder Block<br>Solid or Stranded Copper Wire 22–10 AWG | 300 V | 10 A | Gray | AB1RRNSF435UGR | **4.10** | 100 | Gray | AB1RRNAC442GR | **0.60** | 10 |
| | Fuseholder 5x20 (Fuse not included) | Depends on fuse or diode used | | Gray | AB1SF520 | **6.50** | 100 | Not applicable | | | |
| | Fuseholder 5x20 + 24 V LED | | | | AB1SF520B | **20.30** | 100 | | | | |
| | Fuseholder 5x20 + 220 V LED | | | | AB1SF520M | **20.30** | 100 | | | | |
| | Holder for Diode (Diode not included) | | | | AB1SV1 | **6.20** | 100 | | | | |
| | Holder with1N4007-1 Diode | | | | AB1SV2 | **15.60** | 100 | | | | |

**Table 24.2: Miniature, AB1VV and AB1TP**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  5 mm (0.20 in.) wide | Miniature Block with Box Lug<br>Solid or Stranded Copper Wire 22–14 AWG<br>Mounts on 15 mm DIN 2 track | 150 V | 10 A | Gray | AB1VV215 | **1.50** | 100 | Gray | AB1AC2 | **0.62** | 10 |
| | | | | Blue | AB1VV215BL | **1.50** | 100 | Blue | | | |
|  5 mm (0.20 in.) wide | Miniature Block with Box Lug<br>Solid or Stranded Copper Wire 22–10 AWG<br>Mounts on 15 mm DIN 2 track | 150 V | 10 A | Gray | AB1VV415 | **1.70** | 100 | Gray | AB1AC2 | **0.62** | 10 |
|  6 mm (0.24 in.) wide | Miniature Grounding Block with Box Lug<br>Solid or Stranded Copper Wire 22–14 AWG<br>Mounts on 15 mm DIN 2 track | 150 V | 10 A | Green / Yellow | AB1TP215 | **4.40** | 100 | Gray | AB1CT215 | **0.62** | 50 |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation, class and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

File E164359 CCN XCFR2 File 702070 Class 6228 01 RoHS Compliant

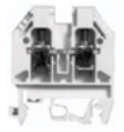
For track and accessories, see pages 24-11 and 24-12.





© 2012 Schneider Electric
All Rights Reserved

**Table 24.3: Box Lug, AB1VV**

| Description | | Maximum Voltage | Maximum Current ■ | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  5 mm (0.20 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 22–12 AWG | 600 V | 20 A | Gray | AB1VV235U | **1.40** | 100 | Gray | AB1AC24 | **0.62** | 50 |
| | | | | Blue | AB1VV235UBL | **1.40** | 100 | Blue | AB1AC24BL | **0.62** | 50 |
| | | | | Orange | AB1VV235UGE | **1.40** | 100 | Orange | AB1AC24GE | **0.62** | 50 |
|  6 mm (0.24 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 22–10 AWG | 600 V | 30 A | Gray | AB1VV435U | **1.50** | 100 | Gray | AB1AC24 | **0.62** | 50 |
| | | | | Blue | AB1VV435UBL | **1.50** | 100 | Blue | AB1AC24BL | **0.62** | 50 |
| | | | | Orange | AB1VV435UGE | **1.50** | 100 | Orange | AB1AC24GE | **0.62** | 50 |
| | | | | Black | AB1VV435UNO | **1.50** | 100 | Gray | AB1AC24 | **0.62** | 50 |
| | | | | Red | AB1VV435URO | **1.50** | 100 | Gray | AB1AC24 | **0.62** | 50 |
| | | | | Green | AB1VV435UVE | **1.50** | 100 | Gray | AB1AC24 | **0.62** | 50 |
| | | | | White | AB1VV435UBLA | **1.50** | 100 | Gray | AB1AC24 | **0.62** | 50 |
|  8 mm (0.31 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 22–8 AWG | 600 V | 50 A | Gray | AB1VV635U | **2.10** | 100 | Gray | AB1AC6 | **0.62** | 50 |
| | | | | Blue | AB1VV635UBL | **2.10** | 100 | Blue | AB1AC6BL | **0.62** | 50 |
| | | | | Orange | AB1VV635UGE | **2.10** | 100 | Orange | AB1AC6GE | **0.62** | 50 |
|  10 mm (0.39 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 16–6 AWG | 600 V | 65 A | Gray | AB1VVN1035U | **2.70** | 50 | Gray | AB1ACN10 | **0.78** | 10 |
| | | | | Blue | AB1VVN1035UBL | **2.70** | 50 | Blue | AB1ACN10BL | **0.78** | 10 |
|  12 mm (0.47 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 12–4 AWG | 600 V | 85 A | Gray | AB1VVN1635U | **5.40** | 50 | Gray | AB1ACN16 | **0.93** | 10 |
| | | | | Blue | AB1VVN1635UBL | **5.40** | 50 | Blue | AB1ACN16BL | **0.93** | 10 |
|  16 mm (0.63 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 10–2 AWG | 600 V | 95 A | Gray | AB1VVN3535U | **7.70** | 20 | Not required for these blocks. | | | |
| | | | | Blue | AB1VVN3535UBL | **7.70** | 20 | | | | |
|  24 mm (0.94 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 6–2/0 AWG | 600 V | 175 A | Gray | AB1VVN7035U | **27.90** | 20 | Not required for these blocks. | | | |
| | | | | Blue | AB1VVN7035UBL | **27.90** | 20 | | | | |
|  28 mm (1.10 in.) wide | Box-Lug Style Block<br>Solid or Stranded Copper Wire 2/0–350 kcmil | 600 V | 335 A | Gray | AB1VVN15035U | **65.00** | 10 | Not required for these blocks. | | | |
| | | | | Blue | AB1VVN15035UBL | **65.00** | 10 | | | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL rating are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

File CCN E164359 XCFR2 File Class 702070 6228 01 RoHS Compliant

For track and accessories, see pages 24-11 and 24-12.

© 2012 Schneider Electric
All Rights Reserved

### Table 24.4: Grounding, AB1TP

| Description | | Maximum Voltage | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  5.1 mm (0.20 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 22–10 AWG | 600 V | Green/Yellow | AB1TP235U | **5.30** | 100 | Green | AB1AC25 | **0.83** | 10 |
|  6 mm (0.24 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 22–10 AWG | 600 V | Green/Yellow | AB1TP435U | **6.20** | 100 | Not required for this block. | | | |
|  8 mm (0.31 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 22–8 AWG | 600 V | Green/Yellow | AB1TP635U | **6.90** | 100 | Not required for this block. | | | |
|  10 mm (0.39 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 16–6 AWG | 600 V | Green/Yellow | AB1TP1035U | **7.80** | 50 | Not required for this block. | | | |
|  12 mm (0.47 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 12–4 AWG | 600 V | Green/Yellow | AB1TP1635U | **9.30** | 50 | Not required for this block. | | | |
|  16 mm (0.63 in.) wide | Grounding Block<br>Solid or Stranded Copper Wire 10–2 AWG | 600 V | Green/Yellow | AB1TP3535U | **13.20** | 20 | Not required for this block. | | | |

### Table 24.5: Two Tier, AB1ET

| Description | | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  6 mm (0.24 in.) wide Two Tier Blocks Solid or Stranded Copper Wire 22–10 AWG 300 V 20 A ■ | Standard two tier block | Gray | AB1ET435U | **4.10** | 100 | Gray | AB1TE | **1.10** | 50 |
| | Standard two tier block + upper-lower link | Black | AB1ET435U2 | **6.20** | 100 | | | | |
| | Standard two tier block + grounding | Green/Yellow | AB1ET435UTP | **18.60** | 100 | | | | |
| | Standard two tier block + red 24 V LED | Red | AB1ET435UBRO | **17.10** | 100 | | | | |
| | Standard two tier block + green 24 V LED | Red | AB1ET435UBVE | **17.10** | 100 | | | | |
| | Standard two tier block + head to tail diodes (red) | Orange | AB1ET435UBGE | **17.10** | 100 | | | | |
| | Standard two tier block + diode upper-lower | Red | AB1ET435UHBRO | **10.80** | 100 | | | | |
| | Standard two tier block + diode lower-upper | Orange | AB1ET435UBHGE | **10.80** | 100 | | | | |
| | Standard two tier block + 2 diodes | Red | AB1ET435U2DRO | **19.20** | 100 | | | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

File CCN E164359 XCFR2 — File Class 702070 6228 01 — RoHS Compliant

For track and accessories, see pages 24-11 and 24-12





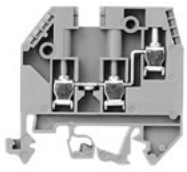
© 2012 Schneider Electric
All Rights Reserved

***NOTE:*** *The blocks in Table 24.6 and Table 24.7 are used for proximity sensors.*

**Table 24.6: Three Tier, AB1DD and AB1ET**

| Description | | Maximum Voltage | Maximum Current■ | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  6 mm (0.24 in.) wide | Three Tier Block<br>Solid or Stranded Copper Wire 22–12 AWG | 300 V | 25 A | Gray | AB1DDP235U | **5.40** | 100 | Not required for these blocks. | | | |
| | Three Tier Block with 24 V LED (+)<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1DDP235ULP | **10.10** | 100 | | | | |
| | Three Tier Block with 24 V LED (-)<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1DDP235ULM | **10.10** | 100 | | | | |
|  6 mm (0.24 in.) wide | Three Tier Block with ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | Gray with Green/Yellow | AB1DDP235T | **8.60** | 100 | | | | |
| | Three Tier Block with 24 V LED (+) and ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1DDP235TLP | **13.20** | 100 | | | | |
| | Three Tier Block with 24 V LED (-) and ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1DDP235TLM | **13.20** | 100 | | | | |
|  6 mm (0.24 in.) wide | Three Tier Block<br>Solid or Stranded Copper Wire 22–12 AWG | | | Gray | AB1ET3235U | **8.60** | 100 | | | | |
| | Three Tier Block with 24 V LED (+) and ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | Gray with Green/Yellow | AB1ET3235UTLP | **27.80** | 100 | | | | |
| | Three Tier Block with 24 V LED (-) and ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1ET3235UTLM | **27.80** | 100 | | | | |
| | Three Tier Block with ground<br>Solid or Stranded Copper Wire 22–12 AWG | | | | AB1ET3235UT | **12.60** | 100 | | | | |

**Table 24.7: Two Tier, AB1ETN**

| Description | | Maximum Voltage | Maximum Current ■ | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  6 mm (0.24 in.) wide<br>AB1ETN335U | Two Tier Block (one terminal in and two out)<br>Solid or Stranded Copper Wire 22–10 AWG | 300 V | 30 A | Gray | AB1ETN335U | **3.60** | 100 | Gray | AB1TEN3 | **1.10** | 10 |
| | Two Tier Block (two terminals in and two out)<br>Solid or Stranded Copper Wire 22–10 AWG | | | Gray | AB1ETN435U | **5.10** | 100 | Gray | AB1TEN4 | **1.20** | 10 |
| | Grounding Block (two terminals in and two out)<br>Solid or Stranded Copper Wire 22–10 AWG | | | Green/ Yellow | AB1ETNTP435U | **12.20** | 100 | Not required for this block. | | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

File CCN E164359 XCFR2 File Class 702070 6228 01 RoHS Compliant

For track and accessories, see pages 24-11 and 24-12.



© 2012 Schneider Electric
All Rights Reserved

## Table 24.8: Fuse Block, AB1★

| Description | | | Block | | | | End Barrier ♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  8 mm (0.31 in.) wide | Fuse Block<br>For 5x20 or 5x25 mm fuse<br>Solid or Stranded Copper Wire 22–10 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FUSE435U5X | **7.80** | 100 | Not required for these blocks. | | | |
| | | With 5–12 V LED indicator | Gray | AB1FUSE435U5XJ | **16.10** | 50 | | | | |
| | | With 12–24 V LED indicator | Gray | AB1FUSE435U5XB | **16.10** | 50 | | | | |
| | | With 110–250 V neon indicator | Gray | AB1FUSE435U5XM | **16.10** | 50 | | | | |
|  10 mm (0.39 in.) wide | Fuse Block<br>For 1/4 x 1-1/4 in. fuse<br>Solid or Stranded Copper Wire 22–10 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FUSE435U6X | **14.40** | 100 | Not required for these blocks. | | | |
| | | With 5–12 V LED indicator | Gray | AB1FUSE435U6XJ | **18.60** | 50 | | | | |
| | | With 12–24 V LED indicator | Gray | AB1FUSE435U6XB | **18.60** | 50 | | | | |
| | | With 110–250 V neon indicator | Gray | AB1FUSE435U6XM | **18.60** | 50 | | | | |
|  12 mm (0.47 in.) wide | Fuse Block<br>For 5 x 20 mm fuse<br>Solid or Stranded Copper Wire 22–6 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FU10135U | **10.80** | 50 | Gray | AB1TF | **1.40** | 50 |
| | | With 28 V yellow LED indicator | Gray | AB1FU10135UB | **26.40** | 50 | | | | |
| | | With 250 V yellow LED indicator | Gray | AB1FU10135UU | **26.40** | 50 | | | | |
| | Fuse Block<br>For 5 x 25 mm fuse<br>Solid or Stranded Copper Wire 22–6 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FU10235U | **14.00** | 50 | Gray | AB1TF | **1.40** | 50 |
| | Fuse Block<br>For 5 x 30 mm fuse<br>Solid or Stranded Copper Wire 22–6 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FU10335U | **15.60** | 50 | Gray | AB1TF | **1.40** | 50 |
| | Fuse Block<br>For 1/4 x 1-1/4 in. fuse<br>Solid or Stranded Copper Wire 22–6 AWG<br>Maximum Voltage—600 V<br>Maximum Current—15 A ■ | Without indicator lamp | Gray | AB1FU10435U | **15.60** | 50 | | | | |
| | | With 28 V yellow LED indicator | Gray | AB1FU10435UB | **26.40** | 50 | Gray | AB1TF | **1.40** | 50 |
| | | With 110–500 V red neon indicator | Gray | AB1FU10435UFS | **26.40** | 50 | | | | |
|  6 mm (0.24 in.) wide | Fuse / Diode Block<br>Solid or Stranded Copper Wire 22–10 AWG<br>Maximum Voltage—300 V<br>Maximum Current—10 A ■ | Fuse / Diode block | Gray | AB1SF435U | **3.90** | 100 | Gray | AB1PS4 | **0.86** | 10 |
| | | Removable fuse holder for 5x20 mm fuse | Gray | AB1SF520 | **6.50** | 100 | N/A | | | |
| | | Removable fuse holder for 5x20 mm fuse with 24 V red LED indicator | Gray | AB1SF520B | **20.30** | 100 | | | | |
| | | Removable fuse holder for 5x20 mm fuse with 220 V red LED indicator | Gray | AB1SF520M | **20.30** | 100 | | | | |
| | | Removable diode or resistor holder | Gray | AB1SV1 | **6.20** | 100 | | | | |
| | | Removable holder With 1N4007.1 diode | Gray | AB1SV2 | **15.60** | 100 | | | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.
■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.
♦ One end-barrier is required for each assembly of like blocks.
★ For additional information, refer to Catalog **9080CT9901**

File E164359
CCN XCFR2

File 702070
Class 6228 01

RoHS Compliant

## Table 24.9: Modular Fuse Holders, DF▼

| | Rated Thermal Current | Type of Fuse | Composition | Standard Pack Quantity | Catalog Number | $ Price ea. |
|---|---|---|---|---|---|---|
|  DFCC1V  DFCC3V | 30 A | Class CC | 1 Pole | 12 | DFCC1 | **18.00** |
| | | | 2 Poles | 6 | DFCC2 | **36.00** |
| | | | 3 Poles | 4 | DFCC3 | **54.00** |
| | | | 1 Pole △ | 12 | DFCC1V | **22.50** |
| | | | 2 Poles △ | 6 | DFCC2V | **45.00** |
| | | | 3 Poles △ | 4 | DFCC3V | **68.00** |

▼ For additional blocks and information, refer to Catalog **9080CT0801.**
△ With blown-fuse indicator.

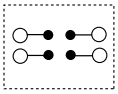
File E310269
CNN IZLT





© 2012 Schneider Electric
All Rights Reserved

### Table 24.10: Other Blocks, AB1

| Description | | | Block | | | | End Barrier♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  12 mm (0.47 in.) wide | Block for Diodes (Diodes not included)<br>Solid or Stranded Copper Wire 22–14 AWG |  | Gray | AB1D11435U | **12.50** | 50 | Not required for this block. | | | |
|  6 mm (0.24 in.) wide | Circuit Isolation Block<br>Solid or Stranded Copper Wire 22–10 AWG<br>Maximum Voltage—600 V<br>Maximum Current—20 A■ | With no test sockets | Gray | AB1SC435U | **7.10** | 50 | Gray | AB1PS4 | **0.86** | 10 |
| | | With two test sockets | Gray | AB1SC435U2PT | **7.10** | 50 | | | | |
|  6 mm (0.24 in.) wide | Box Lug / Slip-on Block<br>Solid or Stranded Copper Wire 22–12 AWG<br>Maximum Voltage—300 V<br>Maximum Current—10 A■ | Box lug on one side. Slip-on access from top and side | Gray | AB1FV135U | **3.00** | 100 | Gray | AB1TC01 | **1.40** | 50 |
| | | Box lug on one side. Slip-on access from top | Gray | AB1FC335U | **3.90** | 100 | Gray | AB1TC3 | **1.40** | 50 |
| | | Slip-on connectors on both sides | Gray | AB1FF235U | **2.10** | 100 | Not required for this block. | | | |

### Table 24.11: Lug/Lug and Lug/Clamp, AB1

| Description | | | Block | | | | Partition | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Color | Catalog Number | $ Price ea. | Std. Pack ▲ | Color | Catalog Number | $ Price ea. | Std. Pack ▲ |
|  32 mm (1.26 in.) wide | Lug/Lug Block<br>Solid or Stranded Copper Wire 0 AWG–350 kcmil | M10 bolt<br>Maximum Voltage—600 V<br>Maximum Current—230 A■ | Gray | AB1BB9535 | **21.30** | 10 | Gray | AB1CT1 | **2.40** | 50 |
|  42 mm (1.65 in.) wide | Lug/Lug Block<br>Solid or Stranded Copper Wire 0 AWG– 400 kcmil | M12 bolt<br>Maximum Voltage—600 V<br>Maximum Current—375 A■ | Gray | AB1BB18535 | **27.30** | 10 | Gray | AB1CT2 | **2.70** | 50 |
|  42 mm (1.65 in.) wide | Lug/Lug Block<br>Solid or Stranded Copper Wire 0 AWG–500 kcmil | M12 bolt<br>Maximum Voltage—600 V<br>Maximum Current—375 A■ | Gray | AB1BB24035 | **45.00** | 10 | Gray | AB1CT2 | **2.70** | 50 |
|  32 mm (1.26 in.) wide | Lug/Clamp Block<br>Solid or Stranded Copper Wire 0 AWG–350 kcmil | M10 bolt<br>Maximum Voltage—600 V<br>Maximum Current—230 A■ | Gray | AB1BC9535 | **31.10** | 10 | Gray | AB1CT1 | **2.40** | 50 |
|  42 mm (1.65 in.) wide | Lug/Clamp Block<br>Solid or Stranded Copper Wire 0 AWG–400 kcmil | M12 bolt<br>Maximum Voltage—600 V<br>Maximum Current—325 A■ | Gray | AB1BC15035 | **62.00** | 10 | Gray | AB1CT2 | **2.70** | 50 |
|  42 mm (1.65 in.) wide | Lug/Clamp Block<br>Solid or Stranded Copper Wire 0 AWG–500 kcmil | M12 bolt<br>Maximum Voltage—600 V<br>Maximum Current—375 A■ | Gray | AB1BC24035 | **86.00** | 10 | Gray | AB1CT2 | **2.70** | 50 |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used. The UL ratings are shown. The CSA rating may be higher or lower. Refer to the catalog for CSA ratings.

♦ One end-barrier is required for each assembly of like blocks.

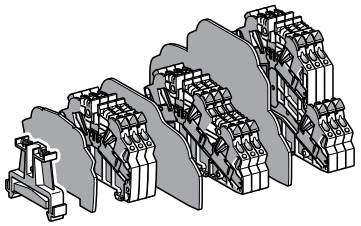
File CCN E164359 XCFR2 File Class 702070 6228 01 RoHS Compliant

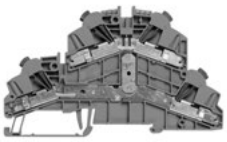
For track and accessories, see pages 24-11 and 24-12.



© 2012 Schneider Electric
All Rights Reserved

## Insulation Displacement Style Terminal Blocks and Accessories





5 mm (0.20 in.) wide
AB1AA135U4●●

- Insert wires without stripping
- Available for wire sizes 30-14 AWG
- DIN 3 rail mounting
- Finger safe connections

### Table 24.12: Insulation Displacement, AB1AA

| Description | Maximum Voltage | Maximum Current■ | Wire Size | Block | | | | | End Barrier♦ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No. of Poles | Color | Catalog Number | $ Price ea. | Std. Pack▲ | Color | Catalog Number | $ Price ea. | Std. Pack▲ |
| Insulation Displacement Connector: Passthrough Block Solid or Stranded Copper Wire | 600 V | 13 A | 30–18 AWG | 2 | Gray | AB1AA135U2GR | **1.80** | 100 | Gray | AB1AAAC122GR | **.62** | 10 |
| | | | | | Blue | AB1AA135U2BL | **1.80** | 100 | Blue | AB1AAAC122BL | **.62** | 10 |
| | 600 V | 13 A | 18–14 AWG | 2 | Gray | AB1AA235U2GR | **2.00** | 100 | Gray | AB1AAAC122GR | **.62** | 10 |
| | | | | | Blue | AB1AA235U2BL | **2.00** | 100 | Blue | AB1AAAC122BL | **.62** | 10 |
| | 600 V | 10 A | 30–18 AWG | 3 | Gray | AB1AA135U3GR | **2.90** | 50 | Gray | AB1AAAC123GR | **.78** | 10 |
| | | | | | Blue | AB1AA135U3BL | **2.90** | 50 | Blue | AB1AAAC123BL | **.78** | 10 |
| | 600 V | 10 A | 18–14 AWG | 3 | Gray | AB1AA235U3GR | **3.00** | 50 | Gray | AB1AAAC123GR | **.78** | 10 |
| | | | | | Blue | AB1AA235U3BL | **3.00** | 50 | Blue | AB1AAAC123BL | **.78** | 10 |
| | 600 V | 10 A | 30–18 AWG | 4 | Gray | AB1AA135U4GR | **5.90** | 50 | Gray | AB1AAAC124GR | **.93** | 10 |
| | | | | | Blue | AB1AA135U4BL | **5.90** | 50 | Blue | AB1AAAC124BL | **.93** | 10 |
| 5 mm (0.20 in.) wide AB1AA135U2●● | 600 V | 10 A | 18–14 AWG | 4 | Gray | AB1AA235U4GR | **6.00** | 100 | Gray | AB1AAAC124GR | **.93** | 10 |
| | | | | | Blue | AB1AA235U4BL | **6.00** | 100 | Blue | AB1AAAC124BL | **.93** | 10 |
| Insulation Displacement Connector: Grounding Block | 600 V | 13 A | 30–18 AWG | 2 | Green/ Yellow | AB1AATP135U2 | **5.90** | 100 | Green/ Yellow | AB1AAAC122VE | **.62** | 10 |
| | | | | | | | | | | | | 10 |
| | 600 V | 13 A | 18–14 AWG | 2 | Green/ Yellow | AB1AATP235U2 | **6.20** | 100 | Green/ Yellow | AB1AAAC122VE | **.62** | 10 |
| | | | | | | | | | | | | 10 |
| | 600 V | 13 A | 30–18 AWG | 2 | Green/ Yellow | AB1AATP135U3 | **8.10** | 100 | Green/ Yellow | AB1AAAC123VE | **.78** | 10 |
| | 600 V | 10 A | 18–14 AWG | 3 | Green/ Yellow | AB1AATP235U3 | **8.10** | 50 | Green/ Yellow | AB1AAAC123VE | **.78** | 10 |
| | 600 V | 10 A | 30–18 AWG | 4 | Green/ Yellow | AB1AATP135U4 | **13.70** | 50 | Green/ Yellow | AB1AAAC124VE | **.93** | 10 |
| 5 mm (0.20 in.) wide AB1AATP135U3 | 600 V | 10 A | 18–14 AWG | 4 | Green/ Yellow | AB1AATP235U4 | **14.00** | 50 | Green/ Yellow | AB1AAAC124VE | **.93** | 10 |
| Two Tier Block | 600 V | 13 A | 30–18 AWG | 2 | Gray | AB1AAET135UGR | **4.80** | 50 | Gray | AB1AAAC124GR | **.93** | 10 |
| | 600 V | 22 A | 18–14 AWG | 2/2 | Gray | AB1AAET235UGR | **5.10** | 50 | Gray | AB1AAAC124GR | **.93** | 10 |
| | | | | 2/2 | Red | AB1AAET235URO | **5.10** | 50 | Red | AB1AAAC124GR | **.93** | 10 |
| | | | | 2/2 | Orange | AB1AAET235UGE | **5.10** | 50 | Orange | AB1AAAC124GR | **.93** | 10 |
| | | | | 4 | Red | AB1AAET235UBRO | **15.60** | 50 | Red | AB1AAAC124GR | **.93** | 10 |
| 6 mm (0.24 in.) wide AB1AAET235●● | | | | 4 | Orange | AB1AAET235UBGE | **15.60** | 50 | Orange | AB1AAAC124GR | **.93** | 10 |
| Fuse Block | 600 V | 6.3 A | 30–18 AWG | 2 | Gray | AB1AASF135UGR | **5.00** | 50 | Gray | AB1AAAC123GR | **.78** | 10 |
| 6 mm (0.24 in.) wide AB1AASF135U●● | 600 V | 6.3 A | 18–14 AWG | 2 | Gray | AB1AASF235UGR | **5.30** | 50 | Gray | AB1AAAC123GR | **.78** | 10 |
| Disconnect Block | 600 V | 10 A | 18–14 AWG | 2 | Gray | AB1AASC235UGR | **6.00** | 50 | Gray | AB1AAAC123GR | **.78** | 10 |
| | | | | | Blue | AB1AASC235UBL | **6.00** | 50 | Blue | AB1AAAC123BL | **.78** | 10 |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of the wire which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the size, insulation class, and other characteristics of the wire used.

♦ One end-barrier is required for each assembly of like blocks.

File CCN E164359 XCFR2 File Class 702070 6228 01 RoHS Compliant

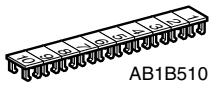
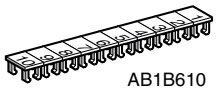
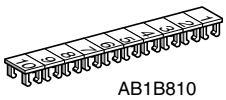
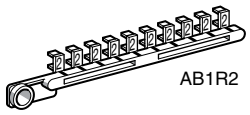
For track and accessories, see pages 24-11 and 24-12.



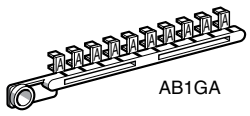
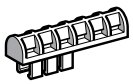
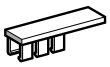
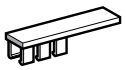
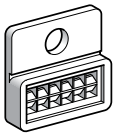
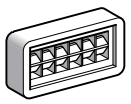


© 2012 Schneider Electric
All Rights Reserved

**Table 24.13: Markers, AB1**

| | Marking | Catalog Number | $ Price ea. | Std. Pack ▲ |
|---|---|---|---|---|
|  AB1B510<br>Black number on white background 5 mm (0.20 in.) wide | Blank | AB1BV5 | **0.78** | 25 |
| | 1–10 | AB1B510 | | |
| | 11–20 | AB1B520 | | |
| | 21–30 | AB1B530 | | |
| | 31–40 | AB1B540 | | |
| | 41–50 | AB1B550 | | |
| | 51–60 | AB1B560 | | |
| | 61–70 | AB1B570 | | |
| | 71–80 | AB1B580 | | |
| | 81–90 | AB1B590 | | |
| | 91–100 | AB1B5100 | | |
|  AB1B610<br>Black number on white background 6 mm (0.24 in.) wide | Blank | AB1BV6 | **0.78** | 25 |
| | 1–10 | AB1B610 | | |
| | 11–20 | AB1B620 | | |
| | 21–30 | AB1B630 | | |
| | 31–40 | AB1B640 | | |
| | 41–50 | AB1B650 | | |
| | 51–60 | AB1B660 | | |
| | 61–70 | AB1B670 | | |
| | 71–80 | AB1B680 | | |
| | 81–90 | AB1B690 | | |
| | 91–100 | AB1B6100 | | |
| | L1 | AB1B6L1 | | |
| | L2 | AB1B6L2 | | |
| | L3 | AB1B6L3 | | |
| | + (Red) | AB1BV6RP | | |
| | – (Blue) | AB1BV6BM | | |
|  AB1B810<br>Black number on white background 8 mm (0.31 in.) wide | Blank | AB1BV8 | **0.78** | 25 |
| | 1–10 | AB1B810 | | |
| | 11–20 | AB1B820 | | |
| | 21–30 | AB1B830 | | |
| | 31–40 | AB1B840 | | |
| | 41–50 | AB1B850 | | |
| | 51–60 | AB1B860 | | |
| | 61–70 | AB1B870 | | |
| | 71–80 | AB1B880 | | |
| | 81–90 | AB1B890 | | |
| | 91–100 | AB1B8100 | | |
|  AB1R2<br>Black number or symbol on white background | Blank | AB1RV | **0.78** | 25 |
| | 1 | AB1R1 | | |
| | 2 | AB1R2 | | |
| | 3 | AB1R3 | | |
| | 4 | AB1R4 | | |
| | 5 | AB1R5 | | |
| | 6 | AB1R6 | | |
| | 7 | AB1R7 | | |
| | 8 | AB1R8 | | |
| | 9 | AB1R9 | | |
| | 0 | AB1R0 | | |
| | 0–9 | AB1R11 | | |
| | + | AB1R12 | | |
| | – | AB1R13 | | |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

| | Marking | Catalog Number | $ Price ea. | Std. Pack ▲ |
|---|---|---|---|---|
|  AB1GA<br>Black capital letters on white background | A | AB1GA | **0.78** | 25 |
| | B | AB1GB | | |
| | C | AB1GC | | |
| | D | AB1GD | | |
| | E | AB1GE | | |
| | F | AB1GF | | |
| | G | AB1GG | | |
| | H | AB1GH | | |
| | I | AB1GI | | |
| | J | AB1GJ | | |
| | K | AB1GK | | |
| | L | AB1GL | | |
| | M | AB1GM | | |
| | N | AB1GN | | |
| | O | AB1GO | | |
| | P | AB1GP | | |
| | Q | AB1GQ | | |
| | R | AB1GR | | |
| | S | AB1GS | | |
| | T | AB1GT | | |
| | U | AB1GU | | |
| | V | AB1GV | | |
| | W | AB1GW | | |
| | X | AB1GX | | |
| | Y | AB1GY | | |
| | Z | AB1GZ | | |
|  | | AB1SR6 | **0.78** | 200 |
|  | | AB1SA1 | **0.18** | 500 |
|  | | AB1SA2 | **0.39** | 500 |
|  | | AB1SA3 | **0.78** | 500 |
|  | | AB1RT | **0.78** | 500 |
|  | | AR1SB2 | **1.50** | 100 |
|  | | AR1SB3 | **1.35** | 50 |

RoHS Compliant



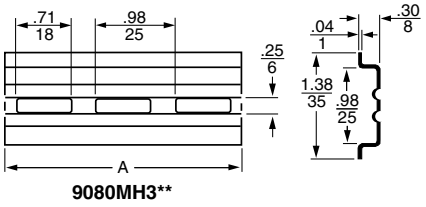
© 2012 Schneider Electric
All Rights Reserved

## Table 24.14: DIN 3 Track – Various Lengths

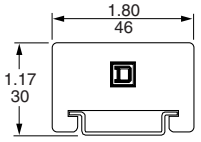
| Description | | Length m (in.) | Class 9080 Type | $ Price ea. | Std. ▲ Pack |
|---|---|---|---|---|---|
| Symmetrical rail 35 x 7.5 mm (1.38 in. x 0.295 in.) in compliance with EN 50022 standard (DIN 46277-3). | Galvanized steel, no mounting holes | 0.08 (3) | MH203 | **3.20** | 10 |
| | | 0.10 (4) | MH204 | **3.60** | |
| | | 0.13 (5) | MH205 | **4.10** | |
| | | 0.15 (6) | MH206 | **4.70** | |
| | | 0.18 (7) | MH207 | **5.10** | |
| | | 0.20 (8) | MH208 | **5.60** | |
| | | 0.23 (9) | MH209 | **6.20** | |
| | | 0.25 (10) | MH210 | **6.80** | |
| | | 0.28 (11) | MH211 | **7.20** | |
| | | 0.30 (12) | MH212 | **7.80** | |
| | | 0.33 (13) | MH213 | **8.30** | |
| | | 0.36 (14) | MH214 | **8.70** | |
| | | 0.38 (15) | MH215 | **9.30** | |
| | | 0.41 (16) | MH216 | **9.80** | |
| | | 0.42 (17) | MH217 | **10.20** | |
| | | 0.46 (18) | MH218 | **10.80** | |
| | | 0.50 (19.68) | MH220 | **11.60** | |
| | | 1 (39.37) | MH239 | **19.70** | |
| | | 2 (78.74) | MH279 | **29.60** | |
| | Galvanized steel, prepunched | 0.08 (3) | MH303 | **3.50** | |
| | | 0.10 (4) | MH304 | **3.90** | |
| | | 0.13 (5 in. | MH305 | **4.70** | |
| | | 0.15 (6) | MH306 | **5.10** | |
| | | 0.18 (7) | MH307 | **5.70** | |
| | | 0.20 (8) | MH308 | **6.20** | |
| | | 0.23 (9) | MH309 | **6.90** | |
| | | 0.25 (10) | MH310 | **7.40** | |
| | | 0.28 (11) | MH311 | **8.10** | |
| | | 0.30 (12) | MH312 | **8.60** | |
| | | 0.33 (13) | MH313 | **9.20** | |
| | | 0.36 (14) | MH314 | **9.60** | |
| | | 0.38 (15) | MH315 | **10.20** | |
| | | 0.41 (16) | MH316 | **10.80** | |
| | | 0.42 (17) | MH317 | **11.60** | |
| | | 0.46 (18) | MH318 | **12.00** | |
| | | 0.50 (19.68) | MH320 | **13.10** | |
| | | 1 (39.37) | MH339 | **23.00** | |
| | | 2 (78.74) | MH379 | **32.70** | |
| High rise track | Aluminum | 1 (39.37) | MH439 | **27.90** | 2 |

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

### Dimensions




**9080MH3****




**9080MHA10**

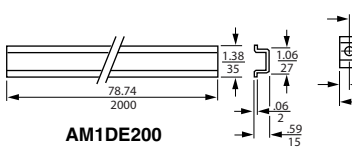
| Angle bracket kit | | Catalog Number | $ Price ea. | Std. ▲ Pack |
|---|---|---|---|---|
| For mounting 9080GH or MH track to a panel at 45° angle. Includes 2 brackets and hardware for mounting the track to the brackets. |  | 9080MH82♦ | **7.20** | 1 |
| **End Clamps** | | | | |
| Plastic end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide |  | AB1AB8P35 | **1.50** | 100 |
| Metal end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide |  | AB1AB8M35 | **2.40** | 100 |
| Polycarbonate end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide |  | 9080MHA10 | **2.40** | 50 |

■ Not RoHS Compliant

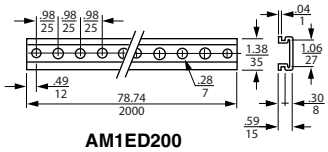
## Table 24.15: Mounting Track 1 or 2 meter length

| Description | Length m (in.) | Catalog Number | $ Price ea. | Std. ▲ Pack |
|---|---|---|---|---|
| **DIN 3** | | | | |
| 15 mm depth, 1 mm steel, zinc chromated  | 2 (78.74) | AM1ED200 | **14.70** | 10 |
| 15 mm depth, 1.5 mm steel, zinc chromated  | 2 (78.74) | AM1DE200 | **21.80** | 10 |
| 7.5 mm depth, 1 mm steel, zinc chromated EN 50022 & NF C63-015  | 2 (78.74) | AM1DP200 | **7.80** | 10 |
| **DIN 1** | | | | |
| Asymmetrical 32 mm track EN 50035 & NF C63-018  15 mm steel, zinc chromated | 2 (78.74) | DZ5MB201 | **23.20** | 10 |
| **DIN 2** | | | | |
| Symmetrical 15 mm track EN 50045  | 1 (39.37) | AB1PC15 | **7.50** | 10 |

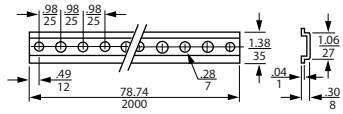
### Dimensions



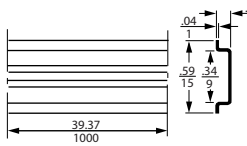

**AM1DE200**



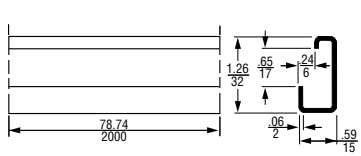

**AM1ED200**




**AM1DP200**




**AB1PC15**




**DZ5MB201**

| End Clamps | | Catalog Number | $ Price ea. | Std. ▲ Pack |
|---|---|---|---|---|
| Plastic end clamp for 32 mm DIN 1 track, 7.5 mm (0.30 in.) wide |  | AB1AB7P32 | **2.60** | 100 |
| Metal end clamp for 32 mm DIN 1 track, 7.5 mm (0.30 in.) wide |  | AB1AB10M32 | **2.60** | 100 |
| Plastic end clamp for 15 mm DIN 2 track, 7.5 mm (0.30 in.) wide |  | AB1AB715 | **1.50** | 100 |

RoHS Compliant





© 2012 Schneider Electric
All Rights Reserved

## Table 24.16: Selection Guide

| Description | | Maximum Voltage | Maximum Current■ | Blocks | | | | End Barriers ♦ | | | Blocks per ft | Max. Wire Combinations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Color | Type | $ Price ea. | Std. Pack▲ | Type | $ Price ea. | Std. Pack▲ | | Copper Wire (stranded or solid) |
|  | Solderless Box Lug<br>for #22 to #8 AWG wire.<br><br>Mounts on standard 9080GH track or 35 mm DIN 3 track.<br>Fingersafe per DIN 57470. | 600 V | 60 A | Natural | GR6 | **2.40** | 50 | GM6B | **0.78** | 10 | 34 | 1 **#8** 1–4 **#16**<br>1 **#10** 1–5 **#18**<br>1–3 **#12** 1–8 **#20**<br>1–4 **#14** 1–10 **#22** |
| | | | | Black | GRB6 | | | GMB6B | | | | |
| | | | | Blue | GRL6 | | | GML6B | | | | |
| | | | | Green | GRG6 | | | GMG6B | | | | |
| | | | | Gray | GRE6 | | | GME6B | | | | |
| | | | | Orange | GRS6 | | | GMS6B | | | | |
| | | | | Red | GRR6 | | | GMR6B | | | | |
| | | | | Yellow | GRY6 | | | GMY6B | | | | |
| | | | | Brown | GRN6 | | | GMN6B | | | | |
|  | Similar to a 9080GR6 except with a 9080GH91 banana test plug adapter installed.<br>Fingersafe per DIN 57470. | 600 V | 60 A | Natural | GR6T | **2.90** | 50 | GM6B | **0.78** | 10 | | |
|  | Solderless Box Lug<br>for #22 to #10 AWG wire.<br><br>Can be mounted directly to a panel or can be mounted on 9080GH track. | 600 V | 40 A | Natural | GK6 | **2.40** | 50 | GK6B | **0.93** | 50 | 34 | 1–4 **#16** 1–4 **#16**<br>1 **#10** 1–5 **#18**<br>1–2 **#12** 1–8 **#20**<br>1–2 **#14** 1–10 **#22** |
| | | | | Black | GKB6 | | | | | | | |
| | | | | Blue | GKL6 | | | | | | | |
| | | | | Green | GKG6 | | | | | | | |
| | | | | Gray | GKE6 | | | | | | | |
| | | | | Orange | GKS6 | | | | | | | |
| | | | | Red | GKR6 | | | | | | | |
| | | | | Yellow | GKY6 | | | | | | | |
|  | High Density<br>Solderless Box Lug<br>for #22 to #10 AWG wire.<br><br>Mounts on standard 9080GH track or 35 mm DIN 3 track.<br>Fingersafe per DIN 57470. | 600 V | 30 A | Natural | GM6 | **1.80** | 50 | GM6B | **0.78** | 10 | 51 | 1 **#10** 1–2 **#18**<br>1 **#12** 1–5 **#20**<br>1 **#14** 1–8 **#22**<br>1–2 **#16** 1–2 **#16** |
| | | | | Black | GMB6 | | | GMB6B | | | | |
| | | | | Blue | GML6 | | | GML6B | | | | |
| | | | | Green | GMG6 | | | GMG6B | | | | |
| | | | | Gray | GME6 | | | GME6B | | | | |
| | | | | Orange | GMS6 | | | GMS6B | | | | |
| | | | | Red | GMR6 | | | GMR6B | | | | |
| | | | | Yellow | GMY6 | | | GMY6B | | | | |
| | | | | Brown | GMN6 | | | GMN6B | | | | |
|  | Solderless Box Lug<br>for #18 to #4 AWG wire.<br><br>Mounts on standard 9080GH track or 35 mm DIN 3 track. | 600 V | 85 A | Natural | GC6 | **5.00** | 50 | GC6B | **1.30** | 10 | 28 | 1 **#4** 1–5 **#12**<br>1 **#6** 1–6 **#14**<br>1–2 **#8** 1–6 **#16**<br>1–4 **#10** 1–8 **#18** |
|  | Solderless Box Lug<br>for #12 to #1/0 AWG wire.<br><br>Mounts on standard 9080GH track or 35 mm DIN 3 track. | 600 V | 170 A | Natural | GD6 | **10.10** | 10 | GD6B | **1.70** | 10 | 17 | 1 **1/0** 1–3 **#6**<br>1 **#1** 1–5 **#8**<br>1 **#2** 1–6 **#10**<br>1–2 **#4** 1–7 **#12** |
|  | Solderless Box Lug<br>for #6 AWG to 250 kcmil wire. ★<br><br>Mounts on standard 9080GH track or 35 mm DIN 3 track. | 600 V | 255 A | Natural | GE6 | **27.00** | 10 | None Required | | | 10 | 1 **250 kcmil**★<br>1 **4/0** 1 **#1**<br>1 **3/0** 1 **#2**<br>1 **2/0** 1 **#4**<br>1 **1/0** 1 **#6** |

▲ Orders must specify standard package quantity or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating, and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of that wire or combination of wires (as listed in the above table) which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the number, size, insulation class, and other characteristics of the wires used. The lower of the UL and CSA ratings are shown.

♦ One end-barrier is required for each assembly of like blocks.

★ Terminals are tin plated, making them suitable for use with either copper or aluminum wire.

File CCN E60616 XCFR2 File Class 025490 3211 07 RoHS Compliant

For Standard or Custom Assemblies . . . . . page 24-15
For Mounting Track and Accessories . . . . . page 24-16
For DIN 3 track and end clamps . . . . . page 24-12



© 2012 Schneider Electric
All Rights Reserved

## Table 24.17: Selection Guide

| Description | | Maximum Voltage | Maximum Current■ | Blocks | | | End Barriers♦ | | | Blocks per ft | Max. Wire Combinations |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Type | $ Price ea. | Std. Pack▲ | Type | $ Price ea. | Std. Pack▲ | | Copper Wire (stranded or solid) |
|  | Self-Lifting Pressure Wire Connector for #18 to #12 AWG wire. Mounts on standard 9080GH track or 35 mm DIN 3 track. CE | 600 V | 40 A | GP6 | **2.60** | 50 | GP6B | **1.00** | 10 | 32 | 1 or 2 **#12**<br>1 or 2 **#14**<br>1 or 2 **#16**<br>1 or 2 **#18** |
|  | Flat Terminal Connector for #22 to #12 AWG wire. Screws are #6-32 x 5/16 in. for ring or spade lugs, 5/16 in. wide maximum. Mounts on standard 9080GH track or 35 mm DIN 3 track. Fingersafe per DIN 57470. CE | 600 V | 40 A | GA6 | **1.80** | 50 | GP6B | **1.00** | 10 | 32 | 1 or 2 Conductors Per Screw **#12–22** |
|  | Circuit Isolating Switch★ with self-lifting pressure connectors for #18 to #10 AWG wire. Mounts on standard 9080GH track or 35 mm DIN 3 track. CE | 600 V | 30 A | GG6 | **18.00** | 10 | GF6B | **4.80** | 10 | 16 | 1 **#10**<br>1 **#12**<br>1 **#14**<br>1–4 **#16**<br>1–4 **#18** |
|  | Slip-on Connectors for #22 to #12 AWG wire. Tabs accept 0.250 x 0.032 in. slip-on connectors Mounts on standard 9080GH track or 35 mm DIN 3 track. CE | 600 V | 20 A | GS6 | **4.80** | 10 | GF6B | **4.80** | 10 | 16 | 1–2 **#12**<br>1–2 **#14**<br>1–2 **#16**<br>1–2 **#18**<br>1–2 **#20**<br>1–2 **#22** |
|  | Transient Voltage Suppressors△ with box lug connectors for #18 to #10 AWG wire. Mounts on standard 9080GH track or 35 mm DIN 3 track. CE | 120 V | — | GT6 | **20.70** | 5 | GT6B | **1.70** | 10 | 24 | 1 **#10**<br>1 **#12**<br>1 **#14**<br>1–2 **#16**<br>1–4 **#18** |
|  | Fuse Block for 13/32 in. Dia. x 1-1½ in. ferrule fuse with self-lifting pressure connectors. Fuse puller is included as standard. Fuses are not included. Mounts on standard 9080GH track or 35 mm DIN 3 track. Fingersafe per DIN 57470. CE | 600 V | 30 A | GF6 | **11.70** | 10 | GF6B | **4.80** | 10 | 16 | 1 **#10**<br>1 **#12**<br>1 **#14**<br>1–4 **#16**<br>1–4 **#18** |
| | Fuse Puller▼ | — | — | GH63 | **2.40** | 50 | N/A | | | N/A | N/A |
|  | Blown Fuse Indicator/ Pullers are neon pilot lights which plug on to the fuse in a standard Type GF6 fuse block. | 120–240 V | — | GLP3 | **11.90** | 10 | N/A | | | N/A | N/A |
| | | 277–600 V | — | GLP6 | **11.90** | 10 | N/A | | | | |

▲ Orders must specify the standard package quantity or multiples of that quantity.

■ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating, and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of that wire or combination of wires (as listed in the above table) which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the number, size, insulation class, and other characteristics of the wires used. The lower of the UL and CSA ratings are shown below.

♦ One end-barrier is required for each assembly of like sections.

★ Not intended to make or break a live circuit. Power must be disconnected from the circuit before operation of the switch.

▼ Fuse puller is supplied as standard with Class 9080 Type GF6 fuse block. The 9080GH63 is a replacement fuse puller.

△ Modules have RC circuitry for suppressing transient voltage, generated when opening a coil circuit, to approximately 200% of the peak line voltage, when used with 120 V coils. Type GT6 is suitable for use with Square D Class 8501 Type X, K, R and C relays or Square D Type S starters and contactors, Sizes 00-2.

**Terminal Blocks**

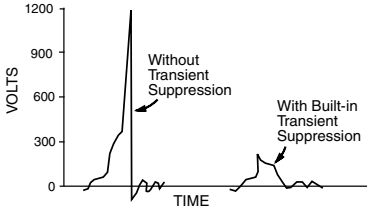
| | | |
|---|---|---|
| | File CCN | E60616 XCFR2 |
| | File Class | 025490 3211 07 |

RoHS Compliant

**Blown Fuse Indicator**

| | | |
|---|---|---|
| | File CCN | E63698 JDV5 |
| | File Class | 025490 3211 07 |

RoHS Compliant




## Table 24.18: How to Order

| To Order Specify | Catalog Number | |
|---|---|---|
| | Class | Type |
| • Class Number<br>• Type Number | 9080 | GP6 |

For Standard or Custom Assemblies page 24-15
For Mounting Track and Accessories page 24-16
For DIN 3 track and end clamps page 24-12





© 2012 Schneider Electric
All Rights Reserved

## Standard Terminal Block Assemblies

The assemblies listed in the table below consist of 6 ft (two 3 ft lengths packaged together) of terminal blocks. The terminal blocks are mounted on snap-off mounting track, which can be easily broken every 5/16 in. Every tenth terminal block is marked to aid in counting off the proper number of terminal blocks. After adding the proper end barrier and a slip-in end clamp to the blocks that were broken off, the custom assembly is ready for installation.

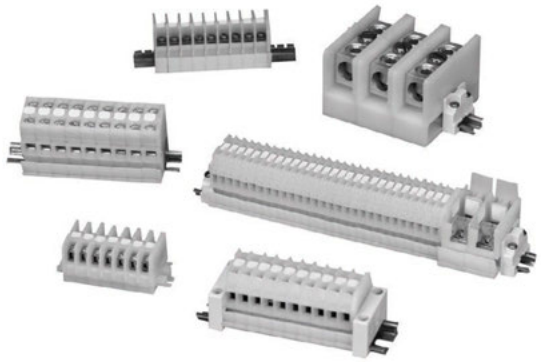


**Table 24.19: Standard Terminal Block Assemblies**

| Description | Type | $ Price |
|---|---|---|
| Assembly of 188 Type GA6 | GA6188BC | **530.00** |
| Assembly of 204 Type GR6 | GR6204BC | **674.00** |
| Assembly of 94 Type GF6 | GF694BC | **1311.00** |
| Assembly of 296 Type GM6 | GM6296BC | **830.00** |
| Assembly of 188 Type GP6 | GP6188BC | **653.00** |

## Custom Terminal Block Assemblies

Order an assembly built as required for the application. As standard, custom assemblies use 9080GH mounting track with screw on end clamps. Other options are available from the table below.

**One terminal block type:** The number of blocks in the assembly is added to the end of the catalog number of the desired block. Example: an assembly of **25** 9080GR6 blocks would be **9080GR625**.

**More than one terminal block type in an assembly:** A detailed drawing or sketch of the desired assembly must accompany the order.

**Table 24.20: Custom Assembly Pricing**

| Block Type | $ Price Per Block/Terminal | Block Type | $ Price Per Block/Terminal |
|---|---|---|---|
| GA6 | **2.80** | GK6 channel mounted | **3.30** |
| GC6 | **6.10** | GK6 direct mounted | **2.70** |
| GCB01–15 | **68.00** | GM6 | **2.90** |
| GCB20–150 | **84.00** | GP6 | **3.50** |
| GD6 | **12.20** | GR6 | **3.30** |
| GE6 | **31.80** | GR6T | **3.80** |
| GF6 | **14.00** | GS6 | **3.80** |
| GG6 | **14.60** | Blank vinyl marking strip | **0.05** |
| | | Pre-numbered (1-25 only) | **0.24** |

**Table 24.21: Custom Terminal Block Assemblies**

| Option | Suffix | Example |
|---|---|---|
| Substitute slip-in end clamps | **C** | 9080GR625C |
| Substitute snap-off channel | **B** | 9080GR625BC ▲ |
| For direct mount assembly of 9080GK6 blocks | **D** | 9080GK67D |
| Add a blank vinyl marking strip | **M** | 9080GR625M |
| Add pre-marked (1–25 only) marking strip | **MPO** | 9080GR625MPO |
| Mount on 35 mm DIN 3 track instead of 9080GH track | **T** | 9080GR625T |

▲ The 9080GH10 screw-on end clamp is **not** recommended for use with snap-off channel. It is recommended that the 9080GH11 slip-in end clamp be used. Therefore, when the suffix **B** is used, it should be followed by the suffix **C**.

| | | |
|---|---|---|
| Price per block from Table 24.20 | | |
| Number of blocks in the assembly x | | |
| Subtotal (multiply # of blocks by price of blocks) | | |
| Initial Charge for factory assemblies | | |
| All except 9080GK6 direct mount **($7.00)** | | |
| OR for 9080GK6 direct mount **($3.60)** | | |
| Vinyl Marking Strips | | |
| Adder for Suffix **M—$0.05** per block | | |
| OR adder for Suffix **MPO—$0.24** per block | | |
| Deduct for Suffix **C—$2.40** | | |
| Total everything from Subtotal down | | |
| Apply the following rounding rules to the total obtained: | | |
| **$1.00** through **$50.00** | | Round to the nearest dime |
| over **$50.00** | | Round to the nearest dollar |

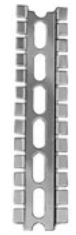
**Table 24.22: How to Order**

| To Order Specify | Catalog Number | |
|---|---|---|
| | **Class** | **Type** |
| • Class Number<br>• Type Number | 9080 | GA612 |



© 2012 Schneider Electric
All Rights Reserved

### Table 24.23: 3/4 in. Mounting Track

| | Style | Length (in.) | Type | $ Price ea. | Std. Pack▲ |
|---|---|---|---|---|---|
|  Snap-Off Track  Standard Track | Standard Track | 3 | GH103 | **2.40** | 5 |
| | | 4 | GH104 | **2.40** | 5 |
| | | 5 | GH105 | **2.60** | 5 |
| | | 6 | GH106 | **2.60** | 5 |
| | | 7 | GH107 | **2.60** | 5 |
| | | 8 | GH108 | **3.00** | 5 |
| | | 9 | GH109 | **3.00** | 5 |
| | | 10 | GH110 | **3.30** | 5 |
| | | 11 | GH111 | **3.30** | 5 |
| | | 12 | GH112 | **3.50** | 5 |
| | | 13 | GH113 | **3.50** | 5 |
| | | 14 | GH114 | **3.80** | 5 |
| | | 15 | GH115 | **3.90** | 5 |
| | | 16 | GH116 | **4.20** | 5 |
| | | 17 | GH117 | **4.40** | 5 |
| | | 18 | GH118 | **4.80** | 5 |
| | | 36 | GH136 | **11.70** | 5 |
| | | 48 | GH148 | **15.20** | 5 |
| | | 72 | GH172 | **22.70** | 5 |
|  High Rise | Snap-Off Track | 36 | GH236 | **11.70** | 20 |
| | | 48 | GH248 | **15.20** | 20 |
| | | 72 | GH272 | **22.70** | 20 |
| | High Rise | 36 | GH336 | **29.00** | 2 |

Note: For additional track and appropriate end clamps, see page 24-12.

### Table 24.24: Accessories

| Description | | Type | $ Price ea. | Std. Pack▲ |
|---|---|---|---|---|
| **End Clamps** | | | | |
|  | Screw-on End Clamp (Not recommended for use on snap-off mounting track) | GH10 | **2.40** | 50 |
|  | Slip-in End Clamp (Not for use with 9080 GE6, GK6 blocks) | GH11 | **.63** | 50 |
| **Jumpers** | | | | |
|  | 2-pole jumper for GM6 | GH700 | **.59** | 20 |
| | 6-pole jumper for GM6 | GH710 | **1.20** | 10 |
| | 2-pole jumper for GK6, GR6 | GH72 | **.62** | 20 |
| | 6-pole jumper for GK6, GR6 | GH73 | **1.80** | 10 |
| | 2-pole jumper for GC6 | GH74 | **2.30** | 10 |
| | 6-pole jumper for GC6 | GH75 | **4.30** | 10 |
| | 2-pole jumper for GD6 | GH76 | **3.20** | 10 |
| | 6-pole jumper for GD6 | GH77 | **8.70** | 10 |
| | 2-pole jumper for GA6, GP6 | GH78 | **1.20** | 10 |
| | 6-pole jumper for GA6, GP6 | GH79 | **2.00** | 10 |
| **Fanning Strip** | | | | |
|  | Snap-together fanning strip section for GA6 blocks | GH51 | **3.00** | 10 |
|  | Snap-together fanning strip section for GK6, GR6 blocks | GH52 | **3.30** | 10 |

▲ Orders must specify the standard package quantity or multiples of that quantity.

### Table 24.25: Marking and Additional Accessories

| Description | | Type | $ Price ea. | Std. Pack▲ |
|---|---|---|---|---|
|  | 25 ft blank vinyl marking strip | GH220 | **11.90** | 1 |
|  Vinyl marking strip numbered 1-25 | For GK6, GR6 | GH21 | **4.40** | 5 |
| | For GA6, GP6 | GH22 | **4.40** | 5 |
| | For GM6 | GH230 | **4.40** | 5 |
|  | Blank pin-feed marking tabs—6 x 20 (total 120) marking tabs for GD6, GR6, and GT6 blocks | GH200 | **1.70** | 20 |
|  | Pre-marked 01 to 50 (2 sets) plus 20 Various marking tabs (total 120 marking tabs) for GD6, GR6, and GT6 blocks | GH210 | **13.10** | 5 |
|  | Marking pen with permanent, fine line black ink | GH40 | **8.00** | 12 |
|  | Marking strip end plug for GK6, GR6, GM6, GA6, GP6, GC6, GD6, GE6, and GT6 blocks | GH60 | **.39** | 50 |
|  | Transition barrier between GK6 and all other G or K blocks | GH61 | **.98** | 50 |
|  | Cover for GR6 or GR6T blocks | GH62 | **.98** | 50 |
|  | Banana test plug for GR6T block | GH90 | **7.40** | 10 |
|  | Test plug adapter for GR6T block (included as standard with GR6T) | GH91 | **1.20** | 50 |
|  | Angle bracket kit—for mounting 9080GH or MH track to panel at 45° angle. Includes 2 brackets and hardware for mounting the track to the brackets | MH82 | **7.20** | 1 |
|  | Polycarbonate end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide | MHA10 | **2.40** | 50 |

### Table 24.26: How to Order

| To Order Specify | Catalog Number | |
|---|---|---|
| | **Class** | **Type** |
| • Class Number | 9080 | GH10 |
| • Type Number | | |



© 2012 Schneider Electric
All Rights Reserved



GCB100

### Table 24.27: 9080GCB Thermal-Magnetic Circuit Protectors■

| Maximum Current (A) | Internal Resistance ¾ | Maximum Voltage | Catalog Number▲ | $ Price |
|---|---|---|---|---|
| 0.1 | 133 | 250 Vac 65 Vdc | GCB01 | 66.00 |
| 0.5 | 6.6 | | GCB05 | |
| 0.8 | 2.55 | | GCB08 | |
| 1.0 | 1.97 | | GCB10 | |
| 1.2 | 1.22 | | GCB12 | |
| 1.5 | 0.86 | | GCB15 | |
| 2.0 | 0.49 | | GCB20 | 72.00 |
| 2.5 | 0.31 | | GCB25 | |
| 3.0 | 0.20 | | GCB30 | |
| 4.0 | 0.10 | | GCB40 | |
| 5.0 | 0.08 | | GCB50 | |
| 7.0 | 0.03 | | GCB70 | |
| 10.0 | <0.02 | 125 Vac 65 Vdc | GCB100 | |
| 15.0 | <0.02 | | GCB150 | |

▲ These maximum current values assume the use of insulated copper conductors with 75°C temperature rating, and are calculated based on NEC Article 310, Table 310-16. In most cases this value is the maximum ampacity of that wire or combination of wires (as listed in the above table) which has the greatest current carrying capacity. The actual allowable current for a particular application depends on the number, size, insulation class, and other characteristics of the wires used.

■ Discount schedule CP5.

## Selection

**To properly select a Class 9080 Type GCB circuit protector, follow these steps:**

1. Determine the inrush correction factor from Table 24.28.
2. Determine the temperature correction factor from Table 24.29.
3. Determine the sealed current of the load that is being protected.
4. Multiply the sealed current by the two correction factors and choose the closest circuit protector.

Note: Choosing a circuit protector with a value lower than the calculated value might cause nuisance tripping, while choosing the larger might provide a protector that will not properly protect the load.

File E152841
CCN QVNU2
(UL1077)

File 025490
Class 3211 07

**Example:** Solenoid with sealed current of 0.75 A, an inrush ratio of 1:6, and in an ambient temperature of 85°F: 0.75 x 1.5 x 1.05 = 1.18 Choose the 1.2 A protector

**Tripping Time:** Tripping time of the circuit protector is determined from Table 24.30. Divide the circuit protector value by the temperature correction factor from Table 24.29 to determine actual rated current referenced in Table 24.30.

### Table 24.28: Table A—Inrush Ratio Correction Table

**Note:** For resistive loads, use inrush correction factor of 1.0.

| **Inrush Ratio** | 1:1 to 1:4 | 1:5 | 1:6 | 1:7 | 1:8 |
|---|---|---|---|---|---|
| **Factor** | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 |

### Table 24.29: Table B—Ambient Temperature Correction Table

| **Ambient Temperature** | 70°F (21.1°C) | 100°F (37.8°C) | 120°F (48.9°C) | 140°F (60°C) | 160°F (71.1°C) | 180°F (82.2°C) | 200°F (93.3°C) |
|---|---|---|---|---|---|---|---|
| **Factor** | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 |

### Table 24.30: Table C—Tripping Times in Seconds at 70°F (21.1°C)

| **Percent rated current** | 100% | 200% | 300% | 400% | 500% | 600% | 1000% | 2000% and greater |
|---|---|---|---|---|---|---|---|---|
| **Tripping Time (s)** | no trip | 10–40 | 38 | 1.5–9 | 0.8–6 | 0.003–4 | 0.003–2 | Max. 0.02 |

Note: When several protectors are channel mounted adjacent to each other, the "no trip" current will be 80% of rated current at 70°F.

CP5 Discount Schedule

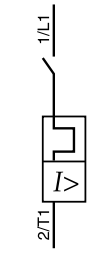
Schneider Electric
www.schneider-electric.us

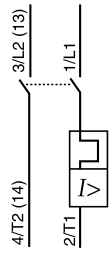
# Thermal-Magnetic Circuit Protectors

## Type GB2

www.schneider-electric.us

### Table 24.31: GB2 Thermal-Magnetic Circuit Protectors♦

| Description | Maximum Voltage | Thermal Rating | Catalog Number | $ Price ea.★ |
|---|---|---|---|---|
| One pole Thermal Magnetic Circuit Protector   | 300 Vac | 0.5 A | GB2CB05 | 43.60 |
| | | 1 A | GB2CB06 | |
| | | 2 A | GB2CB07 | |
| | | 3 A | GB2CB08 | |
| | | 4 A | GB2CB09 | |
| | | 5 A | GB2CB10 | |
| | | 6 A | GB2CB12 | |
| | | 8 A | GB2CB14 | |
| | | 10 A | GB2CB16 | |
| | | 12 A | GB2CB20 | |

| Description | Maximum Voltage | Thermal Rating | Catalog Number | $ Price ea.★ |
|---|---|---|---|---|
| Two pole Thermal Magnetic Circuit Protector   | 300 Vac | 0.5 A | GB2CD05 | 52.00 |
| | | 1 A | GB2CD06 | |
| | | 2 A | GB2CD07 | |
| | | 3 A | GB2CD08 | |
| | | 4 A | GB2CD09 | |
| | | 5 A | GB2CD10 | |
| | | 6 A | GB2CD12 | |
| | | 8 A | GB2CD14 | |
| | | 10 A | GB2CD16 | |
| | | 12 A | GB2CD20 | |

♦ Discount schedule I.

★ Must order in multiples of 6

Note: For markers, use AB1( )R and AB1( )G markers from page 24-16


GB2CB06


GB2CD

File Class 081630 3215 30

IEC 157-1
VDE 0660

File CCN E113720 QVNU2



© 2012 Schneider Electric
All Rights Reserved

I Discount Schedule



LBA365212

### Table 24.32: Standard Power Distribution Blocks

| Lug Wire Range ▲ | | Aluminum ■ | | | | | |
|---|---|---|---|---|---|---|---|
| Main | Branch | One Pole | | Two Pole | | Three Pole | |
| | | Type | $ Price | Type | $ Price | Type | $ Price |
| (1) #14–2/0 | (1) #14–2/0 | LBA162101 | **10.40** | LBA262101 | **22.10** | LBA362101 | **25.70** |
| (1) #6–350 kcmil | (1) #6–350 kcmil | LBA163101 | **53.00** | LBA263101 | **81.00** | LBA363101 | **107.00** |
| (1) #4–600 kcmil | (1) #4–600 kcmil | LBA164101 | **95.00** | N/A | — | LBA364101 | **183.00** |
| (2) #4–350 kcmil | (2) #4–350 kcmil | LBA165202 | **98.00** | LBA265202 | **147.00** | LBA365202 | **189.00** |
| (2) #6–500 kcmil | (2) #4–500 kcmil | LBA1652021 | **135.00** | LBA2652021 | **206.00** | LBA3652021 | **243.00** |
| (1) #14–2/0 | (4) #14–4 | LBA162104 | **30.50** | LBA262104 | **45.80** | LBA362104 | **68.00** |
| (1) #14–2/0 | (6) #14–4 | N/A | — | N/A | — | LBA362106 | **131.00** |
| (1) #6–400 kcmil | (4) #14–2 | LBA163104 | **56.00** | LBA263104 | **84.00** | LBA363104 | **113.00** |
| (1) #6–400 kcmil | (6) #14–2 | LBA163106 | **59.00** | LBA263106 | **89.00** | LBA363106 | **122.00** |
| (1) #6–400 kcmil | (8) #14–2 | LBA164108 | **77.00** | LBA264108 | **116.00** | LBA364108 | **161.00** |
| (1) #4–500 kcmil | (6) #14–2/0 | LBA165106 | **126.00** | LBA265106 | **189.00** | LBA365106 | **233.00** |
| (1) #4–500 kcmil | (12) #14–2 | LBA165112 | **134.00** | LBA265112 | **201.00** | LBA365112 | **261.00** |
| (2) #14–2/0 | (6) #14–4 | LBA163206 | **60.00** | LBA263206 | **90.00** | LBA363206 | **122.00** |
| (2) #6–500 kcmil | (8) #14–2/0 | LBA165208 | **126.00** | LBA265208 | **189.00** | LBA365208 | **251.00** |
| (2) #6–500 kcmil | (12) #14–4 | LBA165212 | **135.00** | LBA265212 | **206.00** | LBA365212 | **261.00** |



LBA161104

### Table 24.33: Miniature Power Distribution Blocks

| Lug Wire Range ▲ | | Aluminum ■ | | | | | |
|---|---|---|---|---|---|---|---|
| Main | Branch | One Pole | | Two Pole | | Three Pole | |
| | | Type | $ Price | Type | $ Price | Type | $ Price |
| (1) #14–2 | (1) #14–2 | LBA161101 | **13.40** | N/A | — | LBA361101 | **23.40** |
| (1) #14–2 | (4) #18–10 | LBA161104 | **26.40** | LBA261104 | **30.60** | LBA361104 | **58.00** |



LBC165212

### Table 24.34: Copper Power Distribution Blocks

| Lug Wire Range ▲ | | Copper ♦ | | | | | |
|---|---|---|---|---|---|---|---|
| Main | Branch | One Pole | | Two Pole | | Three Pole | |
| | | Type | $ Price | Type | $ Price | Type | $ Price |
| (1) #18–1/0 | (1) #18–1/0 | LBC162101 | **99.00** | N/A | — | LBC362101 | **201.00** |
| (1) #6–250 kcmil | (1) #6–250 kcmil | LBC163101 | **125.00** | N/A | — | LBC363101 | **233.00** |
| (1) #14–2/0 | (4) #14–4 | LBC162104 | **99.00** | LBC262104 | **147.00** | LBC362104 | **248.00** |
| (1) #4–500 kcmil | (6) #14–2 | LBC163106 | **153.00** | LBC263106 | **228.00** | LBC363106 | **354.00** |
| (2) #14–2/0 | (6) #14–4 | LBC163206 | **134.00** | LBC263206 | **201.00** | LBC363206 | **269.00** |
| (2) #4–500 kcmil | (8) #14–2/0 | LBC165208 | **297.00** | N/A | — | LBC365208 | **593.00** |
| (2) #6–500 kcmil | (12) #14–2 | LBC165212 | **284.00** | N/A | — | LBC365212 | **567.00** |

▲ Lugs suitable for use with 75°C conductors. (#) indicates number of conductors.
■ Aluminum blocks will accept either Al or Cu conductors.
♦ Cu blocks will accept copper conductors only.

Refer to catalog for dimensions.

**Certifications**

File Guide E60616 XCFR2

File Class 70361 6228-01

RoHS Compliant

CE Marked

### Table 24.35: Clear Plastic Covers (0.045 in. thick)

**Note:** There are no covers for miniature blocks.

| For LBA Type | Type | $ Price ea. ★ | Dim. A | Dim. B |
|---|---|---|---|---|
| LBA162…, LBC162 | LB21 | **11.30** | 1.062 | 2.750 |
| LBA262…, LBC262 | LB22 | **13.50** | 1.875 | 2.750 |
| LBA362…, LBC362 ▼ | LB23 | **15.80** | 2.688 | 2.750 |
| LBA163…, LBC163 | LB31 | **12.50** | 1.782 | 3.813 |
| LBA263…, LBC263 | LB32 | **14.70** | 3.313 | 3.813 |
| LBA363…. LBC363 | LB33 | **17.00** | 4.844 | 3.813 |
| LBA164… | LB41 | **13.50** | 2.125 | 4.563 |
| LBA264… | LB42 | **15.80** | 4.000 | 4.563 |
| LBA364… | LB43 | **18.00** | 5.875 | 4.563 |
| LBA165…, LBC165 | LB51 | **14.70** | 2.719 | 5.313 |
| LBA265…, LBC265 | LB52 | **17.00** | 5.656 | 5.313 |
| LBA365…, LBC365 | LB53 | **19.20** | 8.375 | 5.313 |

★ These covers must be ordered in multiples of 5. Each cover comes with two self-tapping screws.
▼ Will not work on a 9080LBA362106 block.

## Application Data

Voltage Rating—Class B & C—600 V
Blocks are rated based on NEC Table 310-16 using 75°C wire.

Aluminum blocks are tin plated high conductive aluminum.
Copper blocks are tin plated high conductive copper.

Housing material:

- Miniature Blocks are made from high impact thermoplastic rated at 125°C. max. & -40°C. min.
- Full Size Blocks are made from general purpose phenolic rated at 150°C. max. & -40°C. min.

All blocks have a flammability rating of UL 94V-0.

Most blocks have a short circuit current rating for UL508A up to 200 kA for branch circuit applications. For the actual ratings, see catalog **9080CT9603R9/08.**





© 2012 Schneider Electric
All Rights Reserved

### Table 24.36: 250 V—Classes H and R

| Rating (A) △ | No. of Poles | Class H | | Class R★ | | Lug Wire Range |
|---|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price | |
| 30▲ | 1 | FB1211 | 12.90 | FB1211R | 19.20 | #14–10 Cu |
| | 2 | FB2211 | 21.90 | FB2211R | 28.40 | |
| | 3 | FB3211 | 31.10 | FB3211R | 37.20 | |
| 60▲ | 1 | | | FB1221R | 28.40 | #14–2 Cu or Al |
| | 2 | FB2221 | 39.20 | FB2221R | 45.80 | |
| | 3 | FB3221 | 55.00 | FB3221R | 61.00 | |

### Table 24.37: 600 V—Classes H and R

| Rating (A) △ | No. of Poles | Class H | | Class R★ | | Lug Wire Range |
|---|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price | |
| 30■ | 1 | FB1611 | 24.30 | FB1611R | 30.60 | #14–10 Cu |
| | 2 | FB2611 | 42.60 | FB2611R | 48.50 | |
| | 3 | FB3611 | 54.00 | FB3611R | 60.00 | |
| 60■ | 1 | | | FB1621R▼ | 37.20 | #14–2 Cu or Al |
| | 2 | FB2621 | 51.00 | | | |
| | 3 | FB3621 | 54.00 | FB3621R | 78.00 | |
| 100■ | 3 | FB3631 | 147.00 | FB3631R | 158.00 | #6–2/0 Cu or Al |

### Table 24.38: 600 V Series—Miniature Fuse Dimension (13/32 x 1-1/2 in.)

| Rating (A) △ | No. of Poles | Type M | | Class CC★ | | Lug Wire Range |
|---|---|---|---|---|---|---|
| | | Type | $ Price | Type | $ Price | |
| 30▲ | 1 | FB1611M | 13.50 | FB1611CC | 13.50 | #14–10 Cu |
| | 2 | FB2611M | 19.80 | FB2611CC | 22.10 | |
| | 3 | FB3611M | 24.30 | FB3611CC | 24.80 | |

## Application Information:

Base material:

- ▲ Base is high impact thermoplastic—maximum operating temperature 125°C
- ■ Base is general purpose phenolic—maximum operating temperature 150°C
- ♦ Base is high impact polyester—maximum operating temperature 130°C

Clip material:

- All 30 and 60 A fuse clips are copper alloy tin plated.
- All 100 and 200 A fuse clips are one piece aluminum with copper spring tin plated.
- All Class H, R and J fuses are standard with reinforced fuse clips.

Lug termination:

- All 30 A blocks have pressure wire connectors.
- All 60, 100 and 200 A blocks have box lug connectors.

Approvals:

- The Type M fuseholders are UL component recognized (File E40747 CCN IZLT2).
- The Type H, R, J and CC are UL Listed (File E40747 CCN IZLT).
- All fuseholders are CSA certified (File 70360 Class 6225-01).

Flammability rating of all FB fuse blocks is UL 94V-0.

RoHS Compliant



FB2221



FB3221R

### Table 24.39: 600 V—Class H Only (Copper Only)

| Rating (A) △ | No. of Poles | Class H | | Lug Wire Range |
|---|---|---|---|---|
| | | Type | $ Price | |
| 30■ | 1 | FB1611 | 24.30 | #14–10 Cu |
| | 2 | FB2611 | 42.60 | |
| | 3 | FB3611 | 54.00 | |
| 100■ | 3 | FB3631C | 158.00 | #6–2/0 Cu |

### Table 24.40: 600 V—Class J

| Rating (A) △ | No. of Poles | Class J | | Lug Wire Range |
|---|---|---|---|---|
| | | Type | $ Price | |
| 30■ | 2 | FB2611J | 45.50 | #2–14 AWG Cu—Al |
| | 3 | FB3611J | 63.00 | |
| 60■ | 2 | FB2621J▼ | 54.00 | #2–14 Cu—Al |
| | 3 | FB3621J | 75.00 | |

### Table 24.41: Track Adapter

| Description | Type | $ Price ea. | Std. Pack ◊ |
|---|---|---|---|
|  35 mm DIN 3 Track Adapter For 9080 FB*211, FB*211R, FB*611M, and FB*611CC Fuseholders | FBDIN3 ▼ | 4.10 | 100 |

### Table 24.42: Fuse Sizes—(Diameter x Length)

| A | Class of Fuse | | | |
|---|---|---|---|---|
| | Class H/R—300 V | Class H/R—600 V | Class M/CC—600 V | Class J—600 V |
| 30 | 9/16 x 2 in. | 13/16 x 5 in. | 13/32 x 1-1/2 in. | 13/16 x 2-1/4 in. |
| 60 | 13/16 x 3 in. | 1-1/16 x 5-1/2 in. | N/A | 1-1/16 x 2-3/8 in. |
| 100 | 1 x 7-7/8 in. | 1 x 7-7/8 in. | N/A | N/A |
| 200 | 1-1/2 x 7-1/8 in. | 1-3/4 x 9-5/8 in. | N/A | N/A |

★ Class R and CC fuseholders accept current limiting Class R & CC fuses only.
▼ Not in stock. Order point—Raleigh, NC.
△ Specified wire ranges are based on 75°C wire. Wires with temperature ratings other than 75°C are approved while observing NEC Article 310 wire tables for allowable ampacities of insulated conductors.
Class R, J and CC fuse blocks are tested and approved for 200,000 AIC in accordance with UL 512.
□ Can be mounted directly to a panel or on 35 mm DIN 3 track.
◊ Orders must specify the standard package quantity or multiples of that quantity.

### Table 24.43: How to Order

| To Order Specify | Catalog Number |
|---|---|
| • Class Number | 9080 |
| • Type Number | FB1211 |



© 2012 Schneider Electric
All Rights Reserved

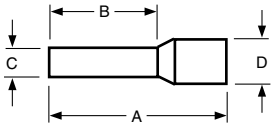
**Conform to NF C 63-023 Standard**
**Mark and terminate wires simultaneously**

Strip the wire, insert it into the cable end and crimp it.
Up to 7 markers can be used.






DZ5CE005

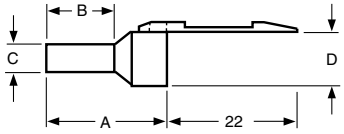



## Table 24.44: Without Marking Flag

| Wire Size | | Sleeve color | Dimensions (mm) | | | | Catalog Number ▲♦ | $ Price ea. | Std. Pack ★ |
|---|---|---|---|---|---|---|---|---|---|
| AWG | mm² | | A | B | C | D | | | |
| 26 | 0.25 | Yellow | 11 | 6.2 | 1.2 | 2.2 | DZ5CE002L6 | **0.16** | 1000 |
| | | | 13 | 8.2 | | | DZ5CE002 | | |
| 24 | 0.34 | Green | 11 | 6.2 | | | DZ5CE003L6 | | |
| | | | 13 | 8.2 | | | DZ5CE003 | | |
| 22 | 0.50 | White | 11 | 6.2 | 1.4 | 3 | DZ5CE005L6■ | **0.18** | |
| | | | 13 | 8.2 | | | **DZ5CE005**■ | | |
| | | | 16.8 | 12 | | | DZ5CE005L12 | **0.26** | |
| 20 | 0.75 | Blue | 11 | 6.2 | 1.6 | 3.1 | DZ5CE007L6■ | **0.18** | |
| | | | 13 | 8.2 | | | **DZ5CE007**■ | | |
| 18 | 1.00 | Red | 11.5 | 6.2 | 1.8 | 3.4 | DZ5CE010L6■ | | |
| | | | 13.5 | 8.2 | | | **DZ5CE010**■ | | |
| | | | 16.8 | 12 | | | DZ5CE010L12 | **0.28** | |
| 16 | 1.50 | Black | 11.5 | 6.2 | 2.1 | 4 | DZ5CE015L6■ | **0.22** | |
| | | | 13.5 | 8.2 | | | **DZ5CE015**■ | | |
| | | | 22.8 | 17.7 | | | DZ5CE0153■ | **0.42** | |
| 14 | 2.00 | Yellow | 14.5 | 8.2 | 2.35 | 4.2 | **DZ5CE020** | **0.24** | |
| 14 | 2.50 | Gray | 14.5 | 8.2 | 2.7 | 4.6 | **DZ5CE025**■ | | |
| | | | 24 | 17.7 | | | DZ5CE0253■ | **0.44** | |
| 12 | 4.00 | Orange | 17.3 | 9.8 | 3.3 | 5.5 | DZ5CE042■ | **0.42** | |
| | | | 25.5 | 17.5 | | | DZ5CE043■ | **0.62** | |
| 10 | 6.00 | Green | 20 | 11.5 | 3.95 | 7 | DZ5CE062 | **0.48** | 100 |
| | | | 26 | 17.5 | | | DZ5CE063 | **0.66** | |



DZ5CA007

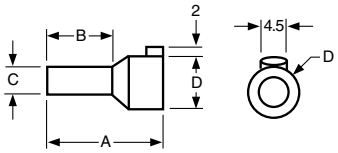



## Table 24.45: With Marking Flag

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26 | 0.25 | Yellow | 13 | 8.2 | 1.2 | 2.2 | DZ5CA002 | **0.26** | 1000 |
| 24 | 0.34 | Green | | | | | DZ5CA003 | | |
| 22 | 0.50 | White | | | 1.4 | 3 | DZ5CA005■ | **0.32** | |
| 20 | 0.75 | Blue | | | 1.6 | 3.1 | **DZ5CA007**■ | | |
| 18 | 1.00 | Red | 13.5 | | 1.8 | 3.4 | **DZ5CA010**■ | | |
| 16 | 1.50 | Black | | | 2.1 | 4 | **DZ5CA015**■ | | |
| 14 | 2.50 | Gray | 14.5 | | 2.7 | 4.6 | **DZ5CA025**■ | | |



DZ5CA042




## Table 24.46: Marking Flag Optional ▼

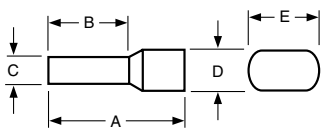
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 4.00 | Orange | 19.5 | 11.5 | 3.3 | 5.5 | **DZ5CA042**■ | **0.38** | 1000 |
| | | | 25.5 | 17.5 | 3.3 | 5.5 | DZ5CA043■ | **0.46** | |
| 10 | 6.00 | Green | 20 | 11.5 | 3.95 | 7 | **DZ5CA062** | **0.62** | 100 |
| | | | 26 | 17.5 | 3.95 | 7 | DZ5CA063 | **0.64** | |
| 8 | 10.00 | Brown | 21.5 | 12 | 4.95 | 8.4 | **DZ5CA102** | **0.72** | |
| | | | 27 | 17.5 | 4.95 | 8.4 | DZ5CA103 | **0.78** | |
| 6 | 16.00 | White | 23.5 | 12 | 6.35 | 9.8 | **DZ5CA162** | **0.86** | |
| | | | 29 | 17.5 | 6.35 | 9.8 | DZ5CA163 | **0.96** | |
| 4 | 25.00 | Black | 30 | 17.5 | 8.15 | 12 | **DZ5CA253** | **1.10** | |
| 2 | 35.00 | Red | 30 | 16 | 9 | 13.5 | DZ5CA352 | **1.30** | 20 |
| | | | 39 | 25 | 9 | 13.5 | DZ5CA353 | **1.50** | |
| 0 | 50.00 | Blue | 36 | 20 | 11 | 15.7 | DZ5CA502 | **1.50** | |
| | | | 41 | 25 | 11 | 15.7 | DZ5CA503 | **1.70** | |



AZ5DE010

## Table 24.47: Dual Wire Cable Ends

| | | | A | B | C | D | E | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 0.50 | White | 13 | 8 | 1.4 | 2.5 | 4.7 | AZ5DE005 | **0.24** | 500 |
| 20 | 0.75 | Blue | | | 1.6 | 2.8 | 5.0 | AZ5DE007 | | |
| 18 | 1.00 | Red | 13.5 | | 1.8 | 3.4 | 5.4 | AZ5DE010 | | |
| 16 | 1.50 | Black | | | 2.1 | 3.6 | 6.6 | AZ5DE015 | **0.26** | |
| 14 | 2.50 | Gray | 24 | 10 | 2.7 | 4.2 | 7.8 | AZ5DE025 | **0.32** | 250 |




▲ **Bold faced** catalog numbers are stocked in the United States.
■ These catalog numbers are UL Component Recognized (File E164872 CCN ZMMT2) provided the AT1PA crimping tool is used to crimp the cable end.
♦ CE Marked.
★ Order must specify the standard pack quantities or multiples of that quantity.
▼ Will accept an AR1SC03 cable marker from page 24-22.

RoHS
Compliant





© 2012 Schneider Electric
All Rights Reserved



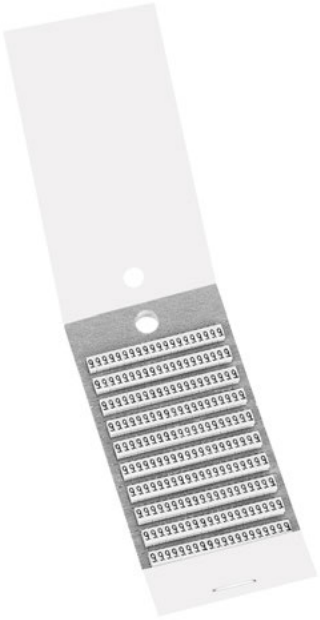
AR1SC01



AR1SC02



AR1SC03



AR1MA019

### Table 24.48: Cable End Markers & Accessories

| Style | Catalog Number | $ Price ea. | Std. Pack▲ |
|---|---|---|---|
| Adjustable collar type marker holder for #14 to #2 wire | AR1SC01 | **0.42** | |
| Clip-on marker holder for #18 to #16 wire (7 markers max.) | AR1SC02 | **0.42** | 100 |
| Cable end marker tags for DZ5CA042 to DZ5CA253 | AR1SC03 | **0.12** | |
| Card of 200 yellow markers with black numeral 0 thru 9 | AR1MA01■ | **136.00** | |
| Card of 200 yellow markers with black letters A thru Z | AR1MB01■ | **300.00** | |
| Card of 200 black markers with a white 0 marked on them | AR1MC010 | **13.60** | |
| Card of 200 brown markers with a white 1 marked on them | AR1MC011 | **13.60** | |
| Card of 200 red markers with a black 2 marked on them | AR1MC012 | **13.60** | |
| Card of 200 orange markers with a black 3 marked on them | AR1MC013 | **13.60** | |
| Card of 200 yellow markers with a black 4 marked on them | AR1MC014 | **13.60** | |
| Card of 200 green markers with a black 5 marked on them | AR1MC015 | **13.60** | |
| Card of 200 blue markers with a black 6 marked on them | AR1MC016 | **13.60** | |
| Card of 200 violet markers with a black 7 marked on them | AR1MC017 | **13.60** | 1 |
| Card of 200 gray markers with a black 8 marked on them | AR1MC018 | **13.60** | |
| Card of 200 white markers with a black 9 marked on them | AR1MC019 | **13.60** | |
| Card of 200 blank yellow markers | AR1MA0196 | **12.20** | |
| Card of 200 blank green markers | AR1MA0197 | **12.20** | |
| Card of 200 yellow markers with a black + marked on them | AR1MA0198 | **12.20** | |
| Card of 200 yellow markers with a black—marked on them | AR1MA0199 | **12.20** | |
| Complete set of numeral markers 0 thru 9, plus one card each of the "+" "-", yellow blanks, and green blanks/one AT1PA1 positioning tool. Each kit has 200 of each item. | AR1MA01 | **136.00** | |
| Complete set of letter markers A thru Z, plus one card each of the "+" "-", yellow blanks, and green blanks/one AT1PA1 positioning tool. Each kit has 200 of each item. | AR1MB01 | **300.00** | |

### Table 24.49: Cable End Tools

| Description | Catalog Number | $ Price |
|---|---|---|
| Cable end marker positioning tool | AT1PA1 | **30.20** |
| Automatic stripping and cutting tool for 0.8 mm to 4 mm cable, adjustable stripping length | AT1PA7 | **506.00** |
| Crimping tool for cable ends 0.5 $mm^2$ to 16 $mm^2$ | AT1PA2 | **246.00** |
| Crimping tool for cable ends 10 $mm^2$ to 35 $mm^2$ | AT1PA4 | **268.00** |
| Organizing case for cable ends—holds stripping tool and cable ends (not supplied) | AT1HB2 | **116.00** |

▲ Order must specify the standard pack quantities or multiples of that quantity.

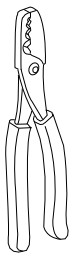
■ Complete the catalog number by adding the number or letter desired.
Examples: AR1 MA015 is a card of 200 yellow markers with a black 5 marked on them.
R1 MB01T is a card of 200 yellow markers with a black T marked on them.



**AT1PA1**



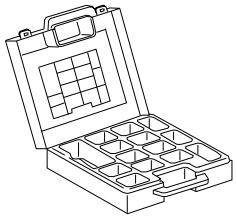
**AT1PA2**



**AT1PA4**



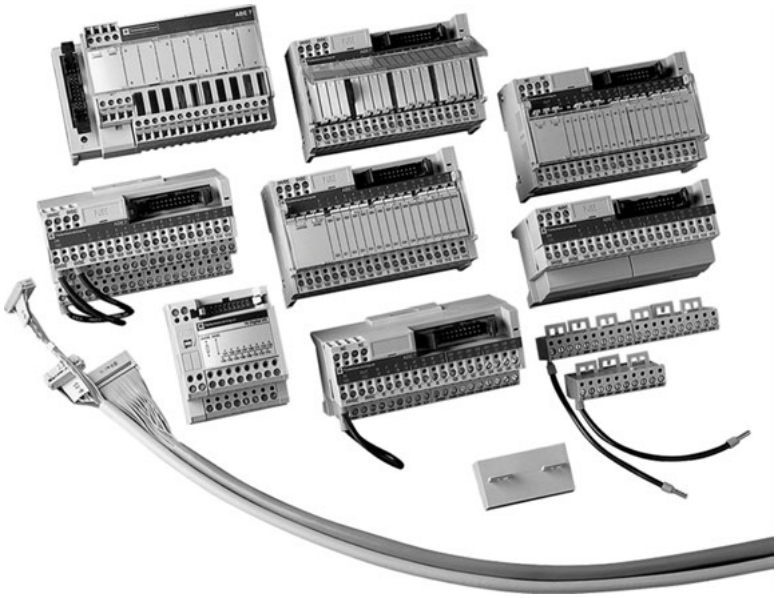
**AT1PA7**



**AT1HB2**

TERMINAL BLOCKS
24

© 2012 Schneider Electric
All Rights Reserved



The TELEFAST 2 system is a set of products for the rapid connection of I/O modules (24 Vdc discrete, analog and counters) to Various control circuit components. These components act as a substitute for screw terminal blocks, remotely locating and partly eliminating the single wire connections. The system connects only to channels with HE10 and SUB-D connectors, or to standard terminal blocks with a cabled connector.

Variations within the listing of modules include those with and without relays (electromechanical and solid state), analog and counter modules, and special function modules.

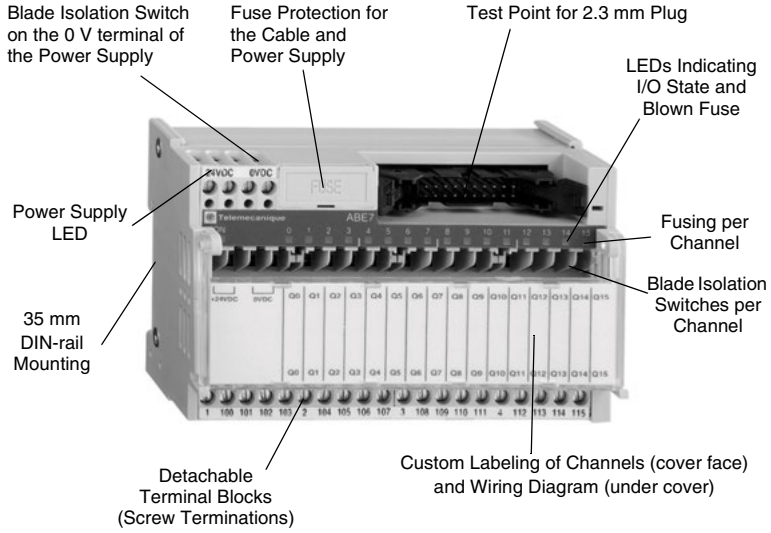
Pre-wired cables available allow you to connect directly to:

- Schneider Electric (Modicon™ family)
  - — TSX Premium™
  - — TSX Micro
  - — TSX Series 7
  - — Twido
  - — Quantum™
  - — Compact
  - — April S5000/7000
  - — NUM1020/1060
- Siemens
  - — S7 – 200/300/400
  - — S5 – 95U to 155U
- Allen-Bradley
  - — SLC500

In addition, other accessories include:

- I/O simulators
- Continuity blocks
- Label marking software
- Splitter bases (16, 23, and 32 channels)
- Mounting kits
- Detachable terminal strips
- Wiring pass-through connectors
- Fuses

## Advantys TELEFAST 2 Product Features




***NOTE:*** *Not all features available on all modules.*





© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 25
# Machine Safety Products





**XPS Safety Relay** (p. 25-4)



**XPSMC Safety Controller** (p. 25-4)



**XPSMF Safety PLC** (p. 25-5)



**AS-Interface Safety at Work** (p. 25-5)



**XUSL Light Curtain** (p. 25-6)



**XCSDM Non-Contact Safety Interlock Switches**(p. 25-7)



**XY2 Cable Pull Switches** (p. 25-8)


## Safety Relays

XPS safety relays for controlling individual safety functions of the system. **25-4**

## Safety Controller

XPSMC safety controllers for use where multiple safety relays and multiple safety functions are required, or where there is a greater interaction between the various safety functions required on the machine. **25-4**

## Safety PLC

XPSMF Safety PLC for use in safety systems where multiple functions are required, or where the interaction between the various components of the safety system is more complicated. **25-5**

## AS-Interface Safety at Work

AS-Interface for use where multiple safety functions and their interaction need to be monitored. All safety information is transmitted using a safety communication bus. **25-5**

## Light Curtains

XUSL light curtains for use in point of operation guarding and perimeter guarding. Available in 14 mm (finger) or 30 mm (hand) minimum object sensitivity (MOS) as well as perimeter or body detection, all with a wide range of protected heights. **25-6**

## Safety Interlock Switches

XCS safety interlock switches for mechanical interlocking of gates and guards. Locking and non-locking versions are available. **25-7**

## Non-Contact Safety Interlock Switches

XCSDM non-contact safety interlock switches for interlocking of gates and guards, where no contact is desired between switch and actuator. **25-7**

## Safety Limit Switches

XCS safety limit switches for a wide variety of safety related functions, including end of travel notification, over-travel indication, safety related positioning of machinery/tooling or component parts, as well as gates and guards. **25-8**

## Cable Pull Switches

XY2 cable pull switches for Emergency Stop control around conveyors, assembly lines, and large machines. **25-8**

## Palm Operators

9001 Type P palm operators for applications such as power operated presses, and two hand control applications. **See catalog MKTED208051EN-US**


© 2012 Schneider Electric
All Rights Reserved

Safety-related systems are comprised of many components, and no single safety component will ensure the safety of the system. The design of the complete safety-related system and level of safety desired must be considered before choosing products. The whole safety-related system needs to be integrated as part of the initial design, not added on after the machine is built. Schneider Electric can provide a wide range of products for the protection of personnel for machine guarding applications and safety-related system architectures.

### Safety PLCs—XPSMF

Safety PLCs are used where the safety-related solution is complicated, or where there are a greater number of safety inputs or outputs required. They are also used where safety inputs and outputs need to be distributed around the machine or production area.

### Safety Controllers—XPSMC

Safety controllers are used in applications where multiple safety relays would be required to control the safety-related system, or where the interaction between the individual safety relays would require significant inter-wiring. The simple-to-use software allows the user to easily develop the safety-related control system, providing a cost effective solution.

### Safety Relays—XPS

To tie the whole safety system together, XPS safety relays are used to monitor the safety inputs, outputs, and feedback from the system to determine when the system is safe to start and when the system should be shut down.

### AS-Interface Safety at Work—AS-i

AS-Interface provides the safety solution of multiple safety relays on a communication bus that can transmit both standard and safety relevant data. The safety solution is simply configured with the easy to use configuration software.

### Light Curtains—XUSL

Some machine operations may not allow gates or guards to be used, and other applications require high visibility of the process or easy accessibility. For these applications, XUSL light curtains may be the best choice and are available in many protected heights, minimum object sensitivities, and configurations.

### Safety Interlock Switches—XCS

To protect operators, maintenance, and other personnel, safety systems may require the interlocking of mechanical gates or guards. We provide both locking and non-locking mechanical XCS safety interlock switches in many body styles and contact arrangements.

### Non-Contact Safety Interlock Switches—XCSDM

Sometimes no contact between the safety interlock switch and its actuating key is desired, such as in food and beverage applications, so we provide several different types of XCSDM non-contact safety interlock switches.

### Safety Limit Switches—XCS

In some applications, the position of components is important to the safety of the machine, and devices such as safety interlocks or light curtains are impractical. These applications are ideal for safety limit switches. They can also be used on gates and guards to verify a closed position or a fully open or overtravel position.

### Cable Pull Switches—XY2

In most applications, emergency stopping is required to shut the machine down in case an emergency or problem arises. Where an individual emergency stop is required, the XB4/XB5 emergency stop push buttons are available in various types, sizes, and nameplates. On large machines or conveyors a high number of emergency stop operators may need to be installed. As more individual e-stop buttons are required, using an XY2 cable pull switch becomes a more economical solution based on ease of use, installation time, and cost effectiveness.

### Palm Buttons—9001 P

Press applications demand two hand control units for operator protection that are large and easy to operate while wearing gloves. Other press applications, such as stop and inch, also need large buttons for operators wearing gloves. The 9001 P palm buttons offer a variety of operators to meet these needs.

### Other products for use in safety systems

We offer many other products that are suitable for use in safety-related circuits, such as:

- XB4/XB5 emergency stop push buttons—See **Section 19**
- XV indicating banks—See **Section19**
- TeSys contactors and relays—See **Section 18**
- Limit switches with positive/direct opening N.C. contacts—See **Section 21**

All of the machine safety products discussed in this section are designed to work together to allow you to meet your various safety requirements. When properly applied, these products will allow you to meet SIL 3 per IEC 61508, Category 4 per EN 954-1 and ISO 13849-1, and performance level “e” per ISO 13849-1, and help you meet domestic and international safety requirements, standards, and codes.

The next few pages give an overview of our wide offering of machine safety products. Catalog **MKTED208051EN-US** gives a detailed description of our offering, including safety PLCs, safety controllers, safety relays, AS-Interface, safety interlocks, light curtains, safety interlocks, non contact safety interlocks, cable pull switches, and palm buttons. This catalog also provides additional information on domestic and international safety standards and codes, and much more information to help you develop safety



© 2012 Schneider Electric
All Rights Reserved

Many different architectures for safety related solutions are available in Schneider Electric's product offering, from safety relays to safety PLCs. The architecture can determine what SIL level or performance level can be achieved with the safety related solution. Various architectures may have inherent benefits such as simple selection or increased levels of diagnostics, but their cost effectiveness can depend on the size and complexity of the safety related system and the features and functions required. Some of the features and benefits of these various architectures are:



XPS Safety Relays

## XPS Safety Relays

- Local diagnostics (LEDs)
- Remote diagnostics (solid-state outputs)
- Plug-in connectors simplify maintenance
- Select only the safety functions needed
- Simple installation
- Simple replacement
- Proven electromechanical reliability
- No software to learn or use



XPSMC Safety Controller

## XPSMC Safety Controllers

- Simplicity and flexibility
  - — 16 or 32 inputs and 10 safety outputs
  - — A wide library of predefined and certified safety functions
  - — User-friendly software configuration
  - — Reduced wiring
  - — Only one product to install and implement
- Local and remote diagnostics via serial link to PC or PLC
  - — Reduced implementation time and downtime
  - — Reduced troubleshooting time



XPSMF Safety PLC

## XPSMF Safety PLCs

- Increased productivity because of:
  - — Reduced machine down time
  - — Reduced overall engineering costs incurred during installation and maintenance
  - — Reduced system complexity by having a single network solution instead of many
- XPS-MF will simplify the entire system by:
  - — Saving space
  - — Reducing wiring
  - — Increasing overall system flexibility by use of programming and device placement (network capability)
  - — Providing complex diagnostics (network capability)
  - — Saving time and money due to reduced maintenance
- SafeEthernet protocol



AS-Interface

## AS-Interface Safety at Work

- Enables safety related solutions to be integrated into the distributed architecture
- Reduces wiring requirements and speeds implementation
- Allows quick and flexible connection of safety interfaces via vampire connector
- Provides simple software configuration
  - — Drag and Drop
  - — On-line diagnostics
- Provides diagnostics without additional wiring
- Lowers costs from design to operation

All of our machine safety products—such as safety interlocks, light curtains, and cable pull switches—can be used with any of the safety devices listed above. The final safety related control system could meet the safety levels indicated in Table 25.1, depending upon how the circuit is designed.

**Table 25.1: Maximum Levels of the Architectures for Safety Related Solutions**

| | Category 4 per EN 954-1 and Performance Level "e" per ISO 13849-1 | SIL 3 Per IEC 61508 |
|---|---|---|
| **XPS Safety Relays** | Yes | No |
| **XPSMC Safety Controllers** | Yes | Yes |
| **XPSMF Safety PLCs** | Yes | Yes |
| **AS-Interface Safety at Work** | Yes | Yes |

© 2012 Schneider Electric
All Rights Reserved

## XPS Safety Relays



XPS Safety Relay

XPS safety relays monitor various safety inputs, start sequences, and feedback from starters and relays to allow machinery operation only when all safety controls are in their appropriate state and are functioning properly. Inputs can be from emergency stop push buttons, cable pull switches, limit switches, light curtains, safety interlock switches, or two hand control stations.

XPS safety relays give users increased functionality and flexibility when designing equipment to meet safety requirements and standards in the U.S., for the European Safety Directive, IEC safety requirements and meet Category 4 of EN 954-1 and EN/ISO 13849-1. Most devices can be configured for single or dual channel inputs, and for either monitored start, non-monitored start, or automatic start. Removable wiring terminals or non-removable wiring terminals are available on most module types.

The XPS product family complements our broad safety product offering with modules for many specific safety functions and applications, as well as devices for use in general types of applications. There are even devices whose safety functions can be configured at the time of installation.

### Preventa XPS Includes the Following Types of Safety Relay Modules:

- Specific purpose modules such as limit switch monitoring, zero speed, timing, two-hand control, press control, and others
- Multifunctional configurable devices with multiple sets of inputs whose functions can be configured from 15 pre-defined functions, allowing greater flexibility and functionality
- Broad range of devices for emergency stop applications
- Expansion modules to increase the number of safety outputs
- Many devices compatible with light curtains

### Features and Benefits

- LEDs are provided to indicate power, input, output, and feedback loop status.
- Solid state outputs provide compatibility with system controllers for diagnostics, troubleshooting, and correct system operation.
- Most devices are available with either removable or non-removable terminals.
- Most devices are available with a monitored start function to detect welded contacts or incorrect status in the start function and also to detect tampering with the start circuit.
- Dual voltage devices are available for use with either 120 V or 24 V power to reduce your inventory and increase flexibility.

## XPSMC Safety Controllers



XPSMC Safety Controller

The XPSMC safety controllers can be used for monitoring all of the different safety tasks for your applications in one safety controller. All of the functions of the various safety relays are built into the hardware and software. The XPSMC safety controllers meet SIL 3 per IEC 61508, Category 4 per EN 954-1 and ISO 13849-1, and performance level “e” per ISO 13849-1. The associated configuration software makes development of the safety solution simple, using drag and drop techniques to configure the safety system. Detailed diagnostics provide an in depth overview of the status of the inputs and outputs.

### Features and Benefits

- Safety inputs
  - 16 or 32 safety inputs
- Safety outputs
  - Six safety semiconductor outputs
  - Two safety relay outputs, with two relay contacts each (for a total of four relay outputs)
  - One output for muting indicators
- Control outputs
  - Eight control outputs are used to supply the safety inputs in order to detect incorrect wiring or short circuits in the wiring.

### Configuration Software

- The wide device library of certified safety related functions simplifies the development of safety applications.
- Using the simple to use XPSMCWIN software, the configuration can be developed without special training.

### Diagnostics with PC and Software

- Using the diagnostics mode, the XPSMCWIN software provides an exhaustive overview about the status of the safety functions.
- The status of the inputs, the safety devices and the outputs are indicated by various colored indicators.

### Diagnostics with LEDs in the Front Cover

- 6 LEDs indicate the status of the controller.
- 8 LEDs indicate the status of the safety outputs.
- 16 or 32 LEDs indicate the status of the safety inputs.
- Input/output errors are indicated by blinking of the corresponding LED.



© 2012 Schneider Electric
All Rights Reserved

## XPSMF Safety PLCs



XPSMF PLC

The XPSMF Safety PLCs are programmable logic controllers that can be interfaced with the machine control system to meet US, EN, and IEC safety requirements. All XPSMF Safety PLCs meet the requirements of SIL 3 per IEC 61508, Category 4 per EN 954-1 and ISO 13849-1, and performance level “e” per ISO 13849-1.The XPSMF can perform all of the various safety functions required in today’s machinery. These functions can be programmed by using one or more pre-defined and certified function blocks (CFB) or by creating your own configuration and function blocks.

### Features and Benefits

- Increased productivity because of:
  - — Reduced machine down time
  - — Reduced overall engineering costs incurred during installation and maintenance
  - — Reduced system complexity by having a single network solution instead of many
- Saving space, reducing complexity
  - — Reducing wiring
  - — Increasing overall system flexibility by use of programming and device placement (network capability)
  - — Providing complex diagnostics (network capability)
  - — Saving time and money due to reduced engineering and maintenance

### Hardware

- Certified to SIL 3 per IEC 61508, Category 4 per EN 954-1 and ISO 13849-1, and performance level “e” per ISO 13849 -1, UL/CSA
- Each Safety PLC contains two processors (redundancy)
- SafeEthernet protocol
- Standard bus communication using Ethernet
- 2 or 4 RJ45 connection points (depending on version)
- Connect hardware in any orientation
- LED diagnostics on PLC housing
- Removable terminals
- Compact range contain DIN rail attachment simplifying installation

## AS-Interface Safety at Work



ASISAFEMON1B Monitor

AS-Interface, the recognized cabling system for sensors and actuators, has been enhanced. Standard process information and information relating to safety can now be transmitted over the same yellow cable. Certified to SIL 3 per IEC 61508, Category 4 per EN 954-1 and ISO 13849-1, and performance level “e” per ISO 13849-1, the AS-Interface “Safety at work” system meets the needs of the most common safety applications, such as:

- Monitoring of emergency stops with instantaneous break contacts (stop category 0)
- Monitoring of emergency stops with delayed break contacts (stop category 1)
- Monitoring of safety interlocks and limit switches with and without interlocking
- Monitoring of light curtains

### Features and Benefits

- Simplicity
  - — Just add the required safety devices to the standard AS-Interface network.
- Integration
  - — Standard data and safety relevant data is transmitted over the same communication bus—no need for a separate safety network.
- Flexibility
  - — Monitor multiple devices and control multiple safety sectors.
- Diagnose
  - — From one screen, see the status of the safety interfaces and the system.
- Safety
  - — Category 4 per EN 954-1 and ISO 13849-1
  - — Performance level “e” per EN/ISO 13849-1
  - — SIL 3 per IEC 61508
- Multifunctional
  - — Monitor up to 31 safety interfaces.
  - — Available with 1 or 2 independent output groups.
- Segmentation of safety sectors
  - — Multiple safety monitors can be connected to the same AS-Interface network.
  - — Monitors can be configured to monitor different groups of safety interfaces.
- 45 mm wide housing

### ASISWIN2 Configuration Software

- Drag and drop methodology
- Predefined, certified safety functions for user selection
- On-line diagnostics of AS-Interface Safety System
- Password protection

© 2012 Schneider Electric
All Rights Reserved



XUSLB and XUSLD Light Curtain

XUSL Type 4 light curtains provide point of operation protection for large areas without the need for gates or guards. They allow excellent visibility of the machine or process and free access to the machine while providing protection for personnel. Light curtains are made up of an array of infrared light beams to form a protected area. Whenever one or more of the light beams is broken, the light curtain sends a stop signal to the machine safety control circuit.

XUSLB and XUSLD light curtains for point of operation safeguarding are available in either single or multiple segment configurations. Choose the one that best meets your application requirements. These versions are available in either 14 mm or 30 mm minimum object sensitivity (MOS). Fixed and floating blanking is standard on the XUSLD.

XPSLP perimeter guard light curtains detect the presence of a body as it enters a protected area. They are available in single or multiple beam systems.

## Features and Benefits of All XUSL Light Curtains

- Slim and rugged design results in an esthetically pleasing small mounting footprint suitable for aggressive environments.
- Broken Beam Indicators for EVERY beam on ALL devices (patented).
  - — Makes alignment easier, reducing installation time and cost.
  - — Identifies which beams are broken.
  - — Identifies exact channel (fixed blanking) select beams.
  - — Simplifies troubleshooting and re-adjustment, reducing downtime.

## XUSLB and XUSLD 2-Box Light Curtain

Two box light curtains are ideal for installations where it is desirable to mount and wire only two components, transmitter and receiver. These devices are self-contained and the receiver provides the safety outputs.

### Features and Benefits

- 14 and 30 mm minimum object sensitivity (MOS)
- 14 mm MOS protection heights: 280 - 1360 mm (11.0 - 53.5 in.)
- 14 mm MOS sensing range: 7.0 m (22.9 ft.)
- 30 mm MOS protection heights: 320 - 2120 mm (12.6 - 83.5 in.)
- 30 mm MOS sensing range: 8 m or 20 m (26.2 or 65.6 ft.)
- 38 x 50 mm housing size (1.5 x 1.97 in.)
- 24 Vdc supply voltage
- Broken beam Indicators for EVERY beam on ALL devices
- Female connector cables sold separately (5 m, 10 m, 15 m, and 30 m)
- Configurable by hand held programming and diagnostic module (PDM)
- Cascadable devices available in the XUSLD versions - up to 4 segments



XUSLP Light Curtain

## XUSLP Perimeter Guard for Body Detection

Perimeter guarding light curtains are used around work cells and for guarding around the perimeter of machinery. They are also used in place of gates or doors. These two box systems simplify installation, since no inter-wiring is required between the emitter and receiver. Installation is further simplified with the passive receiver version, which only needs to have the emitter wired. No wiring is required for the receiver.

### Features and Benefits

- 1 to 6 beams
- Sensing distance up to 70 m (230 ft.) depending upon configuration
- Height: 750 mm (29 in.) to 1800 mm (68 in.)
- Minimum object sensitivities: 300, 400, 500, or 600 mm (11.8, 15.75, 19.69, or 23.62 in.) and single beam
- Visible, red broken beam Indicators
- Short circuit protected
- IP67
- Display for diagnosis and working mode
- No need of shielded wire up to 120 m (394 ft.)
- Restart and start interlock
- External device monitoring /machine primary control element monitoring (EDM/MPCE)
- Machine test signal (MTS)
- 3 types of coding (A, B, C) by internal switches



XUSLP Light Curtain



© 2012 Schneider Electric
All Rights Reserved

## XCS Safety Interlock Switches

**For Gate or Guard Interlocking**



XCSA Safety Interlock Switch



XCSMP

XCS safety interlock switches verify that the doors, gates, or guards are closed before a process which could be harmful to personnel can start up. The hazards to personnel can be mechanical, electrical, hydraulic, pneumatic, chemical, or thermal. The various sizes and shapes of safety interlock switches are designed for a wide variety of applications. These mechanical devices have two components: a switch and an actuating key. When the gate or guard is closed, the actuating key attached to the gate or guard is inserted into the switch, closing the safety contacts, allowing the machine to be started. When the gate or guard is opened, the actuating key is removed from the switch, and the safety interlock switch contacts open.

XCS safety interlock switches are designed to meet demanding requirements in the US and Europe, as well as the rest of the world. The flexibility of the XCS line allows one XCS device to perform the same functions as several competitor's devices. This means that fewer XCS devices may be required to cover your needs.

Specifically designed for the protection of machine operators, maintenance and other personnel, the XCS switches can be used in a wide range of applications where a gate, door or guard is a part of the safety related system.

### Features and Benefits

- Simple, rapid installation saves time and labor
- Device flexibility reduces stock requirements
- Wide variety of body styles, contact arrangement, and operators meet a variety of application requirements
- Bodies available in metal or plastic
- Switches are interchangeable between new and older devices, as well as with competitor's devices
- A variety of actuating keys are suitable for all applications
- Pre-wired devices and many connector options available to make wiring and installation easier

### The Following Types of Safety Interlocks are Available:

- Non-locking
- Locking with push button or key release
- Locking by electrical solenoid
- Rotary shaft operation, for use on hinges of doors
- Rotary lever for hinged guards
- Pre-wired compact body

## XCSDM Non-Contact Safety Interlock Switches

**For Non-Contact Gate or Guard Interlocking**



XCSDMP



XCSDM4

XCSDM non-contact safety interlock switches are designed for the same functions as mechanical safety interlock switches. The difference is that the non-contact safety interlock switches are magnetically coded devices and require no contact between the switch and coded magnet. This is a benefit where door or guard mis-alignment is an issue, or where the machine designer does not want to use a mechanical device.

### Benefits of Non-contact Devices:

- Food, beverage and pharmaceutical applications require that no contaminants be trapped in or around devices.
- Non-contact devices have no inherent operating force and are well-suited for applications such as lightweight or plexiglass doors, where cracking or breakage is prevalent with standard mechanical safety interlock switches.
- Wash down applications where a standard mechanical safety interlock switch would be more difficult to clean, especially in the actuating key receptacle.
- Where small size is critical or a slim profile is desired

### Features and Benefits of XCSDMC, XCSDMP, and XCSDMR

- Tolerates gate or guard alignment problems
- Wider temperature range for a plastic bodied device than any competitor's products
- Multiple coded-magnet approach directions allow for maximum flexibility of mounting options
- Suitable for Category 4 safety circuits when used with a safety relay or safety controller.
- Available with or without LEDs
- Connector and cabled versions available

### Features and Benefits of XCSDM3 and XCSDM4

- Meets SIL 2 and 3 per IEC 61508, Category 3 and 4 per EN 954-1 and EN/ISO 13849-1 and performance level "e" per EN/ISO 13849-1 without the need for a safety relay or safety controller
- Connector and cabled versions available
- Multicolor LEDs for diagnostics and status
- Multiple coded-magnet approach directions allow for maximum flexibility of mounting options

© 2012 Schneider Electric
All Rights Reserved

## Safety Limit Switches



XCS Safety Limit Switch

### XCS Safety Limit Switches

Preventa XCS safety limit switches are used in machine safety systems for a wide variety of safety related functions, including end of travel notification, overtravel indication, safety related positioning of machinery/tooling or component parts, as well as interlocking gates and guards. They are often used in conjunction with safety interlock switches for mechanical and electrical redundancy on doors and guards.

**Features and Benefits**

- Meet US and European safety standards requiring that switches used in safety related applications have positive opening contacts
- Tamper resistant covers over mounting screw and head adjustment to reduce potential for tampering
- Red color allows easy visibility and identification of safety related limit switches
- Two body styles available:
  - — Compact, pre-wired with cable
  - — Compact, with conduit entry

### XCSP/XCSD Safety Limit Switches

The XCSP (plastic body) and XCSD (metal body) safety limit switches are identical in size and features. The only difference is the enclosure and conduit entry. XCSP and XCSD safety limit switches are for use in safety related applications including end of travel notification, overtravel indication, safety related positioning of machinery/tooling or component parts, as well as interlocking gates and guards.

**Features and Benefits**

- Positive opening contacts standard in all devices
- Snap acting contacts
- Slow make/slow break contacts
- Several head types available
- Metal and Plastic body styles available
- Several conduit types available
- Tamper resistant cover

### XCSM Safety Limit Switches

The XCSM safety limit switches come pre-wired in multiple lengths of electrical cable for simplified installation. The XCSM safety limit switches are for use in safety related applications including end of travel notification, overtravel indication, safety related positioning of machinery/tooling or component parts, as well as interlocking gates and guards.

**Features and Benefits**

- Positive opening contacts standard in all devices
- Snap acting contacts
- Slow make/slow break contacts
- Several head types available
- Plastic body
- Pre-wired in various cable lengths
- Tamper resistant cover

## Cable Pull Switches For Emergency Stop Operation




XY2 Cable Pulls

### XY2 Cable Pull Switches

XY2 cable pull switches provide emergency stop signaling at any point along a cable up to 165 feet in length. This is preferable to installing many individual emergency stop push button stations along a conveyor or around the machine, providing a more cost effective solution. Typical applications include conveyor systems, packaging, textiles, transfer machines, presses, woodworking equipment and paint lines.

Operation is based on the taut cable principle. The cable must be tight and have appropriate tension applied to set or reset the switch. Once cable tension has been set, the device will open the N.C. control contacts if either the cable is pulled or if it becomes slack due to stretching or breakage of the cable.

Normal stop versions are used where a momentary, non-emergency signal is required at any point along a cable.

**Features and Benefits**

- Cable lengths: XY2CE 165 ft. and XY2CH 50 ft.
- Emergency stop versions (available in XY2CE and XY2CH)
  - — The N.C. contact opens the control circuit and mechanically latches, and will remain latched in the open position until an operator manually resets it
  - — Emergency stop versions have positive/direct opening contacts as standard
  - — Device will not reset if out of adjustment
- Normal stop versions (available in XY2CE and XY2CH)
  - — Normal stop versions are used where a momentary, non-emergency signal is required
  - — Normal stop versions do not latch contacts open or include positive opening contacts
  - — Normal stop versions are provided with snap action contacts for momentary stop

**XY2CE**

- 165 ft. maximum cable length
- Adjustable tripping force
- Available with 2 N.O. and 2 N.C. contacts

**XY2CH**

- 50 ft. maximum cable length
- Two viewing windows to aid in adjusting the switch
- Manual tripping force adjustment
- Adjustment indicator
- Traction force indicator



© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Section 26

## AC Drives and Soft Starts



**Altivar™ 212**
(26-6)



**Altivar™ 312**
(p. 26-7)



**Altivar™ 61**
(26-10)



**Altivar™ 71**
(p. 26-13)



Altistart™ **22**
Soft Starts
(p. 26-18)



Altistart™ **48**
Soft Starts
(p. 26-17)


### AC Drives Overview

Panel Mounted Open AC Drive Solutions **26-2**
Soft Start Solutions **26-4**

### AC Drives

*New!* Altivar™ 212 **26-6**
Altivar™ 312 **26-7**
Altivar™ 61 **26-10**
Altivar™ 71 **26-12**
Altivar™ 61 and 71 Options **26-14**

### Enclosed Drives

*New!* S–Flex™ 212 Enclosed Drive Controller **26-16**

### Soft Starts

Altistart™ 48 **26-17**
Altistart™ 22 **26-18**

### AC Drives

Support, Training, and Documentation **26-20**


For detailed information on the complete range of open and enclosed drives and soft starts, please refer to *AC Drives and Soft Starts Price Guide*: **8800PL9701R08/11**



© 2012 Schneider Electric
All Rights Reserved

| Type of Motor Control | | Simple Machines | | Complex Machines |
|---|---|---|---|---|
| Key Application/Market Segment | | • Conveyors<br>• Mixers<br>• Gate control<br>• Machine movement | • Small pumps and fans<br>• Positive displacement pumps<br>• Material handling | • Material working<br>• Material handling<br>• Packaging<br>• Gapping, Palletizing<br>• Forming, Embossing<br>• Hoisting |
| Drives | | Altivar 12<br>  | Altivar 312<br>  | Altivar 32<br>  |
| Distribution voltage ranges for 50/60 Hz line supply | | Single-phase 100 V to 120 V<br>Single-phase 200 V to 240 V<br>Three-phase 200 V to 230 V | Single-phase 200 V to 240 V<br>Three-phase 200 V to 240 V<br>Three-phase 380 V to 500 V<br>Three-phase 525 V to 600 V | Single-phase 200 V to 240 V<br>Three-phase 380 V to 500 V |
| Horsepower ratings for three-phase motors | | 1/4 hp to 1 hp, 115 V/230 V single-phase input<br>1/4 hp to 3 hp, 208 V/230 V single-phase input<br>1/4 hp to 5hp, 208V/230 V | 1/4 hp to 3 hp, 208 V/230 V single-phase input<br>1/4 hp to 20 hp, 208 V/230 V<br>1/2 hp to 20 hp, 400 V/480 V<br>1 hp to 20 hp, 525 V/600 V | 1/4 hp to 3 hp, 200 V/240 V<br>1/2 hp to 20 hp, 380 V/500 V |
| Drives | Output frequency | 0.5 Hz to 400 Hz | 0.5 Hz to 500 Hz | 0.1 Hz to 599 Hz |
| | Type of Control: | | | |
| | Asynchronous motor | Sensorless flux vector control<br>Kn2 quadratic ratio for pump and fan | Sensorless flux vector control, volts per hertz, Energy saving ratio | Sensorless flux vector without speed feedback, volts/hertz (2 or 5 point or quadratic) |
| | Synchronous motor | — | — | Permanent magnet motor control without speed feedback |
| | Transient overtorque | 150% to 170% of nominal motor torque | 170% to 200% of the nominal motor torque | 150% nominal for 60 seconds,<br>200% nominal for 2 seconds |
| Functions<br>Number of Functions | | 40 | 5 | >150 + ATV Logic |
| Number of I/O | Analog inputs | 1 | 3 | 3 |
| | Analog outputs | 1 | 1 | 1 |
| | Logic inputs | 4 | 6 | 6 + Safe Torque Off input |
| | Logic/Relay outputs | 1 L.O., 1 N.O./1 N.C. relay contacts | 2: 1 N.O./1 N.C. + 1 N.O. relay contacts | 1 L.O., 1 N.O./1 N.C., 1 N.O. |
| Communication | Integrated | Modbus™ | Modbus™ and CANOpen | Modbus™ and CANOpen |
| | Available as an option | — | • DeviceNet<br>• Profibus DP<br>• CANOpen Daisy Chain<br>• Ethernet TCP/IP | • CANOpen Daisy Chain<br>• DeviceNet<br>• Profibus DP V1<br>• Ethernet TCP/IP |
| Other Option Cards | | — | — | — |
| Enclosure Rating | | IP20 | IP20, Type 1 with optional kit Type 12 available with ATV31C | IP20 |
| Standards and Certifications | | EC/EN 61800-5-1, IEC/EN 61800-3 (Environments 1 and 2, categories C1 and C3)<br>CE, UL, CSA, C-Tick,<br>NOM, GOST | EN 50178, EN 61800-3,<br>EN 55011 - EN 55002:<br>class A, class B with option, C-TICK, UL, N998, CE, CSA | IEC/EN 61800-5-1,<br>IEC 61800-3 (1 and 2, category C2)<br>IEC/EN 61508 SIL 1<br>UL508C, CSA, C-Tick, NOM, GOST, CE |



© 2012 Schneider Electric
All Rights Reserved

| Complex, High-power Machines | Centrifugal Pumps and Fans | |
|---|---|---|
| • Material handling<br>• High performance movement and regulation<br>• Lifts, cranes, hoists<br>• Extruders, shredders<br>• Presses | • Pumps<br>• Fans | |
| **Altivar 71**  | **Altivar 212**  | **Altivar 61**  |
| Single-phase 230 V to 240 V<br>Three-phase 200 V to 240 V<br>Three-phase 380 V to 480 V<br>Three-phase 500 V to 690 V | Three-phase 200 V to 240 V<br>Three-phase 380 V to 480 V | Single-phase 230 V to 240 V<br>Three-phase 200 V to 240 V<br>Three-phase 380 V to 480 V |
| 1 hp to 30 hp, 208 V/230 B single-phase input<br>1/2 hp to 100 hp, 200 V/230 V<br>1 hp to 1800 hp, 400 V/480 V<br>2 hp to 2100 hp, 575 V/690 V | 1 hp to 40 hp, 208 V/230 V<br>1 hp to 100 hp, 400 V/480 V | 1 hp to 30 hp, 208 V/230 V single-phase input<br>1 hp to 125 hp, 208 V/230 V<br>2 hp to 2500 hp, 575 V/690 V |
| 0.5 Hz to 599 Hz up to 50 hp<br>0.5 Hz to 500 Hz from 50 hp to 700 hp | 0 Hz to 200 Hz | 0.5 Hz to 1000 Hz up to 50 hp<br>0.5 Hz to 500 Hz from 50 hp to 900 hp |
| | | |
| Sensorless flux vector control (with or without sensor), volts per hertz ratio (2 or 5 points), ENA system, synchronous motor vector control with or without speed feedback | Volts per hertz or sensorless flux vector control | Volts per hertz ratio (2 or 5 points) or sensorless flux vector control, energy-saving ratio |
| Vector control with or without speed feedback | — | — |
| 220% of the nominal motor torque for 2 seconds<br>170% for 60 seconds | Transient overload: 110% of the nominal drive current for 60 seconds | Transient overload: 110% of the nominal drive current for 60 seconds |
| > 150 | 50 | > 100 |
| 2-4 | 2 | 2-4 |
| — | 1 | — |
| 6-20 | 3 | 6-20 |
| 2-4 | 2: 1 N.O./1 N.C. and 1 N.O. relay contacts | 2-4 |
| Modbus™ and CANopen | Modbus™, Apogee P1, BACnet, Metasys® N2 | Modbus™ and CANopen |
| • DeviceNet<br>• Modbus TCP/IP<br>• Profibus DP [V1]<br>• Ethernet IP<br>• Modbus/Uni-Telway<br>• Modbus Plus<br>• Interbus S | • LonWorks | • Apogee FLN ( P1)<br>• BACnet<br>• Modbus/Uni-Telway<br>• LonWorks<br>• Modbus TCP/IP<br>• Ethernet IP<br>• Modbus Plus<br>• Interbus S<br>• DeviceNet<br>• Profibus DP [V1]<br>• Metasys N2 |
| Encoder interface cards, I/O extension cards, Controller Inside programmable card | — | I/O extension cards, Controller Inside programmable card, multi-pump cards |
| IP20, Type 1 with optional kit, Type 12 @460 Vac | IP20, Type 1 with optional kit, Type 12 @460 Vac | IP20, Type 1 with optional kit, Type 12 @460 Vac |
| IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, C1 to C3), EN 55011, EN 55022, IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11,CE, UL, CSA, DNV, C-TICK, NOM 117, GOST, ABS | EN 50178, IEC/EN 61800-3, EN 55011, 55022: class A, class B with option, CE, UL, C-TICK, N998, UL 1995 Plenum-rated | IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, C1 to C3), EN 55011, EN 55022, UL 1995 Plenum-rated, IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11, CE, UL, CSA, DNV, C-TICK, NOM 117, GOST, ABS |



© 2012 Schneider Electric
All Rights Reserved

| Type of Motor Control | | Simple Machines | Light-duty Machines | Heavy-duty Machines |
|---|---|---|---|---|
| **Key Application/Market Segment** | | • Conveyors<br>• Mixers<br>• Gate control<br>• Machine movement<br>• Small pumps and fans<br>• Positive displacement pumps | • Pumps<br>• Fans<br>• Turbines<br>• Compressors<br>• Conveyors<br>• Conveyor belts<br>• Lifting screws<br>• Escalators | • Pumps<br>• Fans<br>• Punch presses<br>• Band saws<br>• Crushers<br>• Centrifuges<br>• Conveyors (high inertia loads) |
| **Soft Starts** | | **Altistart 01**<br>  | **Altistart 22**<br>  | **Altistart 48**<br>  |
| **Distribution voltage ranges for 50/60 Hz line supply** | | Single-phase 110 V to 480 V<br>Three-phase 110 V to 690 V | Three-phase 208 to 600 Vac | Three-phase 230 V to 415 V<br>Three-phase 208 V to 690 V |
| **Horsepower ratings for three-phase motors** | | 1/4 hp to 2 hp 115 V/230 V<br>1/2 hp to 30 hp, 208 V/230 V<br>1/2 hp to 60 hp, 400 V/480 V<br>30 hp to 75 hp, 575 V/600 V | 3 hp to 500 hp | 3 hp to 1200 hp |
| **Drives** | Output frequency | Equals input frequency | — | Equals input frequency |
| | Type of Control:<br>Asynchronous motor | Reduced voltage start | Controlled starting and stopping, via voltage and torque | Reduced voltage start<br>Reduced voltage start and torque control stop |
| | Synchronous motor | — | — | — |
| | Typical starts per hour rating | — | 6 | 10 |
| **Functions**<br>**Number of Functions** | | 1 | 29 | 36 |
| **Number of I/O** | Analog inputs | — | 1 PTC probe | 1 PTC probe |
| | Logic inputs | 3 | 3 | 4 |
| | Relay outputs | 1 | 2 (N.O./N.C) | 1 |
| **Communication** | Integrated | — | Embedded Modbus | Modbus |
| | Available as an option | Combined with TeSys™ U-Line self-protected starter | — | • DeviceNet<br>• Ethernet TCP/IP<br>• Fipio<br>• Profibus DP V1 |
| **Other Option Cards** | | — | — | — |
| **Enclosure Rating** | | IP20 | IP00, IP20 | IP20 |
| **Standards and Certifications** | | EC/EN 60947-4/2, C-Tick, CSA, UL, CE, CCC | UL, CSA, CE, GOST, C-TICK, CCC, and RoHS directive | EC/EN 60947-4/2, EMC class A and B, DNV, C-Tick, GOST, CCIB, NOM, UL, CE, CCC, CSA |



© 2012 Schneider Electric
All Rights Reserved

| Type of Motor Control | Adjustable Speed Drives Commercial HVAC & Retrofits | Soft Starts Commercial |
|---|---|---|
| **Key Application/Market Segment** | • Pumps<br>• Fans | • Pumps<br>• Fans<br>• Conveyors<br>• Centrifuges |
| **Packaged Products** | **S-Flex (Altivar 212)**<br>  | **Enclosed 22**<br>  |
| **Distribution voltage ranges for 50/60 Hz line supply** | 208 Vac, 240 Vac, 480 Vac | 208 Vac, 230 Vac, 460 Vac, 575 Vac |
| **Horsepower ratings for three-phase motors** | **Variable torque**<br>1 hp to 40 hp, 200 V/230 V<br>1 hp to 100 hp, 460 V | **Type 1 and Type 12**<br>3 hp to 150 hp, 208 V<br>5 hp to 200 hp, 230 V<br>10 to 400 hp, 460 V<br>15 to 500 hp, 575 V<br><br>**Type 3R or 50 °C Rated:**<br>3 hp to 125 hp, 208 V<br>5 hp to 150 hp, 230 V<br>10 to 400 hp, 460 V<br>15 to 500 hp, 575 V |
| **Configurable options** | **Configurable product**<br>Drive with isolation/bypass<br>Non-bypass<br>Drive input disconnect switch<br>Line contactor<br><br>Communication options | Basic shunt tip<br>Full featured shunt trip<br>non-reversing isolation<br>Reversion isolation<br>Integral Full Voltage Bypass |
| **Enclosure ratings** | Type 1 general purpose | Type 1 general purpose<br>Type 12 industrial use (Dust-Tight/Drip-Tight)<br>Type 3R outdoor use |
| **Communication** | • Modbus RJ45 (included as standard)<br>• BACnet (embedded)<br>• LonWorks (option card)<br>• Metasys N2 (embedded)<br>• APOGEE FLN (P1) (embedded) | • Modbus (embedded) |
| **Standards and Certifications** | UL 508C, Seismic qualification ICC ES AC156 acceptance test protocol | Service Entrance Rating, UL Listed per UL 508 under category NKJH, Conforms to applicable NEMA ICS, NFPA, and IEC standards,<br>Manufactured under ISO9001 standards,<br>Factory modification E10 provides Canadian cUL certification per C22.2, No.14, Seismic qualification |



© 2012 Schneider Electric
All Rights Reserved



ATV212HU15N4



ATV212W075N4



ATV212HU30M3X



ATV212HD37N4



VW3A1101



VW3A1101
VW3A1102
VW3A1103
VW3A1104R10



VW3A8121



LonWorks Option Card
VW3A21212

The Altivar 212 drive is for use with three-phase asynchronous motors for variable torque pump and fan applications. Select the Altivar 212 drive using the motor nameplate voltage, the full load ampere rating = and the table below. The Altivar 212 drive includes 3 logic inputs, 2 analog inputs, 1 analog output, and 2 relay outputs (with 1 NO and 1 NO/NC contacts). The Altivar 212 drive includes an integrated 4 digit, 7 segment LED display with a 7 button keypad and includes an RJ45 Modbus port plus a four-screw terminal block for BACnet, Modbus, Metasys N2 and Apogee P1 communication protocols. LonWorks™ is available in an option card.

**Table 26.1: Altivar™ 212 Selection and Pricing**

| AC Input Line Voltage | Three-Phase Motor Power▲ | | Continuous Output Current | Enclosure Rating | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | IP 20■ Open Style Product | | Type 1 Conduit Kit Purchase ATV212 and Conduit Kit for Type 1 Installation | | Type 12 / IP54♦★ | |
| | HP | kW | A▲ | Catalog Number | $ Price | Catalog Number | $ Price | Catalog Number | $ Price |
| 200/240 Vac -15%, +10% Three-Phase | 1 | 0.75 | 4.6 | ATV212H075M3X | **309.** | VW3A31814 | **45.** | — | — |
| | 2 | 1.5 | 7.5 | ATV212HU15M3X | **400.** | VW3A31814 | **45.** | — | — |
| | 3 | 2.2 | 10.6 | ATV212HU22M3X | **454.** | VW3A31814 | **45.** | — | — |
| | 4 | 3 | 13.7 | ATV212HU30M3X | **555.** | VW3A31815 | **45.** | — | — |
| | 5 | 4 | 18.7 | ATV212HU40M3X | **618.** | VW3A31815 | **45.** | — | — |
| | 7.5 | 5.5 | 24.2 | ATV212HU55M3X | **799.** | VW3A31816 | **45.** | — | — |
| | 10 | 7.5 | 32 | ATV212HU75M3X | **963.** | VW3A31816 | **45.** | — | — |
| | 15 | 11 | 46.2 | ATV212HD11M3X | **1225.** | VW3A31817 | **45.** | — | — |
| | 20 | 15 | 61 | ATV212HD15M3X | **1532.** | VW3A31817 | **45.** | — | — |
| | 25 | 18.5 | 74.8 | ATV212HD18M3X | **1795.** | VW3A31817 | **45.** | — | — |
| | 30 | 22 | 88 | ATV212HD22M3X | **2188.** | VW3A9206 | **65.** | — | — |
| | 40 | 30 | 117 | ATV212HD30M3X | **2806.** | VW3A9208 | **135.** | — | — |
| 380/480 Vac -15%, +10% Three-Phase | 1 | 0.75 | 2.2 | ATV212H075N4 | **400.** | VW3A31814 | **45.** | ATV212W075N4 | **500.** |
| | 2 | 1.5 | 3.7 | ATV212HU15N4 | **472.** | VW3A31814 | **45.** | ATV212WU15N4 | **590.** |
| | 3 | 2.2 | 5.1 | ATV212HU22N4 | **545.** | VW3A31814 | **45.** | ATV212WU22N4 | **681.** |
| | 4 | 3 | 7.2 | ATV212HU30N4 | **618.** | VW3A31815 | **45.** | ATV212WU30N4 | **772.** |
| | 5 | 4 | 9.1 | ATV212HU40N4 | **654.** | VW3A31815 | **45.** | ATV212WU40N4 | **817.** |
| | 7.5 | 5.5 | 12 | ATV212HU55N4 | **798.** | VW3A31815 | **45.** | ATV212WU55N4 | **998.** |
| | 10 | 7.5 | 16 | ATV212HU75N4 | **946.** | VW3A31816 | **45.** | ATV212WU75N4 | **1183.** |
| | 15 | 11 | 22.5 | ATV212HD11N4 | **1145.** | VW3A31816 | **45.** | ATV212WD11N4 | **1489.** |
| | 20 | 15 | 30.5 | ATV212HD15N4 | **1425.** | VW3A31817 | **45.** | ATV212WD15N4 | **1853.** |
| | 25 | 18.5 | 37 | ATV212HD18N4 | **1705.** | VW3A31817 | **45.** | ATV212WD18N4 | **2131.** |
| | 30 | 22 | 43.5 | ATV212HD22N4S★ | **1780.** | VW3A31817 | **45.** | — | — |
| | 30 | 22 | 43.5 | ATV212HD22N4 | **1856.** | VW3A9206 | **65.** | ATV212WD22N4 | **2412.** |
| | 40 | 30 | 58.5 | ATV212HD30N4 | **2284.** | VW3A9206 | **65.** | ATV212WD30N4 | **2855.** |
| | 50 | 37 | 79 | ATV212HD37N4 | **2686.** | VW3A9207 | **65.** | ATV212WD37N4 | **3358.** |
| | 60 | 45 | 94 | ATV212HD45N4 | **3372.** | VW3A9207 | **65.** | ATV212WD45N4 | **4215.** |
| | 75 | 55 | 116 | ATV212HD55N4 | **3883.** | VW3A9208 | **135.** | ATV212WD55N4 | **4853.** |
| | 100 | 75 | 160 | ATV212HD75N4 | **4433.** | VW3A9208 | **135.** | ATV212WD75N4 | **5541.** |

UL File E116875, CSA 2278406, Plenum rated per UL 508C for UL 1995 installations. NOM, CE

▲ These horsepower, wattage and continuous ampere ratings apply to the default switching frequency and maximum 40 °C ambient. Refer to the installation manual for derating curves as a function of switching frequency, ambient temperature, and mounting conditions.

■ IP20 Altivar 212 drives can be installed as UL Type 1 with an optional conduit box by following the instructions in the Installation Manual.

♦ For ATV212W... drives with Class B EMC filter, add the letter "C" to the end of the standard catalog number and multiply $ Price by 1.3.

★ Late 3Q 2011 availability.

**Table 26.2: Altivar 212 Options and Accessories**

| | Description | For Use on Drives | Catalog Number | $ Price |
|---|---|---|---|---|
| **User Interface Options** | | | | |
| Remote LCD Display Keypad | 8 line, 24 characters per line, plain text, 8 keys, rotary wheel, 60 °C IP54 rated | Altivar 212, 312, 32 Altivar 61 & 71 | VW3A1101■ | **115.** |
| Remote LCD Keypad Mounting Accessories | IP54 rated kit for remote mounting LCD keypad on enclosure door. Clear plastic door for use with VW3A1102 for IP65 rating and tamper resistant. | VW3A1191 | VW3A1102■ | **55.** |
| | Female / Female right angle RJ45 adaptor, to connect cable and keypad.▲ | VW3A1102 | VW3A1103■ | **35.** |
| | | VW3A1101 | VW3A1105■ | **35.** |
| | Remote LCD Keypad Mounting Cables —Equipped with two RJ45 connectors | | | |
| | 1 meter length | VW3A1101 | VW3A1104R10♦ | **35.** |
| | 3 meter length | VW3A1101 | VW3A1104R30♦ | **35.** |
| | 5 meter length | VW3A1101 | VW3A1104R50♦ | **35.** |
| | 10 meter length | VW3A1101 | VW3A1104R100♦ | **35.** |
| Multi-loader | Use to copy configurations between like drives, PC Soft, or SoMove PC Software | Altivar 12, 212, 312 32, 61, 71, & Altistart 22 | VW3A8121 | **350.** |
| Potentiometer | Operator, mounting collar, 2.5 kilohm, ½ watt potentiometer | Altivar 212 | ATVPOT25K | **69.** |
| **Software** | | | | |
| PCSoft | PC software configuring, monitoring and trouble shooting Altivar 212 drives. Requires one of two cables (noted below) to connect a PC to the RJ45 Modbus port on the drive | Altivar 212 | Download at www.schneider-electric.us/drives | |
| | USB/RS485 cable: equipped with USB connector and RJ45 connector | Altivar & Altistart | TCSMCNAM3M002P♦ | **52.** |
| | RS 232-RS485 converter with SUB-D & RJ45 port, cable with two RJ45 connectors | Altivar 212 | VW3A8106■ | **75.** |
| SoMobile™ | Software for compatible moble phones provides wireless interface similar to the LCD display. Requires Modbus™ to Bluetooth® adaptor to connect phone and Altivar 212 drive. Modbus | Altivar 212 | Download at www.schneider-electric.us/drives | |
| Bluetooth Adaptor | Connects to RJ45 Modbus port on the drive. | Altivar 12, 212, 312, 61, 71 | VW3A8114 | **85.** |
| **Communication Option** | | | | |
| LonWorks Communication Card Option | Provides a four-screw terminal block for connecton to LonWorks network. Install in place of standard control board that comes mounted in the Altivar 212 drive. The I/O count is reduced to 3LI, 1 AI and 1 NO/NC relay | Altivar 212 | VW3A21212 | **375.** |
| **Mounting Kit** | | | | |
| DIN Rail Mounting Kit | For installation on 35 mm wide DIN rail | Altivar 212H075M3X...U22M3X Altivar 212H075N4...U22N4 | VW3A31852 | **375.** |

▲ Not required if using VW3A1102.



© 2012 Schneider Electric
All Rights Reserved









ATV31C
IP54 / UL Type 12

### Table 26.3: Altivar™ 312 Selection and Pricing

| Input Line Voltage | Three-Phase Motor Power▲ | | Open Drives■ | | |
|---|---|---|---|---|---|
| | HP | kW | Continuous Output Current A | Catalog Number | $ Price |
| 208/230 Vac Single-Phase | 0.25 | 0.18 | 1.5 | ATV312H018M2 | **268.** |
| | 0.5 | 0.37 | 3.3 | ATV312H037M2 | **287.** |
| | 0.75 | 0.55 | 3.7 | ATV312H055M2 | **306.** |
| | 1 | 0.75 | 4.6 | ATV312H075M2 | **335.** |
| | 1.5 | 1.1 | 6.9 | ATV312HU11M2 | **363.** |
| | 2 | 1.5 | 8 | ATV312HU15M2 | **402.** |
| | 3 | 2.2 | 11 | ATV312HU22M2 | **468.** |
| 208/230 Vac Three-Phase | 0.25 | 0.18 | 1.5 | ATV312H018M3 | **258.** |
| | 0.5 | 0.37 | 3.3 | ATV312H037M3 | **287.** |
| | 0.75 | 0.55 | 3.7 | ATV312H055M3 | **306.** |
| | 1 | 0.75 | 4.8 | ATV312H075M3 | **325.** |
| | 1.5 | 1.1 | 6.9 | ATV312HU11M3 | **363.** |
| | 2 | 1.5 | 8 | ATV312HU15M3 | **421.** |
| | 3 | 2.2 | 11 | ATV312HU22M3 | **478.** |
| | 4 | 3 | 13.7 | ATV312HU30M3 | **554.** |
| | 5 | — | 17.5 | ATV312HU40M3 | **650.** |
| | 7.5 | 5.5 | 27.5 | ATV312HU55M3 | **841.** |
| | 10 | 7.5 | 33 | ATV312HU75M3 | **1013.** |
| | 15 | 11 | 54 | ATV312HD11M3 | **1338.** |
| | 20 | 15 | 66 | ATV312HD15M3 | **1721.** |
| 400/480 Vac Three-Phase | 0.5 | 0.37 | 1.5 | ATV312H037N4 | **363.** |
| | 0.75 | 0.55 | 1.9 | ATV312H055N4 | **392.** |
| | 1 | 0.75 | 2.3 | ATV312H075N4 | **421.** |
| | 1.5 | 1.1 | 3 | ATV312HU11N4 | **449.** |
| | 2 | 1.5 | 4.1 | ATV312HU15N4 | **497.** |
| | 3 | 2.2 | 5.5 | ATV312HU22N4 | **574.** |
| | 4 | 3 | 7.1 | ATV312HU30N4 | **650.** |
| | 5 | — | 9.5 | ATV312HU40N4 | **688.** |
| | 7.5 | 5.5 | 14.3 | ATV312HU55N4 | **860.** |
| | 10 | 7.5 | 17 | ATV312HU75N4 | **1052.** |
| | 15 | 11 | 27.7 | ATV312HD11N4 | **1386.** |
| | 20 | 15 | 33 | ATV312HD15N4 | **1721.** |
| 575/600 Vac Three-Phase♦ | 1 | 0.75 | 1.7 | ATV312H075S6 | **484.** |
| | 2 | 1.5 | 2.7 | ATV312HU15S6 | **572.** |
| | 3 | 2.2 | 3.9 | ATV312HU22S6 | **660.** |
| | 5 | 3.7/4.0 | 6.1 | ATV312HU40S6 | **792.** |
| | 7.5 | 5.5 | 9 | ATV312HU55S6 | **989.** |
| | 10 | 7.5 | 11 | ATV312HU75S6 | **1209.** |
| | 15 | 11 | 17 | ATV312HD11S6 | **1594.** |
| | 20 | 15 | 22 | ATV312HD15S6 | **1979.** |

▲ These horsepower, wattage, and continuous ampere ratings apply to 4 kHz switching frequency and maximum 50 °C ambient. Refer to the installation manual for derating curves as a function of switching frequency, ambient temperature, and mounting conditions.
■ Open type Altivar 312 Drives can be installed as UL Type 1 with optional conduit box when following instructions in the installation manual.
♦ A minimum 3% line reactor is required on all 575 V drive installations.

### Table 26.4: Altivar 31 UL Type 12 / IP54 Selection and Pricing

| Input Line Voltage | Three-Phase Motor Power▲ | | Open Drives■ | IP54 / UL Type 12 Enclosed | |
|---|---|---|---|---|---|
| | kW | HP | A▲ | Catalog Number | Standard $ Price |
| 208/230 Vac Single-Phase | 0.18 | 0.25 | 1.5 | ATV31C018M2 | **362.** |
| | 0.37 | 0.5 | 3.3 | ATV31C037M2 | **387.** |
| | 0.55 | 0.75 | 3.7 | ATV31C055M2 | **413.** |
| | 0.75 | 1 | 4.6 | ATV31C075M2 | **452.** |
| | 1.1 | 1.5 | 6.9 | ATV31CU11M2 | **490.** |
| | 1.5 | 2 | 8 | ATV31CU15M2 | **543.** |
| | 2.2 | 3 | 11 | ATV31CU22M2 | **632.** |
| 400/480 Vac Three-Phase | 0.37 | 0.5 | 1.5 | ATV31C037N4 | **490.** |
| | 0.55 | 0.75 | 1.9 | ATV31C055N4 | **529.** |
| | 0.75 | 1 | 2.3 | ATV31C075N4 | **568.** |
| | 1.1 | 1.5 | 3 | ATV31CU11N4 | **606.** |
| | 1.5 | 2 | 4.1 | ATV31CU15N4 | **671.** |
| | 2.2 | 3 | 5.5 | ATV31CU22N4 | **774.** |
| | 3 | 4 | 7.1 | ATV31CU30N4 | **878.** |
| | — | 5 | 9.5 | ATV31CU40N4 | **929.** |
| | 5.5 | 7.5 | 14.3 | ATV31CU55N4 | **1162.** |
| | 7.5 | 10 | 17 | ATV31CU75N4 | **1420.** |
| | 11 | 15 | 27.7 | ATV31CD11N4 | **1733.** |
| | 15 | 20 | 33 | ATV31CD15N4 | **2151.** |

▲ These horsepower, wattage, and continuous ampere ratings apply to 4 kHz switching frequency and maximum 50 °C ambient. Refer to the installation manual for derating curves as a function of switching frequency, ambient temperature, and mounting conditions.



© 2012 Schneider Electric
All Rights Reserved

### Table 26.5: Altivar™ 312 Options and Accessories

| | Description | For Use on Drives | Catalog Number | $ Price |
|---|---|---|---|---|
| **Software** | | | | |
| SoMove™ Lite This software enables the user to configure, set, debug and organize maintenance task for the ATV 312 soft starter. It can also be used to customize the integrated display terminal menus. It can be used with a direct connection or a Bluetooth® wireless connection. Free download **www.schneider-electric.us** | | | | |
| Powersuite™ Test and Commissioning Software Kit | Software on CD-ROM. For use with Microsoft Windows™ 95, 98, NT, and XP operating systems for PCs | ATV312 all ranges | VW3A8104 | **150.** |
| **User Interface Kits** | | | | |
| USB to RJ45 Adaptor Kit | For use in connecting to a PC with a USB port | Advantys™ OTB, Altistart™ motor starters, Altivar series incl. HMI, Altivar controller | TCSMCNAM3M 002P | **52.** |
| Remote Keypad Options and Accessories | Remote Keypad Display<br>Remote Keypad Display<br>Remote Keypad Display and Mounting Kit<br>Remote Keypad Display | ATV12 (IP54)<br>ATV12 (IP65)<br>ATV312<br>ATV312, ATV61, ATV71 | —<br>—<br>VW3A31101<br>VW3A1101 ▲ | —<br>—<br>**175.**<br>**115.** |
| Cable for remote mounting LCD graphic keypad. RJ-45 connector on each end. | 1 meter<br>3 meters<br>5 meters<br>10 meters | Any ATV61, Any ATV71<br>Any ATV61, Any ATV71<br>Any ATV61, Any ATV71<br>Any ATV61, Any ATV71 | VW3A1104R10<br>VW3A1104R30<br>VW3A1104R50<br>VW3A1104R100 | **35.**<br>**35.**<br>**35.**<br>**45.** |
| Communication Options | Profibus<br>CANopen Daisy Chain<br>DeviceNet | ATV312<br>ATV312<br>ATV312 | VW3A31207<br>VW3A31208<br>VW3A31209 | **185.**<br>**185.**<br>**185.** |
| Potentiometer | Operator, mounting collar, 2.5 kilohm, ½ watt potentiometer | Altivar 312 | ATVPOT25K | **69.** |

▲ Refer to page 26-14 for remote mounting kit and IP65 option for this keypad.

***NOTE:*** *Refer to Catalog MKTED211041EN-US for communication cables.*

### Table 26.6: Configuration Tools

| Description | Part Number | For Use on Drives | $ Price |
|---|---|---|---|
| Bluetooth® Dongle: to establish connection between Altivar drives and PC enabled with Bluetooth | VW3A8114 | All | **85.** |
| Simple Loader: to transfer configuration between like drives. For use with the Altivar product line. | VW3A8120 | ATV12, ATV312, ATV32, ATV61 and ATV71 | **175.** |
| Multi-loader: to copy a configuration from a drive or from SoMove via an SD card, and transferring to another drive or to a PC | VW3A8121 | ATV12, ATV312, ATV212, ATV32, ATV61, ATV71 and ATS22 | **350.** |

### Table 26.7: Options—Field Installed Kits

| Description | | For Use on Drives | Catalog Number | $ Price |
|---|---|---|---|---|
| DIN Rail Mount Kit | DIN Rail Mounting Plate for 35 mm wide DIN rail | ATV312H018M2, ATV312H037M2, ATV312H055M2, ATV312H075M2, ATV312H018M3, ATV312H037M3, ATV312H055M3, ATV312H075M3 | VW3A9804 | **72.** |
| | | ATV312HU11M2, ATV312HU15M2, ATV312HU11M3, ATV312HU15M3, ATV312HU22M3, ATV312H037N4, ATV312H055N4, ATV312H075N4, ATV312HU11N4, ATV312HU15N4, ATV312H075S6, ATV312HU15S6 | VW3A9805 | **72.** |
| Conduit Entrance Kit | Multiple knockout sizes<br>Installation of conduit entrance kit and retention of vent cover on top of drive controller provides the ATV31 with UL Type 1 rating. | ATV312H018M2, ATV312H037M2, ATV312H055M2, ATV312H075M2 | VW3A31812 | **45.** |
| | | ATV312H018M3, ATV312H037M3, ATV312H055M3, ATV312H075M3 | VW3A31811 | **45.** |
| | | ATV312HU11M3, ATV312HU15M3 | VW3A31813 | **45.** |
| | | ATV312HU11M2, ATV312HU15M2, ATV312HU22M3, ATV312H037N4, ATV312H055N4, ATV312H075N4, ATV312HU11N4, ATV312HU15N4, ATV312H075S6, ATV312HU15S6 | VW3A31814 | **45.** |
| | | ATV312HU22M2, ATV312HU30M3, ATV312HU40M3, ATV312HU22N4, ATV312HU30N4, ATV312HU40N4, ATV312HU22S6, ATV312HU40S6 | VW3A31815 | **45.** |
| | | ATV312HU55M3, ATV312HU75M3, ATV312HU55N4, ATV312HU75N4, ATV312HU55S6, ATV312HU75S6 | VW3A31816 | **45.** |
| | | ATV312HD11M3, ATV312HD15M3, ATV312HD11N4, ATV312HD15N4, ATV312HD11S6, ATV312HD15S6 | VW3A31817 | **45.** |
| ATV28 Replacement Kit | This kit contains brackets that adapt the spacing of the ATV312 mounting holes to be equivalent to that of an ATV28 with the same rating. This will permit the ATV312 to be secured to the panel holes and mounting hardware already in place for the ATV28. | ATV312H018M2, ATV312H037M2, ATV312H055M2, ATV312H075M2 ATV312H018M3, ATV312H037M3, ATV312H055M3, ATV312H075M3 | VW3A31821 | **25.** |
| | | ATV312HU11M2, ATV312HU15M2, ATV312HU11M3, ATV312HU15M3, ATV312HU22M3, ATV312H075S6, ATV312HU15S6 | VW3A31822 | **25.** |
| | | ATV312HU55M3, ATV312HU75M3, ATV312HU55N4, ATV312HU75N4, ATV312HU55S6, ATV312HU75S6 | VW3A31823 | **25.** |
| Dynamic Braking Resistor Kit | DB resistors are provided in a Type 1 enclosure and are thermally protected. | ATV312H018M2–037M2 ATV312H018M3–037M3 ATV312H037N4–U40N4 | VW3A66711 | **422.** |
| | | ATV312H055M2–U22M2 ATV312H055M3–U22M3 ATV312HU55N4–U75N4 | VW3A66712 | **633.** |
| | | ATV312HU30M3–U40M3 ATV312HD11N4–D15N4 | VW3A66713 | **950.** |
| | | ATV312HU55M3–U75M3 | VW3A66714 | **1266.** |
| | | ATV312HD11M3–D15M3 | VW3A66715 | **1846.** |





© 2012 Schneider Electric
All Rights Reserved

**Table 26.7: Options—Field Installed Kits (Continued)**

| Description | | | For Use on Drives | Catalog Number | $ Price |
|---|---|---|---|---|---|
| Line Reactors | 230/460 V | | See Price Guide 8800PL9701. | | |
| | 575 V | Open Style | ATV312H075S6 | RL00202 | **158.** |
| | | | ATV312HU15S6<br>ATV312HU22S6 | RL00403 | **163.** |
| | | | ATV312HU40S6<br>ATV312HU55S6<br>ATV312HU75S6<br>ATV312HD11S6<br>ATV312HD15S6 | RL00803<br>RL00802<br>RL01202<br>RL01802<br>RL02502 | **245.**<br>**179.**<br>**200.**<br>**253.**<br>**291.** |
| | | Enclosed (Type 1) | ATV312H075S6 | RL00212 | **289.** |
| | | | ATV312HU15S6<br>ATV312HU22S6 | RL00413 | **294.** |
| | | | ATV312HU40S6<br>ATV312HU55S6<br>ATV312HU75S6<br>ATV312HD11S6<br>ATV312HD15S6 | RL00813<br>RL00812<br>RL01212<br>RL01812<br>RL02512 | **379.**<br>**310.**<br>**332.**<br>**388.**<br>**507.** |
| RFI Input Filter | For compliance with European (CE) conducted emissions standard 55022 Class B (Class A filter built into 230/460 V ATV31 drives) | Single-phase supply voltage: 200–240 V 50/60 Hz | ATV312H037M2 ATV312H055M2<br>ATV312H075M2 | VW3A31401 | **58.** |
| | | | ATV312HU11M2 ATV312HU15M2 | VW3A31403 | **79.** |
| | | | ATV312HU22M2 | VW3A31405 | **108.** |
| | | 3 phase supply voltage: 200–240 V 50/60 Hz | ATV312H018M3 ATV312H037M3<br>ATV312H055M3 ATV312H075M3 | VW3A31402 | **72.** |
| | | | ATV312HU11M3 ATV312HU15M3<br>ATV312HU22M3 | VW3A31404 | **90.** |
| | | | ATV312HU30M3 ATV312HU40M3 | VW3A31406 | **133.** |
| | | | ATV312HU55M3 ATV312HU75M3 | VW3A31407 | **189.** |
| | | | ATV312HD11M3 ATV312HD15M3 | VW3A31408 | **297.** |
| | | | ATV312HD11N4 ATV312HD15N4 | VW3A31409 | **243.** |
| | | 3 phase supply voltage: 380–500 V 50/60 Hz | ATV312H037N4 ATV312H055N4<br>ATV312H075N4 ATV312HU11N4<br>ATV312HU15N4 | VW3A31404 | **90.** |
| | | | ATV312HU22N4 ATV312HU30N4<br>ATV312HU40N4 | VW3A31406 | **133.** |
| | | | ATV312HU55N4 ATV312HU75N4 | VW3A31407 | **189.** |
| | | | ATV312HD11N4 ATV312HD15N4 | VW3A31409 | **243.** |
| Fan Kit | Installation of the fan kit enables the drive to operate in higher ambient temperatures. The fan mounts on the drive. Consult the product catalog for more information. | | ATV61/71HD18M3X...HD22M3X,<br>ATV61/71HD22N4 | VW3A9404 | **135.00** |
| | | | ATV61/71HD30N4...HD37N4 | VW3A9405 | **145.00** |
| | | | ATV61/71HD30M3X...HD45M3X | VW3A9406 | **165.00** |
| | | | ATV61/71HD45N4...HD75N4 | VW3A9407 | **195.00** |



© 2012 Schneider Electric
All Rights Reserved









## Altivar 61 Three-Phase Drives

### Table 26.8: Selection and Pricing

| Input Line Voltage | Variable Torque‘ Three-Phase Motor Power HP | kW | Continuous Output Current A | Catalog Number with LCD Keypad (Stocked)△ | $ Price | Catalog Number to have ATV61 and Type 1 conduit \entry kit shipped as one line item. Field installation required (Packaged as kit at warehouse). | $ Price | Catalog Number with LED Keypad (Non-stocked) | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| | | | |  | |  | |  | |
| 208/240 Vac Three Phase | 1 | 0.75 | 4.8 | ATV61H075M3▲★ | **639.** | ATV61H075M3T1★ | **684.** | ATV61H075M3Z | **544.** |
| | 2 | 1.5 | 8 | ATV61HU15M3▲★ | **663.** | ATV61HU15M3T1★ | **708.** | ATV61HU15M3Z | **568.** |
| | 3 | 2.2 | 11 | ATV61HU22M3▲★ | **764.** | ATV61HU22M3T1★ | **809.** | ATV61HU22M3Z | **669.** |
| | 4 | 3 | 13.7 | ATV61HU30M3▲★ | **925.** | ATV61HU30M3T1★ | **970.** | ATV61HU30M3Z | **830.** |
| | 5 | 4 | 17.5 | ATV61HU40M3▲★ | **1035.** | ATV61HU40M3T1★ | **1080.** | ATV61HU40M3Z | **940.** |
| | 7.5 | 5.5 | 27.5 | ATV61HU55M3▲★ | **1292.** | ATV61HU55M3T1★ | **1337.** | ATV61HU55M3Z | **1197.** |
| | 10 | 7.5 | 33 | ATV61HU75M3▲★ | **1586.** | ATV61HU75M3T1★ | **1631.** | ATV61HU75M3Z | **1491.** |
| | 15 | 11 | 54 | ATV61HD11M3X▲■★ | **2011.** | ATV61HD11M3XT1■★ | **2056.** | ATV61HD11M3XZ■ | **1916.** |
| | 20 | 15 | 66 | ATV61HD15M3X▲■★ | **2525.** | ATV61HD15M3XT1■★ | **2570.** | ATV61HD15M3XZ■ | **2430.** |
| | 25 | 18 | 75 | ATV61HD18M3X▲■★ | **2943.** | ATV61HD18M3XT1■★ | **3008.** | — | — |
| | 30 | 22 | 88 | ATV61HD22M3X▲■★ | **3586.** | ATV61HD22M3XT1■★ | **3651.** | — | — |
| | 40 | 30 | 120 | ATV61HD30M3X▲■★ | **4599.** | ATV61HD30M3XT1■★ | **4684.** | — | — |
| | 50 | 37 | 144 | ATV61HD37M3X▲■★ | **5342.** | ATV61HD37M3XT1■★ | **5427.** | — | — |
| | 60 | 45 | 176 | ATV61HD45M3X▲■★ | **6326.** | ATV61HD45M3XT1■★ | **6411.** | — | — |
| | 75 | 55 | 221 | ATV61HD55M3X■♦★ | **7806.** | ATV61HD55M3XT1■★ | **8266.** | — | — |
| | 100 | 75 | 285 | ATV61HD75M3X■♦★ | **9379.** | ATV61HD75M3XT1■★ | **9839.** | — | — |
| | 125 | 90 | 359 | ATV61HD90M3X■♦★ | **11954.** | ATV61HD90M3XT1■★ | **12507.** | — | — |
| 400/480 Vac Three Phase | 1 | 0.75 | 2.3 | ATV61H075N4▲★ | **754.** | ATV61H075N4T1★ | **799.** | ATV61H075N4Z | **659.** |
| | 2 | 1.5 | 4.1 | ATV61HU15N4▲★ | **857.** | ATV61HU15N4T1★ | **902.** | ATV61HU15N4Z | **762.** |
| | 3 | 2.2 | 5.8 | ATV61HU22N4▲★ | **999.** | ATV61HU22N4T1★ | **1044.** | ATV61HU22N4Z | **904.** |
| | 4 | 3 | 7.8 | ATV61HU30N4▲★ | **1125.** | ATV61HU30N4T1★ | **1170.** | ATV61HU30N4Z | **1030.** |
| | 5 | 4 | 10.5 | ATV61HU40N4▲★ | **1158.** | ATV61HU40N4T1★ | **1203.** | ATV61HU40N4Z | **1063.** |
| | 7.5 | 5.5 | 14.3 | ATV61HU55N4▲★ | **1299.** | ATV61HU55N4T1★ | **1344.** | ATV61HU55N4Z | **1204.** |
| | 10 | 7.5 | 17.6 | ATV61HU75N4▲★ | **1578.** | ATV61HU75N4T1★ | **1623.** | ATV61HU75N4Z | **1483.** |
| | 15 | 11 | 27.7 | ATV61HD11N4▲★ | **1868.** | ATV61HD11N4T1★ | **1913.** | ATV61HD11N4Z | **1773.** |
| | 20 | 15 | 33 | ATV61HD15N4▲★ | **2322.** | ATV61HD15N4T1★ | **2367.** | ATV61HD15N4Z | **2227.** |
| | 25 | 18 | 41 | ATV61HD18N4▲★ | **2795.** | ATV61HD18N4T1★ | **2840.** | ATV61HD18N4Z | **2700.** |
| | 30 | 22 | 48 | ATV61HD22N4▲★ | **3042.** | ATV61HD22N4T1★ | **3107.** | ATV61HD22N4Z | **2947.** |
| | 40 | 30 | 66 | ATV61HD30N4▲★ | **3744.** | ATV61HD30N4T1★ | **3809.** | ATV61HD30N4Z | **3649.** |
| | 50 | 37 | 79 | ATV61HD37N4▲★ | **4403.** | ATV61HD37N4T1★ | **4468.** | ATV61HD37N4Z | **4308.** |
| | 60 | 45 | 94 | ATV61HD45N4▲★ | **5528.** | ATV61HD45N4T1★ | **5563.** | ATV61HD45N4Z | **5433.** |
| | 75 | 55 | 116 | ATV61HD55N4▲★ | **6365.** | ATV61HD55N4T1★ | **6500.** | ATV61HD55N4Z | **6270.** |
| | 100 | 75 | 160 | ATV61HD75N4▲★ | **7267.** | ATV61HD75N4T1★ | **7402.** | ATV61HD75N4Z | **7172.** |
| | 125 | 90 | 179 | ATV61HD90N4♦★ | **7988.** | ATV61HD90N4T1★ | **8448.** | — | — |
| | 150 | 110 | 215 | ATV61HC11N4♦★ | **9022.** | ATV61HC11N4T1★ | **9575.** | — | — |
| | 200 | 130 | 259 | ATV61HC13N4♦★ | **10366.** | ATV61HC13N4T1★ | **10939.** | — | — |
| | 250 | 160 | 314 | ATV61HC16N4♦★ | **11711.** | ATV61HC16N4T1★ | **12299.** | — | — |
| | 350 | 220 | 427 | ATV61HC22N4♦★ | **13993.** | ATV61HC22N4T1★ | **14581.** | — | — |
| | 400 | 250 | 481 | ATV61HC25N4♦★▼ | **16475.** | ATV61HC25N4T1★ | **17079.** | — | — |
| | 500 | 315 | 616 | ATV61HC31N4♦▼ | **23734.** | — | — | — | — |
| | 600 | 400 | 759 | ATV61HC40N4♦▼ | **31783.** | — | — | — | — |
| | 700 | 500 | 941 | ATV61HC50N4♦▼ | **44235.** | — | — | — | — |
| | 900 | 630 | 1188 | ATV61HC63N4♦▼ | **63935.** | — | — | — | — |

▲ Option to have product treated for increased protection for dusty and corrosive environments. This product is not stocked. On 1 hp to 10 hp at 230 Vac 3 phase and up to 100 hp at 460 V, add “S337” to the end of the catalog number. On 15 hp to 60 hp at 230 Vac 3 phase, add “337” to the end of the catalog number. In both cases multiply price by 1.2 to obtain new price. With this option, exposed copper is tinned, circuit boards are conformal coated in critical areas and plastics are treated to better withstand the corrosive nature of certain oils. This option is standard on 55 kW/75 hp @ 230 Vac 3 phase and higher and 90 kW/125 hp @ 460 Vac and higher.

■ Product does not contain an EMC filter.

♦ Product ships with a DC choke that must be field mounted. A 5% line reactor may be purchased and installed in place of the DC choke. Add “D” to the end of the catalog number to receive just the AC drive and multiply the listed price by .96 to obtain new price.

★ These products can be ordered with LonWorks® or BACnet communication option card shipped as one line item. Field installation required. Add “LW” to the end of the part number to receive a LonWorks option card. Add $550 to the price. Add “BN” to the end of the part number to receive a BACnet option card. Add $225 to the price.

▼ These products do not contain a dynamic braking transistor. A separate transistor must be added for applications requiring dynamic braking.

△ When ordering replacements for Square D™ brand E-Flex™, MCC and M-Flex™ enclosed drive controllers containing the Altivar 61 drive, identify the replacement catalog number by referring to the applicable instruction manual, the side nameplate on power converter, or using the graphic keypad (menu 1.11 identification).





© 2012 Schneider Electric
All Rights Reserved



**Table 26.8: Altivar 61 Selection and Pricing (continued)**

| Input Line Voltage | Variable Torque | | | Catalog Number with LCD Keypad (Stocked) | $ Price |
|---|---|---|---|---|---|
| | Three-Phase Motor Power | | Continuous Output Current | | |
| | HP | kW | A | | |
| | | | |  | |
| 575/690 Vac Three Phase | 3 | 3 | 3.9 | ATV61HU30Y▲ | 1889. |
| | 4 | 4 | 5.8 | ATV61HU40Y▲ | 1990. |
| | 5 | 5.5 | 6.1 | ATV61HU55Y▲ | 2099. |
| | 7.5 | 7.5 | 9 | ATV61HU75Y▲ | 2380. |
| | 10 | 11 | 11 | ATV61HD11Y▲ | 2799. |
| | 15 | 15 | 17 | ATV61HD15Y▲ | 3380. |
| | 20 | 18.5 | 22 | ATV61HD18Y▲ | 3979. |
| | 25 | 22 | 27 | ATV61HD22Y▲ | 4790. |
| | 30 | 30 | 32 | ATV61HD30Y▲ | 5780. |
| | 40 | 37 | 41 | ATV61HD37Y▲ | 6999. |
| | 50 | 45 | 52 | ATV61HD45Y▲ | 8579. |
| | 60 | 55 | 62 | ATV61HD55Y▲ | 10379. |
| | 75 | 75 | 77 | ATV61HD75Y▲ | 12199. |
| | 100 | 90 | 99 | ATV61HD90Y▲ | 14399. |
| | 125 | 110 | 125 | ATV61HC11Y▲■ | 16899. |
| | 150 | 132 | 150 | ATV61HC13Y▲■ | 19179. |
| | — | 160 | 180 | ATV61HC16Y▲■ | 20795. |
| | 200 | 200 | 220 | ATV61HC20Y▲■ | 24290. |
| | 250 | 250 | 290 | ATV61HC25Y▲■♦ | 28950. |
| | 350 | 315 | 355 | ATV61HC31Y▲■♦ | 35950. |
| | 450 | 400 | 420 | ATV61HC40Y▲■♦ | 46750. |
| | 550 | 500 | 543 | ATV61HC50Y▲■♦ | 59590. |
| | 700 | 630 | 675 | ATV61HC63Y▲■♦ | 78490. |
| | 800 | 800 | 840 | ATV61HC80Y▲■♦ | 103390. |

▲ Conformal coating is standard.
■ An AC 5% line reactor is mandatory.
♦ These products do not contain a dynamic braking transistor. A separate transistor must be added for applications requiring dynamic braking.

## Altivar™ 61 Single-Phase Drives

In an application where it is necessary to use a 240 V single-phase input for a 3-phase motor, the drive must be derated; therefore, the power listed on the drive nameplate will be higher than the power rating on the motor nameplate.

For more information on wire and line reactor sizing, refer to *Altivar 61 and 71 Supplementary Ratings* (30072-451-38) and Price Guide 8800PL9701 for line reactor selection and pricing.



**Table 26.9: Altivar 61 Selection and Pricing**

| Input Line Voltage | With A 3% Line Reactor | | | Without A 3% Line Reactor | | | Catalog Number with LCD Keypad | List Price $ | Catalog Number for ATV61 drive and Type 1 conduit entry kit shipped as one line item. Field installation required (packaged as kit at warehouse). | List Price $ | Catalog Number with LED Keypad (Non-stocked) | List Price $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Motor Power | | Continuous Output Current | Motor Power | | Continuous Output Current | | | | | | |
| | HP | kW | A | HP | kW | A | | | | | | |
| | | | | | | |  | |  | |  | |
| 208/240 Vac Single Phase | — | — | — | 0.5 | 0.37 | 3 | ATV61H075M3▲■ | 639.00 | ATV61H075M3T1■ | 684.00 | ATV61H075M3Z▲ | 544.00 |
| | — | — | — | 1 | 0.75 | 4.8 | ATV61HU15M3▲■ | 663.00 | ATV61HU15M3T1■ | 708.00 | ATV61HU15M3Z▲ | 568.00 |
| | — | — | — | 2 | 1.5 | 8 | ATV61HU22M3▲■ | 764.00 | ATV61HU22M3T1■ | 809.00 | ATV61HU22M3Z▲ | 669.00 |
| | — | — | — | 3 | 2.2 | 11 | ATV61HU30M3▲■ | 925.00 | ATV61HU30M3T1■ | 970.00 | ATV61HU30M3Z▲ | 830.00 |
| | — | 3 | 13.7 | — | — | — | ATV61HU40M3▲■ | 1035.00 | ATV61HU40M3T1■ | 1080.00 | ATV61HU40M3Z▲ | 940.00 |
| | 5 | 4 | 17.5 | — | — | — | ATV61HU55M3▲■ | 1292.00 | ATV61HU55M3T1■ | 1337.00 | ATV61HU55M3Z▲ | 1197.00 |
| | 7.5 | 5.5 | 27.5 | 5 | 4 | 17.5 | ATV61HU75M3▲■ | 1586.00 | ATV61HU75M3T1▲■ | 1631.00 | ATV61HU75M3Z▲ | 1491.00 |
| | 10 | 7.5 | 33 | 7.5 | 5.5 | 27.5 | ATV61HD15M3X▲■ | 2525.00 | ATV61HD15M3XT1■ | 2570.00 | ATV61HD15M3XZ▲ | 2430.00 |
| | — | — | — | 10 | 7.5 | 33 | ATV61HD18M3X▲■ | 2943.00 | ATV61HD18M3XT1■ | 3008.00 | — | — |
| | 15 | 11 | 54 | — | — | — | ATV61HD22M3X▲■ | 3586.00 | ATV61HD22M3XT1■ | 3651.00 | — | — |
| | 20 | 15 | 66 | 15 | 11 | 54 | ATV61HD30M3X▲■ | 4599.00 | ATV61HD30M3XT1■ | 4684.00 | — | — |
| | 25 | 18 | 75 | 20 | 15 | 66 | ATV61HD37M3X▲■ | 5342.00 | ATV61HD37M3XT1■ | 5427.00 | — | — |
| | 30 | 22 | 88 | 25 | 18 | 75 | ATV61HD45M3X▲■ | 6326.00 | ATV61HD45M3XT1■ | 6411.00 | — | — |

▲ Option to have product treated for increased protection for dusty and corrosive environments. This product is not stocked. On 0.5 hp to 5 hp at 230 Vac single phase, add "S337" to the end of the catalog number. On 7.5 hp to 25 hp at 230 Vac single phase, add "337" to the end of the catalog number. In both cases multiply price by 1.2 to obtain the new price. With this option, exposed copper is tinned, circuit boards are conformal coated in critical areas and plastics are treated to better withstand the corrosive nature of certain oils.
■ Product does not contain an EMC filter.



© 2012 Schneider Electric
All Rights Reserved

## Altivar 71 Single-Phase

In an application where it is necessary to use a 240 V single-phase input for a 3-phase motor, the drive must be derated; therefore, the power listed on the drive nameplate will be higher than the power rating on the motor nameplate.

For more information on wire and line reactor sizing, refer to Altivar 61 and 71 Supplementary Ratings (30072-451-38).



### Table 26.10: Altivar 71 Selection and Pricing

| Input Line Voltage | With A 3% Line Reactor | | | Without A 3% Line Reactor | | | Catalog Number with LCD Keypad■ | Price $ | Catalog Number to have ATV71 and Type 1 conduit entry kit shipped as one line item. Field installation required (Packaged as kit at warehouse). | Price $ | Catalog Number with LED Keypad (Non-stocked) | Price $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Motor Power | | Continuous Output Current | Motor Power | | Continuous Output Current | | | | | | |
| | HP | kW | A | HP | kW | A | | | | | | |
| | | | | | | |  | |  | |  | |
| 208/240 Vac Single Phase | — | — | — | 0.5 | 0.37 | 3 | ATV71H075M3▲ | 652. | ATV71H075M3T1 | 697. | ATV71H075M3Z▲ | 557. |
| | — | — | — | 1 | 0.75 | 4.8 | ATV71HU15M3▲ | 694. | ATV71HU15M3T1 | 729. | ATV71HU15M3Z▲ | 589. |
| | — | — | — | 2 | 1.5 | 8 | ATV71HU22M3▲ | 796. | ATV71HU22M3T1 | 841. | ATV71HU22M3Z▲ | 701. |
| | — | — | — | 3 | 2.2 | 11 | ATV71HU30M3▲ | 984. | ATV71HU30M3T1 | 1029. | ATV71HU30M3Z▲ | 889. |
| | — | 3 | 13.7 | — | — | — | ATV71HU40M3▲ | 1150. | ATV71HU40M3T1 | 1195. | ATV71HU40M3Z▲ | 1055. |
| | 5 | 4 | 17.5 | — | — | — | ATV71HU55M3▲ | 1458. | ATV71HU55M3T1 | 1503. | ATV71HU55M3Z▲ | 1363. |
| | 7.5 | 5.5 | 27.5 | 5 | 4 | 17.5 | ATV71HU75M3▲ | 1790. | ATV71HU75M3T1 | 1835. | ATV71HU75M3Z▲ | 1695. |
| | 10 | 7.5 | 33 | 7.5 | 5.5 | 27.5 | ATV71HD15M3X▲♦ | 2850. | ATV71HD15M3XT1♦ | 2895. | ATV71HD15M3XZ▲ | 2755. |
| | — | — | — | 10 | 7.5 | 33 | ATV71HD18M3X▲♦ | 3422. | ATV71HD18M3XT1♦ | 3487. | — | — |
| | 15 | 11 | 54 | — | — | — | ATV71HD22M3X▲♦ | 4170. | ATV71HD22M3XT1♦ | 4253. | — | — |
| | 20 | 15 | 66 | 15 | 11 | 54 | ATV71HD30M3X▲♦ | 5348. | ATV71HD30M3XT1♦ | 5433. | — | — |
| | 25 | 18 | 75 | 20 | 15 | 66 | ATV71HD37M3X▲♦ | 6212. | ATV71HD37M3XT1♦ | 6297. | — | — |
| | 30 | 22 | 88 | 25 | 18 | 75 | ATV71HD45M3X▲♦ | 7356. | ATV71HD45M3XT1♦ | 7491. | — | — |

▲ Option to have product treated for increased protection for dusty and corrosive environments. This product is not stocked. On 0.5 hp to 5 hp at 230 Vac single-phase, add "S337" to the end of the catalog number. On 7.5 hp to 25 hp at 230 Vac single-phase, add "337" to the end of the catalog number. In both cases multiply price by 1.2 to obtain new price. With this option, exposed copper is tinned, circuit boards are conformal coated in critical areas and plastics are treated to better withstand the corrosive nature of certain oils.

■ These products can be ordered with LonWorks® or BACnet communication option card shipped as one line item. Field installation required. Add "LW" to the end of the part number to receive a LonWorks option card. Add $550 to the price. Add "BN" to the end of the partnumber to receive a BACnet option card. Add $225 to the price.

♦ Product does not contain an EMC filter.

## Altivar 71 Three-Phase



LCD Keypad



LED Keypad

### Table 26.11: Altivar 71 Selection and Pricing

| Input Line Voltage | Constant Torque | | | ★ | $ Price | Catalog Number ATV71 drive and Type 1 conduit entry kit | $ Price | Catalog Number with LED Keypad (Non-stocked) | $ Price |
|---|---|---|---|---|---|---|---|---|---|
| | Three-Phase Motor Power | | Continuous Output Current | | | | | | |
| | HP | kW | A | | | | | | |
| | | | |  | |  | |  | |
| 208/240 Vac Three Phase | 0.5 | 0.37 | 3 | ATV71H037M3▲ | 616. | ATV71H037M3T1 | 661. | ATV71H037M3Z | 521. |
| | 1 | 0.75 | 4.8 | ATV71H075M3▲ | 652. | ATV71H075M3T1 | 697. | ATV71H075M3Z | 557. |
| | 2 | 1.5 | 8 | ATV71HU15M3▲ | 684. | ATV71HU15M3T1 | 729. | ATV71HU15M3Z | 589. |
| | 3 | 2.2 | 11 | ATV71HU22M3▲ | 796. | ATV71HU22M3T1 | 841. | ATV71HU22M3Z | 701. |
| | 4 | 3 | 13.7 | ATV71HU30M3▲ | 984. | ATV71HU30M3T1 | 1029. | ATV71HU30M3Z | 889. |
| | 5 | 4 | 17.5 | ATV71HU40M3▲ | 1150. | ATV71HU40M3T1 | 1195. | ATV71HU40M3Z | 1055. |
| | 7.5 | 5.5 | 27.5 | ATV71HU55M3▲ | 1458. | ATV71HU55M3T1 | 1503. | ATV71HU55M3Z | 1363. |
| | 10 | 7.5 | 33 | ATV71HU75M3▲ | 1790. | ATV71HU75M3T1 | 1835. | ATV71HU75M3Z | 1695. |
| | 15 | 11 | 54 | ATV71HD11M3X▲■ | 2270. | ATV71HD11M3XT1■ | 2315. | ATV71HD11M3XZ■ | 2175. |
| | 20 | 15 | 66 | ATV71HD15M3X▲■ | 2850. | ATV71HD15M3XT1■ | 2895. | ATV71HD15M3XZ■ | 2755. |
| | 25 | 18 | 75 | ATV71HD18M3X▲■ | 3422. | ATV71HD18M3XT1■ | 3487. | — | — |
| | 30 | 22 | 88 | ATV71HD22M3X▲■ | 4170. | ATV71HD22M3XT1■ | 4235. | — | — |
| | 40 | 30 | 120 | ATV71HD30M3X▲■ | 5348. | ATV71HD30M3XT1■ | 5433. | — | — |
| | 50 | 37 | 144 | ATV71HD37M3X▲■ | 6212. | ATV71HD37M3XT1■ | 6297. | — | — |
| | 60 | 45 | 176 | ATV71HD45M3X▲■ | 7356. | ATV71HD45M3XT1■ | 7491. | — | — |
| | 75 | 55 | 221 | ATV71HD55M3X■♦▼ | 8870. | ATV71HD55M3XT1■ | 9330. | — | — |
| | 100 | 75 | 285 | ATV71HD75M3X■♦▼ | 10658. | ATV71HD75M3XT1■ | 11211. | — | — |

▲ Option to have product treated for increased protection for dusty and corrosive environments. This product is not stocked. On 0.5 hp to 10 hp at 230 Vac 3 phase and up to 100 hp at 460 V, add "S337" to the end of the catalog number. On 15 hp to 60 hp at 230 Vac 3 phase, add "337" to the end of the catalog number. In both cases multiply price by 1.2 to obtain new price. With this option, exposed copper is tinned, circuit boards are conformal coated in critical areas and plastics are treated to better withstand the corrosive nature of certain oils. This option is standard on 55 kW/75 hp @ 230 Vac 3 phase and higher & 90 kW/125 hp @ 460 Vac and higher.

■ Product does not contain an EMC filter.

♦ Product ships with a DC choke that must be field mounted. A 5% line reactor may be purchased and installed in place of the DC choke. Add "D" to the end of the catalog number to receive just the AC drive and multiply the listed price by.96 to obtain new price.

★ Also possible for use with a synchronous motor. Add "383" to the end of the catalog number and multiply the listed price by 1.2 to obtain new price.

▼ Conformal coating is standard.



© 2012 Schneider Electric
All Rights Reserved



ATV71HC28N4



ATV71HC31Y

**Table 26.13: Altivar™ 71 Selection and Pricing (continued)**

| Input Line Voltage | Constant Torque | | | Catalog Number with LCD Keypad (Stocked) | $ Price | Catalog Number to have ATV71 drive and Type 1 conduit entry kit shipped as one line item. Field installation required (Packaged as kit at warehouse). | $ Price | Catalog Number with LED Keypad (Non-stocked) | $ PriceW |
|---|---|---|---|---|---|---|---|---|---|
| | Three-Phase Motor Power | | Continuous Output Current | | | | | | |
| | HP | kW | A |  | |  | |  | |
| 400/480 Vac Three Phase | 1 | 0.75 | 2.3 | ATV71H075N4▲♦ | **794.** | ATV71H075N4T1 | **839.** | ATV71H075N4Z | **699.** |
| | 2 | 1.5 | 4.1 | ATV71HU15N4▲♦ | **912.** | ATV71HU15N4T1 | **957.** | ATV71HU15N4Z | **817.** |
| | 3 | 2.2 | 5.8 | ATV71HU22N4▲♦ | **1110.** | ATV71HU22N4T1 | **1155.** | ATV71HU22N4Z | **1015.** |
| | 4 | 3 | 7.8 | ATV71HU30N4▲♦ | **1250.** | ATV71HU30N4T1 | **1295.** | ATV71HU30N4Z | **1155.** |
| | 5 | 4 | 10.5 | ATV71HU40N4▲♦ | **1316.** | ATV71HU40N4T1 | **1361.** | ATV71HU40N4Z | **1221.** |
| | 7.5 | 5.5 | 14.3 | ATV71HU55N4▲♦ | **1584.** | ATV71HU55N4T1 | **1629.** | ATV71HU55N4Z | **1489.** |
| | 10 | 7.5 | 17.6 | ATV71HU75N4▲♦ | **1924.** | ATV71HU75N4T1 | **1969.** | ATV71HU75N4Z | **1829.** |
| | 15 | 11 | 27.7 | ATV71HD11N4▲♦ | **2278.** | ATV71HD11N4T1 | **2323.** | ATV71HD11N4Z | **2183.** |
| | 20 | 15 | 33 | ATV71HD15N4▲♦ | **2832.** | ATV71HD15N4T1 | **2877.** | ATV71HD15N4Z | **2737.** |
| | 25 | 18 | 41 | ATV71HD18N4▲♦ | **3408.** | ATV71HD18N4T1 | **3453.** | ATV71HD18N4Z | **3313.** |
| | 30 | 22 | 48 | ATV71HD22N4▲♦ | **3710.** | ATV71HD22N4T1 | **3775.** | ATV71HD22N4Z | **3615.** |
| | 40 | 30 | 66 | ATV71HD30N4▲♦ | **4566.** | ATV71HD30N4T1 | **4631.** | ATV71HD30N4Z | **4471.** |
| | 50 | 37 | 79 | ATV71HD37N4▲♦ | **5370.** | ATV71HD37N4T1 | **5435.** | ATV71HD37N4Z | **5275.** |
| | 60 | 45 | 94 | ATV71HD45N4▲♦ | **6742.** | ATV71HD45N4T1 | **6877.** | ATV71HD45N4Z | **6647.** |
| | 75 | 55 | 116 | ATV71HD55N4▲♦ | **7762.** | ATV71HD55N4T1 | **7897.** | ATV71HD55N4Z | **7667.** |
| | 100 | 75 | 160 | ATV71HD75N4▲♦ | **8862.** | ATV71HD71N4T1 | **8997.** | ATV71HD75N4Z | **8767.** |
| | 125 | 90 | 179 | ATV71HD90N4■♦ | **9742.** | ATV71HD90N4T1 | **10202.** | — | — |
| | 150 | 110 | 215 | ATV71HC11N4■♦ | **11002.** | — | — | — | — |
| | 200 | 130 | 259 | ATV71HC13N4■♦ | **12642.** | — | — | — | — |
| | 250 | 160 | 314 | ATV71HC16N4■♦ | **14282.** | — | — | — | — |
| | 300 | 200 | 387 | ATV71HC20N4■♦△ | **16462.** | — | — | — | — |
| | 400 | 250 | 481 | ATV71HC25N4■♦△ | **19382.** | — | — | — | — |
| | 450 | 280 | 550 | ATV71HC28N4■♦△ | **23002.** | — | — | — | — |
| | 500 | 310 | 616 | ATV71HC31N4■♦△ | **27922.** | — | — | — | — |
| | 600 | 400 | 759 | ATV71HC40N4■♦△ | **37392.** | — | — | — | — |
| | 700 | 500 | 941 | ATV71HC50N4■♦△ | **52041.** | — | — | — | — |
| 575/690 Vac Three Phase | 2 | 2.2 | 2.7 | ATV71HU22Y★ | **1889.** | — | — | — | — |
| | 3 | 3 | 3.9 | ATV71HU30Y★ | **1990.** | — | — | — | — |
| | 4 | 4 | 5.8 | ATV71HU40Y★ | **2009.** | — | — | — | — |
| | 5 | 5.5 | 6.1 | ATV71HU55Y★ | **2380.** | — | — | — | — |
| | 7.5 | 7.5 | 9 | ATV71HU75Y★ | **2799.** | — | — | — | — |
| | 10 | 11 | 11 | ATV71HD11Y★ | **3380.** | — | — | — | — |
| | 15 | 15 | 17 | ATV71HD15Y★ | **3979.** | — | — | — | — |
| | 20 | 18.5 | 22 | ATV71HD18Y★ | **4790.** | — | — | — | — |
| | 25 | 22 | 27 | ATV71HD22Y★ | **5780.** | — | — | — | — |
| | 30 | 30 | 32 | ATV71HD30Y★ | **6999.** | — | — | — | — |
| | 40 | 37 | 41 | ATV71HD37Y★ | **8579.** | — | — | — | — |
| | 50 | 45 | 52 | ATV71HD45Y★ | **10379.** | — | — | — | — |
| | 60 | 55 | 62 | ATV71HD55Y★ | **12199.** | — | — | — | — |
| | 75 | 75 | 77 | ATV71HD75Y★ | **14399.** | — | — | — | — |
| | 100 | 90 | 99 | ATV71HD90Y★ | **16899.** | — | — | — | — |
| | 125 | 110 | 125 | ATV71HC11Y★▼ | **19179.** | — | — | — | — |
| | 150 | 132 | 150 | ATV71HC13Y★▼ | **23795.** | — | — | — | — |
| | 175 | 160 | 180 | ATV71HC16Y★▼ | **24290.** | — | — | — | — |
| | 200 | 200 | 220 | ATV71HC20Y★▼△ | **28950.** | — | — | — | — |
| | 250 | 250 | 290 | ATV71HC25Y★▼△ | **35950.** | — | — | — | — |
| | 350 | 315 | 355 | ATV71HC31Y★▼△ | **46750.** | — | — | — | — |
| | 450 | 400 | 420 | ATV71HC40Y★▼△ | **59590.** | — | — | — | — |
| | 550 | 500 | 543 | ATV71HC50Y★▼△ | **78490.** | — | — | — | — |
| | 700 | 630 | 675 | ATV71HC63Y★▼△ | **103390.** | — | — | — | — |

▲ Option to have product treated for increased protection for dusty and corrosive environments. This product is not stocked. Up to 100 hp at 460 V, add "S337" to the end of the catalog number and multiply price by 1.2 to obtain new price. With this option, exposed copper is tinned, circuit boards are conformal coated in critical areas and plastics are treated to better withstand the corrosive nature of certain oils. This option is standard on 90 kW/125 hp @ 460 Vac and higher.

■ Product ships with a DC choke that must be field mounted. A 5% line reactor may be purchased and installed in place of the DC choke. Add "D" to the end of the catalog number to receive just the AC drive and multiply the listed price by.96 to obtain new price.

♦ Also possible for use with a synchronous motor. Add "383" to the end of the catalog number and multiply the listed price by 1.2 to obtain new price.

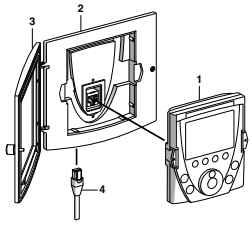
★ Conformal coating is standard.

▼ An AC 5% line reactor is mandatory.

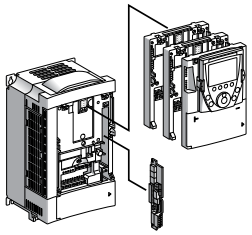
△ These products do not contain a dynamic braking transistor. A separate transistor must be added for applications requiring dynamic braking.



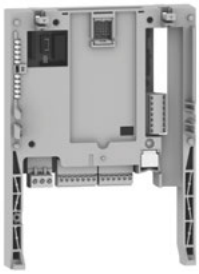
© 2012 Schneider Electric
All Rights Reserved




LCD Keypad Mounting Kits



Option Card Assembly



I/O Option Card



Communication Option Card



Incremental Encoder Interface Option Card

**Table 26.12: Options—Field Installed**

| Description | | | For Use on Drives | Catalog No. | $ Price |
|---|---|---|---|---|---|
| **Operator Interface** | LCD graphic keypad: IP54 rating | | any ATV61 any ATV71 | VW3A1101 | 115. |
| | Remote mounting kit: includes bezel and mounting hardware | | | VW3A1102 | 55. |
| | Door for use with remote mount kit for IP65 rating | | | VW3A1103 | 45. |
| | Cable for remote mounting LCD graphic keypad RJ-45 connector on each end | 1 meter | | VW3A1104R10 | 35. |
| | | 3 meters | | VW3A1104R30 | 35. |
| | | 5 meters | | VW3A1104R50 | 35. |
| | | 10 meters | | VW3A1104R100 | 45. |
| | RJ-45 female—female adaptor to connect LCD keypad and cable. Not required if using VW3A1102. | | | VW3A1105 | 35. |
| | Operator, mounting collar, 2.5 kilohm, 1/2 watt potentiometer | | Altivar 61 | ATVPOT25K | 69. |
| **PowerSuite™ Software Options** | PowerSuite software on CD for PC | | Altivar AC drives Altistart™ 48 TeSys™ U-line | VW3A8104 | 150. |
| | USB/RS485 cord set (equipped with RJ45 socket) | | | TCSMCNAM3M002P | 52. |
| **For Wireless Connection** | Modbus™ to Bluetooth® Gateway and RS-485 converter | | any ATV61 any ATV71 | VW3A8114 | 85. |
| **I/O Adaptor** | 115 Vac logic input adaptor adapts 7 logic inputs for use with user supplied 115 Vac signals | | any ATV61 any ATV71 | VW3A3101 | 195. |
| **I/O Extension Option Cards** | Basic I/O option card—4 logic inputs, 2 logic outputs, 1 Form C relay output, an input for PTC motor probes, a 24 Vdc output, and a 10 Vdc output | | any ATV61 any ATV71 | VW3A3201 | 165. |
| | Extended I/O option card—contains all the I/O on the Basic I/O option card plus 2 analog inputs, 2 analog outputs, 1 pulse input | | | VW3A3202 | 195. |
| **CANopen Adapter** | This adaptor connects to the RJ-45 port and provides a 9–pin male SUB–D connector conforming to the CANopen standard (CIA DRP 303–1) | | any ATV61 any ATV71 | VW3CANA71 | 45. |
| **CANopen Connector** | 9-pin female SUB–D with line terminator (can be disabled). 180º cable outlet CAN–H, CAN–L, CAN–GND connection | | any ATV61 any ATV71 | VW3CANKCDF180T | 45. |
| **Incremental Encoder Interface Option Cards** | with RS-422 outputs, 5 Vdc | | any ATV71 | VW3A3401 | 85. |
| | with RS-422 outputs, 15 Vdc | | | VW3A3402 | 85. |
| | with open collector outputs, 12 Vdc | | | VW3A3403 | 85. |
| | with open collector outputs, 15 Vdc | | | VW3A3404 | 85. |
| | with push–pull outputs, 12 Vdc | | | VW3A3405 | 85. |
| | with push–pull outputs, 15 Vdc | | | VW3A3406 | 85. |
| | with push–pull outputs, 24 Vdc | | | VW3A3407 | 85. |
| | Resolver | | | VW3A3408▲ | 85. |
| | Universal with SinCos, SinCos Hiperface®, SinCos EnDat® or SSI output | | | VW3A3409▲ | 85. |
| | Incremental with RS422 outputs and encoder emulation | | | VW3A3411▲ | 85. |
| **Communication Option Cards** | Modbus™ Plus card | | any ATV61 any ATV71 | VW3A3302 | 550. |
| | Modbus / Uni-Telway™ card | | | VW3A3303 | 225. |
| | Modbus TCP/IP daisy chain | | | VW3A3310D | 275. |
| | Interbus® S card | | | VW3A3304 | 550. |
| | Profibus DP card | | | VW3A3307 | 550. |
| | Profibus DPv1 card | | | VW3A3307S371 | 550. |
| | DeviceNet™ card | | | VW3A3309 | 225. |
| | Ethernet/IP™ card | | | VW3A3316 | 275. |
| | LonWorks® card | | any ATV61 | VW3A3312 | 550. |
| | Metasys® N2 card | | | VW3A3313 | 225. |
| | Apogee® FLN P1 card | | | VW3A3314 | 225. |
| | BACnet card | | | VW3A3315 | 225. |
| **IMC Option Card** | ATV IMC drive controller card♦ | | | VW3A3521S0 | 755. |
| **Controller Inside Option Card** | Programmable option card, conforms with IEC61131–3 programming standard. | | any ATV61 any ATV71 | VW3A3501■ | 550. |
| **Water Solutions Control Card** | This option card contains a variety of pre-programmed functions and features to manage multi–pump installations. | | any ATV61 any ATV71 | VW3A3503■ | 650. |
| **Simple Loader** | Using RJ45 port connections, the configurations of a drive can be downloaded then uploaded to compatible drive. | | ATV31, ATV61, and ATV71 | VW3A8120 | 175. |

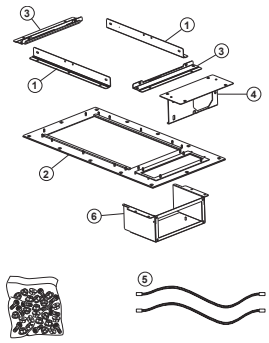
▲ For use with the ATV71H...383 drive ONLY.
■ The drive cannot support the VW3A3503 water solutions card and the VW3A3501 controller inside option card simultaneously.
♦ SoMachine is required to use this product.





© 2012 Schneider Electric
All Rights Reserved

**Table 26.14: Options—Field Installed (continued)**



Flange Kit
VW3A9506

| Description | | For Use on Drives | Catalog No. | $ Price |
|---|---|---|---|---|
| **Flange Kit** | Kit includes:<br>a metal frame, seals, mounting hardware, and a bracket to mount the fan kit so the fan can be accessed from the front of the drive template.<br><br>Kit used to mount the heatsink of the drive outside of an enclosure. | ATV61/71H037M3...HU15M3<br>ATV61/71H075N4...HU22N4 | VW3A9501 | 255. |
| | | ATV61/71HU22M3...HU40M3<br>ATV61/71HU30N4...HU40N4 | VW3A9502 | 279. |
| | | ATV61/71HU55M3<br>ATV61/71HU55N4, HU75N4 | VW3A9503 | 325. |
| | | ATV61/71HU75M3<br>ATV61/71HD11N4 | VW3A9504 | 358. |
| | | ATV61/71HD11M3X..HD15M3X<br>ATV61/71HD15N4, HD18N4 | VW3A9505 | 419. |
| | | ATV61/71HD18M3X..HD22M3X<br>ATV61/71HD22N4, ATV61/71HU30Y...HD30Y | VW3A9506 | 438. |
| | | ATV61/71HD30N4, HD37N4 | VW3A9507 | 469. |
| | | ATV61/71HD30M3X..HD45M3X | VW3A9508 | 469. |
| | | ATV61/71HD45N4...HD75N4, ATV61/71HD37Y...HD90Y | VW3A9509 | 477. |
| | | ATV61HD55M3X...HD75M3X<br>ATV61HD90N4...HC11N4 | VW3A9510 | 500. |
| | | ATV71HD55M3X, ATV71HD90N4 | | |
| | | ATV61HD90M3X, ATV61HC13N4<br>ATV71HD75M3X, ATV71HC11N4 | VW3A9511 | 667. |
| | | ATV61HC16N4, ATV61HC20Y, ATV61/71HC11Y...HC16Y, ATV71HC13N4 | VW3A9512 | 1053. |
| | | ATV61HC22N4, ATV71HC16N4 | VW3A9513 | 1053. |
| | | ATV61HC25N4…HC31N4<br>ATV61HC40Y<br>ATV61/71HC25Y, HC31Y<br>ATV71HC20N4...HC28N4<br>ATV71HC20Y | VW3A9514 | 1053. |
| | | ATV61HC25N4…HC31N4 with VW3A7101 braking transistor<br>ATV61HC40Y<br>ATV61/71HC25Y, HC31Y<br>ATV71HC20N4...HC28N4 with VW3A7101 braking transistor<br>ATV71HC20Y | VW3A9515 | 1062. |
| **Type 1 Conduit Kit** | Kit includes:<br>a metal box with conduit knockouts.<br>The kit provides conduit landing when wall mounting the drive. | ATV61/71H037M3...HU15M3<br>ATV61/71H075N4...HU22N4 | VW3A9201 | 45. |
| | | ATV61/71HU22M3...HU40M3<br>ATV61/71HU30N4...HU40N4 | VW3A9202 | 45. |
| | | ATV61/71HU55M3<br>ATV61/71HU55N4, HU75N4 | VW3A9203 | 45. |
| | | ATV61/71HU75M3<br>ATV61/71HD11N4 | VW3A9204 | 45. |
| | | ATV61/71HD11M3X..HD15M3X<br>ATV61/71HD15N4, HD18N4 | VW3A9205 | 45. |
| | | ATV61/71HD18M3X..HD22M3X<br>ATV61/71HD22N4<br>ATV61/71HU30Y...HD30Y | VW3A9206 | 65. |
| | | ATV61/71HD30N4, HD37N4 | VW3A9207 | 65. |
| | | ATV61/71HD30M3X..HD45M3X | VW3A9217 | 85. |
| | | ATV61/71HD45N4..HD75N4<br>ATV61/71HD37Y...HD90Y | VW3A9208 | 135. |
| | | ATV61HD55M3X...HD75M3X<br>ATV61HD90N4...HC11N4 | VW3A9209 | 460. |
| | | ATV71HD55M3X, ATV71HD90N4, ATV61HC11N4 | | |
| | | ATV61HD90M3X, ATV61HC13N4<br>ATV71HD75M3X, ATV71HC11N4 | VW3A9210 | 553. |
| | | ATV61HC16N4, ATV71HC13N4<br>ATV61/71HC11Y...HC16Y<br>ATV61HC20Y | VW3A9211 | 573. |
| | | ATV61HC22N4, ATV71HC16N4 | VW3A9212 | 588. |
| | | ATV61HC25N4...ATV61HC31N4<br>ATV71HC20N4...HC28N4<br>ATV71HC20Y<br>ATV61/71HC25Y, HC31Y<br>ATV61HC40Y | VW3A9213 | 604. |
| | | ATV61HC25N4...HC31N4 with VW3A7101 braking transistor<br>ATV71HC20N4...HC28N4 with VW3A7101 braking transistor<br>ATV71HC20Y<br>ATV61/71HC25Y, HC31Y<br>ATV61HC40Y | VW3A9214 | 604. |

| **Profibus Option Card Cover** | Type 1 cover for Profibus Option Card | **230 V Drive controllers** | | **480 V Drive controllers** | | | |
|---|---|---|---|---|---|---|---|
| | | **ATV61H••••▲** | **ATV71H••••** | **ATV61H••••** | **ATV71H••••** | | |
| | | 075M3 | 037M3 | 075N4 | 075N4 | VW3A9201PF | 101. |
| | | U15M3 | 075M3 | U15N4 | U15N4 | | |
| | | — | U15M3 | U22N4 | U22N4 | | |
| | | U22M3 | U22M3 | U30N4 | U30N4 | VW3A9292PF | 102. |
| | | U30M3 | U30M3 | U40N4 | U40N4 | | |
| | | U40M3 | U40M3 | — | — | | |
| | | U55M3 | U55M3 | U55N4 | U55N4 | VW3A9203PF | 104. |
| | | — | — | U75N4 | U75N4 | | |
| | | U75M3 | U75M3 | D11N4 | D11N4 | VW3A9204PF | 107. |
| | | D11M3X | D11M3X | D15N4 | D15N4 | VW3A9205PF | 112. |
| | | D15M3X | D15M3X | D18N4 | D18N4 | | |

▲ The symbol "•" indicates the part of the number that varies with controller size or rating.

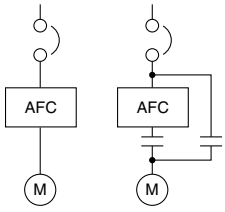


© 2012 Schneider Electric
All Rights Reserved

## Variable Torque AC Drive—208 V, 230 V, and 460 V Ratings



S-Flex 212 Enclosed Drive Controller Type 1 Rated +14 to +104 °F (-10 to +40 °C)




**Power Circuit W** **Power Circuit Y**

### Table 26.13: S-Flex™ 212 Enclosed Drive Controller Selection and Pricing

| Input Line Voltage | HP | kW | Output Current A | Catalog Number | Standard Product List $ Price | Options: Without Bypass MOD W Price $▲ | Options: Disc Switch MOD A07 Price $■ | Options: Line Contactor MOD B07 Price $■ |
|---|---|---|---|---|---|---|---|---|
| 208 Vac Three-phase | 1 | 0.75 | 4.8 | SFD212CG2Y | **1402.** | **1048.** | **1584.** | **1480.** |
| | 2 | 1.5 | 7.8 | SFD212DG2Y | **1501.** | **1123.** | **1689.** | **1585.** |
| | 3 | 2.2 | 11 | SFD212EG2Y | **1593.** | **1193.** | **1784.** | **1682.** |
| | 5 | 4 | 17.5 | SFD212FG2Y | **1789.** | **1342.** | **1992.** | **1889.** |
| | 7.5 | 5.5 | 25.3 | SFD212GG2Y | **1957.** | **1468.** | **2177.** | **2066.** |
| | 10 | 7.5 | 32.2 | SFD212HG2Y | **2253.** | **1700.** | **2478.** | **2378.** |
| | 15 | 11 | 48.3 | SFD212JG2Y | **2758.** | **2089.** | **3023.** | **2886.** |
| | 20 | 15 | 62.1 | SFD212KG2Y | **3169.** | **2389.** | **3476.** | **3316.** |
| | 25 | 18.5 | 78.2 | SFD212LG2Y | **3865.** | **2910.** | **4240.** | **4044.** |
| | 30 | 22 | 92 | SFD212MG2Y | **4705.** | **3542.** | **5171.** | **4950.** |
| | 40 | 30 | 120 | SFD212NG2Y | **5920.** | **4911.** | **6370.** | **6294.** |
| 230 Vac Three-phase | 1 | 0.75 | 4.2 | SFD212CG3Y | **1402.** | **1048.** | **1584.** | **1480.** |
| | 2 | 1.5 | 6.8 | SFD212DG3Y | **1501.** | **1123.** | **1689.** | **1585.** |
| | 3 | 2.2 | 9.6 | SFD212EG3Y | **1593.** | **1193.** | **1784.** | **1682.** |
| | 5 | 4 | 15.2 | SFD212FG3Y | **1789.** | **1342.** | **1992.** | **1889.** |
| | 7.5 | 5.5 | 22 | SFD212GG3Y | **1957.** | **1468.** | **2177.** | **2066.** |
| | 10 | 7.5 | 28 | SFD212HG3Y | **2253.** | **1700.** | **2478.** | **2378.** |
| | 15 | 11 | 42 | SFD212JG3Y | **2758.** | **2089.** | **3023.** | **2886.** |
| | 20 | 15 | 54 | SFD212KG3Y | **3169.** | **2389.** | **3476.** | **3316.** |
| | 25 | 18.5 | 68 | SFD212LG3Y | **3865.** | **2910.** | **4240.** | **4044.** |
| | 30 | 22 | 80 | SFD212MG3Y | **4705.** | **3542.** | **5171.** | **4950.** |
| | 40 | 30 | 104 | SFD212NG3Y | **5920.** | **4911.** | **6370.** | **6294.** |
| 460 Vac Three-phase | 1 | 0.75 | 2.1 | SFD212CG4Y | **1250.** | **880.** | **1314.** | **1289.** |
| | 2 | 1.5 | 3.4 | SFD212DG4Y | **1317.** | **928.** | **1384.** | **1358.** |
| | 3 | 2.2 | 4.8 | SFD212EG4Y | **1419.** | **1000.** | **1491.** | **1463.** |
| | 5 | 4 | 7.6 | SFD212FG4Y | **1554.** | **1095.** | **1633.** | **1602.** |
| | 7.5 | 5.5 | 11 | SFD212GG4Y | **1690.** | **1190.** | **1776.** | **1742.** |
| | 10 | 7.5 | 14 | SFD212HG4Y | **1892.** | **1333.** | **1988.** | **1950.** |
| | 15 | 11 | 21 | SFD212JG4Y | **2227.** | **1624.** | **2361.** | **2296.** |
| | 20 | 15 | 27 | SFD212KG4Y | **2709.** | **2060.** | **2909.** | **2864.** |
| | 25 | 18.5 | 34 | SFD212LG4Y | **3229.** | **2455.** | **3467.** | **3409.** |
| | 30 | 22 | 40 | SFD212MG4Y | **3749.** | **3037.** | **3956.** | **3903.** |
| | 40 | 30 | 52 | SFD212NG4Y | **4359.** | **3641.** | **4600.** | **4538.** |
| | 50 | 37 | 65 | SFD212PG4Y | **5347.** | **4545.** | **5643.** | **5567.** |
| | 60 | 45 | 77 | SFD212QG4Y | **6257.** | **5444.** | **6603.** | **6514.** |
| | 75 | 55 | 96 | SFD212RG4Y | **7102.** | **6392.** | **7527.** | **7379.** |
| | 100 | 75 | 124 | SFD212SG4Y | **8097.** | **7293.** | **8581.** | **8413.** |

▲ When ordering a unit without bypass, insert a "W" in place of the "Y" in the Catalog Number.
■ Options A07 Disconnect Switch and B07 Line Contactor are available only when a full voltage bypass standard "Y" product is selected. Options A07 and B07 are mutually exclusive.

**Miscellaneous Options★**

| Description | Option Number | $ Price |
|---|---|---|
| BACnet Factory Set Up | A06 | **50.** |
| LonWorks® Communication Card | B06 | **375.** |
| Metasys® N2 Factory Set Up | C06 | **50.** |
| Apogee® FLN P1 Factory Set Up | D06 | **50.** |
| LCD Text Keypad | D07 | **250.** |
| Modbus™ Monitoring (by Default) | N06 | N/C |
| Seismic Qualification | S07 | **215.** |

★ Miscellaneous Options A06, B06, C06, and D06 are mutually exclusive. Add Misc. Option number to S-Flex 212 Catalog Number when ordering communications card factory installed.
▼ For Modbus control, see the Instruction Manual.

**Accessories**

| Description | Catalog Number | $ Price |
|---|---|---|
| Altivar 212 PCSoft Test and Commissioning Software. For use with Microsoft Windows™ 95, 98, NT, XP, and Vista operating systems for PCs only. (Cable not included.) | VW3A2104♦ | N/C |
| PC Cable for Test and Commissioning Software Includes 3-meter (9.8 ft.) cable, RS-485/RS-232C adaptor, and connectors | VW3A8106 | **75.** |
| USB to RJ45 Adaptor Kit For use in connecting to a PC with a USB port | TCSMCNAM3M002P | **52.** |
| EZ-M Mounting Channel, 72 in. length | EZM72MC | **42.** |

♦ Can be downloaded from the internet at www.Schneider-Electric.com

***NOTE:*** *See the Instruction Bulletin for set up instructions.*

### All S-Flex 212 Enclosed Drives are supplied with:

- Altivar™ 212 power converter
- Square D™ circuit breaker disconnect (Power Fuses for 460 V version only)
- UL 508C coordinated short circuit rating for 100,000 A
- Adjustable Frequency Controller-Off-Bypass selector switch
- Local/Remote configurable on controller
- Power On red LED
- Bypass Run green LED
- Fire/Freezestat interlock for Adjustable Frequency Drive and Bypass mode
- Form C Adjustable Frequency Controller fault auxiliary contact
- Modbus RJ-45 communication port
- Smoke Purge Function
- Bypass Run Auxiliary Contact
- Drive Run Auxiliary Contact
- Full Voltage Bypass Power Circuit with overload relay
- 120 Vac fused control power transformer





© 2012 Schneider Electric
All Rights Reserved



## Altistart™ 48 Soft Starts

The Altistart 48 soft start combines ease of selection with simple installation and high motor control performance. With its exclusive motor Torque Control System, the Altistart 48 helps eliminate uncontrolled motor acceleration and deceleration, a problem inherent with standard voltage—ramp soft starts. The Altistart 48 includes features to help with motor and machine protection and is available for motors ranging from 208 to 575 volts. In addition to a built–in display and programming terminal, a remote keypad option and programming software is available to ease integration and commissioning. The Altistart 48 has a built–in Modbus™ port and is offered with serial communication gateways to such popular networks as Ethernet and DeviceNet™.

## Open Style Soft Starts 50–60 Hz, Three-Phase, 690 V Maximum—AC3 Duty

The Altistart 48 soft start must be selected using the table below, based on nameplate full load ampere rating of the motor. The horsepower ratings shown in table are for reference only.

**Table 26.14: Altistart 48 Selection and Pricing▲**

| Standard Duty (Low Inertia Loads)■ Maximum Horsepower | | | | | Altistart Soft Starts | | |
|---|---|---|---|---|---|---|---|
| 208 V | 230 V | 400 kW | 460 V | 575 V | Rated A | Catalog Number | $ Price |
| 3 | 5 | 5.5 | 10 | 15 | 17 | ATS48D17Y | **780.** |
| 5 | 7.5 | 7.5 | 15 | 20 | 22 | ATS48D22Y | **810.** |
| 7.5 | 10 | 11 | 20 | 25 | 32 | ATS48D32Y | **840.** |
| 10 | — | 15 | 25 | 30 | 38 | ATS48D38Y | **900.** |
| — | 15 | 18.5 | 30 | 40 | 47 | ATS48D47Y | **950.** |
| 15 | 20 | 22 | 40 | 50 | 62 | ATS48D62Y | **1200.** |
| 20 | 25 | 30 | 50 | 60 | 75 | ATS48D75Y | **1280.** |
| 25 | 30 | 37 | 60 | 75 | 88 | ATS48D88Y | **1500.** |
| 30 | 40 | 45 | 75 | 100 | 110 | ATS48C11Y | **1700.** |
| 40 | 50 | 55 | 100 | 125 | 140 | ATS48C14Y | **2100.** |
| 50 | 60 | 75 | 125 | 150 | 170 | ATS48C17Y | **2300.** |
| 60 | 75 | 90 | 150 | 200 | 210 | ATS48C21Y | **2600.** |
| 75 | 100 | 110 | 200 | 250 | 250 | ATS48C25Y | **2900.** |
| 100 | 125 | 132 | 250 | 300 | 320 | ATS48C32Y | **3300.** |
| 125 | 150 | 160 | 300 | 350 | 410 | ATS48C41Y | **3900.** |
| 150 | — | 220 | 350 | 400 | 480 | ATS48C48Y | **4700.** |
| — | 200 | 250 | 400 | 500 | 590 | ATS48C59Y | **5400.** |
| 200 | 250 | 315 | 500 | 600 | 660 | ATS48C66Y | **6200.** |
| 250 | 300 | 355 | 600 | 800 | 790 | ATS48C79Y | **7200.** |
| 350 | 350 | 400 | 800 | 1000 | 1000 | ATS48M10Y | **8600.** |
| 400 | 450 | 500 | 1000 | 1200 | 1200 | ATS48M12Y | **10600.** |

▲ Motor full load amperage (FLA) must not exceed the ampere rating of the soft start.
■ Low Inertia—Connected motor load inertia equal or less than 10 times motor rotor inertia.
High Inertia—Connected motor load inertia greater than 10 times motor rotor inertia.

***NOTE:*** *For severe duty or high inertia loads, derate by 1 hp size.*

**Table 26.15: Altistart 48 Options**

| Description | Catalog Number | $ Price |
|---|---|---|
| Remote Keypad Display Mounting Kit, including:<br>Keypad with 3–character 7–segment display<br>IP65 cover and seal, mounting screws, and 3 meter cable to connect keypad display to Altistart 48 | VW3G48101 | **165.** |
| Cover for power terminals—Set of 6 for ATS48C14Y and ATS48C17Y | LA9F702★ | **61.** |
| Cover for power terminals—Set of 6 for ATS48C21Y, ATS48C25Y, and ATS48C32Y | LA9F703★ | **82.** |
| Modbus Ethernet Gateway | TSXETG100▼ | **1027.** |
| DeviceNet Gateway | LUFP9△ | **495.** |
| Profibus DP Gateway | LUFP7△ | **495.** |
| FIPIO™ Gateway | LUFP1△ | **495.** |
| 1/3 meter connection cable (RJ–45 to RJ–45) | VW3A8306R03 | **20.** |
| 1 meter connection cable (RJ–45 to RJ–45) | VW3A8306R10 | **25.** |
| 3 meter connection cable (RJ–45 to RJ–45) | VW3A8306R30 | **30.** |
| 1/3 meter splitter cable (For RJ—45 daisy chain connection) | VW3A8306TF03 | **75.** |
| 1 meter splitter cable (For RJ–45 daisy chain connection) | VW3A8306TF10 | **85.** |
| RJ45 terminator (2 per package) | VW3A8306RC | **6.** |
| Modbus hub (Eight RJ–45 ports) | LU9GC3△ | **208.** |
| Powersuite™ commissioning software on CD♦ | VW3A8104□ | **150.** |
| PowerSuite upgrade CD from most recent to new version♦ | VW3A8105□ | **98.** |
| PC connection kit. To connect PC to Altistart 48 soft start♦ | VW3A8106□ | **75.** |
| USB to RJ45 Adaptor Kit<br>For use in connecting to a PC with a USB port | TCSMCNAM3M002P | **52.** |
| Size M10 Bolt Kit | W808780210111 | **8.** |
| Size M12 Bolt Kit | W808780220111 | **10.** |

♦ For more information, see Data Bulletin 8806DB0001.
★ Use discount schedule I12
▼ Use discount schedule PC41
△ discount schedule I11
□ discount schedule CP4C

For additional information on Altistart 48, refer to Catalog 8636CT0201.



© 2012 Schneider Electric
All Rights Reserved











## Altistart™ 22 Open Style Softstarter

The Altistart 22 unit uses both voltage and torque control to provide a softstart and soft stop for three-phase asynchronous motors between 17 and 590 amps.

### Table 27: ATS22 Selection and Pricing

Select the Altistart 22 softstart using the nameplate full-load ampere rating of the motor and the table below. The horsepower ratings are for reference only.

| 208 V | 230 V | 400 kW | 460 V | 575 V | Rated A | Softstart Reference ■ or ♦ | Dimensions (inches) | | | Frame Size | $ Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | W | H | D | | |
| 3 | 5 | 5.5 | 10 | 15 | 17 | ATS22D17S6,S6U | 5.1 | 9.8 | 6.6 | A | **613.00** |
| 7.5 | 10 | 11 | 20 | 25 | 32 | ATS22D32S6,S6U | 5.1 | 9.8 | 6.6 | A | **654.00** |
| —▲ | 15 | 18.5 | 30 | 40 | 47 | ATS22D47S6,S6U | 5.1 | 9.8 | 6.6 | A | **786.00** |
| 15 | 20 | 22 | 40 | 50 | 63 | ATS22D62S6,S6U | 5.7 | 10.9 | 8.1 | B | **945.00** |
| 20 | 25 | 30 | 50 | 60 | 75 | ATS22D75S6,S6U | 5.7 | 10.9 | 8.1 | B | **1083.00** |
| 25 | 30 | 37 | 60 | 75 | 88 | ATS22D88S6,S6U | 5.7 | 10.9 | 8.1 | B | **1266.00** |
| 30 | 40 | 45 | 75 | 100 | 110 | ATS22C11S6,S6U | 5.9 | 13 | 9 | C | **1468.00** |
| 40 | 50 | 55 | 100 | 125 | 140 | ATS22C14S6,S6U | 5.9 | 13 | 9 | C | **1792.00** |
| 50 | 60 | 75 | 125 | 150 | 170 | ATS22C17S6,S6U | 5.9 | 13 | 9 | C | **2056.00** |
| 60 | 75 | 90 | 150 | 200 | 210 | ATS22C21S6,S6U | 8.1 | 15.6 | 11.8 | D | **2383.00** |
| 75 | 100 | 110 | 200 | 250 | 250 | ATS22C25S6,S6U | 8.1 | 15.6 | 11.8 | D | **2714.00** |
| 100 | 125 | 132 | 250 | 300 | 320 | ATS22C32S6,S6U | 8.1 | 15.6 | 11.8 | D | **3083.00** |
| 125 | 150 | 160 | 300 | 350 | 410 | ATS22C41S6,S6U | 8.1 | 15.6 | 11.8 | D | **3573.00** |
| 150 | — | 220 | 350 | 400 | 480 | ATS22C48S6,S6U | 11.9 | 16.8 | 13.4 | E | **4263.00** |
| — | 200 | 250 | 400 | 500 | 590 | ATS22C59S6,S6U | 11.9 | 16.8 | 13.4 | E | **4862.00** |

▲ Value not indicated when there is no corresponding standardized motor.
■ S6 = 208–600 line voltage, 220 V control voltage
♦ S6U = 208–600 line voltage, 110 V control voltage





© 2012 Schneider Electric
All Rights Reserved





## Enclosed AltisStart™ 22 Motor Controllers

Enclosed Altistart 22 (ATS22) solid-state combination motor controllers are a pre-engineered, integrated solution for reduced voltage starting and soft stopping of standard three-phase asynchronous induction (squirrel cage) motors. The Enclosed 22 controllers consist of a disconnect means and an ATS22 softstarter in a stand-alone enclosure. Enclosed 22 controllers integrate the ATS22 softstart technology into a combination package for application requirements up to 125 hp at 480 V.

- 3–50 hp, 208 V
- 5–60 hp, 230 V
- 10–125 hp, 460 V

**Table 28: Catalog Number Description**

| Field | Digit | Characteristic | Description |
|---|---|---|---|
| — | — | Controller Class | 8638 = Fused Disconnect♦<br>8639 = Circuit Breaker Disconnect |
| 01 | 1–3 | Controller Style | 22F = Altistart 22 with Class J Fuse Clips and Molded Case Switch♦<br>22T = Altistart 22 with PowerPact Motor Circuit Protector<br>22U = Altistart 22 with PowerPact Thermal- |
| 02 | 4 | Horsepower | A = 3 hp<br>B = 5 hp<br>C = 7.5 hp<br>D = 10 hp<br>E = 15 hp<br>F = 20 hp<br>G = 25 hp<br>H = 30 hp<br>J = 40 hp<br>K = 50 hp<br>L = 60 hp<br>M = 75 hp<br>N = 100 hp<br>P = 125 hp<br>Q = 150 hp |
| 03 | 5 | Enclosure Type | G = UL Type 1 General Purpose<br>A = UL Type 12K Industrial Use, Dust-Tight/Drip-Tight<br>H = UL Type 3R Outdoor Use |
| 04 | 6 | Voltage | 2 = 208 Vac<br>3 = 230 Vac<br>4 = 460 Vac<br>5 = 575 Vac |
| 05 | 7 | Power Circuit | B = Basic Shunt Trip<br>S = Full-Featured Shunt Trip<br>N = Non-Reversing Isolation<br>R = Reversing Isolation<br>Y = Integral Full-Voltage Bypass |
| 06 | 8–10 | Control Options★▼ | A06 = Start-Stop Pushbuttons<br>B06 = Forward-Off-Reverse<br>C06 = Hand-Off-Auto (HOA) Selector Switch<br>D06 = Stop-Run Selector Switch<br>E06 = Hand-Auto Selector Switch/Start-Stop Pushbuttons |
| 07 | 11–13 | Pilot Device Options★▼ | A07 = Run Light (Red), Off Light (Green)<br>B07 = Push-to-Test Run Light (Red), Push-to-Test Off Light (Green)<br>C07 = Run Light (Red), Off Light (Green), Tripped Light/Reset (Yellow)<br>D07 = PTT Run Light (Red), PTT Off Light (Green), Tripped Light/Reset (Yellow) |
| 08 | 14–16 | Metering Options | B08 = Elapsed Run Time Meter▼ |
| 09 | 17–19 | Miscellaneous Options | A10 = Floor Mounting Kit△<br>B10 = Additional 150 VA□<br>C10 = Power-Up On Delay Relay◊<br>D10 = Emergency Stop Pushbutton□<br>E10 = cUL Label▲<br>F10 = Auxiliary Run Mode Contacts<br>G10 = Auxiliary FB Bypass Contacts☆<br>H10 = Auxiliary Auto Mode Contacts▽<br>J10 = Auxiliary Trip Indication Contacts<br>L10 = ID Engraved Nameplate□<br>M10 = 10 Spare Terminal Blocks□<br>P10 = Permanent Wire Markers□<br>R10 = MOV-Surge Arrestor□<br>U10 = Omit Door-Mounted Keypad Display■<br>X10 = 50 °C Operation<br>Z10 = Service Entrance Rating▲◒<br>910 = American Recovery and Reinvestment Act (ARRA) Option |

▲ Options E10 and Z10 cannot be used together.
■ If you select option U10, you must separately order the remote keypad (VW3G22101) and cable (VW3A1104R30) to commission the softstarter. Refer to the *ATS22 User Manual*, BBV51330, for serial communication programming and control capabilities.
♦ This option is not selectable with power circuit option B05.
★ Select only one option.
▼ To omit, do not include a selection in the catalog number.
△ This option is available only for enclosure size D.
□ This option is not selectable with power circuit option B05
◊ This option is not selectable wit hpower circuit option B05. This option is valid only with the following control options: C06, D06, or E06.
☆ This option is not selectable with power circuit option B05. The contacts are available only when power circuit option Y05 is selected.
▽ The contacts are not available when power circuit option R05 is selected. This option is valid only with the following control options: C06, D06, or E06.
◒ Options E10 and Z10 cannot be ordered together.

**Table 29: Catalog Number Example: 863922UCG4BA06A07**

| Field | | | | | | | |
|---|---|---|---|---|---|---|---|
| — | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8639 | 22U | C | G | 4 | B | A06 | A07 |
| Controller Class | PowerPact™ Thermal-Magnetic Circuit Breaker | 7.5 hp | Type 1 General Purpose | 460 Vac | Basic Shunt Trip | Start-Stop Pushbutton | Run Light (Red), Off Light (Green |

## Control Options (pick one)

| | | |
|---|---|---|
| **Mod A06** | **Start/Stop push buttons** | **$ Price** |
| | Provides black start and red stop push buttons (3-wire control scheme). | **132.00** |

| | | |
|---|---|---|
| **Mod B06** | **Forward-Off-Reverse selector switch** | **$ Price** |
| | Provides three-position selector switch to select between forward, off and reverse. Uses 2-wire control. | **240.00** |

| | | |
|---|---|---|
| **Mod C06** | **Hand-Off-Auto selector switch** | **$ Price** |
| | Provides a three-position selector switch, 2-wire control scheme. | **132.00** |

| | | |
|---|---|---|
| **Mod D06** | **Stop-Run selector switch** | **$ Price** |
| | Provides a two-position selector switch. | **132.00** |

| | | |
|---|---|---|
| **Mod E06** | **Hand-Auto selector switch and Start/Stop push buttons** | **$ Price** |
| | Provides a two-position selector switch and start/stop push buttons (3-wire control). | **264.00** |

## Pilot Light Cluster Options (pick one)

| | | |
|---|---|---|
| **Mod A07** | **Pilot light cluster #1** | **$ Price** |
| | Consists of red "RUN" and green "OFF" pilot lights. Provides standard red "RUN (ON)" and green "OFF" pilot lights for status annunciation. | **180.00** |

| | | |
|---|---|---|
| **Mod B07** | **Pilot light cluster #2** | **$ Price** |
| | Consists of red "RUN" (push-to-test) and green "OFF" (push-to-test) pilot lights. Provides push-to-test type red "RUN (ON)" and standard green "OFF" pilot lights for status annunciation. | **360.00** |

| | | |
|---|---|---|
| **Mod C07** | **Pilot light cluster #3** | **$ Price** |
| | Consists of red "RUN", green "OFF" and yellow "FAULT" pilot lights. Provides standard red "RUN (ON)" green "OFF" and yellow "FAULT" pilot lights for status annunciation. | **270.00** |

| | | |
|---|---|---|
| **Mod D07** | **Pilot light cluster #4** | **$ Price** |
| | Consists of red "RUN (ON)" (push-to-test), green "OFF" (push-to-test) and yellow "FAULT" (push-to-reset) pilot lights. Provides push-to-test type red "RUN (ON)" standard green "OFF", and push-to-reset type yellow "FAULT" for status annunciation. | **540.00** |

## Meter Display Options (pick one)

| | | |
|---|---|---|
| **Mod BO8** | **Elapsed time meter** | **$ Price** |
| | Provides a seven-digit analog, non-resettable elapsed run time meter. Not available on Type 3R Enclosures | **348.00** |

## Miscellaneous Options (multiple compatible options may be selected)

| | | |
|---|---|---|
| **Mod A10** | **Floor mounting kit** | **$ Price** |
| | Only available for size D enclosures. | **105.00** |

**Rules:** Available for power options S05, N05, R05, Y05.

| | | |
|---|---|---|
| **Mod B10** | **150 VA additional control power capacity** | **$ Price** |
| | Provides 150 VA additional control VA capacity for customer use. | **150.00** |



© 2012 Schneider Electric
All Rights Reserved

## Information and Selection

For information and selection, contact your nearest Schneider Electric sales office or visit our website:
www.schneider-electric.ussp

## Technical Support

### Drive Product Support Group

For support and assistance, contact the Drive Product Support Group. The Drive Product Support Group is staffed from 8:00 am until 6:00 pm Eastern time to assist with product selection, start–up, and diagnosis of product or application problems.
EMERGENCY Technical phone support is available 24 hours a day, 365 days a year.

**Toll Free:** 888–778–2733
**E–mail:** drive.products.support@schneider–electric.com
**Fax:** 919–217–6508

### Services (On–Site)

Square D Services is your single source of service expertise for all major brands of electrical equipment. With our national network of service locations and qualified experts, Square D Services is capable of providing customer–based solutions anywhere in the United States. Services responds to your requests, seven day a week, 24 hours a day.

**Toll Free:** (888–778–2733)

## Customer Training

Schneider Electric offers a variety of instructor-led, skill enhancing and technical product training programs for customers. For a complete list of drives/soft start training with dates, locations, and pricing, please call:

**Phone:** 978-975-9306
**Fax:** 978-975-2821

## Packaged Product Documentation

### Standard Documentation

Each adjustable frequency drive or soft start shipped includes one set of instruction bulletins. Each set of instruction bulletins includes installation, start–up, troubleshooting and wiring diagram information. Separate Approval and/or Record Drawings are not included.

### Approval and Record Drawings

All factory orders for enclosed drives and soft starts come with factory supplied user drawings and are identified by a factory order number. The factory supplied drawing set typically includes:

- Enclosure outline drawing
- Power elementary drawing
- Control elementary drawing
- Interconnection drawing

These drawings are also available in DWG, DXF, IGS, Microcad and PDF formats upon customer request.

## Product Literature

To view or download product literature, visit the Schneider Electric web site:
www.schneider-electric.us




© 2012 Schneider Electric
All Rights Reserved

# Section 27
## Automation Products

Back to Product Index
Section Listing



**Modicon M340** (p. 27-2)



**Modicon Premium** (p. 27-2)



**Modicon Quantum** (p. 27-2)



**Magelis XBTGT** (p.27-3)



**Twido Nano** (p. 27-10)


### Programmable Logic Controllers

| | |
|---|---|
| Modicon™ TSX Micro PLC | **27-2** |
| Modicon M340™ PAC | **27-2** |
| Modicon Premium™ PLC | **27-2** |
| Modicon Quantum™ PLC | **27-2** |
| Unity™ Pro Application Software | **27-2** |
| Unity Application Generator | **27-2** |
| Concept™ and PL7™ Application Software | **27-2** |
| ProWORX™ 32 Application Software | **27-2** |

### HMI

| | |
|---|---|
| Magelis™ Small Panels Products (STO/STU, XBT N/R, XBT RT) | **27-3** |
| Magelis Advanced Panels Products (XBTGT, XBT GK, XBT GH, XBT GTW) | **27-3** |
| Magelis Smart+ iPC | **27-4** |
| Magelis Smart iPC | **27-4** |
| Magelis Compact iPC | **27-4** |
| “BOX + Display” Solutions | **27-4** |
| Vijeo™ Designer™ | **27-4** |

### SCADA

| | |
|---|---|
| Vijeo™ Citect™ | **27-4** |
| Vijeo™ Historian™ | **27-4** |

### Distributed I/O

| | |
|---|---|
| Advantys™ OTB | **27-5** |
| Modicon TM5 Expansion Module | **27-5** |
| Modicon STB | **27-5** |
| Advantys Telefast™ ABE7 Sub-bases, IP20 | **27-5** |
| Advantys Telefast ABE9 Passive Splitter Boxes, IP67 | **27-5** |
| Modicon TM7 I/O Blocks, IP67 | **27-5** |
| Modicon Momentum™ Distributed I/O and PLC | **27-5** |

### Networking Products and Systems

| | |
|---|---|
| ConneXium™ Ethernet Products | **27-6** |
| ConneXview™Industrial Ethernet Diagnostic Software | **27-6** |
| Transparent Ready™ Solutions | **27-6** |
| CANopen™ Products | **27-6** |
| Ethernet TCP/IP Products | **27-7** |
| Actuator Sensor Interface (AS-i) Bus Products | **27-7** |

### OEM Solutions

| | |
|---|---|
| Modicon M168 Programmable Logic Controller | **27-8** |
| Modicon M238 Logic Controller | **27-8** |
| Modicon M258 Logic Controller | **27-8** |
| Modicon LMC058 Motion Controller | **27-9** |
| Altivar™ IMC Integrated Controller Card | **27-9** |
| Magelis XBT GC HMI Controller | **27-9** |
| SoMachine™ Software Suite | **27-10** |
| Twido™ Nano™ | **27-10** |
| Modicon Zelio™ Logic Controller | **27-10** |


For more detailed information, please refer to the catalogs referenced with each product, or you can also visit our website at **www.schneider-electric.com**.



© 2012 Schneider Electric
All Rights Reserved

## Modicon™ PLC Products

### Modicon™ TSX Micro™ PLC



Compact and cost-efficient, this mid-range PLC boasts the power and flexibility OEMs find most desirable. Optional integrated safety relays, half-size I/O and web-enabled modules provide seamless connection to supervisory maintenance systems plus minimize real estate. PCMCIA memory cards preserve your investment when expanding. Communication options include Ethernet and ASi for global access using Open standards. More details are available at **www.schneider-electric.com**.

### Modicon M340™ PAC



Our latest midrange PAC is the most integrated ever! Highly requested by industrial OEMs and end users, the all-power-inside concept boasts high-performance processing and small size to create a system that provides flexibility beyond any before. With up to 3 built-in CPU communication ports, large memory options, 64 channel high-density modules, and embedded web-servers, the Modicon M340 is a powerful solution for industrial OEMs and end users demanding more productivity in their PACs. The Modicon M340 PAC supports advanced communications such as enhanced EtherNet/IP which support both EtherNet/IP, Modbus TCP/IP and daisy chain loop communications on the same 4-port, rack mounted switch module. It will also support DNP3.0 in serial or Ethernet in a rack-mounted RTU module.The Modicon M340 PAC is programmed with Unity Pro software, which allows users to dramatically reduce setup time and effort with features like drag 'n drop CANopen bus setup and standard IEC 61131-3 language selection. Designers gain fast, easy and efficient startups. More details are found on our website or in the latest Modicon M340 catalogs and brochures.More details are available at **www.schneider-electric.com**, or in catalog **DIA6ED2081007EN-US.**

### Modicon Premium™ PLC



Ideally suited for discrete manufacturing, complex OEM applications as well as municipality and infrastructure applications, this cost-effective PLC line features integrated functions such as weighing, interpolated motion control, and process loops. Using the built-in Ethernet port, user-customized web page capabilities, and a range of popular Open-standard fieldbus connections the Modicon Premium enables seamless communication with enterprise systems providing low-cost remote maintenance diagnostics. More details are available at **www.schneider-electric.com**, or in catalog **MKTED208054EN-US.**

### Modicon Quantum™ PLC



The Modicon Quantum PLC is our high-end, full function PLC designed for high I/O count industrial applications that require high performance such as Pharmaceutical, Petrochemical, Food & Beverage, Automotive, and others. Quantum also offers true bumpless hot standby. Quantum processors can be programmed with Unity Pro. It will also support legacy 984 ladder logic programs in the LL984 Unity Pro editor by simply importing the legacy application program. Concept™ application software and ProWORX™ 32 application software are also supported on the Quantum platform.The Unity Quantum's onboard memory can exceed 3 Mbytes. The Unity Quantums can have more than 7 Mbytes of extended memory on a PCMCIA card for data and application storage combined. They can have over 8 Mbytes of just data storage. The Quantum PLC also offers Safety PLC versions certified for use in up to SIL3 applications. This includes both standard and hot standby capability as well as redundant I/O. It programs with Unity Pro XLS. The SIL3 offer stresses both high reliability as well as high availability. More details are available at **www.schneider-electric.com**, or in catalog **MKTED208011EN-US**.

Information about the SIL3 Quantum is available in brochure **8000BR0808R03/10**.

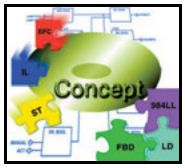
### Unity™ Pro Application Software

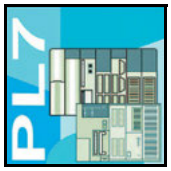
Unity Pro is a new generation software platform for application development. Unity Pro is compatible with all Industrial End User midrange and highend controllers including Modicon M340, Premium and Quantum PLCs. Unity provides a collaborative automation environment that enables individuals and teams to work together more effectively, reducing the cost of developing and managing automation solutions. Unity Pro XLS software is used to program the SIL3 Quantum as well as all Unity-based, standard Quantums, Unity-based Premiums and M340s. Since one software package can program all the platforms, it greatly simplifies development and support issues. It integrates commercial IT technologies like Ethernet, VBA, XML and hyperlinks within the traditional control framework to enable customers to reduce the cost of automating both discrete and batch control applications. More details are available at **www.schneider-electric.com**, or in brochure **8000BR0935R02/10**.

### Unity Application Generator

Unity Application Generator is an advanced design and generation software tool that integrates multiple PLCs and HMI/SCADA systems to provide an automation solution rivaling a Distributed Control System (DCS). UAG supports structured project design by providing a software tool to bridge from the process engineer to the control/automation designer (from the P&ID to the automation system). UAG will capture and re-use the Customer's best practices within application-specific libraries that reduce the dependency on experts and enable standardization and increases software robustness. Single database entry avoids duplicate effort and resulting errors. Automatic Application Generation including the automatic configuration of networks in multi device systems increases efficiency, improves software quality, speeds commissioning while simultaneously reducing project risk. Integrated change tracking and automatic documentation generation reduces engineering effort and enables system validation. UAG integrates Unity PLCs (M340/Premium/Quantum), Vijeo Citect, Connectors for leading HMI/SCADA systems, Modbus TCP/IP communication and OFS/OPC. Additional information can be found at **www.schneider-electric.com**.

### Concept™ and PL7™ Application Software




Concept and PL7 comply with the IEC 61131 standard for programming software. Concept and PL7 can be programmed in four IEC languages including two text-based editors (Structured Text and Instruction List), and two graphic-based editors (Sequential Function Chart and Ladder Diagram). In addition, Concept can be programmed using the IEC compliant graphic editor for Derived Function Blocks. The Concept and PL7 software both promote productivity by using structured programming, which increases reusability while reducing maintenance costs. Concept can be used to program the Quantum, and Momentum PLCs while PL7 can be used to program the Micro and Premium. More information is available at **www.schneider-electric.com**.

### ProWORX™ 32 Application Software

ProWORX 32

ProWORX 32 is the simple programming solution to program your Modicon PLCs using 984 ladder logic programming. Compatible with 584, 984, Modicon Micro, Momentum, Compact, and Quantum. Schneider Electric Automation Services maintains the tools necessary to upgrade your ProWORX 32 application to a Unity Pro application with ladder logic that is designed to mirror the 984LL application. More information can be found at **www.schneider-electric.com**.





© 2012 Schneider Electric
All Rights Reserved

## Magelis™ Small Panels HMI Products

The Magelis STO/STU, XBT N, XBT R, and XBT RT Small Panels have been specifically designed to satisfy the requirement for panels that are compact and easy to use. These terminals are easy to configure and work seamlessly with other Schneider Electric equipment to provide a complete automation solution, dedicated to simple or compact machines.

### Magelis STO/STU



The new Magelis STO and STU panels enhance the Magelis small panels range by offering more flexibility, more communication capability, and a quick and easy revolutionary mounting system. Powered by Vijeo Designer software, these panels bring a cost-effective solution to all machine builders. The new Magelis STO & STU terminals adapt to your needs by integrating the latest technological innovations to enhance machine productivity. More information is available at **www.schneider-electric.com**.

### Magelis XBT N/R




The Magelis XBT N and R matrix screen text display units accommodate up to four lines of large font (20 mm high) text for easy viewing. Rated for IEC 60529, NEMA 4X outdoor use, Class I Div II and UL508, the sturdy Magelis XBT N and R displays feature an ergonomically designed keyboard with up to 20 keys and ports to handle either point-to-point or multipoint communications. A truly global solution, the XBT N and R displays provide low-cost connectivity to all Schneider Electric PLCs using Modbus™ and Uni-Telway™ protocols, support Latin, Cyrillic, Katakana, Greek and Chinese fonts, and six languages.
More information is available at **www.schneider-electric.com**.

### Magelis XBT RT



The Magelis XBT RT semi-graphic touch screens accommodate up to ten lines of 33 characters of text. Rated for NEMA 4X, Class I Div II and UL508, the sturdy Magelis XBT RT displays semi-graphic objects, bar graphs, curves, buttons, and bitmaps and has ports to handle either point-to-point or multipoint communications. With the ability to choose between touch screen and keypad combination or keypad only operation, the XBT RT, is adaptable. Like the other Magelis small panels, the XBT RT displays provide low-cost connectivity to all Schneider Electric PLCs using Modbus and Uni-Telway protocols and several major third party protocols and supports multiple languages, including Japanese, Cyrillic, Greek and Chinese. More information is available at **www.schneider-electric.com**.

## Magelis Advanced Panels HMI Products

The Magelis XBT GT, GK, GH and GTW graphic terminals offer numerous connectivity options from Ethernet to USB. With their exceptional image quality and choice of touch screen and/or keypad interface, they are flexible enough for a large range of applications. When combined with Vijeo Designer configuration software, application designs are unlimited.

### Magelis XBT GT



Available in six sizes (3.8, 5.7, 7.4, 10.4, 12.1 and 15 inches) and 4 function levels, the Magelis XBT GT graphical touch screen terminals are designed to fit all your HMI application needs. Some offer: multimedia capability with a large processing capacity; openness with unequalled connectivity via numerous communication ports and multilink communication for simultaneous equipment control; ease-of-use with simple installation and simple configuration with Vijeo Designer software. The entire product range is RoHS compliant. More information is available at **www.schneider-electric.com**.

### Magelis XBT GK



With three models to choose from and two sizes screen sizes, 5.7 and 10.4 inches, the Magelis XBT GK offers a lot of flexibility. The XBT GK uses the same technology of the popular XBT GT but adds a keypad and industrial mouse pointer for extra control and data input that can be configured to operate simultaneously with or without the touchscreen. In a dusty or dirty environment, the keypad enables the use of the terminal, even while wearing gloves. There is an extra added safety feature where two keys can be simultaneously pressed to ensure command order security and the keys can be locked during delicate phases of an operation. Vijeo Designer, the single software package for the entire Magelis Advanced Panel range, ties the solution together. More information is available at **www.schneider-electric.com**.

### Magelis XBT GH



Powered by Vijeo Designer software and based on the same technology as XBT GT, the XBT GH hand-held panel combines intuitive operation, quality, durability, mobility and safety with rugged corded mobile design and integrated safety features. More information is available at **www.schneider-electric.com**.

### Magelis XBT GTW



Available in two color touch screens sizes, 8.4 and 15 inches, the Magelis XBT GTW terminals offer a Windows environment open to the Web (local and remote diagnostic and maintenance functions) and multimedia applications (streaming video on IP, Webcam management, sound and an integrated video output). With this open platform, the XBT GTW allows you to enhance your HMI applications with Vijeo Designer, while providing total access to Microsoft Office software (Excel, Word, PowerPoint, etc.) and data editing with Office Viewer or Acrobat Reader, two pre-installed applications.

The front panel USB port provides connectivity for peripherals. Numerous communication interfaces such as dual-Ethernet, multiple USB ports and slots provided for PCMCIA (15") and Compact Flash slots are available. More information is available at **www.schneider-electric.com**.



© 2012 Schneider Electric
All Rights Reserved

## Magelis™ HMI Products

### Magelis Industrial PCs

The Magelis Industrial PC (iPC) range offers “All-In-One” or “BOX + Display” industrial PC for autonomous or distributed applications. The Magelis iPC provides the openness and ergonomics of a Windows environment in a rugged PC that is ready for tough industrial environments. With the Magelis iPC range, you will be sure to find the PC that corresponds exactly to your specifications.

### “All-In-One” Solutions:

#### • Magelis Smart+ iPC



The new Magelis Smart+ iPC is the first industrial PC with Windows XP Pro operating system that requires no maintenance and contains no rotating parts (no hard disk or fan). The Smart+ iPC also offers all of the openness associated with Windows XP Pro. The IP65 touch screen shares the same 15" dimensions as the rest of the Magelis range. With its Intel® Celeron® M 1 GHz processor, 1 GB of RAM, and two Ethernet ports, Magelis Smart+ iPC offers great performance, and features a solid state drive (SSD) with Windows XP Pro operating system. The industrially rugged Smart+ iPC has been certified to the most demanding standards, including UL 508 for automation equipment, UL and ATEX for hazardous locations, and marine.Magelis Smart+ iPC supports Vijeo™ Designer™ HMI applications (demonstration version can be expanded to unlimited version) and is the first maintenance-free Magelis iPC to fully support the Vijeo Citect SCADA supervisor.

#### • Magelis Smart iPC



An extension of dedicated terminals and the industrial PC, Magelis Smart is open to the Web. It meets the demands of predefined operator dialog, display and remote diagnostics and is available in 8.4, 12, or 15 inches. Practical and reliable, the Smart has simplified connections, including: 2 Ethernet ports, one with gigabit support, 4 or 5 USB ports, 2 serial ports and a PCMCIA slot. Its also more resistant to noise and vibration with data storage on static disk (compact Flash) and no fan. The WEB Edition is ready to use as a web client or connected to the FactoryCast Web servers for remote diagnostics via the integrated Web browser. The HMI Edition (with Vijeo Designer runtime) transforms the iPC into an operator terminal.

#### • Magelis Compact iPC



Available in 8.4, 12, or 15”, the Magelis Compact iPC provides data storage adapted to industrial needs, Industrial HDD disk or 8 or 16 GB Flash disk (15”) only. This panel PC has several extension options, including: 1 PCI slot, dual-Ethernet ports, one with gigabit support, 4 or 5 USB ports, 2 serial ports and a PCMCIA slot. Vijeo Designer HMI software transforms the iPC into an operator terminal with the advantages of Windows® openness (HMI Edition).

More information is available at **www.schneider-electric.com**.

### “BOX + Display” Solutions:

From the simple preconfigured Magelis Smart BOX or the Compact PC BOX to the Flex PC BOX with its advanced features, these BOX + Display solutions have in common a high level of design guaranteeing the best reliability possible.

#### • Magelis Smart BOX

The Magelis Smart BOX is preconfigured with MS Windows® and offers the same features as the “All-In-One” version.

#### • Magelis Compact PC BOX

The Magelis Compact PC BOX offers 1 PCI slot and the same features as the Compact IPC

#### • Magelis Flex PC BOX

The Magelis Flex PC BOX features:

- 2 or 4 PCI slots
- Industrial HDD 24/7 and/or 8 or 16 GB disk
- Intel® Celeron® M 440 with 1.86 GHz or Pentium Core Duo with 2 GHz 100-240 Vac or 24 Vdc power supply

**PC BOX COMPONENTS**



To complete the configuration:

- To convert the Flex PC BOX into an “All-In-One” PC, add a 15” or 19" Front Panel in touch version or 12 or 15" Front Panel in touch/keyboard version
- To connect a remote screen to the PC BOX (Smart, Compact, or Flex), add a 15 or 19" iDisplay in touch version or 15" iDisplay in touch /keyboard version.

More information is available at **www.schneider-electric.com**.

### Vijeo™ Designer

Vijeo Designer configuration software can be used to create HMI applications designed for controlling automation systems for the Magelis HMISTO/STU/GTW/P/XBTGT/XBTGK/XBTGTW/iPC. It’s the ideal design tool for the simplest control application right up to the most complex HMI installations. It offers advanced script functions, recipe management, data management, remote access via PC web browser, e-mail and multi-protocol connectivity. More information is available at **www.schneider-electric.com**.

## SCADA Products

### Vijeo Citect

The flexibility of Vijeo Citect supervisory control and data acquisition (SCADA) software enables users to achieve the solution that best suits their supervision requirements for installations. Vijeo Citect offers all the functions of a modern supervisor. Its distributed client-server architecture is applicable to a multitude of applications in the most varied domains:

- Energy and infrastructures: airports, roads and tunnels, water wastewater, oil and gas, etc.
- Industries: food and beverage, mining, metals, minerals, system integrator, etc.

This development tool enables the development of any supervision application, from small stand-alone systems to large distributed redundant systems. More information is available at **www.schneider-electric.com**.

### Vijeo Historian

Vijeo Historian, a data logging and reporting software, collects, compares, and records the entire flow of data on a common platform. By establishing the communication between the supervisory systems (SCADA) and database systems, such as Oracle and SQL, Vijeo Historian enables collection and management of the production data and its availability for a vast range of client processing applications. More information is available at **www.schneider-electric.com**.





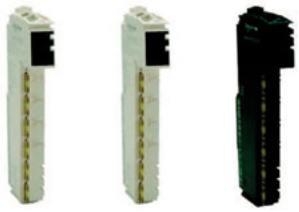
© 2012 Schneider Electric
All Rights Reserved

### Advantys™ OTB



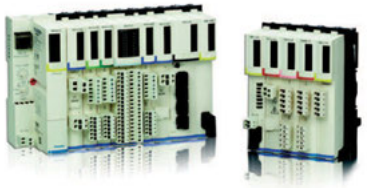
The open and modular new Advantys OTB distributed I/O system offers an ideal solution for IP20 distributed input/output requirements. Users can create I/O islands managed by a master controller, via a fieldbus or communication network. It includes three communication bases for the various types of fieldbus: CANopen™, Ethernet TCP/IP, or Modbus™ RS 485 serial. Discrete or analog I/O are available. More information is available in catalog **DIA3ED2040801EN-US**.

### Modicon™ TM5 Expansion Module



The Modicon TM5 digital I/O module offer consists of input, mixed I/O and output electronic modules (sensor and preactuator 24 V ⎓ power supply).They complement the embedded I/O in the various M258 controllers and LMC058 motion controllers. They are used to adapt to the application requirements as closely as possible to reduce the installation and wiring costs, and they can be used with the CANopen communications head and with multiple controllers. These modules offer the following advantages: a removable terminal, spring terminals which can be used for quick, tool-free connection of the sensors and preactuators (and can help eliminate the need for periodic retightening), and hot swapping. More information is available at **www.schneider-electric.com**, or in catalog **MKTED211041EN**.

### Modicon STB



The Modicon STB is a highly modular distributed I/O platform, integrated wiring solution, and power management system that delivers effective and targeted control. With an open network adaptable to most major field buses, a flexible “island” I/O structure, and simple configuration via the STBSUP1000 software, Modicon STB is the right choice. The Modicon STB distributed I/O can also be configured directly from Unity™ Pro application software. More information is available in catalog **MKTED208053EN-US**.

### Advantys Telefast™ ABE7 Sub-bases, IP20



The Advantys Telefast ABE7 pre-wired system enables connection and adaptation of control signals of industrial PLC cards that are fitted with HE10 connectors. It rationalizes cabling by replacing PLC terminals and traditional terminal blocks—thus improving simplicity and economy. More information is available at **www.schneider-electric.com**.

### Advantys Telefast ABE9 Passive splitter boxes, IP67



Advantys Telefast ABE9 splitter boxes eliminate long and difficult cable runs by avoiding the use of intermediate junction boxes. Due to their modularity and size, they are perfect for the requirements of your varying applications. More information is available at **www.schneider-electric.com**.

### Modicon TM7 I/O Blocks, IP67



Compact and flexible, the TM7 IP67 I/O Blocks allow connection of sensors and actuators at the heart of processes or machines in severe environments. The wide range of modules provides solutions to match your exact needs. It includes connectivity to CANopen. More information is available at **www.schneider-electric.com**, or in catalog **MKTED211041EN**.

### Modicon Momentum™ Distributed I/O and PLC



The small footprint and open architecture of the Momentum PLC product line make it extremely versatile for a variety of automation applications. The Momentum PLC is ideal for PC-based control, distributed control, distributed I/O, and traditional, standalone PLC control. Momentum PLC options and accessories include: I/O bases, processor adapters, option adapters and communication adapters that are interchangeable and snap together to deliver optimal flexibility throughout the control system lifecycle.

Using Ethernet as its communications backbone, the Modicon Momentum M1E Processor delivers all the performance benefits of real-time control. The open architecture of the M1E processor makes it a universal controller for distributed I/O, compatible with many of the major fieldbus and control network environments.

An integral Ethernet port in the M1E allows users to perform a wide range of functions over Ethernet, including data acquisition, peer-to-peer communications, and I/O scanning. Five embedded web pages enable the use of a standard web browser to read status and diagnostic information from the processor.

The most recent addition to the Momentum product offer is the Momentum M1E ConneXium switch. This model combines the power and functionality of the M1E processor with the communication versatility of four Modbus Ethernet TCP/IP ports.

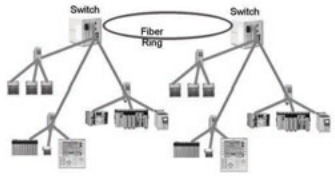
The award winning M1E not only seamlessly connects I/O and other control devices via open standards; it delivers the performance of a full function, real-time controller for stand-alone and distributed system configurations in one money-saving unit. Additional information can be found at **www.schneider-electric.com** or in catalog **MKTED205061EN.**



© 2012 Schneider Electric
All Rights Reserved

## ConneXium™ Products

### ConneXium™ Ethernet Products




The ConneXium line of networking products offers a complete range of Ethernet switches (managed and unmanaged), hubs, transceivers, gateways, cabling, and diagnostic monitoring software for demanding industrial environments. With fiber and redundant capabilities, along with advanced filtering and security features, ConneXium products improve the performance and security of the network. More details can be found at **www.schneider-electric.com**.

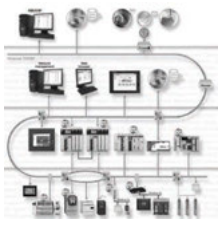
### ConneXview™ Industrial Ethernet Diagnostic Software

ConneXview Industrial Ethernet diagnostic software combines the power of IT-based network management programs with Schneider Electric's Transparent Ready Ethernet expertise to provide a tool specifically designed for the automation environment. ConneXview offers automatic device discovery plus Ethernet (SNMP) and control-network device (Modbus/TCP) mapping. In addition, the software has an easy-to-use graphical interface including convenient task panels for device status, settings and alarms, and topological visual graphics. Other benefits include:

- Increased overall productivity with easy-to-use diagnostics
- Expanded functionality offered with the Device Type Editor, including adding third-party devices to the library and adding unique device names for increased recognition
- An intuitive and ergonomic design that minimizes end-user training and decreases maintenance costs

## Transparent Ready™ Products

### Transparent Ready™ Solutions



Transparent Ready products cover solutions in Industrial automation to electrical Distribution, and are based on universal Ethernet TCP/IP and Web technologies. They provide seamless communication between plant floor devices, like PLCs, drives, and MCCs, with corporate business systems. Use of the open Modbus TCP/IP and EtherNet/IP protocols that are the leading industrial Ethernet protocols, broadens the scope of dedicated machine diagnostics to remote management. Choosing Transparent Ready means opting for flexible, open automation architectures. More details can be found at **www.schneider-electric.com**.

## Network Products

### CANopen Products



CANopen is an open network that is supported by over 400 companies world wide and promoted by CAN in Automation. CANopen is standardized in the EN50325-4 and in ISO15745-2 for its device description.

The main reason for using a network is the performance and the flexibility to adapt the network exactly to the requirements of the application. CANopen provides a unique feature for the adaptation of the data transmission. Based on the producer/consumer model, CANopen allows for a data transmission broadcast, peer-to-peer, change-of-state and cyclic communication. This means it transmits data only when required or on a specified time base. Process data objects can be individually configured. Parameters can be changed at runtime.

CANopen combines ease of installation with inexpensive devices. CANopen provides an integrated equipotential bounding in the cable. Therefore, an additional cable or stranded copper ribbon to achieve the same potential on all network devices is not necessary. Installation costs are heavily reduced.

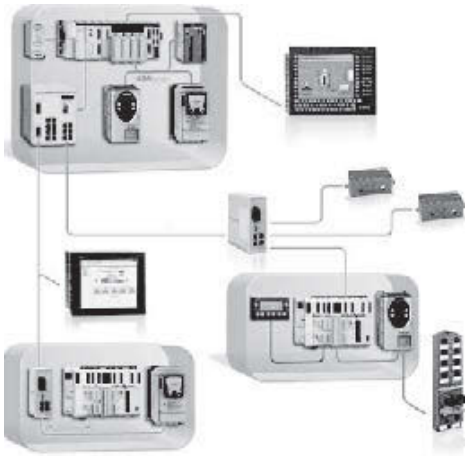
More information on CANopen and CANopen Products is available in catalog **MKTED208054EN-US**.





© 2012 Schneider Electric
All Rights Reserved

## Ethernet TCP/IP Products



The recognition of Ethernet TCP/IP, both in organizations and on the internet, has made it the communication standard of today. Its wide use is leading to a reduction in connection costs, increased performance and the addition of new functions, which all combine to ensure its durability.

Ethernet TCP/IP meets the connection requirements of every application:

- Twisted pair copper cables for simplicity and low costs
- Optical fiber for immunity to interference and for long distances
- Communication redundancy, inherent in the IP (internet protocol)
- Remote point-to-point access via the telephone network or the Internet for the cost of a local call

Ethernet TCP/IP, a truly open technology, supports all type of communication:

Web pages

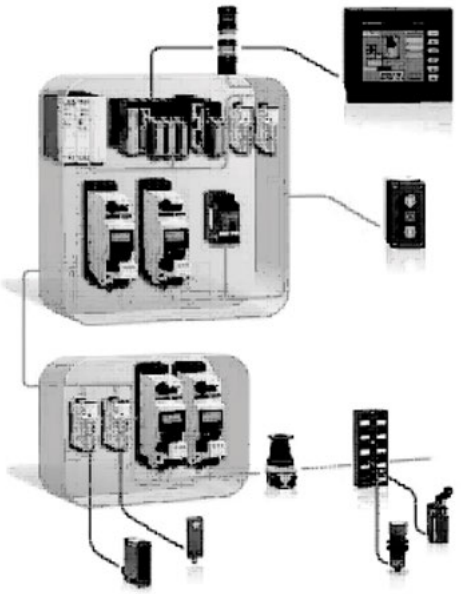
File transfer

Industrial messaging

With its high speed, the network no longer limits the performance of the application. The architecture can evolve without any difficulty. The products or devices remain compatible, ensuring the long-term durability of the system.

More information on Ethernet and Ethernet Products is available in catalog **MKTED208054EN-US**.

## Actuator Sensor Interface (AS-i) Bus Products



AS-Interface (AS-i) is a versatile, low-cost, easy to-install cabling solution dedicated to distributed machines and installations as a replacement for traditional parallel wiring. AS-i technology is compatible with virtually any fieldbus or device network. AS-i is used as a quick and upgradeable industrial network—a single cable with a quick, open-ended wire system connects all the components in the automation system. It contributes significantly to improve the reliability and availability by reducing cabling errors and offering high-level electromagnetic interference immunity (EMC).

AS-i is an open network standardized in IEC 62026-2 and promoted by AS-International Association.

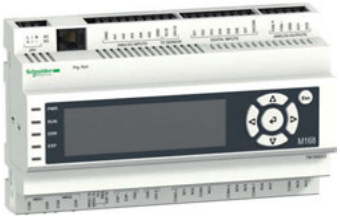
AS-International has over 260 members worldwide.

More information on AS-International and AS-i Products is available in catalog **MKTED208054EN-US**.



© 2012 Schneider Electric
All Rights Reserved

## Modicon™ M168 Programmable Logic Controller



Modicon M168 programmable logic controllers have been developed for the buildings market – offering HVAC and pump solutions for Building Management System communication networks (BACNet). Four different Modicon M168 logic controllers are available, all of which can be programmed with SoHVAC software, providing customized applications designed to control:

- Water chiller
- Heat pumps
- Compact air/air roof-top unit
- Air handling system, twin-flow enclosure
- Precision air conditioners
- Refrigerated display windows
- Compressor racks
- Pumping stations
- Booster stations
- Circulators
- Condensate/boiler feed pumps
- Cooling tower pumps

More information is available at **www.schneider-electric.com** or in catalog **DIA6ED2110101EN-US**.

## Modicon M238 Logic Controller



The Modicon M238 logic controller is a compact, high-performance and fully expandable PLC. It forms a part of Flexible Machine Control approach, a key component of MachineStruxure™, which brings you maximum flexibility and ensures the most optimized control solution. Modicon M238 compact logic controllers offer an "all-in-one" solution in a compact unit (157 x 118 x 86 mm excluding expansion modules). Four models are available, with different embedded communications and supply voltages. The number of I/O can be expanded on all four models by adding up to 7 expansion modules (1) of the following type on the right-hand side of the base unit:

- Digital TM2 DDI/DDO/DMM/DRA
- Analog TM2 AMI/ALM/ARI/AMO/AVO/AMM
- Up to 3 High-speed counter TM200 HSC206DT/DF
- Up to 2 AS-Interface master module TWD NOI 10M3.

Modems or communication gateways can be connected to the serial links in order to expand the connectivity capability to include Ethernet Modbus/TCP, Profibus DP, and DeviceNet.

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.

## Modicon M258 Logic Controller



The Modicon M258 logic controller is a compact, high-performance and fully expandable PLC. It forms a part of Flexible Machine Control approach, a key component of MachineStruxure, which brings you maximum flexibility and ensures the most optimized control solution. This PLC is designed for machine manufacturers (OEMs) focusing on applications such as packaging, conveying and storage, textiles and woodworking, etc. It offers high-performance solutions for speed control, counting, axis control and communication functions. The Modicon M258 logic controller's dual-core processor provides extremely high performance. Core 1 is dedicated exclusively to managing program tasks and offers the maximum resources for real-time execution of the application code. Core 2 is dedicated to executing communication tasks, which have no impact on the application performance.

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.





© 2012 Schneider Electric
All Rights Reserved

## Modicon™ LMC058 Motion Controller



The Modicon LMC058 motion controller is the optimum solution for axis control and positioning, including automation functions. It forms a part of Flexible Machine Control approach, a key component of MachineStruxure™, which brings you maximum flexibility and ensures the most optimized control solution The Modicon LMC058 motion controller meets the needs of a wide range of applications in all business sectors. This motion controller is designed for machine manufacturers (OEMs) who require synchronized axes, focusing on applications such as packaging, conveying and storage machines, metal and wood working machines, etc. and offers highperformance solutions for velocity control, counting, axis control and communication functions. To this end, the LMC058 master motion controller includes as standard a CANopen™ master and a CANmotion master dedicated to control of up to 8 synchronized axes, with a performance of 2 ms for 4 axes. With the Modicon LMC058 motion controllers, Lexium 32 and Lexium SD3 drives, and BSH and BDH servo motors, Schneider Electric offers a complete, high performance and cost-effective solution.

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.

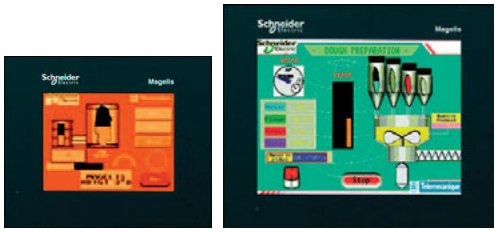
## Altivar™ IMC Integrated Controller Card for Altivar 61 and Altivar 71 Variable Speed Drives



The Altivar IMC integrated controller card forms a part of Flexible Machine Control approach, a key component of MachineStruxure, which brings you maximum flexibility and ensures the most optimized control solution. The Altivar IMC integrated controller card VW3 A3521S0 is a compact optimized solution developed for Altivar 61 and 71 variable speed drives. When equipped with the ATV IMC card, Altivar 61 and 71 drives become controllers capable of meeting the needs of machine manufacturers (OEMs) in applications such as textiles, hoisting, pumping or woodworking, etc. The Altivar IMC integrated controller card VW3 A3521S0 is configured and programmed using SoMachine software (see page 27-10). The expansion capability of the Altivar IMC card is based on Schneider Electric's “Flexible Machine Control” concept. The Altivar IMC card boosts the expansion capability of machines and allows us to meet the OEM market's requirements in terms of performance, simplicity of use and openness.

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.

## Magelis™ XBT GC HMI Controller



The Magelis XBT GC HMI Controller offer forms a part of Flexible Machine Control approach, a key component of MachineStruxure, which brings you maximum flexibility and ensures the most optimized control solution. The Magelis HMI Controller offer brings together HMI and control functions within in a single product. This reduces the amount of equipment required and the associated costs throughout the life cycle of the machine. The XBT GC range is comprised of 6 touch screen terminals, with the following, depending on the model:

- 3.8” monochrome screen, 12 integrated inputs/6 integrated outputs (sink or source)
- 5.7” monochrome or color screen, 16 integrated inputs/16 integrated outputs (sink or source)
- A wide choice of communication interfaces: USB, serial link, CANopen and Ethernet

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.



© 2012 Schneider Electric
All Rights Reserved

## SoMachine™ Software Suite

SoMachine is the OEM solution software for developing, configuring and commissioning the entire machine in a single software environment, including logic, motion control, HMI and related network automation functions. SoMachine allows you to program and commission all the elements in Schneider Electric's Flexible and Scalable Control platform, the comprehensive solution-oriented offer for OEMs, which helps you achieve the most optimized control solution for each machine's requirements. Flexible and Scalable Control platforms include:

**Controllers:**

- HMI controllers: XBT GC, XBT GT/GK CANopen
- Logic controllers: Modicon M238, Modicon M258
- Motion Controller Modicon LMC 058
- Integrated Controller Card Altivar IMC
- TM2, TM5 and TM7 offers

**HMI:**

- HMI Magelis graphic panels: XBT GT, XBT GK

SoMachine is a professional, efficient, and open software solution integrating Vijeo™ Designer. It integrates also the configuring and commissioning tool for motion control devices. It features all six IEC 61131-3 languages, integrated field bus configurators, expert diagnostics and debugging, as well as outstanding capabilities for maintenance and visualization.

More information is available at **www.schneider-electric.com** or in catalog **MKTED211041EN-US**.

## Twido™ Nano™



The Twido Nano PLC is a feature-rich ultra-compact controller designed especially for small control systems. Flexible, affordable, and adaptable, Twido makes it easy to build just the right control solution for your customer's application. Offering software with graphical development, the Twido Nano PLC makes it easy to create, configure, and manage applications. Communication options include CANopen, Ethernet TCP/IP, Modbus, and ASi. More information is available in catalog **DIA3ED2090202EN**.

## Modicon™ Zelio™ Logic Controller



To meet the demand for applications that require more flexibility than a simple relay, timer or counter, but are too small or simple for the smallest Nano PLC, the new generation of Zelio Logic smart relays are now available. Designed to accept and control outputs just like a relay, Zelio Logic features dual language capability, using either Function Block Diagram (FBD) or Ladder Logic Programming (LL), and can easily be programmed by using either the front panel or by utilizing ZelioSoft software. This new generation of Zelio Logic smart relays provides customers with considerable gains from the design stage to the monitoring of their applications, due to its simplicity and flexibility.

More information is available at **www.schneider-electric.com** or in catalog **DIA3ED2051002EN-US**.





© 2012 Schneider Electric
All Rights Reserved

# Section 28

## Universal Enclosures



**Spacial Steel Enclosures**
(p. 28-4)



**Thalassa Polyester Enclosures**
(p. 28-7)



**ClimaSys Thermal Management System**
(p. 28-8)

### Product Summary


| | |
|---|---|
| Spacial™ Steel Enclosures | 28-2 |
| Thalassa™ Polyester Enclosures | 28-2 |
| ClimaSys™ Thermal Management System | 28-3 |
| Our Software Suite | 28-3 |
| NEMA and UL Enclosure Ratings | 28-3 |


### New! Spacial Steel Enclosures


| | |
|---|---|
| Floor-Standing and Wall-Mounting Options | 28-4 |


### New! Thalassa Polyester Enclosures


| | |
|---|---|
| Floor-Standing and Wall-Mounting Options | 28-7 |


### New! ClimaSys Thermal Management System


| | |
|---|---|
| Ventilation Systems with Filters | 28-8 |
| Cooling Units | 28-8 |
| Thermal Control | 28-8 |




© 2012 Schneider Electric
All Rights Reserved



## New! Spacial™

### Metal enclosures and boxes

From our small boxes to large modular floor-standing enclosures, with the Spacial range you can find the optimal fit for your applications. Our extensive range of easy-to-use accessories helps you save time during your projects.

Select between steel or stainless steel to better suit the installation environment. In our stainless-steel offer you can find the optimal solution where cleanliness or protection in highly corrosive environments are required.

### Steel: Indoor non-clean industrial environment

The environment in industrial plants can subject electric and electronic components to dust, splashing oil, and impacts. Such environments require a range of enclosures that are suited to harsh conditions yet are easy to install.

- **Universal range**, for industry.
- **EMC (electromagnetic compatibility) range**, against electromagnetic disturbances (treated with Aluzinc).

### 304L - 316L stainless steel: Demanding industrial environment

Food and beverage, pharmaceutical, petrochemical, and infrastructure industries have particularly demanding hygiene and corrosion resistance requirements. Our Spacial range is available in two grades of stainless steel:

- **304L stainless steel**, for resistance to corrosion and ease of cleaning (often used in food production environments).
- **316L stainless steel, also known as "marine stainless steel,"** for very high resistance to corrosion (used in saline or chlorinated environments).
- **Range of ATEX enclosures**, for potentially explosive atmospheres.

### New product family names:

Spacial S44 - S57 - S24: *Steel industrial boxes*

Spacial SDB: *Steel junction boxes IP55*

Spacial S3DC: *Steel wall-mounting enclosures*

Spacial SM: *Compact metal enclosures*

Spacial SF: *Modular metal enclosures*

Spacial S3X: *Stainless-steel wall-mounting enclosures*

Spacial SMX: *Stainless-steel monobloc floor-standing enclosures*

Spacial SFX: *Stainless-steel modular enclosures*



## New! Thalassa™

### Insulated enclosures and boxes

Without the right protection, harsh environments can expose your installation to chemicals or other substances.

Developed to help protect your equipment in outdoor applications or harsh conditions, our Thalassa offer ranges from boxes to floor-standing enclosures made from fiberglass reinforced polyester.

Our Thalassa industrial boxes in ABS or polycarbonate are strong, easy to install, and designed to be used in highly demanding environments.

### Insulating polyester and plastic materials (ABS, polycarbonate): Outdoor infrastructures and severe industrial environments

Outdoor infrastructures and electrical installations are exposed to direct sunlight, rain, saline mist, extreme temperatures, oil splashes, chemical and corrosive agents, and are in contact with the public.

- **Universal range**, for industry.
- **Range of ATEX enclosures**, for potentially explosive atmospheres.

### New product family names:

Thalassa TBS: *Insulating industrial boxes*

Thalassa TBP: *Insulating industrial boxes*

Thalassa PLS: *Insulating modular boxes IP65*

Thalassa PLM: *Polyester wall-mounting enclosures*

Thalassa PLA: *Polyester floor-standing enclosures*





© 2012 Schneider Electric
All Rights Reserved



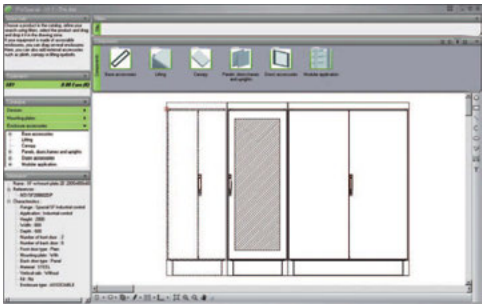
## New! ClimaSys™

### Thermal management

Preserving and keeping the right temperature inside your enclosure is vital for maximizing the average service life of your installed devices. With our ClimaSys offer you can find the right solution, be it ventilation, cooling or heating, including control units for temperature, humidity and much more.

### New product family names:

ClimaSys CV: *Ventilation systems*
ClimaSys CU: *Cooling unit*
ClimaSys CR: *Insulated resistance heaters*
ClimaSys CC: *Thermal control*



## New! Our software suite

### Spacial.pro

Spacial.pro allows you to make switchboard proposals based on the standard Spacial™ offer. A full project with several sets of switchboards is quoted in minutes, with automatic creation of the bill of material and 2D drawings for front and side views.

### ProClima

Calculate the right choice for your thermal management requirements, according to the environment and the electrical/electronic devices installed inside the enclosure.

### Spacial.ref and Thalassa.ref

These digital rules assist you in selecting the appropriate components for your application from our extensive product range. The tool automates product and accessory selection to help save you time and money.

**Table 28.1: NEMA and UL Enclosure and Component Ratings**

| Enclosures | | Type of protection ♦ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 3R | 3S | 4 | 4X | 5 | 6 | 6P | 12 | 12K | 13 |
| Steel wall-mounting enclosures | S3DC | ● | ● | ●▲ | ●▲ | | ●▲ | ●▲ | | | | ●■ | ●■ | ●■ |
| | CRN | ● | ●▲ | ●▲ | ●▲ | | ●▲ | | ●▲ | | | ● | | ● |
| Stainless-steel wall-mounting enclosures | S3X | ● | ●▲ | ●▲ | ●▲ | | ●▲ | ●▲ | ●▲ | | | ● | ●■ | ●▲ |
| Steel floor-standing enclosures | SM | ● | ●▲ | ●▲ | ●▲ | | ●▲ | | ●▲ | | | ● | ● | ●▲ |
| Steel modular enclosures | SF | ● | | | | | | | | | | ● | ● | |
| Stainless-steel floor-standing enclosures | SMX | ● | ●▲ | ●▲ | ●▲ | | ●▲ | ●▲ | ●▲ | | | ● | ● | ●▲ |
| Stainless-steel modular enclosures | SFX | ● | | | | | | | | | | ● | ● | |
| Thermoplastic boxes | TBS - TBP | ● | | ● | | ● | ● | ● | | | | | | |
| Polyester modular boxes | PLS | ● | ● | ● | ● | ● | ● | ● | | | | ● | | ● |
| Polyester wall-mounting enclosures | PLM | ● | ● | ● | ● | ● | ● | ● | | | | ● | | ● |
| Polyester floor-standing enclosures | PLA | ● | ● | ●▲ | ●▲ | | ●▲ | ●▲ | ●▲ | | | ● | | ● |

▲ 1 door
■ 2 doors

| Components | | Type of protection ♦ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 3R | 3S | 4 | 4X | 5 | 6 | 6P | 12 | 12K | 13 |
| Ventilation system | CV | | | | | | | | | | | ● | ● | |
| Thermal regulation system | CC | | | | | | | | | | | ● | ● | |

♦ In some ranges the classification depends on the model and version. The detailed protection types are indicated in the UL certifications.



© 2012 Schneider Electric
All Rights Reserved

**Table 28.2: Spacial Steel Floor-Standing Enclosures**



| Height: mm (in) | Width: mm (in) | Depth: mm (in) | # Doors | NSYSM Welded | NSYSF Modular | | Accessories, Floor-Standing Enclosures | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Without mounting plate | Without mounting plate | 2 Side panels | Mounting plate | Cable-gland plate, 1 entry | Plinth height 100 mm (3.9 in) | |
| | | | | | | | | | Front/back | Sides |
| 1200 (47.2) | 600 (23.6) | 400 (15.7) | 1 | — | NSYSF12640 | NSY2SP124 | NSYMP126 | NSYEC641 | NSYSPF6100 | NSYSPS4100 |
| 1200 (47.2) | 600 (23.6) | 600 (23.6) | 1 | — | NSYSF12660 | NSY2SP126 | NSYMP126 | NSYEC661 | NSYSPF6100 | NSYSPS6100 |
| 1200 (47.2) | 800 (31.5) | 300 (11.8) | 1 | NSYSM12830 | — | — | NSYMP128 | — | NSYSPF8100 | NSYSPS3100 |
| 1200 (47.2) | 800 (31.5) | 400 (15.7) | 1 | — | NSYSF12840 | NSY2SP124 | NSYMP128 | NSYEC841 | NSYSPF8100 | NSYSPS4100 |
| 1200 (47.2) | 800 (31.5) | 600 (23.6) | 1 | — | NSYSF12860 | NSY2SP126 | NSYMP128 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 1200 (47.2) | 1000 (39.4) | 300 (11.8) | 2 | NSYSM1210302D | — | — | NSYMP1210 | — | NSYSPF10100 | NSYSPS3100 |
| 1200 (47.2) | 1200 (47.2) | 400 (15.7) | 2 | NSYSM1212402D | — | — | NSYMP1212 | — | NSYSPF12100 | NSYSPS4100 |
| 1400 (55.1) | 600 (23.6) | 300 (11.8) | 1 | NSYSM14630 | — | — | NSYMP146 | — | NSYSPF6100 | NSYSPS3100 |
| 1400 (55.1) | 600 (23.6) | 400 (15.7) | 1 | NSYSM14640 | NSYSF14640 | NSY2SP144 | NSYMP146 | NSYEC641 | NSYSPF6100 | NSYSPS4100 |
| 1400 (55.1) | 800 (31.5) | 300 (11.8) | 1 | NSYSM14830 | — | — | NSYMP148 | — | NSYSPF8100 | NSYSPS3100 |
| 1400 (55.1) | 800 (31.5) | 400 (15.7) | 1 | NSYSM14840 | NSYSF14840 | NSY2SP144 | NSYMP148 | NSYEC841 | NSYSPF8100 | NSYSPS4100 |
| 1400 (55.1) | 1000 (39.4) | 400 (15.7) | 2 | NSYSM1410402D | — | — | NSYMP1410 | — | NSYSPF10100 | NSYSPS4100 |
| 1400 (55.1) | 1200 (47.2) | 400 (15.7) | 2 | NSYSM1412402D | — | — | NSYMP1412 | — | NSYSPF12100 | NSYSPS4100 |
| 1600 (63.0) | 600 (23.6) | 300 (11.8) | 1 | NSYSM16630 | — | — | NSYMP166 | — | NSYSPF6100 | NSYSPS3100 |
| 1600 (63.0) | 600 (23.6) | 400 (15.7) | 1 | NSYSM16640 | — | — | NSYMP166 | — | NSYSPF6100 | NSYSPS4100 |
| 1600 (63.0) | 600 (23.6) | 600 (23.6) | 1 | — | NSYSF16660 | NSY2SP166 | NSYMP166 | NSYEC661 | NSYSPF6100 | NSYSPS6100 |
| 1600 (63.0) | 600 (23.6) | 800 (31.5) | 1 | — | NSYSF16680 | NSY2SP168 | NSYMP166 | NSYEC681 | NSYSPF6100 | NSYSPS8100 |
| 1600 (63.0) | 800 (31.5) | 300 (11.8) | 1 | NSYSM16830 | — | — | NSYMP168 | — | NSYSPF8100 | NSYSPS3100 |
| 1600 (63.0) | 800 (31.5) | 400 (15.7) | 1 | NSYSM16840 | — | — | NSYMP168 | — | NSYSPF8100 | NSYSPS4100 |
| 1600 (63.0) | 800 (31.5) | 600 (23.6) | 1 | — | NSYSF16860 | NSY2SP166 | NSYMP168 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 1600 (63.0) | 800 (31.5) | 800 (31.5) | 1 | — | NSYSF16880 | NSY2SP168 | NSYMP168 | NSYEC881 | NSYSPF8100 | NSYSPS8100 |
| 1600 (63.0) | 1000 (39.4) | 300 (11.8) | 2 | NSYSM1610302D | — | — | NSYMP1610 | — | NSYSPF10100 | NSYSPS3100 |
| 1600 (63.0) | 1000 (39.4) | 400 (15.7) | 2 | NSYSM1610402D | — | — | NSYMP1610 | — | NSYSPF10100 | NSYSPS4100 |
| 1600 (63.0) | 1200 (47.2) | 300 (11.8) | 2 | NSYSM1612302D | — | — | NSYMP1612 | — | NSYSPF12100 | NSYSPS3100 |
| 1600 (63.0) | 1200 (47.2) | 400 (15.7) | 2 | NSYSM1612402D | — | — | NSYMP1612 | — | NSYSPF12100 | NSYSPS4100 |
| 1800 (70.9) | 400 (15.7) | 400 (15.7) | 1 | — | NSYSF18440 | NSY2SP184 | — | NSYEC441 | NSYSPF4100 | NSYSPS4100 |
| 1800 (70.9) | 400 (15.7) | 500 (19.7) | 1 | — | NSYSF18450 | NSY2SP185 | — | NSYEC451 | NSYSPF4100 | NSYSPS5100 |
| 1800 (70.9) | 400 (15.7) | 600 (23.6) | 1 | — | NSYSF18460 | NSY2SP186 | — | NSYEC461 | NSYSPF4100 | NSYSPS6100 |
| 1800 (70.9) | 600 (23.6) | 300 (11.8) | 1 | NSYSM18630 | — | — | NSYMP186 | — | NSYSPF6100 | NSYSPS3100 |
| 1800 (70.9) | 600 (23.6) | 400 (15.7) | 1 | NSYSM18640 | NSYSF18640 | NSY2SP184 | NSYMP186 | NSYEC641 | NSYSPF6100 | NSYSPS4100 |
| 1800 (70.9) | 600 (23.6) | 500 (19.7) | 1 | NSYSM18650 | NSYSF18650 | NSY2SP185 | NSYMP186 | NSYEC651 | NSYSPF6100 | NSYSPS5100 |
| 1800 (70.9) | 600 (23.6) | 600 (23.6) | 1 | — | NSYSF18660 | NSY2SP186 | NSYMP186 | NSYEC661 | NSYSPF6100 | NSYSPS6100 |
| 1800 (70.9) | 600 (23.6) | 800 (31.5) | 1 | — | — | NSY2SP188 | NSYMP186 | NSYEC681 | NSYSPF6100 | NSYSPS8100 |
| 1800 (70.9) | 800 (31.5) | 300 (11.8) | 1 | NSYSM18830 | — | — | NSYMP188 | — | NSYSPF8100 | NSYSPS3100 |
| 1800 (70.9) | 800 (31.5) | 400 (15.7) | 1 | NSYSM18840 | NSYSF18840 | NSY2SP184 | NSYMP188 | NSYEC841 | NSYSPF8100 | NSYSPS4100 |
| 1800 (70.9) | 800 (31.5) | 500 (19.7) | 1 | NSYSM18850 | NSYSF18850 | NSY2SP185 | NSYMP188 | NSYEC851 | NSYSPF8100 | NSYSPS5100 |
| 1800 (70.9) | 800 (31.5) | 600 (23.6) | 1 | NSYSM18860 | NSYSF18860 | NSY2SP186 | NSYMP188 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 1800 (70.9) | 800 (31.5) | 600 (23.6) | 2 | — | NSYSF188602D | NSY2SP186 | NSYMP188 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 1800 (70.9) | 1000 (39.4) | 400 (15.7) | 1 | NSYSM181040 | NSYSF181040 | NSY2SP184 | NSYMP1810 | NSYEC1041 | NSYSPF10100 | NSYSPS4100 |
| 1800 (70.9) | 1000 (39.4) | 400 (15.7) | 2 | NSYSM1810402D | NSYSF1810402D | NSY2SP184 | NSYMP1810 | NSYEC1041 | NSYSPF10100 | NSYSPS4100 |
| 1800 (70.9) | 1000 (39.4) | 500 (19.7) | 1 | — | NSYSF181050 | NSY2SP185 | NSYMP1810 | NSYEC1051 | NSYSPF10100 | NSYSPS5100 |
| 1800 (70.9) | 1000 (39.4) | 500 (19.7) | 2 | NSYSM1810502D | — | — | NSYMP1810 | — | NSYSPF10100 | NSYSPS5100 |
| 1800 (70.9) | 1000 (39.4) | 600 (23.6) | 1 | — | NSYSF181060 | NSY2SP186 | NSYMP1810 | NSYEC1061 | NSYSPF10100 | NSYSPS6100 |
| 1800 (70.9) | 1000 (39.4) | 600 (23.6) | 2 | — | NSYSF1810602D | NSY2SP186 | NSYMP1810 | NSYEC1061 | NSYSPF10100 | NSYSPS6100 |
| 1800 (70.9) | 1200 (47.2) | 400 (15.7) | 2 | NSYSM1812402D | NSYSF1812402D | NSY2SP184 | NSYMP1812 | NSYEC1241 | NSYSPF12100 | NSYSPS4100 |
| 1800 (70.9) | 1200 (47.2) | 500 (19.7) | 2 | NSYSM1812502D | NSYSF1812502D | NSY2SP185 | NSYMP1812 | NSYEC1251 | NSYSPF12100 | NSYSPS5100 |
| 1800 (70.9) | 1200 (47.2) | 600 (23.6) | 2 | — | NSYSF1812602D | NSY2SP186 | NSYMP1812 | NSYEC1261 | NSYSPF12100 | NSYSPS6100 |
| 1800 (70.9) | 1600 (63.0) | 400 (15.7) | 2 | NSYSM1816402D | — | — | NSYMP1816 | — | NSYSPF16100 | NSYSPS4100 |
| 1800 (70.9) | 1600 (63.0) | 500 (19.7) | 2 | NSYSM1816502D | — | — | NSYMP1816 | — | NSYSPF16100 | NSYSPS5100 |
| 2000 (78.7) | 300 (11.8) | 500 (19.7) | 1 | — | NSYSF20350 | NSY2SP205 | — | NSYEC351 | NSYSPF3100 | NSYSPS5100 |
| 2000 (78.7) | 300 (11.8) | 600 (23.6) | 1 | — | NSYSF20360 | NSY2SP206 | — | NSYEC361 | NSYSPF3100 | NSYSPS6100 |
| 2000 (78.7) | 400 (15.7) | 400 (15.7) | 1 | — | NSYSF20440 | NSY2SP204 | — | NSYEC441 | NSYSPF4100 | NSYSPS4100 |
| 2000 (78.7) | 400 (15.7) | 500 (19.7) | 1 | — | NSYSF20450 | NSY2SP205 | — | NSYEC451 | NSYSPF4100 | NSYSPS5100 |
| 2000 (78.7) | 400 (15.7) | 600 (23.6) | 1 | — | NSYSF20460 | NSY2SP206 | — | NSYEC461 | NSYSPF4100 | NSYSPS6100 |
| 2000 (78.7) | 400 (15.7) | 800 (31.5) | 1 | — | NSYSF20480 | NSY2SP208 | — | NSYEC481 | NSYSPF4100 | NSYSPS8100 |
| 2000 (78.7) | 600 (23.6) | 300 (11.8) | 1 | NSYSM20630 | — | — | NSYMP206 | — | NSYSPF6100 | NSYSPS3100 |
| 2000 (78.7) | 600 (23.6) | 400 (15.7) | 1 | NSYSM20640 | NSYSF20640 | NSY2SP204 | NSYMP206 | NSYEC641 | NSYSPF6100 | NSYSPS4100 |





© 2012 Schneider Electric
All Rights Reserved

**Table 28.2: Spacial Steel Floor-Standing Enclosures** *(continued)*

| Height: mm (in) | Width: mm (in) | Depth: mm (in) | # Doors | NSYSM Welded | NSYSF Modular | | Accessories, Floor-Standing Enclosures | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Without mounting plate | Without mounting plate | 2 Side panels | Mounting plate | Cable-gland plate, 1 entry | Plinth height 100 mm (3.9 in) | |
| | | | | | | | | | Front/back | Sides |
| 2000 (78.7) | 600 (23.6) | 500 (19.7) | 1 | NSYSM20650 | NSYSF20650 | NSY2SP205 | NSYMP206 | NSYEC651 | NSYSPF6100 | NSYSPS5100 |
| 2000 (78.7) | 600 (23.6) | 600 (23.6) | 1 | — | NSYSF20660 | NSY2SP206 | NSYMP206 | NSYEC661 | NSYSPF6100 | NSYSPS6100 |
| 2000 (78.7) | 600 (23.6) | 800 (31.5) | 1 | — | NSYSF20680 | NSY2SP208 | NSYMP206 | NSYEC681 | NSYSPF6100 | NSYSPS8100 |
| 2000 (78.7) | 800 (31.5) | 300 (11.8) | 1 | NSYSM20830 | — | — | NSYMP208 | — | NSYSPF8100 | NSYSPS3100 |
| 2000 (78.7) | 800 (31.5) | 400 (15.7) | 1 | NSYSM20840 | NSYSF20840 | NSY2SP204 | NSYMP208 | NSYEC841 | NSYSPF8100 | NSYSPS4100 |
| 2000 (78.7) | 800 (31.5) | 500 (19.7) | 1 | NSYSM20850 | NSYSF20850 | NSY2SP205 | NSYMP208 | NSYEC851 | NSYSPF8100 | NSYSPS5100 |
| 2000 (78.7) | 800 (31.5) | 600 (23.6) | 1 | NSYSM20860 | NSYSF20860 | NSY2SP206 | NSYMP208 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 2000 (78.7) | 800 (31.5) | 600 (23.6) | 2 | — | NSYSF208602D | NSY2SP206 | NSYMP208 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 2000 (78.7) | 800 (31.5) | 800 (31.5) | 1 | — | NSYSF20880 | NSY2SP208 | NSYMP208 | NSYEC881 | NSYSPF8100 | NSYSPS8100 |
| 2000 (78.7) | 1000 (39.4) | 400 (15.7) | 1 | — | NSYSF201040 | NSY2SP204 | NSYMP2010 | NSYEC1041 | NSYSPF10100 | NSYSPS4100 |
| 2000 (78.7) | 1000 (39.4) | 400 (15.7) | 2 | NSYSM2010402D | NSYSF2010402D | NSY2SP204 | NSYMP2010 | NSYEC1041 | NSYSPF10100 | NSYSPS4100 |
| 2000 (78.7) | 1000 (39.4) | 500 (19.7) | 1 | — | NSYSF201050 | NSY2SP205 | NSYMP2010 | NSYEC1051 | NSYSPF10100 | NSYSPS5100 |
| 2000 (78.7) | 1000 (39.4) | 500 (19.7) | 2 | NSYSM2010502D | NSYSF2010502D | NSY2SP205 | NSYMP2010 | NSYEC1051 | NSYSPF10100 | NSYSPS5100 |
| 2000 (78.7) | 1000 (39.4) | 600 (23.6) | 1 | — | NSYSF201060 | NSY2SP206 | NSYMP2010 | NSYEC1061 | NSYSPF10100 | NSYSPS6100 |
| 2000 (78.7) | 1000 (39.4) | 600 (23.6) | 2 | — | NSYSF2010602D | NSY2SP206 | NSYMP2010 | NSYEC1061 | NSYSPF10100 | NSYSPS6100 |
| 2000 (78.7) | 1000 (39.4) | 800 (31.5) | 1 | — | NSYSF201080 | NSY2SP208 | NSYMP2010 | NSYEC1081 | NSYSPF10100 | NSYSPS8100 |
| 2000 (78.7) | 1200 (47.2) | 400 (15.7) | 2 | NSYSM2012402D | NSYSF2012402D | NSY2SP204 | NSYMP2012 | NSYEC1241 | NSYSPF12100 | NSYSPS4100 |
| 2000 (78.7) | 1200 (47.2) | 500 (19.7) | 2 | NSYSM2012502D | NSYSF2012502D | NSY2SP205 | NSYMP2012 | NSYEC1251 | NSYSPF12100 | NSYSPS5100 |
| 2000 (78.7) | 1200 (47.2) | 600 (23.6) | 2 | NSYSM2012602D | NSYSF2012602D | NSY2SP206 | NSYMP2012 | NSYEC1261 | NSYSPF12100 | NSYSPS6100 |
| 2000 (78.7) | 1200 (47.2) | 800 (31.5) | 2 | — | NSYSF2012802D | NSY2SP208 | NSYMP2012 | NSYEC1281 | NSYSPF12100 | NSYSPS8100 |
| 2000 (78.7) | 1600 (63.0) | 400 (15.7) | 2 | NSYSM2016402D | NSYSF206402D | NSY2SP204 | NSYMP2016 | NSYEC1641 | NSYSPF16100 | NSYSPS4100 |
| 2000 (78.7) | 1600 (63.0) | 500 (19.7) | 2 | NSYSM2016502D | NSYSF2016502D | NSY2SP205 | NSYMP2016 | NSYEC1651 | NSYSPF16100 | NSYSPS5100 |
| 2000 (78.7) | 1600 (63.0) | 600 (23.6) | 2 | NSYSM2016602D | NSYSF2016602D | NSY2SP206 | NSYMP2016 | NSYEC1661 | NSYSPF16100 | NSYSPS6100 |
| 2200 (86.6) | 400 (15.7) | 600 (23.6) | 1 | — | NSYSF22460 | NSY2SP226 | — | NSYEC461 | NSYSPF4100 | NSYSPS6100 |
| 2200 (86.6) | 600 (23.6) | 600 (23.6) | 1 | — | NSYSF22660 | NSY2SP226 | NSYMP226 | NSYEC661 | NSYSPF6100 | NSYSPS6100 |
| 2200 (86.6) | 600 (23.6) | 800 (31.5) | 1 | — | NSYSF22680 | NSY2SP228 | NSYMP226 | NSYEC681 | NSYSPF6100 | NSYSPS8100 |
| 2200 (86.6) | 800 (31.5) | 600 (23.6) | 1 | — | NSYSF22860 | NSY2SP226 | NSYMP228 | NSYEC861 | NSYSPF8100 | NSYSPS6100 |
| 2200 (86.6) | 800 (31.5) | 800 (31.5) | 1 | — | NSYSF22880 | NSY2SP228 | NSYMP228 | NSYEC881 | NSYSPF8100 | NSYSPS8100 |
| 2200 (86.6) | 1000 (39.4) | 600 (23.6) | 1 | — | NSYSF221060 | NSY2SP226 | NSYMP2210 | NSYEC1061 | NSYSPF10100 | NSYSPS6100 |
| 2200 (86.6) | 1200 (47.2) | 600 (23.6) | 2 | — | NSYSF2212602D | NSY2SP226 | NSYMP2212 | NSYEC1261 | NSYSPF12100 | NSYSPS6100 |
| 2200 (86.6) | 1200 (47.2) | 800 (31.5) | 2 | — | NSYSF2212802D | NSY2SP228 | NSYMP2212 | NSYEC1281 | NSYSPF12100 | NSYSPS8100 |

**Table 28.3: Spacial Stainless Steel Floor-Standing Enclosures**







| Height: mm (in) | Width: mm (in) | Depth: mm (in) | # Doors | NSYSMX | NSYSFX Modular | | Accessories, Stainless Steel | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Without mounting plate | Without mounting plate | 2 Side panels | Mounting plate | Plinth height 100 mm (3.9 in) | |
| | | | | | | | | Front/back | Sides |
| 1400 (55.1) | 1000 (39.4) | 300 (11.8) | 2 | NSYSMX141030 | — | — | NSYMP1410 | NSYSPXF10100H | NSYSPXS3100H |
| 1600 (63.0) | 800 (31.5) | 400 (15.7) | 1 | NSYSMX16840 | — | — | NSYMP168 | NSYSPXF8100H | NSYSPXS4100H |
| 1800 (70.9) | 600 (23.6) | 400 (15.7) | 1 | NSYSMX18640 | NSYSFX18640 | NSY2SPX184 | NSYMP186 | NSYSPXF6100H | NSYSPXS4100H |
| 1800 (70.9) | 800 (31.5) | 400 (15.7) | 1 | NSYSMX18840 | NSYSFX18840 | NSY2SPX184 | NSYMP188 | NSYSPXF8100H | NSYSPXS4100H |
| 1800 (70.9) | 1200 (47.2) | 400 (15.7) | 2 | NSYSMX181240 | NSYSFX181240 | NSY2SPX184 | NSYMP1812 | NSYSPXF12100H | NSYSPXS4100H |
| 1800 (70.9) | 1600 (63.0) | 400 (15.7) | 2 | NSYSMX181640 | — | — | NSYMP1813 | NSYSPXF16100H | NSYSPXS4100H |
| 2000 (78.7) | 600 (23.6) | 500 (19.7) | 1 | — | NSYSFX20650 | NSY2SPX205 | NSYMP206 | — | — |
| 2000 (78.7) | 800 (31.5) | 400 (15.7) | 1 | — | NSYSFX20840 | NSY2SPX204 | NSYMP208 | — | — |
| 2000 (78.7) | 800 (31.5) | 500 (19.7) | 1 | NSYSMX20850 | — | — | NSYMP208 | NSYSPXF8100H | NSYSPXS5100H |
| 2000 (78.7) | 800 (31.5) | 600 (23.6) | 1 | — | NSYSFX20860 | NSY2SPX206 | NSYMP208 | — | — |
| 2000 (78.7) | 1000 (39.4) | 400 (15.7) | 2 | NSYSMX201040 | — | — | NSYMP2010 | NSYSPXF10100H | NSYSPXS4100H |
| 2000 (78.7) | 1000 (39.4) | 600 (23.6) | 2 | — | NSYSFX201060 | NSY2SPX206 | NSYMP2010 | — | |
| 2000 (78.7) | 1200 (47.2) | 500 (19.7) | 2 | NSYSMX201250 | — | — | NSYMP2012 | NSYSPXF12100H | NSYSPXS5100H |
| 2000 (78.7) | 1200 (47.2) | 600 (23.6) | 2 | — | NSYSFX201260 | NSY2SPX206 | NSYMP2012 | — | — |
| 2000 (78.7) | 1600 (63.0) | 600 (23.6) | 2 | NSYSMX201660 | — | — | NSYMP2016 | NSYSPXF16100H | NSYSPXS6100H |



© 2012 Schneider Electric
All Rights Reserved



CRN/CRNG



S3DC



S3X Stainless Steel



Mounting Plate

## Table 28.4: Spacial Steel Wall-Mounting Enclosures

| Height: mm (in) | Width: mm (in) | Depth: mm (in) | # Doors▲ | Spacial Steel Wall-Mounting Enclosures | | | Mounting Plate |
|---|---|---|---|---|---|---|---|
| | | | | CRN/CRNG | S3DC | S3X Stainless steel | |
| 200 (7.9) | 200 (7.9) | 150 (5.9) | 1 | NSYCRN22150■ | — | — | NSYMM22 |
| 200 (7.9) | 300 (11.8) | 150 (5.9) | 1 | NSYCRN23150■ | — | — | NSYMM32 |
| 250 (9.8) | 200 (7.9) | 150 (5.9) | 1 | NSYCRN252150 | — | — | NSYMM2520 |
| 300 (11.8) | 200 (7.9) | 150 (5.9) | 1 | — | NSYS3DC3215 | NSYS3X3215 | NSYMM32 |
| 300 (11.8) | 250 (9.8) | 150 (5.9) | 1 | NSYCRN325150 | — | NSYS3X302515 | NSYMM3025 |
| 300 (11.8) | 250 (9.8) | 200 (7.9) | 1 | NSYCRN325200 | — | — | NSYMM3025 |
| 300 (11.8) | 300 (11.8) | 150 (5.9) | 1 | NSYCRN33150 | NSYS3DC3315 | NSYS3X3315 | NSYMM33 |
| 300 (11.8) | 300 (11.8) | 200 (7.9) | 1 | NSYCRN33200 | NSYS3DC3320 | — | NSYMM33 |
| 300 (11.8) | 400 (15.7) | 200 (7.9) | 1 | NSYCRN34200 | — | — | NSYMM43 |
| 300 (11.8) | 450 (17.7) | 150 (5.9) | 1 | NSYCRN345150■ | — | — | NSYMM3045 |
| 400 (15.7) | 300 (11.8) | 150 (5.9) | 1 | NSYCRN43150 | NSYS3DC4315 | NSYS3X4315 | NSYMM43 |
| 400 (15.7) | 300 (11.8) | 200 (7.9) | 1 | NSYCRN43200 | NSYS3DC4320 | NSYS3X4320 | NSYMM43 |
| 400 (15.7) | 400 (15.7) | 200 (7.9) | 1 | NSYCRN44200 | NSYS3DC4420 | NSYS3X4420 | NSYMM44 |
| 400 (15.7) | 600 (23.6) | 200 (7.9) | | — | — | NSYS3X4620 | NSYMM46 |
| 400 (15.7) | 600 (23.6) | 250 (9.8) | 1 | NSYCRN46250 | — | — | NSYMM64 |
| 400 (15.7) | 600 (23.6) | 300 (11.8) | 1 | NSYCRN46300 | — | — | NSYMM64 |
| 500 (19.7) | 400 (15.7) | 150 (5.9) | 1 | NSYCRN54150 | — | — | NSYMM54 |
| 500 (19.7) | 400 (15.7) | 200 (7.9) | 1 | NSYCRN54200 | NSYS3DC5420 | NSYS3X5420 | NSYMM54 |
| 500 (19.7) | 400 (15.7) | 250 (9.8) | 1 | NSYCRN54250 | NSYS3DC5425 | — | NSYMM54 |
| 500 (19.7) | 500 (19.7) | 200 (7.9) | 1 | — | NSYS3DC5520 | — | NSYMM55 |
| 500 (19.7) | 500 (19.7) | 250 (9.8) | 1 | NSYCRN55250 | NSYS3DC5525 | — | NSYMM55 |
| 600 (23.6) | 400 (15.7) | 150 (5.9) | 1 | NSYCRN64150 | — | — | NSYMM64 |
| 600 (23.6) | 400 (15.7) | 200 (7.9) | 1 | NSYCRN64200 | NSYS3DC6420 | NSYS3X6420 | NSYMM64 |
| 600 (23.6) | 400 (15.7) | 250 (9.8) | 1 | NSYCRN64250 | NSYS3DC6425 | — | NSYMM64 |
| 600 (23.6) | 500 (19.7) | 150 (5.9) | 1 | NSYCRN65150 | — | — | NSYMM65 |
| 600 (23.6) | 500 (19.7) | 200 (7.9) | 1 | NSYCRN65200 | — | — | NSYMM65 |
| 600 (23.6) | 500 (19.7) | 250 (9.8) | 1 | NSYCRN65250 | — | — | NSYMM65 |
| 600 (23.6) | 600 (23.6) | 200 (7.9) | 1 | NSYCRN66200 | NSYS3DC6620 | — | NSYMM66 |
| 600 (23.6) | 600 (23.6) | 250 (9.8) | 1 | NSYCRN66250 | NSYS3DC6625 | NSYS3X6625 | NSYMM66 |
| 600 (23.6) | 600 (23.6) | 300 (11.8) | 1 | NSYCRN66300 | NSYS3DC6630 | — | NSYMM66 |
| 600 (23.6) | 800 (31.5) | 300 (11.8) | 1 | NSYCRN68300 | — | — | NSYMM86 |
| 700 (27.6) | 500 (19.7) | 200 (7.9) | 1 | NSYCRN75200 | — | — | NSYMM75 |
| 700 (27.6) | 500 (19.7) | 250 (9.8) | 1 | NSYCRN75250 | NSYS3DC7525 | NSYS3X7525 | NSYMM75 |
| 800 (31.5) | 600 (23.6) | 200 (7.9) | 1 | NSYCRN86200 | NSYS3DC8620 | — | NSYMM86 |
| 800 (31.5) | 600 (23.6) | 250 (9.8) | 1 | NSYCRN86250 | NSYS3DC8625 | NSYS3X8625 | NSYMM86 |
| 800 (31.5) | 600 (23.6) | 300 (11.8) | 1 | NSYCRN86300 | NSYS3DC8630 | — | NSYMM86 |
| 800 (31.5) | 600 (23.6) | 400 (15.7) | 1 | NSYCRNG86400 | NSYS3DC8640 | — | NSYMM86 |
| 800 (31.5) | 800 (31.5) | 200 (7.9) | 1 | NSYCRN88200 | — | — | NSYMM88 |
| 800 (31.5) | 800 (31.5) | 250 (9.8) | 1 | — | NSYS3DC8825 | — | NSYMM88 |
| 800 (31.5) | 800 (31.5) | 300 (11.8) | 1 | NSYCRN88300 | NSYS3DC8830 | NSYS3X8830 | NSYMM86 |
| 800 (31.5) | 1000 (39.4) | 300 (11.8) | 2 | NSYCRNG810300D | — | — | NSYMM108 |
| 800 (31.5) | 1200 (47.2) | 300 (11.8) | 2 | NSYCRNG812300D | — | — | NSYMM128 |
| 1000 (39.4) | 600 (23.6) | 250 (9.8) | 1 | NSYCRN106250 | NSYS3DC10625 | — | NSYMM106 |
| 1000 (39.4) | 600 (23.6) | 300 (11.8) | 1 | NSYCRN106300 | — | — | NSYMM106 |
| 1000 (39.4) | 600 (23.6) | 400 (15.7) | 1 | NSYCRNG106400 | — | — | NSYMM106 |
| 1000 (39.4) | 800 (31.5) | 250 (9.8) | 1 | NSYCRN108250 | NSYS3DC10825 | — | NSYMM108 |
| 1000 (39.4) | 800 (31.5) | 300 (11.8) | 1 | NSYCRN108300 | NSYS3DC10830 | NSYS3X10830 | NSYMM108 |
| 1000 (39.4) | 800 (31.5) | 400 (15.7) | 1 | NSYCRNG108400 | NSYS3DC10840 | — | NSYMM108 |
| 1000 (39.4) | 1000 (39.4) | 300 (11.8) | 2 | NSYCRNG1010300D | NSYS3DC101030 | NSYS3X101030 | NSYMM1010 |
| 1000 (39.4) | 1200 (47.2) | 300 (11.8) | 2 | NSYCRNG1012300D | — | — | NSYMM1210 |
| 1000 (39.4) | 1200 (47.2) | 400 (15.7) | 2 | NSYCRNG1012400D | — | — | NSYMM1210 |
| 1200 (47.2) | 600 (23.6) | 300 (11.8) | 1 | NSYCRNG126300 | — | — | NSYMM126 |
| 1200 (47.2) | 600 (23.6) | 400 (15.7) | 1 | NSYCRNG126400 | — | — | NSYMM126 |
| 1200 (47.2) | 800 (31.5) | 300 (11.8) | 1 | NSYCRNG128300 | NSYS3DC12830 | NSYS3X12830 | NSYMM128 |
| 1200 (47.2) | 800 (31.5) | 400 (15.7) | 1 | NSYCRNG128400 | NSYS3DC12840 | — | NSYMM128 |
| 1200 (47.2) | 1000 (39.4) | 300 (11.8) | 2 | NSYCRNG1210300D | NSYS3DC121030 | NSYS3X121030 | NSYMM1210 |
| 1200 (47.2) | 1000 (39.4) | 400 (15.7) | 2 | NSYCRNG1210400D | — | — | NSYMM1210 |
| 1200 (47.2) | 1200 (47.2) | 300 (11.8) | 2 | NSYCRNG1212300D | — | — | NSYMM1212 |
| 1200 (47.2) | 1200 (47.2) | 400 (15.7) | 2 | NSYCRNG1212400D | — | — | NSYMM1212 |
| 1400 (55.1) | 1000 (39.4) | 300 (11.8) | 2 | NSYCRNG1410300D | — | — | NSYMM1410 |

▲ IP66 with one door, IP55 with two doors.
■ Two cable gland plates, one on top and one on bottom.





© 2012 Schneider Electric
All Rights Reserved



ABS/PC Wall-Mounting Enclosure IP66—Plain Door

**Table 28.5: Thalassa Polyester Wall-Mounting Enclosures**

| Height: mm (in) | Width: mm (in) | Depth: mm (in) | ABS/PC Wall-Mounting Enclosures IP66 | | Polyester Wall-Mounting Enclosures IP66 | | | | Polyester Wall-Mounting ATEX Enclosures | Mounting Plate |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Plain door | Transparent door | Plain door | Transparent door | Plain door 3-point closure | Transparent door 3-point closure | | |
| 310 (12.2) | 215 (8.5) | 160 (6.3) | NSYPLM32 | NSYPLM32T | — | — | — | — | — | NSYMM32 |
| 308 (12.1) | 255 (10 0) | 160 (6.3) | — | — | NSYPLM3025 | NSYPLM3025T | — | — | NSYPLMEX3025 | NSYMM3025 |
| 430 (16.9) | 330 (13.0) | 200 (7.9) | — | — | NSYPLM43 | NSYPLM43T | NSYPLM43V | NSYPLM43TV | NSYPLMEX43 | NSYMM43 |
| 530 (20 9) | 430 (16.9) | 200 (7.9) | — | — | NSYPLM54 | NSYPLM54T | NSYPLM54V | NSYPLM54TV | NSYPLMEX54 | NSYMM54 |
| 647 (25.5) | 436 (17.2) | 250 (9.8) | — | — | NSYPLM64 | NSYPLM64T | NSYPLM64V | NSYPLM64TV | NSYPLMEX64 | NSYMM64 |
| 747 (29.4) | 536 (21.1) | 300 (11.8) | — | — | NSYPLM75 | NSYPLM75T | NSYPLM75V | NSYPLM75TV | NSYPLMEX75 | NSYMM75 |
| 847 (33.3) | 636 (25.0) | 300 (11.8) | — | — | NSYPLM86 | NSYPLM86T | NSYPLM86V | NSYPLM86TV | NSYPLMEX86 | NSYMM86 |
| 1056 (41.6) | 852 (33.5) | 350 (13.8) | — | — | NSYPLM108 | NSYPLM108T | — | — | NSYPLMEX108 | NSYMM108 |



Sealed Enclosure IP65—Plain Door



Sealed Enclosure IP65—Transparent Door



Enclosure with Open Bottom IP54—Plain Door

**Table 28.6: Thalassa Polyester Floor-Standing Enclosures**

| Height: mm (in) | Width: mm (in) | Depth: mm (in) | # Doors | Sealed Enclosure, IP65 | | Enclosures with Open Bottom, IP54 |
|---|---|---|---|---|---|---|
| | | | | Plain door | Transparent door | Plain door |
| 500 (19.7) | 500 (19.7) | 320 (12.6) | 1 | NSYPLA553 | NSYPLA553T | NSYPLAZ553 |
| 500 (19.7) | 500 (19.7) | 420 (16.5) | 1 | NSYPLA554 | NSYPLA554T | NSYPLAZ554 |
| 500 (19.7) | 750 (29.5) | 320 (12.6) | 1 | NSYPLA573 | NSYPLA573T | NSYPLAZ573 |
| 500 (19.7) | 750 (29.5) | 420 (16.5) | 1 | NSYPLA574 | NSYPLA574T | NSYPLAZ574 |
| 500 (19.7) | 1000 (39.4) | 320 (12.6) | 2 | NSYPLA5103 | NSYPLA5103T | NSYPLAZ5103 |
| 500 (19.7) | 1000 (39.4) | 420 (16.5) | 2 | NSYPLA5104 | NSYPLA5104T | NSYPLAZ5104 |
| 500 (19.7) | 1250 (49.2) | 320 (12.6) | 2 | NSYPLA5123 | NSYPLA5123T | NSYPLAZ5123 |
| 500 (19.7) | 1250 (49.2) | 420 (16.5) | 2 | NSYPLA5124 | NSYPLA5124T | NSYPLAZ5124 |
| 750 (29.5) | 500 (19.7) | 320 (12.6) | 1 | NSYPLA753 | NSYPLA753T | NSYPLAZ753 |
| 750 (29.5) | 500 (19.7) | 420 (16.5) | 1 | NSYPLA754 | NSYPLA754T | NSYPLAZ754 |
| 750 (29.5) | 750 (29.5) | 320 (12.6) | 1 | NSYPLA773 | NSYPLA773T | NSYPLAZ773 |
| 750 (29.5) | 750 (29.5) | 420 (16.5) | 1 | NSYPLA774 | NSYPLA774T | NSYPLAZ774 |
| 750 (29.5) | 1000 (39.4) | 320 (12.6) | 2 | NSYPLA7103 | NSYPLA7103T | NSYPLAZ7103 |
| 750 (29.5) | 1000 (39.4) | 420 (16.5) | 2 | NSYPLA7104 | NSYPLA7104T | NSYPLAZ7104 |
| 750 (29.5) | 1250 (49.2) | 320 (12.6) | 2 | NSYPLA7123 | NSYPLA7123T | NSYPLAZ7123 |
| 750 (29.5) | 1250 (49.2) | 420 (16.5) | 2 | NSYPLA7124 | NSYPLA7124T | NSYPLAZ7124 |
| 1000 (39.4) | 500 (19.7) | 320 (12.6) | 1 | NSYPLA1053 | NSYPLA1053T | NSYPLAZ1053 |
| 1000 (39.4) | 500 (19.7) | 420 (16.5) | 1 | NSYPLA1054 | NSYPLA1054T | NSYPLAZ1054 |
| 1000 (39.4) | 750 (29.5) | 320 (12.6) | 1 | NSYPLA1073 | NSYPLA1073T | NSYPLAZ1073 |
| 1000 (39.4) | 750 (29.5) | 420 (16.5) | 1 | NSYPLA1074 | NSYPLA1074T | NSYPLAZ1074 |
| 1000 (39.4) | 1000 (39.4) | 320 (12.6) | 2 | NSYPLA10103 | NSYPLA10103T | NSYPLAZ10103 |
| 1000 (39.4) | 1000 (39.4) | 420 (16.5) | 2 | NSYPLA10104 | NSYPLA10104T | NSYPLAZ10104 |
| 1000 (39.4) | 1250 (49.2) | 320 (12.6) | 2 | NSYPLA10123 | NSYPLA10123T | NSYPLAZ10123 |
| 1000 (39.4) | 1250 (49.2) | 420 (16.5) | 2 | NSYPLA10124 | NSYPLA10124T | NSYPLAZ10124 |
| 1250 (49.2) | 500 (19.7) | 320 (12.6) | 1 | NSYPLA1253 | NSYPLA1253T | NSYPLAZ1253 |
| 1250 (49.2) | 500 (19.7) | 420 (16.5) | 1 | NSYPLA1254 | NSYPLA1254T | NSYPLAZ1254 |
| 1250 (49.2) | 750 (29.5) | 320 (12.6) | 1 | NSYPLA1273 | NSYPLA1273T | NSYPLAZ1273 |
| 1250 (49.2) | 750 (29.5) | 420 (16.5) | 1 | NSYPLA1274 | NSYPLA1274T | NSYPLAZ1274 |
| 1250 (49.2) | 1000 (39.4) | 320 (12.6) | 2 | NSYPLA12103 | NSYPLA12103T | NSYPLAZ12103 |
| 1250 (49.2) | 1000 (39.4) | 420 (16.5) | 2 | NSYPLA12104 | NSYPLA12104T | NSYPLAZ12104 |
| 1250 (49.2) | 1250 (49.2) | 320 (12.6) | 2 | NSYPLA12123 | NSYPLA12123T | NSYPLAZ12123 |
| 1250 (49.2) | 1250 (49.2) | 420 (16.5) | 2 | NSYPLA12124 | NSYPLA12124T | NSYPLAZ12124 |
| 1500 (59.1) | 500 (19.7) | 320 (12.6) | 1 | NSYPLA1553 | NSYPLA1553T | NSYPLAZ1553 |
| 1500 (59.1) | 500 (19.7) | 420 (16.5) | 1 | NSYPLA1554 | NSYPLA1554T | NSYPLAZ1554 |
| 1500 (59.1) | 750 (29.5) | 320 (12.6) | 1 | NSYPLA1573 | NSYPLA1573T | NSYPLAZ1573 |
| 1500 (59.1) | 750 (29.5) | 420 (16.5) | 1 | NSYPLA1574 | NSYPLA1574T | NSYPLAZ1574 |
| 1500 (59.1) | 1000 (39.4) | 320 (12.6) | 2 | NSYPLA15103 | NSYPLA15103T | NSYPLAZ15103 |
| 1500 (59.1) | 1000 (39.4) | 420 (16.5) | 2 | NSYPLA15104 | NSYPLA15104T | NSYPLAZ15104 |
| 1500 (59.1) | 1250 (49.2) | 320 (12.6) | 2 | NSYPLA15123 | NSYPLA15123T | NSYPLAZ15123 |
| 1500 (59.1) | 1250 (49.2) | 420 (16.5) | 2 | NSYPLA15124 | NSYPLA15124T | NSYPLAZ15124 |



© 2012 Schneider Electric
All Rights Reserved



## New! Ventilation systems with filters

Specially recommended for installations in which the ambient temperature is lower than the desired temperature inside the enclosure, a high protection rating is required: IP54 or IP55, and the surrounding environment is relatively clean, allowing air to enter the enclosure.

- 38 to 850 $m^3/h$.
- 5 input voltages: AC: 400/440 V, 230 V, 115 V (50/60 Hz), DC: 48 V and 24 V.
- Broad range of accessories (filters, IP55 and EMC covers, anti-vandalism kit).



## New! Cooling units

Cooling units control the temperature inside the enclosure to help ensure the correct operation of the components, regardless of the outside temperature, by separating the internal and external air circuits and reducing the humidity of the enclosure.

- Cooling power from 1100 W to 2700 W.
- According to the input voltage: 230 V (50/60 Hz); 3 X 400/440 V (50/60 Hz); 115 V (50/60 Hz).
- RAL 7035 gray and stainless steel.
- A minimum height of 1800 mm (70.9 in) and door width of 800 mm (31.5 in) or side panel width of 600 mm (23.6 in) is required to install a SLIM cooling unit in a Spacial enclosure.



## New! Thermal control

Thermostats control the temperature inside the enclosure and send a signal when maximum or minimum temperature values have been reached.

- Temperature control: adjustable thermostats; single or double.
- Relative humidity control: adjustable humidistat.
- Temperature and relative humidity control: adjustable hygrotherm.





© 2012 Schneider Electric
All Rights Reserved

# Section 29
# Advanced Products



**EVlink™ Electric Vehicle Charging Stations**



**Indoor Wall-Mount** (p. 29-2)



**Outdoor Wall-Mount** (p. 29-2)



**Outdoor Pedestal (Dual Unit)** (p. 29-2)

**Wiser™ Energy Efficiency Solutions**



**Thermostats** (p. 29-6)



**Ethernet Gateway** (p. 29-8)



**Load Control** (p. 29-7)



**Load Control Relays** (p. 29-7)



**In-Home Display** (p. 29-6)

**Residential Solar Power Solutions**



**Conext™ Grid Tie Inverter** (p. 29-9)


## New! EVlink™ Electric Vehicle Charging Solutions

| | |
|---|---|
| EVlink™ Electric Vehicle Charging Stations—Overview | 29-2 |
| Indoor Charging Stations (Residential Applications) | 29-3 |
| Outdoor Charging Stations | 29-4 |
| RFID Accessories | 29-4 |
| Dimensions | 29-5 |

## New! Wiser™ Energy Efficiency Solutions

| | |
|---|---|
| Energy Efficiency Solutions Overview | 29-6 |
| In-Home Display (IHD) | 29-6 |
| Programmable Communicating Thermostats (PCT) | 29-6 |
| Smart Plug | 29-7 |
| Load Control Relays | 29-7 |
| Large Load Control | 29-7 |
| Ethernet Gateway | 29-8 |
| Accessories | 29-8 |

## New! Residential Solar Power Solutions

| | |
|---|---|
| Conext™ Series Grid Tie Inverters | 29-9 |
| Specifications | 29-10 |


© 2012 Schneider Electric
All Rights Reserved

## EVlink™ Electric Vehicle Charging Stations

Our Electric Vehicle Supply Equipment (EVSE) provides power to recharge the on-board vehicle batteries in Electric Vehicles (EV) and Plug-in Hybrid Electric Vehicles (PHEV). The EVSE units are Level 2 type which can charge the vehicle batteries in as little as 3-6 hours, depending on the vehicle type and level of battery charge. The EVSE will typically be fed from a 208 V or 240 V source, two-pole 40 A circuit breaker or disconnect and will be able to provide 30 A of current to the vehicle's on-board charger. All units meet or exceed SAE J1772▲ and UL standards for electric vehicle supply equipment.

### Schneider Electric EVSE features include:

- Integral Ground Fault Protection at 5 mA
- User friendly interface to indicate power on/off, charging, system detected faults etc.
- Heavy duty cord and connector which meet SAE J1772 standards
- Automatic reset and restart after ground fault or main power loss
- Radio Frequency Identification (RFID) authentication available for outdoor units■
- Available in indoor/outdoor, wall and pedestal mount, single and dual charger models
- Optional advanced metering functionality available to collect and monitor energy and demand profile data♦



EV2430WS



EV230WSR



EV230PSRR



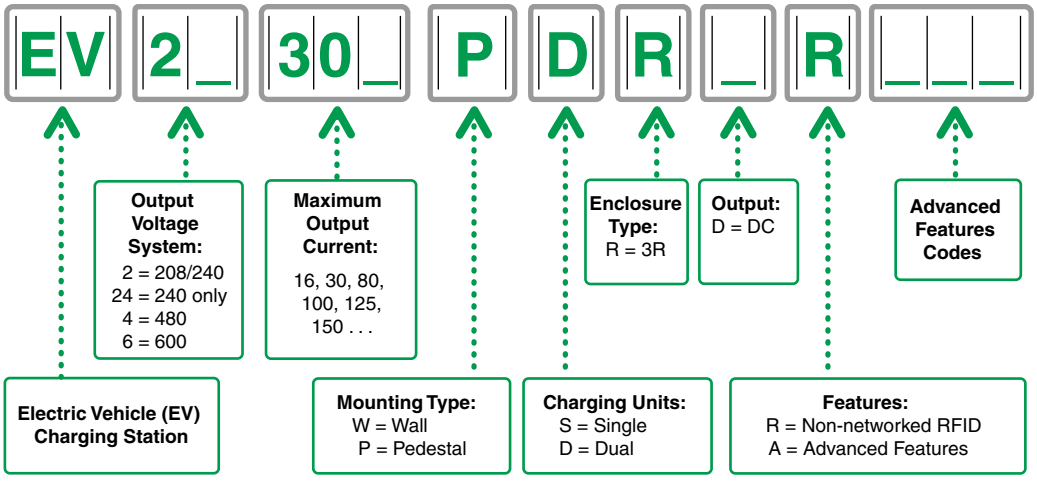
EV230PDRR




**Coming in 2012:**

- Charging Station with advanced communications and networking
- DC fast charging station which can charge 80% of EV in less than 30 minutes

*Please stay tuned at www.schneider-electric.us/go/evlink*




▲ SAE J1772—standard for Electric Vehicles that defines common connectors and interfaces at various power levels for PHEV and EV established by Society of Automotive Engineers for North America.

■ RFID—localized RFID in which the programming for the addition or removal of subscribers is done at the EVSE location.

♦ Energy monitoring and metering options are available and can be added to provide networking and communication through an optional power meter enclosure. Please consult your local Schneider Electric sales representative for selection information or call 1-888-778-2733.



© 2012 Schneider Electric
All Rights Reserved

## Indoor Charging Stations (Residential Applications)

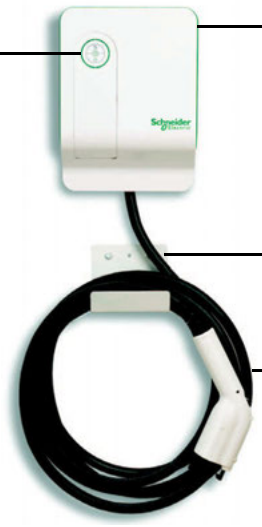


Interface:

- Segmented charge and delay charge progress indicator
- Stop Button and indicator
- Power status and system detected fault indicator
- Delay button and indicator

Protection:

- Integral Ground Fault Protection at 5 mA
- Ground fault function tested before each charge cycle begins
- Auto restart after ground fault or main power loss



Enclosure:

- Non-metallic
- Indoor wall-mount (stud, drywall, or masonry wall)

Cable Holder:

- Supports and helps organize the cable
- Mounted independently from the enclosure

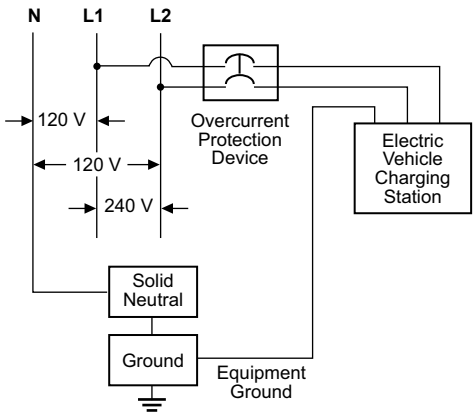
Connector and Cord:

- Complies with SAE J1772
- Cable length: 18 ft. (5.5 m)

**Table 29.1: Indoor Charging Station—Wall-mounted**

| Output Voltage System | Output Current | Mounting | Enclosure Type | Number of Charging Units | Catalog Number | $ Price |
|---|---|---|---|---|---|---|
| 240 Vac only | 30 A | Wall | 1 | 1 | EV2430WS | **1200.00** |

**120/240 Vac Only**

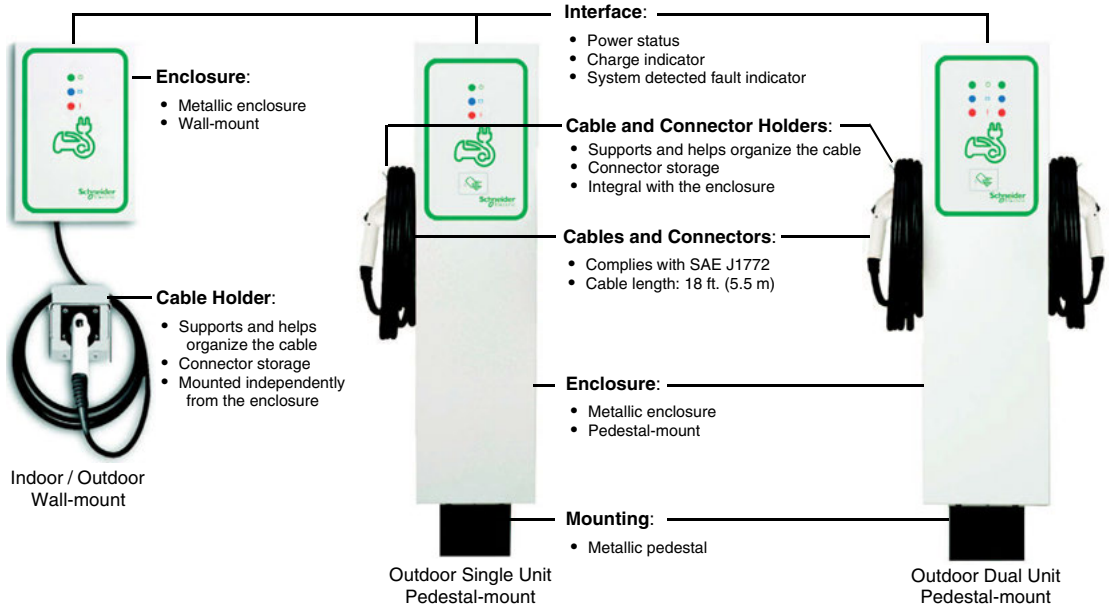



© 2012 Schneider Electric
All Rights Reserved

## Outdoor Charging Stations

**Protection**:
- Integral Ground Fault Protection at 5 mA
- Ground fault function tested before each charge cycle begins
- Auto restart after ground fault or main power loss

**Authentication**:
- Localized RFID solution (optional)




### Table 29.2: Outdoor Charging Stations

| Output Voltage System | Application | Output Current | Mounting | Enclosure Type | Number of Charging Units | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| 208–240 Vac | Indoor/Outdoor | 30 A | Wall | 3R | Single | EV230WSR | **1800.00** |
| 208–240 Vac | Outdoor | 30 A | Pedestal | 3R | Single | EV230PSR | **2400.00** |
| 208–240 Vac | Outdoor | 30 A | Pedestal | 3R | Dual▲ | EV230PDR | **4000.00** |

▲ Output current per charge unit

### Table 29.3: Outdoor Charging Stations with RFID Access

| Output Voltage System | Application | Output Current | Mounting | Enclosure Type | Number of Charging Units | Catalog Number | $ Price |
|---|---|---|---|---|---|---|---|
| 208–240 Vac | Indoor/Outdoor | 30 A | Wall | 3R | Single | EV230WSRR | **2400.00** |
| 208–240 Vac | Outdoor | 30 A | Pedestal | 3R | Single | EV230PSRR | **3000.00** |
| 208–240 Vac | Outdoor | 30 A | Pedestal | 3R | Dual■ | EV230PDRR | **4600.00** |

■ Output current per charge unit

### Table 29.4: RFID Accessories♦

| Description | Catalog Number | $ Price |
|---|---|---|
| RFID Handheld Programmer | EVRFIDHP | **240.00** |
| RFID Authentication Cards (Quantity of 10) | EVRFIDKF10 | **110.00** |

♦ Required for charging stations with RFID Access

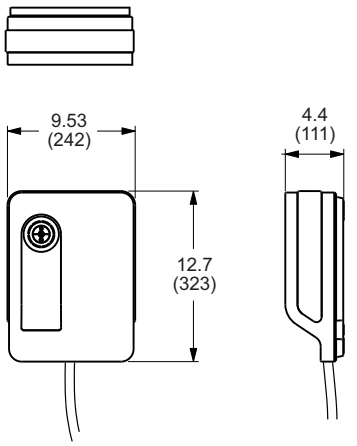

EVRFIDHP


EVRFIDKF10

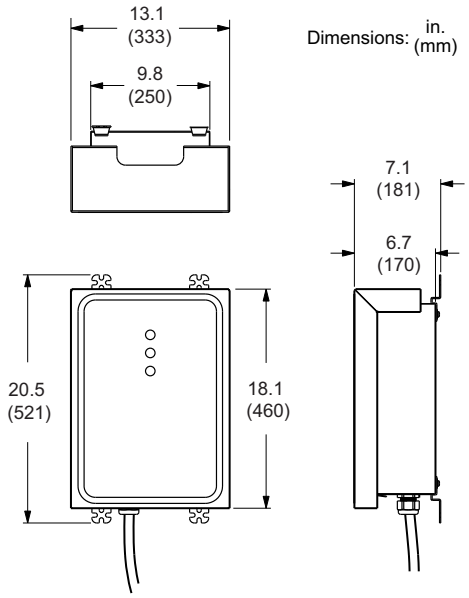


© 2012 Schneider Electric
All Rights Reserved

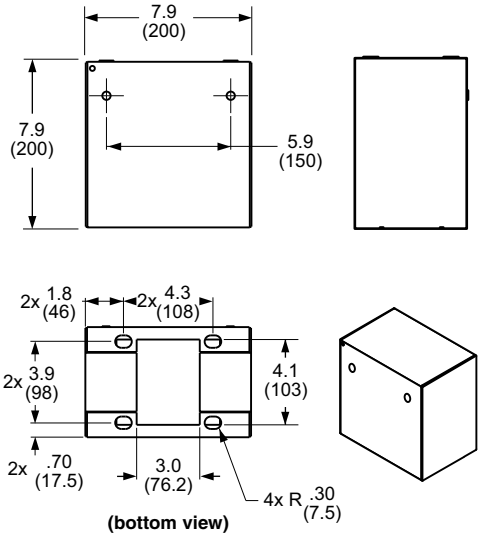
## Dimensions



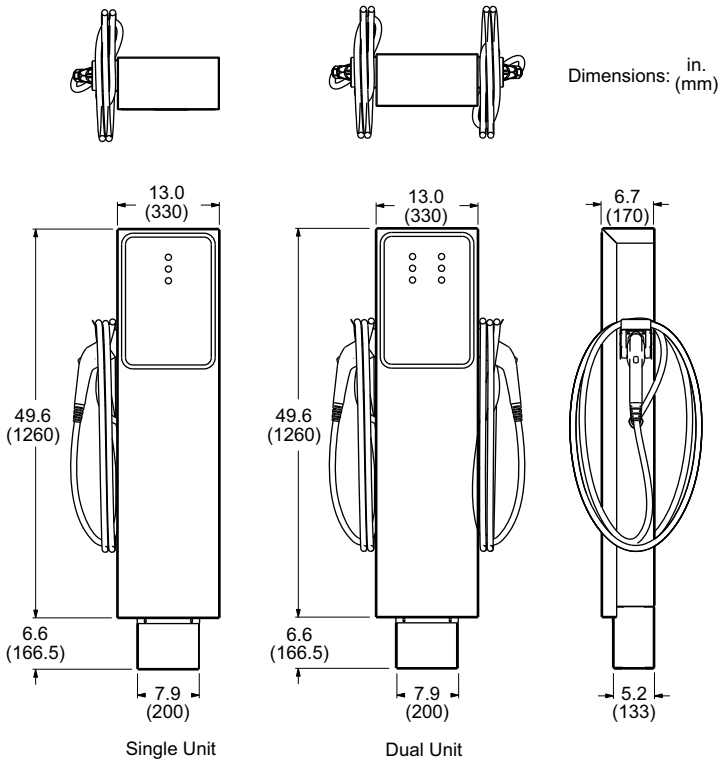

**Indoor Wall-mount**




**Indoor/Outdoor Wall-mount**




**Pedestal Base**




**Pedestal Mounted Charging Stations**

© 2012 Schneider Electric
All Rights Reserved

## Energy Efficiency Solutions Overview

Our Wiser Energy Efficiency products can give you information about your home's energy consumption and provide ways to conveniently automate energy use. Information displays can be conveniently located and easily integrated with Smart Grid energy programs. In addition, these devices provide useful information displays such as time and temperature.

HVAC thermostats, an in-home display, and load controls are designed to integrate into a seamless energy control system, allowing you to easily **Make the Most of Your Energy**SM.

### Schneider Electric Energy Efficiency Products:

- Use industry standard radio interfaces. Products are certified to the ZigBee® Smart Energy protocol
- Provide easy to use, conveniently located controls
- Signal energy with vivid color display screens
- Are designed to be integrated into Smart Grid energy efficiency programs
- Are certified to UL916, and UL489 (as applicable)
- Incorporate convenience features, such as remote thermostat control, time-of-day display, remote load control, and load scheduling
- Load controls are available in outdoor configurations




**Color Based Energy Signaling**




EER20100

### Wiser In-Home Display (IHD)

- Internal rechargable battery for power outages and convenience
- Integrates with remote measurement devices, and graphically displays energy use and signals based on demand
- Schedules Wiser components, such as load controls, load relays, and smart plugs
- Controls Wiser thermostats from remote locations
- Automatically sets time from the network
- Displays time
- Displays outdoor temperature (optional components required)

**Table 29.5: Wiser In-Home Display (IHD)**

| Model | Industry Specifications | Power | $ Price |
|---|---|---|---|
| EER20100 | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205<br>• ZigBee® Smart Energy | 100–240 Vac<br>50–60 Hz | **550.00** |




EER56000
EER56100

### Wiser Programmable Communicating Thermostats (PCT)

- Offers four programmable temperature changes per day for up to seven days
- Supports demand response through ZigBee® Smart Energy Profile
- Integrates with remote measurement devices, and graphically displays energy use and signals based on demand
- Schedules Wiser components, such as load controls, load relays, and smart plugs
- Automatically sets time from the network
- Displays outdoor temperature (optional components required)
- No batteries required, operates in four wire installations

**Table 29.6: Wiser Programmable Communicating Thermostats (PCT)**

| Model | Industry Specifications | Power | $ Price |
|---|---|---|---|
| EER56000 | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205-M1983<br>• ZigBee® Smart Energy<br>• Single stage conventional heat/cool<br>• Heat pump (two stage heat / single stage cool)<br>• Dual fuel heat pump (two stage heat / single stage cool) | 100–240 Vac<br>50–60 Hz | **550.00** |
| EER56100 | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205-M1983<br>• ZigBee® Smart Energy<br>• Single stage conventional heat/cool<br>• Two stage conventional (two stage heat / two stage cool)<br>• Heat pump and geothermal heat pump (two stage heat / single stage cool)<br>• Two-speed heat pump and two-speed geothermal heat pump (three stage heat / two stage cool)<br>• Dual fuel heat pump and geothermal dual fuel heat pump<br>• Humidifier and dehumidifier control | 100–240 Vac<br>50–60 Hz | **720.00** |



© 2012 Schneider Electric
All Rights Reserved



EER40200

## Wiser Smart Plug

- Supports demand response through ZigBee® Smart Energy Profile
- Plugs into 120 V electrical outlets
- Measures power used by electrical outlet loads
- Provides scheduling and remote control when used with the EER20100 Wiser In-Home Display or the EER56000/EER56100 Wiser Programmable Communicating Thermostats

**Table 29.7: Wiser Smart Plug**

| Model | Industry Specifications | Power | $ Price |
|---|---|---|---|
| EER40200 | • UL Standard 508 and UL 244A<br>• Canadian Standard CAN/CSA C22.2, No. 14-05<br>• ZigBee® Smart Energy | 100–240 Vac<br>50–60 Hz | **340.00** |


EER42200
EER42300

## Wiser Load Control Relays

- Supports demand response through ZigBee® Smart Energy Profile
- Low voltage 120 and 240 V relays
- Measures power used by electrical outlet loads
- Provides scheduling and remote control when used with the EER20100 Wiser In-Home Display or the EER56000/EER56100 Wiser Programmable Communicating Thermostats
- EER42300 provides isolated contact outputs

**Table 29.8: Wiser Load Control Relays**

| Model | Industry Specifications | Power | $ Price |
|---|---|---|---|
| EER42200 | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205-M1983<br>• ZigBee® Smart Energy<br>• Supply voltage: 100–250 Vac, 50/60 Hz | 30 A, 240 Vac<br>30 A, 28 Vdc<br>2 hp, 240 Vac<br>1 hp, 120 Vac | **405.00** |
| EER42300 | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205-M1983<br>• ZigBee® Smart Energy<br>• Supply voltage: 100–250 Vac, 50/60 Hz | 5 A, 240 Vac<br>5 A, 28 Vdc<br>240 VA, 240 Vac | **375.00** |


EER260LLCR

## Wiser Large Load Control

- Supports demand response through ZigBee® Smart Energy Profile
- Used with Square D™ QOPL-ILC circuit breaker devices, ordered separately
- Measures branch circuit loading (current transformer required, ordered separately)
- Provides remote control when used with the EER20100 In-Home Display or the EER56000/EER56100 Wiser Programmable Communicating Thermostats
- Provides remote disconnect switch functions

**Table 29.9: Wiser Large Load Control**

| Model | Industry Specifications | Load Contacts | $ Price |
|---|---|---|---|
| EER260LLCR | • UL489<br>• ZigBee® Smart Energy<br>• 120 / 240 Vac, 1P/2P, 50/60 Hz | QOPL-ILC circuit breaker (see Table 29.10) | **405.00** |
| EER260LLCCT1 | • 1P 60 A current transformer | — | **50.00** |
| EER260LLCCT2 | • 2P 60 A current transformer | — | **100.00** |


EER260LLCCT1
EER260LLCCT2

**Table 29.10: QOPL-ILC Circuit Breakers**

| Catalog Number | Rating (A) | No. of Poles | AIC Rating (kA) |
|---|---|---|---|
| QO115PLILC | 15 | 1 | 10 |
| QO120PLILC | 20 | 1 | 10 |
| QO230PLILC | 30 | 2 | 10 |
| QO240PLILC | 40 | 2 | 10 |
| QO250PLILC | 50 | 2 | 10 |
| QO260PLILC | 60 | 2 | 10 |

© 2012 Schneider Electric
All Rights Reserved



EER21100
EER21200

## Wiser Ethernet Gateway

- Allows for software monitoring, programming, and control of Wiser Energy Efficiency products via the internet
- Used with the Wiser Head End Server system

**Table 29.11: Wiser Ethernet Gateway**

| Model | Industry Specifications | $ Price |
|---|---|---|
| EER21100 | • ZigBee® Router type device<br>• UL power adapter<br>• ZigBee® Smart Energy<br>• Supply voltage: 100–240 Vac, 50/60 Hz | **395.00** |
| EER21200 | • ZigBee® Coordinator type device<br>• UL power adapter<br>• ZigBee® Smart Energy<br>• Supply voltage: 100–240 Vac, 50/60 Hz | **395.00** |



EER57000



EER57100



EER57200

## Wiser Accessories

- Trim ring can be used to conceal mounting imperfections, such as holes and paint lines from previous installations
- External temperature sensor provides temperature measurements when used with Wiser thermostats
- Auxiliary power supply permits Wiser thermostats to be used in specialized four wire installations

**Table 29.12: Wiser Accessories**

| Model | Name | Industry Specifications | $ Price |
|---|---|---|---|
| EER57000 | Trim Ring | — | **50.00** |
| EER57100 | Auxiliary Power Supply | • UL Standard 916<br>• Canadian Standard CAN/CSA C22.2, No. 205-M1983 | **75.00** |
| EER57200 | External Temperature Sensor | — | **90.00** |



© 2012 Schneider Electric
All Rights Reserved



Conext™ Series
Grid Tie Inverter

## Conext™ Series Grid Tie Inverters

The Conext™ Grid Tie Solar Inverter (Conext Series) converts photovoltaic (PV) electricity produced by solar modules into utility grade power that can be used by the home or sold to a local electrical utility. Offering high performance, clean aesthetics, innovative features, and easy installation, the Conext Series provides great value in a compact high-frequency design. The Conext Series may be installed as a single inverter for a single PV array or in a multiple inverter configuration for large PV systems or three-phase applications.

### Features

- An NEC compliant, integrated Square D™ DC/AC disconnect eliminates the need for external DC (PV) disconnects and in some jurisdictions, AC disconnects
- Large heatsink offers excellent heat dispersion without the need for a cooling fan
- Liquid Crystal display provides instantaneous information—power level, daily and lifetime energy production, PV array voltage and current, utility voltage and frequency, time online “selling”, system troubleshooting messages, and installer-customized screens
- User-enabled Fast Sweep™ Maximum Power Point Tracking (MPPT) increases energy harvest in shaded installations
- LCD vibration sensor allows the tap of a finger to turn backlight on and easily cycle through display screens
- FCC Class B compliance

### Installation

- Flexible Module selection due to wide PV input MPPT tracking voltage range
- Lightweight and versatile mounting bracket
- Easy access DC (PV) and AC (Utility) terminal blocks simplify wiring
- Rugged NEMA 3R inverter enclosure allows reliable indoor and outdoor installations
- Simple communications set-up for daisy-chained single phase and three-phase installation

### Servicability

- Sealed inverter enclosure can be quickly separated from the wiring box allowing DC/AC connections to remain intact during a service event
- Ten-year standard warranty

**Table 29.13: Conext™ Inverters**

| Product | Description | Part Number | $ Price |
|---|---|---|---|
| Conext TX 2800 NA | 2.8 kW inverter 208/240 V | RNW-878-2801 | **2040.00** |
| Conext TX 3300 NA | 3.3 kW inverter 208/240 V | RNW-878-3301 | **2410.00** |
| Conext TX 3800 NA | 3.8 kW inverter 208/240 V | RNW-878-3801 | **2575.00** |
| Conext TX 5000 NA | 5.0 kW inverter 208/240 V | RNW-878-5001 | **3250.00** |

**Table 29.14: Residential Grid-Tie Solar Package**

| System Voltage | Kilowatts | Amps | DC Disconnect | Inverter | AC Disconnect | Suggested Load Center▲ |
|---|---|---|---|---|---|---|
| 250 Vdc | 2.8 | 30 | HU361RB | 878-2801 | D221NRB | QO130M200 |
| 250 Vdc | 3.3 | 60 | HU362RB | 878-3301 | D222NRB | QO140M225 |
| 250 Vdc | 3.3 | 100 | HU363RB | 878-3301 | D223NRB | QONQ42MS400 |
| 600 Vdc | 3.8 | 30 | HU361RB | 878-3801 | D221NRB | QO130M200 |
| 600 Vdc | 5.0 | 60 | HU362RB | 878-5001 | D222NRB | QO140M225 |
| 600 Vdc | 5.0 | 100 | HU363RB | 878-5001 | D223NRB | QONQ42MS400 |

▲ Consult Digest Section 1 for other load center options, covers, accessories, and circuit breakers.

***NOTE:*** *See Digest Section 3 for additional PV switch offerings including the new UL98B 1000 Vdc PV disconnect.*

© 2012 Schneider Electric
All Rights Reserved

## Table 29.15: Specifications

| Electrical Specifications (Output) | | | | |
|---|---|---|---|---|
| Product Model | Conext TX 2800 NA | Conext TX 3300 NA | Conext TX 3800 NA | Conext TX 5000 NA |
| Nominal output power | 2800 W / 2650 W | 3300 W / 3100 W | 3800 W / 3500 W | 5000 W / 4500 W |
| AC output voltage (nominal) | 240/208 Vac | 240/208 Vac | 240/208 Vac | 240/208 Vac |
| AC output voltage range | Auto detect 240 to 208 Vac | | | |
| AC frequency (nominal) | 60 Hz | | | |
| AC frequency range | 59.3 to 60.5 Hz | | | |
| Max. continuous output current | 11.8/13.0 A rms | 14.0/15.2 A rms | 16.0/16.8 A rms | 21/22 A rms |
| Max. output over-current protection | 15 A rms | 20 A rms | 25 A rms | 30 A rms |
| Max. utility back-feed current | 0 A | | | |
| Total harmonic distortion (THD) | THD < 3% | | | |
| Power factor | >0.99 (at rated power), >0.95 (full power range) | | | |
| Utility monitoring, islanding protection | UL 1741-2010. Ed.2 / IEEE1547 | | | |
| Output characteristics | Current Source | | | |
| Output current waveform | True Sine Wave | | | |
| **Electrical Specifications (Input)** | | | | |
| Max. Array open-circuit voltage | 600 Vdc | | | |
| MPPT voltage range (CEC & CSA) | 195-550 Vdc | 195-550 Vdc | 195-550 Vdc | 240-550 Vdc |
| Max. input current | 15.5 Adc / 14.9 Adc | 18 Adc / 17.5 Adc | 20.8 Adc / 19.5 Adc | 22 Adc / 20 Adc |
| Max. array short-circuit current | 24 Adc | | | |
| Reverse-polarity protection | Short-circuit diode | | | |
| Ground-fault protection | GF detection, $I_{DIF}$ > 1A | | | |
| Max. Peak efficiency | 95.2% / 95.2% | 95.6% / 95.3% | 96.3% / 96% | 96.7% / 96.4% |
| CEC Efficiency | 94.5% / 94.5% | 95% / 94.5% | 95.5% / 95.5% | 96.0% / 95.5% |
| Night-time power consumption | 1 W | | | |
| **General Specifications** | | | | |
| Mounting | Wall mount (mounting bracket included) | | | |
| Input and output terminal | AC and DC terminals accept wires sizes #14 to #6 AWG | | | |
| PV / Utility disconnect | Eliminates need for external PV (DC) disconnect. Complies with NEC requirements. | | | |
| Cooling | Convection cooled, fan not required | | | |
| Display | Backlit, two-line, 16-character liquid crystal display provides instantaneous power, daily and lifetime energy production, PV array voltage and current, utility voltage and frequency, time online “selling”, faults messages, and installer-customizable screens | | | |
| Communications | Integrated RS232 and Xanbus™ RJ45 communication ports | | | |
| Wiring box | PV, utility, ground, and communications connections. The inverter can be separated from the wiring box. | | | |
| Warranty | Ten-year standard | | | |
| Part number (negative ground) | 878-2801 | 878-3301 | 878-3801 | 878-5001 |
| **Environmental Specifications** | | | | |
| Operating Temperature Range | -13°F to 149°F (-25°C to 65°C) | | | |
| Enclosure Type | NEMA 3R (Outdoor Rated) | | | |
| Inverter Weight | 31.8 kg (70.1 lbs) | 32.2 kg (71 lbs) | 36.5 kg (80.5 lbs) | 38.9 kg (85.8 lbs) |
| Inverter dimensions (H x W x D) | 89.3 x 40.3 x 18.5 cm<br>35.2 x 15.9 x 7.3 in. | 89.3 x 40.3 x 18.5 cm<br>35.2 x 15.9 x 7.3 in. | 98.8 x 40.3 x 18.5 cm<br>38.9 x16 x 7.3 in. | 98.8 x 40.3 x 18.5 cm<br>38.9 x 16 x 7.3 in. |
| Shipping dimensions (H x W x D) | 107.0 x 57.7 x 26.0 cm<br>42.1 x 22.7 x 10.2 in. | 107.0 x 57.7 x 26.0 cm<br>42.1 x 22.7 x 10.2 in. | 116.5 x 57.7 x 26.0 cm<br>45.8 x 22.7 x 10.2 in. | 116.5 x 57.7 x 26.0 cm<br>45.8 x 22.7 x 10.2 in. |
| **Regulatory Approvals** | | | | |
| CSA Certified to UL 1741-2010 Ed.2 (Include IEEE 1547)—inverters, converters, controllers and interconnection system equipment for use with distributed energy resources; and CSA C22.2 No 107.1 FCC Class B general use power supplies. | | | | |



© 2012 Schneider Electric
All Rights Reserved

# Numerics

**1000 Vdc photovoltaic heavy duty disconnect switches** 3-22
**14-inch-wide NQ panelboards** 9-8
**16 mm push buttons** 19-12– 19-22
**20-inch-wide NF panelboards** 9-13
**20-inch-wide NQ panelboards** 9-6– 9-7, 9-9
**22 mm push buttons** 19-8, 19-23– 19-55, 19-57– 19-65
**2-Pole single phase full voltage starters** 16-20– 16-21
**30 mm push buttons** 19-9, 19-67– 19-69, 19-73– 19-79, 19-83– 19-93
**4-Pole, 2-phase full voltage starters** 16-20– 16-21
**800 A–5000 A pricing instructions**
I-Line II 12-6
**8M, 36M, 60M enclosures** 5-18
**9012G pressure switches**
differential 22-15
dual stage 22-15
industrial 22-13
machine tool 22-14
**9013F commercial pressure switches** 22-21
**9013G commercial pressure switches** 22-22
**9016GAW vacuum switches** 22-19
**9016GVG vacuum switches** 22-19
**9036D float switches** 22-23
**9036FG float switches** 22-24
**9036G float switches** 22-23
**9037E float switches** 22-24
**9037H closed tank float switches** 22-25
**9038A mechanical alternators** 22-26
**9038C mechanical alternators** 22-26
**9038D mechanical alternators** 22-27

# A

**AB1**
markers 24-11
other blocks 24-9
**AB1AA insulation displacement blocks** 24-10
**AB1DD, AB1ET three tier** 24-7
**AB1ET two tier blocks** 24-6
**AB1ETN two tier blocks** 24-7
**AB1FU and AB1SF/SV fuseholders** 24-8
**AB1RR**
spring clip blocks 24-2– 24-3
spring clip terminals 24-4
**AB1TP grounding blocks** 24-6
**AB1VV and AB1TP miniature blocks** 24-4
**AB1VV box lug blocks** 24-5
**ABR electromechanical interface modules** 23-42
**ABS solid state interface modules** 23-41
**AC drives**
Altivar 12 26-2
Altivar 212 26-3, 26-5– 26-6
Altivar 31 26-7
Altivar 312 26-2, 26-7– 26-9
Altivar 32 26-2
Altivar 61 26-3, 26-10– 26-11, 26-14– 26-15
Altivar 71 26-3, 26-12– 26-15
documentation 26-20
S-Flex (Altivar 212) 26-16
support 26-20
training 26-20
**accessories**
C60 UL489 mounting base 7-13
cabling, TeSys D 18-9
C-Bus 5-4
contactors 16-109
contactors, TeSys D 18-8– 18-11, 18-14
contactors, TeSys F 18-8, 18-11– 18-13, 18-15
disconnect switches, flange mounted and cable operated 8-16
double throw safety switches 3-15, 3-18
energy meter 4-15
float switches 22-28
high density meter system 4-14
I-Line merchandised panelboards 9-23
insulation displacement style terminal blocks 24-10
Lk4 nonfusible and GS2 fusible 8-10
machine tool pressure switches 22-18
manual starters and protectors, GV 18-34
mechanical interlocks 16-114
meter centers 2-15
meter sockets 2-3
Mini-Vario and Vario motor disconnect switches 8-6
NF merchandised panelboards 9-14
NQ merchandised panelboards 9-9
operating mechanisms, disconnect switches and circuit breakers 8-24
PowerPact circuit breakers 7-39
proximity sensors 20-9
QO and Homeline load centers 1-12
QO and QOB miniature circuit breakers 7-12
QO load centers 1-12
QO miniture circuit breaker 1-4
QOU 7-15
safety switches 3-3
series 800 4-10
series 4000 4-11
solid neutral 16-113
starters 16-109
TeSys AK5 panel busbar system 18-39
TeSys contactors 18-38
TeSys D 18-8– 18-11, 18-14
TeSys F 18-8, 18-11– 18-13, 18-15
TeSys GV 18-36
TeSys K 18-27
TeSys U 18-28– 18-31
transformers 14-10, 14-17
transient suppression module 16-112
trench duct 13-6
Type K and SK 19-89– 19-90
XB6 19-20
**accessories and modification kits, manual starters and switches** 16-9, 16-11
**AccuSine AHF**
dynamic VAR compensation 4-34– 4-36
**actuator sensor interface (AS-i) bus products** 27-7
**adapter, I-Line to I-Line II** 12-7
**Advantys OTB** 27-5
**Advantys TeleFast 2**
prewired connection system 24-22
**Advantys Telefast ABE7 sub-bases** 27-5
**Advantys Telefast ABE9 passive splitter boxes** 27-5
**ADVC controller** 11-20
**alternating relays**
TeSys SKE IEC style 23-21
**Altistart 22** 26-18
**Altistart 22 (enclosed)** 26-19
**Altistart 48** 26-17
**Altistart drive** 18-32
**Altistart U01 soft starters**
dimensions 18-51
**Altivar 12** 26-2
**Altivar 32** 26-2
**Altivar 212** 26-3, 26-5– 26-6
**Altivar 31** 26-7



© 2012 Schneider Electric
All Rights Reserved

**Altivar 312** 26-2, 26-7– 26-9
**Altivar 61** 26-3, 26-10– 26-11, 26-15
**Altivar 71** 26-3, 26-12– 26-15
**Altivar IMC integrated controller card** 27-9
**analysis and consulting** 4-20
**Appleton Powertite receptacle safety switches** 3-9
**application**
- fuseholders 24-19

**application data**
- double throw safety switches 3-20
- limit switches 21-4
- power distribution blocks 24-18

**AR1 and AT1 cable ends** 24-21
**arc extinguishing system, Arc Terminator** 11-16
**arc flash analysis** 4-20
**arc flash protection and mitigation system** 4-26
**Arc Terminator, arc extinguishing system** 11-16
**architectures for safety related solutions** 25-3
**area lighting panels** 5-18
**AS-i safety at work** 25-3, 25-5
**assemblies, terminal blocks** 24-15
**ATEX enclosures** 28-2
**ATSU01 Altistart drive** 18-32
**automatic circuit recloser** 11-20
**automation power system** 4-21
**automation products**
- **Actuator Sensor interface** (AS-i) bus products 27-7
- **Advantys**
  - OTB 27-5
  - Telefast ABE7 sub-bases 27-5
  - Telefast ABE9 passive splitter boxes 27-5
- **Altivar** IMC integrated controller card 27-9
- CANopen network products 27-6
- **ConneXium** ethernet products 27-6
- ethernet TCP/IP products 27-7
- **Magelis** advanced panels
  - XBT GH 27-3
  - XBT GK 27-3
  - XBT GT 27-3
  - XBT GTW 27-3
- **Magelis** HMI products
  - Compact iPC 27-4
  - Compact PC BOX 27-4
  - Flex PC BOX 27-4
  - Smart BOX 27-4
  - Smart iPC 27-4
  - Smart+ iPC 27-4
- **Magelis** small panels
  - STO/STU 27-3
  - XBT N/R 27-3
  - XBT RT 27-3
- **Magelis** XBT GC HMI controller 27-9
- **Modicon**
  - LMC058 motion controller 27-9
  - M168 PLC 27-8
  - M238 PLC 27-8
  - M258 PLC 27-8
  - M340 PAC 27-2
  - **Momentum** distributed I/O and PLC 27-5
  - Premium PLC 27-2
  - Quantum PLC 27-2
  - STB 27-5
  - TM5 expansion module 27-5
  - TM7 I/O blocks 27-5
  - TSX Micro PLC 27-2
  - **Zelio** Logic controller 27-10
- **Transparent Ready** solutions 27-6
- **Twido** Nano controller 27-10

**auxiliary contacts**
- manual and magnetic contactors and starters 16-110
- **TeSys** D and F 18-8

**auxiliary input unit** 5-12
**auxillary gutter, QO load centers** 1-10


## B


**backup power solutions** 1-9
**biometric switches, XB5S** 19-65– 19-66
**blank doors Model 6 MCC** 17-6
**bodies, limit switches** 21-17
**bolt-on remotely operated circuit breakers** 5-24
**box lug blocks AB1VV** 24-5
**brackets, transformers** 14-11
**branch circuit breakers**
- NQ factory assembled panelboards 9-11
- **Qwik-Gard** 9-11

**branch circuit power meter,** 4-16
**branch devices, meter centers** 2-11, 2-13
**branch feeder units, Model 6 MCC** 17-6
**branch switches,**
- QMB fusible 9-35

**branch units, meter centers** 2-8
**buck and boost, transformers** 14-8
**bus couplers, C-Bus** 5-13
**busbar**
- configuration code 12-3

**busbar accessories,TeSys contactors** 18-38– 18-39
**busbar configurations**
- busway 12-2

**busway**
- elbows 12-6
- hangers 12-6
- **I-Line** 12-13– 12-14
- **I-Line II** 12-5– 12-6, 12-11
- **Surgelogic** SPD units 6-5
- tee 12-6
- terminating
  - accessories 12-18
- transition section meter centers 2-15
- **I-Line** 12-4

**busway**
- "footage and fittings" pricing method 12-4
- 800 A–5000 A busway 12-5
- 800 A–5000 A pricing instructions 12-6
- accessories 12-8
- additions 12-8
- busbar configuration code 12-3
- busbar configurations 12-2
- bussed transformer connection 12-7
- circuit breaker cubicle 12-7
- connection to competitive busway 12-7
- construction options 12-17
- electrical data 12-8
- expansion fittings 12-7
- feeder 12-6
- finger protection to IP2X 12-7
- fused 12-7
- hangers 12-17
- high short circuit bracing 12-6
- **I-Line** 12-4
- **I-Line** II 12-5
- **I-Line** II, **PowerPact** plug-in units
  - H-frame 12-11– 12-12
  - J-frame 12-11– 12-12
  - M-frame 12-12
  - P-frame 12-13
  - R-frame 12-14







Words in **Green Bold** are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

I-Line II, surge protective device plug-in units 12-10
indoor drip resistant 12-6
indoor tap boxes 12-7
non-segregated bus 12-15
outdoor construction 12-6
plug-in units 12-9– 12-10
Powerbus 12-2
Power-Zone 12-15
riser 12-6
service heads 12-7
space heaters 12-17
SPD plug-in units 12-10
standard components 12-4
standard straight lengths 12-6
supports 12-17
thermostat 12-17
transformer taps 12-7
unfused reducer 12-7

## C

**C60N Multi 9 miniature circuit breakers** 7-16– 7-17
**cable ends**
AR1 and AT1 24-21
DZ5 and AZ5 24-20
**cable pull switches**
XY2 25-8
**cables, Powerlink** 5-24
**cabling accessories**
TeSys D 18-9
**calculation of trip current rating**
thermal unit selection 16-119
**cam-lock tap box** 10-4
**CANopen network products** 27-6
**caps**
16 mm push buttons 19-21
22 mm push buttons 19-39– 19-41, 19-60– 19-62, 19-64
30 mm push buttons 19-69, 19-74, 19-79, 19-83
compact pilot lights 19-11
**Cassia energy management system** 5-30
**catalog numbering system**
combination starters 17-2
**C-Bus**
Decorator wall plates 5-7
device power supply 5-25
device router 5-25
dimmers 5-15
DLT keypads 5-5– 5-6
enclosures 5-18
input sensors 5-13
multi room audio 5-9, 5-10
Neo Decorator keypads 5-6
Neo keypads 5-4
relays 5-13
Saturn Decorator keypads 5-6
Saturn keypads 5-5
sensors 5-12
software 5-19
thermostats 5-11
touch screens 5-7
**ceiling mount occupancy sensors** 5-21
**changeover relay** 5-13
**circuit breaker enclosures**
accessories 7-58
dimensions 7-58
enclosed walking beam mechanical interlock 7-57
insulated groundable neutral assembly 7-58
service ground kits 7-58
**circuit breakers**
bolt-on remotely operated 5-24
DC 7-35
dimensions and shipping weights 7-54– 7-55
door-mounted operating mechanisms 8-19– 8-20
emergency lighting 5-24
enclosed 7-57
enclosures 7-56
F-frame 9-24– 9-25
flange mounted and variable depth operating mechanisms 8-23
flexible cable mechanisms 8-21– 8-22
H-frame thermal-magnetic 9-26
I-Line panelboards 9-24– 9-25, 9-27– 9-30
J-frame thermal-magnetic 9-26
K-frame thermal-magnetic 9-27
LA mission critical 9-28
L-frame 9-29
Masterpact 11-6
motor operators 7-40
motor protector 7-31
NF factory assembled panelboards 9-16
NF merchandised panelboards 9-15
NQ factory assembled panelboards 9-11
PowerPact D-frame mission critical 9-24
PowerPact J-frame 7-23
PowerPact L-frame 7-25
PowerPact M-frame 7-26, 9-29
PowerPact P-frame 9-30
PowerPact Q-frame 7-24, 9-25
PowerPact R-frame 7-28, 9-30
QO enclosures 1-25
QO plug-on 1-2
QOB bolt-on 9-10
QO-EPD 7-11
QO-HM, high magnetic trip 7-11
QO-K, key operated 7-11
QOPL-ILC for intelligent load centers 29-7
QO-SWN 7-11
QOT tandem 7-10
Qwik-Gard 9-10– 9-11
replacement tandem 7-10
shunt trip 9-38
telecommunications applications 7-17
Tenant 2-6
Type EOX vacuum substation 11-19
Type FVR vacuum substation 11-19
Type VOX vacuum substation 11-19
UL Listed 500 Vdc 7-35– 7-36
without overload trip 9-38
**circuit meter** 4-16
**circuit monitor, PowerLogic** 4-11
**circuit protectors**
thermal-magnetic 24-17
**ClimaSys**
cooling units 28-3, 28-8
thermostats 28-3, 28-8
ventilation systems 28-3, 28-8
**clock/timer** 15-5
**closed tank float switches** 22-24– 22-25
9038C mechanical alternators with bushing 22-26
9038D mechanical alternators 22-27
**coil replacement, definite purpose contactors** 16-71
**coil suppressor, TeSys D** 18-9
**coil voltage codes**
TeSys D 18-2, 18-6
TeSys F 18-3
**column width panelboards** 9-18– 9-19
**combination lighting contactors** **16-61**
**combination service entrance devices**
accessories 1-22
all-in-ones, rainproof 1-20, 1-24
circuit breakers
Homeline 1-22
dimensions 1-23
hubs 1-22
meter mains, rainproof 1-19



© 2012 Schneider Electric
All Rights Reserved

- solar ready CSED 1-24
- surge protection devices 1-12

**combination starters**
- catalog numbering system 17-2
- Compac 6 fusible switch disconnects 17-5
- Model 6 MCC 17-3
- NEMA style 16-31
  - accessories 16-41
  - application data 16-40
  - control transformers 16-41
  - dimensions 16-42
  - fusible
    - disconnect switch type 16-31
    - disconnect switch type with class R fuse clips 16-33
  - interlocks 16-41
  - MCP circuit breaker 16-35– 16-36
  - non-fusible
    - disconnect switch type 16-32
  - thermal magnetic circuit breaker 16-38– 16-39
- NEMA style oversized enclosure MCP circuit breaker 16-37

**commercial pressure switches** 22-21– 22-22

**communications, TeSys contactors** 18-38

**Compac 6**
- combination starters 17-5
  - motor circuit protector Disconnects 17-5
- Model 6 MCC 17-5

**compact general duty limit switches** 21-22

**compact height switches MiniBreak** 11-7

**compact pilot lights** 19-10– 19-11

**complete devices**
- XB4 19-23
- XB5 19-42

**complete switches, limit switches** 21-14

**components**
- trench duct 13-6

**Concept application software** 27-2

**Conext series grid tie solar inverters** 29-9– 29-10

**connection components, limit switches** 21-17

**connection modules, TeSys contactors** 18-38

**ConneXium ethernet products** 27-6

**ConneXview industrial ethernet diagnostic software** 27-6

**construction options**
- busway 12-17

**consulting, analysis** 4-20

**contact assemblies, limit switches** 21-17

**contact blocks**
- TeSys D and F 18-8
- XAC pendant station 19-118

**contact units for melting alloy type overload relays**
- replacement parts kits 16-108

**contactors**
- accessories 16-109
- control circuit fuse holder 16-112
- cover-mounted control units 16-109
- definite purpose 16-70
- power pole adders 16-112
- replacement parts kits 16-107
- TeSys D 18-2
  - accessories 18-8– 18-11, 18-14
  - non-reversing 18-4
  - repair parts 18-17– 18-19
  - reversing 18-6
- TeSys F 18-3
  - accessories 18-8, 18-11– 18-13, 18-15
  - non-reversing 18-5
  - repair parts 18-18, 18-20
  - reversing 18-7
- TeSys K 18-24– 18-27
  - non-reversing mini-contactors 18-24
  - reversing mini-contactors 18-25

**contactors and starters**
- NEMA, magnetic AC catalog numbering system 16-13

**control and measurement relays**
- Zelio RM17JC current measurement relay 23-32
- Zelio RM17T phase measurement relay 23-33
- Zelio RM17UAS voltage measurement relay 23-34
- Zelio RM17UB voltage measurement relay 23-34
- Zelio RM17UBE voltage measurement relay 23-34
- Zelio RM35AT temperature control relay 23-36
- Zelio RM35BA10 pump control relay 23-35
- Zelio RM35HZ frequency control relay 23-36
- Zelio RM35JA current measurement relay 23-32
- Zelio RM35L level control relay 23-35
- Zelio RM35S speed control relay 23-36
- Zelio RM35UA1 voltage measurement relay 23-34
- Zelio RM35UB voltage measurement relay 23-34
- Zelio Type REG 23-31

**control circuit fuse holder**
- contactors 16-112
- starters 16-112

**control relays**
- NEMA style Type X 23-22– 23-24
- NEMA style, utility auxiliary 23-23

**control stations**
- enclosures 19-70– 19-72, 19-80– 19-82, 19-100– 19-104

**control unit, TeSys U** 18-28– 18-30

**copper wound transformers** 14-4

**corrosion resistant**
- multifunction operators 19-78, 19-84
- non-illuminated operators 19-77
- pilot lights 19-83

**cover viewing window for safety switches** 3-12

**cover-mounted control units**
- contactors 16-109
- starters 16-109

**crosses**
- trench duct 13-6

**Crouse-Hinds Arktite receptacle safety switches** 3-9

**Crouse-Hinds Style 2 Hubbellock receptacle** 3-9

**CT, split-core** 4-15

**current measurement relays**
- Zelio RM17JC 23-32
- Zelio RM35JA 23-32

**current ratings**
- limit switches 21-5

**current-limiting fuses DIN-style** 11-11

**custom terminal blocks assemblies** 24-15


## D


**DALI gateway** 5-15

**DC circuit breakers** 7-35

**DC telecommunication applications circuit breakers** 7-17

**decorator face plates** 5-6

**Decorator, Saturn**
- keypads 5-6

**decorator style**
- cover plates, Neo 5-7

**definite purpose**
- contactors 16-70
  - reversing hoist 16-81

**device power supply**
- Powerlink 5-25

**device routers, Powerlink** 5-25






Words in Green Bold are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**differential pressure switches** 22-15
**dimensions**
Altistart U01 soft starters 18-51
definite purpose
contactors 16-72, 16-74
disconnect switches, flange mounted and cable operated 8-17– 8-18
disconnect switches, IEC style 8-11– 8-14
double throw safety switches 3-8, 3-17, 3-19, 3-21
duplex motor controllers 16-80
enclosures 16-96, 16-99
EV charging stations, EVlink 29-5
flange mounted and variable depth operating mechanisms 8-23
lighting contactors 16-66– 16-69
meter centers 2-16
meter sockets 2-4
pressure switches
9012G 22-17
XML international 22-12
XMLG electronic 22-5
XMLK electronic 22-7
QO and Homeline dimensions 1-17
safety switches 3-3, 3-13
TeSys D 18-40– 18-41, 18-44– 18-46, 18-48
TeSys F 18-42, 18-47
TeSys GV manual starters and protectors 18-52– 18-56
TeSys K 18-49
TeSys U 18-50– 18-51
Well-Guard
pump panels 16-77
**dimensions and shipping weights**
miniature and molded case circuit breakers 7-54
molded case circuit breakers 7-55
**dimensions, disconnect switches** 3-22
**dimmer unit, four channel** 5-14
**disconnect switches**
accessories, flange mounted and cable operated 8-16
accessories, LK4 nonfusible and GS2 fusible 8-10
dimensions, flange mounted and cable operated 8-17– 8-18
flange mounted and cable operated 8-15
LK4 nonfusible and GS2 fusible 8-8– 8-9
selection 8-2
**disconnects, transformers** 14-18
**distributed I/O products** 27-5
DLT **keypads** 5-5– 5-6
**documentation, AC drives** 26-20
**door closing mechanisms** 8-25
single and multi-door enclosures 8-27
types M5, M6, M1, and M8 8-26, 8-28
**double throw safety switches** 3-15– 3-16
**drawout cradle and accessories** 7-45
**drive, Altistart ATSU01** 18-32
**dry type transformers** 14-20
**dual stage pressure switches** 22-15
**duplex**
motor controllers 16-78– 16-79
**DVCAS switchgear** 11-15
**DZ5 and AZ5 cable ends** 24-20

## E

**EBA (external brick assembly) SPDs** 6-3
replacement modules 6-4
**EE medium voltage, dry type transformers** 14-20
**EE NL transformers** 14-6
**elbows**
trench duct 13-6
**elbows, Busway** 12-6
**electric vehicle charging stations** 29-2
**electrical components**
Type K, SK and KX 19-86
XB4 19-34
XB5 19-55
XB6 19-15
**electrical data**
I-Line II busway 12-8
**electrical interlock kits**
safety switches 3-3, 3-10
**electrical ratings**
pressure switches, 9012 and 9016 22-16
**electronic alarms, XVS** 19-116
**electronic pressure switches**
XMLF 22-8– 22-9
**electronic timers**
TeSys D 18-10
**electronic trip units, Micrologic** 7-46– 7-47
**EMA (external modular assembly) SPDs** 6-2
replacement modules 6-4
**emergency lighting circuit breakers** 5-24
**emergency stop operation**
cable pull switches 25-8
**emergency stop operators**
XB4 19-28
XB5 19-48
**enclosed drives**
Altistart 22 26-5, 26-19
Altivar 212 26-5
S-Flex (Altivar 212) 26-16
**enclosed soft starts**
Altistart 22 26-19
**enclosed starters, TeSys D** 18-21– 18-23
**enclosure**
8M, 12M, 24M, 36MS, 36M, 60M 5-18
**enclosures**
304L stainless steel 28-2
316L stainless steel 28-2
ATEX 28-2
circuit breaker 7-56
control stations 19-70– 19-72, 19-80– 19-82, 19-100– 19-104
dimensions 16-96, 16-99
floor-standing 28-4– 28-5, 28-7
flush mounting selection table 16-94
for explosive atmospheres 28-2
insulated 28-2
IP54 28-7
IP65 28-7
IP66 28-7
metal 28-2
NEMA 1 selection table 16-94
NEMA 12/3R outdoor applications 16-95
NEMA ratings 28-3
NEMA type 1 and flush mounting 16-94
NEMA type 3R, 4, 4X, and 12 16-93
NEMA types 1, 4, and oversize 16-95
open bottom 28-7
polyester 28-7
Spacial 28-2, 28-4– 28-6
stainless steel 28-2, 28-5
steel 28-4– 28-6
Thalassa 28-2, 28-7
thermal management systems 28-3, 28-8
transformers 14-10, 14-18
UL ratings 28-3
wall-mounting 28-6– 28-7
XAC 19-118
**end clamps** 24-12
Enercept **Meter** 4-15



© 2012 Schneider Electric
All Rights Reserved

**energy efficient**
1201–15,000 Volts 14-20
**energy efficient transformers** 14-4
**energy meters** 4-15
**energy profiler online service** 4-18
**engineering service, PowerLogic** 4-20– 4-21
**equipment grounding kits for safety switches** 3-11
**ethernet gateway, Wiser** 29-8
**ethernet TCP/IP products** 27-7
**Ethernet-Modbus/TCP networks** 4-19
**EV charging stations, EVlink**
dimensions 29-5
indoor charging 29-3
outdoor charging 29-4
outdoor charging with RFID access 29-4
RFID accessories 29-4
**EVlink electric vehicle charging solutions** 29-1– 29-5
**export model**
transformers 14-8
**external brick assembly (EBA) SPDs** 6-3
**external modular assembly (EMA) SPDs** 6-2
**external modular L-L enhanced SPDs** 6-3
**external reset mechanisms** 16-92
**externally mounted surge protective devices (SPD)** 6-2
**extra capacity single phase starters**
full voltage starters 16-22
**EZ Meter-Pak**
meter center dimensions 2-16
meter centers 2-8
meter centers and accessories 2-15
**EZM main devices, meter centers** 2-14

## F

**face plates**
decorator 5-6
**factory assembled enclosures, PowerLogic** 4-22
**factory assembled panelboards**
**I-Line** 9-31– 9-34
modifications 9-38
NF 9-16– 9-17
NQ 9-11– 9-12
feed-through lugs 9-12
sub-feed lugs 9-12
NQ/NF single row (column width) 9-19
QMB fusible 9-36– 9-37
**factory modifications**
limit switches 21-36
machine tool pressure switches 22-18
**factory modifications (forms)**
full voltage contactors & starters 16-100
full voltage contactors & starters and solid state overload relays 16-102
**factory-installed accessories**
**PowerPact** circuit breakers 7-39
**QO** and QOB miniature circuit breakers 7-12
**features, merchandised units** 17-2
**feed-through lugs**
NQ factory assembled panelboards 9-12
**F-frame circuit breakers** 9-24– 9-25
**Fingersafe**
contact blocks 19-85
covers 7-15, 14-8, 14-17, 19-93, 24-13
**fittings**
trench duct 13-6
**float switches** 22-1
accessories 22-28
renewal parts 22-28
**floor-standing enclosures** 28-4– 28-5, 28-7
**foot switches** 19-124– 19-125
**four channel dimmer unit** 5-14
**fractional horsepower**
manual starters 16-4
**frequency control relays**
**Zelio** RM35HZ 23-36
**full voltage contactors**
NEMA style
general information 16-14
NEMA style
3-pole polyphase 16-14
solid state overload relay protection, **Motor Logic** 16-18
**full voltage contactors & starters and solid state overload relays**
factory modifications (forms) 16-102
**full voltage contactors and starters**
factory modifications (forms) 16-100
NEMA style
application data for selection 16-23
dimensions 16-24– 16-27
**full voltage reversing contactors and starters**
NEMA style 16-44
dimensions 16-48– 16-49
solid state overload relay protection, **Motor Logic** 16-46
**full voltage reversing vacuum contactors**
NEMA style approximate dimensions 16-50
**full voltage starters** 16-18– 16-19
2-Pole single phase 16-20– 16-21
4-Pole, 2-Phase 16-20– 16-21
extra capacity single phase starters 16-22
NEMA style 16-18– 16-19
2-pole single phase 16-22
Types SB–SD with auxiliary load terminals 16-22
**full voltage vacuum contactors**
general information 16-28– 16-29
**full voltage vacuum starters** 16-30
**fuse block, replacement parts kits** 16-115
**fuse kits safety switches, class R** 3-10
**fuse puller kits, safety switches** 3-3
**fuse selection tables**
boric acid fuses, HVL 11-14
DIN/E HVL 11-14
**fused HVL/cc**
load interrupter switch 11-17
**fuseholders**
AB1FU and AB1SF/SV 24-8
application information 24-19
LS1 18-36
panel mounting 24-19
Type FB 24-19
**Fuselogic** 11-8, 11-11
**fusible and non-fusible safety switches** 3-15

## G

**G3 systems, Powerlink** 5-24
**gateway, DALI** 5-15
**Gen 3 products, lighting control systems** 5-23
**general duty**
safety switches 3-2
**general information**
full voltage vacuum contactors 16-28– 16-29





Words in **Green Bold** are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**general purpose (NEMA Type 1)**
wireway 13-2
**general purpose dry type transformers** 14-2
**general purpose relays** 23-2– 23-15
**general thermal unit selection** 16-116
**GFI, QO circuit breakers** 7-11
**GFP ground fault protectors, Multi 9** 7-18
**GJL circuit breakers, single motor circuit protection** 7-32
**ground-fault protection** 7-51
GC-200 ground-fault relay system 7-51
module enclosure selection 7-53
sensors 7-51
**ground-fault relay system**
GC-200 7-51
Vigirex 7-52
**grounding blocks AB1TP** 24-6

## H

**hangers**
busway 12-6, 12-17
Power-Zone busway 12-17
**HCR-U** 11-18
**heavy duty**
limit switches 21-32
**heavy duty safety switches** 3-4
**H-frame thermal-magnetic circuit breakers** 9-26
**H-frame, PowerPact**
circuit breaker accessories 7-40
circuit breakers 7-23
molded case switches 7-34
termination options 7-23
switches 7-34
**HID QO circuit breaker** 7-11
**high ampere QOU circuit breakers** 7-14
**high density meter enclosures** 4-11
**high magnetic withstand MC circuit breakers** 7-37
**HMI products** 27-3– 27-4
**HMI—human machine interface** 16-85
**holders, legend** 19-37, 19-58
**Homeline**
HOM-AFI circuit breaker 1-14
HOM-EPD circuit breaker 1-14
HOM-GFI circuit breaker 1-14
HOM-HM circuit breaker 1-14
HOMT, quad tandem circuit breaker 1-14
surge protective devices (SPD) 6-8
**Homeline load centers**
convertable field-installable kits 1-16
indoor, main circuit breaker 1-15
indoor, main lugs 1-15
manufactured housing load centers 1-10
plug-on circuit breakers 1-14
rainproof main circuit breakers 1-16
rainproof, main lugs 1-16
**horizontal ganged meter sockets** 2-3
**horsepower and voltage thermal unit selection** 16-120
**HP ratings of motors, MCP selection** 7-29
**Hubbellock receptacle safety switches** 3-9
**HVL medium voltage metal-enclosed** 11-11
**HVL metal-enclosed load interrupter switchgear** 11-11
**HVL switches, Power-Dry, Power-Cast transformer connections** 11-12
**HVL switchgear quick ship program** 11-11
**HVL/cc**
medium voltage metal-enclosed 11-8, 11-10
metal-enclosed load interrupter switchgear 11-8
switchgear 11-9
switchgear quick ship program 11-9
**hybrid VAR compensator (HVC)** 4-36

## I

**IEC** 24-10
**IEC style**
Square D JCK timing relay 23-30
terminal blocks 24-2– 24-9, 24-11– 24-12
TeSys Type D relay 23-16– 23-18
TeSys Type K relay 23-19– 23-20
TeSys Type SK relay 23-21
TeSys Type SKE alternating relay 23-21
Zelio RE11 timer 23-26
Zelio RE48 timer 23-26
Zelio RE7 timer 23-27– 23-28
Zelio RE8 timer 23-29
Zelio RE9 timer 23-29
Zelio REXL timer 23-26
**IEC style disconnect switches**
accessories, LK4 nonfusible and GS2 fusible 8-10
dimensions, LK4 Nonfusible and GS2 fusible 8-11– 8-14
LK4 nonfusible and GS2 fusible 8-8– 8-9
**IEC terminal blocks** 24-10
**I-Line**
busway 12-4, 12-13– 12-14
plug-in units 12-9
PowerPact P-frame plug-in unit 12-13
PowerPact R-frame plug-in unit 12-14
standard components 12-4
**I-Line**
molded case circuit breakers 11-18
Surgelogic SPD units 6-5
**I-Line distribution** 11-17
**I-Line distribution bus** 11-4
**I-Line distribution section** 11-5
**I-Line II**
800 A–5000 A busway 12-5
800 A–5000 A pricing instructions 12-6
busway 12-5, 12-6, 12-11
electrical data 12-8
surge protective device plug-in units 12-10
**I-Line panelboards**
accessories 9-23
circuit breakers 9-24– 9-25, 9-27– 9-30
factory assembled 9-31– 9-34
merchandised 9-21– 9-22
pricing procedure 9-20
series ratings 9-3– 9-4
terminal data 9-40
**I-Line to I-Line II adapter** 12-7
**illuminated beacons**
indicating banks 19-107– 19-115
**illuminated operators** 19-53
16 mm push buttons 19-16
22 mm push buttons 19-32– 19-33, 19-53– 19-54
30 mm push buttons 19-70– 19-72, 19-79– 19-82
**indoor dimensions** 1-17
**indoor EV charging stations, EVlink** 29-3
**indoor meter centers** 2-8, 2-10, 2-12
**indoor, 1Ø main circuit breaker, QO load centers** 1-6
**indoor, main lug, QO load centers** 1-5
**indoor, main lugs, Homeline load centers** 1-15
**industrial control transformers** 14-14– 14-17



© 2012 Schneider Electric
All Rights Reserved

**industrial energy efficiency** 4-21
**industrial format limit switches** 21-24– 21-25
**industrial limit switches** 21-32
**industrial pressure switches** 22-13
**Industrial Relays** 23-16– 23-24
**industrial snap switches** 21-6
**input units, C-Bus** 5-13
**inserts**
legend 19-38, 19-59
**Insta-Kits accessories for enclosed combination starter** 18-23
**insulated case circuit breakers selection information** 7-7
**insulation displacement blocks, AB1AA** 24-10
**integral horsepower**
manual starters 16-8– 16-9
**integrated equipment sample lineups** 10-6
**integrated power and control solutions**
IPaCS equipment 10-2
**Integrated Power Center** 10-3
IPC 10-2– 10-3
layout 10-3
lead time 10-3
pricing 10-3
shipping 10-3
Submetering 10-4
**Integrated Power Center 2**
IPC2 10-2, 10-4– 10-5
layout 10-4
lead time 10-4
pricing 10-4
shipping 10-4
**interface modules**
ABR electromechanical 23-42
solid state 23-41
TeSys D 18-10
Zelio RM analog 23-38
**interface relays**
Zelio RSL 23-2
Zelio RSB 23-3
**internal barrier kits for safety switches** 3-10
**international pressure switches, XML** 22-10– 22-11
**ION EEM enterprise energy management software** 4-6
**ION enterprise operations software, PowerLogic** 4-4
**ION enterprise software ordering information** 4-4
**ION power and energy meter, PowerLogic** 4-7– 4-8
**IP54 enclosures** 28-7
**IP65 enclosures** 28-7
**IP66 enclosures** 28-7
**IPaCS equipment**
integrated power and control solutions 10-2
**IPC integrated power center** 10-2– 10-3
**IPC2**
Integrated Power Center 2 10-2, 10-4– 10-5
transformer combo 10-2
**Iso-Gard**
line isolation monitor (LIM) 15-4
**isolated alarm contacts**
melting alloy overload relays 16-113
**isolated power panels medical products** 15-2– 15-3

## J

**J-frame, PowerPact**
automatic molded case switches 7-34
circuit breaker accessories 7-40
circuit breakers 7-23
molded case switches 7-34
switches 7-34
termination options 7-23
thermal-magnetic circuit breakers 9-26

## K

**K2 custom and K30–K150**
power switching 19-126– 19-128
**key interlock systems for safety switches** 3-12
**keypads**
C-Bus 5-4– 5-8
Decorator, Saturn 5-6
DLT 5-5– 5-6
Neo style 5-4
Saturn 5-5
**K-frame thermal-magnetic circuit breakers** 9-27

## L

**LA mission critical circuit breakers** 9-28
**LAL circuit breakers, single motor circuit protection** 7-32
**large load controls, Wiser** 29-7
**latching relays**
NEMA style Type X 23-22– 23-23
**legend plates**
16 mm push buttons 19-20, 19-22
30 mm push buttons 19-89– 19-90, 19-98
compact pilot lights 19-11
pendant stations 19-120
**legends**
holders 19-37, 19-58
inserts 19-38, 19-59
**level control relays**
Zelio RM35L 23-35
**lever arms**
limit switches 21-9, 21-34
**L-frame circuit breakers** 9-29
**L-frame, PowerPact**
circuit breaker 7-25
circuit breaker accessories 7-40
switches 7-34
**life safety, medical products** 15-2
**light curtain, 2-box**
XUSLB 25-6
XUSLD 25-6
**light curtains** 25-6
**light level sensor** 5-12
**lighting contactors** 16-59– 16-60
combination 16-61
dimensions 16-66– 16-69
mechanically held ASCO Type 920 9-38
modifications 16-63– 16-65
multipole lighting 16-59
Square D brand PB 9-38
**limit switches**
application data 21-4
bodies 21-17
compact general duty 21-22
complete switches 21-14
connection components 21-17
contact assemblies 21-17
factory modifications 21-36
heads for miniature and compact bodies 21-16
heavy duty 21-26, 21-32– 21-33
industrial 21-32
industrial format 21-24– 21-25
industrial snap 21-6
lever arms 21-9, 21-34
levers for miniature and compact bodies 21-16
mill and foundry 21-37– 21-40
miniature 21-8– 21-11





Words in Green Bold are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

modular 21-10– 21-13
oiltight 21-37– 21-38
selection 21-8
severe duty 21-37– 21-40
specifications 21-8
standard, classic 21-20– 21-21
without enclosures 21-6
XCK 21-12– 21-13
XCKJ
bodies and options 21-27
operating heads 21-28
operating heads, replacement parts, and levers 21-29
precision switches with direct acting contacts 21-26
XCKL
complete switches 21-22
XCKL, XCKM 21-20– 21-21
XCMD 21-10– 21-11
**line isolation monitor** 15-4
**Iso-Gard** 15-4
**load break switch/sectionalizer** 11-20
**load centers value pack, QO and Homeline load centers** 1-11
**load control relays, Wiser** 29-7
**load interrupter switch**
fused, **HVL/cc** 11-17
**load interrupter switchgear** 11-11
**locked-rotor indicating codes** 7-32
**lock-on provisions for safety switches** 3-12
**low voltage standard automatic capacitor bank** 4-31
**low voltage switchgear**
**Power-Zone** 11-6
**low voltage transient free reactive compensation capacitor banks** 4-32
**LS1 fuseholders** 18-36
**LTMCU compact display** 16-85
**LTME expansion module** 16-85
**LTMR controller** 16-85
**lug-lug tap box** 10-4
**lugs**
safety switches 3-3, 3-12– 3-13
transformers 14-11

## M

**machine safety products** 25-2
**machine tool pressure switches** 22-14, 22-18
**Magelis**
Compact iPC 27-4
Compact PC BOX 27-4
Display 16-85
Flex PC BOX 27-4
Smart BOX 27-4
Smart iPC 27-4
Smart+ iPC 27-4
STO/STU small panels 27-3
XBT GC HMI controller 27-9
XBT GH advanced panels 27-3
XBT GK advanced panels 27-3
XBT GT advanced panels 27-3
XBT GTW advanced panels 27-3
XBT N/R small panels 27-3
XBT RT small panels 27-3
**Mag-Gard circuit breakers** 7-31
**Mag-Gard combo starter** 16-35
**magnetic coils** 16-105
**main circuit breaker kits, QO load centers** 1-5
**main devices, meter centers** 2-12
**MAL circuit breakers, single motor circuit protection** 7-32
**manual and magnetic contactors and starters**
auxiliary contacts 16-110
**manual starters** 16-4
accessories and modification kits 16-9
fractional horsepower 16-4
melting alloy type thermal overload relay 16-4
general purpose enclosure (flush mount)
dimensions 16-6
general purpose enclosure (surface mount)
dimensions 16-6
integral horsepower 16-8– 16-9
dimensions 16-10
open type
dimensions 16-6
reversing and two speed 16-9
watertight die cast zinc enclosure
dimensions 16-6
**manual starters and switches**
accessories and modifications 16-11
**manual switches**
general purpose enclosure (flush mount)
dimensions 16-6
general purpose enclosure (surface mount)
dimensions 16-6
non-reversing 16-5
open type dimensions 16-6
reversing 16-5
two speed 16-5
watertight die cast zinc enclosure
dimensions 16-6
**manufactured housing load centers** 1-10
**markers, AB1 terminal blocks** 24-11
**master relays**
NEMA style Type X 23-22
**Masterclad**
medium voltage **Metalclad** switchgear 11-16
**Metalclad Arc Terminator**
**Metalclad Arc Resistant** 11-16
**MasterPact**
NT circuit breaker 7-49
**MasterPact**
circuit breaker, switchboard/switchgear 11-6
NT circuit breaker ratings 7-49– 7-50
NT/NW circuit breakers 7-50
NW and NT circuit breakers 11-6
NW circuit breaker ratings 7-50
NT circuit breaker 7-49– 7-50, 11-3, 11-6
NW circuit breaker 7-47, 7-50, 11-3, 11-6
universal power circuit breakers 7-50
**MCP selection**
GJ-, LA-, and MA-frame 7-32
HP ratings of motors 7-29
**mechanical alternators** 22-26– 22-27
**mechanical interlock accessories** 16-114
**medical products** 15-1
isolated power panels 15-2– 15-3
life safety 15-2
**medium voltage capacitors** 4-33
**medium voltage metal-enclosed**
DVCAS 11-15
HVL 11-11
**HVL/cc** 11-8, 11-10
**medium voltage motor controllers**
**Motorpact** 11-19
**medium voltage transformers** 14-20
**melting alloy overload relay jumper strap kits** 16-108
**melting alloy overload relays**
isolated alarm contacts 16-113
**merchandise configurations transformer combo** 10-6



© 2012 Schneider Electric
All Rights Reserved

**merchandised panelboards**
I-Line 9-21– 9-22
NF 9-13
NQ 9-6– 9-9
NQ/NF single row (column width) 9-18
**merchandised service selection** 11-5
**merchandised units Model 6 MCC** 17-2
**Metalclad switchgear** 11-16
**meter centers**
accessories 2-15
branch device dimensions 2-16
branch devices 2-11, 2-13
branch devices, NEMA 3R construction 2-11, 2-13– 2-14
branch units 2-8
busway transition section 2-15
dimensions 2-16
EZ Meter-Pak 2-8
EZM main Busway tap 2-14
EZM main devices 2-14
indoor 2-8, 2-10, 2-12
indoor Busway mains 2-14
main devices 2-12
MP Meter-Pak 2-5
NEMA 3R construction 2-8, 2-10
rainproof 2-8, 2-10, 2-12
ring and ringless devices 2-5
selection information 2-9
tenant circuit breaker accessories 2-6
tenant circuit breakers 2-6
**meter comparison chart** 4-9
**meter door selection** 11-5
**meter mains, test block bypass, EUSERC** 2-3
**meter sockets**
accessories 2-3
dimensions 2-4
horizontal ganged 2-3
ring and ringless type, individual meter sockets 2-2
test block bypass sockets 2-3
**metering** 4-7
**M-frame, PowerPact**
circuit breaker 7-26
**Micrologic electronic trip units**
accessories 7-48– 7-49
adjustable rating plugs 7-48
electronic trip units 7-46– 7-47
long-time pickup settings 7-47
neutral current transformers 7-48
options 7-46– 7-47
rating plugs 7-48
special options 7-47
trip units 11-6
**mill and foundry limit switches** 21-37– 21-40
**Mini Power-Zone transformers** 14-12
**miniature blocks**
AB1VV and AB1TP 24-4
**miniature circuit breakers**
C60N 7-17
dimensions and shipping weights 7-54
Multi 9 7-17
QO 7-10
QO and QOU 7-12, 7-14
QOU 7-14
QOU low ampere 7-14
QOU-HM 7-14
selection information 7-2
**miniature limit switches** 21-8– 21-9
**MiniBreak**
compact height switches 11-7
MiniBreak compact height
switch enclosure 11-7
Model 6 MCC
blank doors 17-6
branch feeder units 17-6
catalog numbering system 17-6
combination starters 17-3
fusible switch disconnects 17-4
motor circuit protector disconnects 17-3
Compac 6 17-5
merchandised units 17-2
motor control centers 17-2
**Modicon**
LMC058 motion controller 27-9
M168 PLC 27-8
M238 PLC 27-8
M258 PLC 27-8
M340 PAC 27-2
Momentum distributed I/O and PLC 27-5
Premium PLC 27-2
Quantum PLC 27-2
STB 27-5
TM5 expansion module 27-5
TM7 I/O blocks 27-5
TSX Micro PLC 27-2
Zelio Logic controller 27-10
**modifications**
lighting contactors 16-63– 16-65
**modifications for factory assembled panelboards** 9-38
**modular panelboard system** 10-3
MPS 10-2– 10-3
**molded case switches**
PowerPact H-frame 9-27
PowerPact J-frame 9-27
PowerPact L-frame 9-27
**Mono-Flat Front, riser panels** 1-11
**motor control centers** 17-1
Model 6
structure features 17-2
unit features 17-2
Model 6 MCC 17-2
Surgelogic SPD units 6-5
**motor controller**
Altistart 22 (Enclosed) 26-19
**motor controllers**
duplex 16-78– 16-79
**motor disconnect switches**
MD motor disconnect switches 8-7
Mini-Vario and Vario accessories 8-6
Mini-Vario and Vario assembled and enclosed switches 8-3– 8-4
Mini-Vario and Vario switches 8-5
Motor Logic and Motor Logic Plus
solid state overload relay accessories 16-111
**motor operators, circuit breaker** 7-40
**motor protection selection tables** 7-33
**motor protective devices** 7-29
**motor protector circuit breakers** 7-31
**motor starters**
PowerSuite software 18-31
TeSys U 18-28– 18-32
TeSys U-Line power bases 16-12
**Motorpact**
medium voltage motor controllers 11-19
**mounting bases**
Multi 9 7-13
QO 7-13
**mounting track** 24-12
**MP Meter-Pak**
meter centers 2-5
meter centers dimensions 2-7
meter centers knockouts 2-7





Words in Green Bold are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**MPS, modular panelboard system** 10-2– 10-3
**Multi 9**
C60 accessories 7-20
C60N supplementary protectors 7-19
GFP ground fault protectors 7-18
miniature circuit breakers 7-17
mounting bases 7-13
mounting bases, UL489 C60, 240 Vac max. 7-13
NC100 miniature circuit breakers ground fault protectors 7-18
**multi circuit energy meter** 4-14
**multipole lighting contactor** 16-59
**MV controllers** 11-19

## N

**NEMA 3R construction, meter centers** 2-8, 2-10
**NEMA 7 and 9 safety switches** 3-7
**NEMA enclosure ratings** 28-3
**NEMA Premium** 14-3, 14-7
**NEMA style**
combination starters 16-31
full voltage reversing contactors 16-44
full voltage starters 16-18
full voltage vacuum contactors 16-28
**Square D** Type X relays 23-22– 23-24
terminal blocks 24-13, 24-15
**NEMA Type 1 and flush mounting**
enclosures 16-94
**NEMA Type 3R, 4, 4X, and 12**
enclosures 16-93
**NEMA Type 4, 4X, 5, 7, 9 and 12 safety switches** 3-14
**NEMA Types 1, 4, and oversize**
enclosures 16-95
**Neo Decorator style cover plates** 5-7
**Neo style decorator keypads** 5-6
**network accessories, Powerlink** 5-25
**network bridge, C-Bus** 5-15
**network components, Web-enabled** 4-19
**network products and systems** 27-6– 27-7
**neutral assemblies for safety switches** 3-11
**NF panelboards**
20-inch-wide 9-13
factory assembled 9-16– 9-17
circuit breakers 9-16
merchandised 9-13
accessories 9-14
circuit breakers 9-15
pricing procedure 9-5
series ratings 9-3
terminal data 9-39
**Night-Master combination lighting contactors** 16-62
**NLP series transformers** 14-6
**non-automatic miniature switches** 7-11
**non-automatic miniature switches, QO, plug-on** 1-3
**non-linear loads** 14-6
**non-reversing manual switches** 16-5
**non-segregated bus**
busway 12-15
**NQ panelboards**
14-inch-wide 9-8
20-inch-wide 9-6– 9-7, 9-9
accessories 9-9
factory assembled 9-11– 9-12
branch circuit breakers 9-11
feed-through lugs 9-12
merchandised 9-6– 9-9
pricing procedure 9-5
QOB bolt-on circuit breakers 9-10
series ratings 9-2
sub-feed lugs 9-12
terminal data 9-39
**NQ/NF panelboards**
factory assembled single row (column width) 9-19
merchandised single row (column width) 9-18
**NQOB application data** 9-18– 9-19
**NQOD distribution bus** 11-4
**nurses' station indicator** 15-5

## O

**occupancy sensors** 5-20– 5-22
auxiliary relay 5-21
ceiling mount 5-21
fixture mount 5-22
power pack 5-21
**occupancy sensors, C-Bus** 5-12
**OEM solutions** 27-8, 27-10
**OEM systems** 27-9
**oiltight**
limit switches 21-37– 21-38
**oiltight (NEMA Type 12)**
wireway 13-3
**open drives**
**Altivar** 12 26-2
**Altivar** 212 26-3, 26-6
**Altivar** 312 26-2, 26-7– 26-8
**Altivar** 32 26-2
**Altivar** 61 26-3, 26-10– 26-11
**Altivar** 71 26-3, 26-12– 26-13
**open tank float switches** 22-23– 22-24
9038A mechanical alternators 22-26
**operating mechanisms**
accessories, disconnect switches and circuit breakers 8-24
door mounted for circuit breakers 8-19– 8-20
flange mounted and variable depth for circuit breakers 8-23
flexible cable for circuit breakers 8-21– 8-22
selection 8-2
**operators**
accessories, XAC standard duty 19-120
common
Type K, SK 19-9
XB4 - XB5 19-8
emergency stop 19-48
heavy duty specialty 19-75
XB4 Specialty 19-30
XB5 specialty 19-50
**options**
**Altistart** 22 26-18
**Altistart** 48 26-17
**Altivar** 61 26-14
**Altivar** 212 26-6
**Altivar** 61 26-11, 26-15
**Altivar** 71 26-14– 26-15
**Ativar** 312 26-8
surge protective devices (SPDs)
EBA (external brick assembly) 6-3
EMA (external modular assembly) 6-2
external modular L-L enhanced 6-3
**Osisense photoelectric sensors** 20-2
**Osisense proximity sensors** 20-5– 20-6
**Osisense RFID, radio frequency identification** 20-7



© 2012 Schneider Electric
All Rights Reserved

**other blocks, AB1** 24-9
**other products**
ABR electromechanical interface modules 23-42
ABS solid state interface modules 23-41
**Phaseo** ABL1 23-37
**Phaseo** ABL7 23-37
**Phaseo** ABL8 23-37
**Zelio** SR3 modular smart relays 23-40
**Zelio** Logic 2 smart relays 23-39
**outdoor** 1-9, 1-20
**outdoor EV charging stations, EVlink** 29-4
**overload relays**
accessories, **TeSys** D 18-16
enclosed combination starters 18-23
jumper strap kits, melting alloy 16-108
**TeSys** D 18-4
**TeSys** F 18-5

## P

**panel mounting fuseholders** 24-19
**panelboards**
**I-Line** merchandised 9-21– 9-22
accessories 9-23
NF
20-inch-wide 9-13
merchandised 9-13
NQ
14-inch-wide 9-8
20-inch-wide 9-6– 9-7, 9-9
factory assembled 9-11– 9-12
factory assembled feed-through lugs 9-12
factory assembled sub-feed lugs 9-12
merchandised 9-6– 9-9
NQ/NF
factory assembled single row (column width) 9-19
merchandised single row (column width) 9-18
NQOB application data 9-18– 9-19
**panelboards, I-Line distribution** 11-17
**PC Interface (PCI), C-Bus** 5-16
**pendant stations** 19-117– 19-123
**perimeter guard**
XUSLP 25-6
**P-frame, PowerPact**
circuit breaker 7-27
circuit breaker accessories 7-40
automatic molded case switches 7-34
termination options 7-27
**phase measurement relays**
**Zelio** RM17T 23-33
**Phaseo**
ABL1 DC power supply 23-37
ABL7 DC power supply 23-37
ABL8 DC power supply 23-37
**photoelectric sensors** 20-2
**Osisense** 20-2
XUB tubular 20-2
XUM miniature, XUK and XUX compact 20-4
**photovoltaic heavy duty disconnect switch, 1000 Vdc** 3-22
**photovoltaic inverters** 29-9
**pilot lights** 19-10– 19-11
compact 19-10
corrosion resistant 19-83
Type K heavy duty 19-74
XB4 19-31
XB5 19-51
**PL7 application software** 27-2
**plastic push buttons, XB5R** 19-63
**plug-in relays**
**Square D** 8501KA, alternating 23-11
**Square D** JCK timing 23-30
**Square D** Type K 23-10
**Square D** Type R, minature 23-12
**Square D** Type R, miniature 23-13
**Zelio** RPM 23-6– 23-7
**Zelio** RUM 23-8– 23-9
**Zelio** RXM 23-4– 23-5
**plug-in units**
accessories 12-3
busway 12-3, 12-9
factory assembled units 12-3
field installed kit 12-3
locking devices 12-3
non-locking devices 12-3
**polyester enclosures** 28-7
**power base, TeSys U** 18-28– 18-29
**power distribution blocks application data** 24-18
**power meters energy meters** 4-7– 4-8
**power meters, PowerLogic** 4-10
**power pole adders**
contactors 16-112
starters 16-112
**power relays**
**Square D** Type C 23-15
**power supplies**
**Phaseo** ABL1 23-37
**Phaseo** ABL7 23-37
**Phaseo** ABL8 23-37
**power switching**
K2 custom and K30–K150 19-126– 19-128
**power system automation** 4-21
**Powerbus**
busbar configurations 12-2
busway, 100 Ampere—600 Volt maximum 12-2
busway, 225 Ampere—240 Volt maximum 12-2
configuration code, busbar 12-3
plug-in units, accessories 12-3
plug-in units, factory assembled units 12-3
plug-in units, field installed kit 12-3
plug-in units, locking devices 12-3
plug-in units, non-locking devices 12-3
**Powerlink**
breakers 5-24
cables 5-24
control bus 5-24
controller 5-24
misc. hardware 5-24
power supply 5-24
remote source controller 5-24
**Powerlink energy management** 5-27
**PowerLogic** 4-2
circuit monitor 4-11
circuit monitors 11-1
E5600 socket meter 4-13
**Enercept** Meter 4-15
engineering services 4-20– 4-21
Ethernet Gateways 4-19
factory assembled enclosures 4-22
high density meter enclosures 4-11
industrial energy efficiency 4-21
**ION Enterprise** software 4-4
**ION** power and energy meters 4-6– 4-7
Multi circuit energy meter 4-14
power meter 4-10
powerview software 4-5
**Remote Energy Management** 4-4
scada software 4-5
system integration 4-21
Tenant metering software 4-13
total energy control 4-21





Words in **Green Bold** are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**PowerPact molded case switches**
H-frame 9-27
J-frame 9-27
L-frame 9-27
**PowerPact circuit breakers**
accessories 7-39– 7-40
common catalog numbering system 7-21
compression lugs 7-43
D-frame mission critical 9-24
H-frame 7-22– 7-23
circuit breaker frame 7-23
motor circuit protectors 7-29
motor circuit protectors (MCP) 7-30
termination options 7-22
thermal-magnetic circuit breakers 7-22
installation accessories 7-41
interlocking locks 7-41
J-frame 7-22– 7-23
circuit breaker frame 7-23
motor circuit protectors 7-29
motor circuit protectors (MCP) 7-30
termination options 7-22
thermal-magnetic circuit breakers 7-22
L-frame 7-25
locks 7-41
mechanical lugs 7-42
M-frame 7-26, 9-29
molded case circuit breakers 11-17
P-frame 7-27, 9-30
phase barriers 7-44
plug-in and drawout mountings 7-45
power distribution connectors (PDC) 7-43
Q-frame 7-24, 9-25
Q-frame thermal-magnetic circuit breaker 7-24
rear connections 7-41
R-frame 7-28, 9-30
terminal nuts, terminal pads, terminal shields 7-44
termination options 7-38, 7-45
**PowerPact H-frame plug-in units**
busway 12-12
**PowerPact J-frame plug-in units**
busway 12-11– 12-12
**PowerPact L-frame** 7-34
**PowerPact M-frame plug-in units**
busway 12-12
**Powerpact P circuit breakers** 11-18
**PowerPact P-frame plug-in unit**
busway 12-13
I-Line busway 12-13
**Powerpact R circuit breakers** 11-18
**PowerPact R-frame plug-in unit**
busway 12-14
I-Line busway 12-14
**PowerPact switches** 7-34
**Power-Style**
commercial multi-metering switchboards 11-3
QED-2
switchboard 11-2
QED-6
commercial multi-metering 11-3
switchboard 11-3
**Powersub Type FVR vacuum substation circuit breakers** 11-19
**PowerSuite software for motor starters** 18-31
**Power-Zone**
low voltage switchgear 11-6
Model III
distribution section 11-18
package unit substations 11-17
unit substations 11-17
**Power-Zone busway**
hangers 12-17
non-segregated bus 12-15
space heaters 12-17
supports 12-17
terminating accessories 12-18
thermostat 12-17
**Premium 30** 14-3
**pressure sensors**
XMLG electronic 22-4
XMLK electronic 22-6
**pressure switches** 22-1
commercial 22-21– 22-22
differential pressure 22-15
dimensions
9012G 22-17
XML international 22-12
XMLF 22-9
XMLG electronic 22-5
XMLK electronic 22-7
dual stage 22-15
industrial 22-13
machine tool 22-14, 22-18
**Pumptrol** 22-22
renewal parts 22-28
XML international 22-10– 22-11
XMLF electronic 22-8– 22-9
XMLG electronic 22-4
XMLK electronic 22-6
**pressure transmitters, XMLG electronic** 22-4
**Preventa machine safety products** 25-2
**Preventa safety controllers** 25-4
**Preventa safety relays** 25-4
**prewired connection system**
**Advantys TeleFast 2** 24-22
**pricing**
Integrated Power Center 10-3
**pricing procedure**
**I-Line** panelboards 9-20
NF panelboards 9-5
NQ panelboards 9-5
QMB panelboards 9-20
**ProClima software** 28-3
**professional dimmer, C-Bus** 5-15
**programmable logic controllers** 27-2
**ProWORX application software** 27-2
**proximity sensors** 20-5
accessories 20-9
XS basic series 20-8
XS plastic rectangular 20-5
XS plastic tubular 20-6
**pump control relays**
**Zelio** RM35BA10 23-35
**pump panels**
**Well-Guard** 16-75– 16-76
**Pumptrol**
compressor pressure switches 22-20
pressure switches 22-22
water pump pressure switches 22-21
**push buttons 16 mm** 19-12– 19-22
**push buttons 22 mm** 19-8, 19-23– 19-55, 19-57– 19-64
**push buttons 30 mm** 19-9, 19-67– 19-69, 19-73– 19-79, 19-83– 19-99
**PV inverters** 29-9

## Q

**QED-2** 11-2



© 2012 Schneider Electric
All Rights Reserved

Words in **Green Bold** are trademarks of Schneider Electric

**QED-6 rear-connected switchboards** 11-3
**QED-6 switchboards** 11-3
**QED-S Power-Style**
switchboards 11-2
**Q-frame**
circuit breaker enclosures 1-25
QO and Homeline dimensions 1-17
**Q-frame, PowerPact**
circuit breaker 7-24
**QMB**
Surgelogic SPD units 6-5
**QMB branch switches**
terminal data 9-40
**QMB fusible branch switches** 9-35
**QMB panelboards**
factory assembled, fusible 9-36– 9-37
pricing procedure 9-20
**QO**
plug-on non-automatic miniature switches 1-3
surge protective devices (SPD) 6-8
**QO and Homeline load center panelboards-style covers riser panels** 1-11
QO and Homeline load centers
accessories 1-12
indoor load centers
dimensions 1-17
knockouts 1-17
rainproof dimensions 1-18
rainproof knockouts 1-18
rainproof, bolt-on hubs 1-18
load centers value pack 1-11
riser panels 1-11
surge protection devices 1-12
voltage testers 1-12
**QO and QOB miniture circuit breaker accessories** 1-4
**QO load centers**
accessories 1-12
auxillary gutter 1-10
back up power solutions 1-9
convertable main lugs kits 1-6
indoor, 1Ø main circuit breaker 1-6
indoor, main lugs 1-5
main circuit breaker kits 1-5
main lugs, main circuit breaker 1-8
rainproof, main lugs, main circuit breaker 1-7
rainproof, metallic enclosure 1-7
rainproof, non-metallic enclosure 1-7
service upgrade panels 1-10
special applications 1-10
tap kit 1-10
**QO miniature circuit breakers**
miniature circuit breakers 7-10, 7-12, 7-14
accessories 7-12
arc fault 7-11
arc-fault circuit breaker 7-11
EPD 7-11
factory-installed accessories 7-12
GFI 7-11
HID 7-11
HM, high magnetic trip 7-11
K, key operated 7-11
mounting bases 7-13
non-automatic switches 7-11
plug-on 7-10
solid neutral assemblies 7-13
SWN 7-11
wire sizes 7-10
**QO OEM mounting bases, UL Listed and CSA approved** 7-13
QO plug-on
arc-fault circuit breaker 1-3
circuit breakers 1-2
EPD, overload, short circuit
class B ground fault protection circuit breaker 1-3
GFI, Qwik-Gard
class A ground fault protection circuit breaker 1-3
HID, high intensity discharge lighting circuit breaker 1-3
HM, high magnetic trip circuit breaker 1-3
K, key operated circuit breaker 1-3
SWN, switch neutral common trip circuit breaker 1-3
**QOB bolt-on circuit breakers** 9-10
for NQ panelboards 9-10
**QOU miniature circuit breakers** 7-12, 7-14
accessories 7-15
plug-on 7-10
miniature circuit breakers 7-14
non-automatic switches 7-14
solid neutral assemblies 7-13
wire sizes 7-10
**QOU-HM miniature circuit breakers** 7-14
**quick-connect terminals, QOUQ** 7-15
**Qwik-Gard**
branch circuit breakers 9-11
ground fault circuit interrupter 9-10
**Qwik-Open** 1-2
**QYU**
supplementary protectors 7-14
UL1077 recognized
supplementary protectors 7-14

## R

**radio frequency identification**
Osisense RFID 20-7
**rainproof meter centers** 2-8, 2-10, 2-12
**raintight (NEMA Type 3R)**
wireway 13-3
**raintight trough (NEMA Type 3R)**
wireway 13-3
**ratings, safety switches** 3-6
**ReactiVar**
low voltage fixed capacitors 4-28, 4-29
**receptacle, Crouse-Hinds Style 2 Hubbellock** 3-9
**receptacle switches, safety switches** 3-9
**receptacle Wiser smart plug** 29-7
**relay panels** 5-28
**relay sockets**
snapmount 23-14
Square D Type N 23-14
**relays**
10 Amp 5-14
20 Amp 5-14
8-Channel Low Voltage 5-14
changeover 5-13
Sepam series digital protective 4-24
**remote alarm indicator** 15-4
**remote controls, C-Bus** 5-11
**remote modem support, Powerlink** 5-25
**remote monitor option, surge protective devices (SPD)** 6-2
**remote source controller, Powerlink** 5-24
**renewal parts**
pressure, vacuum, and float switches 22-28
**replacement modules, surge protective devices (SPD)** 6-4
EBA (external brick assembly) SPDs 6-4
EMA (external modular assembly) SPDs 6-4
L-L enhanced (L-L) SPDs 6-4
L-L enhanced MA (L-N, L-G) SPDs 6-4





Words in Green Bold are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**replacement parts**
22 mm push buttons 19-40, 19-61
30 mm enclosures 19-103– 19-104
30 mm push buttons 19-76, 19-93
lamps 19-10
pendant stations 19-117, 19-120
**replacement parts kits**
contact units for melting alloy type overload relays 16-108
contactors 16-107
fuse block 16-115
relays 16-107
starter accessories 16-108
starters 16-107
**replacement tandem circuit breakers** 7-10
**residential solar power solutions** 29-1
**residential surge protective devices (SPD)** 6-8
for QO, NQ, and Homeline loadcenters 6-8
whole house 6-8
**reversing and two speed**
manual starters 16-9
**reversing combination starters**
NEMA style
coil voltage codes 16-55
dimensions 16-57– 16-58
fusible disconnect switch type 16-51
Mag-Gard circuit breaker 16-53– 16-54
MCP circuit breaker 16-53
non-fusible and fusible disconnect switch type 16-52
thermal magnetic circuit breaker 16-55– 16-56
**reversing manual switches** 16-5
**R-frame, PowerPact**
automatic molded case switches 7-34
electronic trip circuit breaker 7-28
**ring and ringless devices meter centers** 2-5
**ringless meter sockets** 2-2
**riser panels, QO load centers** 1-11
**rotary handles** 7-40
**rotating lights**
XVR 19-107

## S

**safety at work**
AS-i 25-3, 25-5
**safety controllers**
XPSMC 25-3– 25-4
**safety interlock switches**
XCS 25-7
**safety interlock switches, non-contact**
XCSDM 25-7
**safety limit switches** 25-8
XCS 25-8
XCSM 25-8
XCSP/XCSD 25-8
**safety PLCs**
XPSMF 25-3, 25-5
**safety relays**
XPS 25-3– 25-4
**safety switches** 25-8
accessories 3-3
Appleton Powertite receptacle 3-9
class H, R, J, L fuse provisions 3-5
class R fuse kits 3-10
cover viewing window 3-12
Crouse-Hinds Arktite receptacle 3-9
dimension 3-3
dimensions 3-13
double throw 3-15– 3-16
electrical interlock kits 3-3, 3-10
equipment grounding kits 3-11
fuse puller kits 3-3
fusible and non-fusible 3-15
general duty 3-2
heavy duty 3-4
316 grade stainless steel, NEMA 3, 3R, 4, 4X, 5, 12 3-7
applications 3-7
fiberglass reinforced polyester enclosures, NEMA 4X 3-7
Hubbellock receptacle 3-9
internal barrier kits 3-10
key interlock systems 3-12
Krydon enclosures, NEMA 4X 3-7
lock-on provisions 3-12
lug data 3-3, 3-13
lug kits 3-12
NEMA 7 and 9 3-7
NEMA Type 4, 4X, 5, 7, 9 and 12 3-14
neutral assemblies 3-11
ratings 3-6
receptacle switches 3-9
single throw non-fusible 3-6
**sample lineups, integrated equipment** 10-6
Saturn **keypads** 5-5
**SB/SF switchboards** 11-4
**SCADA products** 27-4
**SCCR short circuit current rating** 7-29
**sealed**
Mini Power-Zone transformers 14-12
transformers 14-8
**selection**
limit switches 21-8
**selection information**
insulated case circuit breakers 7-7
meter centers 2-9
miniature circuit breakers 7-2
molded-case circuit breakers 7-4, 7-8
**selection tables**
motor protection 7-33
Sepam series 4-25
**selector switches**
16 mm push buttons 19-14, 19-17– 19-19
22 mm push buttons 19-24, 19-29, 19-33, 19-43, 19-49, 19-54
30 mm push buttons 19-70– 19-73, 19-80– 19-82, 19-95
pendant stations 19-119
**sensor plugs** 7-48
**sensors**
ground-fault protection 7-51
photoelectric 20-2
proximity 20-5
ultrasonic 20-11
Vigirex ground-fault relays 7-52
Sepam series
digital protective relay 4-24
selection table 4-25
**separate enclosures** 16-93
**series ratings**
I-Line panelboards 9-3– 9-4
NF panelboards 9-3
NQ panelboards 9-2
Servicepak power outlet
panels
construction sites 1-26
recreational vehicle parks 1-26
**severe duty**
limit switches 21-37– 21-40
S-Flex Altivar 212 26-5, 26-16
**shipping**
Integrated Power Center 10-3
Integrated Power Center 2 10-4



© 2012 Schneider Electric
All Rights Reserved

**short circuit current rating, SCCR** 7-29
**shunt trip circuit breakers** 9-38
**sine wave tracking module (SWT) for SPD** 6-2– 6-3
**single and multi-door enclosures**
door closing mechanisms 8-27
**single row (column width) panelboards** 9-18– 9-19
**single throw non-fusible safety switches** 3-6
**sirens, XVS** 19-116
**slow trip, thermal unit selection** 16-116
**smart relays**
**Zelio** Logic 2 23-39– 23-40
**SMS ordering information**
Socket meter, E5600, **PowerLogic** 4-13
**soft starters, TeSys U** 18-32
**soft starts**
**Altistart** 22 26-4, 26-18
**Altistart** 22 (Enclosed) 26-19
**Altistart** 48 26-4, 26-17
**software**
Concept 27-2
ConneXview 27-6
PL7 27-2
ProClima 28-3
**ProWORX** 27-2
SoMachine 27-10
Spacial.pro 28-3
Spacial.ref 28-3
Thalassa.ref 28-3
**Unity** Application Generator 27-2
**Unity** Pro 27-2
**Vijeo** Citect 27-4
**Vijeo** Designer 27-4
**Vijeo** Historian 27-4
**C-Bus** 5-19
**solar inverters** 29-9– 29-10
**solar ready CSED** 1-24
**solid neutral accessories** 16-113
**solid state relays**
**Zelio**Type SSR 23-25
**solutions**
**Conext** residential solar power inverters 29-1
electric vehicle charging 29-1
energy efficiency 29-6
**EVlink** EV charging 29-1
utilities 4-17
**Wiser** energy efficiency 29-1
**SoMachine software suite** 27-10
**sound levels** 14-3
**space heaters**
busway 12-17
Power-Zone busway 12-17
**Spacial enclosures** 28-2, 28-4– 28-6
accessories 28-4– 28-6
**Spacial.pro software** 28-3
**Spacial.ref software** 28-3
**SPD** 11-17
OEM/assembler kits 6-6
replacement modules 6-4
**special applications**
**QO** load center 1-10
**specifications**
**Conext** grid tie solar inverters 29-10
limit switches 21-8
**speed control relays**
**Zelio** RM35S 23-36
**Speed-D**
SB/SF switchboards 11-4
**Speed-D switchboards** 11-4– 11-5
**splitter boxes, TeSys contactors** 18-38
**SPQ**
cam-lock tap box 10-4
lug-lug tap box 10-4
**spring clip blocks, AB1RR** 24-2– 24-3
**spring clip terminals, AB1RR** 24-4
**spring-charging motors**
P-frame circuit breakers 7-40
**Square D**
8501KA alternating plug-in relay 23-11
JCK timing relay 23-30
Type C power relay 23-15
Type K plug-in relay 23-10
Type N sockets 23-14
Type R minature plug-in relay 23-12
Type R miniature plug-in relay 23-13
Type X relays 23-22– 23-24
**stainless steel enclosures** 28-5
304L 28-2
316L 28-2
**standby power connection solutions** 10-4
**starter accessories**
replacement parts kits 16-108
**starters**
accessories 16-109
accessories, GV 18-34
control circuit fuse holder 16-112
cover-mounted control units 16-109
GV manual starters and protectors 18-33
power pole adders 16-112
replacement parts kits 16-107
universal baseplate 16-108
**steel enclosures** 28-4– 28-6
**sub-feed circuit breaker** 5-26
cabinet data 5-26
**sub-feed lugs**
NQ factory assembled panelboards 9-12
**submetering** 4-13
**submetering integrated power center** 10-4
**substation circuit breakers** 11-19
**sump application float switches** 22-23– 22-24
**supplementary protectors QYU** 7-14
**support, AC drives** 26-20
**supports**
busway 12-17
**Power-Zone** busway 12-17
**surge protection device plug-in units**
busway 12-10
**surge protection devices** 1-12, 11-17
**surge protective devices (SPD)**
EBA (external brick assembly) 6-3
EMA (external modular assembly) 6-2
external modular, L-L enhanced 6-3
externally mounted 6-2
flush mount kits 6-2, 6-7
internally mounted, new construction and retrofit 6-5
remote monitor option 6-2
replacement modules 6-4
residential whole house 6-8
SDSA1175 nipple-mounted 6-7
SDSA3650 nipple-mounted 6-6
sine wave tracking module (SWT) for SPD 6-2
**Surgelogic** HWA SPDs 6-7
XR nipple-mounted 6-8
**Surgelogic surge protective devices (SPD)** 6-6, 9-12, 9-17, 9-34
**switch enclosure, MiniBreak compact height** 11-7





Words in **Green Bold** are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

**switchboards** 11-1
- Power-Style 11-2
- QED-2 11-2
- Power-Style 11-2

**switches** 7-34
- foot 19-124– 19-125
- industrial snap 21-6
- PowerPact H-frame 7-34
- PowerPact J-frame 7-34

**switchgear** 11-1
- low voltage metal-enclosed drawout 11-6
- medium voltage metal-enclosed
  - DVCAS 11-15
  - HVL 11-12– 11-14
  - HVL/cc 11-9
  - MiniBreak 11-7
  - wind farm applications 11-15

**SWT (sine wave tracking) module for external SPDs** 6-2

**system integration, PowerLogic** 4-21

**system units and enclosures** 5-17

## T

**tables 1–148, thermal unit selection** 16-121– 16-138

**tap box**
- cam-lock 10-4
- lug-lug 10-4

**tap kit, QO load centers** 1-10

**technical support** 4-23

**tee, busway** 12-6

**tees**
- trench duct 13-6

**temperature control relays**
- Zelio RM35AT 23-36

**temperature controllers**
- Zelio Type REG 23-31

**tenant circuit breakers**
- meter center accessories 2-6
- meter centers 2-6

**tenant metering software (TMS)** 4-13

**terminal block kits**
- transformers 14-11

**terminal block, tie point** 16-113

**terminal blocks**
- assemblies 24-15
- IEC style 24-2– 24-9, 24-11– 24-12
- NEMA style 24-13, 24-15

**terminal data**
- I-Line panelboards 9-40
- NF panelboards 9-39
- NQ panelboards 9-39
- QMB branch switches 9-40

**termination options**
- H- and J-frame 7-23
- P-frame 7-27

**test block bypass sockets, meter sockets** 2-3

**TeSys relays**
- Type D relay 23-16– 23-18
- Type K relay 23-19– 23-20
- Type SK relay 23-21
- Type SKE alternating relay 23-21

**Tesys**
- D-line and F-line 7-29

**TeSys AK5**
- panel busbar system 18-39

**TeSys D**
- accessories 18-8– 18-11, 18-14
- auxiliary contacts 18-8
- cabling accessories 18-9
- coil suppressors 18-9
- contactors, non-reversing 18-2, 18-4
- contactors, reversing 18-2, 18-6, 18-14
- control modules 18-10
- dimensions 18-40– 18-41, 18-44– 18-46, 18-48
- electronic timers 18-10
- interface modules 18-10

**TeSys F**
- accessories 18-8, 18-11– 18-12, 18-15
- auxiliary contacts 18-8
- contactors, non-reversing 18-3, 18-5
- contactors, reversing 18-3, 18-7
- dimensions 18-42, 18-47
- overload relay accessories 18-16

**TeSys GV manual starters and protectors**
- accessories 18-34– 18-37
- dimensions 18-52– 18-56

**TeSys K**
- contactors and accessories 18-27
- dimensions 18-49
- non-reversing mini-contactors 18-24
- reversing mini-contactors 18-25

**TeSys T**
- motor management system 16-84
  - configuration with PowerSuite 16-86
  - LTMCU compact display 16-85
  - LTME expansion module 16-85
  - LTMR controller 16-85
  - Magelis display 16-85
  - TeSys T and SMS, PowerLogic 16-86
- motor management systems
  - HMI—human machine interface 16-85

**TeSys U**
- dimensions 18-50– 18-51
- motor starters 18-28– 18-31
- soft starters 18-32

**Thalassa enclosures** 28-2, 28-7
- accessories 28-7

**Thalassa.ref software** 28-3

**thermal overload relays**
- NEMA style
  - bimetallic 16-89
  - dimensions 16-90– 16-92
  - melting alloy 16-82
  - solid state overload relay 16-83

**thermal unit selection** 16-116
- calculation of rip current rating 16-119
- general 16-116
- horsepower and voltage 16-120
- slow trip 16-116
- tables 1–148 16-121– 16-138

**thermal units, mounting** 16-120

**thermal-magnetic circuit breakers**
- H-frame 7-22, 9-26
- J-frame 7-22, 9-26
- K-frame 9-27

**thermal-magnetic circuit protectors** 24-17

**thermostats**
- busway 12-17
- Power-Zone busway 12-17
- Wiser programmable communicating 29-6

**three tier AB1DD, AB1ET** 24-7

**tie point terminal block** 16-113



© 2012 Schneider Electric
All Rights Reserved

**timers**
- Zelio JCK 23-30
- Zelio RE11 23-26
- Zelio RE48 23-26
- Zelio RE7 23-27– 23-28
- Zelio RE8 23-29
- Zelio RE9 23-29
- Zelio REXL 23-26

**timing relays**
- NEMA style Type X 23-22– 23-23

**touch screens, C-Bus** 5-7– 5-8
**tower lights and beacons** 19-107– 19-116
**training, AC drives** 26-20
**transformer combo**
- IPC2 10-2
- merchandise configurations 10-6

**transformer enclosures** 14-9
**transformers** 14-1
- 1201–15,000 volts
  - single-phase indoor 14-20
  - three-phase indoor 14-20
- accessories 14-10, 14-17
- brackets 14-11
- buck and boost 14-8
- copper wound 14-4
- core and coil 14-3
- disconnects 14-18
- drive isolation 14-3
- dry type 14-20
- EE medium voltage, dry type 14-20
- EE NL 14-6
- enclosures 14-10, 14-18
- energy efficient, single-phase 14-5
- export model 14-8
- general purpose dry type 14-2
- high harmonic loads 14-3, 14-7
  - DIT 14-3
- industrial control 14-14– 14-17
- lug 14-11
- Mini Power-Zone 14-12
- motor starting auto 14-3
- NEMA Premium 14-3
- NLP series 14-6
- non-ventilated 14-9
- open core and coil 14-9
- Power-Cast 11-12
- sealed 14-8
- sealed, Mini Power-Zone 14-12
- stainless steel enclosed 14-9
- terminal block kits 14-11
- Uni-Cast 11-12
- Watchdog 14-4– 14-5

**transient suppression module accessories** 16-112
**Transparent Ready** 11-1
**Transparent Ready solutions** 27-6
**trench duct**
- accessories 13-6
- components 13-6
- crosses 13-6
- elbows 13-6
- fittings 13-6
- tees 13-6
- wire management 13-5

**trip unit suitable for reverse connections** 7-22
**trip units**
- Micrologic 11-6

**Twido Nano controller** 27-10
**two tier blocks**
- AB1ET 24-6
- AB1ETN 24-7

**two-speed**
- manual switches 16-5

**Type 1 surge protective devices (SPD)** 6-2
**Type EOX vacuum substation circuit breakers** 11-19
**Type FB fuseholders** 24-19
**Type FVR vacuum substation circuit breakers** 11-19
**Type K heavy duty pilot lights** 19-74
**Type K, SK**
- accessories 19-89– 19-90
- common operators, contact blocks 19-9

**Type K, SK and KX electrical components** 19-86
**Type KX square multifunction operators** 19-94– 19-96, 19-98– 19-99
**Type VOX vacuum substation circuit breakers** 11-19
**Type W non-reversing vacuum starters** 16-30

## U

**UL enclosure ratings** 28-3
**UL Listed 500 Vdc circuit breakers** 7-35– 7-36
**ultrasonic sensors** 20-11
- XUV and XXV 20-10

**Uni-Cast**
- transformer connections 11-12
- transformers 11-12

**unit substation**
- distribution section 11-18
- transformer section 11-18

**Unity application generator software** 27-2
**Unity pro application software** 27-2
**universal baseplate starters** 16-108
**universal power circuit breakers, Masterpact** 7-50
**university, power management** 4-23
**utilities, solutions** 4-17
**utility relays**
- NEMA style Type X 23-23

## V

**vacancy sensors**
- residential wall switch 5-20

**vacuum circuit breaker** 11-16
**vacuum substation circuit breakers** 11-19
- Type EOX 11-19
- Type FVR 11-19
- Type VOX 11-19

**vacuum switches** 22-1, 22-19
- renewal parts 22-28

**value packs** 1-11
**vamp 221** 4-26
**VAR compensator (HVC) hybrid** 4-36
**Vario assembled and enclosed switches** 8-3– 8-4
**Vario manual motor control switches** 8-5
**Vigirex ground-fault relay system** 7-52
**Vijeo Citect software** 27-4
**Vijeo Designer configuration software** 27-4
**Vijeo Historian software** 27-4
**voltage measurement relays**
- Zelio RM17UAS 23-34
- Zelio RM17UB 23-34
- Zelio RM17UBE 23-34
- Zelio RM35UA1 23-34
- Zelio RM35UB 23-34





Words in Green Bold are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

## W

**wall duct**
- accessories 13-4– 13-5
- Class 5250 13-4
- components 13-4
- wire management 13-4– 13-5

**wall-mounting enclosures** 28-6– 28-7

**web-enabled**
- ethernet communication devices 11-1

**web-enabled network components** 4-19

**WebPageGenerator** 4-19

**Well-Guard pump panels** 16-75– 16-76

**wind farm applications** 11-15

**wire management**
- trench duct 13-5
- wall duct 13-4– 13-5
- wireway 13-2

**wireless, batteryless push buttons, XB4R** 19-63

**wireway**
- general purpose (NEMA Type 1) 13-2
- oiltight (NEMA Type 12) 13-3
- raintight (NEMA Type 3R) 13-3
- raintight trough (NEMA Type 3R) 13-3

**wiring, TeSys contactors** 18-38

**Wiser energy efficiency solutions** 29-1, 29-6– 29-8

Wiser energy efficiency solutions
- accessories 29-8
- ethernet gateway 29-8
- in-home display IHD 29-6
- large load control 29-7
- load control relays 29-7
- programmable communicating thermostats (PCT) 29-6
- smart plug 29-7

## X

**XAL 22 mm control stations** 19-100

**XB4**
- accessories 19-39
- common operators, complete with contact blocks 19-8
- complete devices 19-23
- electrical components 19-34
- illuminated operators 19-32
- pilot lights 19-31
- selector switches 19-29
- specialty operators 19-30

**XB4R**
- wireless, batteryless push buttons 19-63

**XB5**
- accessories 19-60
- common operators, complete with contact blocks 19-8
- complete devices 19-42
- components 19-63– 19-64
- electrical components 19-55
- pilot lights 19-51
- selector switches 19-49
- specialty operators 19-50

**XB5 20 mm**
- components 19-66

**XB5R**
- plastic push buttons 19-63

**XB5S**
- biometric switches 19-65

**XB6**
- accessories 19-20
- characteristics and complete devices 19-12
- electrical components 19-15
- illuminated operators 19-16
- keyed selector switches 19-19
- non-illuminated operators 19-17
- selector switches 19-18

**XCK limit switches** 21-12– 21-13

**XCKJ industrial format EN 50041** 21-24– 21-25

**XCKJ precision switches with direct acting contacts**
- limit switches 21-26

**XCKL**
- exploded view 21-20– 21-21

**XCKL components** 21-23

**XCKM limit switches** 21-20– 21-21

**XCKS** 21-19

**XCMD limit switches** 21-10– 21-11

**XCS safety interlock switches** 25-7

**XCS safety limit switches** 25-8

**XCSDM non-contact safety interlock switches** 25-7

**XCSM safety limit switches** 25-8

**XCSP/XCSD**
- safety limit switches 25-8

**XML international pressure switches** 22-10– 22-12

**XMLF electronic pressure switches** 22-8– 22-9

**XMLG electronic pressure transmitters and switches** 22-4

**XMLK electronic pressure transmitters** 22-6

**XPS safety relays** 25-3– 25-4

**XPSMC safety controllers** 25-3– 25-4

**XPSMF safety PLCs** 25-3, 25-5

**XS basic series proximity sensors** 20-8

**XS plastic rectangular proximity sensors** 20-5

**XS plastic tubular proximity sensors** 20-6

**XUB tubular photoelectric sensors** 20-2

**XUM miniature, XUK and XUX compact**
- photoelectric sensors 20-4

**XUSLB 2-box light curtain** 25-6

**XUSLD 2-box light curtain** 25-6

**XUSLP perimeter guard** 25-6

**XUV and XXV ultrasonic sensors** 20-10

**XVB 70 mm tower lights** 19-110– 19-112

**XVC tower lights** 19-108– 19-109

**XVE tower light components** 19-113

**XVP 50 mm illuminated indicating banks**
- accessories 19-115

**XVP tower light components** 19-114

**XVR rotating lights** 19-107

**XVS**
- electronic alarms 19-116
- sirens 19-116

**XY2 cable pull switches** 25-8

## Z

**ZCKD01** 21-19

**ZCKD02** 21-19

**ZCKD31** 21-19

**ZCKD39** 21-19

**ZCKD41** 21-19

**ZCKD49** 21-19



© 2012 Schneider Electric
All Rights Reserved

**ZCKD59** 21-19
**ZCKS** 21-19
**Zelio**
Logic 2 smart relays 23-39– 23-40
RE48 timer 23-26
RE7 timer 23-27– 23-28
RE8 timer 23-29
RE9 timer 23-29
REG temperataure controller 23-31
REXL timer 23-26
RM analog interface module 23-38
RM17JC current measurement relay 23-32
RM17T phase measurement relay 23-33
RM17UAS voltage measurement relay 23-34
RM17UB voltage measurement relay 23-34
RM17UBE voltage measurement relay 23-34
RM35AT temperature control relay 23-36
RM35BA10 pump control relay 23-35
RM35HZ frequency control relay 23-36
RM35JA current measurement relay 23-32
RM35L level control relay 23-35
RM35S speed control relay 23-36
RM35UA1 voltage measurement relay 23-34
RM35UB voltage measurement relay 23-34
RPM plug-in relay 23-6– 23-7
RSB interface relay 23-3
RSE11 timer 23-26
RSL slim interface relay 23-2
RUM plug-in relay 23-8– 23-9
RXM miniature plug-in relay 23-4– 23-5
SSR solid state relay 23-25





Words in **Green Bold** are trademarks of Schneider Electric

© 2012 Schneider Electric
All Rights Reserved

A100 thru A400L ..... 1-22, 2-3
A5J ..... 2-3
AA ..... 21-40
AAP ..... 1-22, 2-3
AB ..... 21-40
AB1AA135U2BL thru AB1AATP235U4 ..... 24-10
AB1AB10M32 thru AB1AB8P35 ..... 24-12
AB1AC2 ..... 24-4
AB1AC24 thru AB1ACN16BL ..... 24-5
AB1B510 thru AB1B890 ..... 24-11
AB1BB18535 thru AB1BC9535 ..... 24-9
AB1BV5 thru AB1BV8 ..... 24-11
AB1CT1 thru AB1CT2 ..... 24-9
AB1CT215 ..... 24-4
AB1D11435U ..... 24-9
AB1DDP235T thru AB1ET3235UTLP ..... 24-7
AB1ET435U thru AB1ET435UTP ..... 24-6
AB1ETN335U thru AB1ETNTP435U ..... 24-7
AB1FC335U thru AB1FF235U ..... 24-9
AB1FU10135U thru AB1FUSE435U6XM ..... 24-8
AB1FV135U ..... 24-9
AB1G() ..... 23-20
AB1GA thru AB1GZ ..... 24-11
AB1PC15 ..... 24-12
AB1PS4 ..... 24-8, 24-9
AB1R() ..... 23-20
AB1R0 thru AB1R13 ..... 24-11
AB1RRN1035U2BL thru AB1RRNAC642GR ..... 24-3
AB1RRNSF435UGR thru AB1RRNTPAC642 ..... 24-4
AB1RT thru AB1SA3 ..... 24-11
AB1SC435U thru AB1SC435U2PT ..... 24-9
AB1SF435U ..... 24-8
AB1SF520 thru AB1SF520M ..... 24-4, 24-8
AB1SR6 ..... 24-11
AB1SV1 thru AB1SV2 ..... 24-4, 24-8
AB1TC01 thru AB1TC3 ..... 24-9
AB1TE ..... 24-6
AB1TEN3 thru AB1TEN4 ..... 24-7
AB1TF ..... 24-8
AB1TP1035U thru AB1TP635U ..... 24-4, 24-6
AB1VV215 thru AB1VVN7035UBL ..... 24-4, 24-5
ABL1REM12050 thru ABL1RPM24100 ..... 23-37
ABL7RM24025 thru ABL7RP4803 ..... 23-37
ABL8MEM05040 thru ABL8WPS24400 ..... 23-37
ABR1E101M thru ABR2SB312B ..... 23-42
ABS2EA02EF thru ABS2SC02EB ..... 23-41
ACF13EC thru ACF88WF ..... 12-5
ACP ..... 1-22, 2-3
ACP1034CD thru ACP6034BC ..... 3-9
ACP2EC thru ACP4WF ..... 12-4
ACPA thru ACPLA ..... 2-3
AF2308G10ST thru AF2540GLFM22 ..... 12-5
AH thru AK ..... 21-40
AK5JB1410 thru AK5PE27 ..... 18-39
AL0306F ..... 8-16
AL100FA ..... 9-23
AL100FD ..... 9-15
AL10F ..... 8-16
AL1200P24K thru AL1200R53K ..... 7-42, 9-23
AL150HD ..... 7-42
AL1650 thru AL16501 ..... 21-40
AL175JD ..... 7-42
AL1802 ..... 21-40
AL20DTF ..... 3-12
AL2500RK ..... 7-42
AL250JD ..... 7-42
AL2820 ..... 21-40
AL30FD ..... 9-15
AL400L61K3 thru AL400L61K4 ..... 7-42
AL400LA ..... 9-23
AL600LF52K3 thru AL800P7K4 ..... 7-42
AL800SN ..... 7-58
AL900MA ..... 9-23
AM ..... 21-40
AM1DE200 ..... 23-20, 24-12
AM1DL201 ..... 18-39
AM1DP200 ..... 23-20, 24-12
AM1ED200 ..... 24-12
AO ..... 21-40
AP2308G10ST thru AP2540G10ST ..... 12-5
AP30210 thru AP506LT() ..... 12-4
APJ3485 thru APJ10487 ..... 3-9
APP2D1 thru APP2R4H4 ..... 18-38
AR ..... 21-40
AR1MA01 thru AR1MC019 ..... 24-21
AR1SB2 thru AR1SB3 ..... 24-11
AR1SC01 thru AR1SC03 ..... 24-21
ARP00026 ..... 1-22, 2-3, 2-15
ARP00118 thru ARP00427 ..... 2-3
ASILUFC51 ..... 18-31
AT1HB2 ..... 24-21
AT1PA1 thru AT1PA7 ..... 24-21
ATS22C11S6S6U thru ATS22D88S6S6U ..... 26-18
ATS48C11Y thru ATS48M12Y ..... 26-17
ATSU01N206LT thru ATSU01N232LT ..... 18-32
ATV212H075M3X thru ATV212WU75N4 ..... 26-6
ATV312H018M2 thru ATV31CU75N4 ..... 26-7
ATV61H075M3 thru ATV61HU75Y ..... 26-10, 26-11
ATV71H037M3 thru ATV71HU75Y ..... 26-12, 26-13
ATVPOT25K ..... 26-6, 26-8, 26-14
AZ5DE005 thru AZ5DE025 ..... 24-20
B075 thru B400 ..... 1-18, 3-10, 3-18
BCAP ..... 1-22, 3-10, 3-18
BCH thru BCHB ..... 7-15
BCPMA042D thru BCPMSCCT2 ..... 4-16
BH20512 thru BH2096 ..... 21-27, 21-40
BMK2Q400 ..... 1-22
C125RB thru C4L200S ..... 1-19
CA2KN22 thru CA2KN407 ..... 23-19
CA2SK11 thru CA2SKE20 ..... 23-21
CA3KN22 thru CA3KN407 ..... 23-19
CA3SK11 thru CA3SK20 ..... 23-21
CA4KN22 thru CA4KN407 ..... 23-19
CAB4 thru CAB30 ..... 4-11
CAD32 thru CAD506 ..... 23-16
CF2308G10ST thru CF2550GLFM21 ..... 12-5
CL0306F ..... 3-12, 3-14, 8-16
CL10F thru CL60F ..... 3-12, 3-14, 8-16
CM200S ..... 1-19
CM4000T ..... 4-11
CM4250 ..... 4-11
CMB363 thru CMB381 ..... 14-10, 14-11
CMDLC thru CMDVF ..... 4-11
CMELK4 ..... 1-22
CP2308G10ST thru CP2550G10ST ..... 12-5
CP30210 thru CP506LT() ..... 12-4
CT1000SC thru CTFCL500058 ..... 4-35
CU100FD ..... 9-15
CU1200P24K thru CU1200R53K ..... 7-42
CU12L400CB thru CU12L400FN ..... 1-21
CU150HD thru CU800M23K4 ..... 7-42
CU816D400CB thru CU816D400CN ..... 1-21
CUM400CB ..... 1-21
CVM42 thru CVMT ..... 4-11
CYA060HD thru CYA800P7 ..... 7-43
D211N thru D326NTR ..... 3-2, 3-3
DA1TT090 thru DA1TT170 ..... 16-86
DASKGS100 thru DASKP600 ..... 14-11
DE9RA1012 ..... 21-23
DFCC1 thru DFCC3V ..... 24-8
DJA32150W thru DJA32600W ..... 9-24
DJL32150W thru DJL32600W ..... 7-38
DL1BDB1 thru DL1BLM ..... 19-112, 19-115
DL1CB006 thru DL1CF220 ..... 19-40, 19-61, 19-120
DL1CJ0241 thru DL1CJ0246 ..... 19-120
DL1CJUS0063 thru DL1CJUS1205 ..... 19-120
DL1EDGS ..... 19-113
DR2SC0039 thru DR2SC4700 ..... 18-20
DR5TE4S thru DR5TF4V ..... 18-18
DRK30 thru DRK600 ..... 3-2
DS200EK2D thru DT600NKD ..... 3-16, 3-18, 3-20
DTU222 thru DTU663AWK ..... 3-16, 3-21
DU221RB thru DU324RB ..... 3-2, 3-3
DU321 thru DU326 ..... 3-2, 3-3



© 2012 Schneider Electric
All Rights Reserved

DX1AP25 thru DX1AP26 ..... 18-16
DZ2FF1 thru DZ2FX6 ..... 18-12
DZ5CA002 thru DZ5CE063 ..... 24-20
DZ5MB201 ..... 24-12
E5600020SQD thru E5600450SQD ..... 4-13
ECB14015G3 thru ECB34020G3 ..... 5-24
ECC21 ..... 4-11
ECT075050SC thru ECT300800SC ..... 4-14
EDB14015 thru EDB34125 ..... 9-15
EDB14015EPD thru EDB14050EPD ..... 9-15
EDPA thru EDPAF ..... 9-14
EE1000T151HCT thru EE1000T79H ..... 14-4
EE100S3534H thru EE750T79H ..... 14-4, 14-6
EE15S3534H thru EE75T6H ..... 14-4, 14-6
EER20100 thru EER57200 ..... 29-6, 29-8
EGB14015 thru EGB34125 ..... 9-15
EGB14015EPD thru EGB14050EPD ..... 9-15
EGB2HT thru EGB3HT ..... 9-15
EIK031 thru EIK032 ..... 3-3, 3-10
EIK1 thru EIK2 ..... 3-3, 3-10
EIK40601 thru EIK40602 ..... 3-10
EJB14015 thru EJB34125 ..... 9-15
EJB14015EPD thru EJB14050EPD ..... 9-15
EK400DTU2 ..... 3-18
ELM150HD thru ELM250JD ..... 7-53
EMB1010 thru EMB3164 ..... 4-15
EMBK3 thru EMCB ..... 4-15
EMCT010 thru EMCT164 ..... 4-15
EME1010 thru EME3164 ..... 4-15
EMFP1 thru EMFP3 ..... 4-15
EMT1225CB thru EMT3225CB ..... 2-3
EP112T3HFISCUNP thru EP75T3HNISCUNP ..... 14-7
EV230PDR thru EV230WSRR ..... 29-4
EV2430WS ..... 29-3
EVRFIDHP thru EVRFIDKF10 ..... 29-4
EZM11000CB thru EZM11200TBU ..... 2-10
EZM112225 thru EZM115225CU ..... 2-11
EZM11600GCBC thru EZM11600TB ..... 2-10
EZM116125 thru EZM116125CUX ..... 2-11
EZM12000CB thru EZM1225TB ..... 2-10
EZM125QOA ..... 2-6, 2-15
EZM1400CB thru EZM1600FSU ..... 2-10
EZM1600FTLK3 ..... 2-15
EZM1600TB thru EZM1800TBU ..... 2-10
EZM1CORNER thru EZM1TRANR ..... 2-15
EZM31000CB thru EZM31200TBU ..... 2-12
EZM31000CBNBBTL thru EZM31200JBNFBTR ..... 2-14
EZM312225 thru EZM315225CU ..... 2-13
EZM31600GCBC thru EZM31600TB ..... 2-12
EZM316125 thru EZM316125CUX ..... 2-13
EZM32000CB thru EZM3400CB ..... 2-12
EZM3400CBNBBTL thru EZM3800FSNFBTR ..... 2-14
EZM3400CBU thru EZM3800TBU ..... 2-12
EZM3BUSLB thru EZM600FTLK3 ..... 2-15
EZM72MC ..... 2-15, 26-16
EZMH112225 thru EZMH116125CUX ..... 2-11
EZMH312225 thru EZMH316125CUX ..... 2-13
EZMK111400 thru EZMK112400 ..... 2-11
EZMK311400 thru EZMK332400 ..... 2-14
EZML111225 thru EZML114225D ..... 2-11
EZML311400 thru EZML334225D ..... 2-13, 2-14
EZMPCP ..... 2-15
EZMR112225 thru EZMR116125CUX ..... 2-11
EZMR312225 thru EZMR334225CU ..... 2-13
EZMSK2 ..... 2-15
EZMT111225 thru EZMT113225 ..... 2-11
EZMT311225 thru EZMT333225 ..... 2-13
FA100A thru FA100S ..... 7-56, 7-58
FA14035() thru FA24100() ..... 9-24
FA26015() thru FA26100() ..... 9-25
FA32015 thru FA34100 ..... 9-24
FA36015 thru FA36100 ..... 9-25
FH16015() thru FH26100() ..... 9-25
FH36015 thru FH36100 ..... 9-25
FI1IMA12C() thru FI1IMA24C() ..... 6-5
FI26100() ..... 9-25
FI2IMA12C() thru FI2IMA24C() ..... 6-5
FI36020 thru FI36100 ..... 9-25
FI3IMA12C() thru FI9IMA18C() ..... 6-5
FJA14015() thru FJA14070() ..... 9-24
FK400 ..... 1-22
FPK03 thru FPK0610 ..... 3-3, 3-10
FY14015() thru FY14030() ..... 9-24
G1414 thru G19103 ..... 13-6
GB2CB05 thru GB2CD20 ..... 24-17
GC200C thru GC2DSP ..... 7-51
GFI2PA ..... 1-4, 7-12
GFM150HD thru GFM25CT ..... 7-53
GK2AF01 ..... 18-37
GS1AD10 ..... 8-9
GS1AU203 thru GS1AU803 ..... 8-9
GS1AW306 thru GS1AW903 ..... 8-10
GS1DDU3 thru GS1DU3 ..... 8-9, 8-10
GS2AE2 thru GS2AE81 ..... 8-8, 8-9
GS2AH110 thru GS2AH120F ..... 8-9
GS2AH130 thru GS2AP73 ..... 8-8, 8-9
GS2GU3N thru GS2TU3 ..... 8-9, 8-10
GT1218 thru GT930 ..... 7-51
GTK03 thru GTK0610C ..... 3-3, 3-11
GV1F03 thru GV1L3 ..... 18-37
GV2AF01 thru GV2APN04 ..... 18-37
GV2E01 ..... 18-37
GV2G05 ..... 18-37
GV2G245 thru GV2G554 ..... 18-31, 18-37
GV2GH7 ..... 18-37
GV2K011 thru GV2K04 ..... 18-37
GV2MC01 thru GV2MC02 ..... 18-37
GV2ME01 thru GV2ME32 ..... 18-33
GV2MP01 thru GV2MP04 ..... 18-37
GV2P01 thru GV2P32 ..... 18-33
GV2SN13 thru GV2SN37 ..... 18-37
GV2V01 ..... 18-37
GV2V03 ..... 18-34
GV3APN01 thru GV3APN04 ..... 18-34
GV3G264 thru GV3G66 ..... 18-34
GV3P13 thru GV3P65 ..... 18-33
GV7AB11 ..... 18-35
GV7AC01 thru GV7AC07 ..... 18-35
GV7AD111 thru GV7AD112 ..... 18-35
GV7AE11 ..... 18-35
GV7AP01 thru GV7AP05 ..... 18-35
GV7AS055 thru GV7AU525 ..... 18-35
GV7RE20 thru GV7RE150 ..... 18-33
GV7RS20 thru GV7RS150 ..... 18-33
GV7V01 ..... 18-35
GVA()025 thru GVA()505 ..... 18-34
GVAD0101 thru GVAD1010 ..... 18-34
GVAE1 thru GVAN20 ..... 18-34
GVAPB54 ..... 18-35
GVAPH02 ..... 18-37
GVAPH03 ..... 18-34
GVAPK11 ..... 18-37
GVAPK12 ..... 18-34
GVAPR54 thru GVAPR65 ..... 18-35
H()A26015 thru H()A36150 ..... 9-26
H()A36060U31X thru H()A36150U54X ..... 9-26
H()L26015(C) thru H()L36150(C) ..... 7-22
H()L36030M38X thru H()L36100M38X ..... 7-32
H()L36060(C)U31X thru H()L36150(C)U54X ..... 7-23
H050 thru H100CP ..... 3-10, 3-18
H100XFA ..... 3-7, 3-14
H100XFA1212 ..... 3-7
H1200SNE4 ..... 3-11
H125 thru H125CP ..... 3-10, 3-18
H12LKE2 ..... 3-12
H150 thru H200CP ..... 3-10, 3-18
H2212AWK thru H2212AWK ..... 3-4, 3-14
H221A thru H224NRB ..... 3-4, 3-13, 3-14
H225 thru H225R ..... 3-4
H225XJG ..... 3-7, 3-14
H225XJGAA ..... 3-7
H226 thru H228R ..... 3-4
H250 ..... 3-10, 3-18
H265 thru H268 ..... 3-5, 3-13







© 2012 Schneider Electric
All Rights Reserved

H265AWK thru H268AWK ... 3-5
H265DS thru H266DS ... 3-5
H265R thru H268R ... 3-5, 3-13
H300 ... 3-10, 3-18
H321A thru H324NRB ... 3-4, 3-13, 3-14
H325 thru H328R ... 3-4
H350 ... 3-10, 3-18
H361 thru H368 ... 3-5
H3612 thru H3612RB ... 3-5
H361A thru H364A ... 3-5, 3-14
H361AWA thru H363AWC ... 3-9, 3-14
H361AWK thru H368AWK ... 3-5, 3-14
H361DF thru H364DF ... 3-7, 3-14
H361DS thru H366DS ... 3-5, 3-14
H361DSWA thru H363DSWC ... 3-9, 3-14
H361DX thru H363DX ... 3-7, 3-14
H361N thru H368N ... 3-5
H361NRB thru H364NRB ... 3-5
H361RB thru H364RB ... 3-5
H361SS thru H366SS ... 3-7, 3-14
H361WA thru H363WC ... 3-9, 3-13
H364NA ... 3-5
H364NAWK thru H368NAWK ... 3-5
H364NDS thru H366NDS ... 3-5
H365NR thru H368NR ... 3-5
H365R thru H368R ... 3-5
H400 ... 3-10, 3-18
H461 thru H466 ... 3-5, 3-13
H461AWK thru H664AWK ... 3-5, 3-14
H461DS thru H664DS ... 3-5, 3-14
H600SN thru H600SNC ... 3-11
H60XFA ... 3-7, 3-14
H60XFA1212 ... 3-7
H800SNE4 ... 3-11
H82254 thru H82455 ... 3-16, 3-17, 3-21
H8LKE2 ... 3-12
HC2609DEXF thru HC2609EXS ... 9-23
HC2652B thru HC2692B ... 9-21
HC2652WP thru HC2886WP ... 9-21
HC2SN ... 9-23
HC3209EXF thru HC3209EXS ... 9-23
HC3248B thru HC3291B ... 9-21
HC3248WP thru HC3291WP ... 9-21
HC4212DEXF thru HC4412DEXS ... 9-23
HC4250DB thru HC4486DB ... 9-22
HC4250WP thru HC4486WP ... 9-23
HC4SNHCW4SN thru HC8SNHCW8SN ... 9-23
HCM14482N thru HCM36918MP ... 9-21
HCM400VCA thru HCN600VCA ... 9-23
HCM41914M thru HCN92T()D ... 9-21
HCP145012N thru HCP50868 ... 9-22
HCP54868SU ... 9-21
HCPSU8SN thru HCPSU8SNCT ... 9-23
HCR12SNCT ... 9-23
HCR548612U ... 9-22
HCR86T() thru HCW86T()D ... 9-22, 9-23
HCWM12SN ... 9-23
HD100S ... 7-56
HDA261501 thru HDA361506 ... 9-27
HDMCT050S1 thru HDMCT400S1 ... 4-14
HDMCVRPLT ... 4-14
HDMPMHKIT27 ... 4-14
HEPD80 thru HEPD80RK ... 6-8
HF13E thru HF88SH ... 12-5
HFV ... 12-5
HGL36030M38X thru HGL36150M38X ... 7-31
HGL36100 ... 9-5
HJL36030M71 thru HJL36150M74 ... 7-29
HJLPR ... 7-48
HL1IMA12C() thru HL4IMA24C() ... 6-5
HLA26000S15 thru HLA36000S15 ... 9-27
HLL26000S15 thru HLL36000S15 ... 7-34
HLL36030M38X thru HLL36150M38X ... 7-31
HLL36030M71 thru HLL36150M74 ... 7-29
HLN1BL thru HLN4EBL ... 9-23
HLO1 ... 1-4, 7-12, 9-8
HLW1BL thru HLW4EBL ... 9-23
HM112T208HNCUEP thru HM75T259HNCUEP ... 14-7
HM112T208NCU thru HM75T259NCU ... 14-6
HNM1BL thru HNM4BL ... 9-23
HOM115 thru HOM290 ... 1-14, 1-22
HOM115CAFI thru HOM120CAFI ... 1-14
HOM115EPD thru HOM250EPD ... 1-14
HOM115GFI thru HOM250GFI ... 1-14
HOM115HM thru HOM120HM ... 1-14
HOM1224L125RB thru HOM24M125RB ... 1-16
HOM1224L125TC thru HOM24M125C ... 1-15
HOM1HT ... 1-14
HOM1PA ... 1-14
HOM1RK ... 1-13
HOM2100 thru HOM2125 ... 1-14, 1-22
HOM2150BB thru HOM2200BB ... 1-14, 1-22
HOM2175SB ... 1-12, 6-8
HOM24L125TC thru HOM24M125C ... 1-15
HOM24L70RB thru HOM24M125RB ... 1-16
HOM2HBD ... 1-14
HOM2PAHA thru HOM2PAVHA ... 1-14
HOM3040L200RB thru HOM48L125GRB ... 1-16
HOM3040L200TC thru HOM48L125GC ... 1-15
HOM4RK2HA thru HOM4RK2LA ... 1-13
HOM5RK ... 1-13
HOM612L100RB ... 1-16
HOM816L125C thru HOM816M100TC ... 1-15
HOM816L125RB thru HOM816U200FTRB ... 1-16
HOMCGK2 thru HOMCRBGK1 ... 1-13
HOME250SPA ... 1-25
HOMFP ... 1-13, 1-22
HOML2125 thru HOML2225 ... 1-14
HOMQPA ... 1-14
HOMRBGK2 ... 1-13
HOMT1515 thru HOMT3020 ... 1-14
HOMT1515215 thru HOMT2020250 ... 1-14
HOMVP1 thru HOMVP9 ... 1-11
HOMVP12 thru HOMVP16 ... 1-11
HOMVPL1 thru HOMVPL2 ... 1-11
HOMVPRB1 ... 1-11
HP2F thru HP5SH ... 12-4
HPAFD thru HPAFD ... 5-24, 9-15
HQO206AB thru HQO206BC ... 9-24
HQO306 ... 9-24
HRA36000S15 ... 9-27
HRK1020 ... 3-2, 9-35, 12-9
HRK30 ... 9-35
HRK4060 ... 3-10
HRL36000S15 ... 7-34
HRL36030M38X thru HRL36150M38X ... 7-31
HU265 thru HU466 ... 3-6, 3-14
HU661AWK thru HU664DS ... 3-6, 3-14
HVDSA3 thru HVDSA15 ... 11-13
HVL305BG thru HVL317BW ... 11-11
HVL405BGL thru HVL415DEWR2H ... 11-12
HVL505BGL thru HVL515DEWR2H ... 11-12
HVLC thru HVLC2 ... 11-13
HVLCCA14305D thru HVLCCA14315N ... 11-9
HVLCCA14405DGL thru HVLCCA14515DGR ... 11-10
HVLCCA14A ... 11-9, 11-10
HVLCCA20305D thru HVLCCA20315N ... 11-9
HVLCCA20405DGL thru HVLCCA20515DGR ... 11-10
HVLCCA20A ... 11-9
HVLCCB14305D thru HVLCCB14315N ... 11-9
HVLCCB14405DGL thru HVLCCB14515DGR ... 11-10
HVLCCB14A ... 11-9
HVLCCB20305D thru HVLCCB20315N ... 11-9
HVLCCB20405DGL thru HVLCCB20515DGR ... 11-10
HVLCCB20A ... 11-9
HVLCCDSA10 thru HVLCCDSA18 ... 11-9
HVLCCDSA3 thru HVLCCDSA9 ... 11-9, 11-10
HVLCCMBA14A14 thru HVLCCMBB20B20 ... 11-9
HVLX3 ... 11-13
HVMB ... 11-13
HVMB305200 thru HVMB305200U ... 11-7
HVMH1 thru HVMX1 ... 11-7
IE60BASEENG thru IE60DLUNLTDUPG ... 4-4
IK250AWK ... 7-56, 7-58



© 2012 Schneider Electric
All Rights Reserved

IK250DS ..... 7-56, 7-58
IOC44 ..... 4-11
IONE60REPCD thru IONESQL2005CPU ..... 4-4
IOX thru IOX2411 ..... 4-11
J()A26150 thru J()A36250 ..... 9-26
J()A36250U31X thru J()A36250U54X ..... 9-26
J()L26150(C) thru J()L36250(C) ..... 7-22
J()L36250(C)U31X thru J()L36250(C)U54X ..... 7-23
J225X thru J250S ..... 7-56, 7-58
JD250S ..... 7-56
JGL36250M38X ..... 7-31
JGL37100D81 thru JGL37250D82 ..... 7-35
JJL36250M38X ..... 7-31
JJL36250M75 ..... 7-29
JLA26000S17 thru JLA36000S25 ..... 9-27
JLL26000S17 thru JLL36000S25 ..... 7-34
JLL36250M38X ..... 7-31
JLL36250M75 ..... 7-29
JRA36000S17 thru JRA36000S25 ..... 9-27
JRL36000S17 thru JRL36000S25 ..... 7-34
JRL36250M38X ..... 7-31
KA250RWB thru KA250SWB ..... 7-56, 7-58
KAC1BZ thru KDF3PZ ..... 8-3, 8-5
KFP ..... 1-13
KI26200() thru KI26250() ..... 9-27
KI36110 thru KI36250 ..... 9-27
KZ13 thru KZ103 ..... 8-3, 8-6
L()A36250U31X thru L()A36600U54X ..... 9-29
L()L36250(C)U31X thru L()L36400(C)U54X ..... 7-25
L()L36400M38X thru L()L36600M38X ..... 7-32
L()L36600U31X thru L()L36600U54X ..... 7-25
L()L46250(C)U31X thru L()L46400(C)U54X ..... 7-25
L()L46600U31X thru L()L46600U54X ..... 7-25
L100WDR2M4 thru L100WS2M3 ..... 21-39
L111N thru L221N ..... 3-2, 3-3
L300WDR2M4 thru L525WDR2M59 ..... 21-39
LA1DX02 thru LA1DZ40 ..... 18-8, 23-16
LA1KN02 thru LA1KN40 ..... 18-27, 23-20
LA1KN023 thru LA1KN407 ..... 18-27, 23-20
LA1SK02 thru LA1SK20 ..... 23-21
LA26125() thru LA26400() ..... 9-28
LA2KT2E thru LA2KT2U ..... 18-27
LA34200MC thru LA34400MC ..... 9-28
LA36125 thru LA36400 ..... 9-28
LA400AWK thru LA400S ..... 7-56, 7-58
LA4DA2E thru LA4DE3U ..... 18-9
LA4DFB thru LA4DLE ..... 18-10
LA4DMK thru LA4DT4U ..... 18-10, 23-18
LA4DWB ..... 18-10
LA4KA1U thru LA4KE1UG ..... 18-27, 23-20
LA4SKEIE thru LA4SKEIU ..... 23-21
LA5D115450 thru LA5D150803 ..... 18-11
LA5F115450 thru LA5FH441 ..... 18-13
LA6DK10 ..... 23-17
LA6DK20 ..... 18-8
LA7D03 thru LA7F902 ..... 18-16
LA7K0064 ..... 18-27
LA8D324 ..... 18-36
LA9CA06DT thru LA9CA16WT ..... 18-23
LA9D09966 thru LA9D09981 ..... 18-11, 18-12
LA9D11502 thru LA9D80978 ..... 18-11, 18-14
LA9D90 ..... 18-27, 23-20
LA9D901 ..... 23-18
LA9D92 thru LA9D93 ..... 18-11
LA9E01 thru LA9E02 ..... 18-27
LA9F103 ..... 18-12
LA9F15076 thru LA9F15082 ..... 18-7, 18-15
LA9F701 thru LA9F709 ..... 18-12, 18-16
LA9FF601 thru LA9FF602 ..... 18-11
LA9FF970 thru LA9FF982 ..... 18-7, 18-15
LA9FG601 thru LA9FG602 ..... 18-11
LA9FG970 thru LA9FH4G ..... 18-7, 18-15
LA9FH601 thru LA9FH602 ..... 18-11
LA9FH976 thru LA9FK4J ..... 18-7, 18-15
LA9FK601 thru LA9FK602 ..... 18-11
LA9FK976 thru LA9FK976 ..... 18-7, 18-15
LA9FL601 thru LA9FL602 ..... 18-11
LA9FL970 thru LA9FL982 ..... 18-7, 18-15
LA9K0969 thru LA9K0970 ..... 18-27
LA9RM201 ..... 23-35
LA9TFD15 thru LA9TFD80 ..... 18-23
LAD21 thru LAD22 ..... 23-18
LAD31 thru LAD32 ..... 18-38
LAD311 thru LAD351 ..... 18-38
LAD3B ..... 18-38
LAD4BB thru LAD4BBVU ..... 18-9, 23-18
LAD4CM ..... 18-14
LAD4D3U thru LAD4VU ..... 18-9, 23-17
LAD6K10 ..... 18-8, 23-17
LAD703 thru LAD7C2 ..... 18-16
LAD7X3 ..... 18-11
LAD8N02 ..... 23-16
LAD8N11 thru LAD8N20 ..... 18-8, 23-16
LAD90 ..... 18-11
LAD92560 thru LAD96560 ..... 18-11
LAD96570 ..... 18-34
LAD9ET1 ..... 23-18
LAD9P3 thru LAD9P33 ..... 18-11
LAD9R3 ..... 18-14
LADC22 thru LADN403 ..... 18-7, 18-8, 23-16
LADR0 thru LADT43 ..... 18-8, 23-17
LAL34200MC thru LAL34400MC ..... 7-37
LAL36000S40X thru LAL36000S60X ..... 9-27
LAL3640022M thru LAL3640036M ..... 7-31, 7-32
LC1D09 thru LC1D80008 ..... 18-4
LC1D50 thru LC1D95 ..... 18-46
LC1DT20 thru LC1DT80A ..... 18-4
LC1F115 thru LC1F800 ..... 18-5, 18-7
LC1K0601 thru LC1K1210 ..... 18-24
LC1K09004 thru LC1K12004 ..... 18-24
LC26300() thru LC26600() ..... 9-28
LC2D09 thru LC2DT40 ..... 18-6
LC2K0610 thru LC2K1210 ..... 18-25, 18-26
LC36300 thru LC36600 ..... 9-28
LCSADVANCED thru LCSB ..... 5-24
LDB101 thru LDB8TF ..... 13-2
LDRB410M thru LDRB8WH ..... 13-3
LE1D093A62 thru LE2D803A72 ..... 18-21, 18-22
LGA36000S40X thru LGA36000S60X ..... 9-27
LGL36000S40X thru LGL36000S60X ..... 7-34
LGL36400M37X thru LGL36600M38X ..... 7-31
LGL46000S40X thru LGL46000S60X ..... 7-34
LH26125() thru LH26400() ..... 9-28
LH34200MC thru LH34400MC ..... 9-28
LH36125 thru LH36400 ..... 9-28
LHL34200MC thru LHL34400MC ..... 7-37
LHL3625025DC thru LHL3640030DC ..... 7-35
LI26300() thru LI26600() ..... 9-28
LI36300 thru LI36600 ..... 9-28
LJB12606 thru LJB8X ..... 13-2, 13-3
LJL36400M37X thru LJL36600M38X ..... 7-31
LK100AN thru LK225AN ..... 1-13
LK4AD10N thru LK4AP83N ..... 8-8
LK4DU3CN thru LK4WU3N ..... 8-8, 8-10
LK70AN ..... 1-13
LKN4AEAH12C ..... 8-9
LLL36000S40X thru LLL46000S60X ..... 7-34
LP1K0601 thru LP5K12004 ..... 18-24, 18-26
LP5K1210 ..... 18-25
LR2D3522 thru LR2D3563 ..... 18-4
LR2K0301 thru LR2K0321 ..... 18-24
LR3D01 thru LR3D365 ..... 18-4
LR9D5367 thru LR9F7581 ..... 18-5
LRA36000S40X thru LRA36000S60X ..... 9-27
LRD01 thru LRD4369 ..... 18-4
LRL36000S40X thru LRL36000S60X ..... 7-34
LRL36400M37X thru LRL36600M38X ..... 7-34
LRL46000S40X thru LRL46000S60X ..... 7-34
LS1D30 thru LS1D323 ..... 18-36
LSDL ..... 1-12, 1-13
LT6CT1001 thru LT6CT8001 ..... 16-86
LTM9CE180T ..... 16-87
LTM9KCU ..... 16-85
LTMCC004 ..... 16-87







© 2012 Schneider Electric
All Rights Reserved

LTMCU ..... 16-85
LTMEV40BD thru LTMEV40FM ..... 16-85
LTMR08CBD thru LTMR27PFM ..... 16-85
LU9GC3 ..... 26-17
LU9R03 thru LU9R10 ..... 16-87
LUA1C11 thru LUA1C20 ..... 16-12, 18-28
LUA4F11 thru LUA4F12 ..... 18-31
LUALF1 ..... 18-30
LUB12 thru LUB32 ..... 18-32
LUB32NR ..... 16-12
LUC05BL thru LUC32BL ..... 18-32
LUCA05 thru LUCD1X ..... 16-12, 18-28, 18-30
LUCD32 thru LUCDX6 ..... 16-12
LUCM05BL thru LUCM1XBL ..... 18-30
LUFN02 thru LUFN20 ..... 16-12, 18-28
LUFP1 thru LUFP9 ..... 26-17
LUFV2 thru LUFW10 ..... 18-30
LULC07 thru LULC15 ..... 18-31
LV429226 ..... 7-44
LX1D2B5 thru LX1D2Z7 ..... 18-17
LX1D6B5 thru LX1D8W7 ..... 18-18
LX1FF thru LX1FX ..... 18-18
LX4D2BD thru LX4D8UD ..... 18-19
LX4F8 thru LX4FX ..... 18-20
LX600AWK ..... 7-56
LX9FF thru LX9FL ..... 18-18
LXD1B7 thru LXD1Z7 ..... 18-17
LXD3B7 thru LXD3YC7 ..... 18-18
M800AWK thru M800S ..... 7-56, 7-58
M9PAF ..... 7-20
MA1200S ..... 7-56
MA1IBA12 thru MA9IMA18 ..... 6-4
MC3604X ..... 8-7
MCC2IMA12 thru MCC8IMA24 ..... 6-5
MCM8364 ..... 4-16
MD3304X ..... 8-7
MDS30P ..... 8-7
MDSAN11 thru MDSAN20 ..... 8-7, 8-8
METSECT802000 ..... 4-14
METSEDM6200 thru METSEPM1200 ..... 4-10
METSQEM480516 thru METSQEM488016 ..... 4-14
MG10285 thru MG10287 ..... 7-20
MG17402 thru MG24562 ..... 7-19
MG26925 thru MG27150 ..... 7-20
MGA26300() thru MGA26800() ..... 9-29
MGA36300 thru MGA36800 ..... 9-29
MGL26300 thru MGL36800 ..... 7-26
MGN26380 thru MGN26381 ..... 7-20
MGN61300 thru MGN61431 ..... 7-17
MGN61500 thru MGN61537 ..... 7-18
MH26 thru MH86WP ..... 9-6, 9-7, 9-13
MHL36100040DC thru MHL3690039DCH ..... 7-35
MHT2DH20 ..... 9-14
MICROTUSEAL ..... 7-48
MJA26300() thru MJA26800() ..... 9-29
MJA36300 thru MJA36800 ..... 9-29
MJL26300 thru MJL36800 ..... 7-26
MM125MB ..... 2-6
MM200MB ..... 2-6, 2-15
MMBLC ..... 2-15
MMHB ..... 1-22, 2-6, 2-15
MMLK250 thru MMLK600 ..... 2-6, 2-15
MMLRK ..... 1-22, 2-15
MMSAMK ..... 2-15
MMSK2 thru MMSK4 ..... 2-6
MP12X11PEDEXT thru MP43X8PED ..... 2-6
MP22125 thru MP86200 ..... 2-5
MPH22125 thru MPR86200 ..... 2-5
MPRPAF ..... 7-41
MPSF12 thru MPSF26 ..... 2-6
MPX81542 ..... 9-18
MPZ10S40F thru MPZB7S40FSS ..... 14-12, 14-13
MTX836 thru MTX866 ..... 9-18
N100MFI ..... 9-13
N150MH ..... 9-5, 9-13
N250MJN250MKC ..... 9-13
N400M ..... 9-13
NC26() thru NC86V()HR ..... 9-6, 9-7, 9-13
NC59TS thru NC85TS ..... 9-18
NCTWIRING ..... 7-48
NF1000G3 thru NF1000G3N2 ..... 5-24
NF102OE thru NF102S ..... 9-14
NF120PSG3 thru NF120PSG3L ..... 5-24
NF125FTL thru NF125SFL ..... 9-14
NF12RDE ..... 9-14
NF12SBLG3 thru NF12SBRG3 ..... 5-24
NF18RDE ..... 9-14
NF18SBLG3 thru NF18SBRG3 ..... 5-24
NF2000G3 ..... 5-24
NF204OE thru NF204S ..... 9-14
NF21SBLG3 thru NF21SBRG3 ..... 5-24
NF240PSG3 thru NF240PSG3L ..... 5-24
NF250FTL thru NF250SFL ..... 9-14
NF277PSG3 thru NF277PSG3L ..... 5-24
NF2HG3 ..... 5-24
NF3000G3 thru NF3000G3C ..... 5-24
NF400FTL thru NF400SFL ..... 9-14
NF418L1 thru NF484L6C ..... 9-13
NF500G3 ..... 5-24
NF600SFBH thru NF600SFBJ ..... 9-14
NF6RDE ..... 9-14
NF8430L1C thru NF8442M2JDC ..... 9-18
NFADAPTERG3 ..... 5-24
NFALV1 thru NFALV6 ..... 9-14
NFASBKG3 ..... 5-24
NFCUM1 thru NFCUM6 ..... 9-14
NFCUV1 thru NFCUV6 ..... 9-14
NFDP1120G3C thru NFDR277G3C ..... 5-25
NFFP15 ..... 9-14
NFFPCG3 ..... 5-24
NFN1CU thru NFN6CU ..... 9-14
NFNL1 thru NFNL4 ..... 9-14
NFSELG3 ..... 5-24
NFSN06 thru NFSN50 ..... 5-24
NJPAF ..... 7-41
NQ102OE thru NQ102S ..... 9-9
NQ12RDE ..... 9-9
NQ18L1 thru NQ18L1C ..... 9-6, 9-7
NQ18L1C14 ..... 9-8
NQ18RDE ..... 9-9
NQ204OE thru NQ204S ..... 9-9
NQ24RDE ..... 9-9
NQ30L1 thru NQ484L6C ..... 9-6, 9-7
NQ30L1C14 thru NQ442L2C14 ..... 9-8
NQ6RDE ..... 9-9
NQ72L2 thru NQ84L6C ..... 9-6, 9-7
NQB532 thru NQB550 ..... 9-8
NQC20FWG thru NQC30FWG ..... 1-11
NQC32 thru NQC44 ..... 9-8
NQC550 ..... 9-8
NQFP15 ..... 9-8, 9-9
NQFTL2H thru NQFTL4L ..... 9-9
NQMB2HJ thru NQMB4LA ..... 9-7, 9-8
NQN1CU thru NQNL4 ..... 9-9
NQSFB2Q thru NQSFB4Q ..... 9-9
NQSFL1 thru NQSFL4 ..... 9-9
NSY2SP124 thru NSY2SP188 ..... 28-4
NSY2SP204 thru NSY2SP228 ..... 28-4, 28-5
NSYCRN106250 thru NSYCRNG86400 ..... 28-6
NSYEC1041 thru NSYEC1661 ..... 28-4, 28-5
NSYEC351 thru NSYEC881 ..... 28-4, 28-5
NSYMM1010 thru NSYMM3045 ..... 28-6, 28-7
NSYMM106 thru NSYMM128 ..... 28-6, 28-7
NSYMM22 thru NSYMM88 ..... 28-6, 28-7
NSYMP1210 thru NSYMP2212 ..... 28-4, 28-5
NSYMP126 thru NSYMP228 ..... 28-4, 28-5
NSYPLA10103 thru NSYPLM86V ..... 28-7
NSYPLMEX108 thru NSYPLMEX86 ..... 28-7
NSYS3DC101030 thru NSYS3X8830 ..... 28-6
NSYSF12640 thru NSYSF188602D ..... 28-4
NSYSF201040 thru NSYSF2016602D ..... 28-5
NSYSF20350 thru NSYSF20640 ..... 28-4
NSYSF206402D thru NSYSF22880 ..... 28-5
NSYSM1210302D thru NSYSM18860 ..... 28-4



© 2012 Schneider Electric
All Rights Reserved

NSYSM2010402D thru NSYSM2016502D ..... 28-5
NSYSM20630 thru NSYSM20860..... 28-4, 28-5
NSYSPF10100 thru NSYSPS8100 ..... 28-4, 28-5
NT08N1 ..... 11-6
NTMPRRT ..... 7-50
NTX836 thru NTX866 ..... 9-18
NW08H1 thru NW60L1 ..... 11-6
NW08HDC thru NW40NDC ..... 7-36
NWMPRRT thru NWNTMPRRT ..... 7-50
OCK400 ..... 1-22
OHBL thru OHBS ..... 1-22
OPTICALPROBEUSB ..... 4-13
P()A36025(C)U31A thru P()A36120U74AE1 ..... 9-30
P()L36025(C)U31A thru P()L36120(C)U74AE1 ..... 7-27
P1200AWK thru P1200S ..... 7-56, 7-58
PAF361200DC thru PAF362000DC ..... 7-35
PAK1004CGFI thru PAK76CGFI ..... 1-26
PB100EC thru PB225WF ..... 12-2
PBCF3A100CR thru PBCF5A225TB ..... 12-2
PBCP3A100ST048 thru PBCP5A225ST120 ..... 12-2
PBFO100FA thru PBP54100QO ..... 12-3
PBLA36300G thru PBLXI36600GN ..... 12-10
PBPFA3A100 thru PBPFA5A100A100 ..... 12-3
PBPIOCVR ..... 12-2
PBPQO3A100 thru PBPQO5A100 ..... 12-3
PBPQOR3A100 thru PBPQOR5A100M420B ..... 12-3
PBPTB3A100 thru PBPTB5A100 ..... 12-3
PBQ3640G thru PBQ4660G ..... 12-9
PBRFLKIT ..... 12-3
PBTB306G thru PBTB506G ..... 12-4
PCF362500DC ..... 7-35
PCS039D6CE30 thru PCS039D6N12 ..... 4-35
PCS050D5CE30 thru PCS050D5N12 ..... 4-34
PCS078D6CE30 thru PCS078D6N12 ..... 4-35
PCS100D5CE30 thru PCS100D5N12 ..... 4-34
PCS101 ..... 5-24
PCS235D6CE30 thru PCS235D6N12 ..... 4-35
PCS300D5CE30 thru PCS300D5N12 ..... 4-34
PDC12DG4L3 thru PDC6P204 ..... 7-43
PFA32015G thru PFA36100G ..... 12-9
PFCD1002 thru PFCD2100 ..... 4-29
PFCD4006 thru PFCD6175 ..... 4-30
PFH360100GN thru PFH36100G ..... 12-9
PFI34020G thru PFI34100GN ..... 12-10
PHD36015G thru PHD36060GN ..... 12-11
PHD36060GNU31X thru PHD36060GU44X ..... 12-12
PHD36070G thru PHD36100GN ..... 12-11
PHD36100GNU31X thru PHD36100GU44X ..... 12-12
PHD36125G thru PHD36150GN ..... 12-11
PHD36150GNU31X thru PHD36150GU44X ..... 12-12
PHG36015G thru PHG36060GN ..... 12-11
PHG36060GNU31X thru PHG36060GU44X ..... 12-12
PHG36070G thru PHG36100GN ..... 12-11
PHG36100GNU31X thru PHG36100GU44X ..... 12-12
PHG36125G thru PHG36150GN ..... 12-11
PHG36150GNU31X thru PHG36150GU44X ..... 12-12
PHJ36015G thru PHJ36060GN ..... 12-11
PHJ36060GNU31X thru PHJ36060GU44X ..... 12-12
PHJ36070G thru PHJ36100GN ..... 12-11
PHJ36100GNU31X thru PHJ36100GU44X ..... 12-12
PHJ36125G thru PHJ36150GN ..... 12-11
PHJ36150GNU31X thru PHJ36150GU44X ..... 12-12
PHL36015G thru PHL36060GN ..... 12-11
PHL36060GNU31X thru PHL36060GU44X ..... 12-12
PHL36070G thru PHL36100GN ..... 12-11
PHL36100GNU31X thru PHL36100GU44X ..... 12-12
PHL36125G thru PHL36150GN ..... 12-11
PHL36150GNU31X thru PHL36150GU44X ..... 12-12
PIU2IMA16 thru PIU8IMA24 ..... 6-5, 12-10
PJA26000S10() thru PJA36000S80 ..... 9-29
PJD36175G thru PJD36250GN ..... 12-11
PJD36250GNU31X thru PJD36250GNU31X ..... 12-12
PJG36175G thru PJG36250GN ..... 12-11
PJG36250GNU31X thru PJG36250GU44X ..... 12-12
PJJ36175G thru PJJ36250GN ..... 12-11
PJJ36250GNU31X thru PJJ36250GU44X ..... 12-12
PJL26000S10 thru PJL36000S80 ..... 7-34
PJL36060M68 thru PJL36120M70 ..... 7-31
PJL36175G thru PJL36250GN ..... 12-11
PJL36250GNU31X thru PJL36250GU44X ..... 12-12
PK15GTA6 ..... 1-5
PK15GTAL thru PK23GTAL ..... 1-7, 1-13, 9-8
PK27GTACU thru PK27GTACU ..... 9-8, 9-14
PK2MB ..... 1-12
PK2SCPV ..... 1-22
PK3GTA1 ..... 1-5, 1-7, 3-3
PK3MB ..... 1-12
PK49SP ..... 1-22, 3-11, 9-9
PK4DTIM4HA thru PK4DTIM4LAL ..... 1-9, 1-12
PK4FL ..... 1-13
PK4GTA thru PK27GTA ..... 1-6, 1-11
PK4MB2HA thru PK4MB2LA ..... 1-12
PK5RK ..... 1-12
PK6FL thru PK8FL ..... 1-13
PKGTAB ..... 1-13, 5-18, 9-8
PKHB ..... 1-25
PKI34125G thru PKI34250GN ..... 12-10
PKL26000S10 thru PKL36000S80 ..... 7-34
PKOGTA2 ..... 3-3, 3-11, 7-58
PKOGTA3 ..... 3-3
PKOGTA4 ..... 7-58
PKOGTA7 thru PKOGTC3 ..... 3-11
PKOGTJ250 ..... 7-58
PLL24000S10 thru PLL34000S80 ..... 7-34
PLL34080M68 thru PLL34120M70 ..... 7-31
PM210 ..... 4-14
PM710 thru PM8RDA ..... 4-10
PQ3203G thru PQ4620G ..... 12-9
PS080 ..... 4-11
PS24 ..... 4-15
PS3220G thru PS4620G ..... 12-9
PSDS ..... 1-12, 1-13
PTB302G thru PTB516G() ..... 12-4, 12-5
PTMG36300G() thru PTMG36800GN() ..... 12-12
PTMJ36300G() thru PTMJ36800GN() ..... 12-12
PTPG36040G()U31A thru PTPG36120GN()U44A ..... 12-13
PTPJ36040G()U31A thru PTPJ36120GN()U44A ..... 12-13
PTQ36100G() thru PTQ4680G() ..... 12-9
PTRG36080G()U31A thru PTRG36160GN()U44A ..... 12-14
PTRJ36080G()U31A thru PTRJ36160GN()U44A ..... 12-14
PTRL36080G()U31A thru PTRL36160GN()U44A ..... 12-14
PTT23WG thru PTT44WG ..... 12-4
Q1100AN thru Q1150AN ..... 9-9, 9-14
Q22200NRB thru Q23225NS ..... 1-25, 7-56, 7-58
Q2FP ..... 1-13
QBA22070() thru QBA32225() ..... 9-25
QBL22000S22 thru QBL32000S22 ..... 7-34
QBL22070 thru QBL22250 ..... 1-25, 7-24
QBL32070 thru QBL32250 ..... 1-25, 7-24
QBMIK ..... 7-41
QBP22070TM thru QBP32070TM ..... 2-6, 2-15
QBP32080TM thru QBP32225TM ..... 2-15
QBPA thru QBPAF ..... 7-41
QC12L200C thru QC12L200S ..... 1-19
QC2442M150SH thru QC3040M200SH ..... 1-20
QC816F100CH thru QC816F150SL ..... 1-19
QC816F150SLS thru QC816F150SS ..... 1-24
QC816F200CH thru QC816F200SL ..... 1-19
QC816F200SLS thru QC816F200SS ..... 1-24
QCGK3 ..... 1-22
QDA22070() thru QDA32225() ..... 9-25
QDL22070 thru QDL22250 ..... 1-22, 1-25, 7-24
QDL32070 thru QDL32250 ..... 1-8, 1-25, 7-24
QDP22070TM thru QDP22225TM ..... 2-6, 2-15
QDP32070TM thru QDP32225TM ..... 2-15
QGA22070() thru QGA32225() ..... 9-25
QGL22070 thru QGL22250 ..... 1-25, 7-24
QGL32070 thru QGL32250 ..... 1-8, 1-25, 7-24
QGP22070TM thru QGP22225TM ..... 2-6, 2-15
QGP32070TM thru QGP32225TM ..... 2-15
QH115 thru QH330 ..... 1-2, 7-10
QHB115 thru QHB330 ..... 9-10
QJA22070() thru QJA32225() ..... 9-25
QJL22070 thru QJL22250 ..... 1-25, 7-24







© 2012 Schneider Electric
All Rights Reserved

QJL32070 thru QJL32250 ..... 1-8, 1-25, 7-24
QJP22070TM thru QJP22225TM ..... 2-6, 2-15
QJP32070TM thru QJP32225TM ..... 2-15
QMB100R ..... 9-35
QMB1IMA12 thru QMB1IMA24 ..... 6-5
QMB200EK1 thru QMB264W ..... 9-35
QMB2IMA12 thru QMB2IMA24 ..... 6-5
QMB300EK1 thru QMB300EK2 ..... 9-35
QMB30R ..... 12-9
QMB321HW thru QMB367W ..... 9-35
QMB36R ..... 9-35, 12-9
QMB3IMA12 thru QMB3IMA24 ..... 6-5
QMB4060R ..... 9-35, 12-9
QMB4IMA12 thru QMB4IMA24 ..... 6-5
QMB60R ..... 9-35, 12-9
QMB60RQMB36R ..... 9-35
QMB610EK1 thru QMB610EK2 ..... 9-35
QMB8IMA12 thru QMB8IMA24 ..... 6-5
QMJ361T thru QMJ366 ..... 13028
QO110 thru QO170 ..... 1-2, 1-22, 7-10
QO110K thru QO130K ..... 1-3, 7-11
QO11220M100C ..... 1-10
QO11224L125G ..... 1-5
QO11224L125GC ..... 1-10
QO11224L125GRB ..... 1-7
QO11224L125WG ..... 1-11
QO112L125G ..... 1-5
QO112L125GC ..... 1-10
QO112L125GRB ..... 1-7
QO112L200G ..... 1-5
QO112L200GRB ..... 1-7
QO112M100 ..... 1-6
QO112M100C ..... 1-10
QO112M100RB ..... 1-7
QO11428MX150FTRB thru QO11428UX200FTRB ..... 1-9
QO115CAFI thru QO120CAFI ..... 1-3, 7-11
QO115EPD thru QO130EPD ..... 1-3, 7-11
QO115GFI thru QO130GFI ..... 1-3, 7-11
QO115HID thru QO150HID ..... 1-3, 7-11
QO115HM thru QO120HM ..... 1-3, 7-11
QO115PLILC ..... 29-7
QO115VH thru QO130VH ..... 1-2, 1-22, 7-10
QO115VHCAFI thru QO120VHCAFI ..... 1-3, 7-11
QO115VHGFI thru QO130VHGFI ..... 1-3, 7-11
QO11624L125G ..... 1-5
QO11624L125GRB ..... 1-7
QO116L125G ..... 1-5
QO116M100 ..... 1-6
QO116M100C ..... 1-10
QO116M100RB ..... 1-7
QO12024L125G ..... 1-5
QO12030L125WG ..... 1-11
QO12030L150G ..... 1-5
QO12030M150 ..... 1-6
QO12030M150C ..... 1-10
QO12030M150RB ..... 1-7
QO12040M200 ..... 1-6
QO12040M200C ..... 1-10
QO12040M200RB ..... 1-7
QO120L125G ..... 1-5
QO120L125GC ..... 1-10
QO120M100 ..... 1-6
QO120M100C ..... 1-10
QO120M100RB ..... 1-7
QO120PLILC ..... 29-7
QO12436L200TFT ..... 1-5
QO12436M200TFT ..... 1-6
QO124L125G ..... 1-5
QO124L125GRB ..... 1-7
QO124L150G ..... 1-5
QO124M100 ..... 1-6
QO124M125 ..... 1-6
QO124M125RB ..... 1-7
QO124M150 ..... 1-6
QO124M200 ..... 1-6
QO124M200WG125 ..... 1-11
QO13040L200G ..... 1-5
QO13040L200GC ..... 1-10
QO13040L200GRB ..... 1-7
QO13040L200WG ..... 1-11
QO13040M200 ..... 1-6
QO13040M200C ..... 1-10
QO13040M200GRB ..... 1-7
QO130L150G ..... 1-5
QO130L150GRB ..... 1-7
QO130L150TC ..... 1-10
QO130L200G ..... 1-5
QO130L200GRB ..... 1-7
QO130M150 ..... 1-6
QO130M150C ..... 1-10
QO130M150RB ..... 1-7
QO130M200 ..... 1-6
QO130M200C ..... 1-10
QO130M200RB ..... 1-7
QO132L125G ..... 1-5
QO132M100 ..... 1-6
QO132M125 ..... 1-6
QO132M125C ..... 1-10
QO132M150 ..... 1-6
QO13842MX150 thru QO13842UX225 ..... 1-9
QO14060L200G ..... 1-5
QO14060L200GRB ..... 1-7
QO14060M200 ..... 1-6
QO14060M200RB ..... 1-7
QO140L200G ..... 1-5
QO140L200GRB ..... 1-7
QO140M200 ..... 1-6
QO140M200C ..... 1-10
QO140M200RB ..... 1-7
QO140M225 ..... 1-6
QO14252L200G ..... 1-5
QO14252L200GRB ..... 1-7
QO14252M200 ..... 1-6
QO14252M200RB ..... 1-7
QO142L225G ..... 1-5
QO142L225GRB ..... 1-7
QO142M200 ..... 1-6
QO142M200RB ..... 1-7
QO142M225 ..... 1-6
QO142M225RB ..... 1-7
QO148L125GRB ..... 1-7
QO1515 thru QO1520 ..... 1-2, 7-10
QO1612M125FTRB ..... 1-7
QO1816M150FTRB thru QO1816M200FTRB ..... 1-7
QO1DM10020TRBR thru QO1DM10050TRBR ..... 1-9
QO1HPL ..... 1-4, 7-12
QO1HT thru QO1PL ..... 1-4, 7-12, 9-8
QO1PAF ..... 1-4, 7-12, 9-9
QO1SE ..... 1-12
QO200 thru QO290 ..... 1-2, 7-11
QO2000 thru QO2200 ..... 1-2, 1-22, 7-10
QO2000NRB thru QO200TRNM ..... 1-25, 3-2
QO2100BNRB ..... 1-25
QO2100VH thru QO2200VH ..... 1-2, 1-22, 7-10
QO210SWN thru QO250SWN ..... 1-3, 7-11
QO2125BNRB ..... 1-25
QO2125SL ..... 1-4, 7-12
QO215EPD thru QO260EPD ..... 1-3, 7-11
QO215GFI thru QO260GFI ..... 1-3, 7-11
QO215H thru QO290H ..... 1-2, 7-10
QO215HID thru QO250HID ..... 1-3, 7-11
QO215VH thru QO290VH ..... 1-2, 7-10
QO2175SB ..... 1-12, 6-8
QO2225SL ..... 1-4, 7-12
QO230PLILC ..... 29-7
QO240PLILC ..... 29-7
QO24L50TTS ..... 1-10
QO24L60NRNM ..... 1-7
QO24L70RB ..... 1-7
QO24L70TS ..... 1-10
QO250PLILC ..... 29-7
QO260NATR thru QO260NATS ..... 1-25, 3-2
QO260PLILC ..... 29-7
QO2DTI thru QO2DTIM ..... 1-4, 1-9, 7-12



© 2012 Schneider Electric
All Rights Reserved

QO2L30S ..... 1-5
QO2L30TTS ..... 1-10
QO2L40RB ..... 1-7
QO2PAF ..... 1-4, 7-12, 9-9
QO2TR ..... 1-25
QO300 ..... 1-2, 7-11
QO3000 thru QO3100 ..... 1-2, 7-10
QO3100BNRB ..... 1-25
QO3100VH ..... 1-2, 7-10
QO310SWN thru QO350SWN ..... 1-3, 7-11
QO3125SL ..... 1-4, 7-12
QO312L125G thru QO312L125GRB ..... 1-8
QO315EPD thru QO350EPD ..... 1-3, 7-11, 9-10
QO315EPE thru QO350EPE ..... 1-3, 7-11, 9-10
QO315GFI thru QO350GFI ..... 1-3, 7-11, 9-10
QO315HID thru QO330HID ..... 1-3, 7-11
QO315VH thru QO390VH ..... 1-2, 7-10
QO318L200G thru QO318L200GRB ..... 1-8
QO320L125G thru QO320L125GRB ..... 1-8
QO324L125G ..... 1-8
QO327M100 thru QO327M100RB ..... 1-8
QO330L200G thru QO330MQ200RB ..... 1-8
QO342L225G thru QO342MQ225RB ..... 1-8
QO3HT ..... 7-12, 9-8, 9-9
QO403L60NRB ..... 1-8
QO48M30DSGP thru QO48M60DSGP ..... 1-9
QO60SL ..... 1-4, 7-12
QO612L100RB thru QO816L100RBCU ..... 1-7
QO70AN ..... 9-9, 9-14
QOB110 thru QOB3100 ..... 9-10
QOB110K thru QOB130K ..... 9-10
QOB115CAFI thru QOB120CAFI ..... 9-10
QOB115EPD thru QOB260EPD ..... 9-10
QOB115GFI thru QOB260GFI ..... 9-10
QOB115HID thru QOB330HID ..... 9-10
QOB115HM thru QOB120HM ..... 9-10
QOB115VH thru QOB3150VH ..... 9-10
QOB115VHCAFI thru QOB120VHCAFI ..... 9-10
QOB115VHGFI thru QOB130VHGFI ..... 9-10
QOB210SWN thru QOB350SWN ..... 9-10
QOB2125SL ..... 9-9
QOB215H thru QOB2100H ..... 9-10
QOB3125SL ..... 9-9
QOC12UF thru QOC12US ..... 1-6
QOC16UF thru QOC16US ..... 1-5, 1-8
QOC20U100F thru QOC20U100S ..... 1-6
QOC20UFWG thru QOC30UFWG ..... 1-11
QOC24UF thru QOC32UF ..... 1-5, 1-6, 1-8
QOC342MQF thru QOC342MQS ..... 1-8
QOC38MXUF ..... 1-9
QOC40UF thru QOC42US ..... 1-5, 1-6
QOCGK2 thru QOCRBGK1 ..... 1-9, 1-12
QOE250GFINM ..... 1-25
QOFP ..... 1-13, 1-22, 2-15
QOGFI1PAF thru QOGFI2PAF ..... 1-4, 7-12, 9-9
QOGL20 ..... 1-10
QOH2100 thru QOH2125 ..... 1-2, 2-6, 7-10
QOH240 thru QOH290 ..... 1-2, 2-6, 7-10
QOHPL ..... 1-4, 7-12
QOL125 thru QOL225 ..... 1-6, 1-16
QOL3125 thru QOL3225 ..... 1-8
QOM100VH thru QOM125VH ..... 1-5, 1-16, 1-22
QOM1FP ..... 1-13
QOM1PA ..... 1-13
QOM2100MM thru QOM2200MVH ..... 2-6
QOM2100VH thru QOM2225VH ..... 1-5, 1-16, 1-22
QOM2FP ..... 1-13
QOM2PA ..... 1-13
QOM50VH thru QOM90VH ..... 1-5, 1-16, 1-22
QOMB1 thru QOMB3 ..... 7-13
QON11224L125I thru QON816L100 ..... 7-13
QONQ30LS400 thru QONQ42LS400 ..... 1-5
QONQ42MS300 thru QONQ42MS400 ..... 1-6
QORBGK2 ..... 1-9, 1-12
QOSAMK ..... 1-12, 6-7
QOT1515 thru QOT2020 ..... 1-2, 7-10
QOTHPA thru QOTHT ..... 1-4, 7-12
QOU110 thru QOU3100 ..... 7-14
QOU115HM thru QOU120HM ..... 7-14
QOU115VH thru QOU330VH ..... 7-14
QOU14100BAFB thru QOU14100JBAF ..... 7-15
QOU16150BAFB thru QOU16150JBAF ..... 7-15
QOU1CMSB thru QOU1PL ..... 7-15
QOU200 thru QOU30001 ..... 7-14
QOU215H thru QOU230H ..... 7-14
QOU2DTILA thru QOU2PAFLA ..... 7-15
QOUCP2 thru QOUCP6B ..... 7-15
QOUEC thru QOUECB ..... 7-15
QOUFR thru QOUFRB ..... 7-15
QOUHFSC1 thru QOUHFSC1B ..... 7-15
QOULFSC1 thru QOULFSC1B ..... 7-15
QOUMF1 thru QOUMFS1B ..... 7-15
QOURT thru QOURTB ..... 7-15
QOVP1 thru QOVP10 ..... 1-11
QU12L400CL thru QU12L400SL ..... 1-21
QU816D400CK thru QU816D400SL ..... 1-21
QUM400CK thru QUM400CL ..... 1-21
QYU110 thru QYU130 ..... 7-14
R()A36100CU31A thru R()A36120CU74AE1 ..... 9-30
R()F36060(C)U31A thru R()F36300(C)U74AE1 ..... 7-28
R400L ..... 1-22
R417A thru R826A ..... 7-51
RC12L200S ..... 1-19
RC1624M100S thru RC1624M125S ..... 1-20
RC200S ..... 1-19
RC2040M125CH thru RC2040M200SH ..... 1-20
RC2M200S thru RC2M200SL ..... 1-19
RC3040M150SL thru RC3040M200SL ..... 1-20
RC816D200CH thru RC816F150SL ..... 1-19
RC816F150SLS thru RC816F150SS ..... 1-24
RC816F200C thru RC816F200SH ..... 1-19
RC816F200SHS ..... 1-24
RC816F200SL ..... 1-19
RC816F200SLS thru RC816F200SS ..... 1-24
RC8L125S ..... 1-19
RCGK2 ..... 1-22
RCM200SL ..... 1-19
RCP0624 thru RCP3024 ..... 13-5
RDB41 thru RDB126 ..... 13-3
RE11LAMW thru RE11RMXMU ..... 23-26
RE48ACV12MW thru RE48ATM12MW ..... 23-26
RE7CL11BU thru RE7TP13BU ..... 23-27, 23-28
RE8CL11BUTQ thru RE9TA51MW ..... 23-29
REC06 thru REC30 ..... 13-6
REG24PSOC thru REG96PUNL1RHU ..... 23-31
REHU393IP thru REHU494IP ..... 3-22
REXL2TMB7 thru REXL4TMP7 ..... 23-26
RFK03 thru RFK10 ..... 3-18, 8-16, 16-115
RFK03H thru RFK06H ..... 3-2, 3-10
RG50 ..... 13-6
RHV062100009 thru RHV302100033 ..... 13-6
RKF26000S12 thru RKF36000S30 ..... 7-34
RL00202 thru RL02512 ..... 26-9
RL3TB thru RL3TB4 ..... 7-44
RLF26000S12 thru RLF36000S30 ..... 7-34
RLTB thru RLTB4 ..... 7-44
RM17TA00 thru RM17TU00 ..... 23-33
RM17UAS14 thru RM17UBE16 ..... 23-34
RM35ATL0MW thru RM35ATW5MW ..... 23-36
RM35JA32MW ..... 23-32
RM35LM33MW thru RM35LV14MW ..... 23-35
RM35S0MW ..... 23-36
RM35TF30 ..... 23-33
RM35TM50MW thru RM35TM250MW ..... 23-33
RM35UA11MW thru RM35UB3N30 ..... 23-34
RM79696006 thru RM79696044 ..... 23-35
RMC1000G3120 thru RMC500G3277 ..... 5-25
RMCA61BD thru RMTK90BD ..... 23-38
RNW8782801 thru RNW8785001 ..... 29-9
RPF2AB7 thru RPF2BP7 ..... 23-9
RPM11B7 thru RPM43P7 ..... 23-6
RPZ1DA thru RPZ4FA ..... 23-7
RPZF1 thru RPZF4 ..... 23-6, 23-7
RPZR235 ..... 23-7





© 2012 Schneider Electric
All Rights Reserved

RRC06 thru RRC30 ..... 13-6
RRV182100012LR thru RRV182100012RR ..... 13-6
RSB06 thru RSB18 ..... 13-6
RSB1A120B7 thru RSB1A160U7 ..... 23-3
RSB24 ..... 13-6
RSB2A080B7 thru RSB2A080U7 ..... 23-3
RSB30 ..... 13-6
RSC16G3120 thru RSC16G3277 ..... 5-24
RSG4 ..... 2-15
RSL1AB4BD thru RSL1AB4ND ..... 23-2
RSL1PRBU thru RSL1PRPU ..... 23-2
RSL1PVBU thru RSL1PVPU ..... 23-2
RSLZ2 thru RSLZ5 ..... 23-2
RSLZRA1 thru RSLZRA4 ..... 23-2
RSLZVA1 thru RSLZVA4 ..... 23-2
RSV062100120 thru RSV302100120 ..... 13-5
RSV122ET thru RSV182ST ..... 13-6
RSZE1S35M thru RSZE1S48M ..... 23-3
RSZL300 thru RSZR215 ..... 23-3
RTV062100011 thru RTV302100035 ..... 13-6
RU3040D400CK thru RU3040D400FL ..... 1-21
RUC60 ..... 13-6
RUMC2 ..... 23-9
RUMC2AB1B7 thru RUMF3AB3P7 ..... 23-8
RUW101MW thru RUW242P7 ..... 23-7, 23-9
RUZ420 thru RUZSF3M ..... 23-9
RVE06 thru RVE30 ..... 13-6
RWT06ACP thru RWT18XES ..... 13-4, 13-5
RWTBG100 thru RWTRC ..... 13-5
RXM021BN thru RXM4GB3P7 ..... 23-4, 23-7
RXV062100012 thru RXV302100036 ..... 13-6
RXZ400 thru RXZS2 ..... 23-5, 23-7
RZ1011 thru RZ535 ..... 7-51
RZD60 ..... 13-6
RZM021BN thru RZM041FU7 ..... 23-3
S131A thru S174A ..... 7-47
S29272 thru S29287 ..... 7-45
S29305 thru S32478 ..... 7-39, 7-41
S32514 thru S32534 ..... 7-45
S32558 thru S33038 ..... 7-40, 7-41
S33091 thru S33095 ..... 7-48
S33098 thru S33099 ..... 7-45
S33100 thru S33101 ..... 7-48
S33166 thru S33171 ..... 7-45
S33575 thru S33595 ..... 7-48
S33646 ..... 7-44
S33658 thru S33718 ..... 7-39, 7-41
S33763 thru S33859 ..... 7-45
S33801 ..... 7-39
S33857 ..... 7-41
S33875 ..... 7-40
S33890 ..... 7-41
S33928 ..... 7-44
S33929 thru S33997 ..... 7-41
S33930 thru S33931 ..... 9-23
S33932 thru S33935 ..... 7-41
S33937 thru S33984 ..... 7-48
S33998 ..... 7-44
S34036 ..... 7-48
S36965 thru S36967 ..... 7-44
S37420 ..... 7-40
S37422 ..... 7-41
S37423 thru S37424 ..... 7-42
S37425 thru S37430 ..... 7-44
S37432 thru S37440 ..... 7-41
S37442 thru S37443 ..... 7-45
S37444 thru S37450 ..... 7-44
S41940 thru S432575 ..... 7-40, 7-41, 7-48
S432639 thru S432652 ..... 7-40
S434201 thru S434508 ..... 7-49
S44936 thru S46998 ..... 7-41
S47052 thru S47067 ..... 7-48
S47100 thru S47105 ..... 7-50
S47390 thru S47398 ..... 7-40
S48182 thru S48981 ..... 7-48
S48899 thru S48933 ..... 7-45
S6200A0A0B0A0B0R thru S6200T1A0B0A0B0R ..... 4-8
S64201 thru S64273 ..... 7-49
S7300A0B0B0A0A0A thru S7350A0B0B0E0A0A ..... 4-8
S7550A0C0B6A0A0A thru S8650C1C0E6A0B0A ..... 4-7
SA7PL thru SA26PSR ..... 11-5
SAIF200 ..... 4-11
SAM ..... 4-11
SASFBH100L thru SASFBJ225R ..... 11-5
SB124IR thru SB348WS ..... 11-4
SBA15D13MS thru SBA30D15MS ..... 11-5
SBAD800 thru SBSAD800R ..... 11-5
SC12L200F thru SC12L200S ..... 1-19
SC1624M100F thru SC1624M125S ..... 1-20
SC200F ..... 1-22
SC2040M125F thru SC40M200S ..... 1-20
SC816D150C thru SC816F200S ..... 1-19
SC8L125F thru SC8L125S ..... 1-19
SCBRLLOCK ..... 1-22
SD12781 ..... 3-9
SDAG26 ..... 1-10
SDGT30020 thru SDGT300C300C ..... 1-10
SDSA1175 ..... 1-12, 6-7, 16-64
SDSA1175T ..... 6-7
SDSA2V ..... 6-8
SDSA3650 ..... 1-12, 6-6, 16-64
SDSA3650D ..... 6-6
SDSA4P ..... 6-8
SDSB1175C thru SDSB1175RB ..... 6-8
SERP16HS thru SERPWSMB ..... 5-29
SF124FR thru SF348WS ..... 11-4
SFCF12 ..... 7-45
SFD212CG2Y thru SFD212SG4Y ..... 26-16
SK9795 thru SK9948BW ..... 7-13
SKR16H2 thru SKR16H13 ..... 19-78
SL100 thru SL800 ..... 9-23
SLC12MSG thru SLC36SC ..... 5-18
SLC4CSF8 ..... 5-18, 5-25
SLC5000CT2FSS thru SLC5000CTL2SS ..... 5-8
SLC5000SDHG104 thru SLC5000SDSPU4 ..... 5-19
SLC5030URC ..... 5-11
SLC5031PE thru SLC5031PEWP ..... 5-12
SLC5031RDTSL ..... 5-11
SLC5050CT2F thru SLC5050CTL2 ..... 5-8
SLC5050IS() thru SLC5054NRP() ..... 5-4, 5-7
SLC5055DLBK thru SLC5055DLWE ..... 5-6
SLC5058NLCM thru SLC5058NRP() ..... 5-4
SLC5070THBBK thru SLC5070THPWE ..... 5-11
SLC5080CTCF thru SLC5080CTL2 ..... 5-8
SLC5080LC8 thru SLC5084NLM() ..... 5-5, 5-7
SLC5084TX ..... 5-11
SLC5085DLBK thru SLC5085DLWE ..... 5-6
SLC5086F30 thru SLC5086NLFSS ..... 5-5
SLC5088TX ..... 5-11
SLC5100BCS thru SLC5100TUS ..... 5-17
SLC5101TD20 thru SLC5500DMX ..... 5-13, 5-15
SLC5500HPS thru SLC5500TPS ..... 5-17
SLC5502DAL thru SLC5512TRVFP ..... 5-13, 5-15
SLC560011 thru SLC5608842E ..... 5-10
SLC5750WPL thru SLC5753PEIRL ..... 5-12
SLC5850BP() thru SLC5880BPPG() ..... 5-6
SLC60MFG thru SLC60MSG ..... 5-18
SLC8M ..... 5-18
SLCBB5000CTCL2 thru SLCBS5000CTCL2 ..... 5-8
SLCE5504TGI ..... 5-13
SLCLE5504AUX ..... 5-13
SLCLE5504HAMP thru SLCLE5504TAMP ..... 5-15
SLCU5100TB ..... 5-15
SLCZ00004DT thru SLCZ082000TP ..... 5-18
SLSBCB thru SLSBCW ..... 5-20
SLSCDS2000 thru SLSCUS800 ..... 5-21
SLSDWD1277UB thru SLSDWS1277UW ..... 5-20
SLSEDC120 thru SLSERC1277 ..... 5-22
SLSFPS1347 thru SLSFPS1480 ..... 5-22
SLSPCW001 ..... 5-22
SLSPIP210 thru SLSPIPBRACKET ..... 5-22
SLSPP1277 thru SLSPSP102 ..... 5-21
SLSPWD1277UB thru SLSPWD1277UW ..... 5-20
SLSPWS120VI thru SLSPWS1277UW ..... 5-20



© 2012 Schneider Electric
All Rights Reserved

SLSSP24 ..... 5-21
SLSSP24347 ..... 5-21
SLSUWD1277UB thru SLSUWS1277UW ..... 5-20
SLSWDS1500 ..... 5-21
SLSWP2DBB thru SLSWP2DTW ..... 5-20
SLSWPS1500 ..... 5-21
SLSWUS1500 ..... 5-21
SM900A100000 thru SM956A890000 ..... 20-12
SMD thru SMDOPN ..... 4-15, 4-16
SN03 thru SN03C ..... 3-11
SN0310 thru SN0310C ..... 3-18
SN0610 thru SN0610C ..... 3-11
SN1000MA ..... 7-58
SN100FA ..... 7-58
SN1200 ..... 7-58
SN12125 thru SN12200 ..... 7-13
SN20 thru SN42 ..... 7-13
SN20A thru SN20C ..... 3-11
SN225KA ..... 7-58
SN400LA ..... 7-58
SNC400LX thru SNC800LX ..... 7-58
SO1020M100S thru SO2040M200S ..... 1-20
SPL28G thru SPL29G ..... 16-109
SR2A101BD thru SR2B202BD ..... 23-39
SR2CBL01 thru SR2CBL06 ..... 23-40
SR2COM01 ..... 23-40
SR2D101BD thru SR2D101FU ..... 23-39
SR2E121BD thru SR2E201FU ..... 23-39
SR2MEM01 thru SR2MOD02 ..... 23-40
SR2SFT01 thru SR2SFT02 ..... 23-40
SR2USB01 ..... 23-40
SR3B101B thru SR3B26BD ..... 23-40
SR3MBU01BD ..... 23-40
SR3XT101B thru SR3XT61JD ..... 23-40
SRCTV12 ..... 7-45
SS03 thru SS20 ..... 3-10
SS0306SK ..... 3-10, 8-16
SS10SK ..... 3-10, 8-16
SS212AB thru SS212AC ..... 11-5
SS2PL ..... 11-5
SS312 ..... 11-5
SSRAH1 thru SSRAT1 ..... 23-25
SSRDCDS10A1 thru SSRPP8S90A3 ..... 23-25
STRM ..... 4-11
STRV00121 thru STRV00211 ..... 7-49
STRV00910 thru STRV00911 ..... 7-48
STS3000 ..... 4-11
SU2040M200C ..... 1-20
SU2X6TRIM ..... 1-22
SU3040D300CB thru SU3040D400FN ..... 1-21
SU3040M200R thru SU3040M225R ..... 1-20
SU816D150C thru SU816D200C ..... 1-19
SVW3A8114 ..... 7-48
T2A thru T9A ..... 7-51
T327N thru T327NR ..... 3-2, 3-3
TCSEAV0100 ..... 4-19
TCSMCNAM3M002P ..... 16-86, 26-6, 26-14
TIKFD ..... 9-15
TMSCE ..... 4-13
TRV00128 thru TRV00917 ..... 7-48, 7-49
TSXCANCA50 thru TSXCANCA300 ..... 16-87
TSXCANKCDF90T thru TSXCANKCDF180T ..... 16-87
TSXCUSB485 ..... 16-86
TSXETG100 ..... 26-17
TSXPBSCA100 thru TSXPBSCA400 ..... 16-87
TVS120XR50S thru TVS120XR80S ..... 6-8
TVS12FMK thru TVS20FMK ..... 6-2, 6-3
TVS1EBA12A() thru TVS1EBA24S() ..... 6-3
TVS1EMA12A() thru TVS1EMA48S() ..... 6-2
TVS1HWA10X thru TVS1HWA80X ..... 6-7
TVS1IMA12O() thru TVS1IMA24O() ..... 6-6
TVS2EBA12A() thru TVS2EBA24S() ..... 6-3
TVS2EMA12A() thru TVS2EMA48S() ..... 6-2,
TVS2HWA10X thru TVS2HWA80X ..... 6-7
TVS2IMA12O() thru TVS2IMA24O() ..... 6-6
TVS2MEMA12A() thru TVS2MEMA36S() ..... 6-3
TVS3EBA12A() thru TVS3EBA24S() ..... 6-3
TVS3EMA12A() thru TVS3EMA48A() ..... 6-2
TVS3HWA10X thru TVS3HWA80X ..... 6-7
TVS3IMA12O() thru TVS3IMA24O() ..... 6-6
TVS4EBA12A() thru TVS4EBA24S() ..... 6-3
TVS4EMA12A() thru TVS4EMA48S() ..... 6-2
TVS4HEMA12A() thru TVS4HEMA48S() ..... 6-2
TVS4HIMA12O() thru TVS4HIMA24O() ..... 6-6
TVS4HWA10X thru TVS4HWA80X ..... 6-7
TVS4IMA12O() thru TVS4IMA24O() ..... 6-6
TVS4MEMA12A() thru TVS4MEMA36S() ..... 6-3
TVS5EMA12A() thru TVS5EMA48S() ..... 6-2
TVS5HWA10X thru TVS5HWA80X ..... 6-7
TVS5IMA12O() thru TVS5IMA24O() ..... 6-6
TVS6EMA12A() thru TVS6EMA48S() ..... 6-2
TVS6HWA10X thru TVS6HWA80X ..... 6-7
TVS6IMA12O() thru TVS6IMA24O() ..... 6-6
TVS8EBA12A() thru TVS8EBA24S() ..... 6-3
TVS8EMA12A() thru TVS8EMA48S() ..... 6-2
TVS8HEMA12A() thru TVS8HEMA32S() ..... 6-2
TVS8HIMA12O() thru TVS8HIMA12O() ..... 6-6
TVS8HWA10X thru TVS8HWA80X ..... 6-7
TVS8IMA12O() thru TVS8IMA24O() ..... 6-6
TVS9EMA12A() thru TVS9EMA32S() ..... 6-2
TVS9HWA10X thru TVS9HWA80X ..... 6-7
TVS9IMA12O() thru TVS9IMA18O() ..... 6-6
TVSHWAFMK ..... 6-7
TVSXRFMK ..... 6-7
U92197CCCPL ..... 2-2
UAK7T ..... 2-2
UATRS101B thru UATRS213B ..... 2-2
UBHMRS212B ..... 2-2
UFTL ..... 9-9
UGHTRS101L thru UGHTRS111C ..... 2-2
UHTRS101B thru UHTRS223A ..... 2-2
UK7T ..... 2-2
URS101BCPL thru URS212ADQ ..... 2-2
URTRS101B thru URTRS213B ..... 2-2
US11220018 thru US36020018 ..... 7-13
USMBLK thru USMBTC ..... 7-13
UT2R1121B thru UT6R2392TU ..... 2-3
UTH4203T thru UTH7300T ..... 2-2
UTRS101B thru UTRS213B ..... 2-2
UTZRS101A ..... 2-2
V0 thru V6 ..... 8-5
VBD0 thru VBD2 ..... 8-4
VBDN12 thru VBDN20 ..... 8-3
VBF0 thru VBF6 ..... 8-4
VCCD0 thru VCCDN20 ..... 8-4
VCCDN12 thru VCCDN20 ..... 8-3
VCCF0 thru VCCF6 ..... 8-4
VCD0 thru VCD2 ..... 8-4
VCDN12 thru VCDN20 ..... 8-3
VCEL02114S1 thru VCEL07512H1 ..... 14-11
VCELSK1 thru VCELSK4 ..... 14-11
VCF0 thru VCF6 ..... 8-4
VCFN12GE thru VCFN20GE ..... 8-3
VM18CD0000 thru VM1VI3000Q ..... 20-11
VN12 thru VN20 ..... 8-3
VVD0 thru VVD4 ..... 8-4
VVE0 thru VVE4 ..... 8-4
VW3A1101 thru VW3A1103 ..... 26-6, 26-14
VW3A1104R10 thru VW3A1104R100 ..... 7-51, 16-87, 26-6
VW3A1105 ..... 26-6, 26-14
VW3A2104 ..... 26-16
VW3A21212 ..... 26-6
VW3A3101 ..... 26-14
VW3A31101 thru VW3A31209 ..... 26-8
VW3A31401 thru VW3A31409 ..... 26-9
VW3A31811 thru VW3A31852 ..... 26-6, 26-8
VW3A3201 thru VW3A3521S0 ..... 26-14
VW3A66711 thru VW3A66715 ..... 26-8
VW3A8104 ..... 18-31, 26-8, 26-14
VW3A8105 ..... 26-17
VW3A8106 ..... 16-86, 26-6, 26-16
VW3A8111 ..... 18-31
VW3A8114 ..... 26-6, 26-8, 26-14
VW3A8120 ..... 26-8, 26-14





© 2012 Schneider Electric
All Rights Reserved

VW3A8121 ..... 26-6, 26-8
VW3A8306R ..... 16-87
VW3A8306R03 thru VW3A8306R30 ..... 16-87, 26-17
VW3A8306RC ..... 26-17
VW3A8306TF03 thru VW3A8306TF10 ..... 16-87, 26-17
VW3A9201 thru VW3A9217 ..... 26-15
VW3A9201PF thru VW3A9292PF ..... 26-15
VW3A9404 thru VW3A9407 ..... 26-9
VW3A9501 thru VW3A9515 ..... 26-15
VW3A9804 thru VW3A9805 ..... 26-8
VW3CANA71 thru VW3CANKCDF180T ..... 26-14
VW3G4104 ..... 18-32
VW3G48101 ..... 26-17
VZ0 thru VZ9 ..... 8-6
VZ01 thru VZ02 ..... 8-6
VZ10 thru VZ18 ..... 8-6
VZ20 thru VZ31 ..... 8-6
VZN05 thru VZN30 ..... 8-3
W808780210111 thru W808780220111 ..... 26-17
WHC5918 ..... 5-8
WMB361362 thru WMB363364 ..... 14-10, 14-11
WS363 thru WS384 ..... 14-10, 14-11
XACA009 ..... 19-120
XACA02H7 thru XACA12H7 ..... 19-118
XACA201 thru XACA207 ..... 19-118
XACA9411 thru XACA9419 ..... 19-119
XACA971 thru XACA983 ..... 19-120
XACB961 ..... 19-120
XACD21A0101 thru XACD21A1241 ..... 19-118
XACS101 thru XACS105 ..... 19-119
XALD01H7 thru XALD05H7 ..... 19-101
XALD101H29H7 thru XALD341H29H7 ..... 19-100
XALK01H7 ..... 19-101
XALK174H7 thru XALK194H7 ..... 19-100
XALZ09 ..... 19-101
XAPA1100 thru XAPA4100 ..... 19-101
XAPE302 thru XAPE905 ..... 19-102
XAPG19100 thru XAPG59505 ..... 19-102
XAPZ100 thru XAPZ316 ..... 19-101
XB4BA21 thru XB4BA65 ..... 19-23
XB4BA3311 thru XB4BA4322 ..... 19-23
XB4BA711237 thru XB4BA731327 ..... 19-23
XB4BA821 thru XB4BA962 ..... 19-30
XB4BC21 ..... 19-23
XB4BD21 thru XB4BD53 ..... 19-24
XB4BG03 thru XB4BG61 ..... 19-24
XB4BJ21 thru XB4BJ53 ..... 19-24
XB4BL42 thru XB4BP61 ..... 19-23
XB4BL73415 ..... 19-23
XB4BS142 thru XB4BS542 ..... 19-24
XB4BS84441 ..... 19-24
XB4BS8445 thru XB4BS9445 ..... 19-24
XB4BT42 ..... 19-8, 19-24
XB4BT845 ..... 19-24
XB4BV31 thru XB4BV65 ..... 19-25
XB4BVB1 thru XB4BVB6 ..... 19-25
XB4BVG1 thru XB4BVG6 ..... 19-25
XB4BW11B5 thru XB4BW36G5 ..... 19-25
XB4BW73731B5 thru XB4BW73731M5 ..... 19-23
XB5AA21 thru XB5AA65 ..... 19-42
XB5AA3311 thru XB5AA4322 ..... 19-42
XB5AA711237 thru XB5AA731327 ..... 19-42
XB5AA831 thru XB5AA862 ..... 19-50
XB5AA84101 thru XB5AA86202 ..... 19-50
XB5AC21 ..... 19-42
XB5AD21 thru XB5AD53 ..... 19-43
XB5AG03 thru XB5AG61 ..... 19-43
XB5AJ21 thru XB5AJ53 ..... 19-43
XB5AL42 ..... 19-8, 19-42
XB5AL45 ..... 19-42
XB5AL73415 ..... 19-42
XB5AL84101 thru XB5AL84201 ..... 19-50
XB5AP21 thru XB5AP61 ..... 19-42
XB5AS142 thru XB5AS542 ..... 19-43
XB5AS8444 thru XB5AS9445 ..... 19-43
XB5AT42 ..... 19-8, 19-43
XB5AT845 ..... 19-43
XB5AV31 thru XB5AV65 ..... 19-44
XB5AVB1 thru XB5AVB6 ..... 19-44
XB5AVG1 thru XB5AVG6 ..... 19-44
XB5AW11B5 thru XB5AW36G5 ..... 19-44
XB5AW73731B5 thru XB5AW73731M5 ..... 19-42
XB5DSB thru XB5KSM ..... 19-50
XB6AA11B thru XB6AA65B ..... 19-13
XB6AD221B thru XB6AD235B ..... 19-14
XB6AE1B1B thru XB6AF6G5B ..... 19-12
XB6AGB5B thru XB6AGH5B ..... 19-14
XB6AS8342B thru XB6AS9345B ..... 19-13
XB6AV1BB thru XB6AV6GB ..... 19-13
XB6AW1B1B thru XB6AW6G5B ..... 19-12
XB6CA11B thru XB6CA65B ..... 19-13
XB6CD221B thru XB6CD235B ..... 19-14
XB6CE1B1B thru XB6CF6G5B ..... 19-12
XB6CGB5B thru XB6CGH5B ..... 19-14
XB6CV1BB thru XB6CV6GB ..... 19-13
XB6CW1B1B thru XB6CW6G5B ..... 19-12
XB6DA11B thru XB6DA65B ..... 19-13
XB6DD221B thru XB6DD235B ..... 19-14
XB6DE1B1B thru XB6DF6G5B ..... 19-12
XB6DGB5B thru XB6DGH5B ..... 19-14
XB6DV1BB thru XB6DV6GB ..... 19-13
XB6DW1B1B thru XB6DW6G5B ..... 19-12
XBFX13 ..... 19-40, 19-61
XBTN410 ..... 16-85
XBTZ938 ..... 16-87
XBY2U ..... 19-39, 19-60
XCDR2110N12 thru XCDR2527N12 ..... 21-15
XCKD2106N12 thru XCKD25H0N12 ..... 21-14
XCKJ10511H7 thru XCKJ20541H7 ..... 21-26
XCKL10011H7 thru XCKL50041H7 ..... 21-22
XCKL102H7 thru XCKL510H7 ..... 21-22
XCKN2102P20 thru XCKN2949P20 ..... 21-18
XCKP2106N12 thru XCKP25H0N12 ..... 21-14
XCKS101 thru XCKS559 ..... 21-19
XCKT2102N12 thru XCKT2118N12 ..... 21-15
XCMD2102L1 thru XCMD25F2L1 ..... 21-14
XCMN2110L1 ..... 21-14
XCNR2102P20 thru XCNR2927P20 ..... 21-18
XCPR2110N12 thru XCPR2527N12 ..... 21-15
XD4PA12 thru XD4PA24 ..... 19-30
XD5PA12 thru XD5PA24 ..... 19-50
XE2NP2151 thru XE2SP2158 ..... 21-29
XENG1191 thru XENG3791 ..... 19-119
XENP2151 ..... 21-23
XENT1192 ..... 19-119
XESP2021 thru XESP2031 ..... 21-29
XESP2151 thru XESP2158 ..... 21-23
XMLA001S2S13 thru XMLDM02V1S13 ..... 22-11
XMLF010D2026 thru XMLFM01D2026 ..... 22-8
XMLG001D23 thru XMLGM01D73 ..... 22-4
XMLGZ001 ..... 22-9
XMLK006B2C21 thru XMLK300P2P73 ..... 22-6
XMLZL001 thru XMLZL011 ..... 22-9, 22-11
XS108B3NAL2 thru XS130B3PBM12 ..... 20-8
XS506B1NAL2 thru XS530B1PBM12 ..... 20-7
XS608B1NAL2 thru XS608B1PBM12 ..... 20-6
XS612B1MAL2 thru XS612B1MBU20 ..... 20-9
XS612B1NAL2 thru XS612B1PBM12 ..... 20-6
XS618B1MAL01B thru XS618B1MBL01G ..... 20-9
XS618B1MAL2 thru XS618B1MBL2 ..... 20-9
XS618B1NAL01B thru XS630B1PBM12 ..... 20-6
XS7C40DA210H7 thru XS8C40PC449H7 ..... 20-5
XSZB108 thru XSZB165 ..... 20-6, 20-9
XSZCD101Y thru XSZCD103Y ..... 22-9
XT112S1NAL2 thru XT130B1PCM12 ..... 20-9
XU2M18MA230 thru XU9M18MB230K ..... 20-2
XUB1APANL2 thru XUB9BPBNM12 ..... 20-2
XUK1APANL2 thru XUM9APCNM8 ..... 20-4
XUVA0505PANM8 thru XUVA1515PANM8 ..... 20-3
XUVR0303PANL2 thru XUVR1218PBNM8 ..... 20-3
XUVU06M3KCNL2 thru XUVU06M3KCNM8 ..... 20-10
XUX0AKSAM12T thru XUX0ARCTT16T ..... 20-4
XUX1APANM12 thru XUX1ARCNT16 ..... 20-4
XUX2APANM12R thru XUX2ARCNT16R ..... 20-4



© 2012 Schneider Electric
All Rights Reserved

XUX5APANM12 thru XUX9APBNT16 ..... 20-4
XUX9ARCNT16 ..... 20-4
XUZA118 thru XUZA218 ..... 20-2, 20-10
XUZC24 thru XUZC80 ..... 20-2, 20-10
XVBC00 thru XVBC040 ..... 19-112
XVBC12 thru XVBC23 ..... 19-112, 19-113
XVBC33 thru XVBC38 ..... 19-111
XVBC4B3 thru XVBC4B8 ..... 19-111
XVBC4M3 thru XVBC4M8 ..... 19-111
XVBC8B3 thru XVBC8B8 ..... 19-111
XVBC8G3 thru XVBC8G8 ..... 19-111
XVBC9B thru XVBC9M ..... 19-111
XVBL33 thru XVBL38 ..... 19-110
XVBL4B3 thru XVBL4B8 ..... 19-110
XVBL4M3 thru XVBL4M8 ..... 19-110
XVBL8B3 thru XVBL8B8 ..... 19-110
XVBL8G3 thru XVBL8G8 ..... 19-110
XVBZ02 thru XVBZ04A ..... 19-112, 19-113
XVC1B1K thru XVC1B5K ..... 19-108
XVC1B1SK thru XVC1B5SK ..... 19-108
XVC1M1K thru XVC1M5K ..... 19-108
XVC1M1SK thru XVC1M5SK ..... 19-108
XVC4B1 thru XVC4B5 ..... 19-108
XVC4B15S thru XVC4B55S ..... 19-108
XVC4B1K thru XVC4B5K ..... 19-108
XVC4M1 thru XVC4M5 ..... 19-108
XVC4M15S thru XVC4M55S ..... 19-108
XVC6B1 thru XVC6B5 ..... 19-109
XVC6B15S thru XVC6B55S ..... 19-109
XVC6B15SK thru XVC6B55SK ..... 19-109
XVC6B1K thru XVC6B5K ..... 19-109
XVC6M1 thru XVC6M5 ..... 19-109
XVC6M15S thru XVC6M55S ..... 19-109
XVC6M15SK thru XVC6M55SK ..... 19-109
XVC6M1K thru XVC6M5K ..... 19-109
XVCZ01 ..... 19-108
XVCZ02 ..... 19-109
XVCZ11 ..... 19-108
XVCZ12 ..... 19-109
XVCZ13 thru XVCZ23 ..... 19-107, 19-108
XVDC02 ..... 19-113
XVEC21 thru XVEC37 ..... 19-113
XVEC21P ..... 19-113
XVEC2B3 thru XVEC2G7 ..... 19-113
XVEC5B3 thru XVEC6G7 ..... 19-113
XVEC9B thru XVEC9M ..... 19-113
XVEZ13 ..... 19-113
XVLA123 thru XVLA335 ..... 19-10
XVLX08 thru XVLX12 ..... 19-10
XVLZ911 thru XVLZ912 ..... 19-10
XVPC02 thru XVPC04W ..... 19-115
XVPC09B thru XVPC09MW ..... 19-114
XVPC12 thru XVPC12W ..... 19-115
XVPC21 thru XVPC6G8W ..... 19-114
XVPCX13 ..... 19-115
XVR08B03 thru XVR13J05 ..... 19-107
XVRZ081 thru XVRZ082 ..... 19-107
XVRZR1 thru XVRZR3 ..... 19-107
XVS14BMW ..... 19-116
XVS72BMBN thru XVS72BMWP ..... 19-116
XX2V3A1NFM12 thru XX9V3A1H3M12 ..... 20-12
XXV18B1NAL2 thru XXV18B1PBM12 ..... 20-10
XXZPB100 ..... 20-10
XXZPM100M12 ..... 20-10
XZCC12FCM40B thru XZCC43FCP40B ..... 22-9
XZCP0566L2 thru XZCP0666L2 ..... 20-6
XZCP0941L2 thru XZCP1041L2 ..... 20-2, 20-10
XZCP1141L10 ..... 21-27, 22-9
XZCP1141L2 ..... 20-2, 21-27, 22-9
XZCP1141L5 ..... 21-27, 22-9
XZCP1241L10 ..... 22-9
XZCP1241L2 thru XZCP1241L5 ..... 20-2, 20-6, 22-9
XZCP1764L2 thru XZCP1764L10 ..... 22-9
XZCP1865L2 thru XZCP1965L2 ..... 20-2, 20-6, 20-10
XZCR1511041C1 thru XZCR1512041C2 ..... 22-9
YA060HD thru YA2500R7 ..... 7-43
YA400L31K3 thru YA600L52K4 ..... 7-43
ZA2BB2 thru ZA2BG5 ..... 19-119
ZA2BC44 ..... 19-119
ZA2BS14 thru ZA2BS74 ..... 19-119
ZA2BS834 thru ZA2BS944 ..... 19-119
ZALVB1 thru ZALVM6 ..... 19-101
ZB2BE101 thru ZB2BE102 ..... 19-119
ZB2BP012 thru ZB2BP016 ..... 19-41, 19-62
ZB2BV006 ..... 19-119
ZB2BY2002 thru ZB2BY4101 ..... 19-120
ZB2SZ3 ..... 19-120
ZB4BA0 thru ZB4BA9 ..... 19-26
ZB4BA131 thru ZB4BA435 ..... 19-26
ZB4BA16 thru ZB4BA68 ..... 19-26, 19-32
ZB4BA71115 thru ZB4BA73135 ..... 19-27
ZB4BA7120 thru ZB4BA7341 ..... 19-27
ZB4BA79 ..... 19-27
ZB4BA791 ..... 19-27
ZB4BC2 thru ZB4BC6 ..... 19-28
ZB4BC24 thru ZB4BC64 ..... 19-28
ZB4BD2 thru ZB4BD8 ..... 19-29
ZB4BD28 thru ZB4BD48 ..... 19-30
ZB4BD912 thru ZB4BD922 ..... 19-30
ZB4BG0 ..... 19-29
ZB4BG01 thru ZB4BG09 ..... 19-29
ZB4BG1 thru ZB4BG9 ..... 19-29
ZB4BH01 thru ZB4BH06 ..... 19-27
ZB4BH013 thru ZB4BH063 ..... 19-32
ZB4BH1 thru ZB4BH6 ..... 19-27
ZB4BH13 thru ZB4BH63 ..... 19-32
ZB4BJ2 thru ZB4BJ8 ..... 19-29
ZB4BK123 thru ZB4BK183 ..... 19-33
ZB4BL1 thru ZB4BL6 ..... 19-26
ZB4BL232 thru ZB4BL435 ..... 19-26
ZB4BL7340 thru ZB4BL7341 ..... 19-27
ZB4BP1 thru ZB4BP6 ..... 19-26
ZB4BP18 thru ZB4BP68 ..... 19-26
ZB4BP1S thru ZB4BP6S ..... 19-26
ZB4BR2 thru ZB4BR6 ..... 19-28
ZB4BS12 thru ZB4BS74 ..... 19-28
ZB4BS5430 thru ZB4BS5550 ..... 19-28
ZB4BS834 thru ZB4BS964 ..... 19-28
ZB4BV01 thru ZB4BV07 ..... 19-31
ZB4BV013 thru ZB4BV063 ..... 19-31
ZB4BV013S thru ZB4BV063S ..... 19-31
ZB4BV01S thru ZB4BV07S ..... 19-31
ZB4BV18B1 thru ZB4BV18G6 ..... 19-31
ZB4BV3 thru ZB4BV9 ..... 19-31
ZB4BV6120 ..... 19-31
ZB4BV624 ..... 19-31
ZB4BVB1 thru ZB4BVB6 ..... 19-31
ZB4BVBG1 thru ZB4BVBG6 ..... 19-31
ZB4BVG1 thru ZB4BVG6 ..... 19-31
ZB4BVJ1 thru ZB4BVJ6 ..... 19-31
ZB4BW031 thru ZB4BW085 ..... 19-34
ZB4BW0B11 thru ZB4BW0B65 ..... 19-34
ZB4BW0G11 thru ZB4BW0G65 ..... 19-34
ZB4BW11 thru ZB4BW37 ..... 19-32
ZB4BW113 thru ZB4BW663 ..... 19-32
ZB4BW73741 ..... 19-33
ZB4BW7A1715 thru ZB4BW7A3741 ..... 19-33
ZB4BW7A9 ..... 19-33
ZB4BW7L3740 ..... 19-33
ZB4BX2 thru ZB4BX4 ..... 19-28
ZB4BZ009 ..... 19-35, 19-36
ZB4BZ011 ..... 19-40
ZB4BZ101 thru ZB4BZ105 ..... 19-34
ZB4BZ1015 thru ZB4BZ1055 ..... 19-36
ZB4BZ106 thru ZB4BZ107 ..... 19-35, 19-56
ZB4BZ141 ..... 19-34
ZB4BZ1905 thru ZB4BZ2105 ..... 19-40, 19-61
ZB4BZ62 thru ZB4BZ64 ..... 19-40, 19-61
ZB4BZ905 ..... 19-40, 19-61
ZB5AA0 thru ZB5AA9 ..... 19-45
ZB5AA131 thru ZB5AA435 ..... 19-46
ZB5AA14 thru ZB5AA68 ..... 19-45, 19-53
ZB5AA71115 thru ZB5AA73135 ..... 19-47
ZB5AA7120 thru ZB5AA7341 ..... 19-47





© 2012 Schneider Electric
All Rights Reserved

ZB5AA79 ..... 19-47
ZB5AA791 ..... 19-47
ZB5AC2 thru ZB5AC64 ..... 19-46
ZB5AD2 thru ZB5AD48 ..... 19-49, 19-50
ZB5AD912 thru ZB5AD922 ..... 19-50
ZB5AG0 thru ZB5AG09 ..... 19-49
ZB5AG1 thru ZB5AG9 ..... 19-49
ZB5AH01 thru ZB5AH06 ..... 19-47
ZB5AH013 thru ZB5AH63 ..... 19-53
ZB5AH1 thru ZB5AH6 ..... 19-47
ZB5AJ2 thru ZB5AJ8 ..... 19-49
ZB5AK123 thru ZB5AK183 ..... 19-54
ZB5AL1 thru ZB5AL6 ..... 19-45
ZB5AL232 thru ZB5AL435 ..... 19-46
ZB5AL7340 thru ZB5AL7341 ..... 19-47
ZB5AP1 thru ZB5AP68 ..... 19-45
ZB5AP1S thru ZB5AP6S ..... 19-45
ZB5AR2 thru ZB5AR6 ..... 19-46
ZB5AS12 thru ZB5AS74 ..... 19-48
ZB5AS834 thru ZB5AS964 ..... 19-48
ZB5AT8643M ..... 19-54
ZB5AV01 thru ZB5AV063 ..... 19-51
ZB5AV01S thru ZB5AV063S ..... 19-51
ZB5AV18B1 thru ZB5AV18G6 ..... 19-52
ZB5AV3 thru ZB5AV9 ..... 19-52
ZB5AV6120 ..... 19-52
ZB5AV624 ..... 19-52
ZB5AVB1 thru ZB5AVB6 ..... 19-52
ZB5AVBG1 thru ZB5AVBG6 ..... 19-52
ZB5AVG1 thru ZB5AVG6 ..... 19-52
ZB5AVJ1 thru ZB5AVJ6 ..... 19-52
ZB5AW031 thru ZB5AW085 ..... 19-55
ZB5AW0B11 thru ZB5AW0B65 ..... 19-55
ZB5AW0G11 thru ZB5AW0G65 ..... 19-55
ZB5AW11 thru ZB5AW37 ..... 19-53
ZB5AW113 thru ZB5AW563 ..... 19-53
ZB5AW713 thru ZB5AW763 ..... 19-54
ZB5AW7A1715 thru ZB5AW7A3741 ..... 19-54
ZB5AW7A9 thru ZB5AW7L3740 ..... 19-54
ZB5AX2 thru ZB5AX4 ..... 19-48
ZB5AZ009 ..... 19-56, 19-57
ZB5AZ101 thru ZB5AZ141 ..... 19-55
ZB5AZ1015 thru ZB5AZ1055 ..... 19-57
ZB5AZ31 ..... 19-61
ZB5AZ901 thru ZB5AZ905 ..... 19-61, 19-101
ZB5CA1 thru ZB5CA6 ..... 19-45
ZB5CA16 thru ZB5CA66 ..... 19-45
ZB5CA331 thru ZB5CA432 ..... 19-46
ZB5CH01 thru ZB5CH06 ..... 19-47
ZB5CL1 thru ZB5CL6 ..... 19-45
ZB5CV013 thru ZB5CV063 ..... 19-51
ZB5CW113 thru ZB5CW363 ..... 19-53
ZB5SZ3 ..... 19-40, 19-61, 19-101
ZB5SZ5 ..... 19-61
ZB6AA1 thru ZB6AA9 ..... 19-17
ZB6AD22 thru ZB6AD28 ..... 19-17, 19-18
ZB6AE1 thru ZB6AE9 ..... 19-16
ZB6AF1 thru ZB6AF9 ..... 19-16
ZB6AGA thru ZB6AGT ..... 19-19
ZB6AS834 thru ZB6AS934 ..... 19-17
ZB6AV1 thru ZB6AV9 ..... 19-16
ZB6AW1 thru ZB6AW9 ..... 19-16
ZB6CA1 thru ZB6CA9 ..... 19-17
ZB6CD22 thru ZB6CD28 ..... 19-17, 19-18
ZB6CE1 thru ZB6CF9 ..... 19-16
ZB6CGA thru ZB6CGT ..... 19-19
ZB6CV1 thru ZB6CV9 ..... 19-16
ZB6CW1 thru ZB6CW9 ..... 19-16
ZB6DA1 thru ZB6DA9 ..... 19-17
ZB6DD22 thru ZB6DD28 ..... 19-17, 19-18
ZB6DE1 thru ZB6DE9 ..... 19-16
ZB6DF1 thru ZB6DF9 ..... 19-16
ZB6DGA thru ZB6DGT ..... 19-19
ZB6DV1 thru ZB6DV9 ..... 19-16
ZB6DW1 thru ZB6DW9 ..... 19-16
ZB6E1B thru ZB6E2E ..... 19-15
ZB6EB1B thru ZB6EM0B ..... 19-15
ZB6Y001 thru ZB6Y019 ..... 19-22
ZB6Y2178 thru ZB6Y2387 ..... 19-20, 19-22
ZB6Y7001 thru ZB6Y7330 ..... 19-13, 19-17, 19-22
ZB6Y905 ..... 19-22
ZB6YA001 thru ZB6YA006 ..... 19-22
ZB6YA100 thru ZB6YA626 ..... 19-21
ZB6YB028 thru ZB6YJ012 ..... 19-22
ZB6YC100 thru ZB6YC626 ..... 19-21
ZB6YD100 thru ZB6YD626 ..... 19-21
ZB6YD20 thru ZB6YD22 ..... 19-20, 19-22
ZB6Z1B thru ZB6Z5B ..... 19-15
ZB6ZB11B thru ZB6ZH05B ..... 19-15
ZBA1 thru ZBA9 ..... 19-39, 19-60
ZBA131 thru ZBA639 ..... 19-39, 19-60
ZBA708 thru ZBA710 ..... 19-41, 19-62
ZBA71 thru ZBA79 ..... 19-40, 19-61
ZBA7131 thru ZBA7432 ..... 19-40, 19-61
ZBCV0113 thru ZBCV0163 ..... 19-62
ZBCW9113 thru ZBCW9363 ..... 19-62
ZBCY1101 ..... 19-60
ZBDD2 ..... 19-41, 19-62
ZBE101 thru ZBE205 ..... 19-35, 19-56
ZBE1015 thru ZBE1026P ..... 19-35, 19-56
ZBG2201 thru ZBG4401 ..... 19-30, 19-50
ZBG3131A thru ZBG520EP ..... 19-41, 19-62
ZBL1 thru ZBL9 ..... 19-39, 19-60
ZBP0 thru ZBV017 ..... 19-41, 19-62
ZBV6 ..... 19-35, 19-56
ZBVB1 thru ZBVB6 ..... 19-35, 19-56
ZBVB15 thru ZBVB65 ..... 19-36, 19-57
ZBVBG1 thru ZBVBG6 ..... 19-35, 19-56
ZBVG1 thru ZBVG6 ..... 19-35, 19-56
ZBVG15 thru ZBVG65 ..... 19-36, 19-57
ZBVJ1 thru ZBVJ6 ..... 19-35, 19-56
ZBVJ15 thru ZBVJ65 ..... 19-36, 19-57
ZBVM1 thru ZBVM6 ..... 19-35, 19-56
ZBVM15 thru ZBVM65 ..... 19-36, 19-57
ZBW911 thru ZBW937 ..... 19-41, 19-62
ZBY01001 thru ZBY05005 ..... 19-38, 19-59
ZBY1101 thru ZBY1912 ..... 19-39, 19-60
ZBY2002 thru ZBY2931 ..... 19-37, 19-58
ZBY2H101 thru ZBY6H102 ..... 19-37, 19-58
ZBY4001 thru ZBY4101 ..... 19-37, 19-58
ZBY5101 thru ZBY6102 ..... 19-38, 19-59
ZBY8101 thru ZBY9101 ..... 19-28, 19-48
ZBY9101T thru ZBY9330T ..... 19-40, 19-61
ZBY9330 ..... 19-8, 19-28, 19-48
ZBZ1600 thru ZBZ3605 ..... 19-40, 19-61
ZBZ28 ..... 19-41, 19-62
ZBZ32 thru ZBZ35 ..... 19-37, 19-58
ZBZ41 ..... 19-40, 19-61
ZBZ48 thru ZBZ58 ..... 19-41, 19-62
ZBZ8 ..... 19-40, 19-61
ZCD21 thru ZCD39 ..... 21-17
ZCDEF12 thru ZCDEP20 ..... 21-17
ZCE01 thru ZCEH2 ..... 21-16
ZCKD01 thru ZCKD02 ..... 21-19
ZCKD02 thru ZCKD109 ..... 21-23
ZCKD31 thru ZCKD59 ..... 21-19
ZCKE05 thru ZCKE67 ..... 21-28
ZCKE055 thru ZCKE676 ..... 21-29
ZCKG00 ..... 21-23
ZCKJ019H7 thru ZCKJ04H7 ..... 21-29
ZCKJ11H7 thru ZCKJ28H7 ..... 21-27
ZCKJ1H7 thru ZCKJ5H7 ..... 21-27
ZCKJ215H7 thru ZCKJ4104H7 ..... 21-27
ZCKL1H7 thru ZCKL18H7 ..... 21-23
ZCKS7 thru ZCKS9 ..... 21-19
ZCKY11 thru ZCKY91 ..... 21-23
ZCMC21L1 thru ZCMC39L5 ..... 21-17
ZCMD21 thru ZCMD41 ..... 21-17
ZCP21 thru ZCP39 ..... 21-17
ZCPED44 thru ZCPEP20 ..... 21-17
ZCT21P16 thru ZCT25P16 ..... 21-17
ZCY15 thru ZCY91 ..... 21-16
ZENL1111 thru ZENL1121 ..... 19-101
1.5S1F thru 1.5S8F ..... 14-8



© 2012 Schneider Electric
All Rights Reserved

1.5S1FSS ..... 14-9
1003880A ..... 2-2
100S3HNV ..... 14-9
100SNA ..... 3-7, 7-58
100SV1A thru 100SV82A ..... 14-8
1010004 thru 10100010 ..... 21-40
10S1F thru 10S8F ..... 14-8
10S1FSS ..... 14-9
10S40FSS ..... 14-9
112T3HNV ..... 14-9
14210 thru 14211 ..... 7-20
150SV1A thru 150SV82A ..... 14-8
150T3HNV ..... 14-9
155DE175 thru 155DE200 ..... 11-10, 11-14
15S1FSS thru 15S40FSS ..... 14-9
15SM5010 thru 15SM5400 ..... 11-14
15T2F thru 15T75F ..... 14-8
15T2FSS ..... 14-9
17400 ..... 7-20
175DE010 thru 175DE150 ..... 11-10, 11-14
1S1F thru 1S8F ..... 14-8
1S1FSS ..... 14-9
225SNA ..... 3-7
225T3HNV ..... 14-9
2358C22G2 thru 2358C22G8 ..... 21-33
2358C6G2 thru 2358C6G8 ..... 21-33
250SV1B thru 250SV82B ..... 14-8
2510FF1 thru 2510FGJ6P ..... 16-4
2510FK1 thru 2510FN6 ..... 16-11
2510FO1 thru 2510FW2P ..... 16-4
2510KF1 thru 2510KW6C ..... 16-5
2510MBA1 thru 2510MCW5 ..... 16-8
2510PB1 ..... 16-11
2510TBG1 thru 2510TCO5 ..... 16-8
2511KF11 thru 2511KO2T ..... 16-5
2511MBG1 thru 2511MCO1 ..... 16-9
2511TBG1 thru 2511TCO1 ..... 16-9
2512FF11 thru 2512FS202P ..... 16-4
2512KF11 thru 2512KO2T ..... 16-5
2512MBG1 thru 2512MCO1 ..... 16-9
2512TBG1 thru 2512TCO1 ..... 16-9
2540902240 ..... 19-76
2550101002 ..... 19-86
2550101003 ..... 19-93
2550101013 ..... 19-86
2550101020 ..... 19-11, 19-86, 19-93
2550101024 ..... 19-11
2550101025 thru 2550101037 ..... 19-86
2550101040 ..... 19-11
2550105003 thru 2550105005 ..... 19-10, 19-93
2550105007 thru 2550105014 ..... 19-93
25S1FSS thru 25S40FSS ..... 14-9
2600511000 thru 2600511500 ..... 16-89
27105 thru 27118 ..... 7-20
29007 ..... 1-22, 2-6, 2-15
29008W ..... 1-22, 2-6, 2-15
2920910001 ..... 1-22, 2-6, 2-15
29287 ..... 7-45
2934D14G1 thru 2934D34G1 ..... 21-38
29375 ..... 2-15
2941101100 ..... 19-93
2S1F thru 2S8F ..... 14-8
2S1FSS ..... 14-9
2W485C ..... 4-15
3000PLUC100 thru 3000PMUSITE ..... 4-23
300T3HNV ..... 14-9
3020B012 thru 3020E244 ..... 4-15
3090PS24 ..... 4-19
3090SCCT022 thru 3090SCCT164 ..... 4-15
30T2F thru 30T75F ..... 14-8
30T2FSS thru 30T3HNV ..... 14-9
3003302753 thru 3003302754 ..... 14-17
3010215901 ..... 16-64
3103248801 thru 3103281501 ..... 21-35
3105204101 thru 3105205901 ..... 19-93
3105206750 thru 3105211101 ..... 19-76
3105217001 thru 3105406401 ..... 19-93
3108538150 ..... 16-11
3110112001 ..... 19-104
3110251450 thru 3110251451 ..... 16-108
3110451250 thru 3112350156 ..... 16-107
3116118474 thru 3116155368 ..... 16-75
32510 ..... 2-15
32521 ..... 7-45
32556 ..... 7-41
32570 ..... 7-41
32595 ..... 7-44
37S3HNV ..... 14-9
3S1F thru 3S8F ..... 14-8
3S1FSS thru 3S40FSS ..... 14-9
3T2F thru 3T5F ..... 14-8
3T2FSS ..... 14-9
400SN ..... 7-58
405WBAF010 thru 405WBAF400 ..... 11-14
415WBAF010 thru 415WBAF400 ..... 11-14
4458D20X3 thru 4487D63XI ..... 19-93
45T3HNV ..... 14-9
490NAD01103 thru 490NTW00080U ..... 16-87
4X1.5S1FSS thru 4X9T2FSS ..... 14-9
500SV1B thru 500SV82B ..... 14-8
50437 thru 50486 ..... 7-52, 16-86
50S3HNV ..... 14-9
50SV1A thru 50SV82A ..... 14-8
515608 thru 515614 ..... 12-9
55DE010 thru 55DE450 ..... 11-10, 11-14
56053 thru 56463 ..... 7-52
56370TD thru 56493TD ..... 7-52
5GS010 thru 5GS200 ..... 11-7
5J ..... 1-22, 2-6, 2-15
5S1F thru 5S8F ..... 14-8
5S1FSS thru 5S40FSS ..... 14-9
5SM5010 thru 5SM5400 ..... 11-14
60100 thru 60299 ..... 7-16
60406 thru 60421 ..... 7-17
60488 ..... 7-20
60949 thru 60999 ..... 7-18
6382G3MODEM thru 6382RS485G3KIT ..... 5-25
6508804101 ..... 19-93
6508805201 thru 6508805206 ..... 19-86
6508805207 thru 6508805209 ..... 19-11
6508805210 thru 6508805216 ..... 19-86
6509701801 thru 6515802701 ..... 19-93
6512232801 ..... 19-76
6516002379 thru 6516002382 ..... 19-120
685823 thru 685831 ..... 7-48
6T2F thru 6T5F ..... 14-8
6T2FSS ..... 14-9
7400ENT9 thru 7400ENT11 ..... 14-11
7400SS3R18D22D thru 7400SS3R31D35F ..... 14-9
750SV1F thru 750SV82F ..... 14-8
75S3HNV thru 75T3HNV ..... 14-9
7A1 thru 7S ..... 21-9
7S1F thru 7S8F ..... 14-8
7S1FSS thru 7S40FSS ..... 14-9
8011010401 thru 8011010501 ..... 9-9
82254 thru 82455R ..... 3-16, 3-21
8501CDO15 thru 8501CO8 ..... 23-15
8501KA112 ..... 23-14
8501KF12 thru 8501KFD13 ..... 23-10
8501KL ..... 23-14
8501KL12 thru 8501KLD12 ..... 23-10
8501KP12 ..... 23-10, 23-14
8501KP12P14 ..... 23-10
8501KP13 ..... 23-10, 23-14
8501KP13P14 ..... 23-10
8501KPD12 ..... 23-10
8501KPD12KA81KA82 ..... 23-14
8501KPD12P14 ..... 23-10
8501KPD13 ..... 23-10, 23-14
8501KPD13P14 ..... 23-10
8501KU ..... 23-14
8501KU12 thru 8501KUD13P14 ..... 23-10
8501NH7 thru 8501NH82 ..... 23-14
8501NR34 thru 8501NR82 ..... 23-14





© 2012 Schneider Electric
All Rights Reserved

8501NR34B thru 8501NR82B ..... 23-14
8501RS14 thru 8501RS4P14 ..... 23-12, 23-14
8501RSD14 thru 8501RSD4P14 ..... 23-12, 23-14
8501XA1 thru 8501XDL ..... 23-24
8501XDO00 thru 8501XDO80XDL ..... 23-23
8501XJ1 thru 8501XM8 ..... 23-24
8501XMO20 thru 8501XMO60 ..... 23-22
8501XO00 thru 8501XO80XL ..... 23-22
8501XS1 thru 8501XTE2 ..... 23-24
8501XUDO0012 thru 8501XUDO80 ..... 23-23
8502S()A1 ..... 16-17
8502S()A2 ..... 16-15
8502S()A3 thru 8502S()A5 ..... 16-17
8502S()G1 ..... 16-16
8502S()G2 ..... 16-14
8502S()G3 thru 8502S()G5 ..... 16-16
8502S()O1 ..... 16-16
8502S()O2 ..... 16-14
8502S()O3 thru 8502S()O5 ..... 16-16
8502S()R1 ..... 16-17
8502S()R2 ..... 16-15
8502S()R3 thru 8502S()R5 ..... 16-17
8502S()T1 ..... 16-17
8502S()T2 ..... 16-15
8502S()T3 thru 8502S()T5 ..... 16-17
8502S()T41 ..... 16-17
8502S()T42 ..... 16-15
8502S()T45 ..... 16-17
8502S()W11 ..... 16-16
8502S()W12 ..... 16-14
8502S()W13 thru 8502S()W15 ..... 16-16
8502S()W21 ..... 16-17
8502S()W22 ..... 16-15
8502S()W23 ..... 16-17
8502VFO3 thru 8502VHO3 ..... 16-29
8502WFO3 thru 8502WHO3 ..... 16-28
8536SAG11 thru 8536SJW2 ..... 16-18, 16-22
8536WFO3 thru 8536WHO3 ..... 16-30
8538SBA11 thru 8538SFW35 ..... 16-31, 16-33
8538SBA11S8 thru 8538SBW33S8 ..... 16-34
8538SCA11S8 thru 8538SCA44S8 ..... 16-34
8538SCA12S1 thru 8538SCA24S1 ..... 16-34
8538SCG11S8 thru 8538SCG34S8 ..... 16-34
8538SCW11S8 thru 8538SCW34S8 ..... 16-34
8538SDA11S8 thru 8538SDA46S8 ..... 16-34
8538SDG11S8 thru 8538SDG36S8 ..... 16-34
8538SDW11S8 thru 8538SDW36S8 ..... 16-34
8539SBA1 thru 8539SHA56 ..... 16-35, 16-39
8539SBA43S8 thru 8539SDW44S8 ..... 16-37
8539SBA71V03 thru 8539SDW74V03 ..... 16-39
8539SCA18 thru 8539SDW18 ..... 16-39
8539SCA8 thru 8539SDW8 ..... 16-39
8539SEA41 thru 8539SJW41 ..... 16-36
8539SEA51 thru 8539SJA51 ..... 16-36
8702SAG1 thru 8702SJW1 ..... 16-44, 16-45
8702WFO3 thru 8702WHO3V ..... 16-50
8736SAG13 thru 8736SJW1 ..... 16-46, 16-47
8738SBA11 thru 8738SGW35 ..... 16-51, 16-52
8739SBA1 thru 8739SHW5 ..... 16-55, 16-56
8739SBA11 thru 8739SHA15 ..... 16-55, 16-56
8739SBA43 thru 8739SHW46 ..... 16-53, 16-54
8739SBA53 thru 8739SHA56 ..... 16-53, 16-54
8903L1L thru 8903LXWW80 ..... 16-59
8903SJA1 thru 8903SZW2 ..... 16-60
8903SMA10 thru 8903SZW19 ..... 16-60
8903SMA60 thru 8903SZW91 ..... 16-61, 16-62
8903SMW21 thru 8903SQW22 ..... 16-60
8903SMW31 thru 8903SQW32 ..... 16-60
8910DP11 thru 8910DP42 ..... 16-70
8910DPA12 thru 8910DPA93 ..... 16-70, 16-71
8911DPB1 ..... 16-74
8911DPSG12 thru 8911DPSO53 ..... 16-74
8911DSS1 ..... 16-74
8940SSC2007 thru 8940SSG2100 ..... 16-75
8940WC1S2V03 thru 8940WF3S2V06 ..... 16-76
8940XC1S2V03 thru 8940XF4S2V06 ..... 16-76
8940XSE2030V03 thru 8940XSF4100V06 ..... 16-75
8940XSG2075 thru 8940XSJ4600 ..... 16-75
8941CBA06 thru 8941CFW47 ..... 16-78
8941DBA08 thru 8941DEW40 ..... 16-79
8941NBA10 thru 8941NFW50 ..... 16-78
8941UBA10 thru 8941UEW40 ..... 16-79
8965DPR13 thru 8965DPR44 ..... 16-81
8998CP03 thru 8998CP24 ..... 17-6
8998HBA001AFSMA thru 8998HBA010XFTSS ..... 17-5
8998HBF015 thru 8998HBF250 ..... 17-6
8998HFA001AFSMA thru 8998HFA010XFTSS ..... 17-5
8998HFF030 thru 8998HFF100 ..... 17-6
8998SBA001AFSMA thru 8998SBC100XFTSS ..... 17-3
8998SBA003AFSMA ..... 17-3
8998SBF015 thru 8998SBF250 ..... 17-6
8998SFA001AFSMA thru 8998SFC100XFTSS ..... 17-4
8998SFF030 thru 8998SFF200 ..... 17-6
9001A20 thru 9001A31 ..... 19-92
9001A6 thru 9001A9 ..... 19-92
9001B101 thru 9001B189R ..... 19-103
9001B11 ..... 19-70, 19-80, 19-92
9001B110 thru 9001B189R ..... 19-103
9001B19 thru 9001B25 ..... 19-92
9001B251 thru 9001B350 ..... 19-103, 19-117
9001BFB107 thru 9001BFB226 ..... 19-104
9001BG101 thru 9001BG316 ..... 19-103
9001BGB107 thru 9001BGC315 ..... 19-104
9001BOC107 thru 9001BOC368 ..... 19-104, 19-117
9001BR101 thru 9001BR218 ..... 19-103
9001BW100BU thru 9001BW102Y ..... 19-117
9001BW146 thru 9001BW260 ..... 19-103
9001BW90BU thru 9001BW98Y ..... 19-117
9001BWD219 thru 9001BWD220 ..... 19-103
9001BWRB thru 9001BWSR ..... 19-117
9001C20 thru 9001C31 ..... 19-92
9001C6 thru 9001C9 ..... 19-92
9001FB24 thru 9001FB120 ..... 19-10
9001G19 thru 9001G31 ..... 19-92
9001G6 thru 9001G9 ..... 19-92
9001JN100 thru 9001JN799 ..... 19-11
9001JP1 thru 9001JP38Y29 ..... 19-11
9001JT1 thru 9001JT38Y29 ..... 19-11
9001K1 ..... 19-93
9001K107 thru 9001K110 ..... 19-91
9001K111 ..... 19-93
9001K11J1 thru 9001K12J1R ..... 19-70
9001K13B thru 9001K13M ..... 19-92
9001K15 ..... 19-76
9001K162 ..... 19-91
9001K16B thru 9001K17Y ..... 19-92
9001K1L thru 9001K1LRH13 ..... 19-69
9001K20 thru 9001K23 ..... 19-72
9001K25 thru 9001K28 ..... 19-105
9001K25J1 thru 9001K25J1R ..... 19-70
9001K2L thru 9001K2LRH13 ..... 19-69
9001K3 ..... 19-93
9001K30 thru 9001K34H2 ..... 19-75
9001K34J1 thru 9001K34J1R ..... 19-70
9001K35 thru 9001K37H2 ..... 19-75
9001K3L thru 9001K3LRH13 ..... 19-69
9001K4 ..... 19-91
9001K40 ..... 19-76, 19-93
9001K401J thru 9001K702J1R ..... 19-71
9001K41 thru 9001K49 ..... 19-91, 19-93
9001K42J thru 9001K79J1R ..... 19-71
9001K5 ..... 19-91
9001K50 ..... 19-76
9001K51 thru 9001K58 ..... 19-91, 19-93
9001K56M ..... 19-91
9001K57 ..... 19-76
9001K6 ..... 19-91
9001K60 thru 9001K68 ..... 19-91
9001K685 ..... 19-91
9001K69 ..... 19-93
9001K7 ..... 19-91
9001K70 thru 9001K73H7 ..... 19-75
9001K8 ..... 19-76
9001K85 ..... 19-76



© 2012 Schneider Electric
All Rights Reserved

9001K92B thru 9001K95RM ..... 19-92
9001K96 thru 9001K97 ..... 19-91
9001KA1 thru 9001KA6 ..... 19-85, 19-97
9001KA12 thru 9001KA35 ..... 19-85
9001KA1G thru 9001KA6G ..... 19-85
9001KA41 thru 9001KA55 ..... 19-87
9001KM1 thru 9001KM8 ..... 19-86
9001KMF1 ..... 19-86
9001KN100BP thru 9001KN999 ..... 19-89, 19-90
9001KN244 ..... 16-65
9001KN260 ..... 16-65
9001KP thru 9001KPR31 ..... 19-74
9001KQ11 thru 9001KQ15B ..... 19-75
9001KR1 ..... 19-67
9001KR11 thru 9001KR12UH1H1 ..... 19-76
9001KR131 thru 9001KR153 ..... 19-75
9001KR16 thru 9001KR16H13 ..... 19-68
9001KR1B thru 9001KR1UH6 ..... 19-67
9001KR2 ..... 19-67, 19-88
9001KR20 ..... 19-88
9001KR24 ..... 19-67
9001KR24B thru 9001KR25RM ..... 19-67
9001KR2B thru 9001KR2UH6 ..... 19-67
9001KR3 ..... 19-67, 19-88
9001KR3B thru 9001KR5RH6 ..... 19-67
9001KR6 ..... 19-76, 19-88
9001KR67 ..... 19-76, 19-88
9001KR67GR thru 9001KR6UH7 ..... 19-76
9001KR7 ..... 19-76, 19-88
9001KR7GR thru 9001KR7UH7 ..... 19-76
9001KR8 thru 9001KR9RM95 ..... 19-68
9001KRD1UH1 thru 9001KRD3UH2 ..... 19-76
9001KS11 thru 9001KS34K1 ..... 19-70
9001KS4 thru 9001KS7 ..... 19-88
9001KS401 thru 9001KS702K ..... 19-71
9001KS42 thru 9001KS79K ..... 19-71
9001KS88 thru 9001KS88J1R ..... 19-72
9001KT thru 9001KTRR31 ..... 19-74
9001KU1 thru 9001KU47 ..... 19-91
9001KXAA1 thru 9001KXAWM1 ..... 19-99
9001KXBB06 thru 9001KXBD83 ..... 19-95
9001KXN100 thru 9001KXN799 ..... 19-98
9001KXPA1A thru 9001KXPC34WAGR ..... 19-95
9001KXRA133 thru 9001KXRB34RH1 ..... 19-94, 19-96
9001KXRB35A thru 9001KXRB38W ..... 19-96
9001KXRC111 thru 9001KXRG137 ..... 19-94, 19-96
9001KXRG35GWG thru 9001KXRH38RWG ..... 19-96
9001KXRJ119 ..... 19-94
9001KXRJ35GWG thru 9001KXRJ38RWG ..... 19-96
9001KXRL121 thru 9001KXRL34GRGRH37 ..... 19-94
9001KXRL35GGRR thru 9001KXRM38RWWG ..... 19-96
9001KXSA125 thru 9001KXSHHB ..... 19-95, 19-97
9001KXSJE35G thru 9001KXSJE38W ..... 19-97
9001KXSRE1 thru 9001KXSRE3 ..... 19-97
9001KXSVC5 thru 9001KXSVC10 ..... 19-97
9001KY1 thru 9001KY6 ..... 19-105
9001KYAF1 thru 9001KYAF6 ..... 19-105
9001KYG1 thru 9001KYG12 ..... 19-105, 19-106
9001KYK11 thru 9001KYK33 ..... 19-106
9001KYK110 thru 9001KYK326 ..... 19-106
9001KYSK101 thru 9001KYSK210 ..... 19-106
9001KYSS1 thru 9001KYSS6 ..... 19-105
9001KYSS101 thru 9001KYSS111 ..... 19-106
9001KYSS201 thru 9001KYSS210 ..... 19-106
9001L20 thru 9001L9 ..... 19-70, 19-80, 19-92
9001OA12 thru 9001OY24 ..... 19-10
9001R19 thru 9001R94 ..... 19-70, 19-80, 19-92
9001S11 thru 9001S25 ..... 19-92
9001SK11J1 thru 9001SK12J1R ..... 19-80
9001SK1L ..... 19-79, 19-88
9001SK1L1 ..... 19-79
9001SK1L1GH13 thru 9001SK1LRH13 ..... 19-79
9001SK20 thru 9001SK23 ..... 19-82
9001SK25J1 thru 9001SK25J1R ..... 19-80
9001SK2L ..... 19-79, 19-88
9001SK2L1G20H13 thru 9001SK2LRH13 ..... 19-79
9001SK34J1 thru 9001SK34J1R ..... 19-80
9001SK40 thru 9001SK49 ..... 19-93
9001SK401J thru 9001SK79J1R ..... 19-81
9001SK52 ..... 19-122
9001SK88J thru 9001SK88J1R ..... 19-82
9001SKN100 thru 9001SKN599 ..... 19-122
9001SKP ..... 19-83, 19-88
9001SKP1 thru 9001SKPR31 ..... 19-83
9001SKR1 ..... 19-77
9001SKR11 thru 9001SKR12UH1H1 ..... 19-84
9001SKR16 ..... 19-78
9001SKR1B thru 9001SKR5RH6 ..... 19-77
9001SKR8 thru 9001SKR9RH13 ..... 19-78
9001SKRU1 thru 9001SKRU11 ..... 19-122
9001SKS11 thru 9001SKS25 ..... 19-80
9001SKS4 thru 9001SKS7 ..... 19-88
9001SKS401 thru 9001SKS702 ..... 19-81
9001SKS42 thru 9001SKS79 ..... 19-81
9001SKS88 ..... 19-82
9001SKT thru 9001SKTRR31 ..... 19-83
9001SKY1 thru 9001SKY6 ..... 19-105
9001SKY105 thru 9001SKY315A ..... 19-106
9001SKYP2 thru 9001SKYP100 ..... 19-122
9001SSKS46BH2 ..... 19-81
9001T5BE thru 9001T8YW ..... 19-92
9001U19 ..... 19-92
9001W20 thru 9001W24 ..... 19-92
9001W29 ..... 19-11
9001W31 ..... 19-92
9001W6 thru 9001W9 ..... 19-92
9001Y2 thru 9001Y9 ..... 19-92
9001Y21 thru 9001Y24 ..... 19-92
9002AC1 thru 9002AC8 ..... 19-124
9002AW1 thru 9002AW9 ..... 19-124
9002AW10 thru 9002AW22 ..... 19-124
9002AW117 thru 9002AW134 ..... 19-124
9006PA08 thru 9006PA30 ..... 20-6, 20-9, 20-10
9007AA0 thru 9007AA17 ..... 21-34
9007AA1M thru 9007AA18M ..... 21-35
9007AB21 thru 9007AB23 ..... 21-6
9007AB24 thru 9007AB41 ..... 21-6
9007AC1 thru 9007AO6 ..... 21-6
9007AP201 thru 9007AP325 ..... 21-6
9007B1 thru 9007B9 ..... 21-38
9007B12 thru 9007B27 ..... 21-38
9007BA0 thru 9007BA18 ..... 21-34
9007BA1M thru 9007BA18M ..... 21-35
9007C1 thru 9007C3 ..... 21-38
9007C52A2 thru 9007C68T5 ..... 21-32, 21-33
9007CA0 thru 9007CA9M ..... 21-34, 21-35
9007CA11 thru 9007CA18M ..... 21-34, 21-35
9007CB31 thru 9007CB41 ..... 21-6
9007CC1 ..... 21-6
9007CO3 thru 9007CO7 ..... 21-6
9007CO52 thru 9007CO68 ..... 21-33
9007CP221 thru 9007CP325 ..... 21-6
9007CR53A2 thru 9007CT62 ..... 21-32, 21-33
9007D ..... 21-33
9007D1 thru 9007D4 ..... 21-38
9007DA0 thru 9007DA9M ..... 21-34, 21-35
9007DA11 thru 9007DA18M ..... 21-34, 21-35
9007E ..... 21-33
9007E4 thru 9007E6 ..... 21-38
9007EA0 thru 9007EA9M ..... 21-34, 21-35
9007EA11 thru 9007EA18M ..... 21-34, 21-35
9007ED ..... 21-33
9007F4 thru 9007F6 ..... 21-38
9007FA1 thru 9007FA6 ..... 21-34
9007G10 ..... 21-38
9007HA0 thru 9007HA9 ..... 21-35
9007HA20 thru 9007HA26 ..... 21-35
9007J ..... 21-33
9007J1 thru 9007J2 ..... 21-38
9007JKC ..... 21-33
9007K ..... 21-33
9007K1 thru 9007K2 ..... 21-38
9007KA1 thru 9007KA9 ..... 21-34
9007KA11 thru 9007KA21 ..... 21-34





© 2012 Schneider Electric
All Rights Reserved

9007KB11 thru 9007KB15 ..... 21-34
9007KC ..... 21-33
9007L ..... 21-33
9007LA1 thru 9007LA9 ..... 21-34
9007LA10 thru 9007LA19 ..... 21-34
9007MA0 thru 9007MA9M ..... 21-34, 21-35
9007MA11 thru 9007MA18M ..... 21-34, 21-35
9007ML01S0100 thru 9007ML13S0100 ..... 21-8
9007MS01G0100 thru 9007MS09S0100 ..... 21-8
9007MS10G0100 thru 9007MS13S0100 ..... 21-9
9007N1 thru 9007N2 ..... 21-38
9007R ..... 21-33
9007R16 thru 9007R22 ..... 21-38
9007RA9 thru 9007RA11 ..... 21-34
9007S9 ..... 21-36
9007TBT1 ..... 21-35
9007TCT10 thru 9007TCT13 ..... 21-35
9007TSA1 thru 9007TSD3 ..... 21-37
9007TUA1 thru 9007TUD12 ..... 21-37
9007WJ thru 9007WKC ..... 21-33
9007X1 thru 9007Z2 ..... 21-38
9012GAR1 thru 9012GFW4 ..... 22-14
9012GGW1 thru 9012GMW4 ..... 22-15
9012GNG1 thru 9012GTO4 ..... 22-13
9013FHG12 thru 9013FHG9 ..... 22-20
9013FRG12 thru 9013FRG99 ..... 22-21
9013FSG10 thru 9013FSW9 ..... 22-21
9013FYG10 thru 9013FYW9 ..... 22-21
9013GHB2 thru 9013GSW3 ..... 22-22
9016GAR1 thru 9016GAW22 ..... 22-19
9036DG2 thru 9036DW31R ..... 22-23
9036FG30 ..... 22-24
9036GG2 thru 9036GW1R ..... 22-23
9037EG8 thru 9037EW13 ..... 22-24
9037HG30 thru 9037HG39 ..... 22-25
9037HR30 thru 9037HR39 ..... 22-25
9037HW30 thru 9037HW39 ..... 22-25
9038AG1 thru 9038AW1 ..... 22-26
9038CG31 thru 9038CG36 ..... 22-26
9038CR31 thru 9038CR36 ..... 22-26
9038CW31 thru 9038CW36 ..... 22-26
9038DG7 thru 9038DG10 ..... 22-27
9038DW7 thru 9038DW8 ..... 22-27
9049A12 thru 9049A20 ..... 22-22, 22-23, 22-28
9049A26S ..... 22-13, 22-18
9049A52 thru 9049A58 ..... 22-22, 22-28
9049A6 ..... 22-28
9049A60 thru 9049A61 ..... 22-24
9049A6A thru 9049AF1 ..... 22-28
9049EF1 thru 9049ER7 ..... 22-24, 22-27, 22-28
9049HF3 thru 9049HF4 ..... 22-27, 22-28
9049T1 thru 9049T1S ..... 22-28
9049UMS1 ..... 22-28
9050JCK11 thru 9050JCK70 ..... 23-30
9050JCK1F() thru 9050JCK5F() ..... 23-30
9050JCK21PT thru 9050JCK49PT ..... 23-30
9065CO1 thru 9065CO1R ..... 16-82
9065DA2 thru 9065JA2 ..... 16-89
9065FO1L thru 9065FO1R ..... 16-82
9065GO11L thru 9065GO11R ..... 16-82
9065SDO4 thru 9065SDO17 ..... 16-82
9065SDO5B1 thru 9065SDO9B2 ..... 16-89
9065SEO5 thru 9065SEO15 ..... 16-82
9065SEO6B thru 9065SEO9B2 ..... 16-89
9065SEO8 ..... 16-82
9065SF020 thru 9065SFC20 ..... 16-83
9065SHA01Y59 thru 9065SJA01Y59 ..... 16-89
9065SM2 ..... 16-82, 16-89
9065SR210 thru 9065SR520 ..... 16-83
9065SS010 thru 9065SSC20 ..... 16-83
9065ST220 thru 9065ST720 ..... 16-83
9065TJF100 thru 9065TJF63 ..... 16-89
9065TO1 thru 9065UO1 ..... 16-82
9066RA1 thru 9066W1 ..... 16-92
9070FB1A thru 9070FB3B ..... 14-17
9070FP1 thru 9070LG1 ..... 14-17
9070MN100G0D1 thru 9070MN500G0D1G13 ..... 14-18
9070SDG4 thru 9070SF41B ..... 14-17
9070SK1000A2D1 thru 9070SK750G3D1 ..... 14-18
9070SK1000A2D1G13 thru 9070SK750G3D1G13 ..... 14-18
9070T1000D1 thru 9070TF75D50 ..... 14-14, 14-15
9070T50 thru 9070T750 ..... 16-64
9070UE7 ..... 14-17
9080FB1211 thru 9080FB3631R ..... 24-19
9080FBDIN3 ..... 24-19
9080GA6 ..... 24-14, 24-15
9080GA6188BC ..... 24-15
9080GC6 ..... 24-13, 24-15
9080GC6B ..... 24-13
9080GCB01 thru 9080GCB70 ..... 24-17
9080GCB0115 thru 9080GCB20150 ..... 24-15
9080GD6 thru 9080GD6B ..... 24-13, 24-15
9080GE6 ..... 24-13, 24-15
9080GF6 ..... 24-14, 24-15
9080GF694BC ..... 24-15
9080GF6B ..... 24-14
9080GG6 ..... 24-14, 24-15
9080GH10 thru 9080GH91 ..... 24-16
9080GH103 thru 9080GH710 ..... 24-16
9080GK6 thru 9080GKY6 ..... 24-13
9080GLP3 thru 9080GLP6 ..... 24-14
9080GM6 thru 9080GMY6B ..... 24-13
9080GP6 thru 9080GP6B ..... 24-14
9080GR6 thru 9080GRY6 ..... 24-13
9080GS6 thru 9080GT6B ..... 24-14
9080LB21 thru 9080LB53 ..... 24-18
9080LBA161101 thru 9080LBA365212 ..... 24-18
9080LBC162101 thru 9080LBC365212 ..... 24-18
9080MH203 thru 9080MH439 ..... 24-12
9080MH82 thru 9080MHA10 ..... 24-12, 24-16
92251 thru 92451 ..... 3-16
9421LC43 thru 9421LW7 ..... 8-19
9421V1A30 thru 9421V2W30 ..... 8-4
9422A1 thru 9422A10 ..... 8-15
9422AM2 ..... 8-24
9422AP1 thru 9422AP2 ..... 8-15
9422ATCF301 thru 9422BTEN10 ..... 8-15
9422C1 ..... 8-24
9422CFT10 thru 9422CFT51 ..... 8-16
9422CMP10 thru 9422CSF70 ..... 8-21
9422CSFD1 thru 9422CSFJD50 ..... 8-22
9422CSJ10 thru 9422CSJ504 ..... 8-21
9422CSJD10 thru 9422CSJD51 ..... 8-22
9422D2 thru 9422R2 ..... 8-24
9422RM1 thru 9422RS1 ..... 8-22
9422TC30 thru 9422TC33 ..... 16-115
9422TCF30 thru 9422TCN30C ..... 8-15
9422TD63 ..... 16-115
9422TDF60 thru 9422TEN10C ..... 8-15
9422TF1 thru 9422TG2 ..... 8-15
9423M10 thru 9423M9L ..... 8-25
9788EZCIRIGB thru 9788SER3200 ..... 4-11
9991DPG1 thru 9991DPSG2 ..... 16-71, 16-94
9991EN1 thru 9991KE3 ..... 16-11
9991LG1 thru 9991LXG1 ..... 16-94
9991MA1 thru 9991MW11 ..... 16-93, 16-94
9991SCA11 thru 9991SGG8 ..... 16-64, 16-93, 16-95
9991UE1 thru 9991UE7 ..... 16-94, 23-15
9998DA1 thru 9998DA3 ..... 16-71, 16-81
9998DRC5 thru 9998DRC9 ..... 16-107
9998HR2 thru 9998HWA1 ..... 16-11
9998IL1 ..... 16-11
9998ML1 thru 9998ML2 ..... 16-9, 16-107
9998PB2 thru 9998PB15 ..... 16-107
9998PBV02 thru 9998PBV39 ..... 16-106
9998PC177 thru 9998PC338 ..... 22-28
9998RA10 thru 9998RA5B ..... 16-107
9998SG120 thru 9998SG480 ..... 16-105
9998SJ1 ..... 16-107
9998SL2 thru 9998SL33 ..... 16-107
9998SO1 thru 9998SO32 ..... 16-74, 16-108
9998UB01 thru 9998UB14 ..... 16-108
9998WF thru 9998WH ..... 16-28, 16-30, 16-50
9999AC04 ..... 16-111



© 2012 Schneider Electric
All Rights Reserved

9999BLX ..... 16-65
9999D01 thru 9999D20 ..... 16-71, 16-110
9999DA01 ..... 16-111
9999DD01 thru 9999DD20 ..... 16-71, 16-81, 16-110
9999DMB1 thru 9999DPC1 ..... 16-71
9999LB0 thru 9999LL0 ..... 16-111
9999LLX ..... 16-64
9999LUW5 thru 9999LUW6 ..... 16-28, 16-30
9999LXPB thru 9999LXS ..... 16-65
9999MP1 thru 9999MP3 ..... 16-11
9999MRB12 thru 9999MRB34 ..... 16-75
9999PL10 thru 9999PL13G ..... 16-11
9999R10 thru 9999R13 ..... 16-110
9999R26 thru 9999R27 ..... 8-22, 16-41, 16-64
9999R35 thru 9999R36 ..... 8-16, 16-41, 16-64
9999R39 thru 9999R48 ..... 16-41, 16-115
9999R6 thru 9999R9 ..... 16-41, 16-115
9999RB34 ..... 16-111
9999RLX ..... 16-65
9999RR04 ..... 16-111
9999S1 thru 9999S5 ..... 16-115
9999SA2 thru 9999SA10 ..... 16-65, 16-109
9999SB10 thru 9999SB25 ..... 16-60, 16-112
9999SB6 thru 9999SB9 ..... 16-60, 16-112
9999SBT1 ..... 16-112
9999SC2 thru 9999SC9 ..... 16-65, 16-109
9999SC22 ..... 16-65, 16-109
9999SF3 thru 9999SF4 ..... 16-112
9999SFR3 thru 9999SFR4 ..... 16-64, 16-112
9999SG1 thru 9999SG3 ..... 16-109
9999SJ2 thru 9999SJ4 ..... 16-115
9999SM1 thru 9999SM13 ..... 16-114
9999SN1 thru 9999SN4 ..... 16-64, 16-113
9999SO11 thru 9999SO12 ..... 16-114
9999SO4 thru 9999SO5 ..... 16-74, 16-113
9999SP2R thru 9999SP29R ..... 16-65, 16-109
9999SR1 thru 9999SR5 ..... 8-16, 16-115
9999ST1 thru 9999ST2 ..... 16-112
9999SX6 thru 9999SX17 ..... 16-64, 16-110
9999T7 ..... 16-113
9999TC10 thru 9999TC21 ..... 3-7, 8-16, 16-41
9999WCX11 thru 9999WX11 ..... 16-28, 16-30, 16-50
9T2F thru 9T75F ..... 14-8
9T2FSS ..... 14-9





© 2012 Schneider Electric
All Rights Reserved

## Conductor Ampacity Based on the 2011 National Electrical Code®

Ampacity based on NEC Table 310.15(B)(16) (Formerly Table 310.16) – Allowable Ampacities of Insulated Conductors Rated Up to and Including 2000 Volts, 60° Through 90°C (140° Through 194°F), Not More Than Three Current-Carrying Conductors in Raceway, Cable, or Earth (Directly Buried), Based on Ambient Temperature of 30°C (86°F)*

**For conduit fill see 2011 NEC Annex C.**

**For Information on Temperature Ratings of Terminations to Equipment See NEC 110 .14(C).**

| Size | Temperature Rating of Conductor. [See Table 310.104(A).] | | | | | | Size |
|---|---|---|---|---|---|---|---|
| | 60°C (140°F) | 75°C (167°F) | 90°C (194°F) | 60°C (140°F) | 75°C (167°F) | 90°C (194°F) | |
| AWG or kcmil | Types TW, UF | Types RHW, THHW, THW, THWN, XHHW, USE, ZW | Types TBS, SA, SIS, FEP, FEPB, MI, RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2 | Types TW, UF | Types RH, RHW, THHW, THW, THWN, XHHW, USE | Types TBS, SA, SIS, THHN, THHW, THW-2, THWN-2, RHH, RHW-2, USE-2, XHH, XHHW, XHHW-2, ZW-2 | AWG or kcmil |
| | **Copper** | | | **Aluminum or Copper-Clad Aluminum** | | | |
| 18 | — | — | 14 | — | — | — | — |
| 16 | — | — | 18 | — | — | — | — |
| 14** | 15 | 20 | 25 | — | — | — | — |
| 12** | 20 | 25 | 30 | 15 | 20 | 25 | 12** |
| 10** | 30 | 35 | 40 | 25 | 30 | 35 | 10** |
| 8 | 40 | 50 | 55 | 35 | 40 | 45 | 8 |
| 6 | 55 | 65 | 75 | 40 | 50 | 55 | 6 |
| 4 | 70 | 85 | 95 | 55 | 65 | 75 | 4 |
| 3 | 85 | 100 | 115 | 65 | 75 | 85 | 3 |
| 2 | 95 | 115 | 130 | 75 | 90 | 100 | 2 |
| 1 | 110 | 130 | 145 | 85 | 100 | 115 | 1 |
| 1/0 | 125 | 150 | 170 | 100 | 120 | 135 | 1/0 |
| 2/0 | 145 | 175 | 195 | 115 | 135 | 150 | 2/0 |
| 3/0 | 165 | 200 | 225 | 130 | 155 | 175 | 3/0 |
| 4/0 | 195 | 230 | 260 | 150 | 180 | 205 | 4/0 |
| 250 | 215 | 255 | 290 | 170 | 205 | 230 | 250 |
| 300 | 240 | 285 | 320 | 195 | 230 | 260 | 300 |
| 350 | 260 | 310 | 350 | 210 | 250 | 280 | 350 |
| 400 | 280 | 335 | 380 | 225 | 270 | 305 | 400 |
| 500 | 320 | 380 | 430 | 260 | 310 | 350 | 500 |
| 600 | 350 | 420 | 475 | 285 | 340 | 385 | 600 |
| 700 | 385 | 460 | 520 | 315 | 375 | 425 | 700 |
| 750 | 400 | 475 | 535 | 320 | 385 | 435 | 750 |
| 800 | 410 | 490 | 555 | 330 | 395 | 445 | 800 |
| 900 | 435 | 520 | 585 | 355 | 425 | 480 | 900 |
| 1000 | 455 | 545 | 615 | 375 | 445 | 500 | 1000 |
| 1250 | 495 | 590 | 665 | 405 | 485 | 545 | 1250 |
| 1500 | 525 | 625 | 705 | 435 | 520 | 585 | 1500 |
| 1750 | 545 | 650 | 735 | 455 | 545 | 615 | 1750 |
| 2000 | 555 | 655 | 750 | 470 | 560 | 630 | 2000 |

* Refer to 310.15(B)(2)(a) for the ampacity correction factors where the ambient temperature is other than 30°C (86°F).
** See Section 240.4 (D) for conductor overcurrent protection limitations.

## Ratings for 120/240 volts, 3-Wire, Single-Phase Dwelling Services— See NEC Table 310.15 (B)(7)

These are permitted ratings for Dwelling Unit service and feeder conductors which carry the total load of the dwelling.

| Rating (amps) | 100 | 110 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 4 | 3 | 2 | 1 | 1/0 | 2/0 | 3/0 | 4/0 | 250 kcmil | 350 kcmil | 400 kcmil |
| Aluminum | 2 | 1 | 1/0 | 2/0 | 3/0 | 4/0 | 250 kcmil | 300 kcmil | 350 kcmil | 500 kcmil | 600 kcmil |

## NEC 210.19 Conductors — Minimum Ampacity and Size

**(A) Branch Circuit Not More Than 600 Volts.**
**(1) General.** Branch-circuit conductors shall have an ampacity not less than the maximum load to be served. Where a branch circuit supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum branch-circuit conductor size, before the application of any adjustment or correction factors, shall have an allowable ampacity not less than the noncontinuous load plus 125 percent of the continuous load.

## Correction Factors

Based on NEC Table 310.15(B)(2)(a)[Formerly Table 310(16)] – Ambient Temperature Correction Factors Based on 30°C (86°F)

| Ambient Temperature (°C) | Temperature Rating of Conductor | | | Ambient Temperature (°F) |
|---|---|---|---|---|
| | 60°C | 75°C | 90°C | |
| 10 or less | 1.29 | 1.20 | 1.15 | 50 or less |
| 11–15 | 1.22 | 1.15 | 1.12 | 51–59 |
| 16–20 | 1.15 | 1.11 | 1.08 | 60–68 |
| 21–25 | 1.08 | 1.05 | 1.04 | 69–77 |
| 26–30 | 1.00 | 1.00 | 1.00 | 78–86 |
| 31–35 | 0.91 | 0.94 | 0.96 | 87–95 |
| 36–40 | 0.82 | 0.88 | 0.91 | 96–104 |
| 41–45 | 0.71 | 0.82 | 0.87 | 105–113 |
| 46–50 | 0.58 | 0.75 | 0.82 | 114–122 |
| 51–55 | 0.41 | 0.67 | 0.76 | 123–131 |
| 56–60 | — | 0.58 | 0.71 | 132–140 |
| 61–65 | — | 0.47 | 0.65 | 141–149 |
| 66–70 | — | 0.33 | 0.58 | 150–158 |
| 71–75 | — | — | 0.50 | 159–167 |
| 76–80 | — | — | 0.41 | 168–176 |
| 81–85 | — | — | 0.29 | 177–185 |

## Adjustment Factors – See NEC Table 310.15 (B)(3)(a)

Where the number of current-carrying conductors in a raceway or cable exceeds three, the allowable ampacities shall be reduced as shown in the following table:

| Number of Conductors*** | Percent of Values in Table 310.15(B)(16) through Table 310.15(B)(19) as Adjusted for Ambient Temperature if Necessary |
|---|---|
| 4 through 6 | 80 |
| 7 through 9 | 70 |
| 10 through 20 | 50 |
| 21 through 30 | 45 |
| 31 through 40 | 40 |
| 41 and Above | 35 |

*** Number of conductors is the total number of conductor in the raceway or cable adjusted in accordance with 310.15 (B)(5) and (6).

## NEC 210.20(A) Continuous and Noncontinuous Loads

Where a branch-circuit supplies continuous loads or any combination of continuous and noncontinuous loads, the rating of the overcurrent device shall not be less than the noncontinuous load plus 125 percent of the continuous load.

## NEC 240.4 Protection of Conductors

Conductors, other than flexible cords, flexible cables, and fixture wires, shall be protected against overcurrent in accordance with their ampacities specified in 310.15, unless otherwise permitted or required in 240.4(A) through (G).

## NEC 240.4 (D) Small Conductors

Unless specifically permitted in 240.4(E) or (G), the overcurrent protection shall not exceed that required by (D)(1) through (D)(7) after any correction factors for ambient temperature and number of conductors have been applied.

## NEC 430.22(A) Direct-Current Motor-Rectifier Supplied.

For dc motors operating from a rectified power supply, the conductor ampacity on the input of the rectifier shall not be less than 125 percent of the rated input current to the rectifier. For dc motors operating from a rectified single-phase power supply, the conductors between the field wiring output terminals of the rectifier and the motor shall have an ampacity of not less than the following percentages of the motor full-load current rating:

(1) Where a rectifier bridge of the single-phase, half-wave type is used, 190 percent.

(2) Where a rectifier bridge of the single-phase, full-wave type is used, 150 percent.

© 2012 Schneider Electric
All Rights Reserved

Back to Product Index
Section Listing

# Have questions? Need technical support or on-site service?

Now there's one toll-free number to get all the information you need.

**1-888-778-2733**



## Customer Care Center

The Customer Care Center (CCC) is a single point of contact where qualified personnel answer your customer service and technical support questions.

Serving all Schneider Electric authorized distributors and customers anywhere in the United States.



## Schneider Electric Services

Schneider Electric Services provides you with power, automation and control, and energy management services to support the lifecycle of your system, process or installation. Our solutions help you get the most out of your investment and keep your facility at peak operational performance. Any brand. Any industry. Any time.

www.schneider-electric.us

**Schneider Electric USA, Inc.**

1415 S. Roselle Road
Palatine, IL 60067
Tel: 847-397-2600
Fax: 847-925-7500
www.schneider-electric.us

Document Number 0100PL1201

*This document has been printed on recycled paper*

© 2012 Schneider Electric. All Rights Reserved. • 998-5626_US_A