SIEMENS

Industrial Controls

Command and signaling devices SIRIUS ACT 3SU1 pushbuttons and signaling devices

System Manual

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Legal information

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Introduction 1

1.1 Responsibility of the user for system configuration and functionality

The products described here have been developed to perform safety-related functions as part of an overall system or machine.

A complete safety-related system generally includes sensors, evaluation units, signaling devices and concepts for safe tripping.

The manufacturer of a system or machine is responsible for ensuring its correct overall function.

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1.2 Purpose of this documentation

This System Manual describes the many different possible uses of the SIRIUS ACT (3SU1) pushbuttons and signaling devices and provides the following information:

- Information regarding integration of the 3SU1 pushbuttons and signaling devices into the system environment
- Information on the principle of operation, selection, installation, and connection of pushbuttons and signaling devices
- Technical information such as dimension drawings

The information in this manual enables you to configure and commission the pushbuttons and signaling devices.

1.3 Required knowledge

A general knowledge of the following areas is needed in order to understand this documentation:

- Low-voltage industrial controls
- Digital circuit logic
- Automation systems
- AS-Interface
- IO-Link
- Safety technology

1.4 Scope of validity of the system manual

The system manual is valid for the present pushbuttons and signaling devices. It contains a description of the devices that are valid at the time of publication.

1.5 Further documentation

Please observe the following Operating Instructions for this system manual.

Operating Instructions title[1)]	Article No.[1)]
SIRIUS Complete Units with EMERGENCY STOP 3SU11..-1.	3ZX1012-0SU11-1AA1
SIRIUS AS-Interface Module (Front Plate Mounting) 3SU14.0-1E..0-.AA0	3ZX1012-0SU14-1AA1
SIRIUS AS-Interface Module (Base Mounting) in accordance with the Machinery Directive	3ZX1012-0SU14-1CA1
SIRIUS Enclosures with EMERGENCY STOP 3SU18..-.N	3ZX1012-0SU18-1NA1
SIRIUS enclosures with EMERGENCY STOP and AS-i modules	3ZX1012-0SU18-5NA1
SIRIUS Two-Hand Operation Consoles 3SU18..-3	3ZX1012-0SU18-3NA1
SIRIUS AS-Interface Module (Base Element) 3SU14..-.E	3ZX1012-0SU14-1EA1
SIRIUS Electronic Module for ID Key-Operated Switches 3SU14..-.G	3ZX1012-0SU14-1GA1
SIRIUS Sensor Switches	3ZX1012-0SU12-1SA1

1) The documents are available for download free of charge in the Service&Support Portal.

1.6 Siemens Industry Online Support

Information and Service

In Siemens Industry Online Support, you can obtain up-to-date information from our global support database quickly and simply. To accompany our products and systems, we offer a wealth of information and services that provide support in every phase of the lifecycle of your machine or plant – from planning and implementation, through commissioning, up to maintenance and modernization:

- Product support
- Application examples
- Services
- Forum
- mySupport

Link: Siemens Industry Online Support (https://support.industry.siemens.com/cs/de/en)

Product support

You will find here all the information and comprehensive know-how covering all aspects of your product:

- **FAQs**

  Our answers to frequently asked questions.
- **Manuals/operating instructions**

  Read online or download, available as PDF or individually configurable.
- **Certificates**

  Clearly sorted according to approving authority, type and country.
- **Characteristic curves**

  For support in planning and configuring your system.
- **Product announcements**

  The latest information and news concerning our products.
- **Downloads**

  You can find here updates, service packs, HSPs and much more for your product.
- **Application examples**

  Function blocks, background and system descriptions, performance statements, demonstration systems, and application examples, clearly explained and represented.
- **Technical data**

  Technical product data for support in planning and implementing your project.

Link: Product support (https://support.industry.siemens.com/cs/ww/en/ps)

mySupport

With "mySupport", your personal workspace, you get the very best out of your Industry Online Support. Everything to enable you to find the right information every time.

The following functions are now available:

- **Personal messages**
  Your personal mailbox for exchanging information and managing your contacts
- **Inquiries**
  Use our online form for specific solution suggestions, or send your technical inquiry directly to a specialist in Technical Support
- **Notifications**
  Make sure you always have the latest information - individually tailored to your needs
- **Filters**
  Simple management and re-use of your filter settings from Product Support and the Technical Forum
- **Favorites / Tags**
  Create your own knowledge database by assigning "Favorites" and "Tags" to documents – simply and efficiently
- **Entries last viewed**
  Clear presentation of your last viewed entries
- **Documentation**
  Configure your individual documentation from different manuals – quickly and without complications
- **Personal data**
  Change personal data and contact information here
- **CAx data**
  Simple access to thousands of items of CAx data such as 3D models, 2D dimension drawings, EPLAN macros and much more

1.7 Siemens Industry Online Support app

Siemens Industry Online Support app

You can use the Siemens Industry Online Support app to access all the device-specific information available on the Siemens Industry Online Support portal for a particular article number, including operating instructions, manuals, datasheets, FAQs etc.
The Siemens Industry Online Support app is available for iOS, Android or Windows Phone devices. You can download the app from the following links:

Link for Android

Link for iOS

Link for Windows Phone

1.8 Support Request

Using the Support Request form in Online Support you can send your query directly to our Technical Assistance. After describing your query in a few guided steps, you will immediately be provided with possible suggestions for solving the problem.

Support Request:	Internet (https://support.industry.siemens.com/My/ww/en/requests)

1.9 Configurator for SIRIUS ACT command devices and signaling devices

Various configurators are available online to assist you during the configuration process.

The configurator for SIRIUS ACT pushbuttons and signaling devices and matching accessories is an easy-to-use selection and configuration tool. You can select the individual components and plan your system in accordance with your specific requirements. You can save your selection, export it as a text file or order it directly.

The configurator automatically compiles a document list of the information available in Service&Support for every component. You can use it as the basis for putting together your system documentation.

A further aid to configuring your customized device is the **C**onfiguration **I**dentification **N**umber (CIN).

When you finish configuring your customized device, you receive a CIN. With this number, you can retrieve and order your configuration from anywhere in the world. The CINs are also saved with the user login and can be selected on your Start page.

Link: Configurator (https://www.siemens.com/sirius-act/configurator)

1.10 Advantages through energy efficiency

Siemens offers you a unique portfolio for efficient energy management in industry – a process that serves to optimally shape your energy requirement. Operational energy management is subdivided into three phases:

- Identifying
- Evaluating
- Realizing

Siemens supports you with suitable hardware and software solutions in every phase of a project.

More information can be found on the Internet (http://www.automation.siemens.com/mcms/industrial-controls/en/energy-efficiency).

The 3SU1 pushbuttons and signaling devices contribute to energy efficiency throughout the plant as follows:

- Low power consumption as a result of LED technology
- Long service life

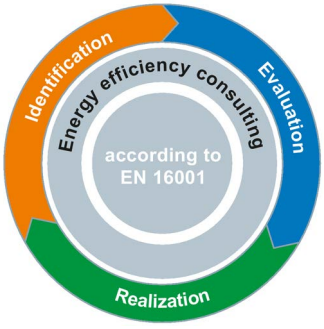


Figure 1-1 Overview of the energy management process

1.11 Recycling and disposal

For environmentally friendly recycling and disposal of your old device, please contact a company certified for the disposal of old electrical and/or electronic devices and dispose of the device in accordance with the regulations in your country.

Safety notes

2

⚠ DANGER

Hazardous voltage. Will cause death or serious injury.

- Turn off and lock out all power supplying this device before working on this device.
- Secure against switching on again.
- Verify that the equipment is not live.
- Ground and short-circuit.
- Erect barriers around or cover adjacent live parts.

⚠ DANGER

Hazardous voltage. Will cause death or serious injury.

Qualified Personnel.

The equipment / system may only be commissioned and operated by qualified personnel. For the purpose of the safety information in this documentation, a "qualified person" is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

⚠ CAUTION

Safe equipment operation

Safe operation of the equipment is only ensured with certified components.

NOTICE

Grounding

Grounding is required for voltages higher than safety extra-low voltage!

NOTICE

Radio interference

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Note

No liability shall be accepted for any damage or injuries sustained as a result of improper use or incorrect dismantling of the equipment (i.e. opening of components other than those specifically designed to be opened by the user). Any improper handling of the equipment can result in very serious physical injury.

Note

Lamps and LED modules are designed solely for use with SIRIUS pushbuttons and signaling devices. They are not suitable for use in domestic lighting systems.

Note

Always make sure that the components (particularly those with a holder or actuator) are securely installed (free from vibration). Mount them on a support of at least 1 mm thickness.

Note

The 3SU1 devices described in this manual may only be installed at temperatures above -5 °C.

2.1 Intended use

⚠ WARNING

Hazardous Voltage
Can Cause Death, Serious Injury, or Property Damage.
Intended use of hardware products

This equipment is only allowed to be used for the applications described in the catalog and in the technical description, and only in conjunction with non-Siemens equipment and components recommended by Siemens.

Correct transport, storage, installation and assembly, as well as careful operation and maintenance, are required to ensure that the product operates safely and without faults.

EU note: Commissioning is absolutely prohibited until it has been ensured that the machine in which the component described here is to be installed complies with the stipulations of the Directive 2006/42/EC.

⚠ WARNING

Hazardous Voltage
Can Cause Death, Serious Injury, or Damage to Property.
Carry out function test of the system

To ensure the safety of the system, any changes to it or any replacement of defective components must be followed by a thorough and successfully completed function test of the system.

A complete function test consists of the following tests:

- Configuration test (test of the configuration)
- System test (wiring test of the connected sensors and actuators)

2.2 Current information about operational safety

Important note for maintaining operational safety of your system

⚠ WARNING

Hazardous Voltage
Can Cause Death, Serious Injury, or Property Damage.
Please take note of our latest information.

Systems with safety-related characteristics are subject to special operational safety requirements on the part of the operator. The supplier is also obliged to comply with special product monitoring measures. For this reason, we publish a special newsletter containing information on product developments and features that are (or could be) relevant to operation of safety-related systems. By subscribing to the appropriate newsletter, you will ensure that you are always up-to-date and able to make changes to your system, when necessary:

SIEMENS newsletter (http://www.industry.siemens.com/newsletter)

Request the following newsletter under "Products and Solutions":

- Industrial Controls - SIRIUS News (en)
- Safety Integrated Newsletter

2.3 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines, and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit:
https://www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/industrialsecurity.

ATEX for intrinsically safe circuits

3

Type of protection "i" - intrinsic safety

The intrinsic safety of a circuit is achieved by safe restriction of the energy taking faults into consideration.

- No thermal ignition (temperature rise)
- No spark ignition (closing / opening sparks).

Suitable applications are found, for example, in measuring and control engineering.

The basis for the "intrinsically safe" protection type is that a specific minimum ignition energy is required to ignite a potentially explosive atmosphere. In an intrinsically-safe circuit, no sparks or thermal effects occur in operation or in the event of a fault that ignite a potentially explosive atmosphere.
Intrinsic safety is divided into various levels of protection: ia, ib and ic.

- Based on standard: IEC 60079-11, IEC 60079-0

Safety instructions

The mounting specifications from the system manual are to be observed. Only in this way are the safety function and the conformity with the guideline for explosion protection maintained.

Note: Requirements from standards IEC 60079-0; IEC 60079-11; IEC 60079-14; IEC 60079-17; IEC 60079-19; IEC 60079-25

Simple electrical equipment (gas/dust atmosphere)

From our portfolio of pushbuttons and indicator lights, actuators, contact modules, empty enclosures and special accessories have been classified according to the requirements (IEC 60079-11: 2011, Para. 5.7 Simple apparatus) and are thus suitable for use in intrinsically safe circuits.

Link: Siemens Confirmation No.: 3287 (https://support.industry.siemens.com/cs/document/109476838/confirmation-manufacturer?dti=0&lc=en-WW)

Protection by intrinsic safety (gas atmosphere)

The LED modules (Type 3SU1401-xBBx0-xAA2) are approved in accordance with IEC 60079-11 (Equipment protection by intrinsic safety "i") and are used in hazardous zones 1, 2. They comply with the "ib" type of protection for intrinsic safety. The use of the LED modules is not allowed in circuits without corresponding intrinsic safety.

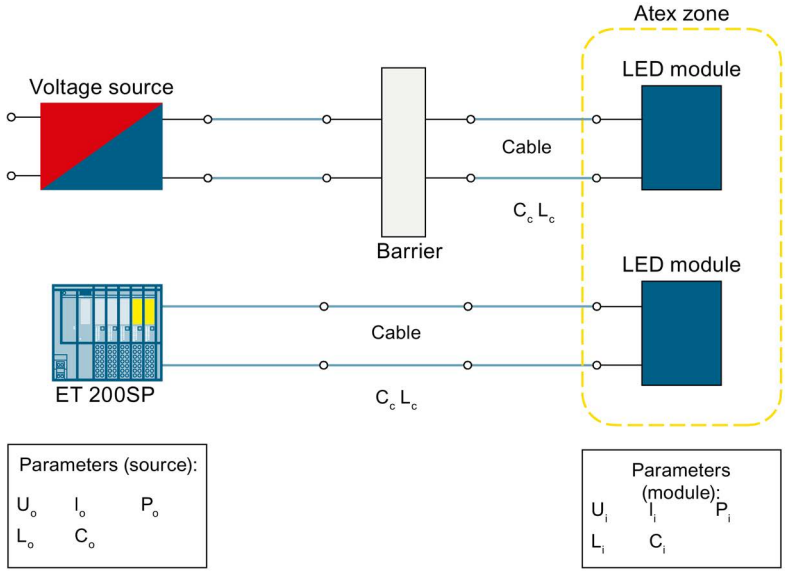
The LED modules may only be used in connection with a suitable 3SU1 pushbutton or signaling device, in the suitable enclosure or a control panel. Note the corresponding zone eligibility in accordance with Siemens Confirmation No.: 3287

Link: Siemens Confirmation No.: 3287 (https://support.industry.siemens.com/cs/document/109476838/confirmation-manufacturer?dti=0&lc=en-WW)

Note the technical data, as well as parameters of the interfaces. You can find these in the product datasheet.

Link: Product data sheet (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221527)

Basic representation of the use of the 24 V LED modules for intrinsic safety



Please note:

$U_0 \leq U_i$
$I_0 \leq I_i$
$P_0 \leq P_i$

$C_0 \geq C_C$

$L_0 \geq L_C$

- U_i = maximum input voltage
- I_i = maximum input current
- P_i = maximum input power
- C_i = maximum inner capacitance
- L_i = maximum inner inductance
- U_0 = maximum output voltage
- I_0 = maximum output current
- P_0 = maximum output power
- C_0 = maximum outer capacitance
- L_0 = maximum outer inductance

Overview

4

3SU1 pushbuttons and signaling devices

	3SU10 actuating and signaling elements 3SU11 complete units[1)] 3SU12 compact units[1)]	3SU14 modules without holder 3SU15 modules with holder	3SU18 enclosures	3SU18..-3 two-hand operation consoles
Description	• Pushbuttons • Mushroom pushbuttons • EMERGENCY STOP mushroom pushbuttons • Sensor switches • Selector switches • Twin pushbuttons • Key-operated switches • Indicator lights • Indicator lights with "traffic light" LED • Illuminated pushbuttons • ID key-operated switches • Stop pushbuttons • Toggle switches • Coordinate switches • Potentiometers • USB adapters (3SU19) • RJ45 adapters (3SU19)	• Contact modules • LED modules • LED test modules • AS-Interface module (front plate mounting) • AS-Interface module (base mounting) • IO-Link • Support terminal • ID key module	• Unequipped enclosures with 1, 2, 3, 4 or 6 command points • EMERGENCY STOP enclosures • Enclosures with 1, 2 or 3 command points pre-equipped • Palm pushbuttons • Customized enclosures on request	• Two-hand operation consoles including EMERGENCY STOP and 2 mushroom pushbuttons • Additional command devices can be mounted
Version	Front ring / Collar: • Metal / Metal • Metal, matte / Metal • Metal, matte / Plastic • Plastic / Plastic	• Plastic, black	• Plastic • Metal	• Plastic • Metal

	3SU10 actuating and signaling elements 3SU11 complete units[1)] 3SU12 compact units[1)]	3SU14 modules without holder 3SU15 modules with holder	3SU18 enclosures	3SU18..-3 two-hand operation consoles
Installation / Connection	• One-person installation without special tools • Modular equipping of the actuating elements with contact and/or LED modules • Screw terminals, spring-type terminals, solder pin connection	• Front plate mounting • Base mounting • Mounting on printed-circuit boards • Screw terminals • Spring-type terminals • Solder pin connections • Push-in for AS-I • Insulation piercing method for AS-I	• Vertical / Horizontal • AS-I adapter M12 • AS-I cable gland with insulation piercing method • Circular cable glands • Circular cable glands with AS-I cable entry • Enclosure cover monitoring	• Can be mounted on a wall, stand, or directly within the system
Degree of protection	• IP66 / IP67 / IP69[2)] (plastic / metal)	Enclosure: IP40 Connecting terminals: IP20	IP66 / IP67 / IP69 (plastic / metal)	IP66 (plastic / metal)
Approval	• UL • CSA • CE • CCC • VDE • NEMA: 1, 3, 3R, 4, 4x, 12, 13	• UL, CSA, CE • c UL us, CE, C-Tick, KCC, TÜV, CCC	• UL • CSA • CE • CCC • NEMA: 1, 3, 3R, 4, 4x, 12,13	• UL • CSA • CE • CCC • NEMA: 1, 3, 3R, 4, 4x, 12, 13
Relevant standards	• IEC/EN 60947-1 • IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • EN ISO 13850	• IEC/EN 60947-1 • IEC/EN 60947-5-1 • IEC/EN 61508 • EN ISO 13849-1	• IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • EN ISO 13850 • IEC/EN 60947-1 • EN ISO 13849-1	• IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • IEC/EN 61508 • EN ISO 13850
AS-Interface	Fast and easy connection to AS-Interface. Possibility of direct connection of EMERGENCY STOP devices via standard ASi bus with safety-related communication.		• Enclosure with integrated AS-Interface • Standard command devices and EMERGENCY STOP can be mounted inside an enclosure. • Modular structure	Metal consoles can be retrofitted with safe AS-Interface.

	3SU10 actuating and signaling elements 3SU11 complete units[1)] 3SU12 compact units[1)]	3SU14 modules without holder 3SU15 modules with holder	3SU18 enclosures	3SU18..-3 two-hand operation consoles
Safety	EMERGENCY STOP mushroom pushbuttons for shutdown of systems in an emergency situation The devices can be used up to SIL CL 3 according to IEC 62061 and PL e Cat. 4 according to ISO 13849-1.	Contact module with installation monitoring	EMERGENCY STOP function with latching according to ISO 13850	EMERGENCY STOP function with latching according to ISO 13850
Options	• Link to the configurator for customized enclosures: Configurator (http://www.siemens.com/sirius-act/configurator)			
	• Do-it-yourself labeling using Label Designer. Label Designer (http://www.siemens.com/sirius-label-designer) (labels for self-inscription)			

[1)] Holder included in the scope of supply

[2)] IPX9 - Protection against high pressure and high jet-water temperatures

- a) IPX9 according to EN 60529
  The IPX9 test as defined by EN 60529 is carried out under standardized laboratory conditions and certifies resistance of equipment to water penetration during cleaning with high-pressure water.

  According to the standard, the IPX9 test must be conducted with the following parameters:

  – Water temperature approximately 80 °C
  – Pressure approximately 80 bar
  – Spray angles 0°, 30°, 60°, 90°, spraying time approximately 30 seconds
  – Distance between spray nozzle and equipment approx. 125 mm

- b) High-pressure cleaners in practice
  – Laboratory tests carried out in accordance with a standard can generally only approximate a complex reality.
  – In order to preserve the service life of the devices, therefore, it is recommended that a significantly larger distance than that specified in the standard for one-time loading is maintained between the spray nozzle and the equipment.

Grained finish in combination with SIRIUS ACT actuators (3SU10, 3SU12)

You can use the SIRIUS ACT actuator in the front panel with a standard grained (hammered enamel) finish. In this way, the SIRIUS ACT actuators comply with IP66 and IP67 protection.

IP degree of protection and NEMA classes

All specified IP and NEMA protection classes can only be guaranteed for the devices sold by Siemens.

4.1 Application areas

Enclosures

When controllers are at a physically separate location, actuating elements and indicator lights in enclosures serve as manual control devices. Their enclosures are equipped with the actuating elements and the round lens assemblies with a nominal diameter of 22.5 mm.

EMERGENCY STOP mushroom pushbuttons

- Safe and fast stopping of systems and machines in dangerous situations

Two-hand operation consoles

The two-hand operation consoles are required for use with machines and systems that have hazardous areas, in order to direct both hands of the operator to one position.

The two-hand operation consoles are used for the following safety requirements:

- Safety at presses and punching machines
- Safety at printing presses
- Safety at paper processing machines
- Safety in the chemical industry
- Safety in the rubber and plastics industries

4.2 Media resistance

The devices are suitable for use in any climate ("AT") according to EN ISO 6270-2 and designed for standard industrial applications.

The use of the resistant material polyamide as standard gives the SIRIUS ACT devices improved resistance to oils and detergents[1)]. Most actuating and indicating elements can still be labeled customer-specifically by lasering.

[1)] No high concentrations of alcohol.

4.3 Failure rates

Using the B10 value, the failure rate of the command and signaling devices is calculated according to the following formula:

λ = [0.1 x C / B10]

λD = [0.1 x C / B10d]

λ = Total failure rate of a command and signaling device

λD = Failure rate of dangerous failures

C = Operating cycle per hour

B10d = B10 / Proportion of dangerous failures

SN 31920 standard

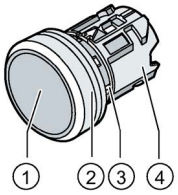
The B10 value for devices subject to wear is expressed in the number of operating cycles. This is the number of operating cycles at which during a lifetime test, 10% of the test objects have failed (or: number of operating cycles after which 10% of the devices have failed).

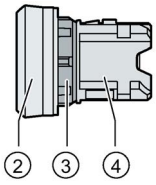
Note

Refer to the respective data sheet for the B10 value and the proportion of dangerous failures.

4.4 Types of 3SU1 actuating elements and signaling elements

4.4.1 Design of a 3SU1 actuating or signaling element





① Actuator (in this case: pushbutton)

② Front ring

③ Seal

④ Collar

4.4.2 3SU10 actuating and signaling elements

The 3SU10 actuating and signaling elements are available in the following designs:

- Front ring and collar in plastic
- Front ring in metal matte and collar in plastic
- Front ring and collar in metal
- Front ring in metal matte and collar in metal

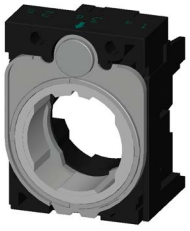
Front ring material	Collar material	Examples
Plastic	Plastic	 3SU100
Metal, matte	Plastic	 3SU103
Metal	Metal	 3SU105
Metal, matte	Metal	 3SU106

4.4.3 3SU15 holders

The 3SU15 holders are used to secure the actuating or signaling elements and the contact module or LED module. The holders are designed for mounting in front plates with a plate thickness of 1 to 6 mm.

3SU15 holders made of metal or plastic and with 3 or 4 slots for contact or LED modules are available. A holder has three slots as standard. Holders with four slots are available for the actuating elements, coordinate switches and selector switches with four switch positions.

For further information, refer to Chapter "3SU15 holders (Page 221)".

Material	Examples
Plastic	
Metal	

Module slot positions

Holders made of metal or plastic and with 3 or 4 slots for contact or LED modules are available.

The module slot positions (contact or LED modules) are indicated on top of the holder. The large digits designate the modules that are snapped directly onto the holder. The small digits indicate the position of stacked modules.

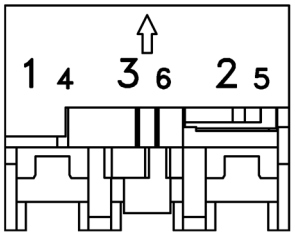


Figure 4-1 Marking of slot positions on the 3-slot holder

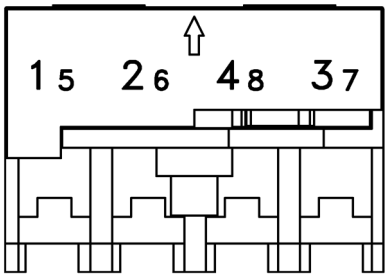


Figure 4-2 Marking of slot positions on the 4-slot holder

Assignment of the holders to the actuating and signaling elements

The following assumptions apply when assigning holders to the actuating elements and signaling elements:

Front ring material	Collar material	Bore diameter	Holder (plastic)	Holder (metal)
Plastic	Plastic	22.5 mm	✓	✓
Metal, matte	Plastic	22.5 mm	✓	✓
Metal	Metal	22.5 mm	---	✓
Metal, matte	Metal	30.5 mm	---	✓

4.4.4 3SU14 modules

The contact modules are equipped with a slow-action contact (1 NO contact or 1 NC contact). These ensure a high contact stability even with small voltages and currents (e.g., 5 V/1 mA).



Figure 4-3 Example: 3SU1400-2AA10-1BA0 contact module

Connection system

Devices with the following connections are available:

- Screw terminals with open terminal points, captive screws, funnel-shaped cable entries and screwdriver guides
- Spring-loaded terminals for vibration-resistant connection
- Solder pin connection (0.8 mm × 0.8 mm solder pins)

4.4.5 Design of a 3SU10 and 3SU11 command point

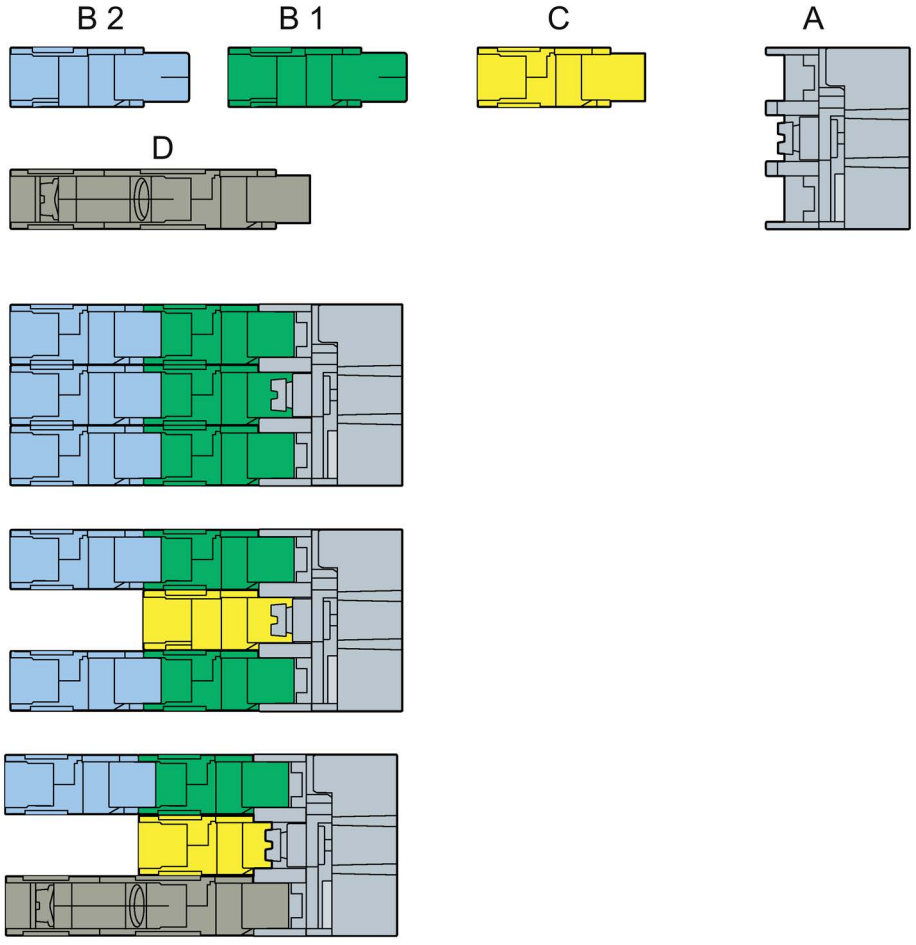
A modular command point consists of the following elements:

- An actuating or signaling element in front of the front plate
- A holder for securing behind the front plate
- Up to three contact modules in a row (four in the case of 4-slot holders) and / or two contact modules and one LED module (3-slot holders only) behind the front plate
- A maximum of 3x 2 (1-pole) contact modules can be stacked with a 3-slot holder
- A maximum of 4x 2 (1-pole) contact modules can be stacked with a 4-slot holder
- A comprehensive range of accessories for labeling

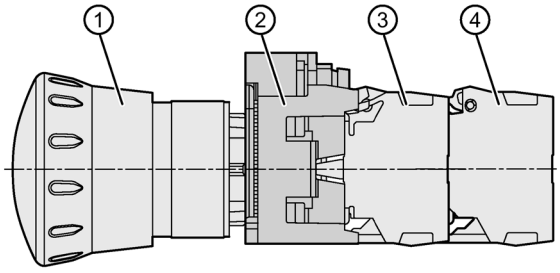
Mounting and stacking of the modules on a 3-slot holder

With SIRIUS ACT, the modules are mounted on the holder without any further accessories. The modules can be stacked without needing to use a tool (max. 2x 1-pole modules behind one other).

The figure below shows **an example** of the mounting and stacking of the modules on a 3-slot holder.



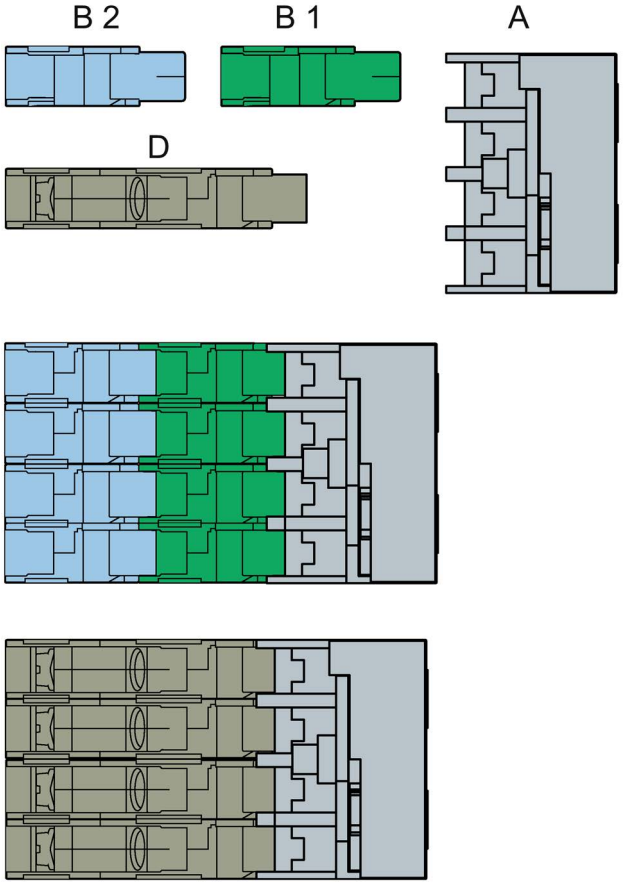
A	3-slot holder
B1 / B2	Contact module 1-pole
C	LED module
D	Contact module 2-pole



① Actuating element (here: EMERGENCY STOP mushroom pushbutton)
② Holder
③ Module 1
④ Module 2

Mounting and stacking of the modules on a 4-slot holder

The figure below shows **an example** of the mounting and stacking of the modules on a 4-slot holder.
It is not possible to mount an LED module on a 4-slot holder.



A	4-slot holder
B1 / B2	Contact module 1-pole
D	Contact module 2-pole

3SU10 pushbuttons and indicator lights

5

5.1 3SU10 devices for use on 3-slot holder

5.1.1 22.5 mm pushbuttons

Pushbuttons are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. The buttons of the pushbuttons with flat front ring can be replaced from the front by the user.

Pushbuttons are available in different variants according to the following features:

- Height of button
- Height of front ring
- Collar and front ring material
- Colors of the buttons
- Switching function: momentary contact variants and latching variants

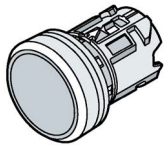
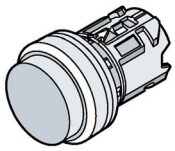
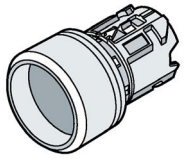
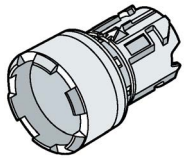
For further information, refer to Chapters "Mounting (Page 111)", "22.5 mm pushbuttons with standard inscription (Page 99)" and "Accessories (Page 385)"

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Pushbutton plastic / plastic

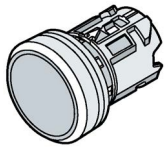
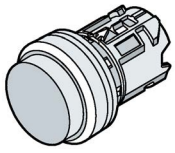
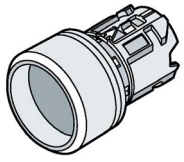
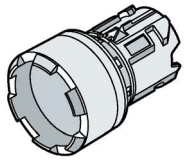
Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)

Pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Black	3SU1000-0Ax10-0AA0	3SU1000-0BB10-0AA0	3SU1000-0CB10-0AA0	3SU1000-0DB10-0AA0
Red	3SU1000-0Ax20-0AA0	3SU1000-0BB20-0AA0	3SU1000-0CB20-0AA0	3SU1000-0DB20-0AA0
Yellow	3SU1000-0Ax30-0AA0	3SU1000-0BB30-0AA0	3SU1000-0CB30-0AA0	3SU1000-0DB30-0AA0
Green	3SU1000-0Ax40-0AA0	3SU1000-0BB40-0AA0	3SU1000-0CB40-0AA0	3SU1000-0DB40-0AA0
Blue	3SU1000-0Ax50-0AA0	3SU1000-0BB50-0AA0	3SU1000-0CB50-0AA0	3SU1000-0DB50-0AA0
White	3SU1000-0Ax60-0AA0	3SU1000-0BB60-0AA0	3SU1000-0CB60-0AA0	3SU1000-0DB60-0AA0
Clear	3SU1000-0AB70-0AA0	—	—	—
Gray	3SU1000-0AB80-0AA0	—	—	—

x: A = latching (push to unlatch); x: B = momentary contact

Pushbutton plastic / metal, matte

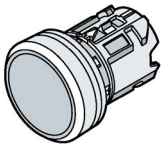
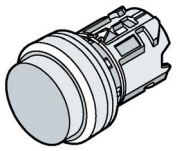
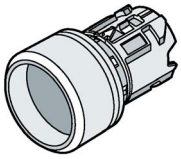
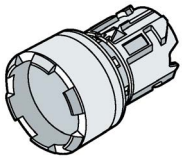
Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)

Pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Black	3SU1030-0Ax10-0AA0	3SU1030-0BB10-0AA0	3SU1030-0CB10-0AA0	—
Red	3SU1030-0Ax20-0AA0	3SU1030-0BB20-0AA0	3SU1030-0CB20-0AA0	—
Yellow	3SU1030-0Ax30-0AA0	3SU1030-0BB30-0AA0	3SU1030-0CB30-0AA0	—
Green	3SU1030-0Ax40-0AA0	3SU1030-0BB40-0AA0	3SU1030-0CB40-0AA0	—
Blue	3SU1030-0Ax50-0AA0	3SU1030-0BB50-0AA0	3SU1030-0CB50-0AA0	—
White	3SU1030-0Ax60-0AA0	3SU1030-0BB60-0AA0	3SU1030-0CB60-0AA0	—
Clear	3SU1030-0AB70-0AA0	—	—	—
Gray	3SU1030-0AB80-0AA0	—	—	—

x: A = latching (push to unlatch); x: B = momentary contact

Pushbutton metal / metal

Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)

Pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Black	3SU1050-0Ax10-0AA0	3SU1050-0BB10-0AA0	3SU1050-0CB10-0AA0	—
Red	3SU1050-0Ax20-0AA0	3SU1050-0Bx20-0AA0	3SU1050-0CB20-0AA0	—
Yellow	3SU1050-0Ax30-0AA0	3SU1050-0BB30-0AA0	3SU1050-0CB30-0AA0	—
Green	3SU1050-0Ax40-0AA0	3SU1050-0BB40-0AA0	3SU1050-0CB40-0AA0	—
Blue	3SU1050-0Ax50-0AA0	3SU1050-0BB50-0AA0	3SU1050-0CB50-0AA0	—
White	3SU1050-0Ax60-0AA0	3SU1050-0BB60-0AA0	3SU1050-0CB60-0AA0	—
Clear	3SU1050-0AB70-0AA0	—	—	—
Gray	3SU1050-0AB80-0AA0	—	—	—

x: A = latching (push to unlatch); x: B = momentary contact

5.1.2 22.5 mm illuminated pushbuttons

Illuminated pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. A variant with a fixed pushbutton can be used as an indicator light. The buttons of the illuminated pushbuttons with flat front ring can be replaced from the front by the user.

The illuminated pushbuttons are available in different variants according to the following features:

- Height of button
- Collar and front ring material
- Colors of the buttons
- Switching function: momentary contact variants and latching variants.
- Illuminable

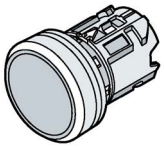
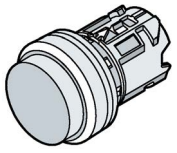
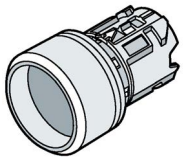
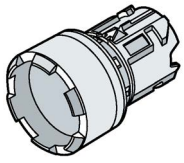
For further information, refer to Chapters "Mounting (Page 111)" and "Accessories (Page 385)"

Note

Not all combinations listed in the tables are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Illuminated pushbutton plastic / plastic

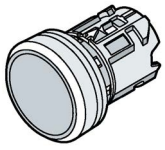
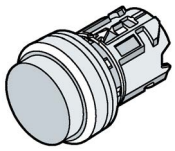
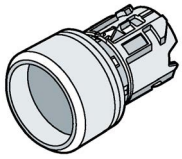
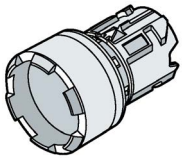
Siemens Industry Mall
(https://mall.industry.siemens.com/mallen/WW/Catalog/Products/10216936)

Illuminated pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Amber	3SU1001-0AB00-0AA0	—	—	—
Red	3SU1001-0Ax20-0AA0	3SU1001-0BB20-0AA0	—	—
Yellow	3SU1001-0Ax30-0AA0	3SU1001-0BB30-0AA0	—	—
Green	3SU1001-0Ax40-0AA0	3SU1001-0BB40-0AA0	—	—
Blue	3SU1001-0Ax50-0AA0	3SU1001-0BB50-0AA0	—	3SU1001-0DB50-0AA0
White	3SU1001-0Ax60-0AA0	—	—	—
Clear	3SU1001-0Ax70-0AA0	3SU1001-0BB70-0AA0	—	—

x: A = latching (push to unlatch); x: B = momentary contact

Illuminated pushbutton plastic / metal, matte

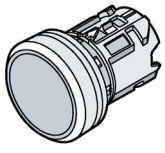
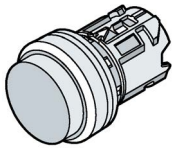
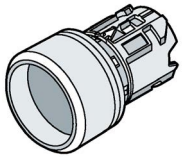
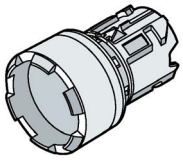
Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)

Illuminated pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Amber	3SU1031-0AB00-0AA0	—	—	—
Red	3SU1031-0Ax20-0AA0	3SU1031-0BB20-0AA0	3SU1031-0CB20-0AA0	—
Yellow	3SU1031-0Ax30-0AA0	3SU1031-0BB30-0AA0	—	—
Green	3SU1031-0Ax40-0AA0	3SU1031-0BB40-0AA0	3SU1031-0CB40-0AA0	—
Blue	3SU1031-0Ax50-0AA0	3SU1031-0BB50-0AA0	—	—
White	3SU1031-0Ax60-0AA0	—	—	—
Clear	3SU1031-0Ax70-0AA0	3SU1031-0BB70-0AA0	—	—

x: A = latching (push to unlatch); x: B = momentary contact

Illuminated pushbutton metal / metal

Siemens Industry Mall
(hhttps://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)

Illuminated pushbutton	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Typical diagram				
Amber	3SU1051-0AB00-0AA0	3SU1051-0BB00-0AA0	—	—
Red	3SU1051-0Ax20-0AA0	3SU1051-0BB20-0AA0	—	—
Yellow	3SU1051-0Ax30-0AA0	3SU1051-0BB30-0AA0	—	—
Green	3SU1051-0Ax40-0AA0	3SU1051-0BB40-0AA0	—	—
Blue	3SU1051-0Ax50-0AA0	3SU1051-0BB50-0AA0	—	—
White	3SU1051-0Ax60-0AA0	3SU1051-0BB60-0AA0	—	—
Clear	3SU1051-0Ax70-0AA0	3SU1051-0BB70-0AA0	—	—

x: A = latching (push to unlatch); x: B = momentary contact

5.1.3 30.5 mm pushbuttons and illuminated pushbuttons

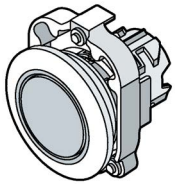
Pushbuttons and illuminated pushbuttons in the 30.5 mm diameter size are intended for flat mounting. The series is available in metal and metal matte versions. The pushbuttons and illuminated pushbuttons are suitable for installation on a front plate with a maximum thickness of 4 mm.
You must use the metal holder (3SU1550-0AA10-0AA0) for mounting.
In addition, the adapter (3SU1950-0KJ80-0AA0) for actuators and indicators for flat mounting must be mounted between the front plate and the holder. The adapter is included in the scope of supply, but can also be ordered as a separate item.

The buttons can be replaced from the front by the user.

Note

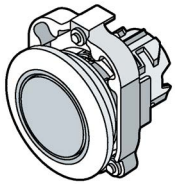
Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Pushbuttons

	Collar / Front ring material	Article No.
 Typical diagram	**Metal / Metal, matte** Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)	
	Black	3SU1060-0Jx10-0AA0
	Red	3SU1060-0Jx20-0AA0
	Yellow	3SU1060-0Jx30-0AA0
	Green	3SU1060-0Jx40-0AA0
	Blue	3SU1060-0Jx50-0AA0
	White	3SU1060-0Jx60-0AA0

x: A = latching (push to unlatch); x: B = momentary contact

Illuminated pushbuttons

	Collar / Front ring material	Article No.
 Typical diagram	**Metal / Metal, matte** Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)	
	Red	3SU1061-0Jx20-0AA0
	Yellow	3SU1061-0Jx30-0AA0
	Green	3SU1061-0Jx40-0AA0
	Blue	3SU1061-0Jx50-0AA0
	Clear	3SU1061-0Jx70-0AA0

x: A = latching (push to unlatch); x: B = momentary contact

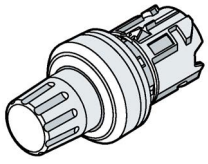
5.1.4 STOP buttons

STOP buttons are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. 2 functionalities (momentary contact, latching) are combined in the STOP buttons. The STOP button is operated by pressing and turning the actuating element with several fingers. A contact element is briefly closed / opened by pressing the STOP button. After pressing, locking is effected by turning the actuating element to the right. This effects permanent closing / opening of a contact element. The STOP button is unlocked again by turning the actuating element to the left.

The STOP buttons are available in different variants according to the following features:

- Colors

You will find additional information in Chapters "Mounting (Page 111)" and "Accessories (Page 385)"

 Typical diagram	**STOP buttons**
Collar / Front ring material	**Article No.** Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Search?searchTerm=3SU1000-0HC10-0AA0)
Plastic / Plastic	
Black	3SU1000-0HC10-0AA0
Red	3SU1000-0HC20-0AA0

5.1.5 Twin pushbuttons

Twin pushbuttons are used to actuate contact modules and can also function as display devices. Thanks to separate actuating surfaces, it is possible to switch up to 2 independent module positions separately using only one command point. The switching function of all versions of the twin pushbuttons is latching.

Twin pushbuttons are available in different variants according to the following features:

- Height of button (flat or raised) with 2 different button combinations:
  - Flat / flat
  - Flat / raised
- Collar and front ring material
- Colors of the buttons

Twin pushbuttons are supplied as standard with pressure plates ①.

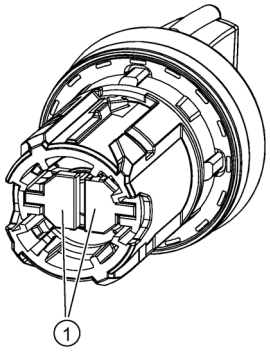


Figure 5-1 Typical diagram

The diagram above is an example of the pressure plates on a selector switch. The procedure for a twin pushbutton corresponds to that for a selector switch.

Each pressure plate can be individually removed and reinstalled.

The twin pushbuttons are designed in such a way that, by using an LED module, the center surface of the twin pushbutton can be illuminated.

The pressure plates must be removed before the LED module is installed.

In the case of illuminated twin pushbuttons, this step is not necessary. They are already prepared for illumination at the factory.

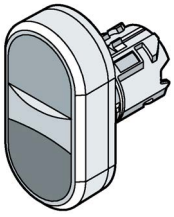
For further information, refer to Chapters "Mounting (Page 111)" and "Twin pushbuttons with standard inscription (Page 100)"

With standard installation (arrow on collar at the top), the upper button always has the first specified color and the lower button the second specified color. The same principle is used with the button heights. The first specified height refers to the top button, and the second specified height to the lower button.

Example: 3SU1051-3BB42-0AA0
Top button = green and flat
Lower button = red and raised

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

 Typical diagram	**Twin pushbuttons**	**Illuminated twin pushbuttons**
Collar / Front ring material	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Black / Black	3SU1000-3xB11-0AA0	—
Green / Red	3SU1000-3xB42-0AA0	3SU1001-3xB42-0AA0
White / Black	3SU1000-3xB61-0AA0	3SU1001-3xB61-0AA0
White / White	3SU1000-3xB66-0AA0	3SU1001-3xB66-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Black / Black	3SU1030-3xB11-0AA0	—
Green / Red	3SU1030-3xB42-0AA0	3SU1031-3xB42-0AA0
White / Black	3SU1030-3xB61-0AA0	3SU1031-3xB61-0AA0
White / White	3SU1030-3xB66-0AA0	3SU1031-3xB66-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)		
Black / Black	3SU1050-3xB11-0AA0	—
Green / Red	3SU1050-3xB42-0AA0	3SU1051-3xB42-0AA0
White / Black	3SU1050-3xB61-0AA0	3SU1051-3xB61-0AA0
White / White	3SU1050-3xB66-0AA0	3SU1051-3xB66-0AA0

x: A = twin pushbutton with flat / flat button; x: B = twin pushbutton with flat / raised button

5.1.6 Mushroom pushbuttons

Mushroom pushbuttons are used to actuate contact modules. Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand. By pressing or pulling these buttons, it is possible to generate up to 3 signals with just a single device.

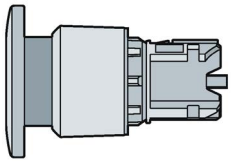
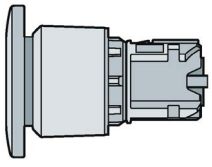
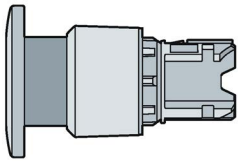
They are available with actuators with a diameter of 30 mm, 40 mm or 60 mm.

Mushroom pushbuttons are available in different variants according to the following features:

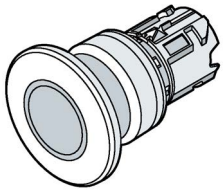
- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Switch positions 2 (all mushroom pushbuttons) or 3 positions (only mushroom pushbuttons in diameter 40 mm)

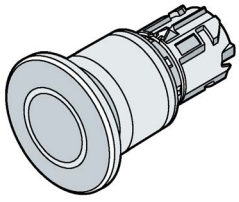
For further information, refer to Chapter "Mounting (Page 111)".

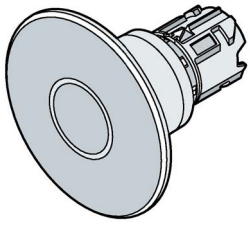
Actuation options: 3-position mushroom pushbutton

	Holder position			Holder position		
	1/4	3/6	2/5	1/4	3/6	2/5
	Contact module NO contact	Contact module NO contact	Contact module NO contact	Contact module NC contact	Contact module NC contact	Contact module NC contact
 1st position: basic position	Open	Open	Closed	Closed	Closed	Open
 2nd position: pressed	Closed	Closed	Closed	Open	Open	Open
 3rd position: pulled	Open	Open	Open	Closed	Closed	Closed

Overview of mushroom pushbuttons

 Typical diagram		**Ø 30 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Black	2-position	3SU1000-1AA10-0AA0	3SU1000-1AD10-0AA0
Red	2-position	3SU1000-1AA20-0AA0	3SU1000-1AD20-0AA0
Yellow	2-position	3SU1000-1AA30-0AA0	3SU1000-1AD30-0AA0
Green	2-position	—	3SU1000-1AD40-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Black	2-position	3SU1030-1AA10-0AA0	3SU1030-1AD10-0AA0
Red	2-position	3SU1030-1AA20-0AA0	3SU1030-1AD20-0AA0
Yellow	2-position	—	3SU1030-1AD30-0AA0
Green	2-position	—	3SU1030-1AD40-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Black	2-position	3SU1050-1AA10-0AA0	3SU1050-1AD10-0AA0
Red	2-position	3SU1050-1AA20-0AA0	3SU1050-1AD20-0AA0
Yellow	2-position	—	3SU1050-1AD30-0AA0
Green	2-position	—	3SU1050-1AD40-0AA0

 Typical diagram		**⌀ 40 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Black	2-position	3SU1000-1BA10-0AA0	3SU1000-1BD10-0AA0
Red	2-position	3SU1000-1BA20-0AA0	3SU1000-1BD20-0AA0
Yellow	2-position	3SU1000-1BA30-0AA0	3SU1000-1BD30-0AA0
Green	2-position	3SU1000-1BA40-0AA0	3SU1000-1BD40-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Black	2-position	3SU1030-1BA10-0AA0	3SU1030-1BD10-0AA0
Red	2-position	3SU1030-1BA20-0AA0	3SU1030-1BD20-0AA0
Yellow	2-position	3SU1030-1BA30-0AA0	3SU1030-1BD30-0AA0
Green	2-position	3SU1030-1BA40-0AA0	3SU1030-1BD40-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Black	2-position	3SU1050-1BA10-0AA0	3SU1050-1BD10-0AA0
	3-position	3SU1050-1EA20-0AA0	3SU1050-1ED10-0AA0
Red	2-position	3SU1050-1BA20-0AA0	3SU1050-1BD20-0AA0
	3-position	3SU1050-1EA20-0AA0	3SU1050-1ED20-0AA0
Yellow	2-position	3SU1050-1BA30-0AA0	3SU1050-1BD30-0AA0
Green	2-position	3SU1050-1BA40-0AA0	3SU1050-1BD40-0AA0

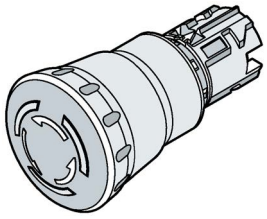
 Typical diagram		**⌀ 60 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Black	2-position	3SU1000-1CA10-0AA0	3SU1000-1CD10-0AA0
Red	2-position	3SU1000-1CA20-0AA0	3SU1000-1CD20-0AA0
Yellow	2-position	—	3SU1000-1CD30-0AA0
Green	2-position	—	3SU1000-1CD40-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Black	2-position	3SU1030-1CA10-0AA0	3SU1030-1CD10-0AA0
Red	2-position	3SU1030-1CA20-0AA0	3SU1030-1CD20-0AA0
Yellow	2-position	—	3SU1030-1CD30-0AA0
Green	2-position	—	3SU1030-1CD40-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Black	2-position	3SU1050-1CA10-0AA0	3SU1050-1CD10-0AA0
Red	2-position	3SU1050-1CA20-0AA0	3SU1050-1CD20-0AA0
Yellow	2-position	—	3SU1050-1CD30-0AA0
Green	2-position	—	3SU1050-1CD40-0AA0

5.1.7 Special variants of mushroom pushbuttons

These mushroom pushbuttons have a tamper-proof latching function.

For further information, refer to Chapter "Mounting (Page 111)".
Please also follow the information (on equipping) in Chapter "3SU14 contact modules and LED modules (Page 173)".

Overview of special versions of mushroom pushbuttons

 Typical diagram	
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Black	3SU1000-1HB10-0AA0
Blue	3SU1000-1HB50-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
Black	3SU1050-1HB10-0AA0
	3SU1050-1HU10-0AA0
Yellow	3SU1050-1HB30-0AA0

5.1.8 Illuminated mushroom pushbuttons

Illuminated mushroom pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand. By pressing or pulling these buttons, it is possible to generate up to 3 signals with just a single device.

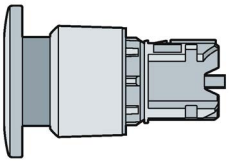
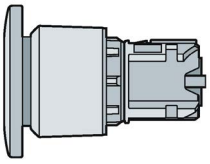
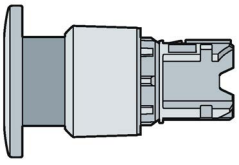
They are available with actuators with a diameter of 30 mm, 40 mm or 60 mm.

Illuminated pushbuttons are available in different variants according to the following features:

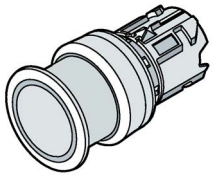
- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Switch positions: 2 (all illuminated mushroom pushbuttons) or 3 positions (only illuminated mushroom pushbuttons with 40 mm diameter)
- Illuminable

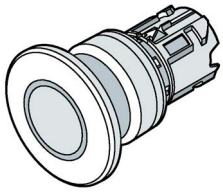
For further information, refer to Chapter "Mounting (Page 111)".

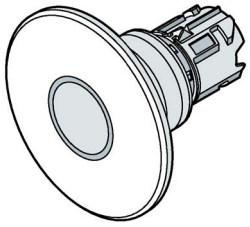
Actuation options: 3-position illuminated mushroom pushbutton

	Holder position			Holder position		
	1/4	3/6	2/5	1/4	3/6	2/5
	Contact module NO contact	LED module	Contact module NO contact	Contact module NC contact	LED module	Contact module NC contact
 1st position: initial state	Open		Closed	Closed		Open
 2nd position: pressed	Closed		Closed	Open		Open
 3rd position: pulled	Open		Open	Closed		Closed

Overview of illuminated mushroom pushbuttons

		**⌀ 30 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Red	2-position	3SU1001-1AA20-0AA0	3SU1001-1AD20-0AA0
Yellow	2-position	3SU1001-1AA30-0AA0	3SU1001-1AD30-0AA0
Green	2-position	3SU1001-1AA40-0AA0	3SU1001-1AD40-0AA0
Blue	2-position	3SU1001-1AA50-0AA0	3SU1001-1AD50-0AA0
White	2-position	—	3SU1001-1AD60-0AA0
Clear	2-position	3SU1001-1AA70-0AA0	3SU1001-1AD70-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Red	2-position	3SU1031-1AA20-0AA0	—
Yellow	2-position	3SU1031-1AA30-0AA0	3SU1031-1AD30-0AA0
Green	2-position	—	3SU1031-1AD40-0AA0
Blue	2-position	—	—
White	2-position	—	3SU1031-1AD60-0AA0
Clear	2-position	—	3SU1031-1AD70-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Amber	2-position	3SU1051-1AA00-0AA0	—
Red	2-position	3SU1051-1AA20-0AA0	—
Yellow	2-position	3SU1051-1AA30-0AA0	3SU1051-1AD30-0AA0
Green	2-position	3SU1051-1AA40-0AA0	3SU1051-1AD40-0AA0
Blue	2-position	3SU1051-1AA50-0AA0	—
White	2-position	—	3SU1051-1AD60-0AA0
Clear	2-position	3SU1051-1AA70-0AA0	—

		**⌀ 40 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Red	2-position	3SU1001-1BA20-0AA0	—
Yellow	2-position	3SU1001-1BA30-0AA0	3SU1001-1BD30-0AA0
Green	2-position	3SU1001-1BA40-0AA0	3SU1001-1BD40-0AA0
Blue	2-position	3SU1001-1BA50-0AA0	—
White	2-position	—	3SU1001-1BD60-0AA0
Clear	2-position	3SU1001-1BA70-0AA0	3SU1001-1BD70-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Red	2-position	3SU1031-1BA20-0AA0	—
Yellow	2-position	3SU1031-1BA30-0AA0	3SU1031-1BD30-0AA0
Green	2-position	—	3SU1031-1BD40-0AA0
Blue	2-position	—	—
White	2-position	—	3SU1001-1BD60-0AA0
Clear	2-position	—	3SU1031-1BD70-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Amber	2-position	3SU1051-1BA00-0AA0	3SU1051-1BD00-0AA0
Red	2-position	3SU1051-1BA20-0AA0	—
	3-position	3SU1051-1EA20-0AA0	3SU1051-1ED20-0AA0
Yellow	2-position	3SU1051-1BA30-0AA0	3SU1051-1BD30-0AA0
Green	2-position	3SU1051-1BA40-0AA0	3SU1051-1BD40-0AA0
	3-position	3SU1051-1EA40-0AA0	—
Blue	2-position	3SU1051-1BA50-0AA0	—
White	2-position	—	3SU1051-1BD60-0AA0
	3-position	—	3SU1051-1ED60-0AA0
Clear	2-position	3SU1051-1BA70-0AA0	—

		**⌀ 60 mm**	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article No.**	
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Amber	2-position	—	3SU1051-1CD00-0AA0
Red	2-position	3SU1051-1CA20-0AA0	—
Yellow	2-position	3SU1051-1CA30-0AA0	3SU1051-1CD30-0AA0
Green	2-position	3SU1051-1CA40-0AA0	3SU1051-1CD40-0AA0
Blue	2-position	3SU1051-1CA40-0AA0	—
White	2-position	—	3SU1051-1CD60-0AA0
Clear	2-position	3SU1051-1CA70-0AA0	—

5.1.9 EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are devices for actuating contact modules, and they are used in conjunction with a safety relay to bring a machine / plant to a safe state.

The EMERGENCY STOP mushroom pushbuttons are equipped with tamper protection (trigger action). The EMERGENCY STOP mushroom pushbutton does not latch without generating an EMERGENCY STOP signal. The EMERGENCY STOP signal is maintained until the EMERGENCY STOP device is reset (unlatched).
All SIRIUS ACT EMERGENCY STOP mushroom pushbuttons comply with DIN EN ISO 13850.

These pushbuttons are operated by pressure applied by the whole palm of the hand. EMERGENCY STOP mushroom pushbuttons are available with actuators with a diameter of 30 mm, 40 mm or 60 mm.

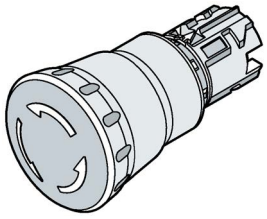
EMERGENCY STOP mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Switching function: latching
- Illuminable
- Rotate to unlatch
- Pull to unlatch
- Key-operated release (tamper-proof)

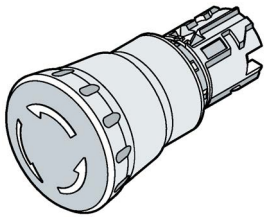
For further information refer to Chapter "Installation (Page 111)". Please also note the information (on equipping) in Chapter "3SU14 contact modules and LED modules (Page 173)".

EMERGENCY STOP mushroom pushbuttons, rotate-to-unlatch mechanism

The EMERGENCY OFF mushroom pushbutton meets the requirements of EN 13850 for latching or locking. In addition, the EMERGENCY OFF mushroom pushbutton has positive latching.

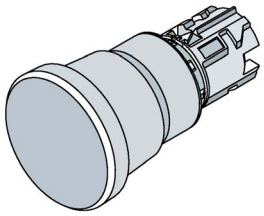
 Typical diagram	**Ø 30 mm**	**Ø 40 mm**	**Ø 60 mm**
Collar / Front ring material	**Article No.**		
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Red	3SU1000-1GB20-0AA0	3SU1000-1HB20-0AA0	3SU1000-1JB20-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Red	3SU1050-1GB20-0AA0	3SU1050-1HB20-0AA0	3SU1050-1JB20-0AA0

The 3SU10.0-1LB20-0AA0 EMERGENCY OFF mushroom pushbutton meets the requirements of EN 13850 for latching or locking.

 Typical diagram	**Ø 40 mm**
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Red	3SU1000-1LB20-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
Red	3SU1050-1LB20-0AA0

EMERGENCY STOP mushroom pushbuttons, pull-to-unlatch mechanism

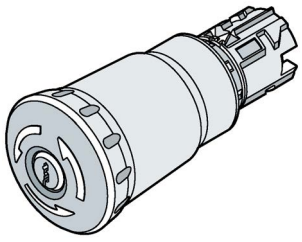
The EMERGENCY OFF mushroom pushbutton meets the requirements of EN 13850 for latching or locking. In addition, the EMERGENCY OFF mushroom pushbutton has positive latching.

 Typical diagram	**Ø 40 mm**
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Red	3SU1000-1HA20-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
Red	3SU1050-1HA20-0AA0

EMERGENCY STOP mushroom pushbutton, key-operated release

The EMERGENCY OFF mushroom pushbutton meets the requirements of EN 13850 for latching or locking. In addition, the EMERGENCY OFF mushroom pushbutton has positive latching. The key can be removed in position "O".

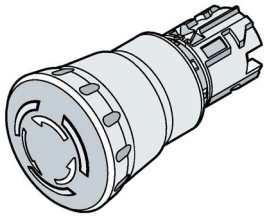
For further information about keys, please refer to paragraph "Special locks for key-operated switches" in Chapter "Key-operated switches 22.5 mm" (Page 81).

 Typical diagram		**⌀ 40 mm**
Collar / Front ring material	**Version**	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Red	RONIS, SB30	3SU1000-1HF20-0AA0
	RONIS, 455	3SU1000-1HG20-0AA0
	CES, SSG10	3SU1000-1HR20-0AA0
	CES, SSP9	3SU1000-1HS20-0AA0
	CES, SMS1	3SU1000-1HT20-0AA0
	BKS, S1	3SU1000-1HK20-0AA0
	BKS, E7[1)]	3SU1000-1HM20-0AA0
	BKS, E9[1)]	3SU1000-1HN20-0AA0
	O.M.R 73037, red	3SU1000-1HQ20-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)		
Red	RONIS, SB30	3SU1050-1HF20-0AA0
	RONIS, 455	3SU1050-1HG20-0AA0
	RONIS, 421	3SU1050-1HH20-0AA0
	CES, SSG10	3SU1050-1HR20-0AA0
	CES, SSP9	3SU1050-1HS20-0AA0
	CES, VL5	3SU1050-1HU20-0AA0
	CES, VL1	3SU1050-1HV20-0AA0
	BKS, S1	3SU1050-1HK20-0AA0
	BKS, E7[1)]	3SU1050-1HM20-0AA0
	BKS, E9[1)]	3SU1050-1HN20-0AA0
	O.M.R 73037, red	3SU1050-1HQ20-0AA0
	IKON, 360012K1	3SU1050-1HX20-0AA0
Black	CES, VL5	3SU1050-1HU10-0AA0

[1)] Key not included in the scope of supply

Illuminated EMERGENCY STOP mushroom pushbuttons

The EMERGENCY OFF mushroom pushbutton meets the requirements of EN 13850 for latching or locking. In addition, the EMERGENCY OFF mushroom pushbutton has positive latching.

 Typical diagram	**Ø 30 mm**	**Ø 40 mm**	**Ø 60 mm**
Collar / Front ring material	**Article No.**		
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Red	3SU1001-1GB20-0AA0	3SU1001-1HB20-0AA0	3SU1001-1JB20-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Red	3SU1051-1GB20-0AA0	3SU1051-1HB20-0AA0	3SU1051-1JB20-0AA0

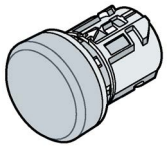
5.1.10 22.5 mm indicator lights

Indicator lights function as indicators and signaling devices. They are equipped with a smooth-surfaced lens that cannot be replaced by the user.

Indicator lights are available in different variants according to the following features:

- Collar and front ring material
- Color of the lenses

For further information, refer to Chapter "Mounting (Page 111)".

 Typical diagram	**Indicator lights**
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
1. Amber	3SU1001-6AA00-0AA0
1. Red	3SU1001-6AA20-0AA0
1. Yellow	3SU1001-6AA30-0AA0
1. Green	3SU1001-6AA40-0AA0
1. Blue	3SU1001-6AA50-0AA0
1. White	3SU1001-6AA60-0AA0
1. Clear	3SU1001-6AA70-0AA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
Amber	3SU1051-6AA00-0AA0
Red	3SU1051-6AA20-0AA0
Yellow	3SU1051-6AA30-0AA0
Green	3SU1051-6AA40-0AA0
Blue	3SU1051-6AA50-0AA0
White	3SU1051-6AA60-0AA0
Clear	3SU1051-6AA70-0AA0

5.1.11 22.5 mm illuminated pushbuttons with locked handle

Illuminated pushbuttons with locked handle function as indicators and signaling devices. These are illuminated pushbuttons in which the button has been locked.

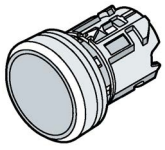
The illuminated pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Colors of the buttons

You will find more information in Chapter "Mounting (Page 111)".

Note

Not all combinations listed in the table below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.



Typical diagram

Collar / Front ring material	Article No.
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Red	3SU1001-0AD20-0AA0
Yellow	3SU1001-0AD30-0AA0
Green	3SU1001-0AD40-0AA0
Blue	3SU1001-0AD50-0AA0
Clear	3SU1001-0AB70-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)	
Red	3SU1031-0AD20-0AA0
Yellow	3SU1031-0AD30-0AA0
Green	3SU1031-0AD40-0AA0
Blue	3SU1031-0AD50-0AA0
Clear	3SU1031-0AD70-0AA0

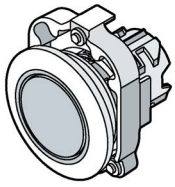
5.1.12 30.5 mm indicator lights

Indicator lights in the 30.5 mm diameter size are intended for flat mounting. These are pushbuttons in which the button has been locked (fixed button). The series is available in the metal matte version. The 30.5 mm indicator lights are suitable for installation on a front plate with a maximum thickness of 4 mm.

The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

In addition, the adapter (3SU1950-0KJ80-0AA0) for actuators and indicators for flat mounting must be mounted between the front plate and the holder. The adapter is included in the scope of supply, but can also be ordered as a separate item.

The buttons can be replaced from the front by the user.

<table>
<tr><td rowspan="7"> 
Typical diagram</td><td>Collar / Front ring material</td><td>Article No.</td></tr>
<tr><td colspan="2">Metal / Metal, matte
Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)</td></tr>
<tr><td>Red</td><td>3SU1061-0JD20-0AA0</td></tr>
<tr><td>Yellow</td><td>3SU1061-0JD30-0AA0</td></tr>
<tr><td>Green</td><td>3SU1061-0JD40-0AA0</td></tr>
<tr><td>Blue</td><td>3SU1061-0JD50-0AA0</td></tr>
<tr><td>Clear</td><td>3SU1061-0JD70-0AA0</td></tr>
</table>

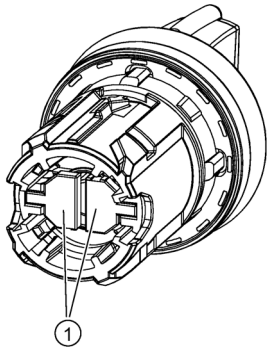
5.1.13 Selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

Selector switches are available in different variants according to the following features:

- Actuators (short / long selector or rotary knob)
- Switch positions
- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Illuminable

In the delivery state, selector switches are fitted with two pressure plates ①.



Typical diagram

Each pressure plate can be individually removed and reinstalled. A pressure plate always actuates the contact modules mounted on the holder at position 3/6 (center position), and the corresponding outer contact modules at position 1/4 or 2/5.

If a pressure plate is not used, only the corresponding outer contact at position 1/4 or 2/5 is actuated.

Note about installation of LED modules: The pressure plates must be removed before the LED module is installed.

For further information refer to Chapter "Installation (Page 111)".

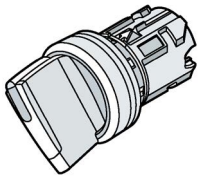
The table shows the contact module / LED module actuation with differently mounted pressure plates using the example of a selector switch with 3 switch positions and equipped contact modules and LED modules.

	Switch position left			**Switch position right**		
						
Pressure plate ①	Contact module Position 1/4	Contact / LED module Position 3/6	Contact module Position 2/5	Contact module Position 1/4	Contact / LED module Position 3/6	Contact module Position 2/5
2 pressure plates mounted 	3 \ 4 Actuated	3 \ 4 Actuated	3 \ 4 Not actuated	3 \ 4 Not actuated	3 \ 4 Actuated	3 \ 4 Actuated
1 pressure plate mounted on the right 	3 \ 4 Actuated	3 \ 4 Actuated	3 \ 4 Not actuated	3 \ 4 Not actuated	3 \ 4 Not actuated	3 \ 4 Actuated
1 pressure plate mounted on the left 	3 \ 4 Actuated	3 \ 4 Not actuated	3 \ 4 Not actuated	3 \ 4 Not actuated	3 \ 4 Actuated	3 \ 4 Actuated
No pressure plate mounted 	3 \ 4 Not actuated		3 \ 4 Actuated	3 \ 4 Actuated		3 \ 4 Not actuated

5.1.13.1 Selector switch 22.5 mm with short handle

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

 Typical diagram	**2 switch positions**	
	Latching, 90° (10:30/1:30 o'clock) 	Momentary contact 45° (10:30/12 o'clock), reset from center to left 
Collar / Front ring material	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Black	3SU1002-2BF10-0AA0	3SU1002-2BC10-0AA0
Red	3SU1002-2BF20-0AA0	3SU1002-2BC20-0AA0
Yellow	3SU1002-2BF30-0AA0	3SU1002-2BC30-0AA0
Green	3SU1002-2BF40-0AA0	3SU1002-2BC40-0AA0
Blue	3SU1002-2BF50-0AA0	3SU1002-2BC50-0AA0
White	3SU1002-2BF60-0AA0	3SU1002-2BC60-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Black	3SU1032-2BF10-0AA0	3SU1032-2BC10-0AA0
Red	3SU1032-2BF20-0AA0	3SU1032-2BC20-0AA0
Yellow	3SU1032-2BF30-0AA0	3SU1032-2BC30-0AA0
Green	3SU1032-2BF40-0AA0	3SU1032-2BC40-0AA0
Blue	3SU1032-2BF50-0AA0	3SU1032-2BC50-0AA0
White	3SU1032-2BF60-0AA0	3SU1032-2BC60-0AA0
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)		
Black	3SU1052-2BF10-0AA0	3SU1052-2BC10-0AA0
Red	3SU1052-2BF20-0AA0	3SU1052-2BC20-0AA0
Yellow	3SU1052-2BF30-0AA0	3SU1052-2BC30-0AA0
Green	3SU1052-2BF40-0AA0	3SU1052-2BC40-0AA0
Blue	3SU1052-2BF50-0AA0	3SU1052-2BC50-0AA0
White	3SU1052-2BF60-0AA0	3SU1052-2BC60-0AA0

	3 switch positions
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Black	3SU1002-2Bx10-0AA0
Red	3SU1002-2Bx20-0AA0
Yellow	3SU1002-2Bx30-0AA0
Green	3SU1002-2Bx40-0AA0
Blue	3SU1002-2Bx50-0AA0
White	3SU1002-2Bx60-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)	
Black	3SU1032-2Bx10-0AA0
Red	3SU1032-2Bx20-0AA0
Yellow	3SU1032-2Bx30-0AA0
Green	3SU1032-2Bx40-0AA0
Blue	3SU1032-2Bx50-0AA0
White	3SU1032-2Bx60-0AA0
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)	
Black	3SU1052-2Bx10-0AA0
Red	3SU1052-2Bx20-0AA0
Yellow	3SU1052-2Bx30-0AA0
Green	3SU1052-2Bx40-0AA0
Blue	3SU1052-2Bx50-0AA0
White	3SU1052-2Bx60-0AA0

x: L = selector switch latching, 2 x 45°(10:30/12/1:30 o'clock)



x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock),
reset from left + right



x: N = selector switch latching/momentary contact, 2 x 45° (10:30/12/1:30 o'clock),
reset from right, latching to the left



x: P = selector switch momentary contact/latching, 2 x 45° (10:30/12/1:30 o'clock),
reset from left, latching to the right

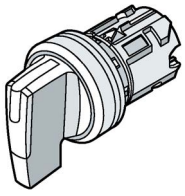


	Selector switch with handle turned through 90° (selector) For installation in an enclosure with recess for labeling plate. The handle is thus straight.	
Collar / Front ring material	**Article No.**	**2 switch positions**
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)		
Black	3SU1052-2FC60-0AA0	Momentary contact, 45° (10:30/12 o'clock), Reset from center to left 
Black	3SU1052-2FF60-0AA0	Latching, 90° (10:30/1:30 o'clock) 
	Article No.	**3 switch positions**
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)		
Black	3SU1052-2FM60-0AA0	Momentary contact, 2 x 45° (10:30/12/1:30 o'clock), reset from left + right 
Black	3SU1052-2FL60-0AA0	Selector switch latching, 2 x 45° (10:30/12/1:30 o'clock) 

5.1.13.2 Selector switch 22.5 mm with long handle

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

 Typical diagram	**2 switch positions**	
	Latching, 90° (10:30/1:30 o'clock) 	Momentary contact 45° (10:30/12 o'clock), reset from center to left 
Collar / Front ring material	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Black	3SU1002-2CF10-0AA0	3SU1002-2CC10-0AA0
Red	3SU1002-2CF20-0AA0	3SU1002-2CC20-0AA0
Yellow	3SU1002-2CF30-0AA0	3SU1002-2CC30-0AA0
Green	3SU1002-2CF40-0AA0	3SU1002-2CC40-0AA0
Blue	3SU1002-2CF50-0AA0	3SU1002-2CC50-0AA0
White	3SU1002-2CF60-0AA0	3SU1002-2CC60-0AA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Black	3SU1032-2CF10-0AA0	3SU1032-2CC10-0AA0
Red	3SU1032-2CF20-0AA0	3SU1032-2CC20-0AA0
Yellow	3SU1032-2CF30-0AA0	3SU1032-2CC30-0AA0
Green	3SU1032-2CF40-0AA0	3SU1032-2CC40-0AA0
Blue	3SU1032-2CF50-0AA0	3SU1032-2CC50-0AA0
White	3SU1032-2CF60-0AA0	3SU1032-2CC60-0AA0
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)		
Black	3SU1052-2CF10-0AA0	3SU1052-2CC10-0AA0
Red	3SU1052-2CF20-0AA0	3SU1052-2CC20-0AA0
Yellow	3SU1052-2CF30-0AA0	3SU1052-2CC30-0AA0
Green	3SU1052-2CF40-0AA0	3SU1052-2CC40-0AA0
Blue	3SU1052-2CF50-0AA0	3SU1052-2CC50-0AA0
White	3SU1052-2CF60-0AA0	3SU1052-2CC60-0AA0

	3 switch positions
Collar / Front ring material	**Article No.**
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)	
Black	3SU1052-2Cx10-0AA0
Red	3SU1052-2Cx20-0AA0
Yellow	3SU1052-2Cx30-0AA0
Green	3SU1052-2Cx40-0AA0
Blue	3SU1052-2Cx50-0AA0
White	3SU1052-2Cx60-0AA0

x: L = selector switch latching, 2 x 45°(10:30/12/1:30 o'clock)



x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock),
reset from left + right



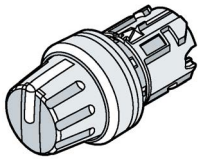
x: N = selector switch latching/momentary contact, 2 x 45° (10:30/12/1:30 o'clock),
reset from right, latching to the left



x: P = selector switch momentary contact/latching, 2 x 45° (10:30/12/1:30 o'clock),
reset from left, latching to the right



5.1.13.3 Selector switch 22.5 mm with rotary knob

 Typical diagram	**2 switch positions** Latching, 90° (10:30/1:30 o'clock) 
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221483)	
Black	3SU1002-2AF10-0AA0
Red	3SU1002-2AF20-0AA0
White	3SU1002-2AF60-0AA0
Plastic / Metal, matte Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10226611)	
Black	3SU1002-2AF10-0AA0
Red	3SU1002-2AF20-0AA0
White	3SU1032-2AF60-0AA0
Metal / Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221484)	
Black	3SU1002-2AF10-0AA0
Red	3SU1002-2AF20-0AA0
White	3SU1052-2AF60-0AA0

5.1.14 30.5 mm selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

Selector switches in the 30.5 mm size are intended for flat mounting. The 30.5 mm selector switches are suitable for installation on a front plate with a maximum thickness of 4 mm. The series is available in metal and metal matte versions.

Selector switches are available in different variants according to the following features:

- Actuators (short / long selector)
- Switch positions
- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Illuminable

Note the following when mounting:

The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

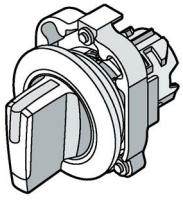
In addition, the adapter (3SU1950-0KJ80-0AA0) for actuators and indicators for flat mounting must be mounted between the front plate and the holder. The adapter is included in the scope of supply, but can also be ordered as a separate item.

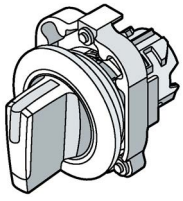
The pressure plates (standard scope of supply) must be removed before the LED module is installed.

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Selector switches with short selector

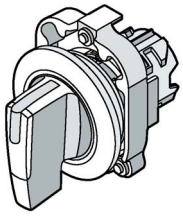
 Typical diagram	**2 switch positions**	
	Latching, 90° (10:30/1:30 o'clock) 	Momentary contact 45° (10:30/12 o'clock), reset from center to left 
Collar / Front ring material	**Article No.**	
Metal / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)		
Red	3SU1062-2DF20-0AA0	3SU1062-2DC20-0AA0
Green	3SU1062-2DF40-0AA0	3SU1062-2DC40-0AA0
White	3SU1062-2DF60-0AA0	3SU1062-2DC60-0AA0

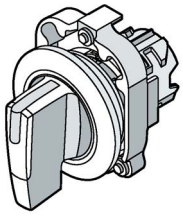
 Typical diagram	**3 switch positions**
Collar / Front ring material	**Article No.**
Metal / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)	
Red	3SU1062-2Dx20-0AA0
Green	3SU1062-2Dx40-0AA0
White	3SU1062-2Dx60-0AA0

x: L = selector switch latching, 2 x 45° (10:30/12/1:30 o'clock) 

x: M = selector switch momentary contact, 2 x 45° (10:30/12/1:30 o'clock), reset from left + right 

Selector switches with long selector

 Typical diagram	**2 switch positions**	
	Latching, 90° (10:30/1:30 o'clock) 	Momentary contact 45° (10:30/12 o'clock), reset from center to left 
Collar / Front ring material	**Article No.**	
Metal / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)		
Red	3SU1062-2EF20-0AA0	3SU1062-2EC20-0AA0
Green	3SU1062-2EF40-0AA0	3SU1062-2EC40-0AA0
White	3SU1062-2EF60-0AA0	3SU1062-2EC60-0AA0

 Typical diagram	**3 switch positions**
Collar / Front ring material	**Article No.**
Metal / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)	
Red	3SU1062-2Ex20-0AA0
Green	3SU1062-2Ex40-0AA0
White	3SU1062-2Ex60-0AA0

x: L = selector switch latching, 2 x 45° (10:30/12/1:30 o'clock) 

x: M = selector switch momentary contact, 2 x 45° (10:30/12/1:30 o'clock), reset from left + right 

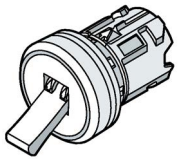
5.1.15 Toggle switches

Toggle switches are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. They are operated by a vertical linear movement using several fingers.

Toggle switches are available in different variants according to the following features:

- Collar and front ring material
- Switching function: momentary contact and latching

For further information, refer to Chapters "Mounting (Page 111)" and "Accessories (Page 385)"

 Typical diagram	**Toggle switch 2 switch positions** Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221487)	
Collar / Front ring material	**Article No.**	
	Latching	Momentary contact
Plastic / Plastic		
	3SU1000-3EA10-0AA0	3SU1000-3EC10-0AA0
Plastic / Metal, matte		
	3SU1030-3EA10-0AA0	3SU1030-3EC10-0AA0
Metal / Metal		
	3SU1050-3EA10-0AA0	3SU1050-3EC10-0AA0

5.1.16 22.5 mm key-operated switches

Key-operated switches are equipped with a lock for safety reasons. Only an authorized group of persons who have access to the relevant key can perform a switching operation (in this case, actuation of contact modules). Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch.

Key-operated switches are available in different variants according to the following features:

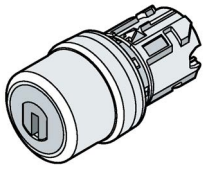
- Key-operated switch manufacturer
- Key removal positions
- Switch positions
- Collar and front ring material
- Switching functions: latching / momentary contact

For further information, refer to Chapter "Mounting (Page 111)".

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Key-operated switches 2 switch positions (0 - I)

 Typical diagram	**Version**	**Article No.**
Momentary contact Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Momentary contact 45° (10:30/12 o'clock), reset from center to left 	Ronis, SB30	3SU10x0-4BCy1-0AA0
	Ronis, 455	3SU10x0-4CCy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FCy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GCy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HCy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JCy1-0AA0
	CES, SSG10	3SU10x0-5BCy1-0AA0
	CES, LSG1	3SU10x0-5HCy1-0AA0
	BKS, S1	3SU10x0-5PCy1-0AA0
	IKON, 360012K1	3SU10x0-5XCy1-0AA0

x: 0 = Material plastic

x: 3 = Material metal matte

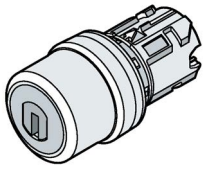
x: 5 = Material metal

y: 0 = Key can be removed in position O

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

[1] Key not included in the scope of supply

 Typical diagram	**Version**	**Article No.**
Latching Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Latching, 90° (10:30/1:30 o'clock) 	Ronis, SB30	3SU10x0-4BFy1-0AA0
	Ronis, 455	3SU10x0-4CFy1-0AA0
	Ronis, 421	3SU10x0-4DFy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FFy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GFy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HFy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JFy1-0AA0
	CES, SSG10	3SU10x0-5BFy1-0AA0
	CES, LSG1	3SU10x0-5HFy1-0AA0
	CES, SSG10 with key monitoring	3SU10x0-5JFy1-0AA0
	BKS, S1	3SU10x0-5PFy1-0AA0
	BKS, E1[1)]	3SU10x0-5QFy1-0AA0
	BKS, E2[1)]	3SU10x0-5RFy1-0AA0
	BKS, E7[1)]	3SU10x0-5SFy1-0AA0
	BKS, E9[1)]	3SU10x0-5TFy1-0AA0
	IKON, 360012K1	3SU10x0-5XFy1-0AA0

x: 0 = Material plastic

x: 3 = Material metal matte

x: 5 = Material metal

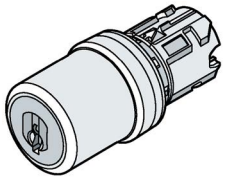
y: 0 = Key can be removed in position O

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

[1)] Key not included in the scope of supply

Key-operated switches 3 switch positions (I - 0 - II)

 Typical diagram	**Version**	**Article No.**
Momentary contact Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Momentary contact 2 x 45° (10:30/12/1:30 o'clock), 3 switch positions, momentary contact, reset from left + right 	Ronis, SB30	3SU10x0-4BMy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FMy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HMy1-0AA0
	CES, SSG10	3SU10x0-5BMy1-0AA0
	BKS, S1	3SU10x0-5PMy1-0AA0
	IKON, 360012K1	3SU10x0-5XMy1-0AA0
Latching Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Latching, 2 x 45° (10:30/12/1:30 o'clock) 	Ronis, SB30	3SU10x0-4BLy1-0AA0
	Ronis, 455	3SU10x0-4CLy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FLy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GLy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HLy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JLy1-0AA0
	CES, SSG10	3SU10x0-5BLy1-0AA0
	CES, SSG10 with key monitoring	3SU10x0-5JLy1-0AA0
	BKS, S1	3SU10x0-5PLy1-0AA0
	BKS, E2[1)]	3SU10x0-5RLy1-0AA0
	BKS, E9[1)]	3SU10x0-5TLy1-0AA0
	IKON, 360012K1	3SU10x0-5XLy1-0AA0

x: 0 = Material plastic

x: 3 = Material metal matte

x: 5 = Material metal

y: 0 = Key can be removed in position O,

y: 1 = Key can be removed in any position

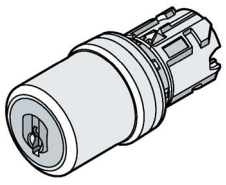
y: 2 = Key can be removed in position I

y: 3 = Key can be removed in position II (right, with 3 positions only)

y: 4 = Key can be removed in positions I + II (left, right, with 3 positions only)

y: 5 = Key can be removed in positions O + I (center, left, with 3 positions only)

1) Key not included in the scope of supply

 Typical diagram	**Version**	**Article No.**
Momentary contact / latching Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Momentary contact / latching, 2 x 45° (10:30/12/1:30 o'clock), reset from left, latching to the right 	Ronis, SB30	3SU10x0-4BPy1-0AA0
	CES, SSG10	3SU10x0-5BPy1-0AA0
	BKS, S1	3SU10x0-5PPy1-0AA0
Momentary contact / latching Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Latching / momentary contact, 2 x 45° (10:30/12/1:30 o'clock), reset from right, latching to the left 	Ronis, SB30	3SU10x0-4BNy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GNy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HNy1-0AA0
	CES, SSG10	3SU10x0-5BNy1-0AA0
	BKS, S1	3SU10x0-5PNy1-0AA0
	IKON, 360012K1	3SU10x0-5XNy1-0AA0

x: 0 = Material plastic

x: 3 = Material metal matte

x: 5 = Material metal

y: 0 = Key can be removed in position O,

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

y: 3 = Key can be removed in position II (right, with 3 positions only)

y: 4 = Key can be removed in positions I + II (left, right, with 3 positions only)

y: 5 = Key can be removed in positions O + I (center, left, with 3 positions only)

[1] Key not included in the scope of supply

Special locks for key-operated switches

The plastic and metal key-operated switches of type Ronis, BKS, CES and IKON can be optionally ordered with additional locks.

Please note:

- For applications in which access security is important and several lock numbers are used, we recommend the use of BKS or CES key-operated switches.
- Special locks for **VW (E1, E2, E7, E9)** are supplied without keys. All other key-operated switches are supplied with 2 keys.
- With Ronis, the special locks SB31, 421 and 455 are possible.

Master and master-pass key systems

The following key systems can be supplied with BKS, CES or IKON key-operated switches:

- Central lock systems
- Master key systems
- Central master key systems
- Master-pass key systems

A security certificate is required when ordering key systems.

5.1.17 Selector switch 22.5 mm with key monitoring

Key-operated switch with key monitoring and ejection of the key in the holder position (3).

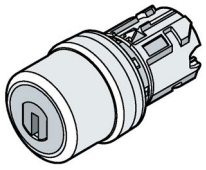
A contact module is inserted in the center position (3) of the holder in order to monitor the key. The center holder position (3) is actuated when the key is inserted.

For the key-operated switch with 2 switch positions, switching to the right actuates the modules in the holder positions (1+2). The holder position (3) remains actuated.

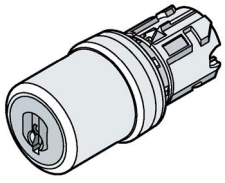
For the key-operated switch with 3 switch positions, switching to the left actuates the modules in holder position (2) and switching to the right actuates those in holder position (1). Holder position (3) remains actuated in each case.

For further information, refer to Chapter "Mounting (Page 111)".

Key-operated switches with key monitoring, 2 switch positions (0 - I)

 Typical diagram	**Version**	**Article No.**
Latching, 90° (10:30/1:30 o'clock) 	**Plastic / Plastic**	3SU1000-5JF01-0AA0
	Plastic / Metal, matte	3SU1030-5JF01-0AA0
	Metal / Metal	3SU1050-5JF01-0AA0

Key-operated switches with key monitoring, 3 switch positions (I - 0 - II)

 Typical diagram	**Version**	**Article No.**
Latching, 2 x 45° (10:30/12/1:30 o'clock), 3 switch positions 	**Plastic / Plastic**	3SU1000-5JL01-0AA0
	Plastic / Metal, matte	3SU1030-5JL01-0AA0
	Metal / Metal	3SU1050-5JL01-0AA0

5.1.18 30.5 mm key-operated switches

Key-operated switches are equipped with a lock for safety reasons. The switching operation (in this case, the actuation of contact modules) can only be performed by an authorized group of persons who have access to the relevant key. Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch. The 30.5 mm key-operated switches are suitable for installation on a front plate with a maximum thickness of 4 mm.

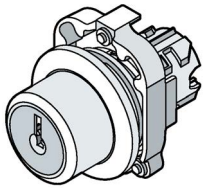
The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

In addition, the adapter (3SU1950-0KJ80-0AA0) for actuators and indicators for flat mounting must be mounted between the front plate and the holder. The adapter is included in the scope of supply, but can also be ordered as a separate item.

Key-operated switches are available in different variants according to the following features:

- Switch positions
- Key removal positions
- Color of actuators

30.5 mm diameter key-operated switches

	Version		Article No.
 Typical diagram	**Latching** Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226910)		
	Ronis, SB30		3SU1060-4LFy1-0AA0 (2 switch positions, latching, 90° (10:30/1:30 o'clock))
			3SU1060-4LCy1-0AA0 (2 switch positions, momentary contact, 45° (10:30/12 o'clock), reset from center to left)
			3SU1060-4LLy1-0AA0 (3 switch positions, latching, 2 x 45°, (10:30/12/1:30 o'clock))

y: 0 = Key can be removed in position O,

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

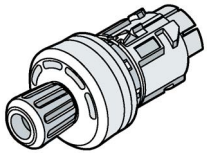
5.1.19 ID key-operated switches

The ID key-operated switch is an electronic key-operated switch and has four switch positions that are selected by keys with different codes. Using the four ID keys with different codes, it is possible to select 1 to 4 positions. The ID keys are color-coded (yellow, blue, red, green, white) so that they can be clearly differentiated at a glance. The ID key-operated switch is intended primarily to replace the mechanical locks on different machines.
For the installation you must use the plastic holder (3SU1500-0AA10-0AA0).

You will find additional information in Chapters "Installation (Page 111)" and "Application examples ID key-operated switches (Page 592)".

For the ID key-operated switches, two different versions of the electronic modules for ID key-operated switches without / with IO-Link communications interface are available. You will find information on the electronic modules in Chapters: 3SU14 contact modules and LED modules "Electronic module for ID key-operated switches (Page 201)", "Technical data".

You can find information on using the ID key-operated switch with IO-Link in Chapter "IO-Link 3SU14 (Page 317)".



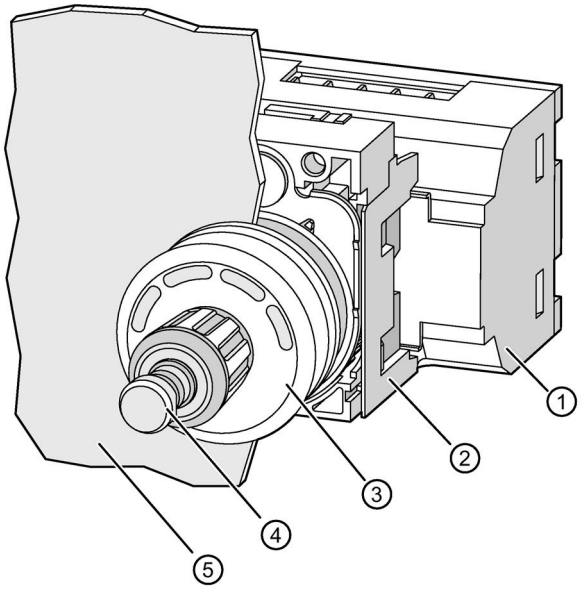
Collar / Front ring material	Article No.
Plastic / Plastic Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221495)	
Black	3SU1000-4WS10-0AA0
Plastic / Metal, matte Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226617)	
Black	3SU1030-4WS10-0AA0

You can find the appropriate ID keys in Chapter "ID keys (Page 438)".

5.1.19.1 Design of a command point with ID key-operated switch

Command point with ID key-operated switch on front plate

A modular command point with ID key-operated switch on a front plate consists of the following elements:



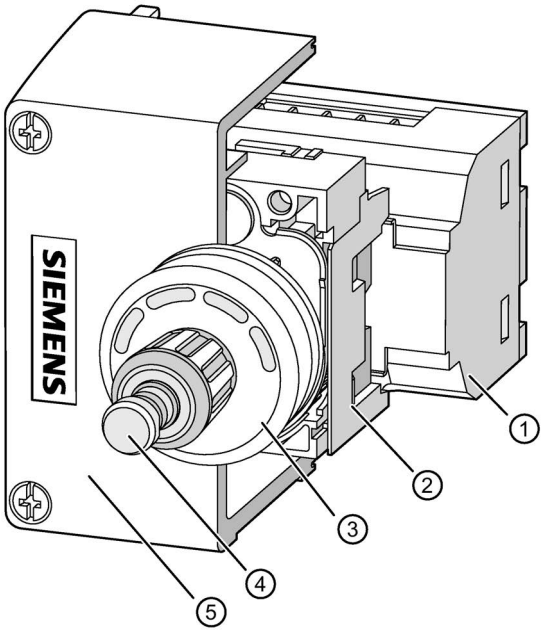
① Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 201)
② 3-slot holder 3SU1500-0AA10-0AA0 (Page 221) for securing behind the front plate
③ ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 89) in front of the front plate
④ ID key 3SU1900-0Fxy0-0AA0 (Page 438)
⑤ Front plate

Note

The minimum clearance between two command points when mounted on the front plate is 10 cm in all directions.

Command point with ID key-operated switch in an enclosure

A modular command point with ID key-operated switch in an enclosure consists of the following elements:



① Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 201)
② 3-slot holder 3SU1500-0AA10-0AA0 (Page 221) for securing in the enclosure
③ ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 89)
④ ID key 3SU1900-0Fxy0-0AA0 (Page 438)
⑤ Enclosure with raised cover, command point in center 3SU18x1-1AA00-1AA1 (Page 230)

5.1.19.2 Operating principle of the command point with ID key-operated switch

The ID key-operated switch is used primarily to set the current key position by rotation. To set the current key position, the rotary knob of the ID key-operated switch is turned clockwise or counter-clockwise. There is an opening in the rotary knob into which the ID key is inserted. Actuation is only possible if a valid ID key has been recognized, and the authorization level of the relevant ID key corresponds to, or is higher than, the current key position. The rotary knob can be turned clockwise and counter-clockwise through 360° in 45-degree steps.

The switch position delay is started and the temporary key position is incremented by turning clockwise.

The temporary key position is indicated by the illuminated surfaces in the ID key-operated switch flashing green. During the switch position delay, the temporary key position can be changed by turning the knob clockwise or counter-clockwise. The switch position delay is restarted by turning the knob clockwise. During the switch position delay, the outputs are not yet affected by the temporary key position. After the delay has expired, the temporary key position is adopted as the current key position, and the outputs are switched in accordance with this position.

By turning counter-clockwise, the current key position is changed to 0, and the outputs are switched immediately in accordance with this position.

Note

In a configuration with electronic module for ID key-operated switches for IO-Link, the parameters can be set via IO-Link.

You will find additional information in Chapter "Configuring IO-Link (Page 317)".

Settings on the electronic module for ID key-operated switches

The electronic modules for ID key-operated switches have 5 digital outputs. Setting of outputs 0 to 3 depends on the current key position and the module settings. If a valid ID key has been recognized, output 4 is active; otherwise output 4 is inactive.

Table 5- 1 Individual method

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Inactive	Active	Inactive	Inactive
3	Inactive	Inactive	Active	Inactive
4	Inactive	Inactive	Inactive	Active

Table 5- 2 Addition method (incremental method)

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Active	Active	Inactive	Inactive
3	Active	Active	Active	Inactive
4	Active	Active	Active	Active

Note

The addition method (incremental method) can only be set on the electronic modules for ID key-operated switches for IO-Link.

Short-circuit protection

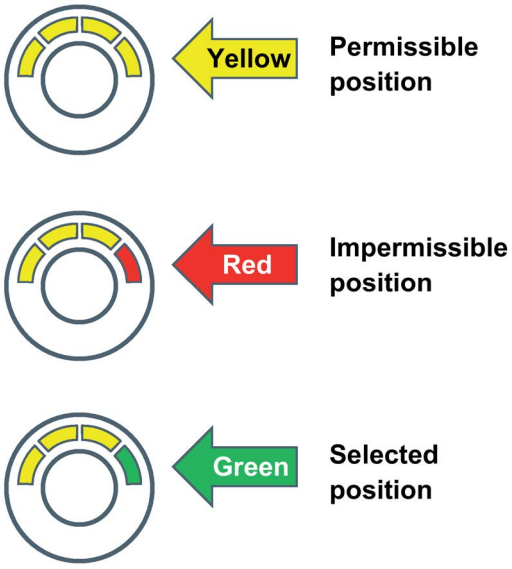
If a short-circuit occurs at one or more outputs, the occurrence of a fault event is sent and the fault flag is set. All outputs are deactivated for one second. Then the relevant outputs are re-activated to monitor whether the short-circuit is still active. This temporary state exists for approximately 0.1 seconds. If no short-circuit is determined during this period, the fault event is revoked, and the fault flag is deleted. However, if a short-circuit is detected during this time, all outputs are deactivated again, and the short-circuit device fault remains.

Function of the LEDs in the ID key-operated switch

In the enclosure of the ID key-operated switch are 4 illuminated surfaces that can assume the following states:

- Showing a green light: Indication of the current key position and the switched outputs.
- Flashing green: Indication of the temporary key position.
- Showing a yellow light: Indication of the associated authorization level (key position that can be reached by turning the rotary knob).
- Flashing yellow (all 4 illuminated surfaces): Indication for the individually codable ID key used that has not yet been configured.
- Showing a red light: Indicates that the relevant key position is higher than permissible for the relevant authorization level. (This key position cannot be reached by turning the rotary knob.) The indicator also shows a red light when there is no ID key plugged in.
- Flashing red (all 4 illuminated surfaces): When using a colored ID key with permanently encoded authorization level (ID group 1 to 4), this indicates when the parameter "Individually codable ID keys only" is enabled.
- Not illuminated: The electronic module is switched off.

Displayed colors



Selectable positions dependent on ID key using the adjustment method

In this case, "DS 131 Incremental switching mode" must be set to "disabled" on the electronic modules for ID key-operated switches for IO-Link.

Key color	Output 4 (DQ.4) active	Outputs 0 and 4 (DQ.0 and DQ.4) active	Outputs 1 and 4 (DQ.1 and DQ.4) active	Outputs 2 and 4 (DQ.2 and DQ.4) active	Outputs 3 and 4 (DQ.3 and DQ.4) active
Green					
Yellow					
Red					
Blue					

Selectable positions dependent on ID key using the addition method (only for electronic modules for ID key-operated switches for IO-Link).

With this method, "DS 131 Incremental switching mode" must be set to "Unlocked" on the electronic modules for ID key-operated switches for IO-Link.

Key color	Output 4 (DQ.4) active	Outputs 0, 4 (DQ.0 and DQ.4) active	Outputs 0, 1, 4 (DQ.0, DQ.1, DQ.4) active	Outputs 0, 1, 2, 4 (DQ.0, DQ.1, DQ.2, DQ.4) active	Outputs 1, 2, 3, 4 (DQ.0, DQ.1, DQ.2, DQ.3, DQ.4) active
Green					
Yellow					
Red					
Blue					

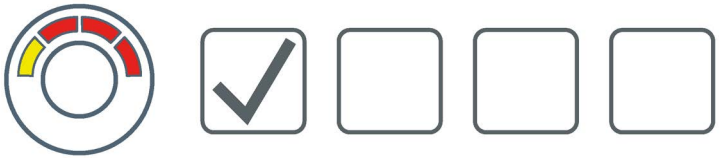
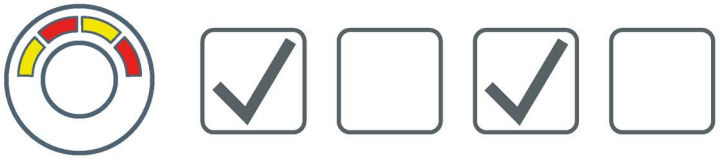
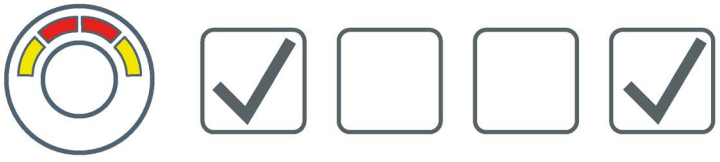
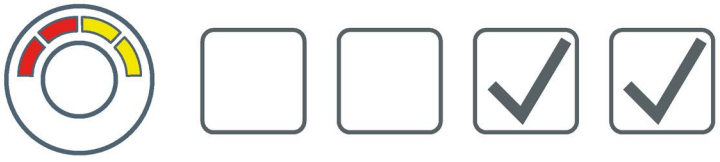
You can find more information about data sets in Section "Electronic modules for ID key-operated switches (Page 201)" in Chapter "Process data and data sets" in the appendix.

5.1.19.3 New functions as of firmware 2.0.0

Free selection of authorization levels

The authorization levels can be enabled by making a selection in the Port Configuration Tool (PCT). This allows greater flexibility in selecting an application.

Application: A service technician only needs the highest authorization level, for example. An individual ID key with authorization for level 4 is configured.

Authorization levels	
1	
1 and 3	
1 and 4	
3 and 4	

Register ID key by number

The individual ID key can be read in, without it physically existing or being inserted in the module, by entering the individual number in the PCT or by transferring it in the acyclic dataset.

Application: After the system has been delivered, additional ID keys can be logged into the system without them physically existing in the system.

Parameterizable selection mode

The selection mode can be parameterized for turning right and left. This allows the authorization levels to be selected via both directions.

The function must be enabled in the PCT.

Application: If no direct deactivation is necessary, the authorization levels can be selected more quickly and easily using this function.

Change to process image

The outputs or the selected authorization levels are listed in the process image via the cyclic process data.

Application: Direct access on the bit level is possible, thus complex calculations are no longer required.

5.1.20 Devices with inscription

5.1.20.1 22.5 mm pushbuttons with standard inscription

Pushbuttons with standard inscription are available in the design with flat button and flat front ring.

For further information refer to Chapters "22.5 mm pushbuttons" and "Mounting (Page 111)".

Overview of pushbuttons

Collar / Front ring material	Inscription	Article No.
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Black	O	3SU1000-0AB10-0AD0
Red	O	3SU1000-0AB20-0AD0
Green	I	3SU1000-0AB40-0AC0
Blue	R	3SU1000-0AB50-0AR0
White	I	3SU1000-0AB60-0AC0
Black	Auto (at 90° angle)	3SU1001-0AB10-0AQ0[1)]
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Black	O	3SU1030-0AB10-0AD0
Red	O	3SU1030-0AB20-0AD0
Green	I	3SU1030-0AB40-0AC0
Blue	R	3SU1030-0AB50-0AR0
White	I	3SU1030-0AB60-0AC0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)		
Black	O	3SU1050-0AB10-0AD0
Red	O	3SU1050-0AB20-0AD0
Green	I	3SU1050-0AB40-0AC0
Blue	R	3SU1050-0AB50-0AR0
White	I	3SU1050-0AB60-0AC0

[1)] Pushbutton cannot be illuminated

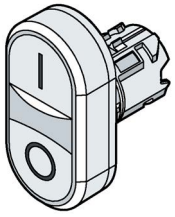
5.1.20.2 Twin pushbuttons with standard inscription

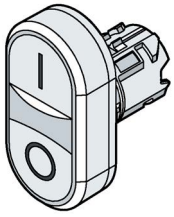
Twin pushbuttons are used to actuate contact modules and can also function as display devices. Thanks to separate actuating surfaces, it is possible to switch up to 2 independent module positions separately using only one command point. The switching function of all versions of the twin pushbuttons is latching.

For further information refer to Chapters "Twin pushbuttons (Page 50)" and "Mounting (Page 111)".

With standard installation (arrow on collar at the top), the upper button always has the first specified color and the lower button the second specified color. The same principle is used with the button heights. The first specified height refers to the top button, and the second specified height to the lower button.

Example: 3SU1051-3BB42-0AA0
Top button = green and flat
Lower button = red and raised

 Typical diagram		**Twin pushbuttons Flat / flat**	**Twin pushbuttons Flat / raised**
Collar / Front ring material	**Inscription**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Black / Black	Symbol No. 5264 / 5265 (IEC 60417)	3SU1000-3AB11-0AQ0	—
Green / Red	I / O	3SU1000-3AB42-0AK0	3SU1000-3BB42-0AK0
White / Black	I / O	3SU1000-3AB61-0AK0	3SU1000-3BB61-0AK0
White / White	- / +	3SU1000-3AB66-0AL0	—
	Arrows, horizontal	3SU1000-3AB66-0AM0	—
	Arrows, vertical	3SU1000-3AB66-0AN0	—
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Black / Black	Symbol No. 5264 / 5265 (IEC 60417)	3SU1030-3AB11-0AQ0	—
Green / Red	I / O	3SU1030-3AB42-0AK0	3SU1030-3BB42-0AK0
White / Black	I / O	3SU1030-3AB61-0AK0	3SU1030-3BB61-0AK0
White / White	- / +	3SU1030-3AB66-0AL0	—
	Arrows, horizontal	3SU1030-3AB66-0AM0	—
	Arrows, vertical	3SU1030-3AB66-0AN0	—
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
• Black / Black	Symbol No. 5264 / 5265 (IEC 60417)	3SU1050-3AB11-0AQ0	—
• Green / Red	I / O	3SU1050-3AB42-0AK0	3SU1030-3BB42-0AK0
• White / Black	I / O	3SU1050-3AB61-0AK0	3SU1030-3BB61-0AK0
• White / White	- / +	3SU1050-3AB66-0AL0	—
	Arrows, horizontal	3SU1050-3AB66-0AM0	—
	Arrows, vertical	3SU1050-3AB66-0AN0	—

		**Twin pushbuttons illuminated Flat / flat**	**Twin pushbuttons illuminated Flat / raised**
Collar / Front ring material	**Inscription**	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)			
Green / Red	I / O	3SU1001-3AB42-0AK0	3SU1001-3BB42-0AK0
	Arrows, horizontal	3SU1001-3AB42-0AN0	—
White / Black	I / O	3SU1001-3AB61-0AK0	3SU1001-3BB61-0AK0
White / White	- / +	3SU1001-3AB66-0AL0	—
	Arrows, horizontal	3SU1001-3AB66-0AN0	—
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1001-3AB66-0AP0	—
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)			
Green / Red	I / O	3SU1031-3AB42-0AK0	3SU1031-3BB42-0AK0
	Arrows, horizontal	3SU1031-3AB42-0AN0	—
White / Black	I / O	3SU1031-3AB61-0AK0	3SU1031-3BB61-0AK0
White / White	- / +	3SU1031-3AB66-0AL0	—
	Arrows, horizontal	3SU1031-3AB66-0AN0	—
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1031-3AB66-0AP0	—
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)			
Green / Red	I / O	3SU1051-3AB42-0AK0	3SU1051-3BB42-0AK0
	Arrows, horizontal	3SU1051-3AB42-0AN0	—
White / Black	I / O	3SU1051-3AB61-0AK0	3SU1051-3BB61-0AK0
White / White	- / +	3SU1051-3AB66-0AL0	—
	Arrows, horizontal	3SU1051-3AB66-0AN0	—
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1051-3AB66-0AP0	—

5.1.20.3 Inscription of actuating and signaling elements

Direct inscription

Actuating and signaling elements of all design lines can be optionally inscribed with a laser. The laser inscription is applied to the actuator, or to the front ring in the case of the selector switch and the key-operated switch.

The following types of device can be inscribed:

- Pushbuttons
- Illuminated pushbuttons
- Twin pushbuttons
- Illuminated twin pushbuttons
- Mushroom pushbuttons
- Illuminated mushroom pushbuttons
- EMERGENCY STOP buttons
- Illuminable EMERGENCY STOP buttons
- Indicator light lenses
- Selector switches
- Toggle switches
- Key-operated switches

Certain pushbuttons and twin pushbuttons with printed characters are available as standard.



Figure 5-2 Example of laser inscription

Inscription version

A letter height of 4 mm is used as standard for text inscriptions.

The typeface used is Arial. Other letter heights and typefaces are possible, but must be specified when ordering.
The maximum possible number of characters per line is as follows:

- 10 characters for one line of text
- 8 characters for 2 lines of text
- 6 characters for 3 lines of text, but 10 characters in the middle line.

Ordering notes

To order, the inscribed actuating and signaling elements can be selected via the SIRIUS ACT Configurator. An electronic order form is then generated.

- See Internet (http://www.siemens.en/sirius-act/konfigurator) for Configurator
- Electronic Catalog CA 01 on DVD or
- Industry Mall: Internet (http://www.siemens.com/industrymall)

When ordering, supplement the Article No. of the actuating element or the indicator light with **"–Z**" and an order code:

Text line in upper/lower case, always upper case for beginning of line (e.g. "Lift / Off"): **Y10**

Text in upper case (e.g. "LIFT"): **Y11**

Text in lower case (e.g. "lift / off / lower"): **Y12**

Text in upper/lower case, all words begin with upper case letters (e.g. "On Off"): **Y15**

Symbol with number according to ISO 7000 or IEC 60417: **Y13**

Any inscription or symbol according to order form supplement: **Y19**

When ordering, specify the required inscription in plain text in addition to the Article No. and order code. In the case of special inscriptions with words in languages other than German, give the exact spelling and specify the language. In the case of symbols with number, quote the corresponding standard (see ordering example 1).

In the case of multi-line inscriptions, the text must be assigned to the respective line, e.g. "Z1 = Lift, Z2 =Lower". For long words you can also specify the end-of-line division.

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

The SIRIUS ACT Configurator must be used to select special inscriptions and symbols (order code Y19). In this case a "CIN" (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly using the CIN and the SIRIUS ACT Configurator (Mall shopping cart) or via the standard order channels.

Ordering example 1: A round pushbutton with the inscription "Reset" is required:
3SU1030–0AD20–0AZ0
Y10 Z = Reset (English)

Ordering example 2: A square pushbutton inscribed with symbol No. 5389 according to ISO 60417:
3SU1030–0AD20–0AZ0
Y13 Z = 5389 IEC is required

Ordering example 3: A round pushbutton inscribed with symbol No. 1118 according to ISO 7000:
3SU1030–0AD20–0AZ0
Y13 Z = 1118 ISO is required

Insert labels

You can use insert labels for labeling your devices.

You will find insert labels with standard inscriptions in Chapter "Accessories (Page 385)".

5.2 3SU10 devices for use on 4-slot holder

Note

The installation of the devices for 4-slot holders on a 4-slot holder into an enclosure is only possible for enclosures with a raised cover.

If you want to mount the devices in a normal enclosure, you must first remove the base element of the enclosure.

5.2.1 Coordinate switches

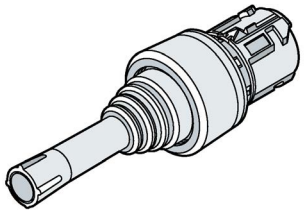
Coordinate switches are used to temporarily or permanently select up to 4 positions. They are operated by a vertical and horizontal movement using several fingers. Only one position on the holder is actuated in each case. The coordinate switch is suitable for simple navigation tasks thanks to its 4 selectable directions.

Coordinate switches are available in different variants according to the following features:

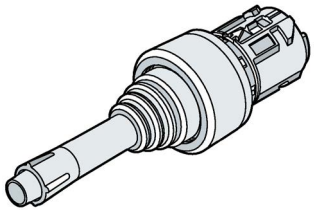
- Switch positions
- Collar and front ring material
- Locking (in the middle position)

A holder for 4 modules (3SU15.0-0BA10-0AA0) is required to install any of the devices listed below. You will find additional information on this in Chapters "Holders (Page 221)","Mounting (Page 111)" and "Equipping with contact modules without EMERGENCY STOP (Page 182)".

Without mechanical interlock

			2 switch positions	4 switch positions
				
Collar / Front ring material	**Operating principle**	**Direction of actuation**	**Article No.**	
Plastic / Plastic	Momentary contact	Horizontal	3SU1000-7AC10-0AA0	3SU1000-7AF10-0AA0
		Vertical	3SU1000-7AD10-0AA0	
	Latching	Horizontal	3SU1000-7AA10-0AA0	3SU1000-7AE10-0AA0
		Vertical	3SU1000-7AB10-0AA0	
Plastic / Metal, matte	Momentary contact	Horizontal	3SU1030-7AC10-0AA0	3SU1030-7AF10-0AA0
		Vertical	3SU1030-7AD10-0AA0	
	Latching	Horizontal	3SU1030-7AA10-0AA0	3SU1030-7AE10-0AA0
		Vertical	3SU1030-7AB10-0AA0	
Metal / Metal	Momentary contact	Horizontal	3SU1050-7AC88-0AA0	3SU1050-7AF88-0AA0
		Vertical	3SU1050-7AD88-0AA0	
	Latching	Horizontal	3SU1050-7AA88-0AA0	3SU1050-7AE88-0AA0
		Vertical	3SU1050-7AB88-0AA0	

With mechanical interlock

			2 switch positions	4 switch positions
				
Collar / Front ring material	**Operating principle**	**Direction of actuation**	**Article No.**	
Plastic / Plastic	Momentary contact	Horizontal	3SU1000-7BC10-0AA0	3SU1000-7BF10-0AA0
		Vertical	3SU1000-7BD10-0AA0	
	Latching	Horizontal	3SU1000-7BA10-0AA0	3SU1000-7BE10-0AA0
		Vertical	3SU1000-7BB10-0AA0	
Plastic / Metal, matte	Momentary contact	Horizontal	3SU1030-7BC10-0AA0	3SU1030-7BF10-0AA0
		Vertical	3SU1030-7BD10-0AA0	
	Latching	Horizontal	3SU1030-7BA10-0AA0	3SU1030-7BE10-0AA0
		Vertical	3SU1030-7BB10-0AA0	
Metal / Metal	Momentary contact	Horizontal	3SU1050-7BC88-0AA0	3SU1050-7BF88-0AA0
		Vertical	3SU1050-7BD88-0AA0	
	Latching	Horizontal	3SU1050-7BA88-0AA0	3SU1050-7BE88-0AA0
		Vertical	3SU1050-7BB88-0AA0	

Control of the modules using the coordinate switch

No module is controlled in the neutral position of the coordinate switch.

Control of the modules using the coordinate switch with 4 switching positions

Switching position	Module at holder position 1	Module at holder position 2	Module at holder position 3	Module at holder position 4
 Left	—	—	X	—
 Top	—	—	—	X
 Right	X	—	—	—
 Bottom	—	X	—	—

Control of the modules using the coordinate switch with 2 switching positions horizontal

Switching position	Module at holder position 1	Module at holder position 2	Module at holder position 3	Module at holder position 4
 Left	—	—	X	—
 Right	X	—	—	—

Control of the modules using the coordinate switch with 2 switching positions vertical

Switching position	Module at holder position 1	Module at holder position 2	Module at holder position 3	Module at holder position 4
 Top	—	—	—	X
 Bottom	—	X	—	—

5.2.2 Selector switches 4 switch positions

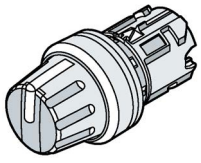
Selector switches are used to actuate contact modules. The selector switch has 4 defined switch positions (0 position 3 / 6 / 9 / 12 o'clock). When these switch positions are changed, the current operation is concluded before the new one is activated.

These devices are available in different variants according to the following features:

- Collar and front ring material

A holder for 4 modules (3SU15.0-0BA10-0AA0) is required for all of the devices listed below. You will find additional information on this in Chapters "Holders (Page 221)", "Mounting (Page 111)" and "Equipping with contact modules without EMERGENCY STOP (Page 182)".

Selector switches 4 switch positions (rotary knob)

	**4 switch positions**
Collar / Front ring material	
Plastic / Plastic	
Black / White	3SU1000-2AS60-0AA0
Plastic / Metal, matte	
Black / White	3SU1030-2AS60-0AA0
Metal / Metal	
Black / White	3SU1050-2AS60-0AA0

Control of the modules using the selector switch

In the selector switch's intermediate positions (10:30 or 1:30 o'clock), no module is controlled.

Switching position	Module at holder position 1	Module at holder position 2	Module at holder position 3	Module at holder position 4
3 h	X	—	—	—
6 h	—	X	—	—
9 h	—	—	X	—
12 h	—	—	—	X

5.3 Mounting

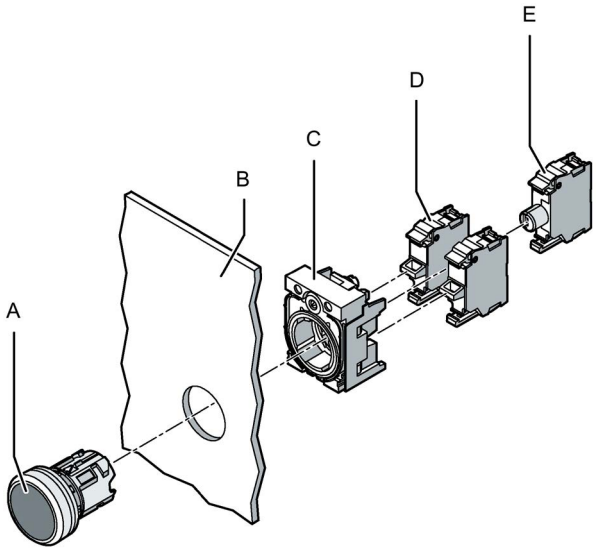
5.3.1 Front plate mounting

The front plate mounting described below is equally possible for enclosure mounting with front modules. The front plate described is replaced with the enclosure cover. With enclosure mounting, only 1-pole modules can be mounted. Stacking of modules is not possible with enclosure mounting.

Requirement

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU1) in front of the front plate (or enclosure cover)
- A holder (3SU15) for securing behind the front plate (enclosure cover)
- Contact modules and / or an LED module (3SU14) behind the front plate (enclosure cover)



Typical diagram

A Actuating or signaling element
B Front plate
C Holder
D Contact module
E LED module (only possible with 3-slot holder)

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).
2. Fit the holder (C) from behind (wiring side) onto the actuating or signaling element and lock it into place.
3. The unit must be aligned before it is finally tightened and secured against twisting (see Chapter "Alignment"). (Page 119)
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).
5. Snap the contact module(s) (D) from behind onto the holder. To do this, hold the modules so that they are tilted downwards slightly and place them onto the holder from behind and then press them upwards until you feel the module latch in the holder.
   Single- or two-pole contact modules can be mounted on the holder.
   The modules can be stacked (max. 2 modules behind one another).
6. Mount an LED module (E), if necessary. You can mount the LED module on the holder only in position 3/6 (center position).

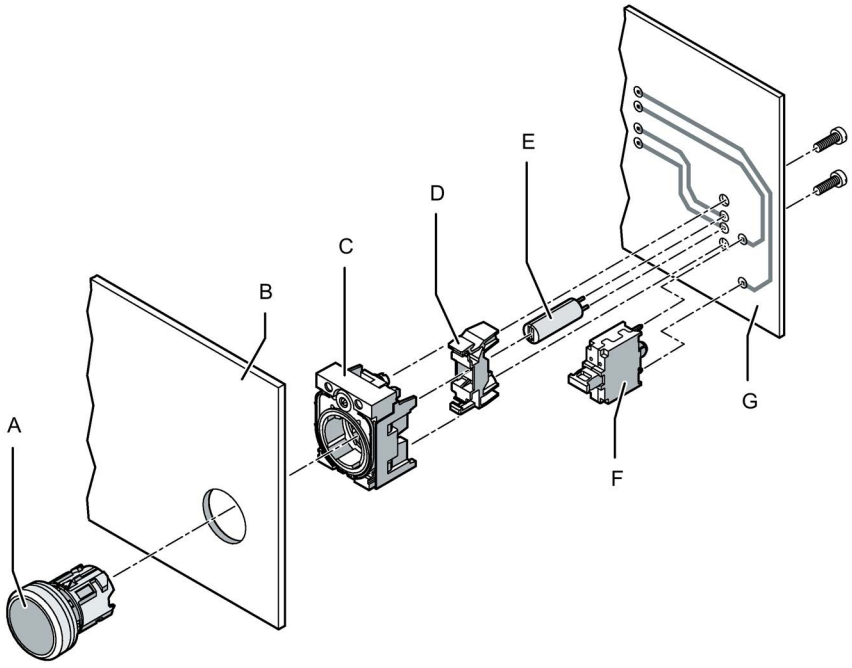
5.3.2 Mounting on printed-circuit boards

3SU1 devices can be mounted on PCBs using the 3-slot or 4-slot holder.

If the 3SU1900-0KA10-0AA0 holder for the printed circuit board is attached to a 3-slot holder at position 1/4 or 2/5, one position remains unoccupied on the 3-slot holder.

If you have to use an illuminated actuator, you must attach the holder for the printed circuit board to position 3/6.

If the PCB carrier 3SU1900-0KA10-0AA0 is attached to a 4-slot holder, the holder cannot accommodate an LED module. One position on the 4-slot holder is also left empty.



Typical diagram

A Actuating or signaling element (in this case: indicator light)
B Front plate
C Holder
D PCB carrier
E LED (PCB mounting)
F Contact module (PCB mounting)
G Printed-circuit board

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).
2. Fit the holder (C) from behind onto the actuating or signaling element and lock it into place.
3. You must align the unit before you finally tighten and secure it against twisting. You will find information on this in Chapter "Alignment (Page 119)").
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).
5. Snap the PCB carrier (D) from behind onto the holder. To do this, hold the PCB carrier so that it is tilted downwards slightly and place it onto the holder from behind and then press it upwards until you feel the PCB carrier latch in the holder.
6. Equip the PCB (G) with the components.
7. Screw the PCB securely onto the PCB carrier.

Note

Number of PCB carriers

Make sure there is sufficient stability. Use several PCB carriers if necessary.

If the PCB is attached, one PCB carrier is sufficient. For an unattached PCB, at least two PCB carriers must be used.

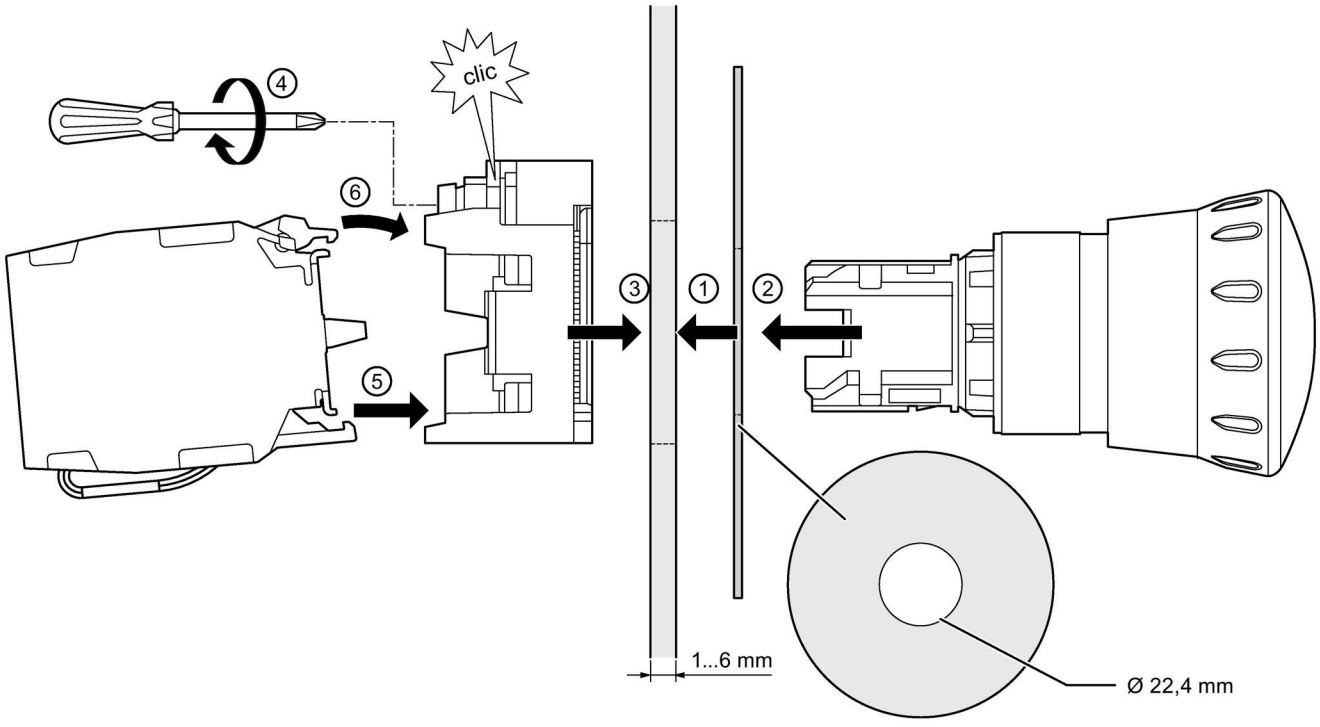
5.3.3 Base mounting for the enclosure

You can find information on base mounting in the section "3SU18 enclosures" in Chapter "Installation (Page 233)"

5.3.4 Installation steps for 22.5 mm devices

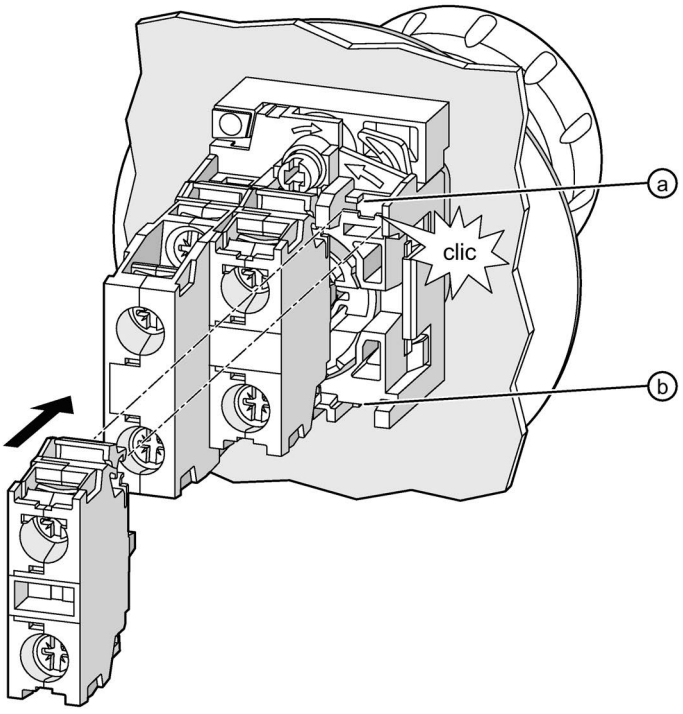
The assembly steps are shown using the example of an EMERGENCY STOP mushroom pushbutton.

Front plate thickness 1 ... 6 mm.



Procedure

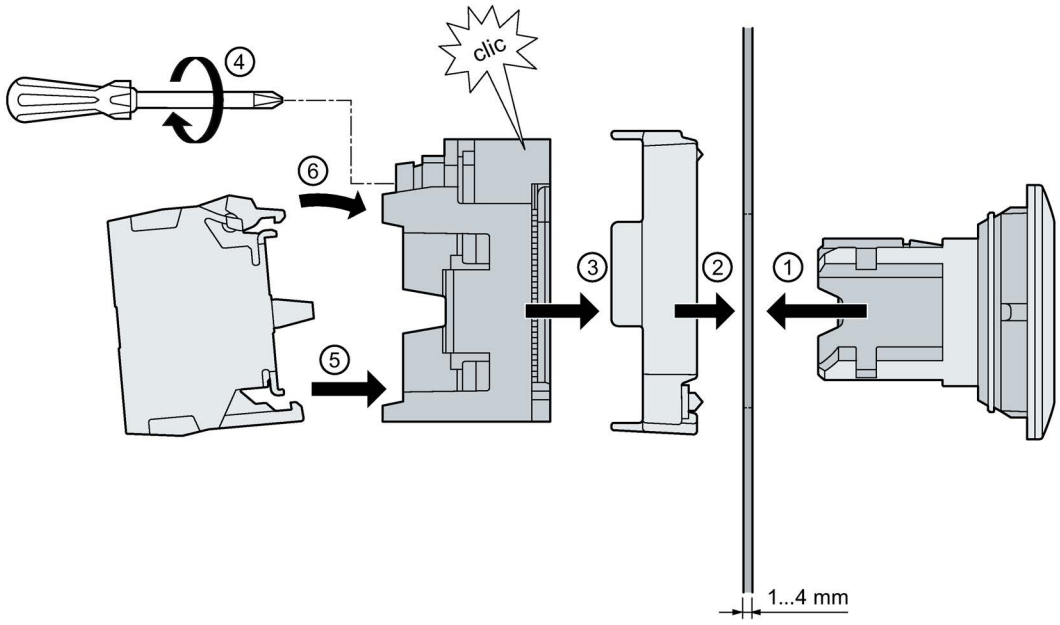
1. Hold the backing plate (optional accessory) onto the front plate.
2. Insert the actuating / signaling element (in this example: EMERGENCY STOP mushroom pushbutton) from the front through the opening in the backing plate and the front plate.
3. Fit the holder from behind.
4. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
5. Snap the contact module(s) / LED module from behind onto the holder.
   Fit the narrow snap hook (b) into the associated contour on the holder.
6. Engage the broad snap hook (a) into the associated contour on the holder.
   Ensure secure latching.



a Broad snap hook
b Narrow snap hook

5.3.5 Installation steps for 30.5 mm devices

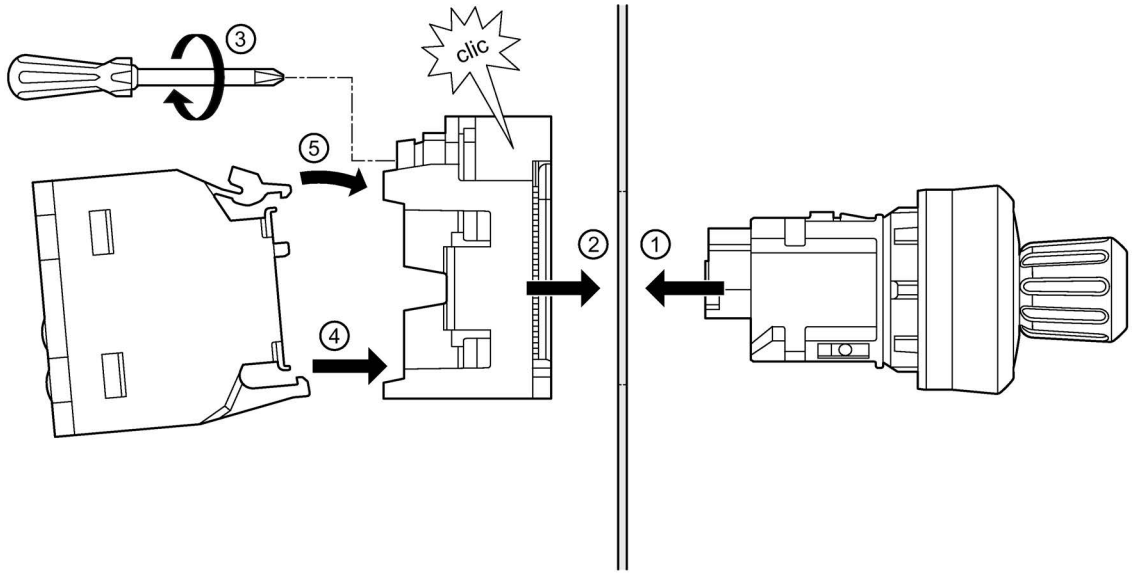
Front plate thickness 1 ... 4 mm.



Procedure

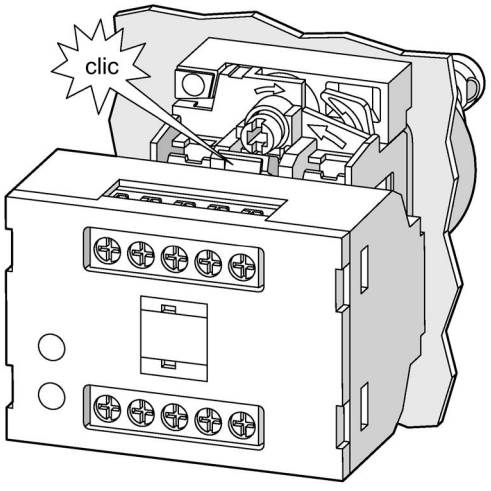
1. Insert the 30.5 mm actuating / signaling element from the front into the opening of the front plate.
2. Fit the adapter from behind.
3. Fit the holder from behind.
4. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
5. Snap the contact module(s) / LED module from behind onto the holder.
   Fit the narrow snap hook into the associated contour on the holder.
6. Engage the broad snap hook into the associated contour on the holder.
   Ensure secure latching.

5.3.6 Mounting a command point with ID key-operated switch



Procedure

1. Insert the ID key-operated switch from the front into the opening of the front plate.
2. Place the holder from behind onto the ID key-operated switch.
3. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
4. Snap the electronic module for ID key-operated switch onto the back of the holder. Fit the narrow snap hook into the associated contour on the holder.
5. Engage the broad snap hook into the associated contour on the holder. Ensure secure latching.



Snapping an electronic module onto the holder ④ / ⑤

5.3.7 Alignment

You must align the SIRIUS ACT devices before you finally tighten and secure them against twisting. You can do this in 4 different ways:

1. Alignment on horizontal guide line
2. Alignment with guide line on the arrow of the holder
3. Alignment with spirit level/ruler
4. Alignment on the fixing point

Procedure

Alignment on horizontal guide line

For this purpose, a horizontal line is drawn 18.5 mm above the center point of the 22.5 mm fixing hole. The holder can be aligned with this line when tightening the fixing screw.

Alignment with guide line on the arrow of the holder

In vertical alignment of the fixing hole, a vertical line is drawn to which the holder is aligned with the help of the printed arrow.

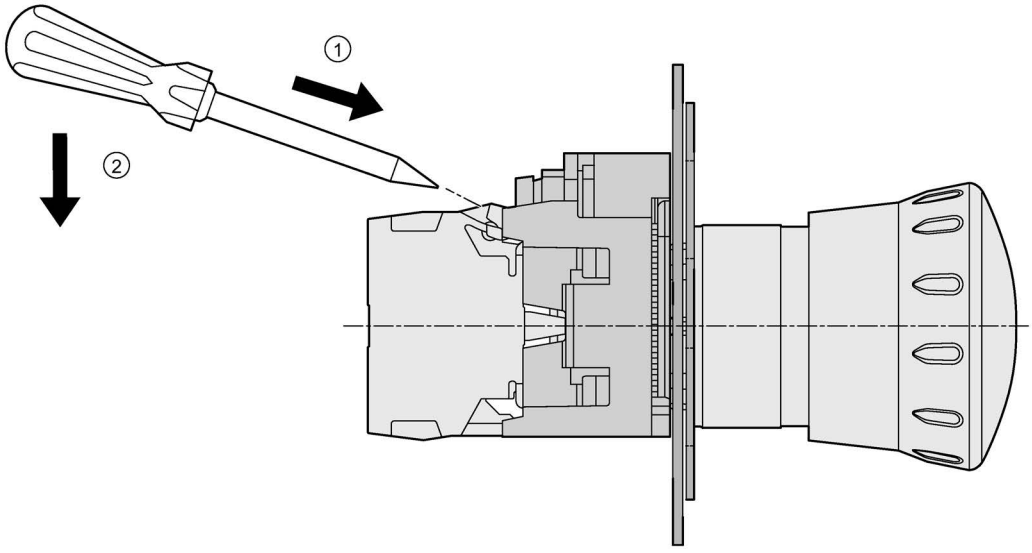
Alignment with spirit level/ruler

The spirit level is placed on an even surface of the holder. After alignment on the horizontal, the fixing screw is tightened. Alternatively, a ruler can be used with a range of devices. For this purpose, all holders must first be roughly aligned under the ruler. Then one holder after another is precisely aligned with the help of the applied ruler, and fixed with the fixing screw.

After the device has been aligned, you must tighten the fastening screw with a torque of between 1.0 and 1.2 Nm. The high transformation ratio of the fixing mechanism and the pointed teeth of the fixing collar provide rugged and long-lasting protection against twisting. You can then install the contact module and/or LED module(s) as required.

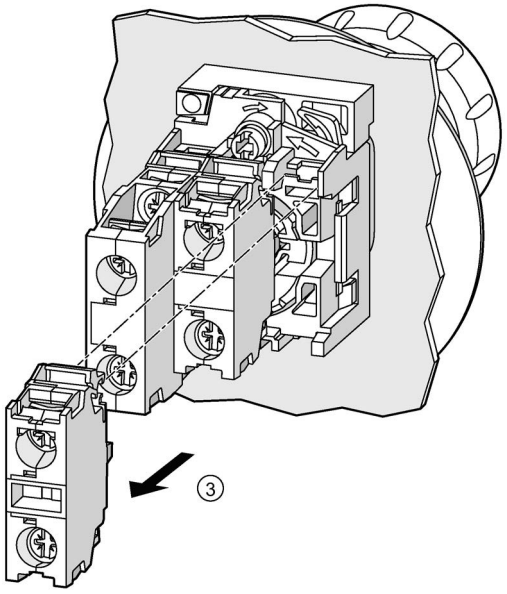
5.3.8 Disassembly steps for 22.5 mm devices

The disassembly steps are shown using the example of an EMERGENCY-STOP mushroom pushbutton.

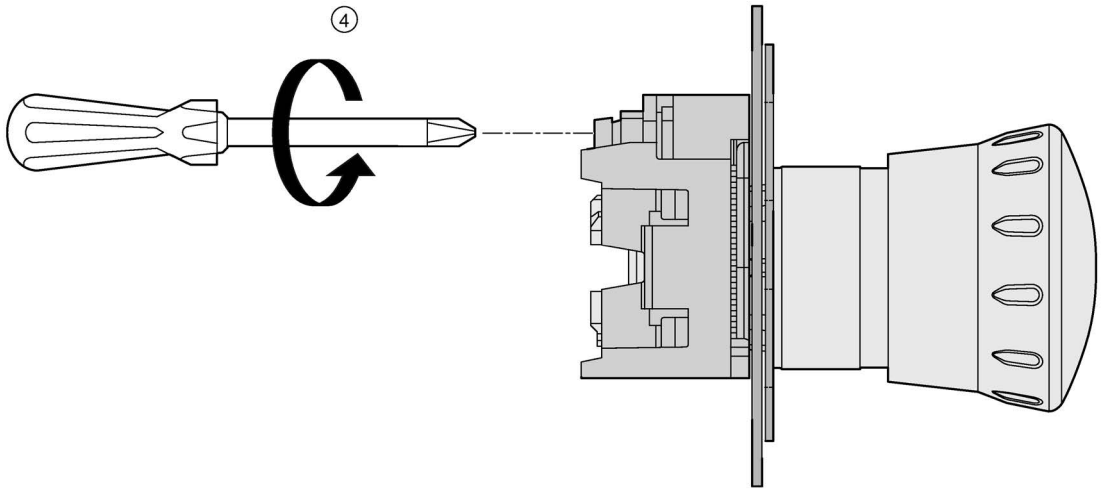


Procedure

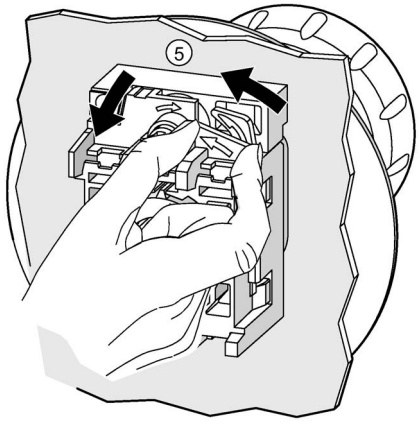
1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
2. Press the screwdriver down to open the latches of the modules.



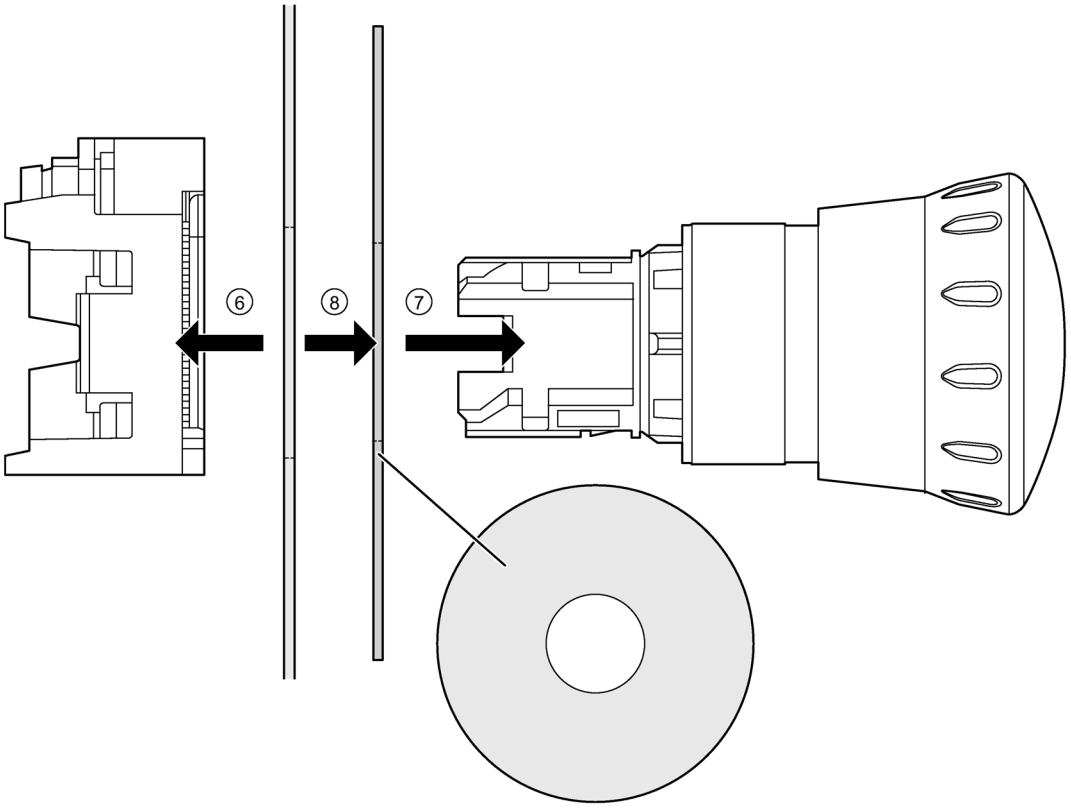
3. Remove the modules.



4. Remove the fastening screw from the holder.

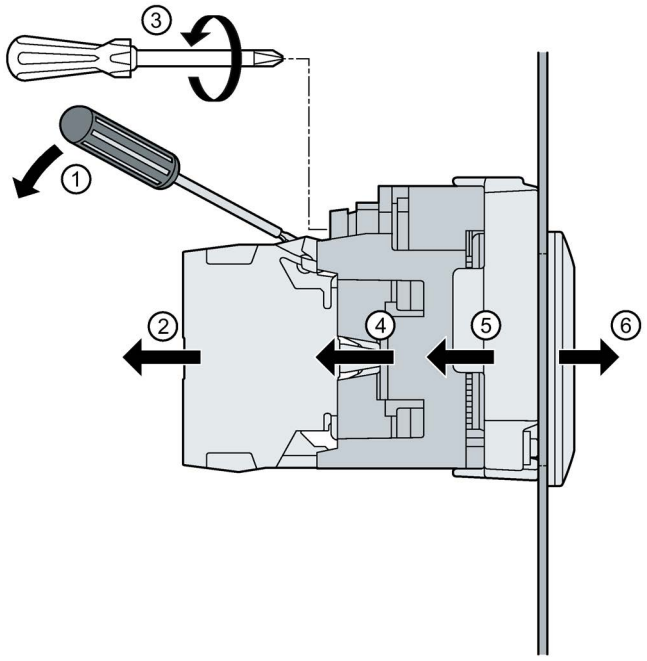


5. Unlock the holder.



6. Remove the holder to the rear from the EMERGENCY STOP mushroom pushbutton (or any other actuating or signaling element).
7. Remove the EMERGENCY STOP mushroom pushbutton.
8. Remove the backing plate (optional step).

5.3.9 Disassembly steps for 30.5 mm devices



Procedure

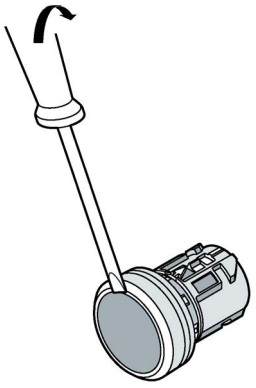
1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
   Press the screwdriver down to open the module latches.
2. Remove the modules.
3. Remove the fastening screw from the holder.
4. Unlock the holder.
   Remove the holder to the rear from the actuating or signaling element.
5. Remove the adapter to the rear from the actuating or signaling element.
6. Remove the actuating or signaling element.

5.3.10 Disassembly of the button

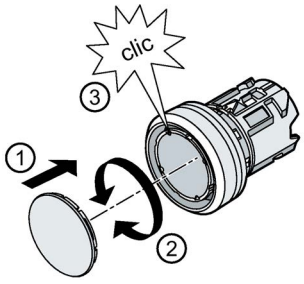
The buttons of the pushbuttons and illuminated pushbuttons can be replaced from the front by the user.

Procedure:

Insert a precision screwdriver into the gap between the button and the front ring and lever the button out.



Mounting the button



Procedure:

1. Place the button on the device ①. Make sure the insert label is correctly mounted (aligned).
2. To prevent incorrect mounting when reattaching the button, coding lugs are positioned at 90° intervals. For this reason, turn the button to the left or right ② until the button engages ③.

3SU11 complete units

6

6.1 Product description

The 3SU11 complete units are a modular range of devices for front plate mounting and rear cable connection. Complete units made up of an actuating or signaling element and contact modules and/or LED modules are offered for the most common applications.

The 3SU11 complete units are available in the following versions:

Material	Article No.
Plastic	3SU110
Plastic / Metal, matte	3SU113
Metal	3SU115

3SU11 complete units are supplied with the following components:

- An actuating or signaling element in front of the front plate
- A holder for securing behind the front plate
- Up to two contact modules and / or one LED module

The complete units are supplied without the individual components installed.

You can find information on installing in Chapter "Installation (Page 150)".

For further information about contact modules refer to Chapter "3SU14 contact modules and LED modules (Page 173)".

6.2 3SU11 devices for use on 3-slot holder

6.2.1 Pushbuttons

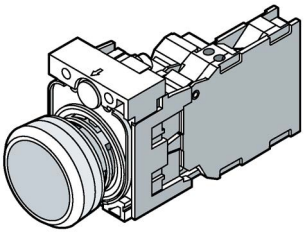
Pushbuttons are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. The button caps can be replaced from the front by the user.

Pushbuttons are available in different variants according to the following features:

- Height of button
- Height of front ring
- Collar and front ring material
- Colors of the buttons
- Quantity and type of modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.



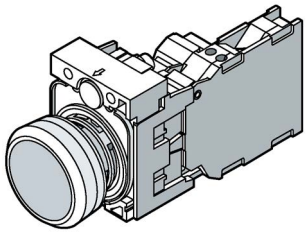
Typical diagram

Pushbuttons (momentary contact type)

	Number of modules	Number of NO contacts	Number of NC contacts	Flat button	Raised button
Collar / Front ring material				**Article No.**	
Plastic / Plastic					
Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)					
Black	1	1	0	3SU1100-0AB10-xBA0	—
	1	0	1	3SU1100-0AB10-xCA0	3SU1100-0BB10-1CA0[1)]
	1	1	1	3SU1100-0AB10-xFA0	—
Red	1	1	0	3SU1100-0AB20-xBA0	—
	1	0	1	3SU1100-0AB20-xCA0	3SU1100-0BB20-1CA0[1)]
	1	1	1	3SU1100-0AB20-xFA0	—
Yellow	1	1	0	3SU1100-0AB30-xBA0	—
	1	1	1	3SU1100-0AB30-xFA0	—
Green	1	1	0	3SU1100-0AB40-xBA0	—
	1	1	1	3SU1100-0AB40-xFA0	—
Blue	1	1	0	3SU1100-0AB50-xBA0	3SU1100-0BB50-1BA0[1)]
	1	1	1	3SU1100-0AB50-xFA0	—
White	1	1	0	3SU1100-0AB60-xBA0	—
	1	1	1	3SU1100-0AB60-xFA0	—
Clear	1	1	0	3SU1100-0AB70-1BA0[1)]	—
	1	1	1	3SU1100-0AB70-xFA0	—
Gray	1	1	1	3SU1100-0AB80-xFA0	—

x: 1 = screw terminals; x: 3 = spring-type terminals

[1)] Available only with screw terminals



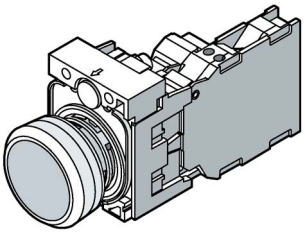
Typical diagram

Pushbuttons (momentary contact type)

	Number of modules	Number of NO contacts	Number of NC contacts	Flat button	Raised button
Collar / Front ring material				**Article No.**	
Plastic / Metal, matte					
Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)					
	Number of modules	**Number of NO contacts**	**Number of NC contacts**	**Flat button**	**Raised button**
Black	1	1	0	3SU1130-0AB10-xBA0	—
	1	0	1	3SU1130-0AB10-xCA0	—
	1	1	1	3SU1130-0AB10-xFA0	—
Red	1	1	0	3SU1130-0AB20-xBA0	—
	1	0	1	3SU1130-0AB20-xCA0	—
	1	1	1	3SU1130-0AB20-xFA0	—
Yellow	1	1	0	3SU1130-0AB30-xBA0	—
	1	1	1	3SU1130-0AB30-xFA0	—
Green	1	1	0	3SU1130-0AB40-xBA0	—
	1	1	1	3SU1130-0AB40-xFA0	—
Blue	1	1	0	3SU1130-0AB50-xBA0	—
	1	1	1	3SU1130-0AB50-xFA0	—
White	1	1	0	3SU1130-0AB60-xBA0	—
	1	1	1	3SU1130-0AB60-xFA0	—

x: 1 = screw terminals; x: 3 = spring-type terminals

1) Available only with screw terminals



Typical diagram

Pushbuttons (momentary contact type)

	Number of modules	Number of NO contacts	Number of NC contacts	Flat button	Raised button
Collar / Front ring material				**Article No.**	
Metal / Metal					
Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)					
	Number of modules	**Number of NO contacts**	**Number of NC contacts**	**Flat button**	**Raised button**
Black	1	1	0	3SU1150-0AB10-xBA0	—
	1	0	1	3SU1150-0AB10-xCA0	3SU1150-0BB10-1CA0[1)]
	1	1	1	3SU1150-0AB10-xFA0	—
Red	1	1	0	3SU1150-0AB20-xBA0	—
	1	0	1	3SU1150-0AB20-xCA0	3SU1150-0BB20-1CA0[1)]
	1	1	1	3SU1150-0AB20-xFA0	—
Yellow	1	1	0	3SU1150-0AB30-xBA0	—
	1	1	1	3SU1150-0AB30-xFA0	—
Green	1	1	0	3SU1150-0AB40-xBA0	—
	1	1	1	3SU1150-0AB40-xFA0	—
Blue	1	1	0	3SU1150-0AB50-xBA0	—
	1	1	1	3SU1150-0AB50-xFA0	—
White	1	1	0	3SU1150-0AB60-xBA0	—
	1	1	1	3SU1150-0AB60-xFA0	—
Clear	1	1	1	3SU1150-0AB70-xFA0	—

x: 1 = screw terminals; x: 3 = spring-type terminals

[1)] Available only with screw terminals

6.2.2 Illuminated pushbuttons

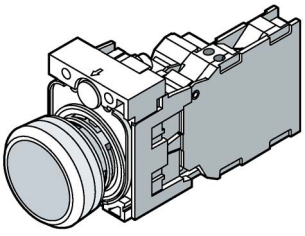
Illuminated pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. The buttons can be replaced from the front by the user.

The illuminated pushbuttons are available in different variants according to the following features:

- Height of button
- Collar and front ring material
- Colors of the buttons
- Illuminable
- Quantity and type of modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.



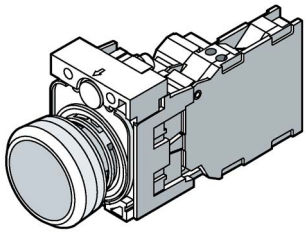
Typical diagram

Illuminated pushbuttons (momentary contact type)

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Red	1	1	0	3SU110y-0AB20-xBA0
	1	0	1	3SU110y-0AB20-xCA0
	1	1	1	3SU110y-0AB20-xFA0
Yellow	1	1	0	3SU110y-0AB30-xBA0
	1	1	1	3SU110y-0AB30-xFA0
Green	1	1	0	3SU110y-0AB40-xBA0
	1	1	1	3SU110y-0AB40-xFA0
Blue	1	1	0	3SU110y-0AB50-xBA0
	1	1	1	3SU110y-0AB50-xFA0
White	1	1	0	3SU110y-0AB60-xBA0
	1	1	1	3SU110y-0AB60-xFA0
Clear	1	1	0	3SU1100-0AB70-xBA0
	1	1	1	3SU1100-0AB70-xFA0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: 2 = 24 V AC/DC LED; y: 3 = 110 V AC LED; y: 6 = 230 V AC LED



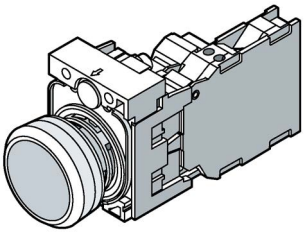
Typical diagram

Illuminated pushbuttons (momentary contact type)

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Metal, matte				
Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)				
	Number of modules	**Number of NO contacts**	**Number of NC contacts**	**Article No.**
Red	1	1	0	3SU113y-0AB20-xBA0
	1	0	1	3SU113y-0AB20-xCA0
	1	1	1	3SU113y-0AB20-xFA0
Yellow	1	1	0	3SU113y-0AB30-xBA0
	1	1	1	3SU113y-0AB30-xFA0
Green	1	1	0	3SU113y-0AB40-xBA0
	1	1	1	3SU113y-0AB40-xFA0
Blue	1	1	0	3SU113y-0AB50-xBA0
				3SU113y-0AB50-xFA0
White	1	1	0	3SU113y-0AB60-xBA0
	1	1	1	3SU113y-0AB60-xFA0
Clear	1	1	0	3SU113y-0AB70-xBA0
	1	1	1	3SU113y-0AB70-xFA0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: 2 = 24 V AC/DC LED; y: 3 = 110 V AC LED; y: 6 = 230 V AC LED



Typical diagram

Illuminated pushbuttons (momentary contact type)

Metal / Metal

Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)

	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Amber	1	1	0	3SU115y-0AB00-xBA0
	1	1	1	3SU115y-0AB00-xFA0
Red	1	1	0	3SU115y-0AB20-xBA0
	1	0	1	3SU115y-0AB20-xCA0
	1	1	1	3SU115y-0AB20-xFA0
Yellow	1	1	0	3SU115y-0AB30-xBA0
	1	1	1	3SU115y-0AB30-xFA0
Green	1	1	0	3SU115y-0AB40-xBA0
	1	1	1	3SU115y-0AB40-xFA0
Blue	1	1	0	3SU115y-0AB50-xBA0
	1	1	1	3SU115y-0AB50-xFA0
White	1	1	0	3SU115y-0AB60-xBA0
	1	1	1	3SU115y-0AB60-xFA0
Clear	1	1	0	3SU115y-0AB70-xBA0
	1	1	1	3SU115y-0AB70-xFA0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: 2 = 24 V AC/DC LED; y: 3 = 110 V AC LED; y: 6 = 230 V AC LED

6.2.3 Mushroom pushbuttons

Overview of mushroom pushbuttons, 40 mm diameter

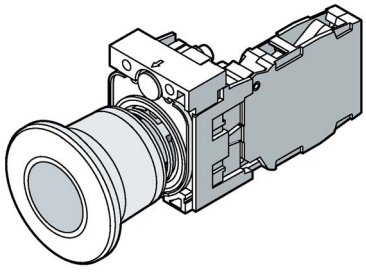
Mushroom pushbuttons are used to actuate contact modules.
Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand.
The actuator is available with a diameter of 40 mm.

Mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Quantity and type of modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.



Typical diagram

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Plastic Siemens Industry Mall (hhttps://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Red	1	0	1	3SU1100-1BA20-xCA0
	1	1	1	3SU1100-1BA20-xFA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)				
Red	1	0	1	3SU1130-1BA20-1CA0
	1	1	1	3SU1130-1BA20-xFA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)				
Red	1	0	1	3SU1150-1BA20-xCA0
	1	1	1	3SU1150-1BA20-xFA0

x: 1 = screw terminals; x: 3 = spring-type terminals

6.2.4 EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are devices for actuating contact modules, and they are used in conjunction with a safety relay to bring a machine / plant to a safe state.

The EMERGENCY STOP mushroom pushbuttons are equipped with tamper protection (trigger action). The EMERGENCY STOP mushroom pushbutton does not latch without generating an EMERGENCY STOP signal. The EMERGENCY STOP signal is maintained until the EMERGENCY STOP device is reset (unlatched).
All SIRIUS ACT EMERGENCY STOP mushroom pushbuttons comply with DIN EN ISO 13850.

These pushbuttons are operated by pressure applied by the whole palm of the hand.

The actuators are available with a diameter of 40 mm.

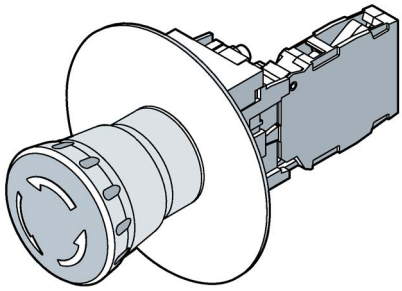
EMERGENCY STOP mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Colors (special variants)
- Switching function: latching
- Rotate to unlatch
- Pull to unlatch
- Quantity and type of modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Overview of 40 mm diameter EMERGENCY STOP mushroom pushbuttons, rotate-to-unlatch type / tamper protection



Typical diagram

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Red	1	0	1	3SU1100-1HB20-xCy0
	1	1	1	3SU1100-1HB20-xFy0
	1	0	2	3SU1100-1HB20-xPy0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)				
Red	1	0	1	3SU1150-1HB20-xCy0
	1	1	1	3SU1150-1HB20-xFy0
	1	0	2	3SU1150-1HB20-xPy0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: F = backing plate: Without inscription

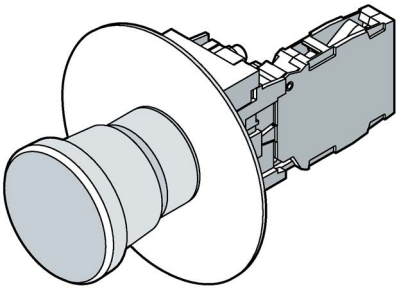
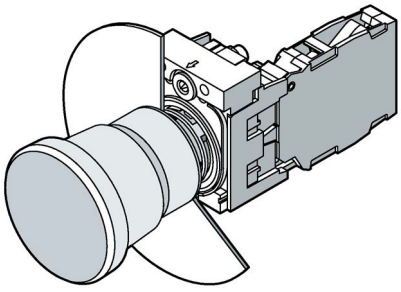
y: G = backing plate: EMERGENCY STOP

y: H = backing plate: NOT-HALT

y: J = backing plate: ARRET D'URGENCE

y: T = backing plate: EMERGENCY STOP

Overview of 40 mm diameter EMERGENCY STOP mushroom pushbuttons, pull-to-unlatch type / tamper protection

 Typical diagram			 Typical diagram	
Collar / Front ring material	**Number of modules**	**Number of NO contacts**	**Number of NC contacts**	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Red	1	0	1	3SU1100-1HA20-xCy0
	1	1	1	3SU1100-1HA20-xFy0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)				
Red	1	0	1	3SU1150-1HA20-xCy0
	1	1	1	3SU1150-1HA20-xFy0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: F = backing plate: Without inscription

y: G = backing plate: EMERGENCY STOP

y: H = backing plate: NOT-HALT

y: J = backing plate: ARRET D'URGENCE

6.2.5 Indicator lights

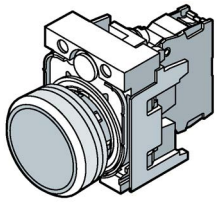
Indicator lights function as indicators and signaling devices. They are equipped with a smooth-surfaced lens that cannot be replaced by the user.

Indicator lights are available in different variants according to the following features:

- Collar and front ring material
- Colors
- Quantity and type of LED modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.



Typical diagram

Indicator lights with holder (available with screw terminals and spring-type terminals)	
Collar / Front ring material	**Article No.**
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
Amber	3SU110y-6AA00-xAA0
Red	3SU110y-6AA20-xAA0
Yellow	3SU110y-6AA30-xAA0
Green	3SU110y-6AA40-xAA0
Blue	3SU110y-6AA50-xAA0
White	3SU110y-6AA60-xAA0
Clear	3SU110y-6AA70-xAA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
Amber	3SU115y-6AA00-xAA0
Red	3SU115y-6AA20-xAA0
Yellow	3SU115y-6AA30-xAA0
Green	3SU115y-6AA40-xAA0
Blue	3SU115y-6AA50-xAA0
White	3SU115y-6AA60-xAA0
Clear	3SU115y-6AA70-xAA0

x: 1 = screw terminals; x: 3 = spring-type terminals

y: 2 = variant with LED: 24 V AC/DC; y: 3 = variant with LED: 110 V AC; y: 6 = variant with LED: 230 V AC

6.2.6 Selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

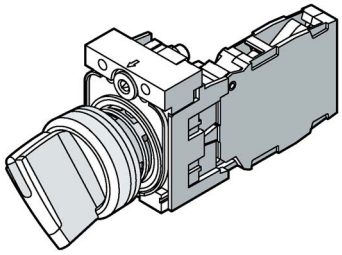
Selector switches are available in different variants according to the following features:

- Switch positions
- Collar and front ring material
- Quantity and type of modules included in the scope of supply

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Short black actuator, 2 switch positions, latching



Typical diagram

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
				Latching, 90° (10:30/1:30 o'clock) 
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
White	1	1	0	3SU1100-2BF60-xBA0
	2	1	1	3SU1100-2BF60-xMA0
	1	1	1	3SU1100-2BF60-xFA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)				
White	1	1	0	3SU1130-2BF60-xBA0
	1	1	1	3SU1130-2BF60-xMA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)				
White	1	1	0	3SU1150-2BF60-xBA0
	1	1	1	3SU1150-2BF60-xMA0

x: 1 = screw terminals; x: 3 = spring-type terminals

Short black actuator, 3 switch positions

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.	
				Latching, 2 x 45° 	Momentary contact 2 x 45°, reset from right + left 
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)					
White	2	2	2	3SU1100-2BL60-xLA0	3SU1100-2BM60-xLA0
	2	2	0	3SU1100-2BL60-xNA0	3SU1100-2BM60-xNA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)					
White	2	2	0	3SU1130-2BL60-xLA0	3SU1130-2BM60-xLA0
	2	2	0	3SU1130-2BL60-xNA0	3SU1130-2BM60-xNA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)					
White	2	2	0	3SU1150-2BL60-xLA0	3SU1150-2BM60-xLA0
	2	2	0	3SU1150-2BL60-xNA0	3SU1150-2BM60-xNA0

x: 1 = screw terminals; x: 3 = spring-type terminals

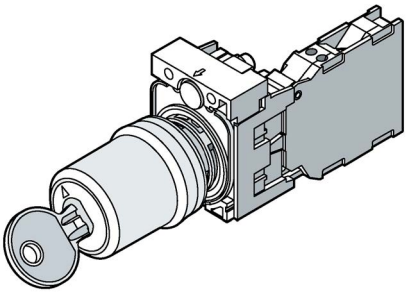
6.2.7 Key-operated switches

Key-operated switches are equipped with a lock for safety reasons. Only an authorized group of persons who have access to the relevant key can perform a switching operation (in this case, actuation of contact modules). Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch.

Key-operated switches are available in different variants according to the following features:

- Key-operated switch manufacturer
- Key removal positions
- Switch positions
- Collar and front ring material
- Color of actuators
- Quantity and type of modules included in the scope of supply

With Ronis SB30 lock, 2 switch positions; key removal in any position



Typical diagram

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Latching, 90° (10:30/1:30 o'clock) 				
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Black	1	1	0	3SU1100-4BF11-xBA0
	1	1	1	3SU1100-4BF11-xFA0
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)				
Black	1	1	0	3SU1130-4BF11-xBA0
	1	1	1	3SU1130-4BF11-xFA0
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)				
Black	1	1	0	3SU1150-4BF11-xBA0
	1	1	1	3SU1150-4BF11-xFA0

x: 1 = screw terminals; x: 3 = spring-type terminals

With CES SSG10 lock, 2 switch positions; key removal in any position

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Latching, 90° (10:30/1:30 o'clock) 				
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Black	1	1	0	3SU1100-5BF11-3FA0[1)]

[1)] Spring-type terminals

With Ronis SB30 lock, 3 switch positions; key removal in any position

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Latching, 2 x 45° (10:30/12/1:30 o'clock) 				
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)				
Black	1	2	0	3SU1100-4BL11-1NA0[2)]
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)				
Black	1	2	0	3SU1130-4BL11-1NA0[2)]

[2)] Screw terminals

6.3 3SU11 devices for use on 4-slot holder

Note

The installation of the devices for 4-slot holders on a 4-slot holder into an enclosure is only possible for enclosures with a raised cover.

If you want to mount the devices in a normal enclosure, you must first remove the base element of the enclosure.

6.3.1 Coordinate switches

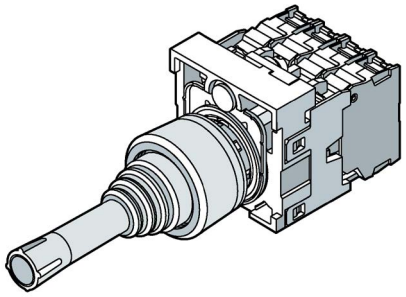
Coordinate switches are used to temporarily or permanently select up to 4 positions. They are operated by a vertical and horizontal movement using several fingers. Only one position on the holder is actuated in each case. The coordinate switch is suitable for simple navigation tasks thanks to its 4 selectable directions.

Coordinate switches are available in different variants according to the following features:

- Switch positions
- Collar and front ring material
- Locking (in the middle position)

A holder for 4 modules (3SU15.0-0BA10-0AA0) is required to install any of the devices listed below. You will find more information on this in Chapters "Holders (Page 221)", "Mounting (Page 150)".

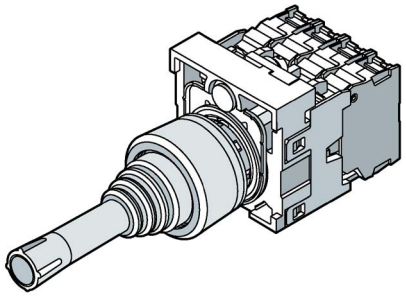
Without mechanical interlock



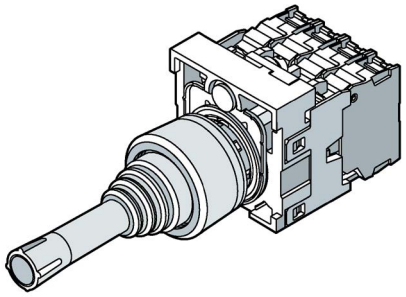
Typical diagram

2 switch positions

Collar / Front ring material	Operating principle	Direction of actuation	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Plastic	Momentary contact	Horizontal	2	2	0	3SU1100-7AC10-1NA0
		Vertical	2	2	0	3SU1100-7AD10-1NA0
	Latching	Horizontal	2	2	0	3SU1100-7AA10-1NA0
		Vertical	2	2	0	3SU1100-7AB10-1NA0
Plastic / Metal, matte	Momentary contact	Horizontal	2	2	0	3SU1130-7AC10-1NA0
		Vertical	2	2	0	3SU1130-7AD10-1NA0
	Latching	Horizontal	2	2	0	3SU1130-7AA10-1NA0
		Vertical	2	2	0	3SU1130-7AB10-1NA0
Metal / Metal	Momentary contact	Horizontal	2	2	0	3SU1150-7AC88-1NA0
		Vertical	2	2	0	3SU1150-7AD88-1NA0
	Latching	Horizontal	2	2	0	3SU1150-7AA88-1NA0
		Vertical	2	2	0	3SU1150-7AB88-1NA0

 Typical diagram						4 switch positions
Collar / Front ring material	**Operating principle**	**Direction of actuation**	**Number of modules**	**Number of NO contacts**	**Number of NC contacts**	**Article No.**
Plastic / Plastic	Momentary contact	Horizontal / vertical	4	4	0	3SU1100-7AF10-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1100-7AE10-1QA0
Plastic / Metal, matte	Momentary contact	Horizontal / vertical	4	4	0	3SU1130-7AF10-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1130-7AE10-1QA0
Metal / Metal	Momentary contact	Horizontal / vertical	4	4	0	3SU1150-7AF88-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1150-7AE88-1QA0

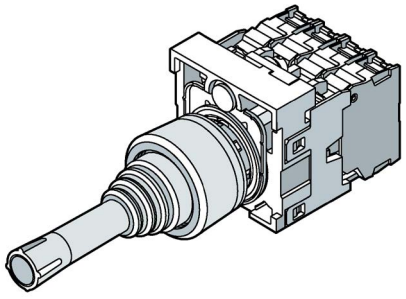
With mechanical interlock



Typical diagram

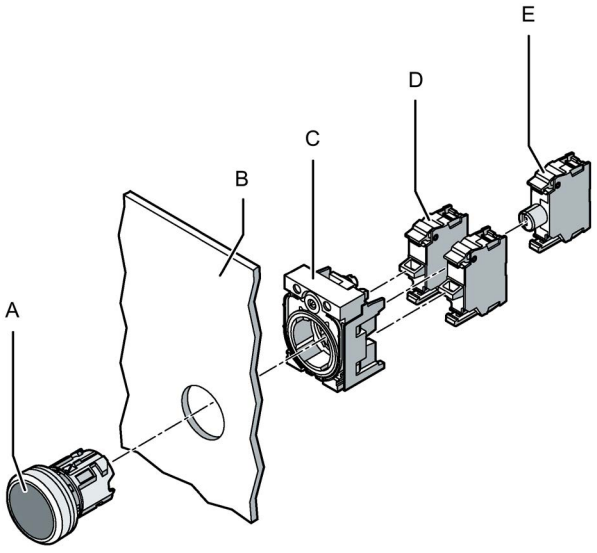
2 switch positions

Collar / Front ring material	Operating principle	Direction of actuation	Number of modules	Number of NO contacts	Number of NC contacts	Article No.
Plastic / Plastic	Momentary contact	Horizontal	2	2	0	3SU1100-7BC10-1NA0
		Vertical	2	2	0	3SU1100-7BD10-1NA0
	Latching	Horizontal	2	2	0	3SU1100-7BA10-1NA0
		Vertical	2	2	0	3SU1100-7BB10-1NA0
Plastic / Metal, matte	Momentary contact	Horizontal	2	2	0	3SU1130-7BC10-1NA0
		Vertical	2	2	0	3SU1130-7BD10-1NA0
	Latching	Horizontal	2	2	0	3SU1130-7BA10-1NA0
		Vertical	2	2	0	3SU1130-7BB10-1NA0
Metal / Metal	Momentary contact	Horizontal	2	2	0	3SU1150-7BC88-1NA0
		Vertical	2	2	0	3SU1150-7BD88-1NA0
	Latching	Horizontal	2	2	0	3SU1150-7BA88-1NA0
		Vertical	2	2	0	3SU1150-7BB88-1NA0

 Typical diagram						4 switch positions
Collar / Front ring material	**Operating principle**	**Direction of actuation**	**Number of modules**	**Number of NO contacts**	**Number of NC contacts**	**Article No.**
Plastic / Plastic	Momentary contact	Horizontal / vertical	4	4	0	3SU1100-7BF10-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1100-7BE10-1QA0
Plastic / Metal, matte	Momentary contact	Horizontal / vertical	4	4	0	3SU1130-7BF10-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1130-7BE10-1QA0
Metal / Metal	Momentary contact	Horizontal / vertical	4	4	0	3SU1150-7BF88-1QA0
	Latching	Horizontal / vertical	4	4	0	3SU1150-7BE88-1QA0

6.4 Mounting

6.4.1 Front plate mounting



A Actuating element
B Front plate
C Holder
D Contact module
E LED module

Procedure

1. Remove the components of the complete unit from the packaging.
2. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).
3. Fit the holder (C) from behind (wiring side) onto the actuating or signaling element and lock it into place.
4. You must align the unit before you finally tighten and secure it against twisting. For information, please refer to Chapter "Aligning (Page 119)".
5. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 ... 1.2 Nm).
6. Snap the contact module(s) (D) from behind onto the holder. To do this, hold the modules so that they are tilted downwards slightly and place them onto the holder from behind and then press them upwards until you feel the module latch in the holder.
7. Mount an LED module (E), if necessary. You can mount the LED module on the holder only in position 3/6 (center position).

3SU12 compact units

7

Types of 3SU12 compact units

On the 3SU12 compact units, the electrical function (illumination and / or switching functions) is integrated into the actuating or signaling element. The electrical function is not expandable or replaceable. The compact versions are also not combinable with other modules of the 3SU10 / 3SU11 modular series. The compact units are suitable for front plate and enclosure mounting.

The compact units are secured with the holder included in the scope of supply. The cables of the compact units are connected via the screw terminals / M12 connector attached to the rear.

You can find information on the holders in Chapter "Holders (Page 221)".

The following compact units are available:

- Indicator lights
- Indicator lights with DUAL LED
- Acoustic signaling devices
- Pushbuttons with extended stroke
- Potentiometers
- Sensor switches

3SU12 actuating and signaling elements

The 3SU12 actuating and signaling elements are available in the following designs:

- Front ring and collar in plastic
- Front ring in metal matte and collar in plastic
- Front ring and collar in metal

Actuating element material	Collar material	Examples
Plastic	Plastic	 3SU120
Plastic	Metal matte	 3SU123
Metal	Metal	 3SU125

Holders

The holders with three slots are available in plastic and metal versions.

The following assumptions apply when assigning holders to the actuating elements and signaling elements:

Material	Plastic holder (3SU1500-0AA10-0AA0)	Metal holder (3SU1550-0AA10-0AA0)
Plastic	✓	✓
Metal	—	✓

7.1 Overview

7.1.1 Indicator lights

Indicator lights function as indicators and signaling devices. They are equipped with a smooth-surfaced lens that cannot be replaced by the user.

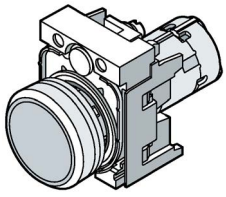
Indicator lights are available in different variants according to the following features:

- Collar and front ring material
- Colors

For further information refer to Chapters "Holders (Page 221)" and "Mounting (Page 162)".

Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

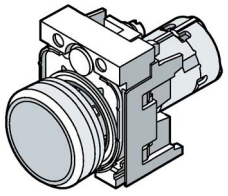
Indicator lights		
	**Collar / Front ring material**	**Article No.**
	Plastic / Plastic	
	Amber	3SU1201-6Ax00-1AA0
	Red	3SU1201-6Ax20-1AA0
	Yellow	3SU1201-6Ax30-1AA0
	Green	3SU1201-6Ax40-1AA0
	Blue	3SU1201-6Ax50-1AA0
	White	3SU1201-6Ax60-1AA0
	Clear	3SU1201-6Ax70-1AA0
	Metal / Metal	
	Amber	3SU1251-6Ax00-1AA0
	Red	3SU1251-6Ax20-1AA0
	Yellow	3SU1251-6Ax30-1AA0
	Green	3SU1251-6Ax40-1AA0
	Blue	3SU1251-6Ax50-1AA0
	White	3SU1251-6Ax60-1AA0
	Clear	3SU1251-6Ax70-1AA0

x = B variant: 24 V AC/DC; x = C variant: 110 V AC; x = F variant: 230 V AC

7.1.2 Indicator lights with "traffic light" LED

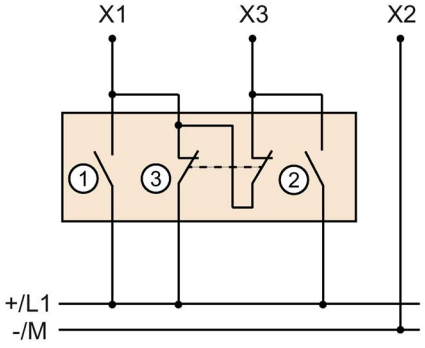
On the version of the indicator light with "traffic light" LED, three different colors (red / amber / green) can be displayed.

If the power supply is connected at X1 - X2, a green light is generated. If the power supply is connected at X3 - X2, a red light can be generated. For the yellow light, the power supply must be connected at X1/X3 - X2.

Indicator lights			
	**Collar / Front ring material**	**Variant**	**Article No.**
	Plastic / Plastic		
	Red / amber / green	6 ... 24 V AC/DC	3SU1201-6AG24-1AA0
		110 V AC	3SU1201-6AC24-1AA0
		230 V AC	3SU1201-6AF24-1AA0
	Metal / Metal		
	Red / amber / green	6 ... 24 V AC/DC	3SU1251-6AG24-1AA0
		110 V AC	3SU1251-6AC24-1AA0
		230 V AC	3SU1251-6AF24-1AA0

Example of a traffic-light LED circuit

The example shows a 3-position selector switch. Two pressure plates are installed.



① Holder position left ⇒ LED green
② Holder position right ⇒ LED red
③ Holder position center ⇒ LED yellow

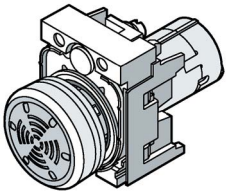
7.1.3 Acoustic signaling devices

When activated, the acoustic signaling device emits a signal tone and is thus used for acoustic signaling of the status. The signal output is initiated, for example, by a PLC. The acoustic signal devices have degree of protection IP40.

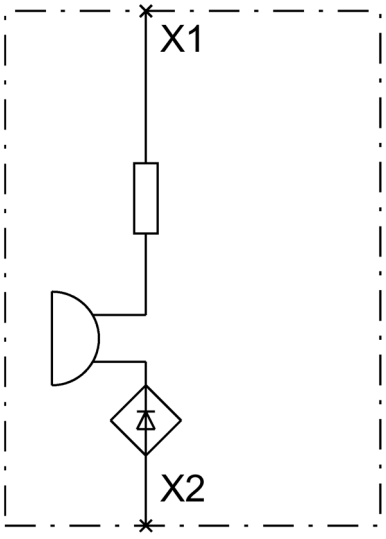
These devices are available in different variants according to the following features:

- Collar and front ring material
- Voltage ranges

For further information refer to Chapters "Holders (Page 221)" and "Mounting (Page 162)".

Acoustic signaling devices		
	**Collar / Front ring material**	**Article No.**
	Plastic / Plastic	
	24 V AC/DC	3SU1200-6KB10-1AA0
	110 V AC	3SU1200-6KC10-1AA0
	230 V AC	3SU1200-6KF10-1AA0
	Metal / Metal	
	24 V AC/DC	3SU1250-6KB10-1AA0
	110 V AC	3SU1250-6KC10-1AA0
	230 V AC	3SU1250-6KF10-1AA0

Connection diagram for acoustic signaling devices



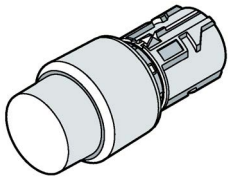
7.1.4 Pushbuttons with extended stroke

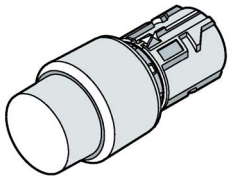
Pushbuttons with extended stroke are used to actuate a relay in the control cabinet. The pushbuttons are used, for example, as accessories for the Siemens SIVACON modules. They are used as actuating elements without contact modules. These pushbuttons can only be used in conjunction with a 3SU1900-0KG10-0AA0 extension plunger.

Pushbuttons are available in different variants according to the following features:

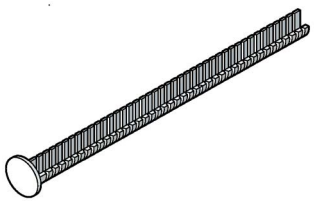
- Height of button
- Collar and front ring material
- Colors of the buttons

For further information refer to Chapters "Holders (Page 221)" and "Mounting (Page 162)“.

 Typical diagram	**Pushbuttons with covered button**	
	Flat button	Raised button
Collar / Front ring material	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Black	—	3SU1200-0FB10-0AA0
Red	3SU1200-0EB20-0AA0	3SU1200-0FB20-0AA0
Green	3SU1200-0EB40-0AA0	—
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Black	—	3SU1230-0FB10-0AA0
Red	3SU1230-0EB20-0AA0	—
Green	3SU1230-0EB40-0AA0	—
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)		
Black	—	3SU1250-0FB10-0AA0
Red	3SU1250-0EB20-0AA0	—
Green	3SU1250-0EB40-0AA0	—
Blue	3SU1250-0EB50-0AA0	—

 Typical diagram	**Pushbuttons with transparent button** Labeling of the button is possible, see Chapter "Devices with labeling (Page 99)" **in this respect**	
	Flat button	Raised button
Collar / Front ring material	**Article No.**	
Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)		
Red	3SU1201-0EB20-0AA0	—
Clear	3SU1201-0EB70-0AA0	—
Plastic / Metal, matte Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226599)		
Red	3SU1231-0EB20-0AA0	—
Clear	3SU1231-0EB70-0AA0	—
Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)		
Red	3SU1251-0EB20-0AA0	—
Clear	3SU1251-0EB70-0AA0	—

The extension plunger compensates the distance between the pushbutton and the unlatching button of an overload relay. The length of the extension plunger can be adapted individually.

	Extension plungers	
	**Material**	**Article No.**
	Plastic	3SU1900-0KG10-0AA0 (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221537)

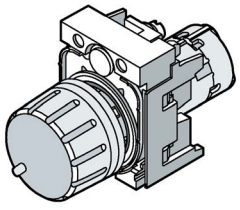
7.1.5 Potentiometers

Potentiometers are devices for the mechanical (linear) regulation of different resistance values. They are operated by turning the actuator. The potentiometer can be continuously adjusted 270°.

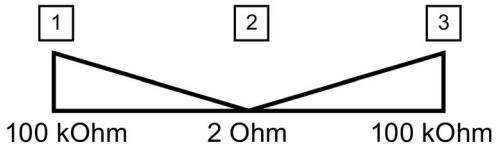
These devices are available in different variants according to the following features:

- Collar and front ring material
- Resistance areas

For further information refer to Chapters "Holders (Page 221)", "Mounting (Page 162)" and "Accessories (Page 400)".

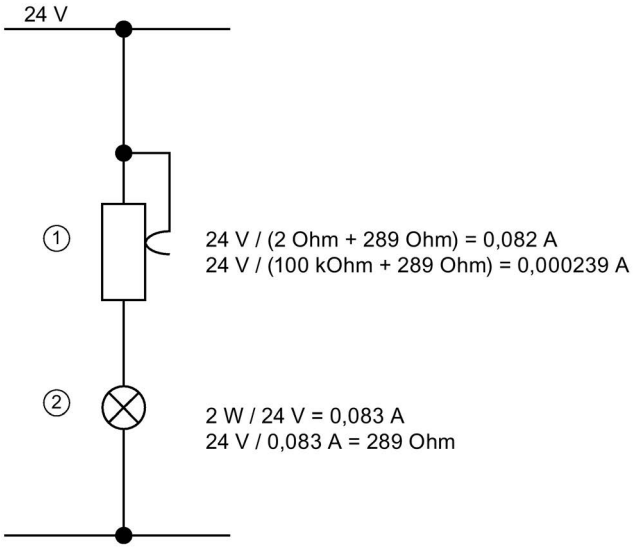
Potentiometers		
	**Collar / Front ring material**	**Article No.**
	Plastic / Plastic Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216936)	
	1 kOhm	3SU1200-2PQ10-1AA0
	2.2 kOhm	3SU1200-2PW10-1AA0
	4.7 kOhm	3SU1200-2PR10-1AA0
	10 kOhm	3SU1200-2PS10-1AA0
	47 kOhm	3SU1200-2PT10-1AA0
	100 kOhm	3SU1200-2PU10-1AA0
	470 kOhm	3SU1200-2PV10-1AA0
	Metal / Metal Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216937)	
	1 kOhm	3SU1250-2PQ10-1AA0
	4.7 kOhm	3SU1250-2PR10-1AA0
	10 kOhm	3SU1250-2PS10-1AA0
	47 kOhm	3SU1250-2PT10-1AA0
	100 kOhm	3SU1250-2PU10-1AA0
	470 kOhm	3SU1250-2PV10-1AA0

The potentiometer has 3 screw terminals.



0 1 ... 8 9		Terminals 1 and 2
	0 1 ... 8 9	Terminals 2 and 3

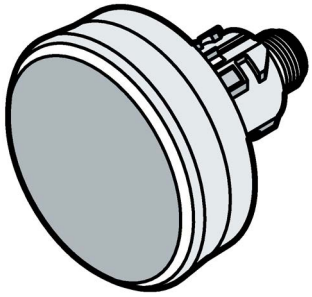
Connection diagram for potentiometer



① Example: Potentiometer 100 kOhm
② Example: Incandescent lamp, 2 W

7.1.6 Sensor switches

Sensor switches are capacitive sensors that are actuated when the sensor surface is touched by hand without the application of force or pressure. The sensor switch can be actuated by someone wearing thin gloves. In this case, however, it might be necessary to apply light pressure to the sensor surface.
Sensor switches are used to operate machines or as door opening switches and stop call buttons. Thanks to the water-sealed electronic circuitry and rugged enclosure materials used in their construction, these capacitive and fully electronic sensors are extremely durable. Since sensor switches have no moving mechanical parts, they are maintenance-free. Two integrated status display LEDs provide the user with visual feedback.

Sensor switches		
 Typical diagram	**Material**	**Article No.**
	Plastic / Plastic	3SU1200-1SK10-2SA0 (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10216935)

Application example

When the sensor switches are combined with the appropriate Siemens DIN EN 574-compliant evaluation devices with type III C certificate (devices from the SIRIUS 3SK1 Advanced safety relay range or devices from the 3RK3 Modular Safety System (MSS)), they can be deployed as a safety relay, for example, in two-hand control applications. A two-hand control device requires simultaneous actuation with both hands in order to start up a machine and to keep it in operation in a potentially risky situation. The two-hand control device must be located outside the hazard zone (and the hazard zone must be clearly visible) in order to prevent the operator from entering the zone before the machine has reached a complete standstill.

The control command is sent by actuating both pushbuttons simultaneously within 0.5 s.

The following properties must be provided for mobile two-hand control devices:

- Stability
- The safety distance must be maintained between the control actuating devices and the hazard zone
- In the case of adjustable control actuating devices, a latch must be available

The sensor switch provides effective shock protection. The operating surface of the sensor switch is easy to clean (protection class IP 69).

A function test must be carried out before commissioning. The following properties must be checked in the function test:

- Simultaneous actuation (use of both hands)
- Synchronous actuation (synchronism ≤ 500 ms)
- Relationship between input signals and output signals
- Renewed generation of the output signal

For further information refer to Chapters "Mounting (Page 164)", "Two-hand operation console (Page 259)" and "Application examples (Page 583)".

You can find an overview of the evaluation units that can be used in conjunction with the sensor switch at this website.
(https://support.industry.siemens.com/cs/document/109038855/auswertegerte-fr-eine-2-hand-applikation-mit-dem-3su1200-1sk10-2sa0?pnid=16445&lc=de-WW)

You will find further information about the use of sensor switches in the two-hand operation console (wiring to Siemens safety relays and safety design) in the following FAQs: "Sensor switches in the two-hand operation console"
(https://support.industry.siemens.com/cs/document/109479531/Einsatz)

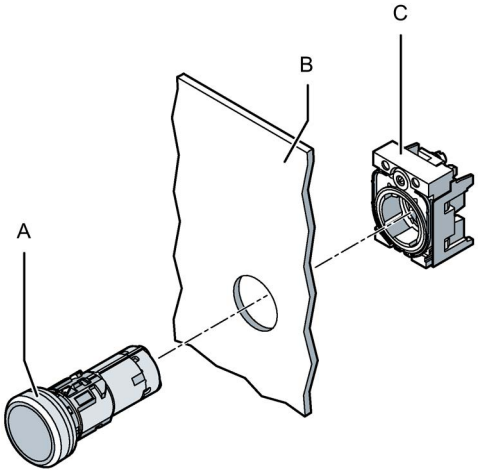
7.2 Mounting

7.2.1 Front plate mounting

Requirement

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU12) in front of the front plate
- A holder (3SU15) for securing behind the front plate



Typical diagram

A Actuating or signaling element

B Front plate

C Holder

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).
2. Fit the holder (C) from behind (wiring side) onto the actuating or signaling element and lock it into place.
3. You must align the unit before you finally tighten and secure it against twisting. For information, please refer to Chapter "Aligning"). (Page 119)
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 ... 1.2 Nm).
5. Wire the actuating or signaling element.

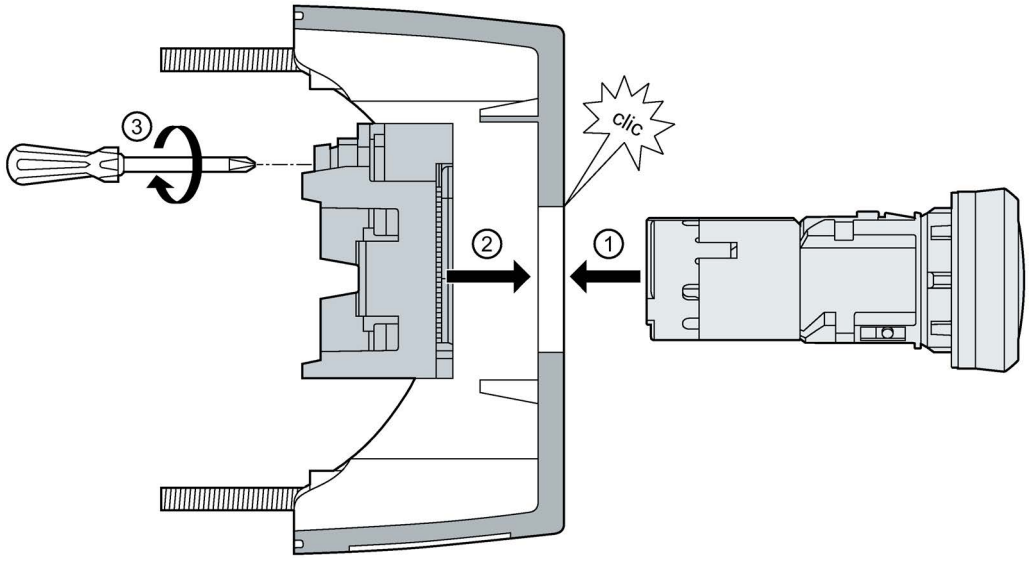
7.2.2 Front plate mounting for enclosure mounting

Requirement

The enclosure cover has been removed.

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU12) in front of the enclosure cover.
- A holder (3SU15) behind the enclosure cover.



Procedure

1. Insert the actuating or signaling element from the front through the cut-out in the enclosure cover.
2. Fit the holder from behind (wiring side) onto the actuating or signaling element and latch it into place.
   The unit must be aligned before it is finally tightened and locked against twisting. For information, please refer to Chapter "Aligning (Page 119)".
3. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 ... 1.2 Nm).
   Wire the actuating or signaling element.

Fit the enclosure cover back into position.

7.2.3 Front plate mounting, sensor switches

Systems designed for the installation and commissioning of the sensor switch must comply with the requirements of EN 574 : 2008.

Prevention of accidental actuation and defeat. Please also read EN 574, Section 8.

The sensor switches for a two-hand control circuit must be arranged according to the risk assessment for the individual application in such a way that the protective effect of the two-hand control circuit cannot be defeated. The probability of accidental actuation must be minimized. The use of a single hand, possible combinations of one hand and/or other parts of the body and/or the use of simple aids which would allow the protective circuit to be defeated must be taken into consideration so that there is no possibility that persons can enter the hazard zone when hazards exist. Accidental actuation (e.g. by the operator's clothing) must also be taken into account.

The following measures as defined by standard **EN 574 : 2008** must be complied with:

- Prevention of protective circuit defeat by one hand
  - Spatial separation between control actuating devices (clearance) of at least 260 mm
- Prevention of defeat by hand and elbow of the same arm
  - Spatial separation between control actuating devices (clearance) of at least 550 mm This clearance should not exceed 600 mm for ergonomic reasons
- Prevention of defeat by one hand and any other part of the body (e.g. knee, hip)
  - Arrangement of control actuating devices on a horizontal surface at a distance of at least 1100 mm above the floor or the access level.

The sensor switches should not be installed in an exposed location (i.e. without operation console or protective cover for switch) so as to prevent accidental actuation of the switch by falling objects.

Safety distance (refer also to EN 574, Section 9.8)
The safety distance between the sensor switches and the hazard zone must be large enough to ensure that the operator cannot enter the hazard zone after release of a sensor switch until all potentially hazardous machinery has ceased moving.
The safety distance "S" in mm is calculated according to the following formula:

S = V x T + C
Key to formula:
V = Hand/arm speed = 1600 mm/s
T = Reaction time in seconds. The reaction time of the sensor switch is max. 50 ms
C = Additional value = 250 mm
If entry of persons into the hazard zone following actuation of the sensor switch can be reliably prevented, the additional value C can be set to "0".
However, the minimum clearance must always be 100 mm.

Mounting

The sensor switch can be mounted on front plates and in the following enclosures of the SIRIUS ACT series:

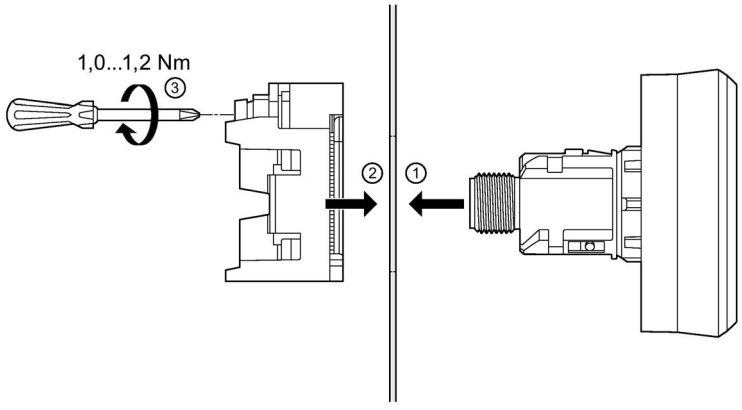
- 3SU1801-1AA00-1AA1 (plastic enclosure; command point in center)
- 3SU1851-1AA00-1AA1 (metal enclosure; command point in center)
- 3SU1803-3AA00-0AA1 (two-hand operation console, plastic)
- 3SU1853-3AA00-0AA1 (two-hand operation console, metal)

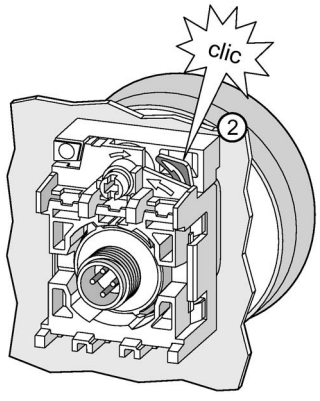
Note

The following applies for the American market:

The devices must only be connected with cables and connectors listed in CYJV.

Procedure (example of mounting on front plate)



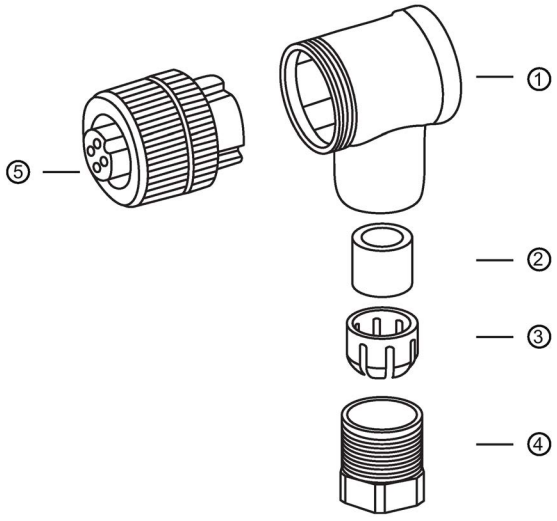


1. Insert the sensor switch into an enclosure (e.g. 3SU18..-3 two-hand operation console) or front plate.
   Align the sensor switch so that it is positioned correctly (LED).
2. Place the holder from behind onto the sensor switch and lock it in position
3. Turn the screw on the holder until the sensor switch is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).
4. Then connect the sensor switch to a controller using a connector (3SU1900-0KL10-0AA0).

Note

The connecting cables are not included in the scope of supply. The cable used must not be more than 5 m long.

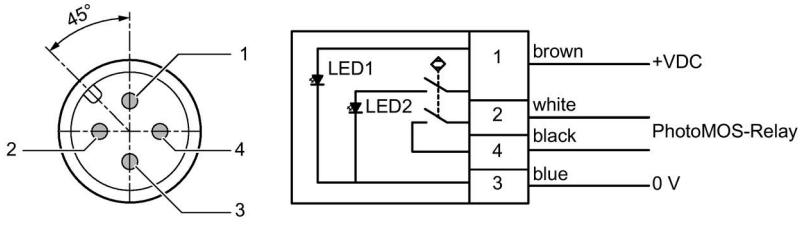
Connector (3SU1900-0KL10-0AA0)



① Angled enclosure
② Seal
③ Pinch ring
④ Clamping screw
⑤ Female contact insert

Tightening torque for the connector fastening screws 3SU1900-0KL10-0AA0: 0.4 Nm

Connector pin assignment for connection to sensor switch

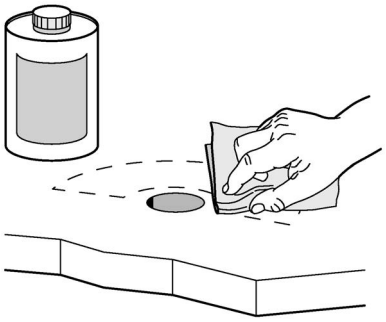


A floating contact is located between contacts 2 and 4.

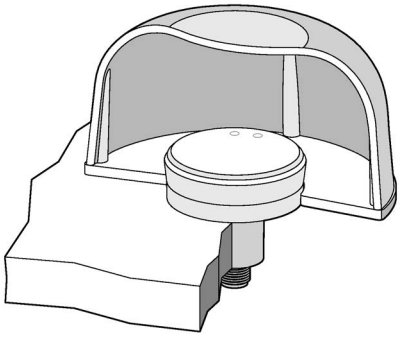
For additional information, refer to the "Technical Data".

Installation of protective cover

1. Before you install the protective cover (3SU1900-0EC10-0AA0), you must clean the surface on which the cover will be mounted



2. Install the sensor switch.
3. Remove the protective film from the rear face of the protective cover
4. Mount the protective cover in the space provided (use adhesive to fix cover in position).

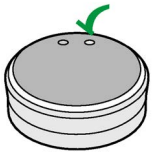


Switching states of the sensor switch

- LED shows a green light ⇒ sensor switch active
- LED shows a yellow light ⇒ sensor switch actuated

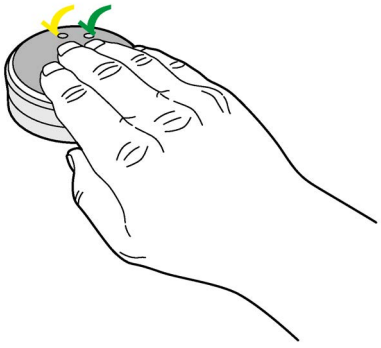
Commissioning

Operating state: Green LED steadily illuminated (O. K.)



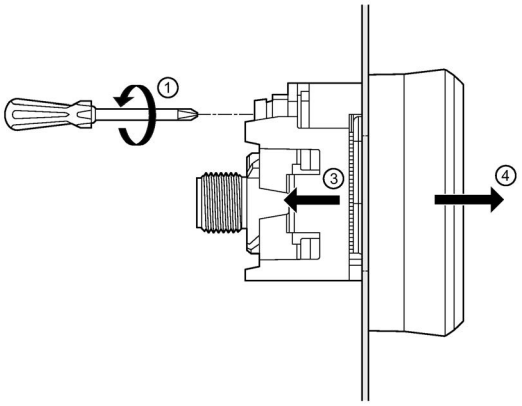
Error: Green LED off -> check the supply voltage

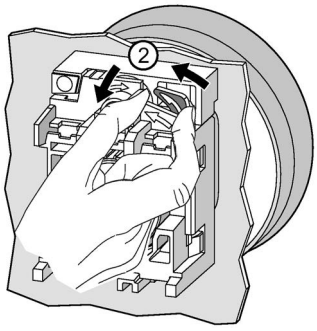
The yellow LED lights up when the switch is actuated.



The contact remains closed while the hand remains in contact with the sensor switch surface. No force needs to be applied in order to actuate the switch.

Removal



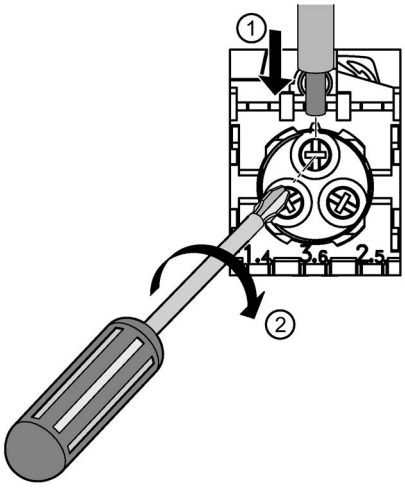


Procedure

1. Remove the screw from the holder.
2. Unlock the holder.
3. Remove the holder from the sensor switch
4. Remove the sensor switch.

7.3 Connecting

Procedure for wiring compact units



1. Insert the relevant cable as far as it will go into the opening of the screw terminal of the compact unit. ①
2. Insert the screwdriver (DIN ISO 8764-1-PZ1) into the opening for the screw. ②
   Tighten the screw.
   Tightening torque: 0.8 … 1.0 Nm
3. Pull on the cable to ensure it is screwed tight.

Conductor cross-sections for compact units

Screw terminals	
 DIN ISO 8764-1-PZ1	Tightening torque: 0.8 … 1.0 Nm
	2x (1.0 ... 1.5) mm²
 (acc. to DIN 46228)	2x (0.5 ... 0.75) mm²
	2x (1.0 ... 1.5) mm²
 (acc. to DIN 46228)	2x (0.5 ... 1.5) mm²
AWG	2x (18 to 14)

3SU14 modules

8

8.1 Overview

8.1.1 Contact modules

Contact modules are used to switch circuits. The mechanical motion of the actuator is converted to electrical signals in interaction with the contact module when contacts are opened or closed.

The following variants of contact module are available:

- Spring-loaded terminals
- Screw terminals
- Front plate mounting
- Base mounting (enclosure mounting)
- 1-pole
- 2-pole
- Different functions (NC contact, NO contact and combinations thereof)

The color coding of the switching variants depends on the colors of the ID keys:

- 1NO → Green
- 1NC → Red
- 2NC → Red
- 2NO → Green
- 1NO1NC → Gray
- 1NC1MC → yellow

8.1.2 Terminal designations

The terminal designations of the contact modules comply with EN 50013.

The terminal designations are 2-digit, e.g. 13, 14; 21, 22:

Units digit = function digit (specify on the contact module)

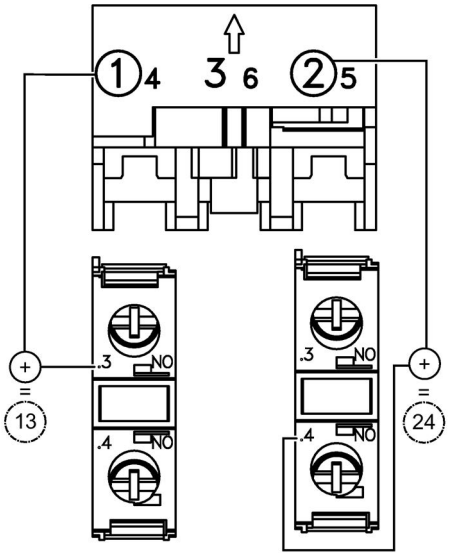
- 1-2 for normally closed contacts (NC)
- 3-4 for normally open contacts (NO)

Tens digit = Identification number (specify on the holder)

- Related terminals have the same sequence digits.

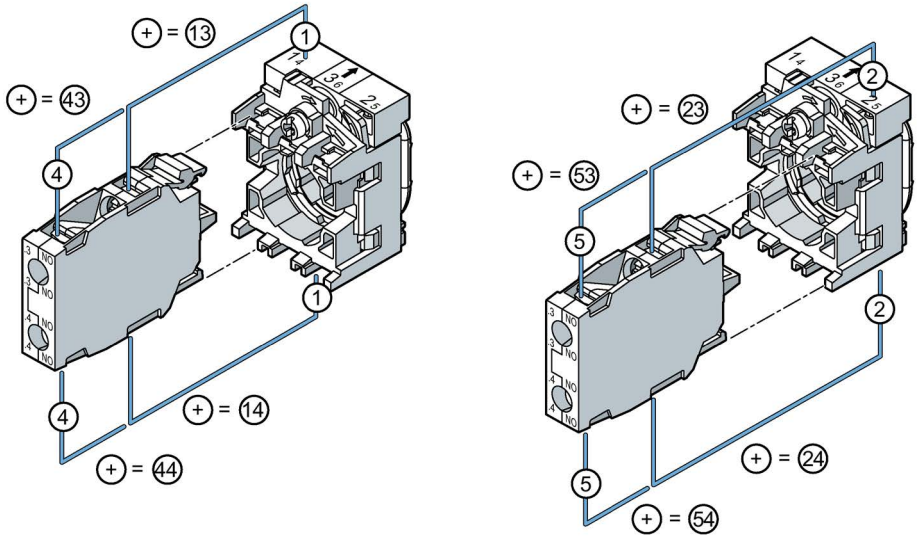
Terminal designation examples

Terminal designation for 1-pole contact module



Left-hand module	Right-hand module
• Sequence digit on holder = 1 • Function digit on module = .3 ⇒ Terminal designation = 13	• Sequence digit on holder = 2 • Function digit on module = .4 ⇒ Terminal designation = 24

Terminal designation for 2-pole contact module



Left-hand module	Right-hand module
Front contacts: Sequence digit on holder = 1 Function digit on module = .3 ⇒ Terminal designation = 13	**Front contacts:** • Sequence digit on holder = 2 • Function digit on module = .4 ⇒ Terminal designation = 24
Rear contacts: • Sequence digit on holder = 4 • Function digit on module = .3 ⇒ Terminal designation = 43	**Rear contacts:** • Sequence digit on holder = 5 • Function digit on module = .3 ⇒ Terminal designation = 53

8.1.3 Contact modules for front plate mounting

Contact modules for front plate mounting are installed on the rear face of a holder.

Contact modules with gold contacts have better protection against corrosion (e.g. in sulfurous environments) and therefore a high contact reliability at low currents and low operating frequencies.

For further information refer to Chapters "Holders (Page 221)" and "Mounting (Page 205)".

Number of NO contacts	Number of NC contacts	Product function positive opening	Suitable for enclosure mounting	Article No.
Contact modules with silver contacts Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221526)				
1	0	No	Yes	3SU1400-1AA10-xBA0
0	1	Yes	Yes	3SU1400-1AA10-xCA0
2	0	No	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xDA0
0	2	Yes	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xEA0
1	1	Yes	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xFA0
1 leading	1 lagging	No	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xGA0
0	2 (1 contact for installation monitoring)	Yes	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xHA0[1)]
Contact modules with gold contacts				
1	0	No	Yes	3SU1400-1AA10-xLA0
0	1	Yes	Yes	3SU1400-1AA10-xMA0
2	0	No	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xNA0
0	2	Yes	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xPA0
1	1	Yes	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xQA0
1 leading	1 lagging	No	Yes, with accessory 3SU1900-0JF10-0AA0	3SU1400-1AA10-xRA0

x: 1 = screw terminals; 3 = spring-type terminals

1) The 3SU1400-1AA10-.HA0 contact modules with installation monitoring can only be mounted at positions 1 and 2 on the holder when combined with 3SU1 actuating and signaling elements.
Exception: They can be mounted at all 3 holder positions when they are combined with a non-illuminated EMERGENCY STOP.

Operating principle of 3SU1400-1AA10-.HA0 contact modules with installation monitoring

The 3SU1400-1AA10-.HA0 contact module monitors proper installation or correct connection to an EMERGENCY STOP actuator. If the contact module is incorrectly installed or is disconnected from the actuator, the contact module initiates an automatic shutdown of the machine or system. As long as operation continues, it is assured that all necessary contacts are functioning properly.

When used with a SIRIUS 3SU1 EMERGENCY STOP device, the contact module can be mounted in any position on the 3-slot holder.

When used with any other SIRIUS 3SU1 device, the contact module can only be mounted:

- At positions 1 and 2 on the 3-slot holder, or
- At positions 1 and 3 on the 4-slot holder.

Machinery Directive

In addition to increased safety, the 3SU1400-1AA10-.HA0 contact module also supports compliance with the Machinery Directive.

First commissioning

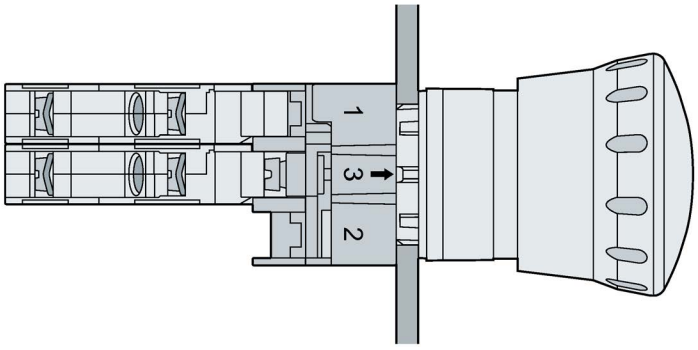
The action of snapping the contact module onto the holder closes the circuits so that the contact module is ready to operate.

During operation

The installation status of the contact module is continuously monitored. If an error occurs, the machine is shut down automatically.

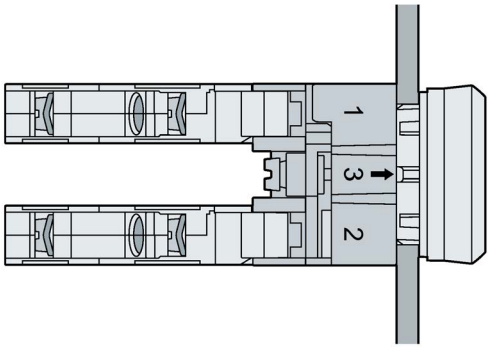
Mounting contact modules with installation monitoring on EMERGENCY STOP actuator

The contact module with installation monitoring can be mounted at any position on the holder.



Mounting contact modules with installation monitoring on pushbutton or signaling device (not EMERGENCY STOP)

The contact module with installation monitoring can be mounted at position 1 or 3 on the holder.



8.1.4 Contact modules for base mounting (enclosure mounting)

The contact modules for base mounting are installed in 3SU18 enclosures. On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1), base mounting is not envisaged.

For further information refer to Chapter "3SU18 enclosures". (Page 227)

Number of NO contacts	Number of NC contacts	Product function positive opening	Article number
Contact modules with silver contacts Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251007)			
1	0	No	3SU1400-2AA10-xBA0
0	1	Yes	3SU1400-2AA10-xCA0
Contact modules with gold contacts			
1	0	No	3SU1400-2AA10-xLA0
0	1	Yes	3SU1400-2AA10-xMA0

x: 1 = screw terminals; 3 = spring-loaded terminals

8.1.5 Contact modules for PCB mounting

Number of NO contacts	Number of NC contacts	Product function positive opening	Article number
1	0	No	3SU1400-3AA10-5BA0
0	1	Yes	3SU1400-3AA10-5CA0

Information on the soldering process

The following soldering processes are possible:

- Selective soldering process
- Manual soldering
- Laser soldering

Recommended soldering parameters for selective soldering with liquid solder:

- Maximum soldering temperature: 285 °C
- Maximum soldering time per pin: 2 seconds

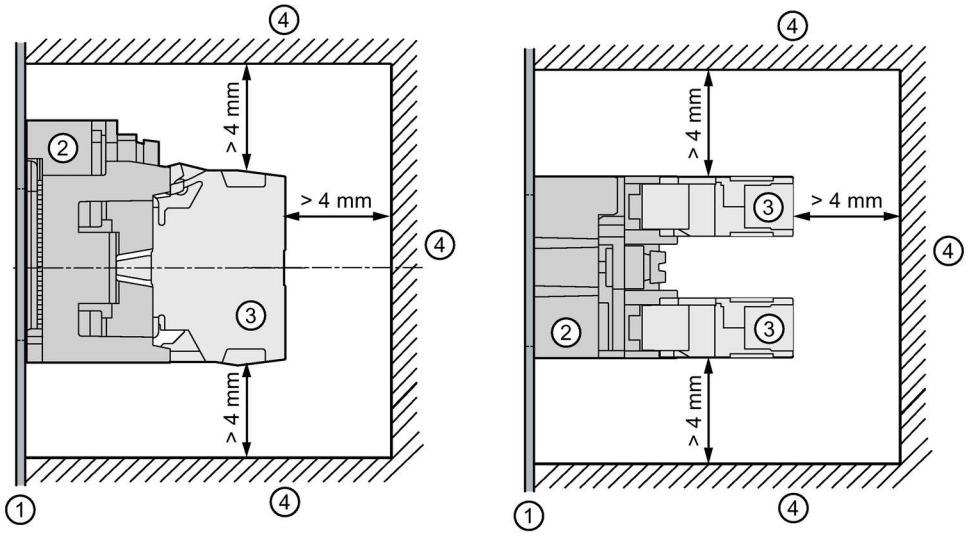
During each of the above-mentioned soldering processes, you must ensure that no liquid solder gets on the plastic parts or parts of the enclosure.

Achievable quality of the soldering points: Class 2 according to IPC–A-610 F (electronic products with higher demands).

8.1.6 Equipping with contact modules

8.1.6.1 Minimum clearance for front plate mounting

When contact modules are mounted on the front plate, they must be installed at a minimum distance of 4 mm from the closest enclosure wall.
Typical diagram



① Front plate
② Holder
③ Contact module
④ Enclosure wall

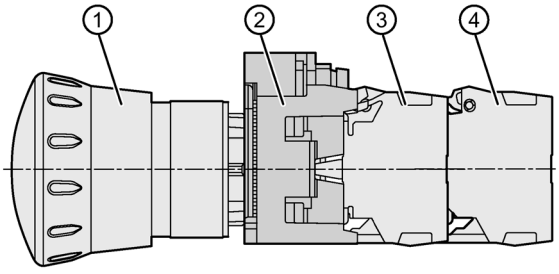
8.1.6.2 Stackability of contact modules

Note

Stackability

With SIRIUS ACT, the modules are mounted on the holder without any further accessories. The modules can be stacked without needing to use a tool (max. 2x 1-pole modules behind one other).

Please note that a 2-pole contact module may not be stacked on a 1-pole contact module.



① Actuating element (here: EMERGENCY STOP mushroom pushbutton)
② Holder
③ Module 1
④ Module 2

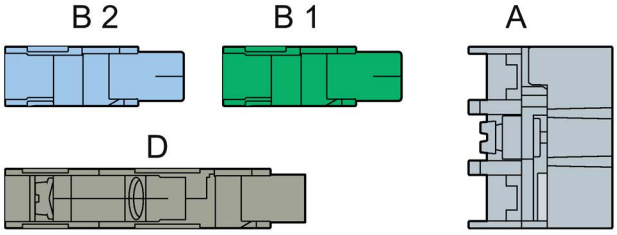
8.1.6.3 Equipping with contact modules: Actuator (without EMERGENCY STOP)

Equipping with contact modules: Actuator (without EMERGENCY STOP) on 3-slot holder

- 3 x 2 single-pole contact modules
  Max. 2 single-pole contact modules can be stacked in each holder slot
- 3 two-pole contact modules

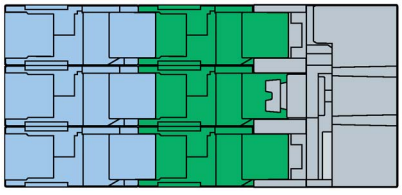
It is possible to mix both variants (single-pole and two-pole contact modules), e.g. 3-slot holder + 4 single-pole contact modules + 1 two-pole contact module.

The following diagrams illustrate by way of an example the maximum number of contact modules that can be installed in a 3-slot holder

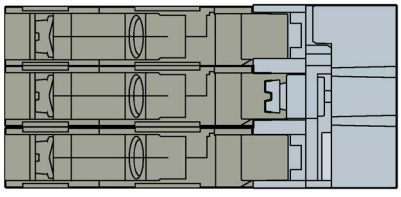


A	3-slot holder
B1 / B2	Contact module 1-pole
D	Contact module 2-pole

3-slot holder 3 x 2 single-pole contact modules



3-slot holder 3 x two-pole contact modules

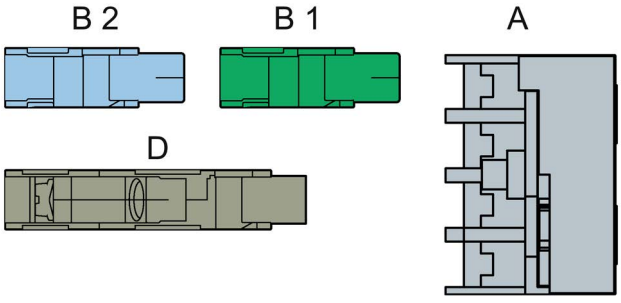


Equipping with contact modules: Selector switch with 4 switch positions or coordinate switch on 4-slot holder

- 4 x 2 single-pole contact modules
  Max. 2 single-pole contact modules can be stacked in each holder slot
- 4 two-pole contact modules

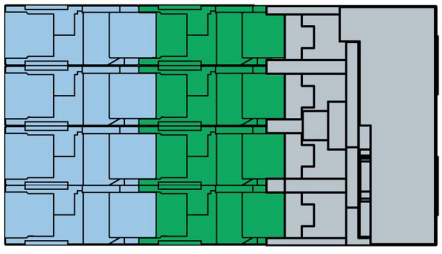
It is possible to mix both variants (single-pole and two-pole contact modules), e.g. 4-slot holder + 6 single-pole contact modules + 1 two-pole contact module.

The following diagrams illustrate by way of an example the maximum number of contact modules that can be installed in a 4-slot holder

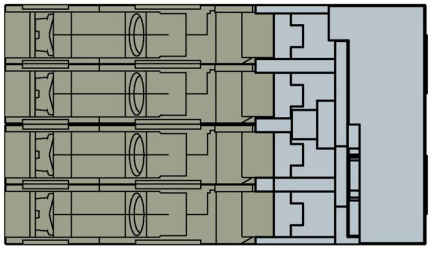


A	4-slot holder
B1 / B2	Single-pole contact module
D	Two-pole contact module

4-slot holder 4 x 2 single-pole contact modules



4-slot holder 4 x two-pole contact modules

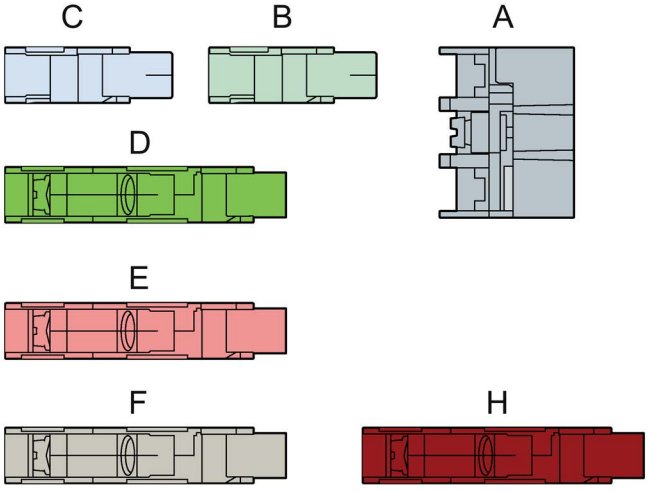


8.1.6.4 Equipping with contact modules: EMERGENCY STOP on 3-slot holder

When equipping the holders with contact modules and EMERGENCY STOP, at least one contact system must possess 1NC switching functionality.

The maximum number of circuits depends on the number of 1NC (normally closed contact) contact modules used. A guide value is a maximum of 4 circuits. 2-pole contact modules correspond to 2x the respective 1-pole contact modules.

If an illuminated EMERGENCY STOP is used, the center mounting position (3/6) must be fitted with a holder with an LED module.



A	Holder	3SU15.0-1AA10-0AA0
B	Contact module 1NO	3SU1400-1AA10-.BA0, 3SU1400-1AA10-.LA0
C	Contact module 1NC	3SU1400-1AA10-.CA0, 3SU1400-1AA10-.MA0
D	Contact module 2NO	3SU1400-1AA10-.DA0, 3SU1400-1AA10-.NA0
E	Contact module 2NC	3SU1400-1AA10-.EA0, 3SU1400-1AA10-.PA0
F	Contact module 1NO1NC	3SU1400-1AA10-.FA0, 3SU1400-1AA10-.QA0
H	Contact module with installation monitoring 1NC1MC	3SU1400-1AA10-.HA0

Note

You have a free choice of mounting positions on the holder.

Rotate-to-unlatch EMERGENCY STOP mushroom pushbutton

Max. 5 conducting paths permissible if:

- Max. one conducting path is an NO (normally open) contact

Max. 4 conducting paths permissible if:

- More than 2 conducting paths are NO (normally open) contacts
- At least one conducting path is an NC (normally closed) contact

Exception: When the 1NC1MC contact module is used, 2x 1NC1MC + 1NC is possible in the maximum configuration (2x 1NC1MC + 1NO is not possible).

If an illuminable EMERGENCY STOP mushroom pushbutton (3SU10.1-1GB20-0AA0, 3SU10.1-1HB20-0AA0, 3SU10.1-1JB20-0AA0) is used, the center mounting position (3/6) on the holder must not be fitted with a contact module.

Pull-to-unlatch EMERGENCY STOP mushroom pushbutton (3SU10.0-1HA20-0AA0)

Max. 4 conducting paths permissible if:

- At least one conducting path is an NC (normally closed) contact

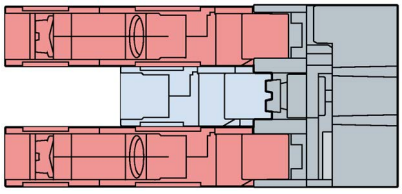
Exception: When the 1NC1MC contact module is used, 2x 1NC1MC + 1NC is possible in the maximum configuration. A placement of 2x 1NC1MC + 1NO is **not** possible.

Example: Equipping with switching function with max. 5x NC contacts

5 x 1NC



1 x 1NC and 2 x 2NC

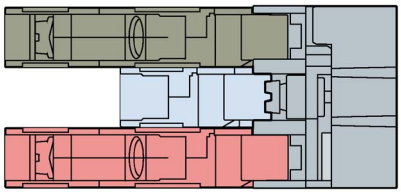


Example: Equipping with switching function with max. 4x NC and 1 x NO

4 x 1NC and 1 x 1NO



1 x 1NO1NC and 1 x 1NC and 1 x 2NC

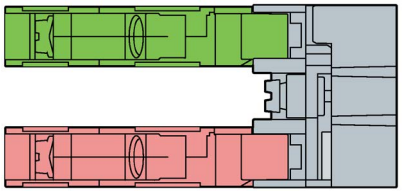


Example: Equipping with switching function with max. 2x NC and 2x NO

2 x 1NO and 2 x 1NC



1 x 2NO and 1 x 2NC



Example: Equipping with switching function with max. 1x NC and 3x NO

3x 1NO and 1x 1NC

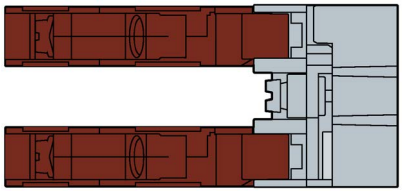


1x 2NO and 1x 1NO and 1x 1NC



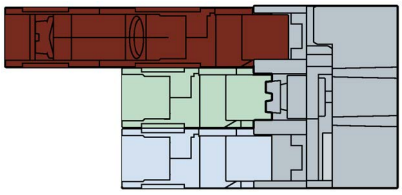
Example: Equipping with switching function with max. 2x NC and 2x MC (installation monitoring)

2x 1NC1MC

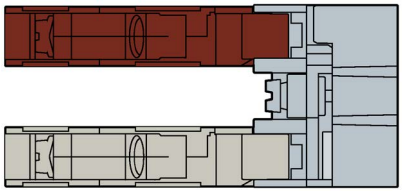


Example: Equipping with switching function with max. 2x NC and 1x MC (installation monitoring) and 1x NO

1x 1NC1MC and 1x 1NO and 1x 1NC



1x 1NC1MC and 1x 1NO1NC



8.1.7 LED modules

Only LED modules with permanently integrated LEDs are available for illuminating the 3SU1 pushbuttons and signaling devices.

LED modules can only be mounted on a 3-slot holder or in the enclosure. LED modules are always snap-mounted at position 3 in the holder or in the enclosure.

These devices are available in different variants according to the following features:

- Spring-type terminals
- Screw terminals
- PCB installation
- Front plate mounting
- Base mounting (enclosure mounting)
- Colors
- Voltages

LED modules bear terminal designations in accordance with EN 50013.

Certificate

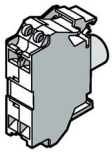
"Taking into consideration the requirements according to EN 61131-2, Type 1, we confirm that the 3SU1 LED module 24 V AC/DC (3SU1401-.BB.O-.AAO) is compatible with the SIMATIC ET 200SP digital output modules, DQ 8 x 24 V DC / 0.5 A High Feature (6ES7132-6BFOO-OCA) and DQ 8 x 24 V DC / 0.5 A Standard (6ES7132-6BFOO-OBA)."

Additional information can be found in the Internet: Siemens Industry Online Support (https://support.industry.siemens.com/cs/en/en/view/109741498)

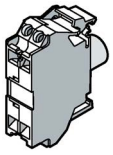
8.1.8 LED modules for front plate mounting

LED modules for front plate mounting are installed on the rear face of a holder.

You will find more information in Chapters "Holders (Page 221)" and "Mounting (Page 205)".

	Operating voltage	Color of the LED	Article No.
 Typical diagram	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221527)		
	24 V AC/DC	Amber	3SU1401-1BB00-xAA0
		Red	3SU1401-1BB20-xAA0
		Yellow	3SU1401-1BB30-xAA0
		Green	3SU1401-1BB40-xAA0
		Blue	3SU1401-1BB50-xAA0
		White	3SU1401-1BB60-xAA0
	110 V AC	Amber	3SU1401-1BC00-xAA0
		Red	3SU1401-1BC20-xAA0
		Yellow	3SU1401-1BC30-xAA0
		Green	3SU1401-1BC40-xAA0
		Blue	3SU1401-1BC50-xAA0
		White	3SU1401-1BC60-xAA0
	230 V AC	Amber	3SU1401-1BF00-xAA0
		Red	3SU1401-1BF20-xAA0
		Yellow	3SU1401-1BF30-xAA0
		Green	3SU1401-1BF40-xAA0
		Blue	3SU1401-1BF50-xAA0
		White	3SU1401-1BF60-xAA0

x: 1 = screw terminals; x: 3 = spring-type terminals

	Operating voltage	Color of the LED	Article No.
 Typical diagram	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221527)		
	6 ... 24 V AC/DC	Amber	3SU1401-1BG00-xAA0
		Red	3SU1401-1BG20-xAA0
		Yellow	3SU1401-1BG30-xAA0
		Green	3SU1401-1BG40-xAA0
		Blue	3SU1401-1BG50-xAA0
		White	3SU1401-1BG60-xAA0
	24 ... 240 V AC/DC	Amber	3SU1401-1BH00-xAA0
		Red	3SU1401-1BH20-xAA0
		Yellow	3SU1401-1BH30-xAA0
		Green	3SU1401-1BH40-xAA0
		Blue	3SU1401-1BH50-xAA0
		White	3SU1401-1BH60-xAA0

x: 1 = screw terminals; x: 3 = spring-type terminals

Note

LED modules 6 ... 24 V AC/DC must not be operated in systems with a programmable logic controller because a weak current of 5 V is sufficient to light up the LEDs on the module.

8.1.9 LED modules 24 V for intrinsic safety (front plate mounting)

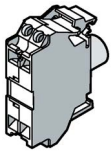
LED modules for front plate mounting are installed on the rear face of a holder. The LED modules are approved in accordance with IEC 60079-11 and are used in hazardous zones 1, 2. They comply with the "ib" type of protection for intrinsic safety.

- [ATEX] II 2G Ex ib IIC T4 Gb
- Type of protection: ib (= intrinsically safe, Zone 1)
- Hazardous areas IIC subject to gas explosion (hydrogen)
- Device category EPL: Gb
- Temperature class: T4

Input variables compliant with IEC 60079-11:

- U_i = 28.8 V DC
- U_i = 24.0 V AC
- I_i = 0.3 A
- P_i = 1.3 W

You will find additional information in Chapters "ATEX for intrinsically safe circuits (Page 27)", "Holders (Page 221)", "Mounting (Page 205)".

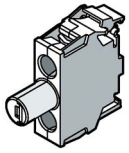
	Operating voltage	Color of the LED	Article No.
 Typical diagram	You can obtain the technical data, as well as parameters of the interfaces, from the product data sheet and the EC prototype test certificate. Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221527)		
	24 V AC/DC	Amber	3SU1401-1BB00-xAA2
		Red	3SU1401-1BB20-xAA2
		Yellow	3SU1401-1BB30-xAA2
		Green	3SU1401-1BB40-xAA2
		Blue	3SU1401-1BB50-xAA2
		White	3SU1401-1BB60-xAA2

x: 1 = screw terminals; x: 3 = spring-type terminals

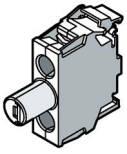
8.1.10 LED modules for base mounting (enclosure mounting)

The LED modules for enclosure mounting are installed in 3SU18 enclosures. On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1) base mounting is not envisaged.

For further information refer to Chapter "3SU18 enclosures (Page 227)".

	Operating voltage	Color of the LED	Article No.
 Typical diagram	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251008)		
	24 V AC/DC	Amber	3SU1401-2BB00-xAA0
		Red	3SU1401-2BB20-xAA0
		Yellow	3SU1401-2BB30-xAA0
		Green	3SU1401-2BB40-xAA0
		Blue	3SU1401-2BB50-xAA0
		White	3SU1401-2BB60-xAA0
	110 V AC	Amber	3SU1401-2BC00-xAA0
		Red	3SU1401-2BC20-xAA0
		Yellow	3SU1401-2BC30-xAA0
		Green	3SU1401-2BC40-xAA0
		Blue	3SU1401-2BC50-xAA0
		White	3SU1401-2BC60-xAA0
	230 V AC	Amber	3SU1401-2BF00-xAA0
		Red	3SU1401-2BF20-xAA0
		Yellow	3SU1401-2BF30-xAA0
		Green	3SU1401-2BF40-xAA0
		Blue	3SU1401-2BF50-xAA0
		White	3SU1401-2BF60-xAA0

x: 1 = screw terminals; x: 3 = spring-type terminals

	Operating voltage	Color of the LED	Article No.
 Typical diagram	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251008)		
	6 ... 24 V AC/DC	Amber	3SU1401-2BG00-xAA0
		Red	3SU1401-2BG20-xAA0
		Yellow	3SU1401-2BG30-xAA0
		Green	3SU1401-2BG40-xAA0
		Blue	3SU1401-2BG50-xAA0
		White	3SU1401-2BG60-xAA0
	24 ... 240 V AC/DC	Amber	3SU1401-2BH00-xAA0
		Red	3SU1401-2BH20-xAA0
		Yellow	3SU1401-2BH30-xAA0
		Green	3SU1401-2BH40-xAA0
		Blue	3SU1401-2BH50-xAA0
		White	3SU1401-2BH60-xAA0

x: 1 = screw terminals; x: 3 = spring-type terminals

Note

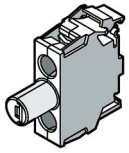
LED modules 6 ... 24 V AC/DC must not be operated in systems with a programmable logic controller because a weak current of 5 V is sufficient to light up the LEDs on the module.

8.1.11 LED modules for 24 V intrinsic safety (floor mounting)

The LED modules for enclosure mounting are installed in 3SU18 enclosures. The LED modules are approved in accordance with IEC 60079-11 and are used in hazardous zones 1, 2. They comply with the "ib" type of protection for intrinsic safety.

On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1) base mounting is not envisaged.

You will find additional information in Chapters "ATEX for intrinsically safe circuits (Page 27)", "3SU18 enclosures (Page 227)".

	Operating voltage	Color of the LED	Article No.
 Typical diagram	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251008)		
	24 V AC/DC	Amber	3SU1401-2BB00-xAA2
		Red	3SU1401-2BB20-xAA2
		Yellow	3SU1401-2BB30-xAA2
		Green	3SU1401-2BB40-xAA2
		Blue	3SU1401-2BB50-xAA2
		White	3SU1401-2BB60-xAA2

x: 1 = screw terminals; x: 3 = spring-type terminals

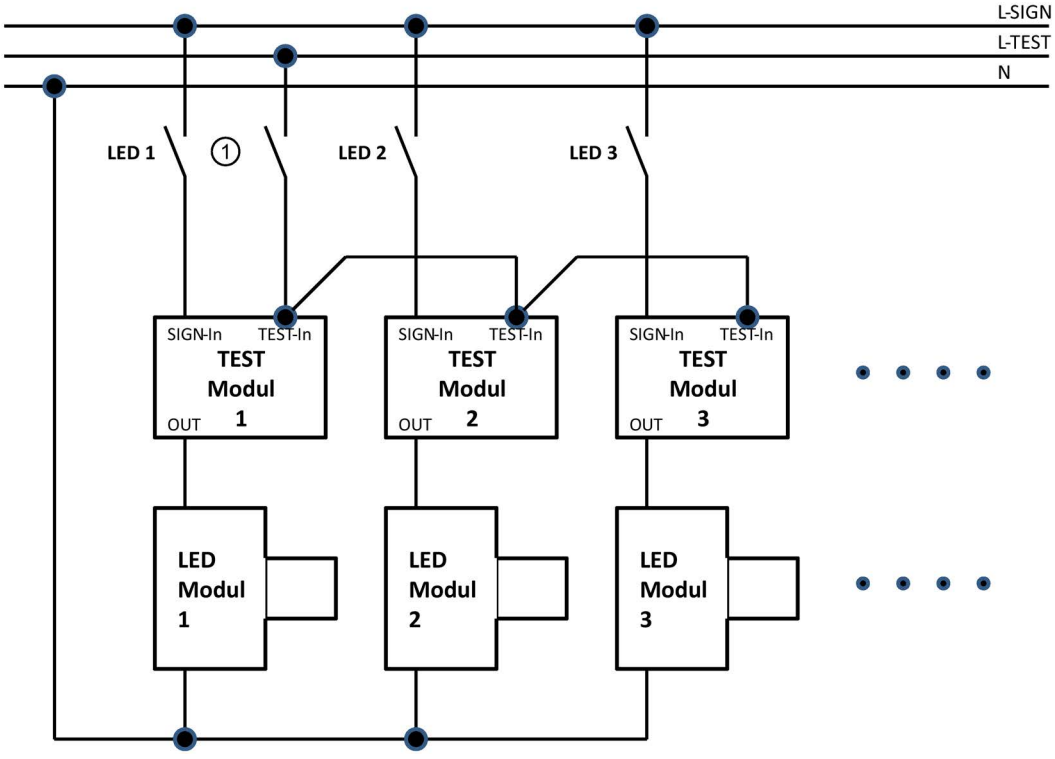
8.1.12 LED modules for PCB mounting

Operating voltage	Color of the LED	Article No.
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221527)		
5 V DC	Amber	3SU1401-3BA00-5AA0
	Red	3SU1401-3BA20-5AA0
	Yellow	3SU1401-3BA30-5AA0
	Green	3SU1401-3BA40-5AA0
	Blue	3SU1401-3BA50-5AA0
	White	3SU1401-3BA60-5AA0

Socket terminal (THT)

8.1.13 LED test module

The LED test modules are used to test the LED modules (AC/DC variants). One LED module is connected to each test module for testing. The LED test module is activated via a contact module. This supplies the connected LED modules (to be tested) with a test voltage.
The test module can be used to test LED modules (6 ... 24 V AC/DC, 24 V AC/DC, 24 ... 240 V AC/DC).



① Lamp test

You will find more information in Chapters "Holders (Page 221)" and "Mounting". (Page 205)

Typical diagram	Operating voltage	Article No.
LED test module for base mounting (enclosure mounting)	6 ... 240 V AC/DC	3SU1400-2CK10-1AA0 Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10298046)
LED test module for front plate mounting		3SU1400-1CK10-1AA0 Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251008)

8.1.14 ASIsafe F adapters for front plate mounting

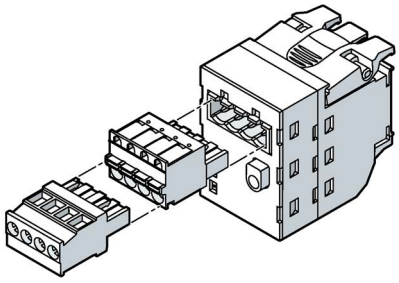
With ASIsafe F adapters, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. ASIsafe F adapters for front plate mounting are installed on the rear face of a holder.

You will find more information in Chapter "Mounting (Page 111)".

AS-Interface EMERGENCY STOP according to ISO 13850

Via the standard AS-Interface with safety-related communication, EMERGENCY STOP devices according to ISO 13850 can be directly connected using the AS-Interface modules.

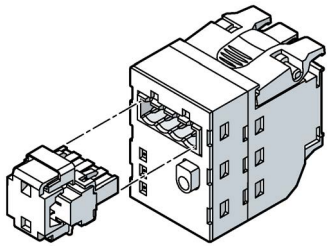
AS-Interface modules, screw terminals + spring-type terminals



Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI	—	2	—	3SU1400-1EA10-2AA0
2 F-DI + 1 LED	—	2	1 for activating the red LED (LED not replaceable)	3SU1401-1EE20-2AA0
2 F-DI + 1 DO	—	2	1 unassigned	3SU1400-1EC10-2AA0

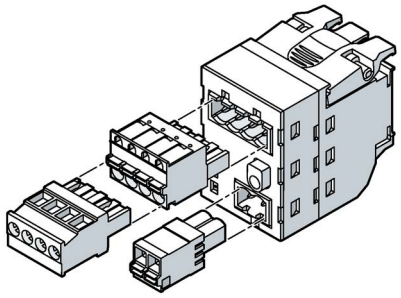
AS-Interface modules, insulation piercing method



Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI	—	2	—	3SU1400-1EA10-4AA0
2 F-DI + 1 LED	—	2	1 for activating the red LED (LED not replaceable)	3SU1401-1EE20-4AA0

AS-Interface modules, spring-type terminals + insulation piercing method

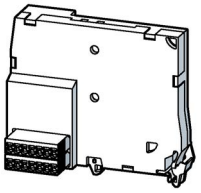


Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI + 1 DO	—	2	1 unassigned	3SU1400-1EC10-4AA0

8.1.15 AS-Interface modules for front plate mounting

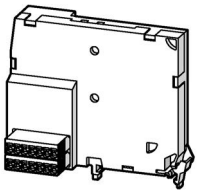
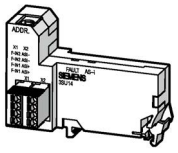
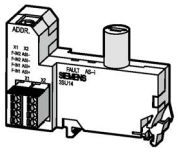
With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. AS-Interface modules for front plate mounting are installed directly on the rear face of a holder. The AS-Interface modules are not stackable.

	Slave type	Number of digital inputs		Number of digital outputs	Article No.
		Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)					
	4 DI / 4 DQ	4	—	4	3SU1400-1EK10-6AA0
	4 DI / 3 DQ AB	4	—	3	3SU1400-1EJ10-6AA0

8.1.16 AS-Interface modules for base mounting (enclosure mounting)

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. The AS-Interface modules for base mounting are installed in 3SU18 enclosures. On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1) base mounting is not envisaged.

AS-Interface modules with push-in terminal

	Slave type	Number of digital inputs		Number of digital outputs	Article No.
		Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251009)					
	4 DI / 4 DQ	4	—	4	3SU1400-2EK10-6AA0[1]
	4 DI / 3 DQ AB	4	—	3	3SU1400-2EJ10-6AA0[1]
	2F-DI	—	2	—	3SU1400-2EA10-6AA0[2]
	2F-DI/1LED	—	2	1 for activating the LED (LED not replaceable)	3SU1401-2EE20-6AA0[2] (red LED) 3SU1401-2EE60-6AA0[2] (white LED)

[1] Cannot be mounted in enclosure with 1 command point (3SU18.2-0AA00-0AB. / 3SU18.3-0AA00-0AB. / 3SU18.4-0AA00-0AB. / 3SU18.6-0AA00-0AB.)

[2] Can be mounted in all enclosures with recess for labeling positions

8.1.17 Overview of inputs and outputs of the AS-Interface module

Article number	Inputs	Outputs	Slave profile	Slave type
3SU1400-2EA10-6AA0	2 fail-safe	–	0.B.F	Standard
3SU1400-.EK10-6AA0	4 digital	4 digital	7.0.E	Standard
3SU1400-.EJ10-6AA0	4 digital	3 digital	7.A.E	A/B - slave
3SU1400-2EM10-6AA0	4 digital	4 digital	7.0.F	A/B - slave
3SU1401-2EE20-6AA0	2 fail-safe	1 red LED	7.B.0	Standard
3SU1401-2EE60-6AA0	2 fail-safe	1 white LED	7.B.0	Standard

2 fail-safe inputs

Data bit	D0	D1	D2	D3
Input	F-IN1	F-IN1	F-IN2	F-IN2
Output	–	–	–	–

2 fail-safe inputs + LED

Data bit	D0	D1	D2	D3
Input	F-IN1	F-IN1	F-IN2	F-IN2
Output	LED	–	–	–

4 digital inputs / 4 digital outputs

Data bit	D0	D1	D2	D3
Input	DI0	DI1	DI2	DI3
Output	DQ0	DQ1	DQ2	DQ3

4 digital inputs / 3 digital outputs

Data bit	D0	D1	D2	D3
Input	DI0	DI1	DI2	DI3
Output	DQ0	DQ1	DQ2	–

8.1.18 Electronic modules for ID key-operated switches

The electronic modules for ID key-operated switches are designed for use with the ID key-operated switch. The electronic modules for ID key-operated switches can be installed in a 3SU18.1-1AA00-1AA1 enclosure for one command point, or in a front plate using 3-slot holders. The 3SU1400-1GD10-1AA0 electronics modules for ID key-operated switches can be parameterized via IO-Link.

The version of electronic modules for ID key-operated switches with IO-Link (3SU1400-1GD10-1AA0) satisfies the maximum emission limit values on the basis of the following rules:

- For the USA:
  $15.201(a) devices under 490 kHz, where all emissions are at least 40 dB under the limit value according to $15.209.
- For Canada:
  RSS-310, Edition 4, July 2015 Chapter 3.7
  Transmitters with a basic emission under 490 kHz and for which it has been certified that all of the emissions are at least 40 dB under the general field intensity limits listed in RSS-Gen must correspond to the general provisions of RSS-310 and the applicable provisions of RSS-Gen.
  This device corresponds to the RSS-310 of Industry Canada. Its operation is subject to the condition that this device must not cause any radio interference and is protected from interference that can lead to undesired operation of the device.

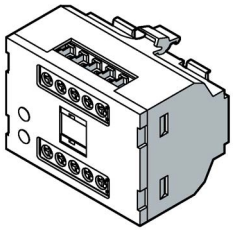
For the installation you must use the plastic holder (3SU1500-0AA10-0AA0).

For further information on the devices, refer to Chapters "ID key-operated switches (Page 89)", "ID keys (Page 438)" and "Technical data".

You can find information on using the electronic modules for ID key-operated switches for IO-Link in Chapter "IO-Link 3SU14 (Page 317)".

Article numbers

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221530)

	IO-Link protocol supported	Power supply through IO-Link master	IO-Link transfer rate	**Article No.**
	No	---	---	3SU1400-1GC10-1AA0
	Yes	Yes	COM2 (38.4 kBaud)	3SU1400-1GD10-1AA0

8.1.19 Electronic module for IO-Link

The electronic modules for IO-Link can be installed in 3SU1 enclosures or mounted on a front plate.

The modules are controlled by IO-Link communication. The rated supply voltage of the module is 24 V.

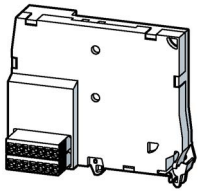
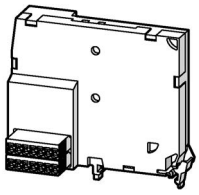
Variants

- **Front variant 6DI/2DO**
  For front plate mounting. The 8 digital inputs and outputs can be parameterized individually as required. The default setting is 6 digital inputs and 2 digital outputs. The inputs and outputs can only be parameterized by IO-Link communication.
- **Basic variant 6DI/2DO**
  For use in a 3SU1 enclosure. The 8 digital inputs and outputs can be parameterized individually as required. The default setting is 6 digital inputs and 2 digital outputs. The inputs and outputs can only be parameterized by IO-Link communication.
- **Basic variant 6DI/2DO**
  6DI/2DO means that the variant has 6 digital inputs and 2 digital outputs. It is not possible to change the number of inputs and outputs.
- **Basic variant 4DI/4DO**
  4DI/4DO means that the variant has 4 digital inputs and 4 digital outputs. It is not possible to change the number of inputs and outputs.
- **Basic variant 2DI/6DO**
  2DI/6DO means that the variant has 2 digital inputs and 6 digital outputs. It is not possible to change the number of inputs and outputs.

Article numbers

Front plate mounting
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221531)

Base mounting (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251420)

	Mounting type	Digital inputs	Digital outputs	**Article number**
	Front plate mounting	6[1)]	2[1)]	3SU1400-1HL10-6AA0
	Base mounting	6[1)]	2[1)]	3SU1400-2HL10-6AA0
	Base mounting	6[2)]	2[2)]	3SU1400-2HK10-6AA0
	Base mounting	4[2)]	4[2)]	3SU1400-2HM10-6AA0
	Base mounting	2[2)]	6[2)]	3SU1400-2HN10-6AA0

[1)] Default setting. The 8 digital inputs and outputs can be parameterized individually as required.
[2)] It is not possible to change the number of inputs and outputs.

Short-circuit protection

If a short-circuit occurs at one or more outputs, the occurrence of a fault event is sent and the fault flag is set. All outputs are deactivated for one second. Then the relevant outputs are re-activated to monitor whether the short-circuit is still active. This temporary state exists for approximately 0.1 seconds. If no short-circuit is determined during this period, the fault event is revoked, and the fault flag is deleted. However, if a short-circuit is detected during this time, all outputs are deactivated again, and the short-circuit device fault remains.

8.1.20 Support terminal for front plate mounting

Support terminals for front plate mounting are installed on the rear face of a holder. The support terminals serve to collect electrical conductors, e.g. for all neutral conductors, in one enclosure. Up to 4 conductors, belonging to the same group, can be secured on one support terminal.

For further information refer to Chapters "Holders (Page 221)" and "Mounting (Page 205)"

	Suitable for enclosure mounting	Article No.
Line conductor, black	Yes	3SU1400-1DA10-xAA0
Neutral conductor blue	Yes	3SU1400-1DA50-xAA0
Protective conductor yellow / green	Yes	3SU1400-1DA43-xAA0

x: 1 = screw terminals; 3 = spring-type terminals

8.1.21 Support terminal for base mounting (enclosure mounting)

The support terminal for base mounting is intended for use in 3SU18 enclosures. On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1), base mounting is not envisaged. The support terminals serve to collect electrical conductors, e.g. for all neutral conductors, in one enclosure. Up to 4 conductors, belonging to the same group, can be secured on one support terminal. The support terminal can be mounted at any component placement position in the enclosure. A maximum of two support terminals can be mounted on the 5-pole base block installed in the enclosure.

For further information refer to Chapter "3SU18 enclosures (Page 227)".

	Article No.
Line conductor, black	3SU1400-2DA10-xAA0
Neutral conductor blue	3SU1400-2DA50-xAA0
Protective conductor yellow / green	3SU1400-2DA43-xAA0

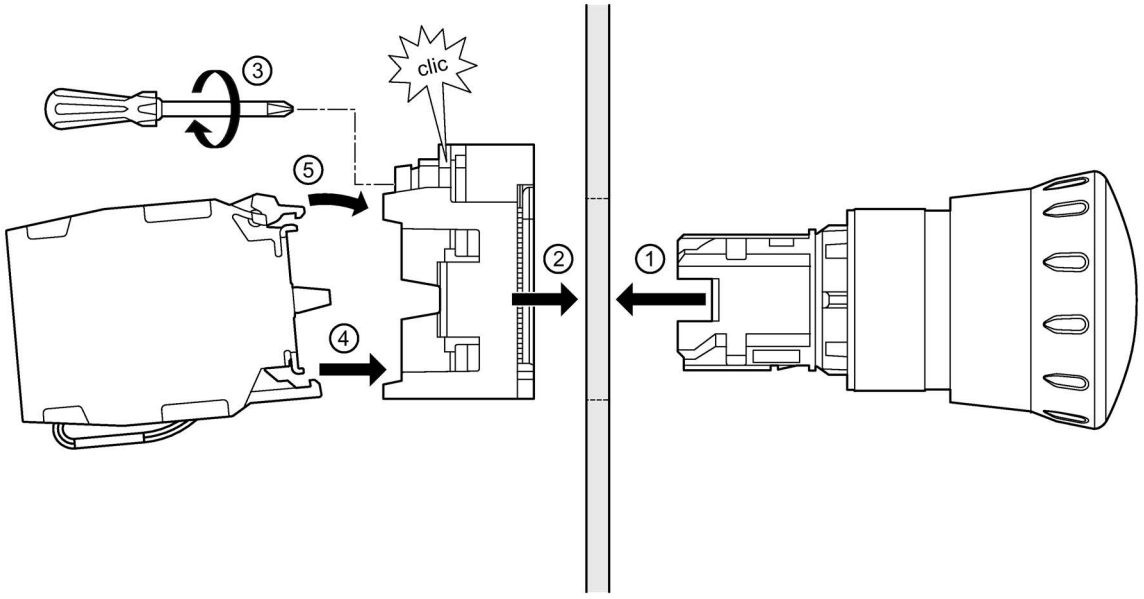
x: 1 = screw terminals; 3 = spring-type terminals

8.2 Mounting

8.2.1 Front plate mounting

8.2.1.1 Contact and LED modules

The front plate mounting described below is possible in the same way for enclosure mounting with front modules. The front plate described is replaced with the enclosure cover. With enclosure mounting, only 1-pole modules can be mounted. Stacking of modules is not possible with enclosure mounting.

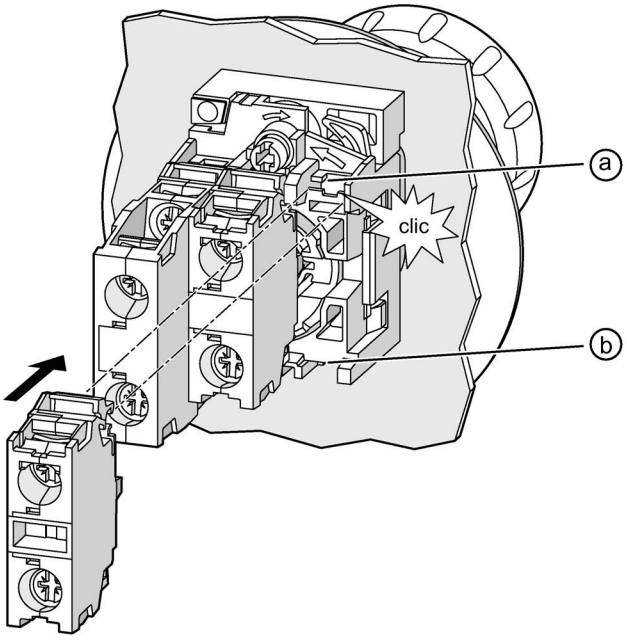


Typical diagram. The diagram shows mounting of a 2-pole module. This is not possible with enclosure mounting.

Procedure

1. Insert the actuating or signaling element from the front through the mounting opening of the front plate.
2. Fit the holder from behind (wiring side) onto the actuating or signaling element and lock it into place.
3. The unit must be aligned before finally tightening and securing against twisting.
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 ... 1.2 Nm).

5. Snap the contact module(s) from behind onto the holder.
   To do this, hold the modules so that they are tilted downward slightly and place them onto the holder from behind (snap the narrow snap hook (b) into the appropriate contour on the holder) and then press them upwards until you feel the broad wide snap hook (a) latch in the holder.
   Single- or two-pole contact modules can be mounted on the holder. (Only 1-pole contact modules with enclosure mounting)
6. Ensure secure latching.
7. Connect the cables to the modules. You can find the relevant information in Chapter "Wiring (Page 216)".



a Broad snap hook
b Narrow snap hook

Typical diagram

8.2.1.2 AS-Interface modules, electronic modules for ID key-operated switch / IO-Link

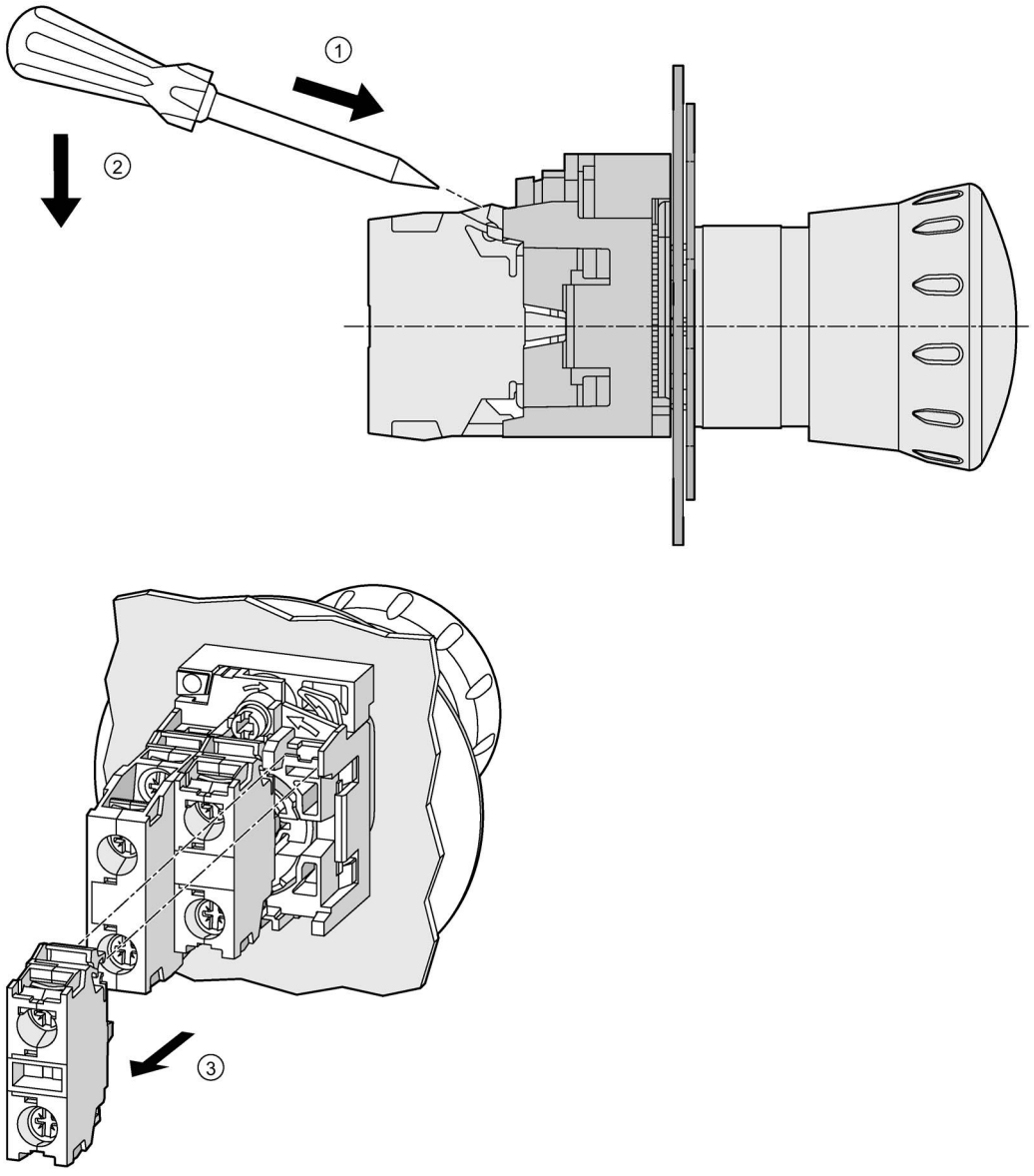
You can find information about installing ASi modules in the section AS-Interface in Chapter "Mounting (Page 275)".

You can find information about installing electronic modules for ID keys in the section IO-Link in Chapter "Mounting (Page 352)".

You can find information about installing electronic modules for IO-Link in the section IO-Link in Chapter "Mounting (Page 378)".

8.2.1.3 Disassembling modules

The disassembly steps are shown using the example of an EMERGENCY-STOP mushroom pushbutton.



Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
2. Press the screwdriver down to open the latches of the modules.
3. Remove the modules.

8.2.2 Front plate mounting for enclosure mounting

8.2.2.1 Front plate mounting for enclosures

The front plate mounting method for enclosures is described below. With enclosure mounting, only 1-pole modules can be mounted. Stacking of modules is not possible with enclosure mounting.

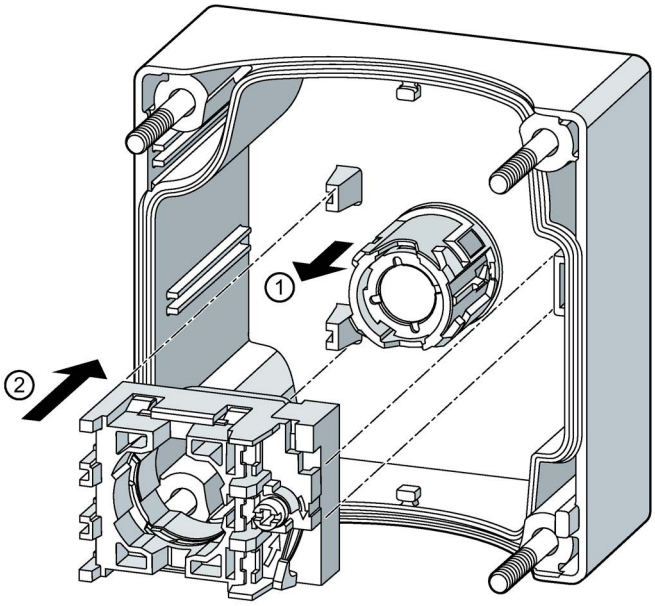
An adapter is available for the enclosure with 1 command point (article number: 3SU1900-0JF10-0AA0) to allow the installation of 2-pole contact modules. You will find additional information in the Chapter "Accessories for the enclosure (Page 441)".

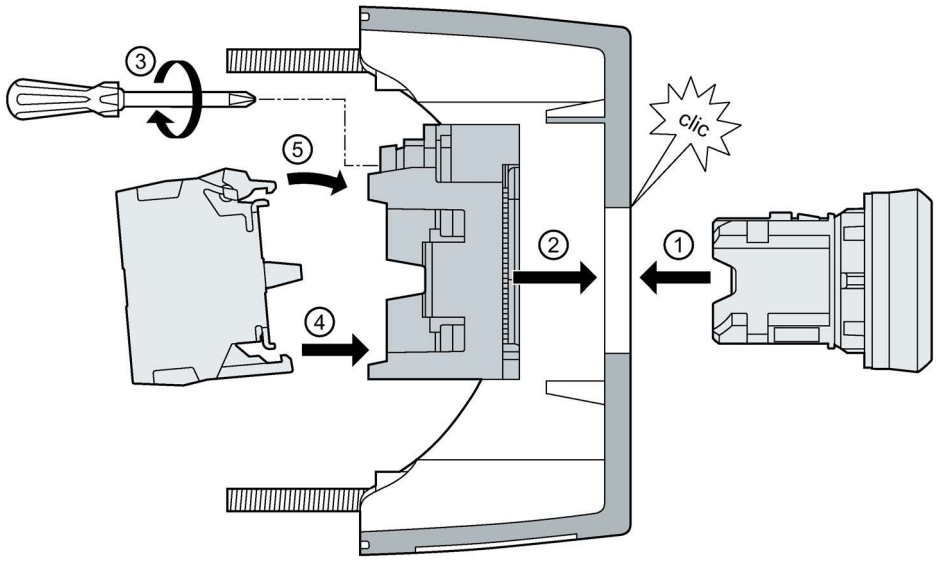
Requirement

The enclosure cover has been removed.

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU1) in front of the enclosure cover.
- A holder (3SU15) behind the enclosure cover.
- Contact modules and / or an LED module (3SU14) behind the enclosure cover.

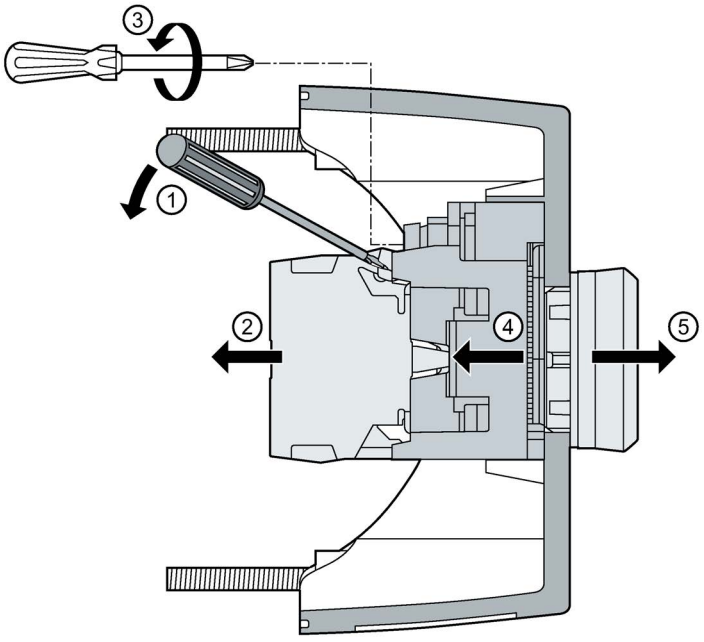


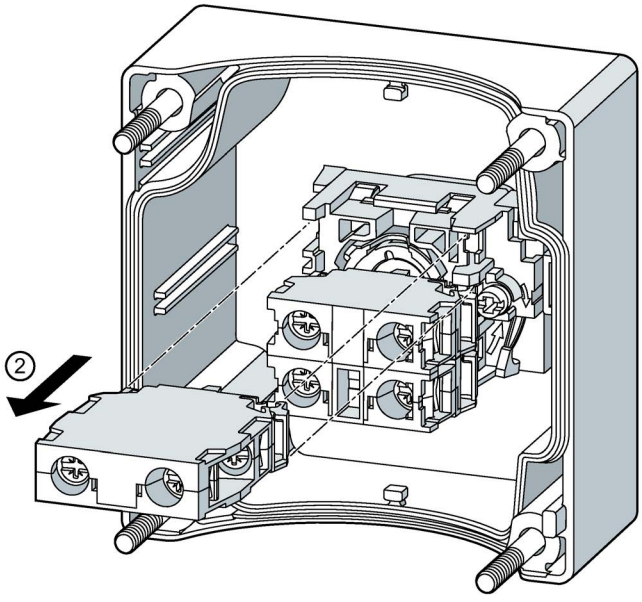


Procedure

1. Insert the actuating or signaling element from the front through the cut-out in the enclosure cover.
2. Fit the holder from behind (wiring side) onto the actuating or signaling element and latch it into place.
   The unit must be aligned before it is finally tightened and locked against twisting (see Chapter "Alignment" (Page 119)).
3. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).
4. Snap the contact module(s) from behind onto the holder. To do this, hold the modules so that they are tilted downwards slightly and place them onto the holder from behind and then press them upwards ⑤ until you feel the module latch in the holder.
   Fit an LED module (E) if required. You can mount the LED module on the holder only in position 3/6 (center position).

8.2.2.2 Dismantling front plate mounting on enclosures





Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
   Press the screwdriver down to open the module latches.
2. Remove the modules.
3. Open the fixing screw on the holder.
4. Unlock the holder.
   Move the holder backwards to detach it from the actuating or signaling element.
5. Remove the actuating or signaling element.

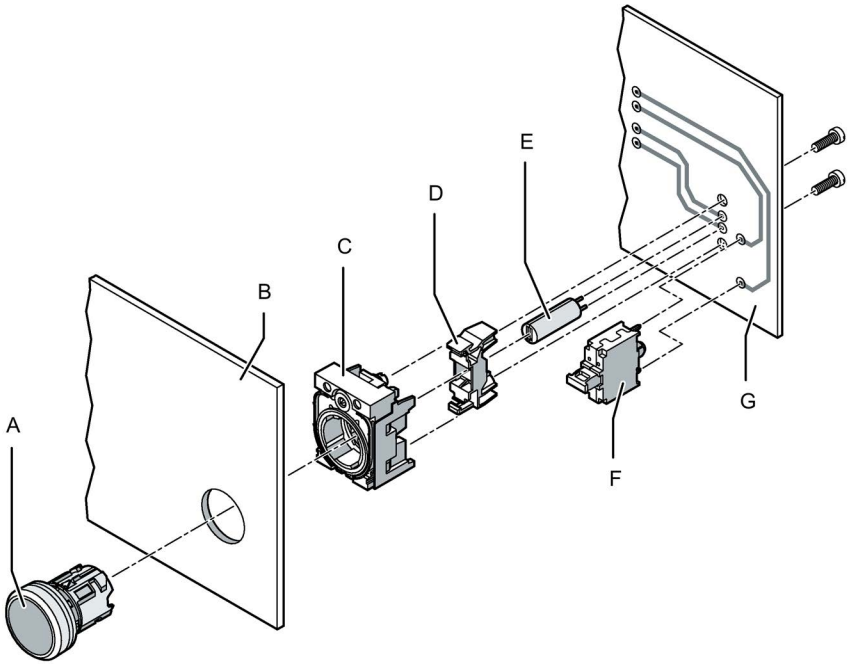
8.2.3 Mounting on printed-circuit boards

3SU1 devices can be mounted on PCBs using the 3-slot or 4-slot holder.

If the 3SU1900-0KA10-0AA0 holder for the printed circuit board is attached to a 3-slot holder at position 1/4 or 2/5, one position remains unoccupied on the 3-slot holder.

If you have to use an illuminated actuator, you must attach the holder for the printed circuit board to position 3/6.

If the PCB carrier 3SU1900-0KA10-0AA0 is attached to a 4-slot holder, the holder cannot accommodate an LED module. One position on the 4-slot holder is also left empty.



Typical diagram

A Actuating or signaling element (in this case: indicator light)
B Front plate
C Holder
D PCB carrier
E LED (PCB mounting)
F Contact module (PCB mounting)
G Printed-circuit board

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).
2. Fit the holder (C) from behind onto the actuating or signaling element and lock it into place.
3. You must align the unit before you finally tighten and secure it against twisting. You will find information on this in Chapter "Alignment (Page 119)").
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).
5. Snap the PCB carrier (D) from behind onto the holder. To do this, hold the PCB carrier so that it is tilted downwards slightly and place it onto the holder from behind and then press it upwards until you feel the PCB carrier latch in the holder.
6. Equip the PCB (G) with the components.
7. Screw the PCB securely onto the PCB carrier.

Note

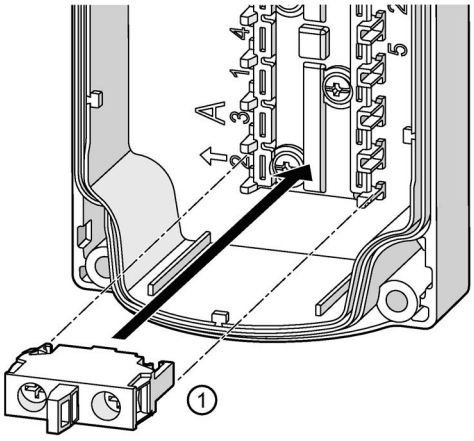
Number of PCB carriers

Make sure there is sufficient stability. Use several PCB carriers if necessary.

If the PCB is attached, one PCB carrier is sufficient. For an unattached PCB, at least two PCB carriers must be used.

8.2.4 Base mounting for the enclosure

8.2.4.1 Equipping with contact and LED modules



The contact modules and LED modules are mounted in the enclosure base.

To equip an enclosure, follow these steps:

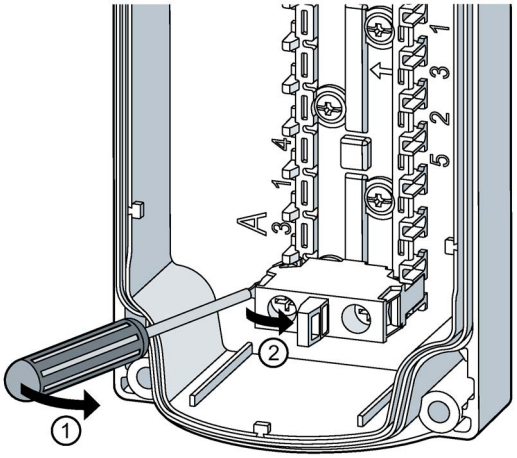
1. Snap the module ① onto a slot in the enclosure. The narrow snap hook must point in direction "A" here.

Refer also to the information on fitting in Chapter "Mounting positions (Page 229)".

8.2.4.2 Disassembling modules

Requirement

Enclosure cover is disassembled.



Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
2. Press the screwdriver in the direction of the module you want to remove to open the latches of the modules.
   Remove the modules.

8.2.4.3 AS-Interface modules, electronic modules for IO-Link

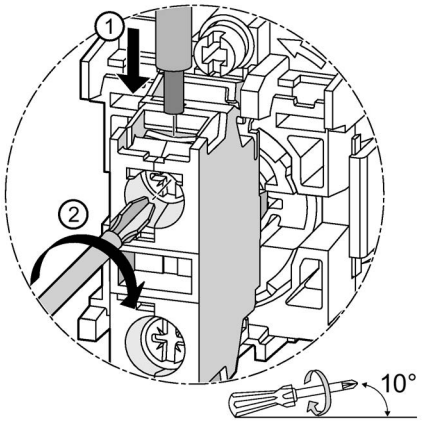
You can find information about installing ASi modules in the section AS-Interface in Chapter "Mounting (Page 281)".

You can find information about installing electronic modules for IO-Link in the section IO-Link in Chapter "Mounting (Page 380)".

8.3 Connecting

8.3.1 Contact and LED modules, support terminal

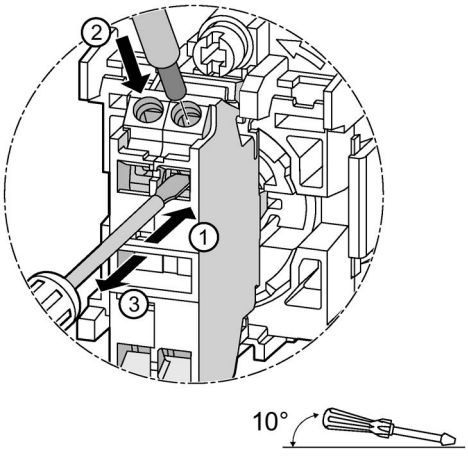
Procedure for wiring screw terminals



Procedure

1. Insert the relevant cable into the opening of the screw terminal of the module until it engages.
2. Insert the screwdriver (DIN ISO 8764-1-PZ1) at an angle of 10° into the opening for the screw.
3. Tighten the screw.
   - Tightening torque for contact modules: 0.8 … 0.9 Nm
   - Tightening torque for LED modules: 0.8 … 1.0 Nm
4. Pull on the cable to ensure it is screwed tight.

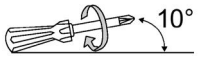
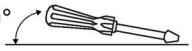
Procedure for wiring spring-type terminals



Procedure

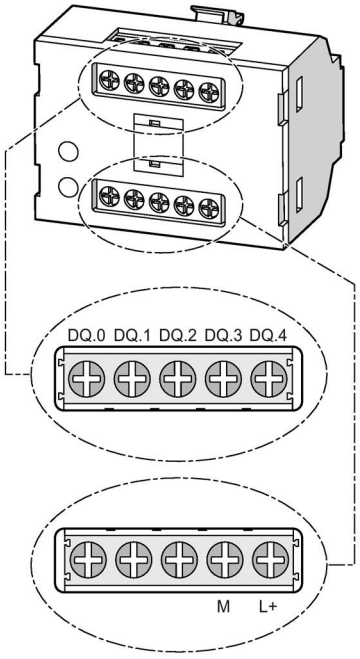
1. Insert the screwdriver (3RA2908-1A: 3.0 mm x 0.5 mm) into the rectangular opening to open the terminal (round opening).
2. Insert the cable as far as it will go into the round opening.
3. Remove the screwdriver.
4. Pull on the cable to ensure it is tight.

Conductor cross-sections for contact and LED modules

Screw terminals		Spring-type terminals	
 DIN ISO 8764-1-PZ1	Tightening torque: contact modules: 0.8 … 0.9 Nm LED modules: 0.8 … 1.0 Nm	 3RA2908-1A: 3.0 mm x 0.5 mm	---
	2 x (1.0 ... 1.5) mm²		2 x (0.25 ... 1.5) mm²
 (acc. to DIN 46228)	2 x (0.5 ... 0.75) mm²	 (acc. to DIN 46228)	—
	2 x (1.0 ... 1.5) mm²		2 x (0.25 ... 1.5) mm²
 (acc. to DIN 46228)	2 x (0.5 ... 1.5) mm²	 (acc. to DIN 46228)	2 x (0.25 ... 0.75) mm²
AWG	2 x 18 to 14	AWG	2 x 24 to 16

8.3.2 Electronic modules for ID key-operated switches

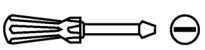
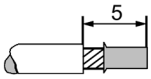
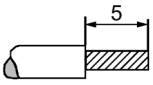
3SU1400-1GC10-1AA0 electronic module for ID key-operated switches



Terminal labeling

Terminal labeling					
Pin	**X1**		**Pin**	**X2**	
1	DQ.0	Digital output	**6**	—	—
2	DQ.1	Digital output	**7**	—	—
3	DQ.2	Digital output	**8**	—	—
4	DQ.3	Digital output	**9**	M	Ground
5	DO.4	Digital output	**10**	L+	24 V DC

Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	0.4 Nm
 (acc. to DIN 46228)	1 x (0.2 ... 2.5) mm²
 (acc. to DIN 46228)	1 x (0.25 ... 1.5) mm² 2 x (0.25 ... 0.75) mm²
	1 x (0.2 ... 2.5) mm² 2 x (0.2 ... 0.75) mm²
AWG	1 x 26 to 14

8.3.3 AS-Interface modules and electronic module for IO-Link

You can find information on connecting the ASi modules in the section AS-Interface in Chapter "Connecting (Page 289)".

You can find information on connecting the electronic modules for IO-Link in the section IO-Link of Chapter "Connecting (Page 353)".

3SU15 holders

9

9.1 Holders

The holders are used to secure the actuating or signaling elements and the contact module or LED module. The holders are designed for mounting in front plates with a plate thickness of 1 to 6 mm.

When delivered, the holders are set to a front plate thickness of approximately 4.5 mm. They are placed in the ↑ arrow direction from the rear onto the actuating and signaling elements. The fastening screw is located at the top. If they are to be mounted on a front plate that is > 4.5 mm thick, you must adjust the fastening screw of the holder before you install the holder.

Note

Note the maximum permissible front plate thickness!

When label holders, protective caps or similar accessories are used, it is important to remember that the maximum permissible front plate thickness must be reduced by the plate thickness of the relevant accessory.

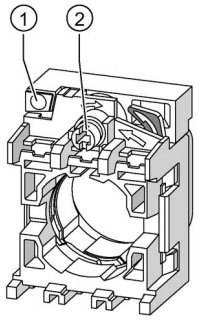
Tool

For securing, we recommend a size 2 screwdriver (cross-tip DIN ISO 87641PZ1 or flat-head DIN ISO 2380-1 A/B 1x 4.5). The tightening torque is 1.0 to 1.2 Nm.

Grounding of the front plate

If you mount a metal actuator on a metal front plate using a metal holder, the actuator is grounded via the tip of the fastening screw. This enables grounding via the connection on the front plate.

If the metal holder is to be used several times, grounding via the grounding stud is recommended!



① Hole for grounding stud (accessory: 3SU1950-0KK80-0AA0)

② Fastening screw

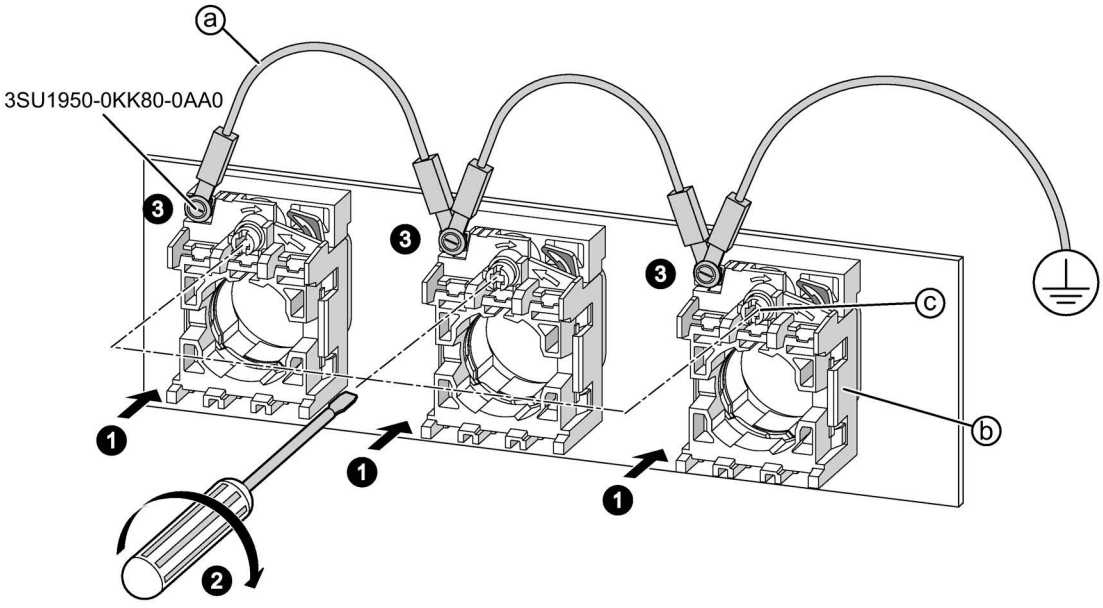
NOTICE
Mounting in front plates / enclosures made of electrically non-conductive material If you use an enclosure made of plastic, you must loop a grounding cable (a) through the metal holders, and connect them to ground by means of a grounding stud (3SU1950-0KK80-0AA0).

⚠ CAUTION
Risk of injury To ensure secure connection of the grounding cable, the grounding studs (3SU1950-0KK80-0AA0) must be fastened with ring cable lugs. The grounding stud is not included in the scope of supply and must be ordered separately. For information, please refer to Chapter "Accessories (Page 455)".

Note

The operator is responsible for checking that the protective measure (grounding) is effective.

Procedure



1. Attach the holder (b) to the actuating element from behind.
2. Tighten the holder screw (c).
3. Secure the grounding cable (a) with ring cable lugs to the grounding stud (3SU1950-0KK80-0AA0), tightening torque: 0.8 - 1.0 Nm.

Module slot position

Holders made of metal or plastic and with 3 or 4 slots for contact or LED modules are available.

The module slot positions (contact or LED modules) are indicated on top of the holder. The large digits designate the modules that are snapped directly onto the holder. The small digits indicate the position of stacked modules.

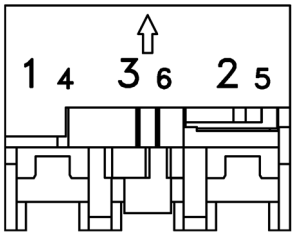


Figure 9-1 Marking of slot positions on the 3-slot holder

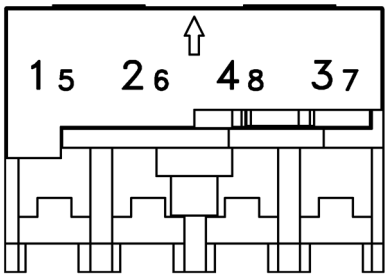


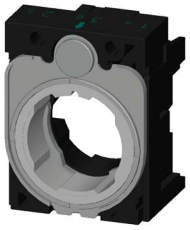
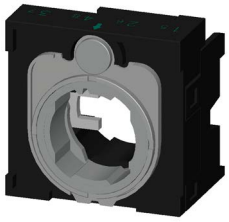
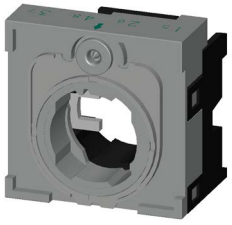
Figure 9-2 Marking of slot positions on the 4-slot holder

Assignment of the holders to the actuating and signaling elements

The following assumptions apply when assigning holders to the actuating elements and signaling elements:

Front ring material	Collar material	Bore diameter	Holder (plastic)	Holder (metal)
Plastic	Plastic	22.5 mm	✓	✓
Metal, matte	Plastic	22.5 mm	✓	✓
Metal	Metal	22.5 mm	---	✓
Metal, matte	Metal	30.5 mm	---	✓

Overview of holders without modules

Material	3-slot holder (http://mall.industry.siemens.com/mall/de/ww/Catalog/Products/10221517)	4-slot holder (http://mall.industry.siemens.com/mall/de/ww/Catalog/Products/10221517)
Plastic	 3SU1500-0AA10-0AA0	 3SU1500-0BA10-0AA0
Metal	 3SU1550-0AA10-0AA0	 3SU1550-0BA10-0AA0

You can find information on the pre-assembled holders with modules in Chapter "Holders with modules (Page 225)".

9.2 Holders with modules

Overview of holders with contact module

These variants are preassembled. You need only snap them onto the actuator, tighten the fastening screws and connect the cables.
You can find information about the contact modules used in Chapter "Contact modules for front plate mounting (Page 176)".

Holder position 1	Holder position 2	Holder position 3	Article No.
Plastic Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221517)			
3SU1400-1AA10-1BA0	—	—	3SU1500-1AA10-1BA0
3SU1400-1AA10-1CA0	—	—	3SU1500-1AA10-1CA0
3SU1400-1AA10-1BA0	—	3SU1400-1AA10-1BA0	3SU1500-1AA10-1NA0
3SU1400-1AA10-1CA0	—	3SU1400-1AA10-1CA0	3SU1500-1AA10-1PA0
Metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221517)			
3SU1400-1AA10-1BA0	—	—	3SU1550-1AA10-1BA0
3SU1400-1AA10-1CA0	—	—	3SU1550-1AA10-1CA0
3SU1400-1AA10-1BA0	—	3SU1400-1AA10-1BA0	3SU1550-1AA10-1NA0
3SU1400-1AA10-1CA0	—	3SU1400-1AA10-1CA0	3SU1550-1AA10-1PA0

3SU1400-1AA10-1BA0: Contact module 1NO normally open contact

3SU1400-1AA10-1CA0: Contact module 1NC normally closed contact

Overview of holders (plastic) with 1 contact and LED module

These variants are preassembled. You need only snap them onto the actuator, tighten the fastening screws and connect the cables.
The LED module included in the scope of supply is a wide-voltage module with a voltage range from 6 to 24 V AC/DC.
You can find information on the contact and LED modules used in Chapters "Contact modules for front plate mounting (Page 176)" and "LED modules for front plate mounting (Page 189)".

You can find further information on the holders in Chapter "Holders (Page 221)".

Holder position 1	Holder position 2	Holder position 3	Article No.
Plastic Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10221517)			
3SU1400-1AA10-1BA0	—	3SU1401-1BG00-1AA0	3SU1501-1AG00-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG00-1AA0	3SU1501-1AG00-1CA0
3SU1400-1AA10-1FA0	—	—	3SU1500-1AA00-1FA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG00-1AA0	3SU1501-1AG00-1NA0
3SU1400-1AA10-1FA0	—	3SU1401-1BG00-1AA0	3SU1501-1AG00-1FA0
3SU1400-1AA10-1BA0	—	3SU1401-1BG20-1AA0	3SU1501-1AG20-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG20-1AA0	3SU1501-1AG20-1CA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG20-1AA0	3SU1501-1AG20-1NA0
3SU1400-1AA10-1FA0	—	3SU1401-1BG20-1AA0	3SU1501-1AG20-1FA0
3SU1400-1AA10-1BA0	—	3SU1401-1BG30-1AA0	3SU1501-1AG30-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG30-1AA0	3SU1501-1AG30-1CA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG30-1AA0	3SU1501-1AG30-1NA0
3SU1400-1AA10-1FA0	—	3SU1401-1BG30-1AA0	3SU1501-1AG30-1FA0
3SU1400-1AA10-1BA0	—	3SU1401-1BG40-1AA0	3SU1501-1AG40-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG40-1AA0	3SU1501-1AG40-1CA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG40-1AA0	3SU1501-1AG40-1NA0
3SU1400-1AA10-1FA0	—	3SU1401-1BG40-1AA0	3SU1501-1AG40-1FA0
3SU1400-1AA10-1BA0	—	3SU1401-1BG50-1AA0	3SU1501-1AG50-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG50-1AA0	3SU1501-1AG50-1CA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG50-1AA0	3SU1501-1AG50-1NA0
3SU1400-1AA10-1FA0	—	3SU1401-1BG50-1AA0	3SU1501-1AG50-1FA0
3SU1400-1AA10-1BA0	—	3SU1401-1BG60-1AA0	3SU1501-1AG60-1BA0
3SU1400-1AA10-1CA0	—	3SU1401-1BG60-1AA0	3SU1501-1AG60-1CA0
3SU1400-1AA10-1BA0	3SU1400-1AA10-1BA0	3SU1401-1BG60-1AA0	3SU1501-1AG60-1NA0
3SU1400-1AA10-1FA0		3SU1401-1BG60-1AA0	3SU1501-1AG60-1FA0

3SU1400-1AA10-1BA0: Contact module 1NO normally open contact

3SU1400-1AA10-1CA0: Contact module 1NC normally closed contact

3SU1400-1AA10-1FA0: Contact module 1NO1NC normally open contact / normally closed contact

3SU1401-1BG.0-1AA0: LED module

3SU18 enclosures

10

The enclosed pushbuttons and indicator lights are available with conventional controls as well as for connection to AS-Interface.

The following versions of the 3SU18 enclosure are available:

- Empty enclosures with 1 to 6 command points (the installed components must be ordered separately)
- Enclosures with standard fittings with 1 to 3 command points
- Enclosures with customized fittings with 1 to 6 command points
- Two-hand operation consoles

10.1 Enclosures for actuating and signaling elements

Enclosures

For the 3SU1 actuating elements and signaling elements, plastic enclosures and metal enclosures with 1, 2, 3, 4 or 6 command points are available.

Cable entry is on the top or bottom of the enclosure front by means of a metric M20 or M25 cable gland (for 1 to 3 command points) or M25 (for 4 and 6 command points).

The enclosures are available in the following colors:

- Enclosure cover:
  - Gray
  - Yellow
- Enclosure base:
  - Black

The enclosures are available for devices with diameter 22.5 mm

Enclosures are available in different variants according to the following features:

- Empty enclosure and enclosure with standard fittings
- With or without labeling fields
- With protective collar

10.1.1 Actuating and signaling elements

Actuating and signaling elements with nominal diameter 22.5 mm can be used.

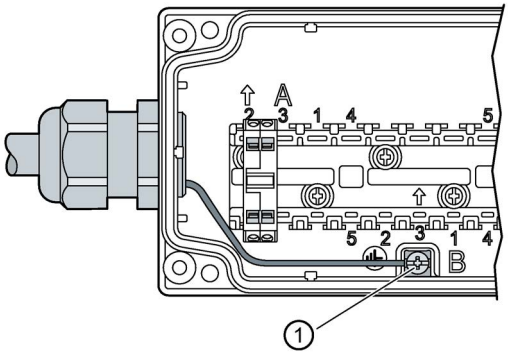
Plastic enclosures are normally equipped with actuating or signaling elements made of plastic. Metal enclosures are equipped as standard with actuating or signaling elements made of metal. If otherwise equipped, please note the grounding information below.

EMERGENCY STOP according to ISO 13850

For control systems according to IEC 60204-1 or DIN EN 60204-1 (VDE 0113 Part 1), the mushroom pushbuttons of the 3SU10 series can be used as EMERGENCY STOP devices.

Grounding

The enclosure must be grounded if it contains metal actuating elements. The base of metal enclosures has a grounding stud ①.



Plastic enclosures containing metal actuating elements can be grounded via metal holders.

For further information refer to Chapter "Holders (Page 221)".

10.1.2 Contact modules and LED modules

Contact modules and LED modules for base mounting are snapped into the enclosure base. Base mounting is not provided for on the enclosures with raised cover.
The following elements can be attached for each command point:

- 3 contact modules or
- 2 contact modules and 1 LED module or
- 2 contact modules and 1 ASIM 2F-DI / LED

Due to the high contact stability, the contact modules are also suitable for use in electronic controllers. The function numbers are located on the contact modules.

As well as base mounting, it is also possible to use 1-pole contact and LED modules for front plate mounting.
You can find information on the modules in Chapter "3SU14 modules (Page 173)".

10.1.3 Mounting positions

The mounting position of the contact modules or LED modules is specified by the combination of letters and numbers (permissible numbers: 1, 2, 3).

The lowest mounting position of an actuating or signaling element is always A and the highest possible is F (for enclosures with 6 command points). This yields the following highest possible mounting positions, depending on the number of command points in the enclosure:

- Enclosures with 2 actuating or signaling elements ⇒ B
- Enclosures with 3 actuating or signaling elements ⇒ C
- Enclosures with 4 actuating or signaling elements ⇒ D
- Enclosures with 6 actuating or signaling elements ⇒ F

Contact modules can be mounted at the mounting positions 1 and/or 2 and/or 3, but LED modules only at mounting position 3.

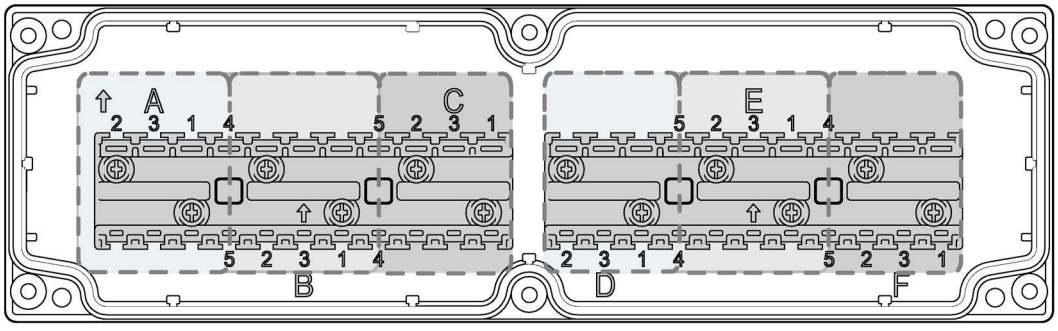


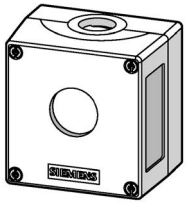
Figure 10-1 Labeling for mounting positions in the enclosure base for enclosures with 1 to 6 command points.

10.1.4 Overview of empty enclosures

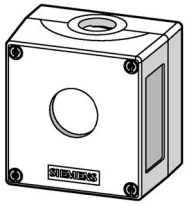
Note

Not all combinations listed in the tables below are available. In the case of special versions consult Technical Support, or initiate a PI1000 request.

Enclosures with raised cover

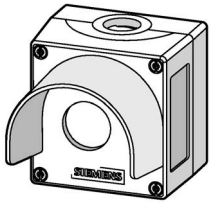
	No. of command points	Article No.
 Typical diagram	**Enclosure material plastic** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1801-1AA00-1AA1
	Enclosure material metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1851-1AA00-1AA1

Enclosure with command point in center

	No. of command points	Article No.
 Typical diagram	**Enclosure material plastic** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1801-0AA00-0AAy
	Enclosure material metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1851-0AA00-0AAy

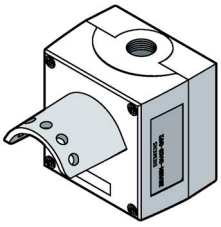
y: 1 = gray; y: 2 = yellow

Enclosure with protective collar in center

	No. of command points	Article No.
 Typical diagram	**Enclosure material plastic** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1801-0AA00-0ACy
	Enclosure material metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1851-0AA0x-0ACy

y: 1 = gray; y: 2 = yellow

Enclosure with protective collar in center and opening for bracket lock

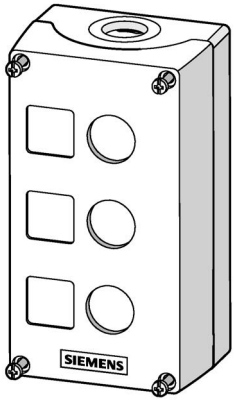


Typical diagram

No. of command points	Article No.
For **EMERGENCY OFF mushroom pushbutton, diameter 40 mm** • Rotate to unlatch • Pull to unlatch • Illuminable **RONIS key-operated switch** **Enclosure material metal** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
1	3SU1851-0AA00-0AF2
For **EMERGENCY STOP mushroom pushbutton, key-operated release (tamper protection)** • IKON • CES • BKS • OMR **Enclosure material metal for** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
1	3SU1851-0AA00-0AG2
For **EMERGENCY STOP mushroom pushbutton, diameter 60 mm** • Rotate to unlatch • Illuminable **Enclosure material metal** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
1	3SU1851-0AA00-0AHy

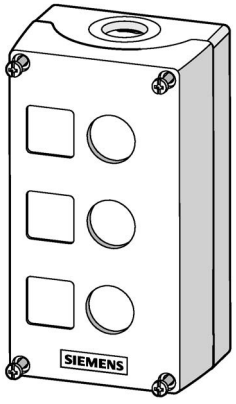
y: 1 = gray; y: 2 = yellow

Enclosure with recess for labeling plate

	No. of command points	Article No.
 Typical diagram	**Enclosure material plastic** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1801-0AA00-0ABy
	2	3SU1802-0AA00-0ABy
	3	3SU1803-0AA00-0AB1
	4	3SU1804-0AA00-0AB1
	6	3SU1806-0AA00-0AB1
	Enclosure material metal Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1851-0AA00-0ABy
	2	3SU1852-0AA00-0ABy
	3	3SU1853-0AA00-0AB1
	4	3SU1854-0AA00-0AB1
	6	3SU1856-0AA00-0AB1

y: 1 = gray; y: 2 = yellow

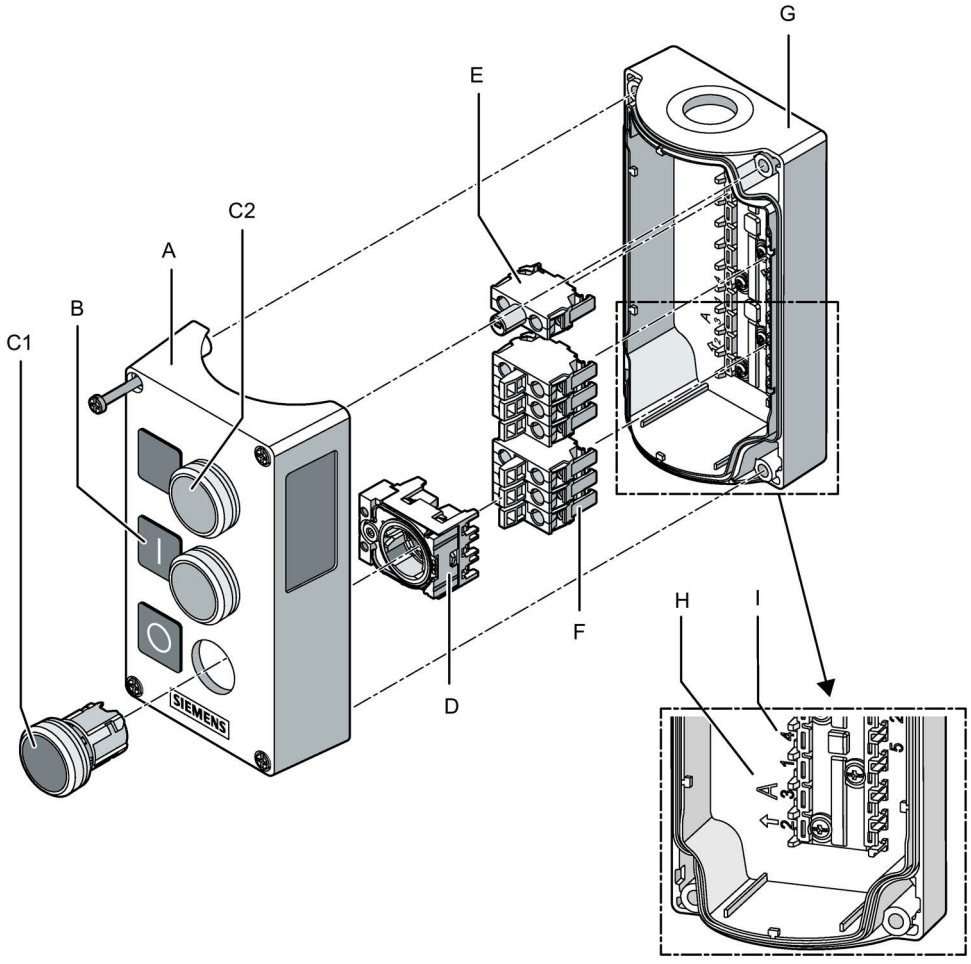
Enclosure with recess for labeling plate and additional holes for cable glands

	No. of command points	Article No.
 Typical diagram	**Enclosure material plastic** Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221522)	
	1	3SU1801-0AA00-0UBy
	2	3SU1802-0AA00-0UB1
	3	3SU1803-0AA00-0UB1
	4	3SU1804-0AA00-0UB1
	6	3SU1806-0AA00-0UB1

y: 1 = gray; y: 2 = yellow

10.1.5 Mounting

The dimension drawings and drilling plans can be found under Dimension drawings in Chapter "Enclosure 3SU18 (Page 520)".



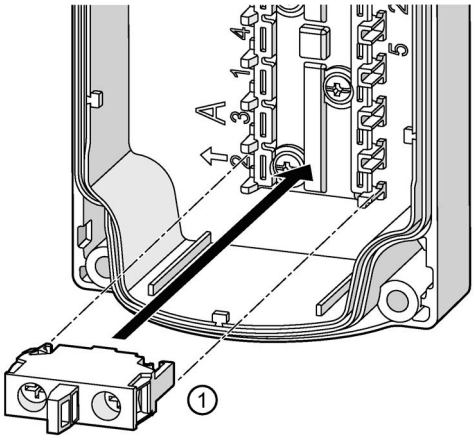
A	Enclosure cover
B	Labeling plates
C1	Actuating or signaling element (in this case: pushbutton)
C2	Actuating or signaling element (in this case: indicator light)
D	Holder
E	LED module
F	Contact modules
G	Enclosure base
H	Identification letters for the command points
I	Module position (identical to holder labeling)

Procedure

1. Undo the screws and remove the enclosure cover.
2. Insert the actuating or signaling element (C1) from the front through the opening of the enclosure cover (A).
3. Fit the holder (D) from behind onto the actuating or signaling element and lock it into place.
4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 ... 1.2 Nm).
5. Mount an LED module, if necessary. An LED module can only be installed in slot number 3 (e.g. A3, B3, C3 etc.).
6. Mount the contact module(s) in the enclosure base (see Chapter Fitting with contact modules and LED modules (Page 235) for this).
7. Mount the enclosure cover (see Chapter Mounting the enclosure cover (Page 242) for this).

10.1.5.1 Base mounting

Fitting with contact modules and LED modules



The contact modules and LED modules are mounted in the enclosure base.

To equip an enclosure, follow these steps:

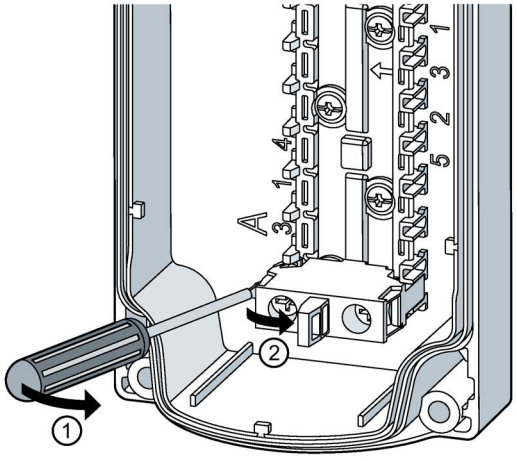
1. Snap the module ① onto a slot in the enclosure. The broad snap hook must be pointing in direction "A".

Refer also to the information on fitting in Chapter "Mounting positions (Page 229)".

Disassembling modules

Requirement

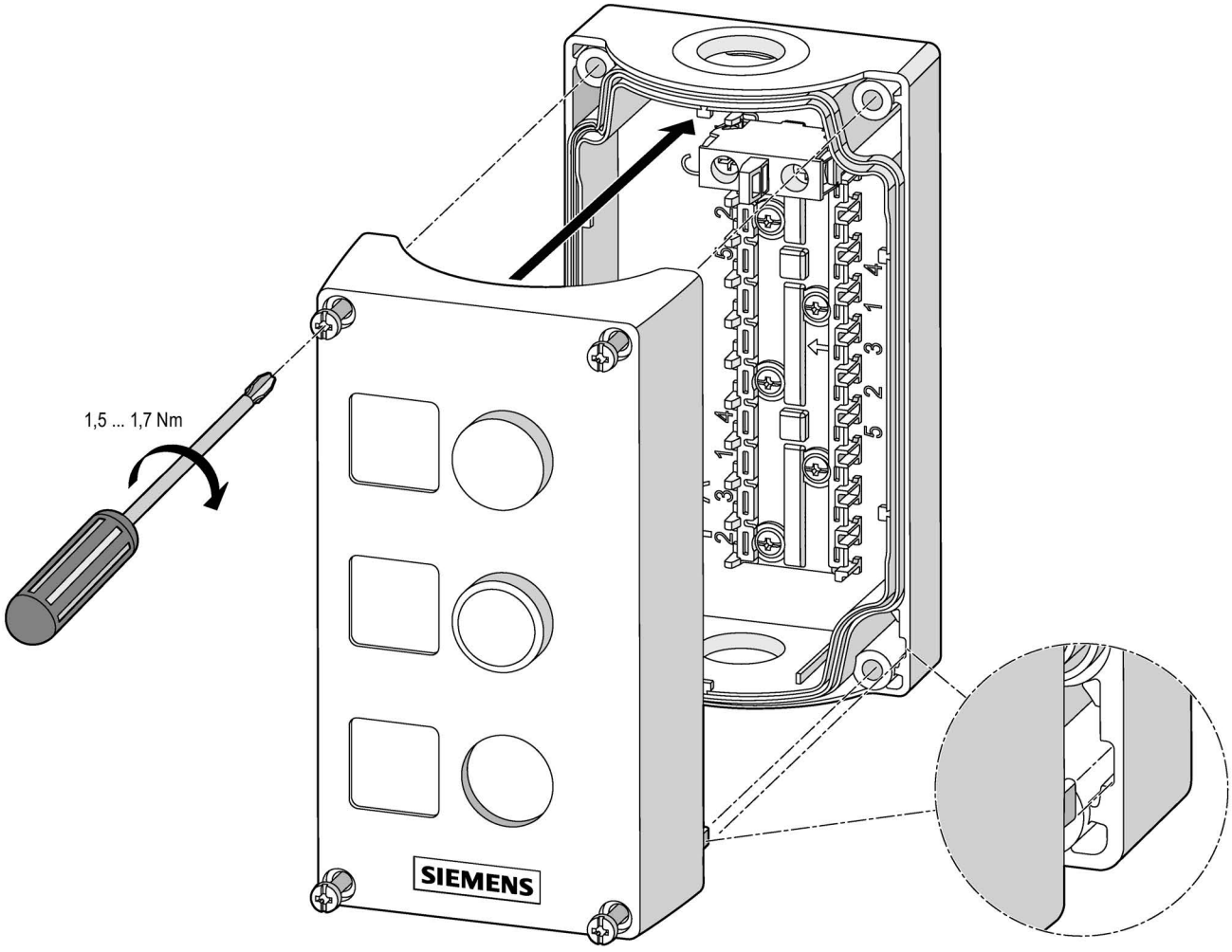
Enclosure cover is disassembled.



Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
2. Press the screwdriver in the direction of the module you want to remove to open the latches of the modules.
   Remove the modules.

Mounting the enclosure cover



Note

Pay attention to the proper position when mounting the enclosure cover. Only one position is possible, recognizable by the coding lugs at the bottom left and right in the enclosure.

10.1.5.2 Front plate mounting for enclosures

Front plate mounting for enclosures

The front plate mounting method for enclosures is described below. With enclosure mounting, only 1-pole modules can be mounted. Stacking of modules is not possible with enclosure mounting.

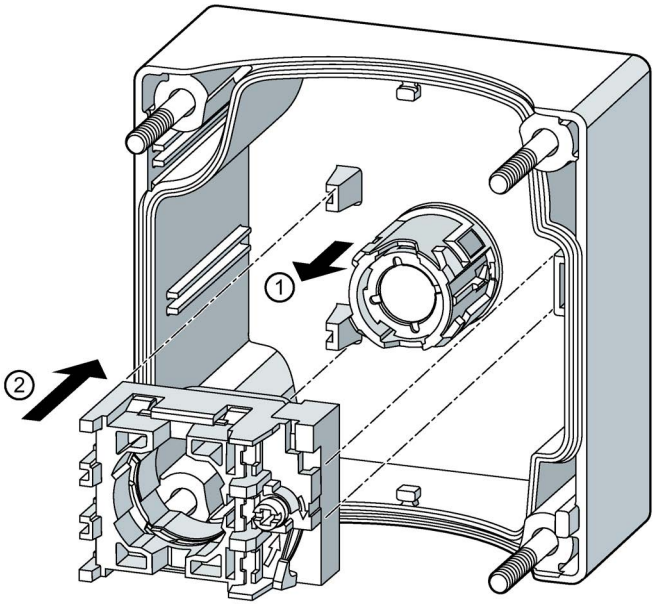
An adapter is available for the enclosure with 1 command point (article number: 3SU1900-0JF10-0AA0) to allow the installation of 2-pole contact modules. You will find additional information in the Chapter "Accessories for the enclosure (Page 441)".

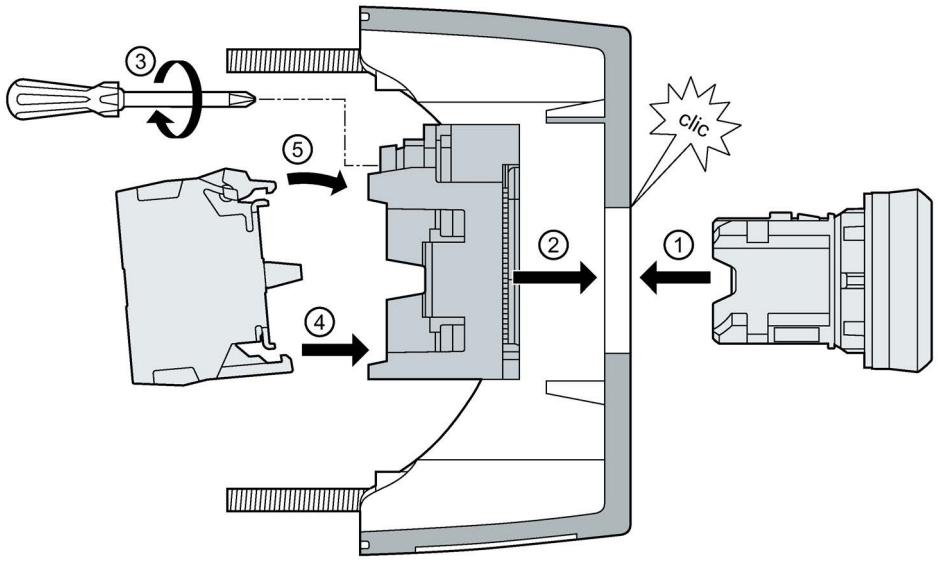
Requirement

The enclosure cover has been removed.

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU1) in front of the enclosure cover.
- A holder (3SU15) behind the enclosure cover.
- Contact modules and / or an LED module (3SU14) behind the enclosure cover.

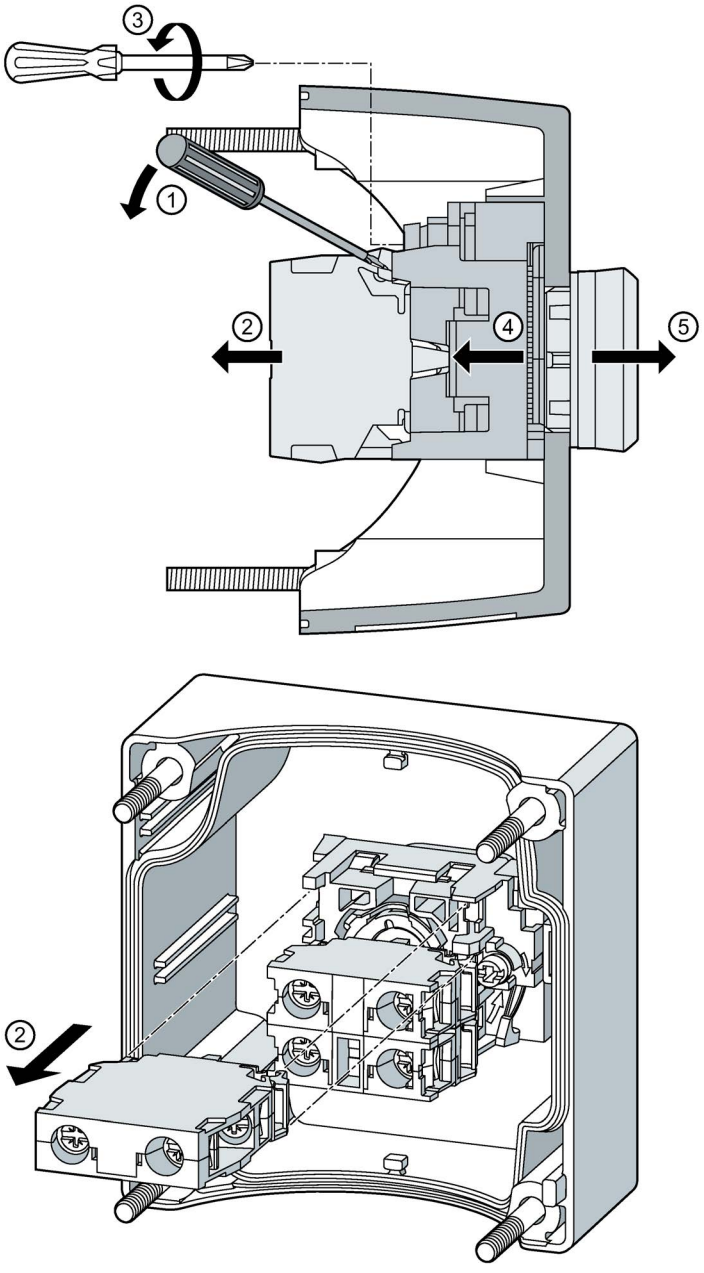




Procedure

1. Insert the actuating or signaling element from the front through the cut-out in the enclosure cover.
2. Fit the holder from behind (wiring side) onto the actuating or signaling element and latch it into place.
   The unit must be aligned before it is finally tightened and locked against twisting (see Chapter "Alignment" (Page 119)).
3. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).
4. Snap the contact module(s) from behind onto the holder. To do this, hold the modules so that they are tilted downwards slightly and place them onto the holder from behind and then press them upwards ⑤ until you feel the module latch in the holder.
   Fit an LED module (E) if required. You can mount the LED module on the holder only in position 3/6 (center position).

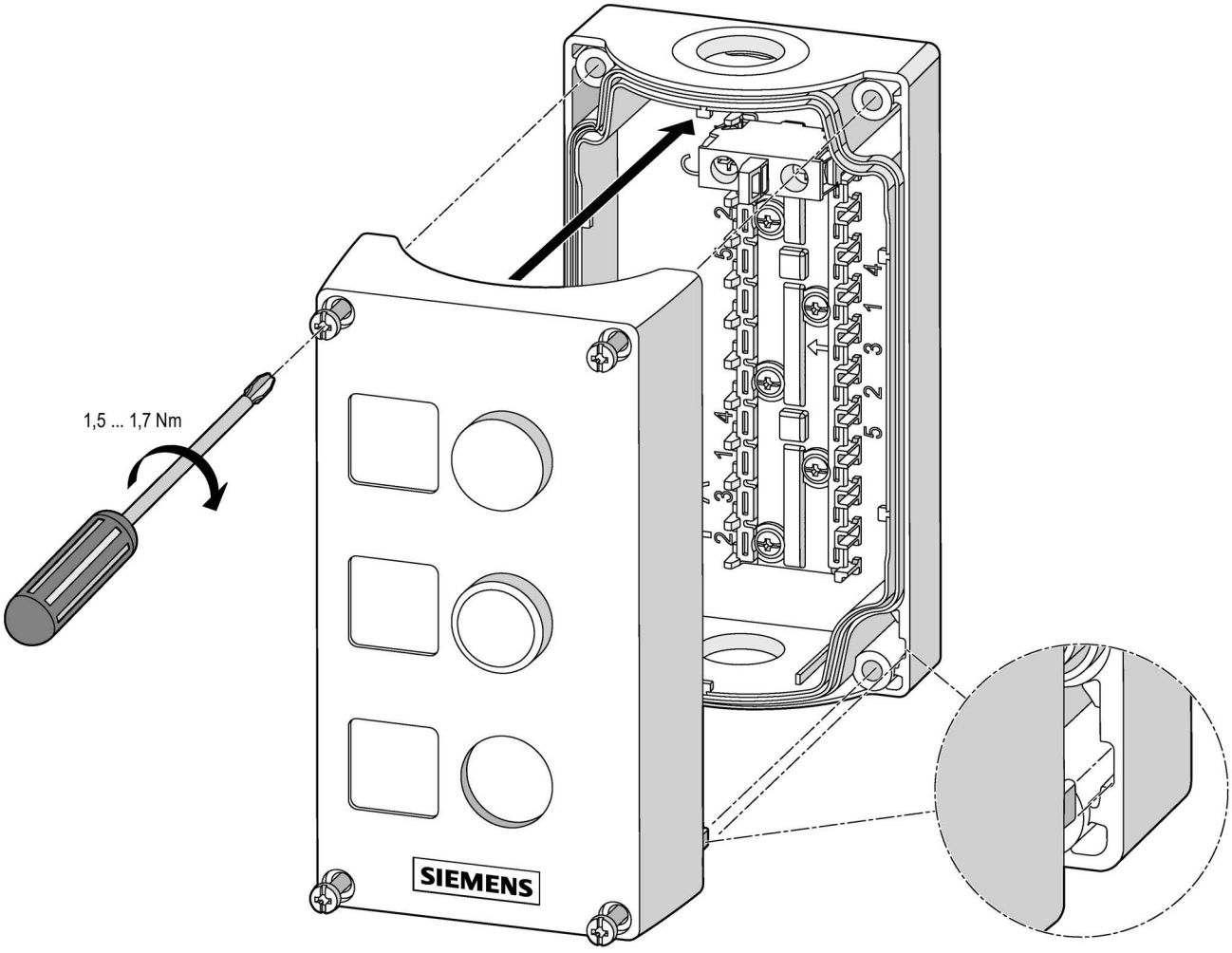
Dismantling front plate mounting on enclosures



Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
   Press the screwdriver down to open the module latches.
2. Remove the modules.
3. Open the fixing screw on the holder.
4. Unlock the holder.
   Move the holder backwards to detach it from the actuating or signaling element.
5. Remove the actuating or signaling element.

Mounting the enclosure cover



Note

Pay attention to the proper position when mounting the enclosure cover. Only one position is possible, recognizable by the coding lugs at the bottom left and right in the enclosure.

Front plate mounting of 4-slot holders for enclosure

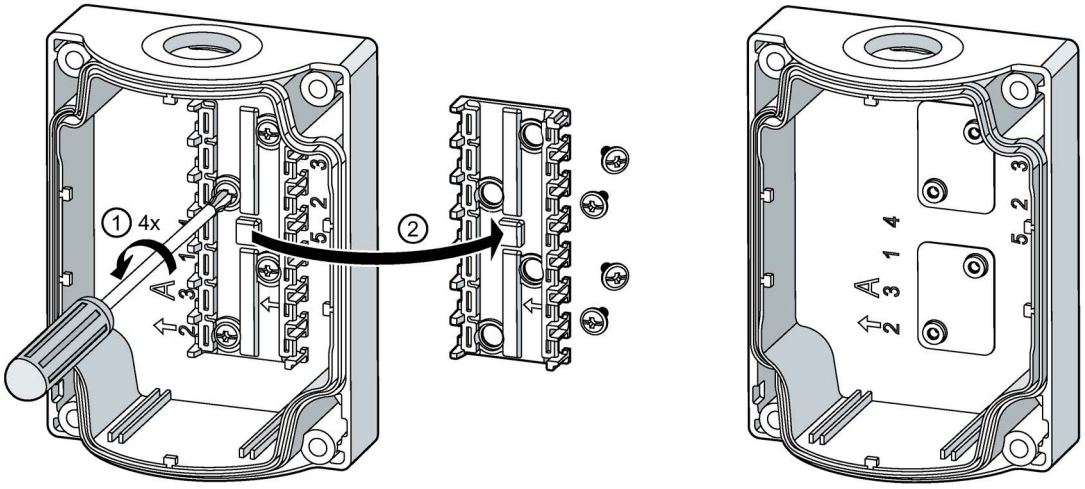
The front plate mounting method for enclosures is described below.

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU1) for use on 4-slot holders in front of the enclosure cover.
- A 4-slot holder (3SU15) for attachment behind the enclosure cover.
- Contact modules and / or LED module (3SU14) behind the enclosure cover.

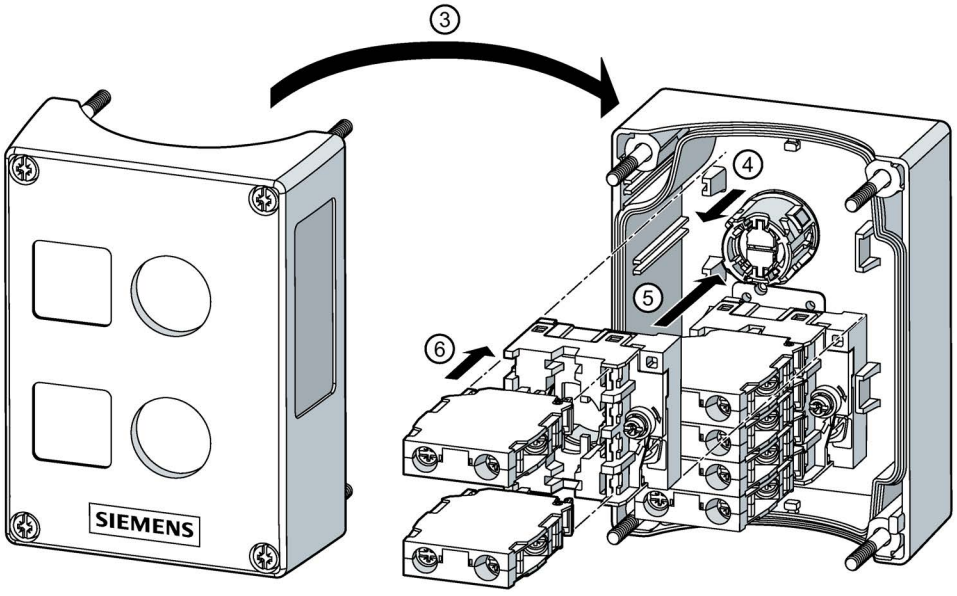
Preparation of the enclosure

1. Remove the enclosure cover.
2. Undo the screws of the base plate ①.



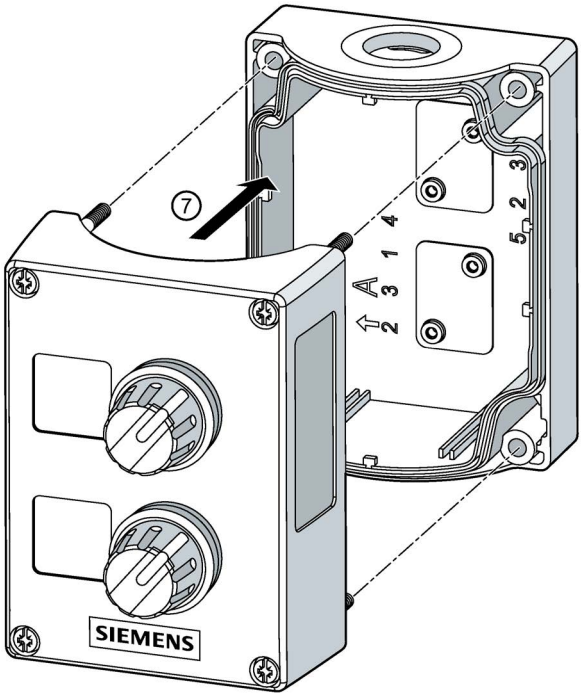
3. Remove the base plate ②.

Mounting procedure



1. Insert the actuating or signaling element for use on 4-slot holders from the front through the cut-out in the enclosure cover ④.
2. Fit the holder from behind (wiring side) onto the actuating or signaling element and latch it into place ⑤.
   The unit must be aligned before it is finally tightened and locked against twisting (see Chapter "Alignment" (Page 119)).
3. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (screwdriver according to DIN ISO 8764-1-PZ1; tightening torque 1.0 ... 1.2 Nm).

4. Snap the contact module(s) from behind onto the holder. To do this, hold the modules so that they are tilted downwards slightly and place them onto the holder from behind and then press them upwards ⑥ until you feel the module latch in the holder.
   Fit an LED module if required.
5. Attach the enclosure cover.

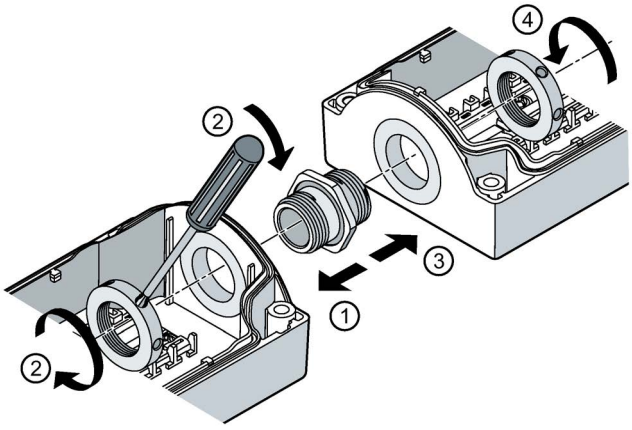


10.1.5.3 Mounting of connection pieces

Mounting plastic connection pieces

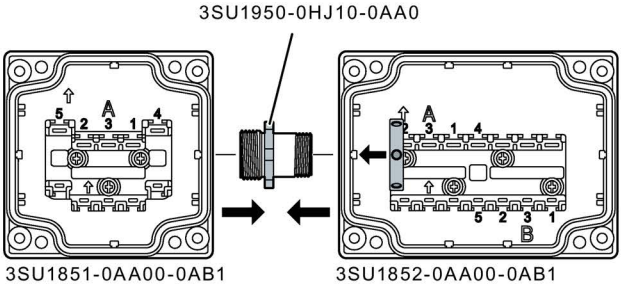


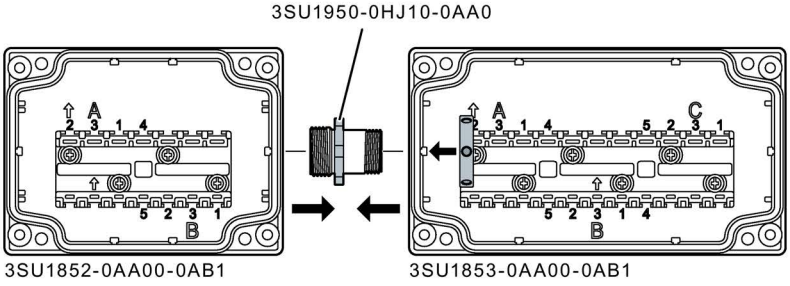
Procedure

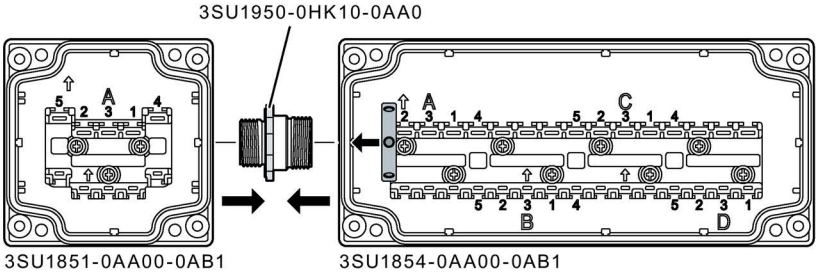


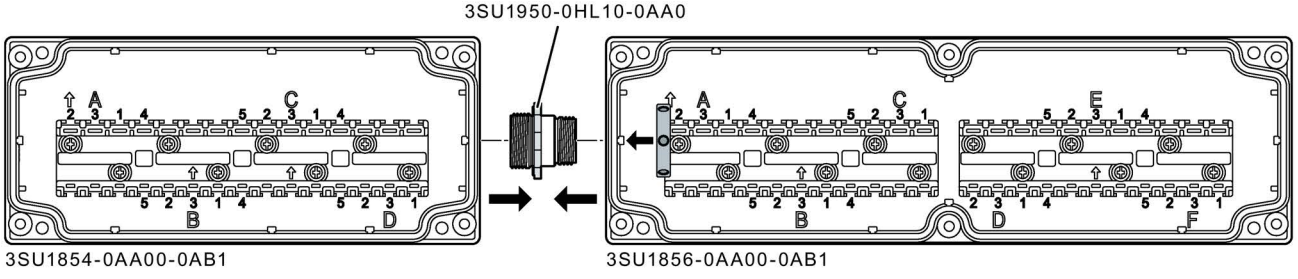
1. In the case of plastic enclosures, you must first break out the opening.
2. Insert the connection piece into the opening of the enclosure.
3. Screw the connection piece with a screwdriver.
4. Insert the connection piece into the opening of the second enclosure.
5. Screw the connection piece with a screwdriver.

Mounting metal connection pieces

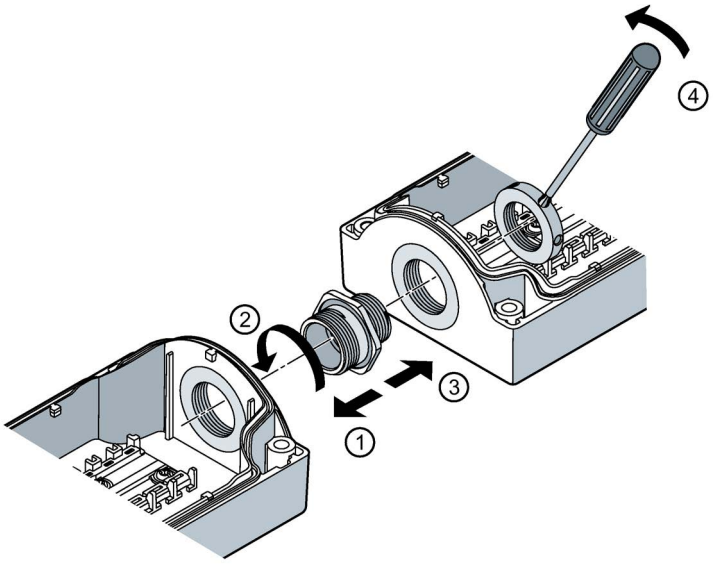






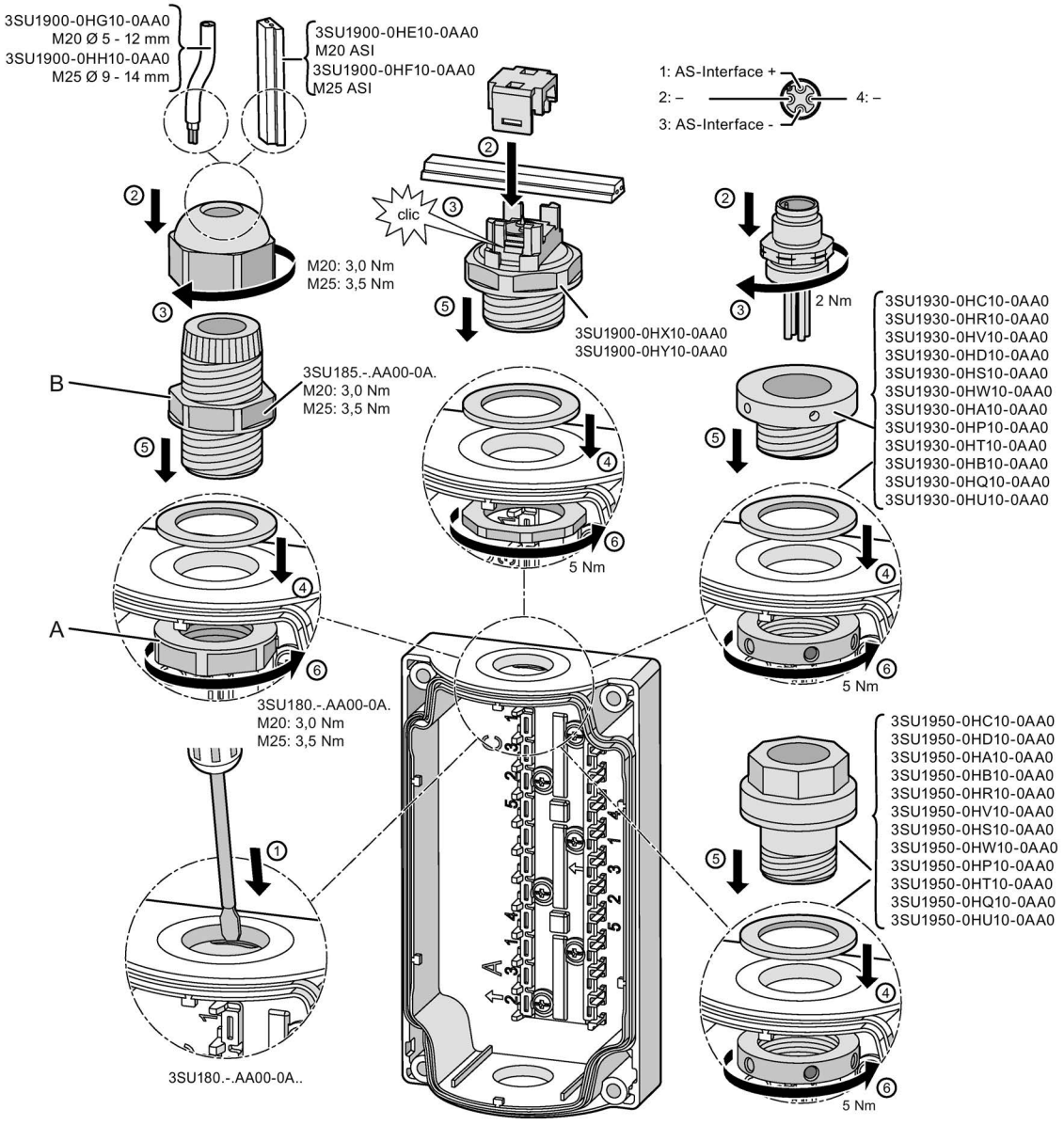


Procedure



1. Screw the connection piece into the enclosure. ①/②
2. Insert the connection piece into the opening of the second enclosure.
3. Screw the connection piece with a screwdriver.

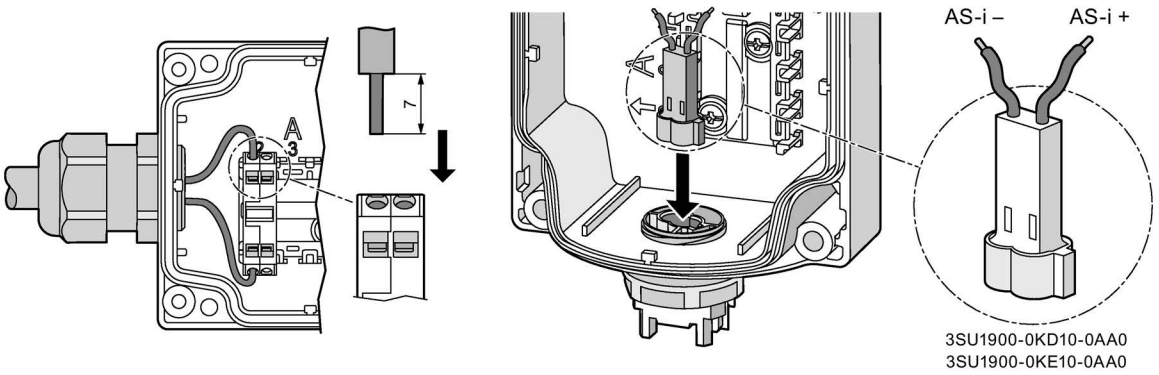
10.1.5.4 Mounting of screw glands for AS-Interface bus



Note the following information when installing the screw glands:

- Installation of screw glands in plastic enclosure (3SU180.-.AA0-0A.): The force of 3.0 or 3.5 Nm is applied by tightening and holding together the nut (A) and screw gland (B).
- Installation of screw glands in metal enclosure (3SU185.-.AA0-0A.): The force of 3.0 or 3.5 Nm is applied by screwing the screw gland (B) directly into the enclosure. The nut (A) is not an essential requirement. You can however screw the nut on for additional protection.

Connection to AS-Interface bus connection element



10.2 Enclosures with EMERGENCY STOP devices

EMERGENCY STOP according to ISO 13850

For control systems according to IEC 60204-1 or DIN EN 60204-1 (VDE 0113 Part 1), the EMERGENCY STOP mushroom pushbuttons of the 3SU1 series can be used as EMERGENCY STOP devices.

Safety circuits

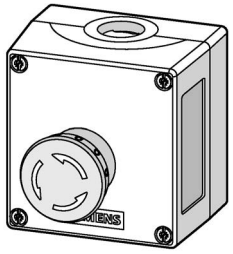
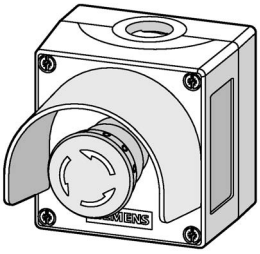
Standards IEC 60947-5-1 and EN 60947-5-5 require positive opening. With regard to personal protection, positive opening of normally closed contact elements in all safety circuits is expressly prescribed for the electrical equipment of machines and is designated according to IEC 60947-5-1 with the positive opening symbol ⊖.

With the EMERGENCY STOP mushroom pushbuttons, PL e according to ISO 13849-1 or SIL 3 according to IEC 62061 can be achieved if the corresponding fail-safe evaluation devices are selected and correctly connected. The 3SK safety relays, the 3RK3 Modular Safety System, or the corresponding devices from the ASIsafe, SIMATIC and SINUMERIK programs can be used as fail-safe evaluation devices.

10.2.1 Overview of enclosures with EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are certified according to ISO 13850/EN 418. The EMERGENCY STOP mushroom pushbutton enables fast and safe stopping of systems in dangerous situations. The metal version is suitable for use even in the harshest conditions.

EMERGENCY STOP devices can be connected directly via the standard AS-Interface with safety-related communication.

	Enclosure	**Enclosure with collar**
		
Material	**Article number**	
Plastic	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221523)	
	3SU1801-0NA00-2AA2	3SU1801-0NA00-2AC2
Metal	Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221523)	
	3SU1851-0NA00-2AA2	3SU1851-0NA00-2AC2

10.2.2 Palm pushbutton with EMERGENCY STOP function

The palm pushbuttons have an especially large operating surface. They can be operated with the flat of the hand, while wearing work gloves, or with the elbow. The respective contact modules for base mounting are included in the scope of supply of the palm pushbuttons. The palm pushbuttons are delivered completely assembled.

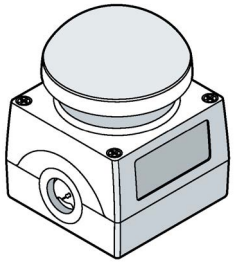
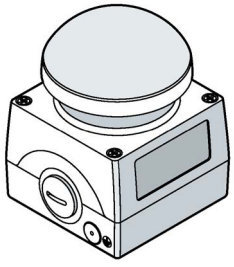
Using the palm pushbutton with EMERGENCY STOP function enables fast and safe stopping of systems in dangerous situations. The metal version is suitable for use even in the harshest conditions.

The cable entry is on the top or bottom of the enclosure front through a metric M20 cable gland (cable gland not included in the scope of supply).

You will find more information under 3SU14 modules in Chapter "Connecting (Page 216)".

Palm pushbutton actuator **red**:

- Emergency stop
- Latching
- Pull to unlatch

	Material	NC contact	NO contact	Article No.
Plastic				
 Typical diagram	• Actuator red • Enclosure yellow	1	1	3SU1801-2NG00-2AA2
Metal				
 Typical diagram	• Actuator red • Enclosure yellow	1	1	3SU1801-2NG00-2AA2

10.3 Enclosures with standard fittings

Enclosures (standard fittings) with pushbuttons and indicator lights are available in the following versions:

- 1 to 3 command points
- Operating voltage up to 500 V
- Vertical mounting type
- Contact modules and LED modules for base mounting (are snapped into the enclosure base); screw terminals as standard; some versions also with spring-type terminals

The enclosures have a recess for labeling plate(s). The color of the enclosure cover is gray, and the enclosure base is black.

Plastic version Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221523)				
No. of command points	**Fittings**	**Color of the actuating or signaling element**	**Label**	**Article No.**
1	Pushbuttons	Green	"I"	3SU1801-0AB00-2AB1
		Red	"O"	3SU1801-0AC00-2AB1
		White	"I"	3SU1801-0AD00-2AB1
		Black	"O"	3SU1801-0EB00-2AB1
2	Pushbuttons Pushbuttons	Red Green	"O" "I"	3SU1802-0AB00-2AB1
	Pushbuttons Pushbuttons	Black White	"O" "I"	3SU1802-0AC00-2AB1
3	Pushbuttons Pushbuttons Indicator lights	Red Green Clear	"O" "I" "Without inscription"	3SU1803-0AB00-2AB1
	Pushbuttons Pushbuttons Indicator lights	Black White Clear	"O" "I" "Without inscription"	3SU1803-0AC00-2AB1
	Pushbuttons Pushbuttons Pushbuttons	Red Black Black	"O" "I" "II"	3SU1803-0AD00-2AB1

Metal version Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221523)				
No. of command points	**Fittings**	**Color of the actuating or signaling element**	**Label**	**Article No.**
1	Pushbuttons	Green	"I"	3SU1851-0AB00-2AB1
		Red	"O"	3SU1851-0AC00-2AB1
		White	"I"	3SU1851-0AD00-2AB1
		Black	"O"	3SU1851-0EB00-2AB1
2	Pushbuttons Pushbuttons	Red Green	"O" "I"	3SU1852-0AB00-2AB1
	Pushbuttons Pushbuttons	Black White	"O" "I"	3SU1852-0AC00-2AB1
3	Pushbuttons Pushbuttons Indicator lights	Red Green Clear	"O" "I" "Without inscription"	3SU1853-0AB00-2AB1
	Pushbuttons Pushbuttons Indicator lights	Black White Clear	"O" "I" "Without inscription"	3SU1853-0AC00-2AB1
	Pushbuttons Pushbuttons Pushbuttons	Red Black Black	"O" "I" "II"	3SU1853-0AD00-2AB1

10.3.1 Palm pushbutton

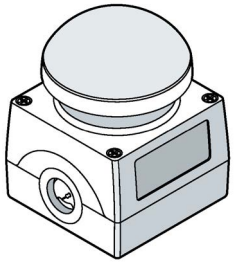
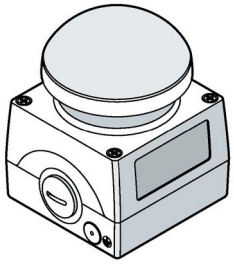
The palm pushbuttons have an especially large operating surface. They can be operated with the flat of the hand, while wearing work gloves, or with the elbow. The respective contact modules for base mounting are included in the scope of supply of the palm pushbuttons. The palm pushbuttons are delivered completely assembled.

The cable entry is on the top or bottom of the enclosure front by means of a metric M20 cable gland (cable gland not included in the scope of supply).

You will find more information under 3SU14 modules in Chapter "Connecting (Page 216)".

Palm pushbutton actuator **black**:

- Momentary contact

	Material	NC contact	NO contact	Article number
Plastic				
 Typical diagram	• Actuator black • Enclosure gray	0	1	3SU1801-2GA00-2AA1
Metal				
 Typical diagram	• Actuator black • Enclosure gray	0	1	3SU1851-2GA00-2AA1

10.3.2 Enclosures with standard fittings for AS-Interface

The enclosures with integrated AS-Interface are equipped with contact modules and LED modules with spring-type terminals from the SIRIUS ACT series as well as the slave(s) required for connecting the contact modules and LED modules to AS-Interface. The wiring is carried out at the factory. You only need to connect the enclosure to the ASi bus. For information, please refer to Chapter "Connecting (Page 289)".

Enclosures with standard fittings are available in the following versions:

- 1 to 3 command points
- Operational voltage through AS-Interface (approx. 30 V)
- Vertical mounting type
- Plastic enclosure with plastic actuating and signaling elements
- Metal enclosure with metal actuating and signaling elements

The enclosures without EMERGENCY STOP each have one A/B slave 4I/3O; the enclosures with EMERGENCY STOP mushroom pushbuttons have an AS-Interface F slave mounted in the enclosure.

For enclosures with EMERGENCY STOP mushroom pushbuttons, two NC contact modules are mounted inside the enclosure and wired to the safe F slave. The contact or LED modules of the pushbuttons as well as the AS-Interface slaves are secured by base mounting and connected via cables.

The plastic enclosures are designed with a connection for the AS-Interface flat cable (the cable is routed along the outside of the enclosure). For metal enclosures, the AS-Interface cable is run inside the enclosure (round cable connection).

Plastic version Siemens Industry Mall (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221524)				
No. of command points	**Fittings**	**Color of the actuating or signaling element**	**Label**	**Article No.**
1	EMERGENCY STOP mushroom pushbuttons	Red	Label without inscription	3SU1801-0NB10-4HB2
2	Pushbuttons Pushbuttons	Red Green	"O" "I"	3SU1802-0AB10-4HB1
	Pushbuttons Pushbuttons	Black White	"O" "I"	3SU1802-0AC10-4HB1
3	Pushbuttons Pushbuttons Indicator lights	Red Green Clear	"O" "I" Label without inscription	3SU1803-0AB10-4HB1

10.4 3SU18..-3 two-hand operation console

10.4.1 Application areas

Two-hand operation consoles, approved according to EN 574, are used for machines and systems with danger areas for the purpose of controlling the location of both hands of the operator. Through a simultaneous and location-controlled use of both hands, protection from dangerous movement in the danger area of the machine is ensured.

Two-hand operation consoles are used for the following safety requirements:

- Safety at presses and punches
- Safety at printing presses
- Safety at paper processing machines

10.4.2 Function

The synchronous and location-controlled operation using both hands occurs throughout the duration of the danger. Bypassing of the safety mechanism or accidental actuation, e.g., by elbows, arms or knees, is effectively prevented by protective collars over the actuating elements. The sloping shape of the top side enables ergonomic operation and working position. Expansion to include additional operator controls is possible.

The two-hand control device must be located outside the hazard zone in order to prevent the operator from entering the zone before the machine has reached a complete standstill.

The following properties must be provided for mobile two-hand control devices:

- Stability
- The safety distance must be maintained between the control actuating devices and the hazard zone
- In the case of adjustable control actuating devices, a latch must be available

The control command is given by pressing the two pushbuttons on the sides simultaneously (within 0.5 s of each other) and must be maintained for as long as a hazard exists.

Appropriate two-hand control devices from the 3SK1 Advanced device range are available for evaluating control commands.

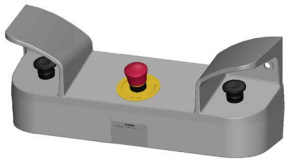
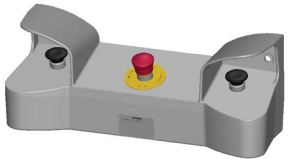
A function test must be carried out before commissioning. The following properties must be checked in the function test:

- Simultaneous actuation (use of both hands)
- Synchronous actuation (synchronism ≤ 500 ms)
- Relationship between input signals and output signals
- Renewed generation of the output signal

10.4.3 Overview of two-hand operation consoles

The two-hand operation consoles can be equipped with modules for front plate mounting or with sensor switches.
You can find information about the modules in section "Front plate mounting (Page 205)" of Chapter 3SU14 modules.
You can find information about sensor switches in section "Sensor switches" of Chapter 3SU12 compact units.

You can find further information about potential applications of two-hand operation consoles in Chapter "Application examples for two-hand operation consoles (Page 587)".

Two-hand operation consoles		Article No.
Plastic enclosure Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221525)		
	With standard fittings[1] and preset breaking points for 8 additional 22.5 mm pushbuttons, with knock-outs for metric cable glands	3SU1803-3NB00-1AE1
	Empty enclosure, unequipped	3SU1803-3AA00-0AA1
Metal enclosure Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221525)		
	With standard fittings[1]	3SU1853-3NB00-1AA1
	With standard fittings[1] and 4 additional holes for 22.5 mm pushbuttons	3SU1853-3NB00-1AD1
	Empty enclosure, unequipped	3SU1853-3AA00-0AA1
	Empty enclosure with 4 holes for 22.5 mm pushbuttons	3SU1853-3AA00-0AD1

[1] The standard fittings comprise:

- Two black mushroom pushbuttons, Ø 40 mm, 1NO + 1NC,
  Article No. 3SU1000-1BD10-0AA0 (plastic) or 3SU1050-1BD10-0AA0 (metal)
- One red EMERGENCY STOP mushroom pushbutton according to EN ISO 13850, diameter 40 mm, with positive latching, 2NC,
  Article No. 3SU1000-1HB20-0AA0 (plastic) or 3SU1050-1HB20-0AA0 (metal)

10.4.4 Stands for two-hand operation consoles

The two-hand operation consoles can be mounted on the stand.
For information on mounting the two-hand operation consoles on the stand, refer to Chapter "Mounting on stand (Page 264)".

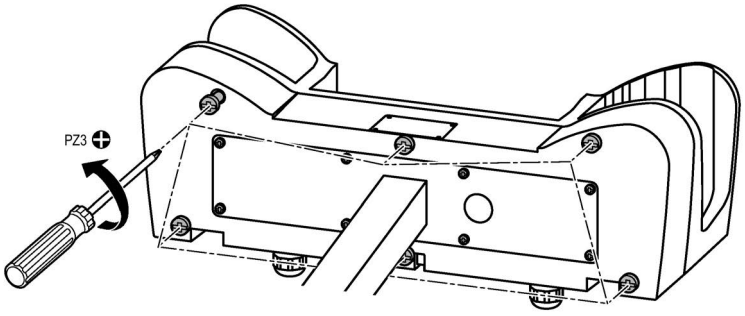
Stands for two-hand operation consoles		Article No.
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221536)		
	With knock-outs for metric cable glands	3SU1950-0HN10-0AA0

10.4.5 Mounting

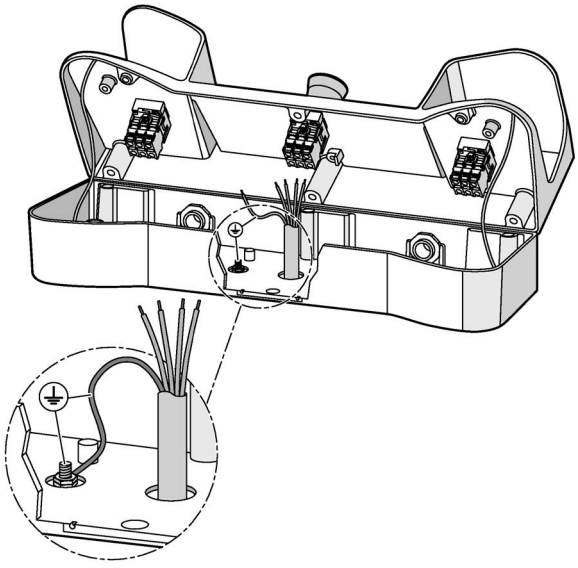
It is possible to mount the two-hand operator consoles both on the associated stands and directly on the machine via the back panel drill holes.
The dimension drawings and drilling plans can be found under Dimension drawings in Chapter "Two-hand operator console (Page 536)".

10.4.5.1 Installation and wiring of two-hand operation console

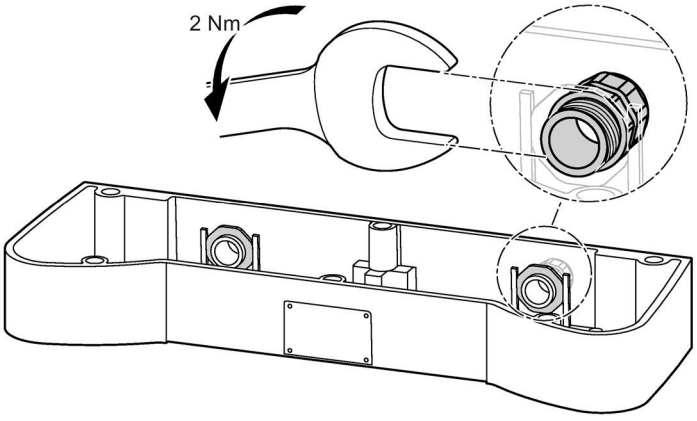
1. Unscrew the cover on the bottom of the two-hand operation console.



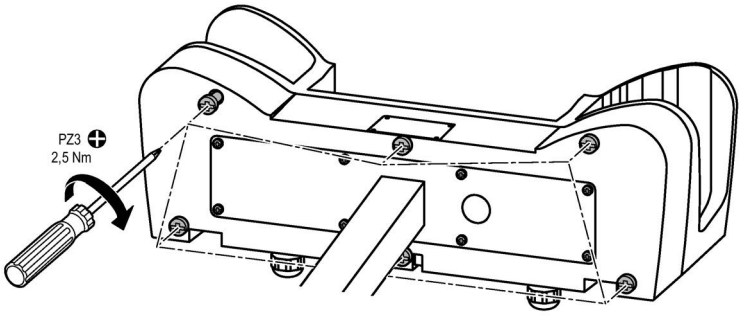
2. Wire and ground the two-hand operation console. The diagram shows a typical grounding arrangement for a two-hand operation console mounted on a stand. You can find information on fitting and wiring with modules in Chapter "3SU14 modules (Page 173)"



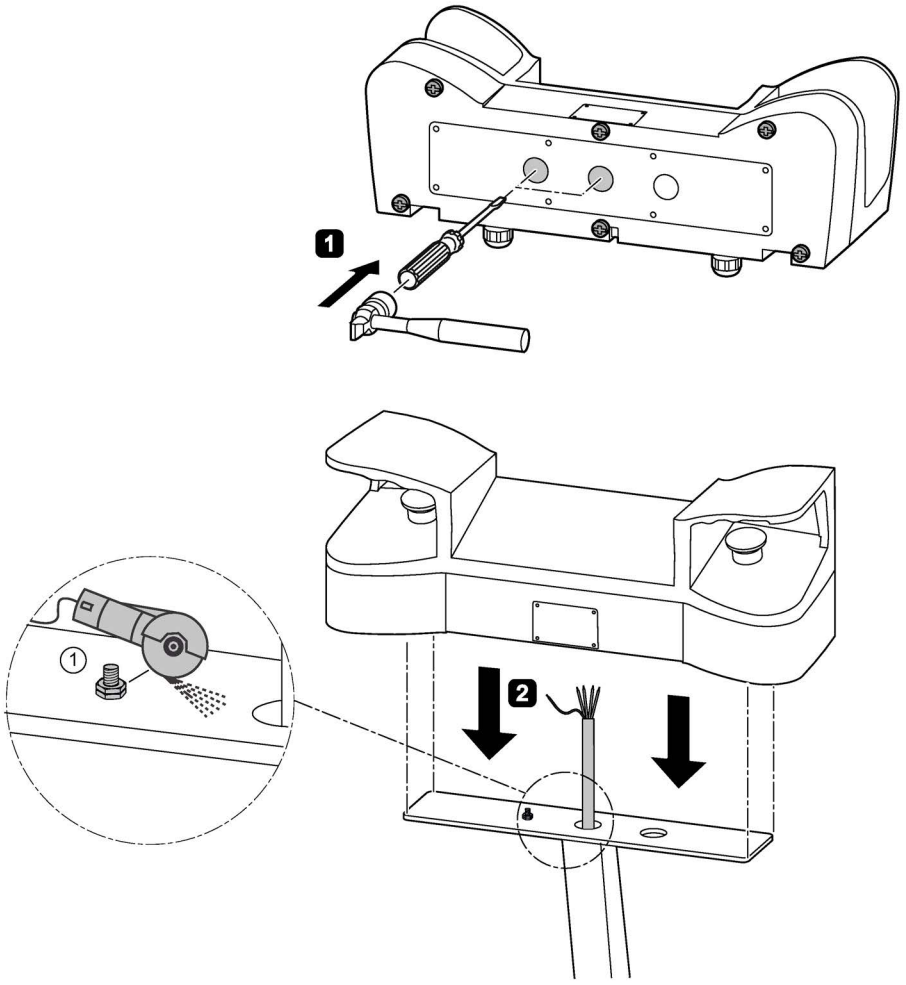
3. Fit the cable gland (optional step)



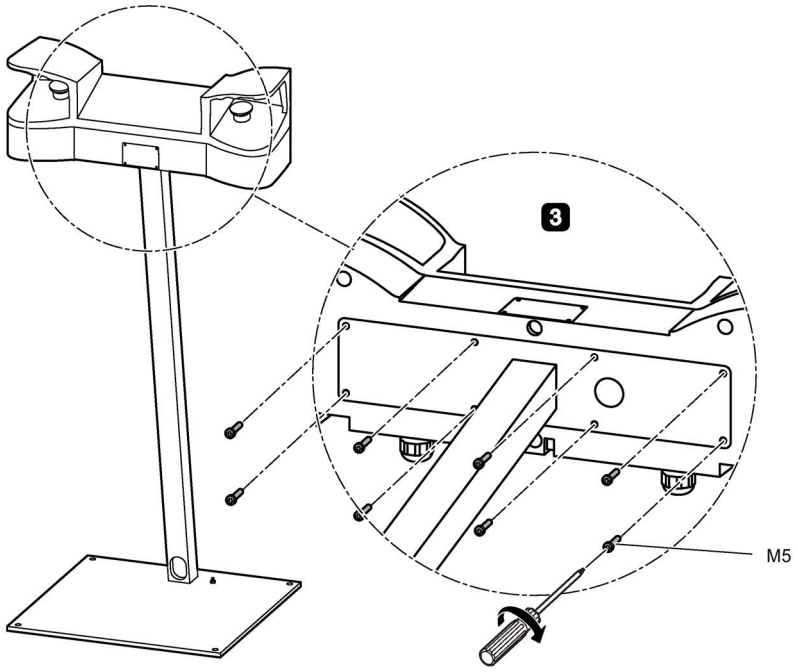
4. Screw on the cover.



10.4.5.2 Mounting on stand



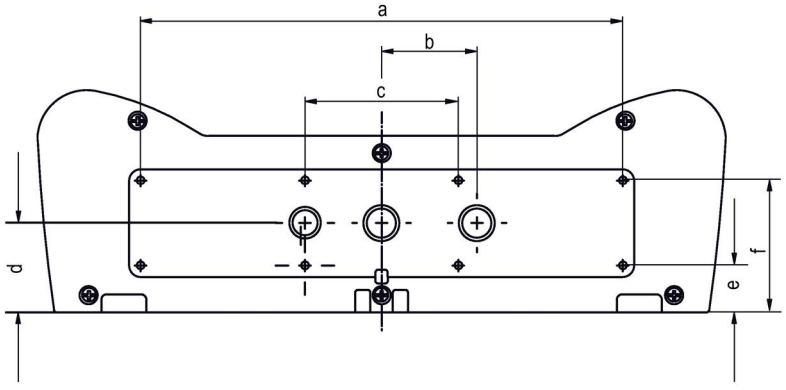
① When mounting the 3SU1803-3NB00-1AE1 plastic enclosure on the stand, the grounding stud on the stand must be removed.



Tightening torque: 1.5 ... 2 Nm

Dimensions for stator mounting

Article No.	a	b	c	d	e	f
3SU1803-3AA00-0AA1 3SU1853-3AA00-0AA1	346	68.5	110	64.1	33.6	94.6



10.4.6 Equipment

The two-hand operation consoles are pre-equipped with 3SU1 pushbuttons. In the case of plastic enclosures the command points are equipped as standard with actuators and indicators made of plastic, in the case of metal enclosures they are equipped with actuators and indicators made of metal.

The standard fittings are:

- Two black mushroom pushbuttons, Ø 40 mm, 1NO + 1NC,
  Article No. 3SU1000-1BD10-0AA0 or 3SU1050-1BD10-0AA0
- One red EMERGENCY STOP mushroom pushbutton according to EN ISO 13850, diameter 40 mm, with positive latching, 2NC,
  Article No. 3SU1000-1HB20-0AA0 or 3SU1050-1HB20-0AA0

An unequipped enclosure with 8 additional holes made of plastic is available, as is a metal enclosure with 4 additional holes.

Depending on customer requirements, up to 8 command points can be retrofitted in the plastic enclosure, and up to 4 command points in the metal enclosure. The surface of the console has premachined breaking points for this purpose.

AS-Interface 3SU14

11

11.1 Application areas

With AS-Interface modules, distributed pushbuttons from the SIRIUS ACT range can be connected to the AS-Interface bus system. With the help of the modular system, you can assemble your own enclosures with integrated AS-Interface or flexibly modify existing enclosures.

AS-Interface modules are used as the basis for networked systems within a plant. The individual AS-Interface components are fully compatible with one another and can be operated jointly on the yellow AS-Interface cable.

The following solutions are available:

- AS-Interface modules for front plate mounting (Page 269)
- AS-Interface modules for base mounting (Page 272)
- AS-Interface enclosures with 1 to 3 command points (Page 273)

Further information on AS-I Power 24 V can be found on the Internet (https://support.industry.siemens.com/cs/ww/en/view/42806066).

11.1.1 Application area of the AS-Interface modules

AS-Interface safety module (F slave)

Installed in a standard enclosure, the AS-Interface safety module is used for detecting safety-related switching statuses of one- or two-channel EMERGENCY STOP actuators with isolated contact elements. For this purpose, a code table with 8x4 bits is transferred via the AS-Interface bus and evaluated by the safety monitor. When operated properly, the system fulfills safety category 4 according to EN 13849-1. If an EMERGENCY STOP actuator is queried on just one channel (terminals for F-IN2 jumpered by means of wire), the system fulfills a maximum of safety category 2.

In accordance with IEC 61508, the module can be used in loops up to SIL 3. The PFD value of the entire loop must be calculated by the user.
You can find help and support for calculating at: Safety Evaluation Tool (http://www.industry.siemens.com/topics/global/en/safety-integrated/machine-safety/safety-evaluation-tool/Pages/default.aspx)

AS-Interface standard modules (slave 4I/4O and A/B slave 4I/3O)

Mounted in a 3SU1 enclosure, the AS-Interface module modules 4I/4O and 4I/3O can query 4 mechanical contacts. The AS-Interface module 4I/4O also enables control of 4 indicator lights, while the module 4I/3O enables control of 3 indicator lights. The power required is supplied by the AS-Interface system. In conjunction with an A/B-compatible AS-Interface master, up to 62 x 4I/3O modules can be operated in one AS-Interface network.

11.1.2 Application areas for AS-Interface modules for front plate mounting

The AS-Interface modules for front plate mounting are used to connect an EMERGENCY STOP device from the SIRIUS ACT series to the AS-Interface bus system according to ISO 13850. The modules for front plate mounting are suitable for pushbuttons with front plate mounting.

The AS-Interface modules for front plate mounting have a safe AS-Interface slave 2I and are snapped onto the holder from behind.

The expanded version 2I/1O includes an output for controlling a signaling element with LED.

Depending on the version, the connection to the AS-Interface bus cable is by means of screw terminals, spring-loaded terminals or insulation displacement method. Addressing is performed using the AS-Interface connection or the integrated addressing socket.

With the modules for front plate mounting, applications up to SILCL 3 as per IEC 62061, SIL 3 as per IEC 61508 and PL e (Cat. 4) as per ISO 13849-1 can be implemented depending on the connection of evaluation unit and actuators.

11.2 ASIsafe F adapters for front plate mounting

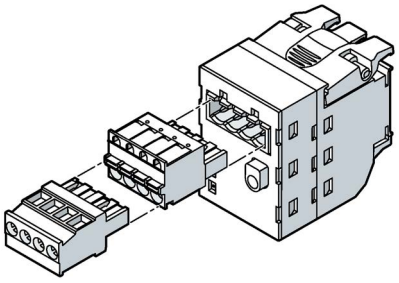
With ASIsafe F adapters, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. ASIsafe F adapters for front plate mounting are installed on the rear face of a holder.

You will find more information in Chapter "Mounting (Page 111)".

AS-Interface EMERGENCY STOP according to ISO 13850

Via the standard AS-Interface with safety-related communication, EMERGENCY STOP devices according to ISO 13850 can be directly connected using the AS-Interface modules.

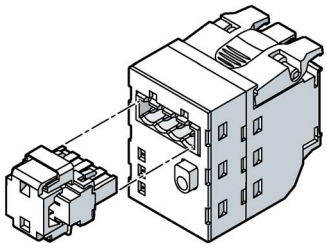
AS-Interface modules, screw terminals + spring-type terminals



Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI	—	2	—	3SU1400-1EA10-2AA0
2 F-DI + 1 LED	—	2	1 for activating the red LED (LED not replaceable)	3SU1401-1EE20-2AA0
2 F-DI + 1 DO	—	2	1 unassigned	3SU1400-1EC10-2AA0

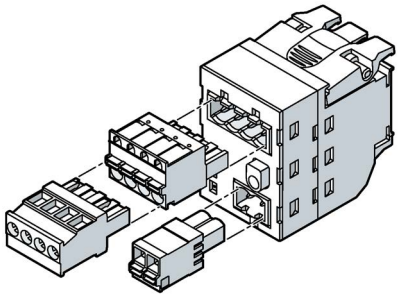
AS-Interface modules, insulation piercing method



Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI	—	2	—	3SU1400-1EA10-4AA0
2 F-DI + 1 LED	—	2	1 for activating the red LED (LED not replaceable)	3SU1401-1EE20-4AA0

AS-Interface modules, spring-type terminals + insulation piercing method

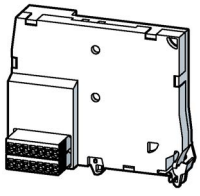


Typical diagram

Slave type	Number of digital inputs		Number of digital outputs	Article No.
	Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)				
2 F-DI + 1 DO	—	2	1 unassigned	3SU1400-1EC10-4AA0

11.3 AS-Interface modules for front plate mounting

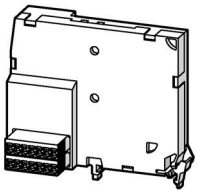
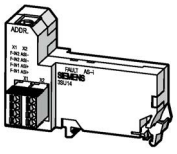
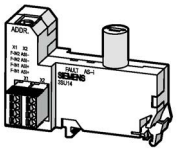
With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. AS-Interface modules for front plate mounting are installed directly on the rear face of a holder. The AS-Interface modules are not stackable.

	Slave type	Number of digital inputs		Number of digital outputs	Article No.
		Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221528)					
	4 DI / 4 DQ	4	—	4	3SU1400-1EK10-6AA0
	4 DI / 3 DQ AB	4	—	3	3SU1400-1EJ10-6AA0

11.4 AS-Interface modules for base mounting (enclosure mounting)

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. The AS-Interface modules for base mounting are installed in 3SU18 enclosures. On enclosures with raised cover (Article No.: 3SU180(5)1-1AA00-0AA1) base mounting is not envisaged.

AS-Interface modules with push-in terminal

	Slave type	Number of digital inputs		Number of digital outputs	Article No.
		Standard inputs	Fail-safe inputs		
Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251009)					
	4 DI / 4 DQ	4	—	4	3SU1400-2EK10-6AA0[1)]
	4 DI / 3 DQ AB	4	—	3	3SU1400-2EJ10-6AA0[1)]
	2F-DI	—	2	—	3SU1400-2EA10-6AA0[2)]
	2F-DI/1LED	—	2	1 for activating the LED (LED not replaceable)	3SU1401-2EE20-6AA0[2)] (red LED) 3SU1401-2EE60-6AA0[2)] (white LED)

[1)] Cannot be mounted in enclosure with 1 command point (3SU18.2-0AA00-0AB. / 3SU18.3-0AA00-0AB. / 3SU18.4-0AA00-0AB. / 3SU18.6-0AA00-0AB.)

[2)] Can be mounted in all enclosures with recess for labeling positions

11.5 Enclosure with standard equipment for AS-Interface

The enclosures with integrated AS-Interface are equipped with contact modules and LED modules with spring-loaded terminals from the SIRIUS ACT series as well as the slave(s) required for connecting the contact modules and LED modules to AS-Interface. The wiring is carried out at the factory. You only need to connect the enclosure to the ASi bus. For information, please refer to Chapter "Connecting (Page 289)".

Enclosures with standard fittings are available in the following versions:

- 1 to 3 command points
- Operational voltage through AS-Interface (approx. 30 V)
- Vertical mounting type
- Plastic enclosure with plastic actuating and signaling elements
- Metal enclosure with metal actuating and signaling elements

The enclosures without EMERGENCY STOP each have one A/B slave 4I/3O; the enclosures with EMERGENCY STOP mushroom pushbuttons have an AS-Interface F slave mounted in the enclosure.

For enclosures with EMERGENCY STOP mushroom pushbuttons, two NC contact modules are mounted inside the enclosure and wired to the safe F slave. The contact or LED modules of the pushbuttons as well as the AS-Interface slaves are secured by base mounting and connected via cables.

The plastic enclosures are designed with a connection for the AS-Interface flat cable (the cable is routed along the outside of the enclosure). For metal enclosures, the AS-Interface cable is run inside the enclosure (round cable connection).

Plastic version Siemens Industry Mall (http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221524)				
No. of command points	**Fittings**	**Color of the actuating or signaling element**	**Label**	**Article number**
1	EMERGENCY STOP mushroom pushbuttons	Red	Label without inscription	3SU1801-0NB10-4HB2
2	Pushbuttons Pushbuttons	Red Green	"O" "I"	3SU1802-0AB10-4HB1
	Pushbuttons Pushbuttons	Black White	"O" "I"	3SU1802-0AC10-4HB1
3	Pushbuttons Pushbuttons Indicator lights	Red Green Clear	"O" "I" Label without inscription	3SU1803-0AB10-4HB1

11.5.1 Equipping with AS-Interface modules by the customer

Self-equipping of enclosures

The following slave types are available for connecting the actuating and signaling elements:

- **AS-Interface A/B slave** with 4 inputs and 3 outputs (4I/3O AB)
- **AS-Interface slave** with 4 inputs and 4 outputs (4I/4O)
- **AS-Interface F slave** with 2 safe inputs for EMERGENCY STOP (2F-DI & 2F-DI/ 1LED)

The following table shows the maximum number of slaves possible:

Enclosure for	Number of AS-i slaves for enclosures without EMERGENCY STOP	Number of AS-i slaves for enclosures with EMERGENCY STOP
1 command point	Not possible	• 1 x F slave[1)]
2 command points	• 1 x slave 4I/4O or 4I/3O	• 1 x slave 4I/4O or 4I/3O
3 command points	• 2 x slave 4I/4O or 4I/3O	• 2 x slave 4I/4O or 4I/3O[2)] or • 1 x 4I/4O or 4I/3O + 1 x F slave
4 command points	• 3 x slave 4I/4O or 4I/3O	• 2 x slave 4I/4O or 4I/3O[2)] or • 2 x 4I/4O or 4I/3O + 1 x F slave
6 command points	• 4 x slave 4I/4O or 4I/3O	• 3 x slave 4I/4O or 4I/3O[2)] or • 2 x 4I/4O or 4I/3O + 1 x F slave

1) With recess for a labeling plate

2) EMERGENCY STOP conventionally wired

Notes on installation

- The maximum current with which the enclosures with contact modules may be equipped is 100 A. For example, 10 contact modules at 10 A.
- With the AS-Interface F slave modules, the (neighboring) contact modules immediately next to the module may only be used for the inputs of the AS-i module.

11.6 Mounting and disassembly of the AS-Interface modules for front plate mounting

11.6.1 Installation options

The tables below show the options for mounting AS-Interface modules for front plate mounting on the holder.

One AS-Interface module can be mounted for each holder.

It is not possible to mount AS-Interface modules for front plate mounting in combination with an EMERGENCY STOP mushroom pushbutton (not illuminable or illuminable).
ASIsafe F adapters for front plate mounting must be used with EMERGENCY STOP mushroom pushbuttons. You will find information in Chapter "ASIsafe F adapters for front plate mounting (Page 269)".

Mounting possibilities on 3-slot holder

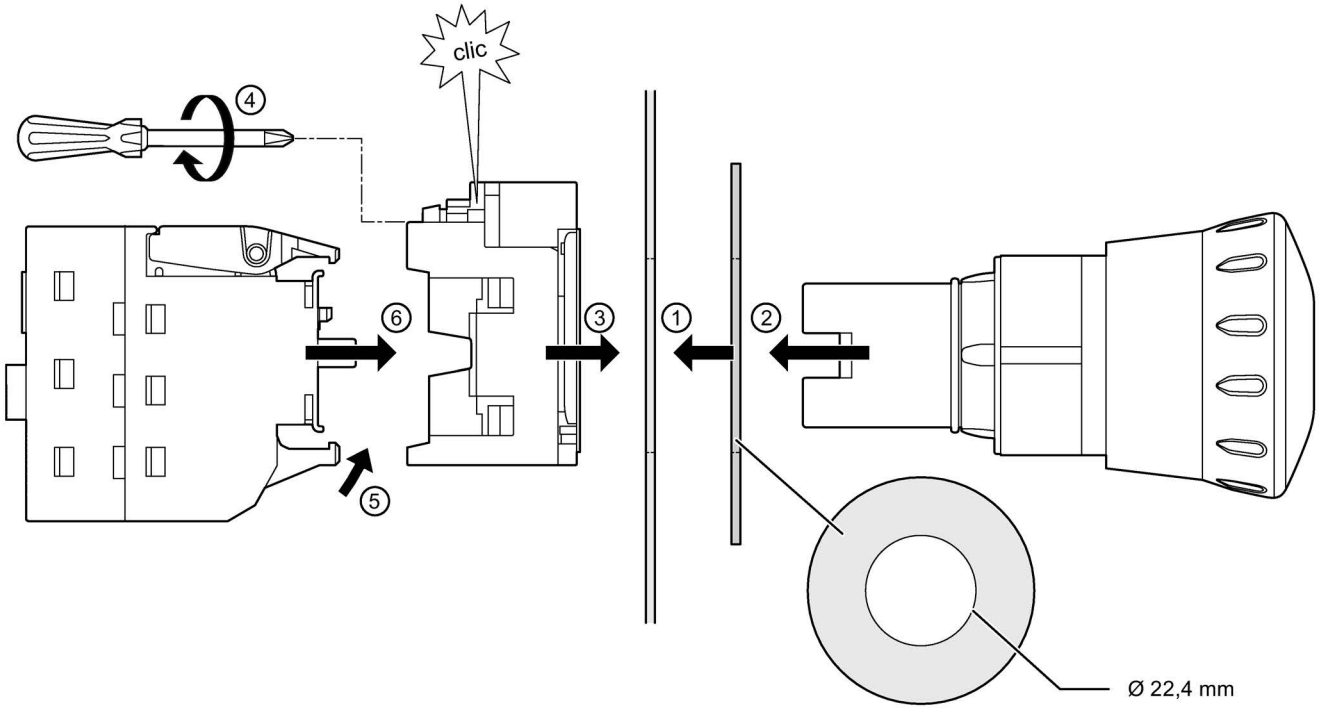
3SU10 devices for 3-slot holder	Holder position 1	Holder position 3	Holder position 2
Pushbuttons / mushroom pushbuttons	x	x	x
Pushbuttons / mushroom pushbuttons, illuminable	x	-	x
STOP pushbutton	x	x	x
Twin pushbuttons	-	x	-
Twin pushbuttons, illuminable	-	-	-
Selector switches, 3 positions	-	x	-
Selector switches, 3 positions, illuminable	-	-	-
Selector switches, 2 positions	x	x	x
Selector switches, 2 positions, illuminable	x	-	x
Selector switches, 3 positions	-	x	-
Key-operated switches, 2 positions	x	x	x
Key-operated switches with monitoring, 3 positions	x	-	x
Indicator lights	x	-	x
Indicator lights with locked handle	x	-	x
Toggle switches	x	x	x
ID key-operated switches	-	-	-
3SU12 compact units			
Indicator lights, compact	-	-	-
Acoustic signaling devices	-	-	-
Pushbuttons with extended stroke	-	-	-
Potentiometers	-	-	-
Sensor switches	-	-	-
Accessories			
Sealing plug	x	x	x
USB adapter	-	-	-
RJ45 adapter	-	-	-

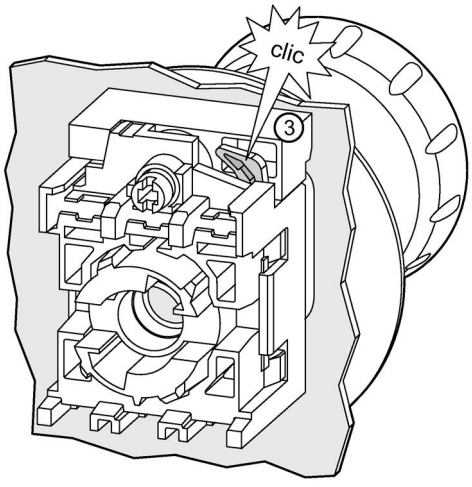
Mounting possibilities on 4-slot holder

3SU10 devices for 4-slot holder	Holder position 1	Holder position 2	Holder position 4	Holder position 3
Coordinate switches, top/bottom	x	-	-	x
Coordinate switches, right/left	-	x	x	-
Coordinate switches, right/left/top/bottom	-	-	-	-
Selector switches, 4 switch positions	-	-	-	-

11.6.2 Mounting

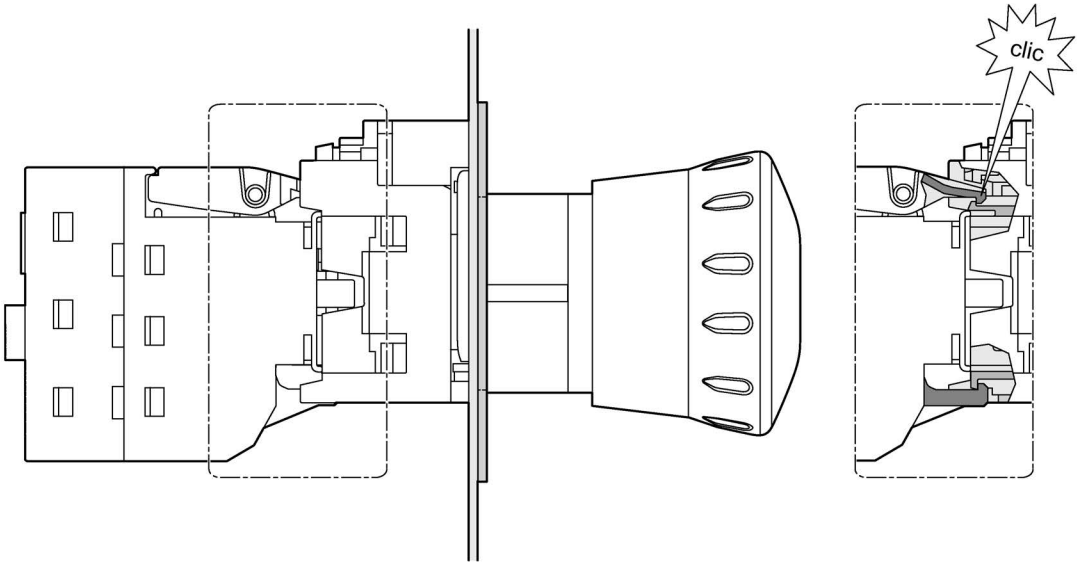
Installing AS-Interface modules for front plate mounting (3SU140.-1E..0-2AA0, 3SU140.-1E..0-4AA0)





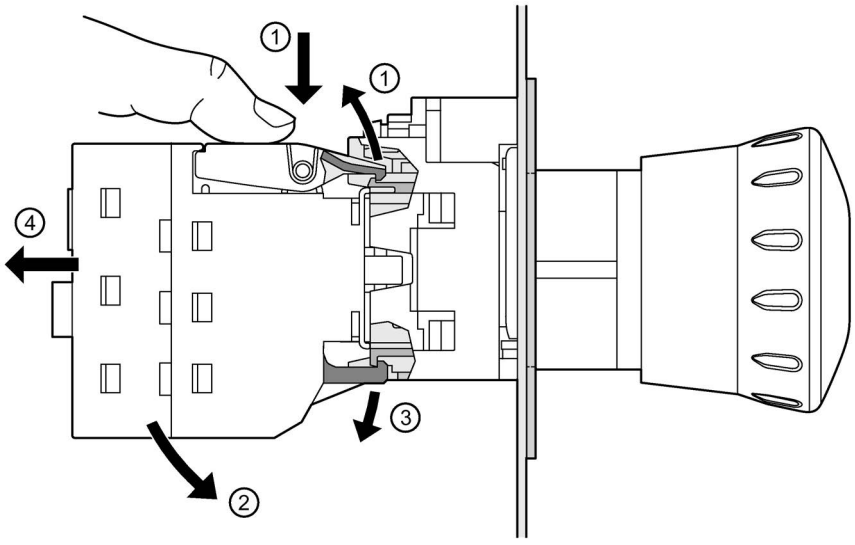
Procedure

1. Hold the EMERGENCY STOP backing plate onto the front plate.
2. Insert the EMERGENCY STOP mushroom pushbutton from the front through the opening of the EMERGENCY STOP backing plate and the front plate.
3. Fit the holder from behind. Ensure secure latching here.
4. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
5. Snap the AS-i module for front plate mounting from behind onto the holder.



Ensure the AS-i module for front plate mounting is securely snapped into place.

11.6.3 Removal



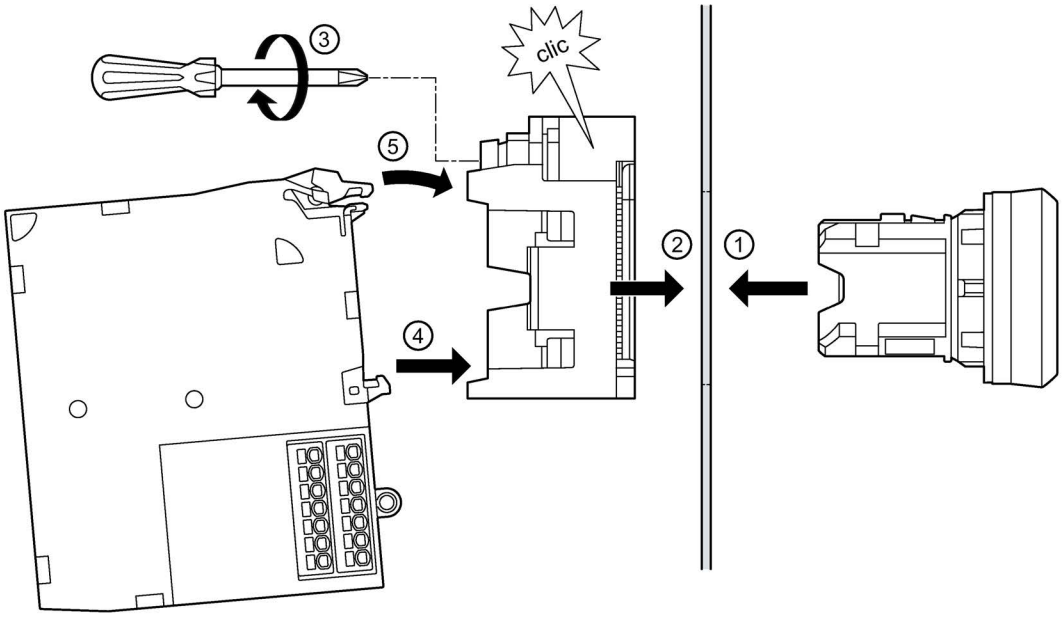
Procedure

1. Press the lever of the AS-i module for front plate mounting down. The AS-i module is unlatched.
2. Move the AS-i module down.
3. Unlatch the AS-i module.
4. Remove the AS-i module backwards from the holder.

11.7 Mounting and disassembling AS-Interface modules (3SU1400-1E.10-6AA0)

Mounting

Installing AS-Interface modules for front plate mounting (3SU1400-1E.10-6AA0)



Procedure

1. Insert the actuating or signaling element from the front into the opening of the front plate.
2. Fit the holder from behind. Ensure secure latching here.
3. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
4. Snap the AS-i module for front plate mounting from behind onto the holder.
   Ensure the AS-i module for front plate mounting is securely snapped into place.

Disassembly

The AS-Interface modules for front plate mounting (3SU1400-1E.10-6AA0) are disassembled in the same way as the 3SU14 contact and LED modules.

Procedure:

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the module.
2. Press the screwdriver down to open the latches of the modules.
3. Remove the module.

You will also find further information in Chapter "Disassembling modules (Page 207)".

11.8 Installing and dismantling AS-Interface modules for base mounting

11.8.1 Mounting / installation positions

The mounting position of the contact modules or LED modules is specified by the combination of letters and numbers (permissible numbers: 1, 2, 3).

The lowest mounting position of an actuating or signaling element is always A and the highest possible is F (for enclosures with 6 command points). This yields the following highest possible mounting positions, depending on the number of command points in the enclosure:

- Enclosures with 2 actuating or signaling elements ⇒ B
- Enclosures with 3 actuating or signaling elements ⇒ C
- Enclosures with 4 actuating or signaling elements ⇒ D
- Enclosures with 6 actuating or signaling elements ⇒ F

Contact modules can be mounted at the mounting positions 1 and/or 2 and/or 3, but LED modules only at mounting position 3.

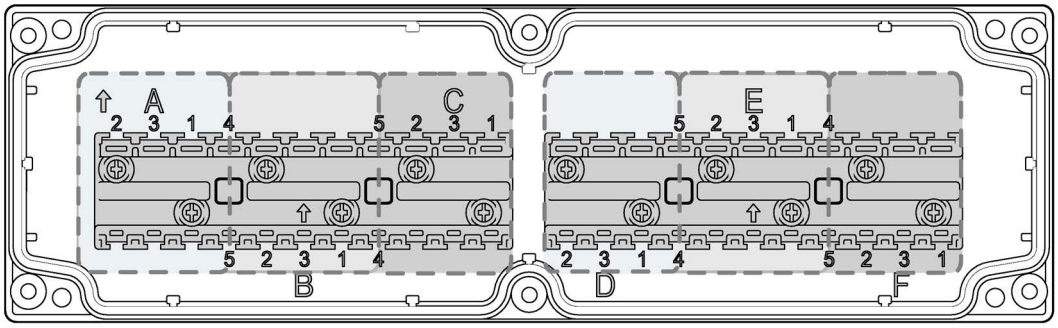


Figure 11-1 Labeling for mounting positions in the enclosure base for enclosures with 1 to 6 command points.

Mounting positions of the AS-Interface F slaves

Note

Mounting position of the AS-Interface F slave

The AS-i F slave may only be mounted in the enclosure at the slots marked with "3".

The AS-Interface F slaves are factory-mounted at mounting position A3. At the customer's request, the AS-Interface F slave can also be mounted at the highest mounting position of the actuator. The following mounting positions are possible:

- Enclosure with 1 command point ⇒ A3
- Enclosure with 3 command points ⇒ C3
- Enclosure with 4 command points ⇒ D3
- Enclosure with 6 command points ⇒ F3

Note

Enclosures with 2 command points

Enclosures with 2 command points cannot be equipped with an AS-Interface F slave.

Mounting positions of the AS-Interface slaves and AS-Interface A/B slaves

The AS-Interface slaves and AS-Interface A/B slaves are always mounted in the positions between the command points, and they can be recognized by the additional rib of the mounting support.

Note

Enclosures with one command point

Enclosures with only one command point cannot be equipped with AS-Interface slaves and AS-Interface A/B slaves.

Mounting position of the AS-Interface slave as the first slave

Command points in the enclosure	Mounting position between mounting panels
2	A and B
3	A and B B and C
4	Always A and B except when an EMERGENCY STOP is mounted, then B and C
6	A and B B and C D and E E and F

Mounting position of the AS-Interface slave as the second slave

Command points in the enclosure	Mounting position between mounting panels
4	C and D
6	D and E

Example

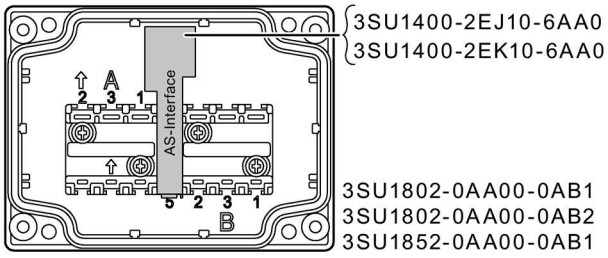
An enclosure with 6 command points is to be equipped with 2 AS-Interface slaves and one AS-Interface F slave.

1. Mount AS-Interface slave 1 between command points B and C.
2. Mount AS-Interface slave 2 between command points D and E.
3. Mount the AS-Interface F slave at A3.

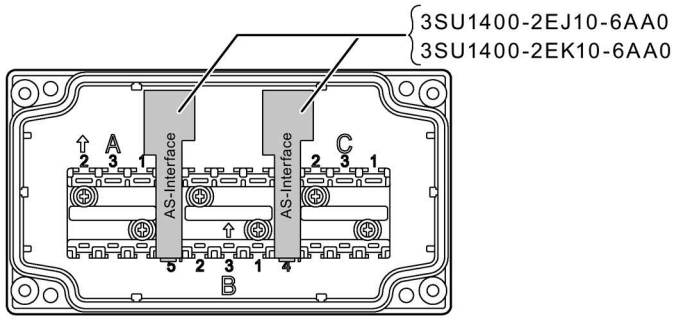
You will find more examples in Chapter "Wiring examples (Page 310)".

11.8.2 Mounting position of AS-Interface slave

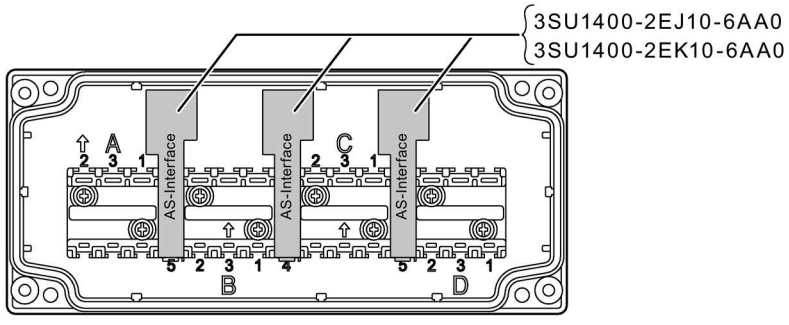
The following mounting positions are available for the AS-Interface slaves:



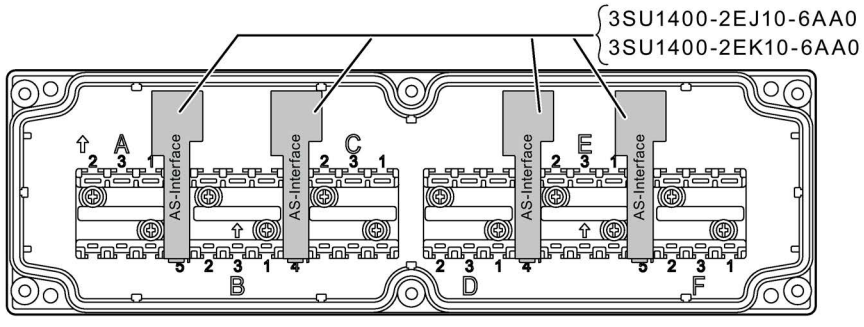
3SU1802-0AA00-0AB1
3SU1802-0AA00-0AB2
3SU1852-0AA00-0AB1



3SU1803-0AA00-0AB1
3SU1853-0AA00-0AB1



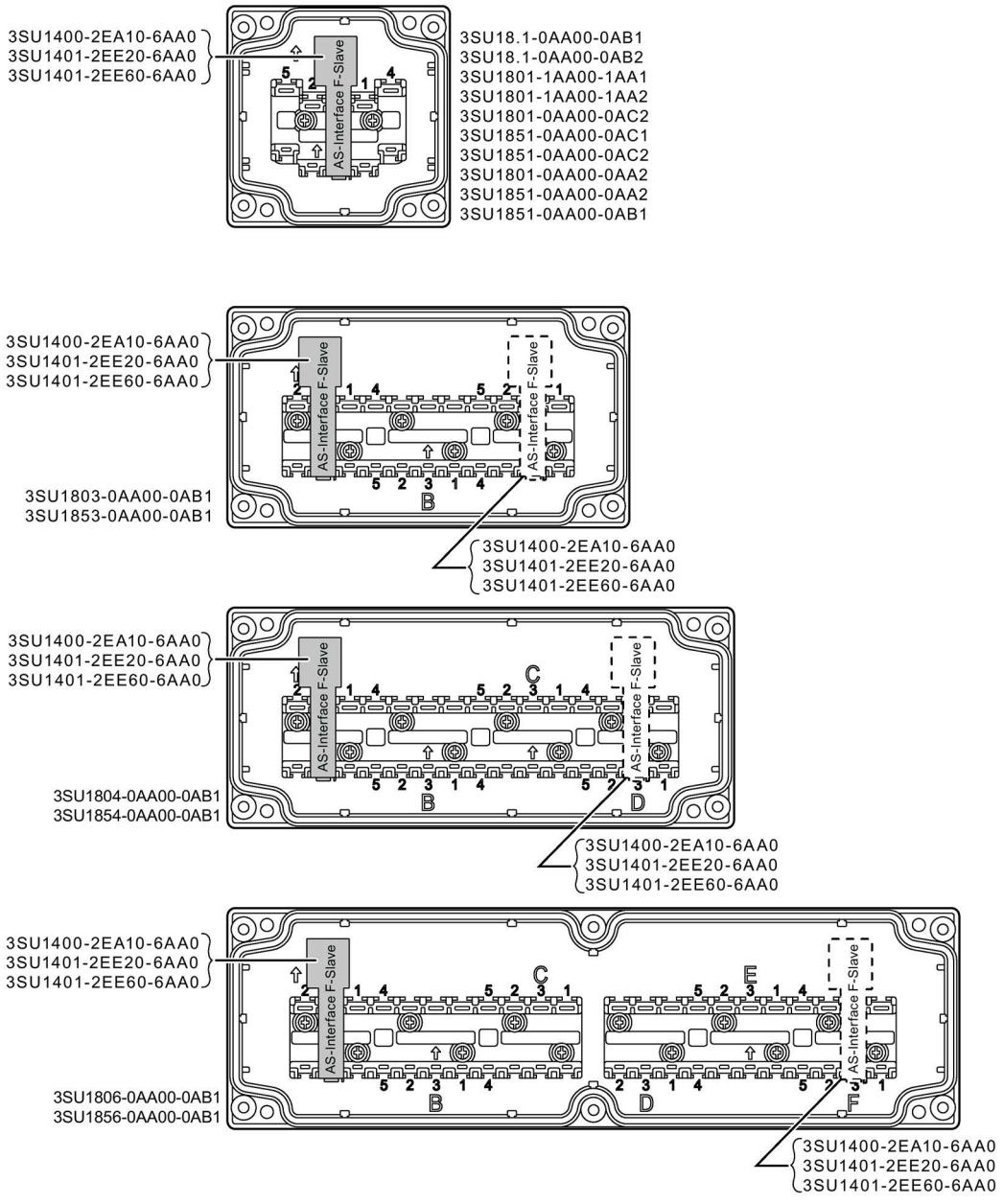
3SU1804-0AA00-0AB1
3SU1854-0AA00-0AB1



3SU1806-0AA00-0AB1
3SU1856-0AA00-0AB1

11.8.3 Mounting position of AS-Interface F slave

The following mounting positions are available for the ASIsafe modules:



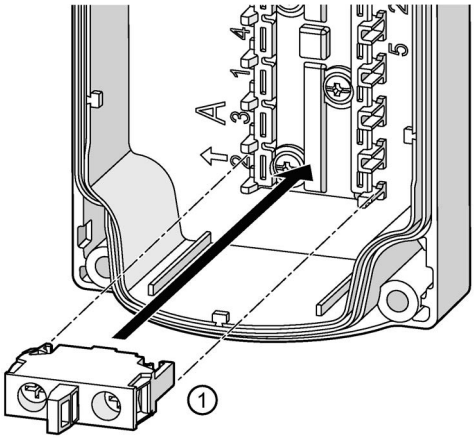
Note

The figures above show a typical representation of the possible mounting positions. The broken lines do not indicate a second module but only the second possible mounting position.

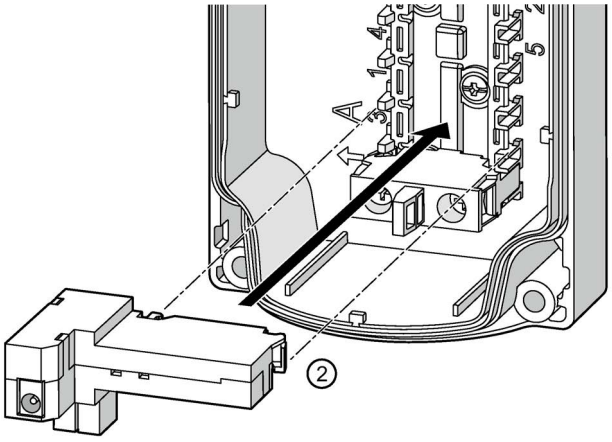
11.8.4 Mounting of the contact modules and AS-Interface F-Safe slaves

The AS-Interface slaves are mounted in the enclosure base like contact modules or LED modules. To equip an enclosure with contact modules and an AS-Interface F slave, follow these steps:

1. Snap the contact module onto the slot in the enclosure marked "1", "2" or "3".



2. Insert the AS-Interface F slave (3SU1400-2EA10-6AA0) into the slot marked with "3".



Note

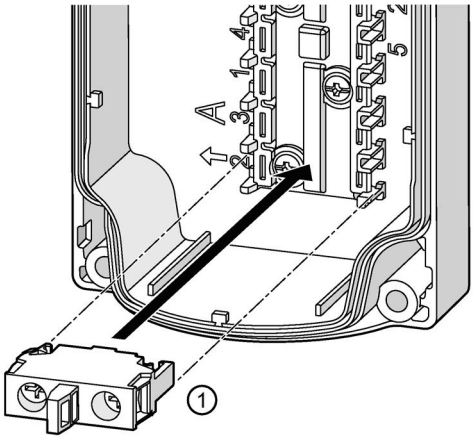
Mounting position of the AS-Interface F slave

The AS-Interface F slave may only be mounted in the enclosure at the slots marked with "3".

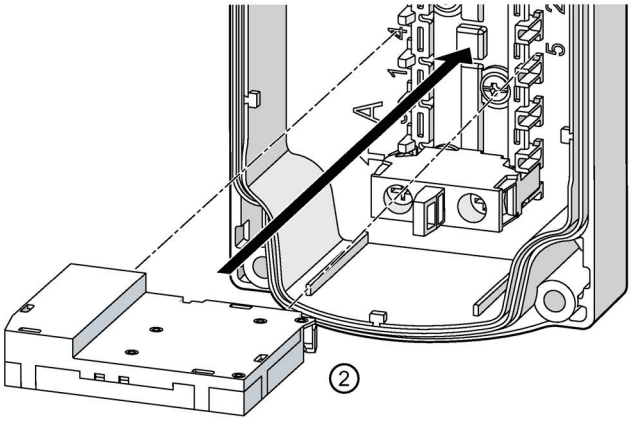
11.8.5 Mounting the contact modules and AS-Interface modules

The AS-Interface modules are mounted in the enclosure base like contact modules or LED modules. To equip an enclosure with contact modules and an AS-Interface module, follow these steps:

1. Snap the contact module onto the slot in the enclosure marked "1", "2" or "3".



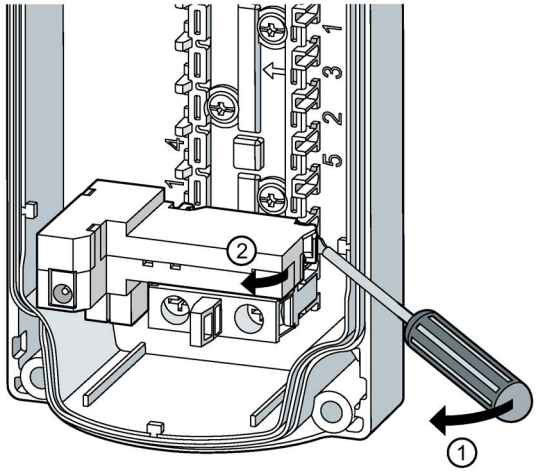
2. Insert the AS-Interface module into the slot marked with "5".



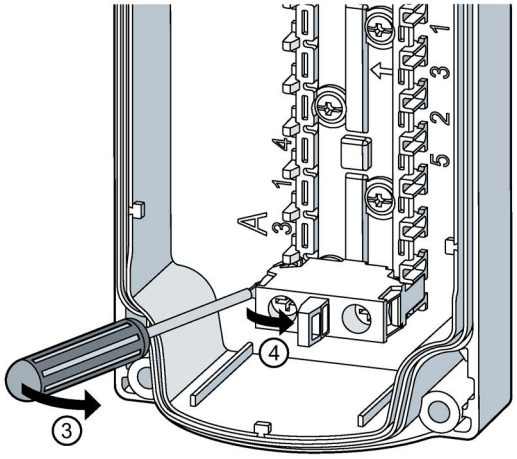
11.8.6 Removal of the modules

Requirement

Enclosure cover is disassembled.



1. insert a screwdriver into the opening of the latches of the AS-Interface modules for base mounting.
2. Press the screwdriver in the direction of the module you want to remove to open the latches of the modules.
   Remove the modules.



3. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
4. Press the screwdriver in the direction of the module you want to remove to open the latches of the modules.
   Remove the modules.

11.9 Connecting

11.9.1 Connection with AS-Interface modules

Connection options

- Conventional connection with AS-Interface
- Safe connection using ASIsafe
- With 3SK1, 3RK3 safety relays
- Connection to distributed I/O ET 200SP, SIMATIC S7-1500

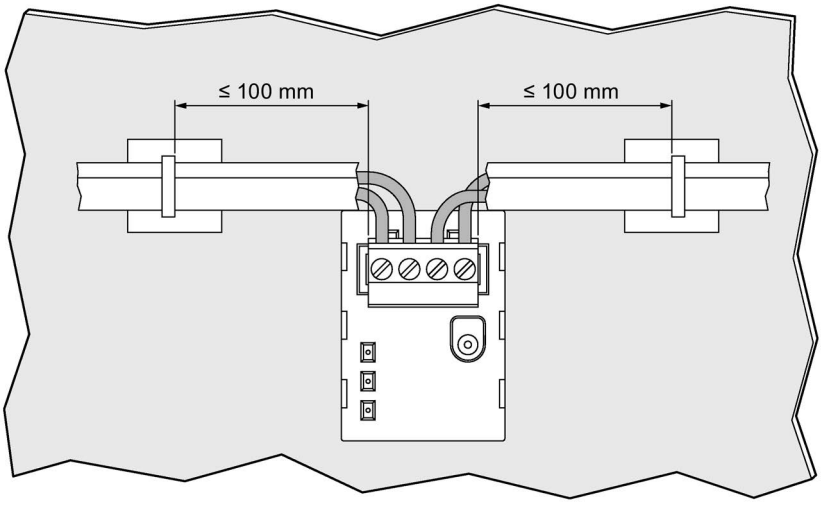
Safe communication via ASIsafe

Safety-related components can be integrated in AS-Interface by means of ASIsafe – up to PL e as per ISO 13849-1 or SIL 3 as per IEC 62061. Use the yellow AS-Interface cable to make this connection.

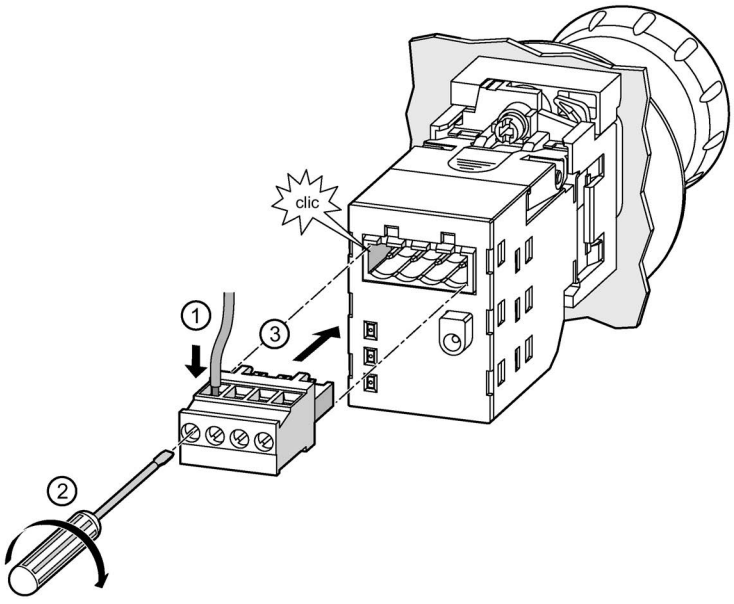
Safe and standard I/O modules are installed and operated together in a single network. Safety-related data is transferred over the existing standard bus.

11.9.2 Connecting the ASIsafe modules for front plate mounting

When connecting, note that the maximum cable length up to the first mounting support must be ≤ 100 mm.
Maximum current I_{max} = 8 A.



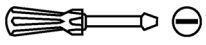
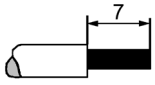
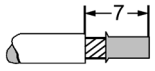
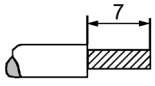
Screw terminals



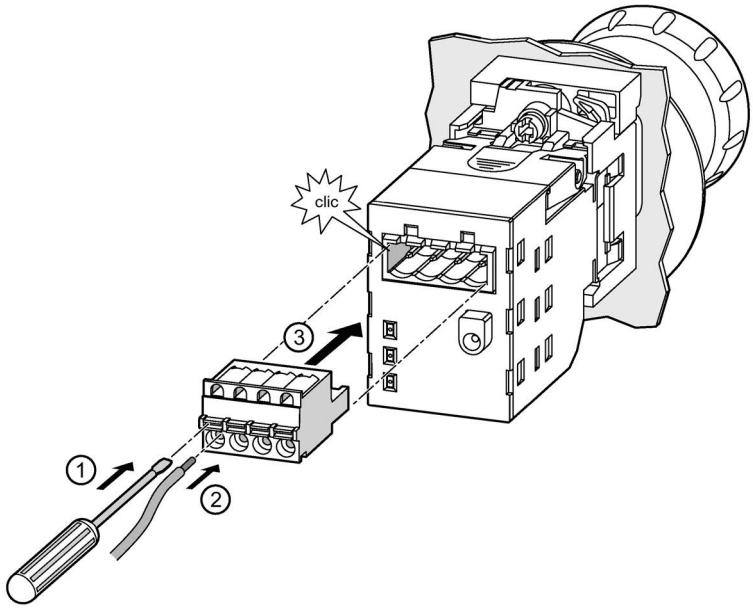
Procedure

1. Insert the connecting lead into the screw terminal
2. Tighten the screws (tightening torque 0.5 to 0.6 Nm)
3. Insert the screw terminal into the AS-i module for front plate mounting

Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	0.5 ... 0.6 Nm
	1 x (0.2 ... 2.5) mm² 2 x (0.2 ... 1.0) mm²
	1 x (0.25 ... 2.5) mm² 2 x (0.25 ... 1.0) mm²
	1 x (0.2 ... 2.5) mm² 2 x (0.2 ... 1.5) mm²
AWG	1 x 30 to 12

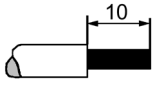
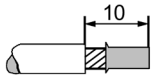
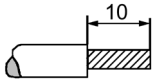
Spring-type terminals



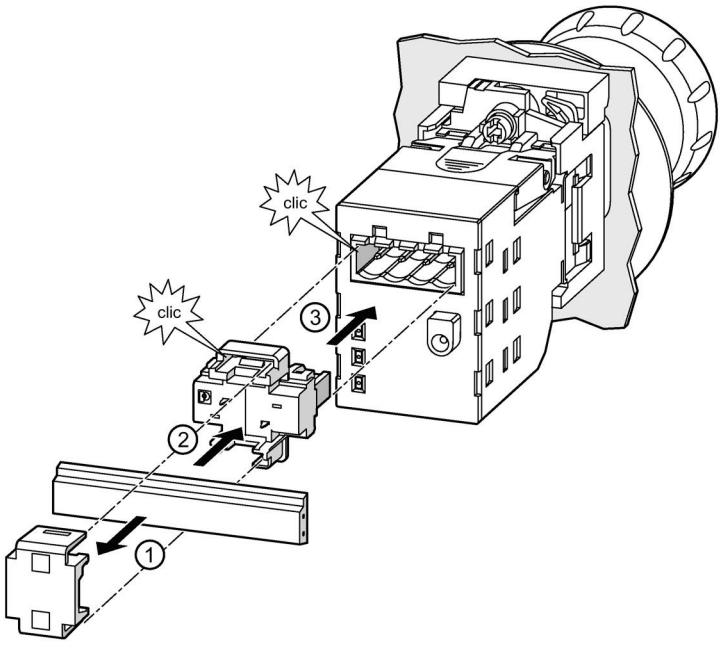
Procedure

1. Insert a flat-blade screwdriver into the unlocking groove of the spring-type terminal
2. Insert the connecting lead into the spring-type terminal
3. Insert the spring-type terminal into the AS-i module for front plate mounting

Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	—
	1 x (0.2 ... 2.5) mm²
	1 x (0.25 ... 2.5) mm²
	1 x (0.2 ... 2.5) mm²
AWG	1 x 26 to 12

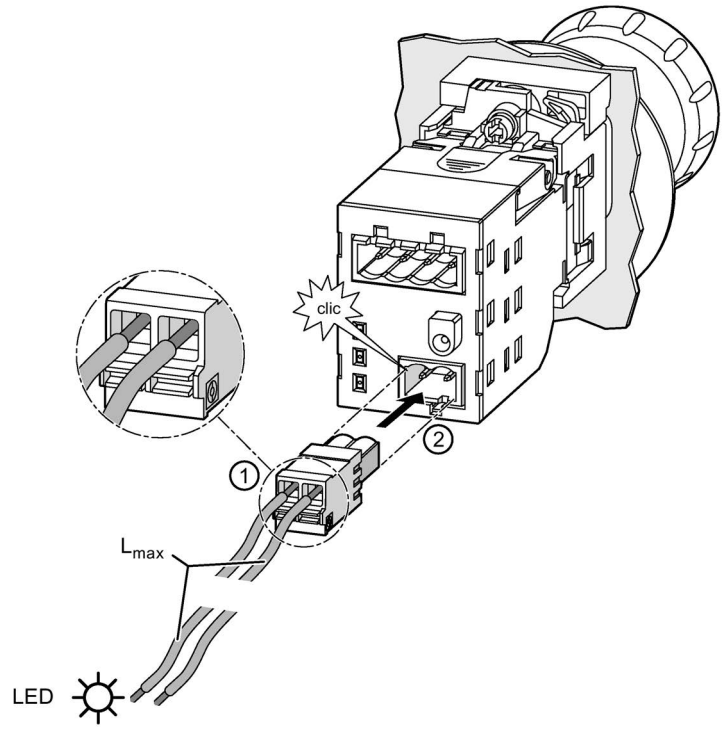
AS-Interface connection using insulation piercing method



Procedure

1. Connect the AS-i shaped cable to the upper part of the adapter for AS-i shaped cable.
2. Insert the upper part with the AS-i shaped cable into the adapter
3. Snap the adapter onto the male connector of the AS-i module for front plate mounting

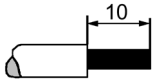
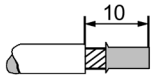
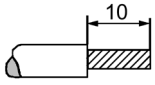
Bus connector



Procedure

1. Insert a flat-blade screwdriver into the unlocking groove of the spring-type terminal. Insert the connecting lead into the spring-type terminal.
2. Insert the spring-type terminal into the AS-i module for front plate mounting

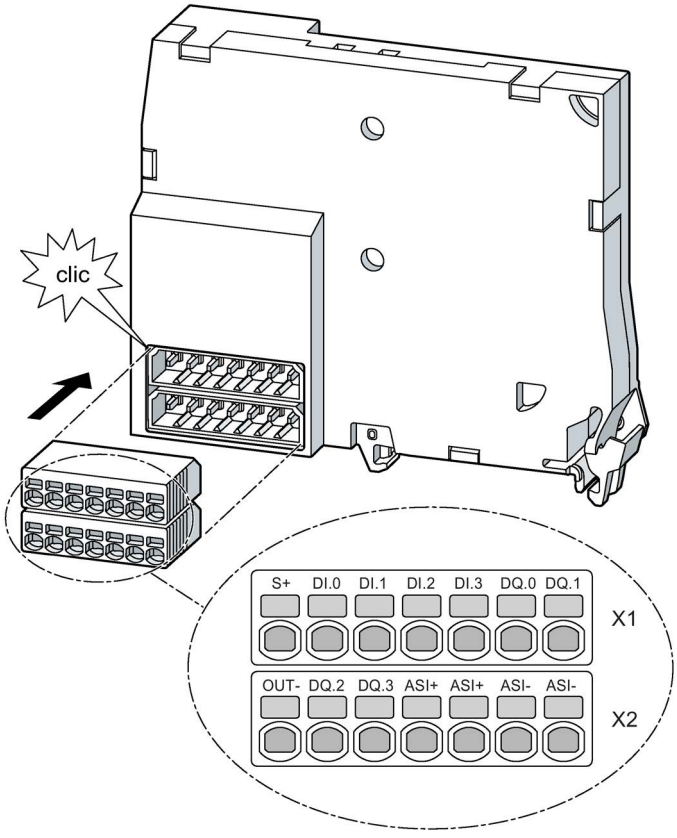
Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	—
	1 x (0.2 ... 1.5) mm²
	1 x (0.25 ... 1.5) mm²
	1 x (0.2 ... 1.5) mm²
AWG	1 x 24 to 16

$I_{out\ max}$	20 mA
U_{out}	18 V ... 24 V
L_{max}	≤ 100 mm

11.9.3 Terminal labeling and conductor cross-sections (AS-Interface modules for front plate mounting)

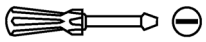
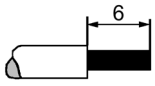
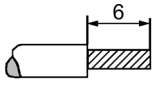
AS-Interface modules for front plate mounting



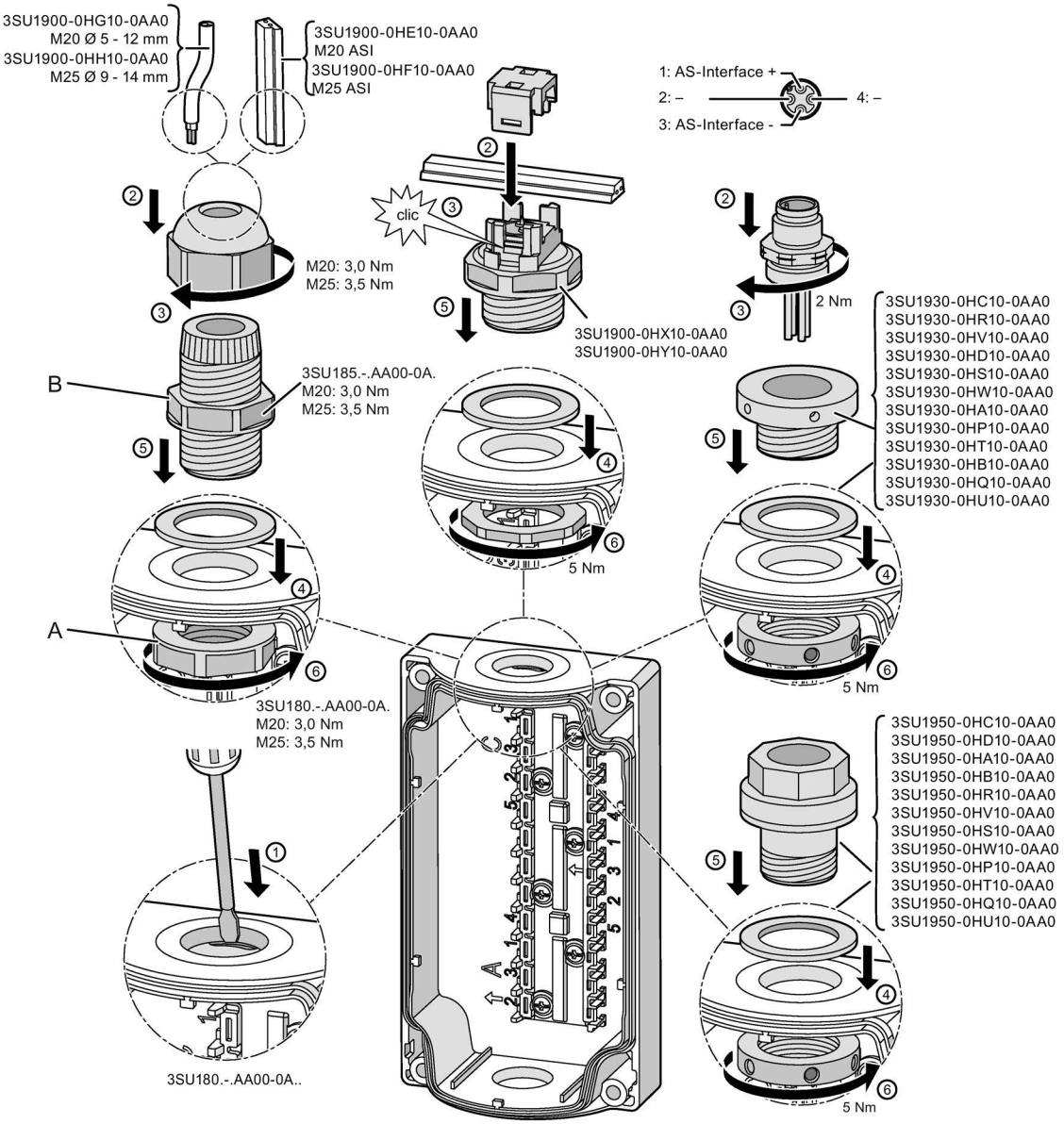
3SU1400-1EK10-6AA0 terminal labeling (push-in terminal)				
Pin	**X1**		**X2**	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	DQ.3	Digital output
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

3SU1400-1EJ10-6AA0 terminal labeling (push-in terminal)				
Pin	**X1**		**X2**	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	—	—
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

3SU1400-1E.10-6AA0 conductor cross-sections (push-in terminal)

 SZ 2.0 mm x 0.4 mm	—
	1 x (0.14 ... 0.5) mm²
	1 x (0.2 ... 0.5) mm²
AWG	1 x 26 to 20

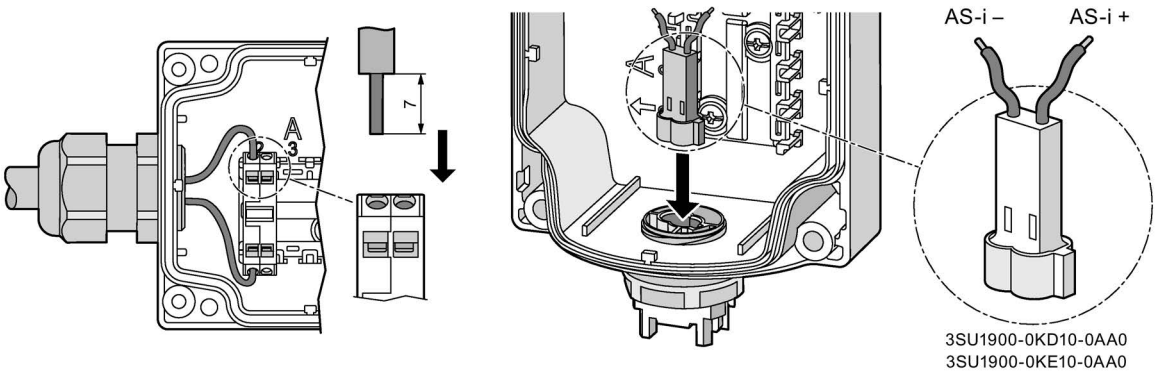
11.9.4 Connection option for AS-Interface bus (AS-Interface modules for base mounting)



Note the following information when installing the screw glands:

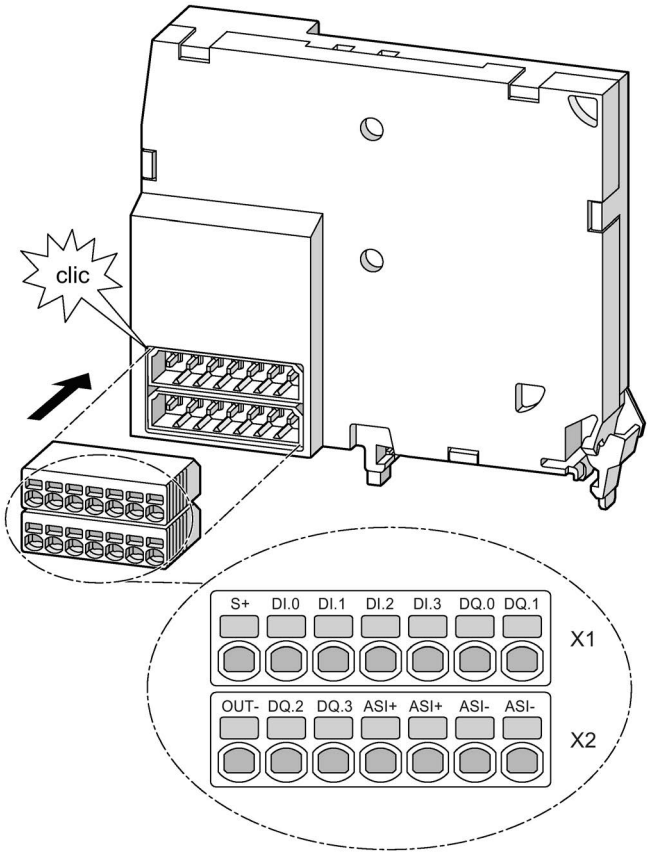
- Installation of screw glands in plastic enclosure (3SU180.-.AA0-0A.): The force of 3.0 or 3.5 Nm is applied by tightening and holding together the nut (A) and screw gland (B).
- Installation of screw glands in metal enclosure (3SU185.-.AA0-0A.): The force of 3.0 or 3.5 Nm is applied by screwing the screw gland (B) directly into the enclosure. The nut (A) is not an essential requirement. You can however screw the nut on for additional protection.

Connection to AS-Interface bus connection element



11.9.5 Terminal labeling and conductor cross sections (AS-Interface modules for base mounting)

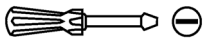
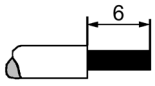
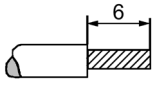
AS-Interface modules



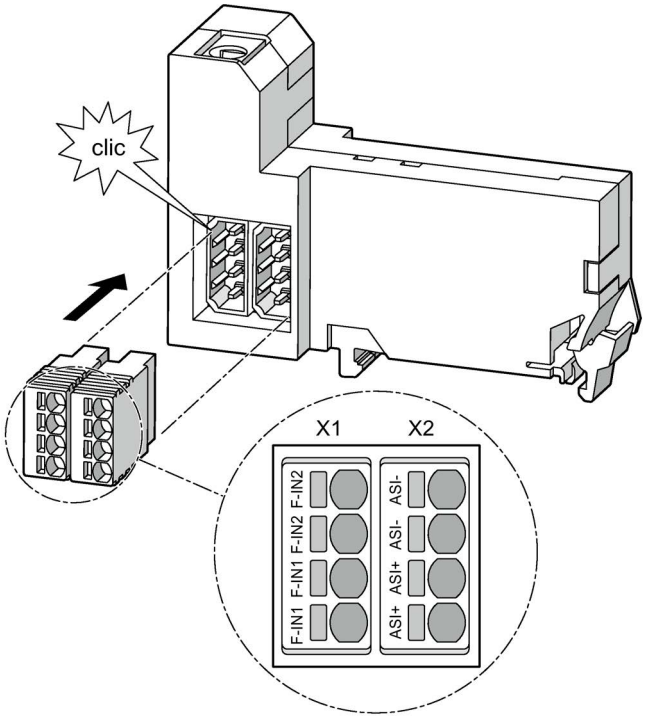
Terminal labeling 3SU1400-2EK10-6AA0				
Pin	**X1**		**X2**	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	DQ.3	Digital output
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

Terminal labeling 3SU1400-2EJ10-6AA0				
Pin	**X1**		**X2**	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	—	—
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

Conductor cross-sections (3SU1400-2EK10-6AA0 and 3SU1400-2EJ10-6AA0)

 SZ 2.0 mm x 0.4 mm	—
	1 x (0.14 ... 0.5) mm²
	1 x (0.2 ... 0.5) mm²
AWG	1 x 26 to 20

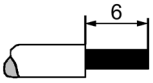
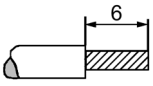
AS-Interface modules with fail-safe digital inputs



Terminal labeling 3SU1400-2EA10-6AA0				
Pin	**X1**		**X2**	
1	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
2	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
3	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity
4	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity

Terminal labeling 3SU1401-2EE20-6AA0				
Pin	**X1**		**X2**	
1	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
2	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
3	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity
4	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity

Conductor cross-sections (3SU1400-2EA10-6AA0 and 3SU1401-2EE20-6AA0)

 SZM 2.0 mm x 0.4 mm	—
	1 x (0.14 ... 0.5) mm²
	1 x (0.2 ... 0.5) mm²
AWG	1 x 26 to 20

11.10 Configuring the AS-Interface

11.10.1 Setting the AS-i address

Operation of the addressing unit is described in the operating instructions of the AS-Interface addressing unit (article number of the operating instructions: 3ZX1012-0RK10-4AB1).

Unique addressing

In the factory setting, a module for AS-Interface has the address 0. It is detected by the master as a new slave that has not yet been addressed and, in this condition, has not yet been integrated in standard communication/data exchange. The modules for AS-Interface are A/B slaves in accordance with AS-i spec. 2.1.

To enable data to be exchanged between the master and slaves, you have to assign a **unique** address for each slave (i.e. each slave address must be different) when commissioning the AS-Interface network.

You can select any address in the address range 1A to 31A and 1B to 31B.

Addresses can also be assigned once the devices have been installed.

Addressing the slaves

You can set the slave address in different ways:

- Offline with the addressing unit via the addressing socket or at the AS-i connection; Recommended when assigning addresses for the entire system. The direct connection between the slave and addressing unit ensures that the slave modules are not mixed up.
- Online by the AS-i master and in the PLC configuration software.
  Recommended for assigning addresses to individual slaves if an addressing unit is not available. Before assigning addresses, you must ensure that each address exists only once in the AS-i network, that is, several new, additional modules (with address 0 in the factory setting) must not be connected to the AS-i cable.

You can also find further information in the AS-Interface system manual (http://support.automation.siemens.com/WW/view/en/26250840).

⚠ CAUTION

Follow-on switching operations after addressing

As soon as you have assigned a valid address, the master can start cyclic data communication immediately, that is, outputs can be set or inputs read that result in follow-up switching operations.

Make sure that you take appropriate measures to exclude the risk of hazardous conditions. Disconnect the AS-i voltage, for example.

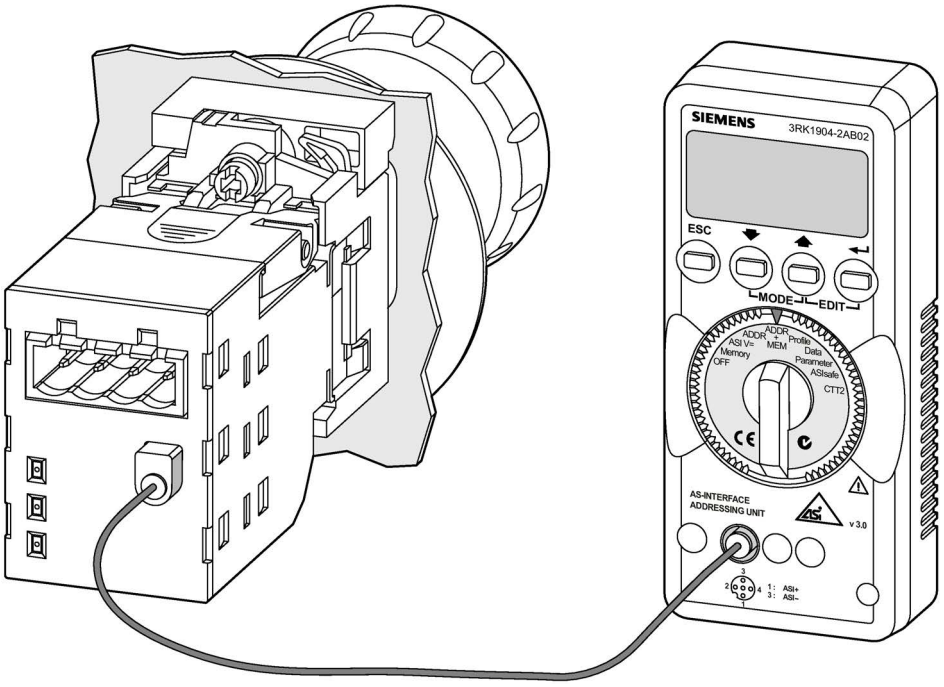
Offlline addressing with the addressing unit

Procedure

1. Connect the module to the addressing unit 3RK1904-2AB02.
2. Assign an address to the module:
   - Switch the selector switch to **ADDR.**
   - Press ↵. The address of the connected module is read and displayed.
   - Select the address with ⬇⬆.

   Transfer the address to the module with ↵.
3. Remove the addressing cable.

11.10.2 Addressing the AS-Interface modules for front plate mounting

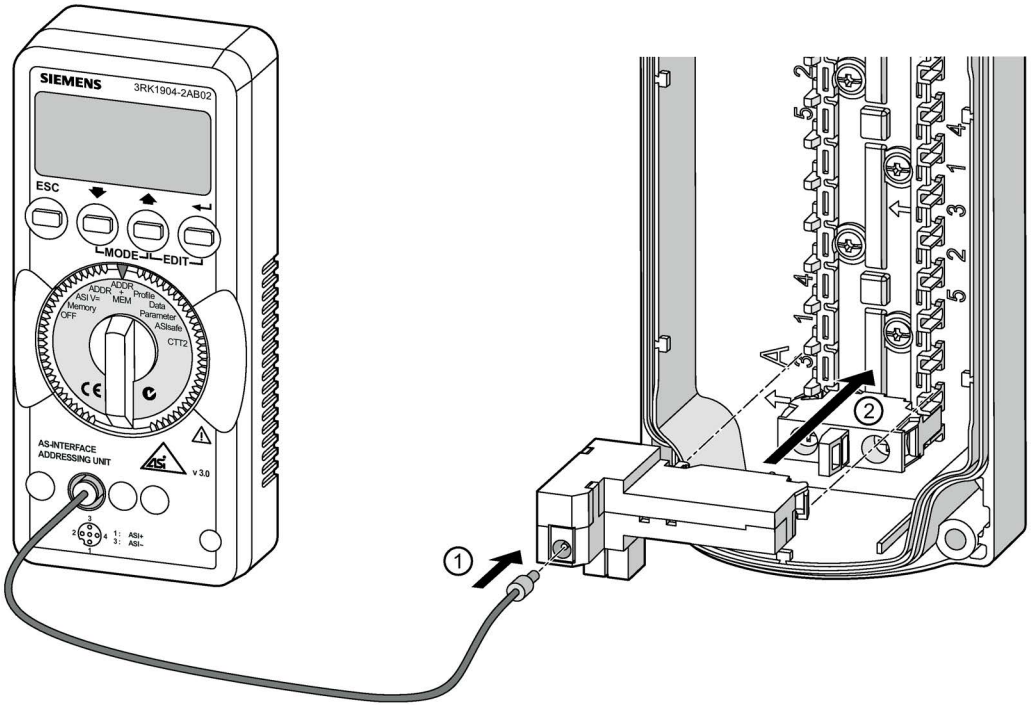


To address the AS-Interface modules for front plate mounting, connect the 3RK1904-2AB02 AS-Interface addressing unit.

3SU1400-1EC10-.AA0 / 3SU1400-1EE20-.AA0 and 3SU1400-1EA10-.AA0 AS-Interface modules with fail-safe digital inputs

Technical data		
	3SU1400-1EC10-.AA0 3SU1400-1EE20-.AA0	3SU1400-1EA10-.AA0
I_e	< 60 mA	
U_e	26.5 V ... 31.6 V SELV / PELV	
PL	e	
Cat.	4	
SILCL	3	
PFH [1/h]	< 4.5 x 10^{-9} [1/h]	
PFD_{avg}	< 5.0 x 10^{-6}	
SFF	> 99 %	
DC_{avg}	> 99 %	
AS-i slave profile IO / ID / ID2 (HEX)	7 / B / F	0 / B / F
ID1 code (HEX)	1 ... F	1 ... F

11.10.3 Addressing the AS-Interface modules for base mounting



To address the AS-Interface modules for base mounting, connect the 3RK1904-2AB02 AS-Interface addressing unit.

3SU1400-2EK10-6AA0 and 3SU1400-2EJ10-6AA0 AS-Interface modules

Technical data		
	3SU1400-2EK10-6AA0	3SU1400-2EJ10-6AA0
I_e	< 260 mA	
U_e	18.0 V ... 31.6 V	
AS-i slave profile IO / ID / ID2 (HEX)	7 / 0 / E	7 / A / E
ID1 code (HEX)	1 ... F	1 ... F

3SU1401-2EE20-6AA0 and 3SU1400-2EA10-6AA0 AS-Interface modules with fail-safe digital inputs

Technical data		
	3SU1400-2EA10-6AA0	3SU1401-2EE20-6AA0
I_e	< 60 mA	
U_e	18.0 V ... 31.6 V	
PL	e	
Cat.	4	
SILCL	3	
PFH [1/h]	< 4.8 x 10^{-9} [1/h]	
PFD_{avg}	< 5.0 x 10^{-6}	
SFF	> 99 %	
DC_{avg}	> 99 %	
AS-i slave profile IO / ID / ID2 (HEX)	0 / B / F	7 / B / 0
ID1 code (HEX)	1 ... F	1 ... F

11.11 Diagnosis of ASIsafe F adapters for front plate mounting

Status display

The status of a module is indicated by LEDs with continuous or flashing light. This enables diagnostics at a glance:

- For AS-i communication via a dual LED
- For the switching state of the inputs with yellow LEDs

The following chapters provide an overview of the LED status displays of the AS-i modules.

Inputs

Each input has a yellow LED with designation "F-INx". For the functions, see the table below:

Table 11- 1 Diagnostics of the inputs via LED

F-IN x	Meaning
Yellow	Signal activated
OFF	Signal deactivated

Status display AS-i / FAULT

All modules have a dual LED (green/red) for the "AS-i / FAULT" status display. For the functions and remedies, see the table below:

Table 11- 2 Diagnostics of the AS-i status via LEDs

AS-i / FAULT (green / red)	Possible cause	Possible remedial measures
Green	Normal operation, AS-i communication OK	—
Red	No AS-i communication: • Master is switched off or offline	Ensure AS-i communication: • Switch on the master or switch it to online mode
	• Slave is not configured in the master	• Reconfigure the master
	• Incorrect slave type connected	• Connect the correct module
	• Slave has the wrong address	• Check/correct the slave address
Flashing yellow/red	Module has slave address "0" (delivery condition)	Assign an address other than "0"
OFF	No AS-i voltage	Switch on AS-i voltage
	AS-i voltage has been connected with reverse polarity	Connect it correctly
	AS-i voltage too low	Measure the AS-i voltage (approx. 30 V DC)

11.12 Diagnosis of AS-Interface modules for base mounting

Status display

The status of a module is indicated by LEDs with continuous or flashing light. This enables diagnostics at a glance:

- For AS-i communication via a red and green LED.

The following chapters provide an overview of the LED status displays of the AS-i modules.

Status display AS-i / FAULT

All modules have green and red LEDs for the "AS-i / FAULT" status display. For the functions and remedies, see the table below:

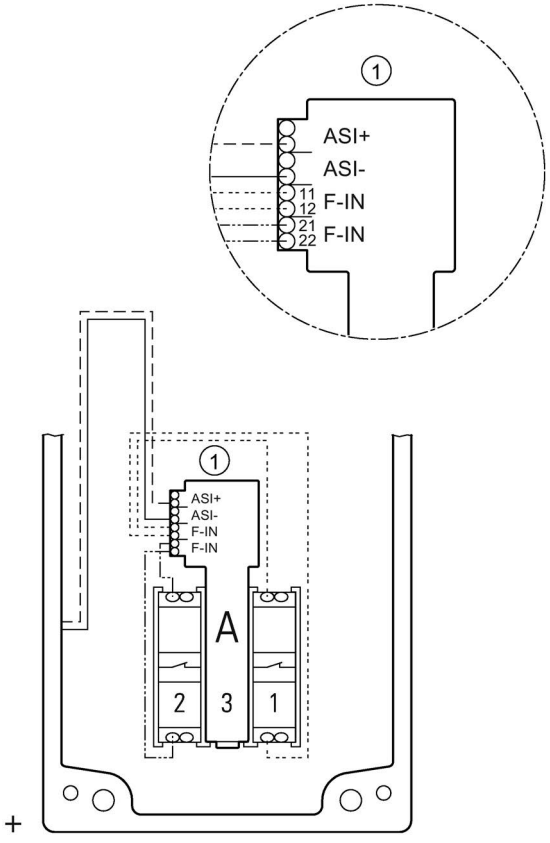
Table 11- 3 Diagnostics of the AS-i status via LEDs

AS-i / FAULT (green / red)	Possible cause	Possible remedial measures
Green	Normal operation, AS-i communication OK	—
Green Red	No AS-i communication: • Master is switched off or offline	Ensure AS-i communication: • Switch on the master or switch it to online mode
	• Slave is not configured in the master	• Reconfigure the master
	• Incorrect slave type connected	• Connect the correct module
	• Slave has the wrong address	• Check/correct the slave address
Flashing green Red	Module has slave address "0" (delivery condition)	Assign an address other than "0"
Flashing alternately green/red[1]	Overload of the outputs	Disconnect actuator cables Check actuators and cables
OFF	No AS-i voltage	Switch on AS-i voltage
	AS-i voltage has been connected with reverse polarity	Connect it correctly
	AS-i voltage too low	Measure the AS-i voltage (approx. 24 V DC or 30 V DC)

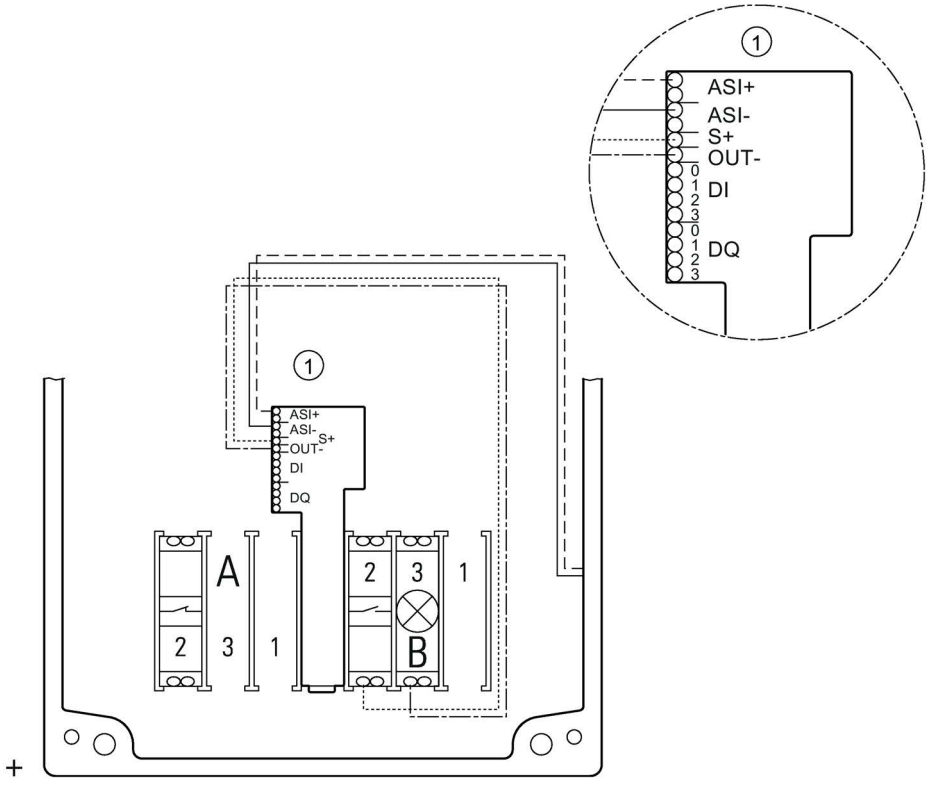
[1] Only 4DI/4DO and 4DI/3DOAB modules

11.13 Wiring examples

AS-i enclosure with one command point with one AS-Interface F slave and EMERGENCY STOP, wired to the left



AS-i enclosure with two command points with EMERGENCY STOP, wired to the right



Note

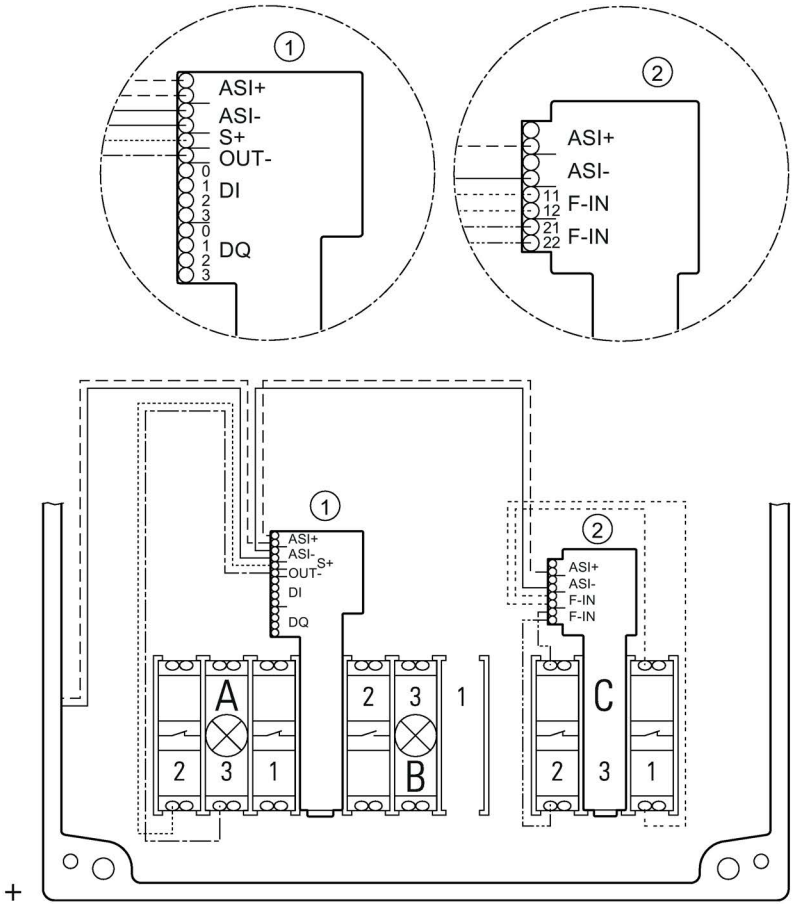
EMERGENCY STOP conventionally wired.

Note

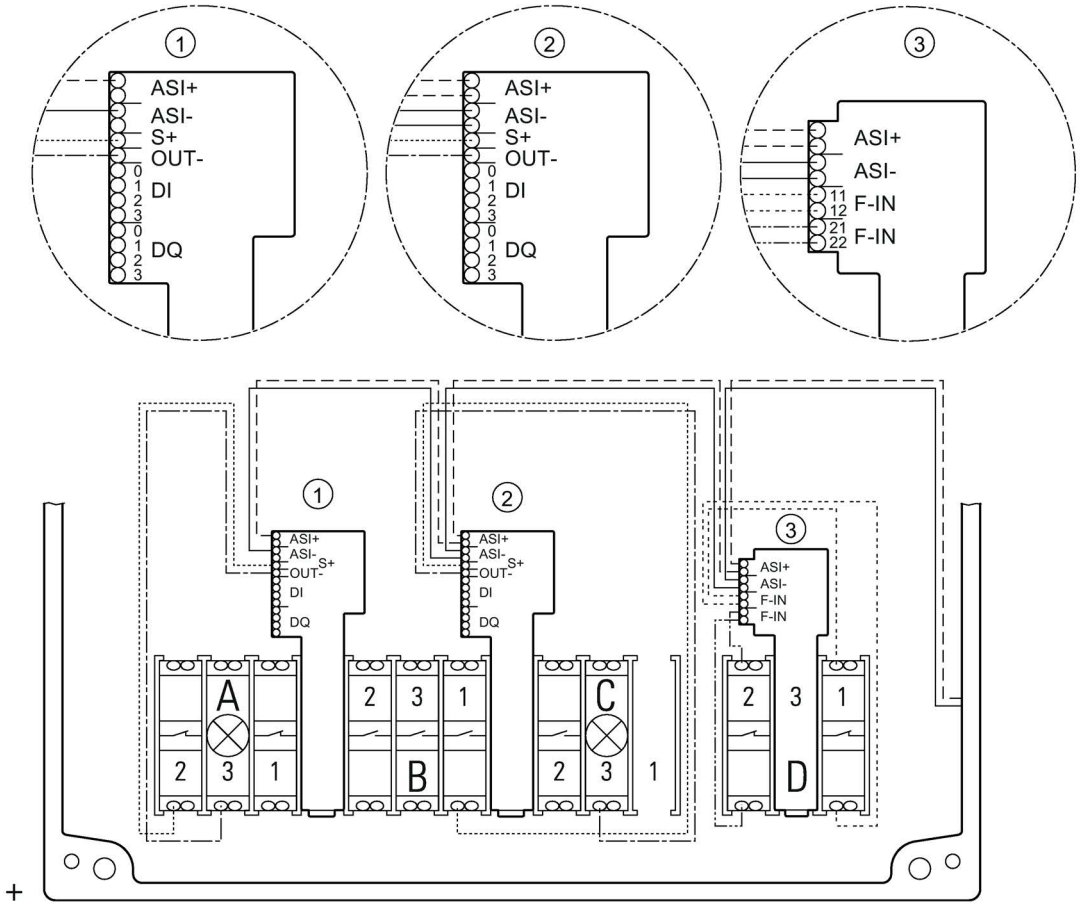
Position of EMERGENCY STOP

If the EMERGENCY STOP is mounted at command point B, the wiring must be to the left.

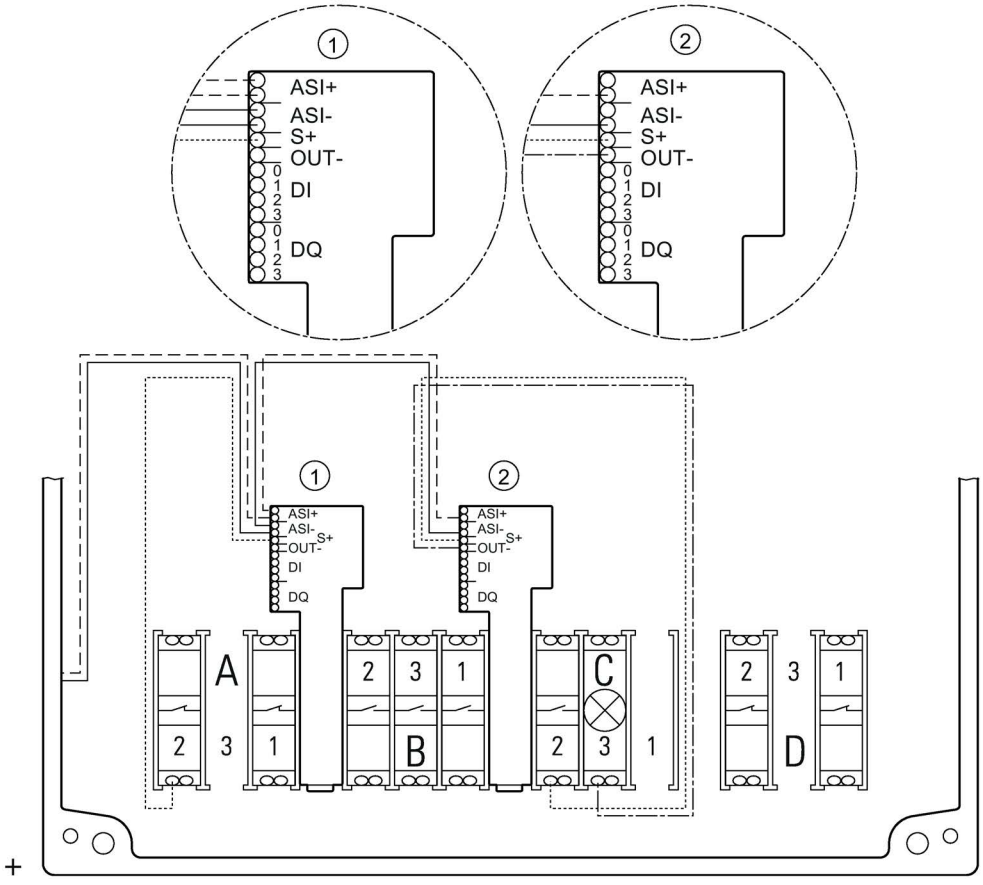
AS-i enclosure with three command points with one AS-Interface F slave and EMERGENCY STOP in C, wired to the left



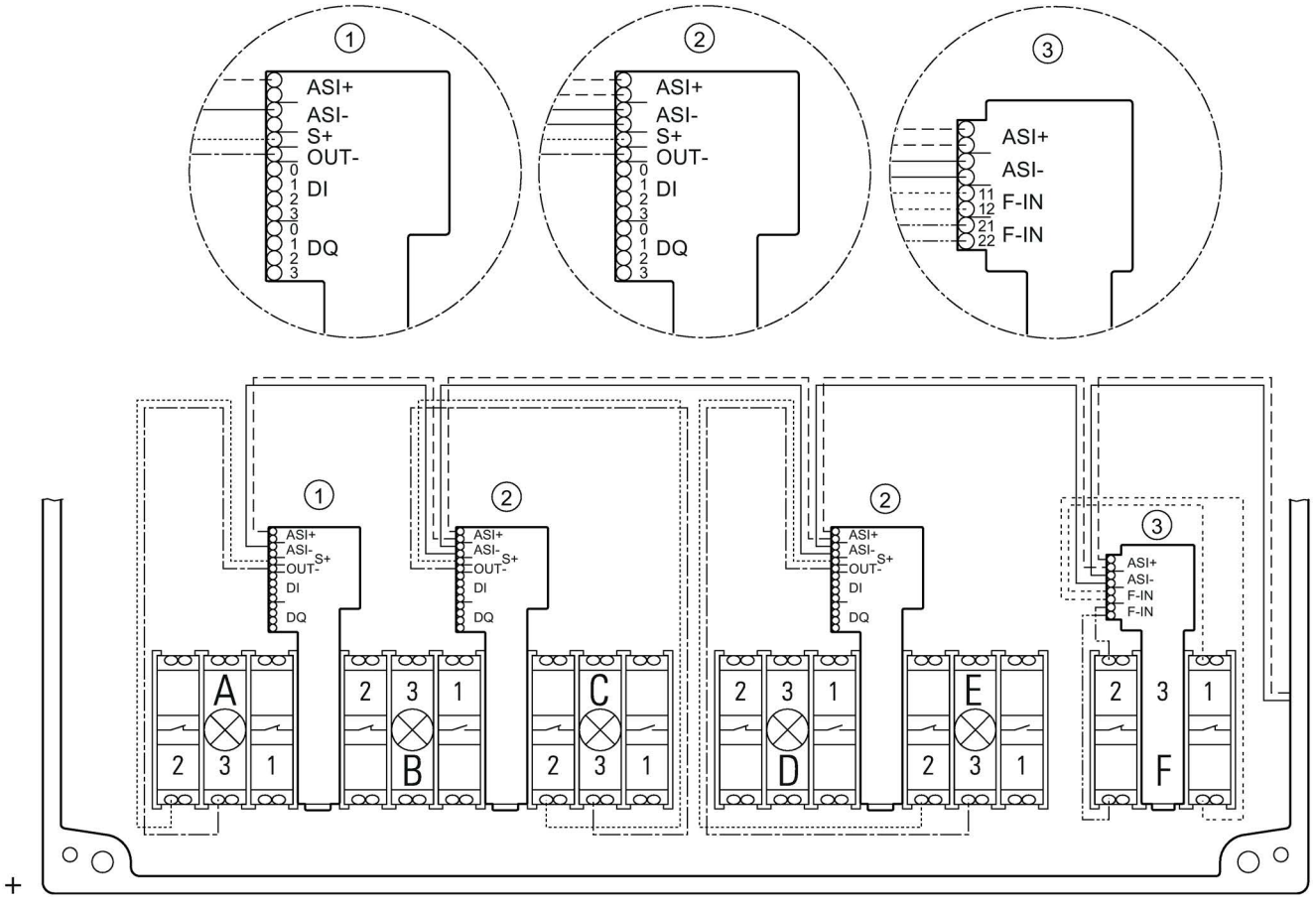
AS-i enclosure with four command points with EMERGENCY STOP in D, wired to the right



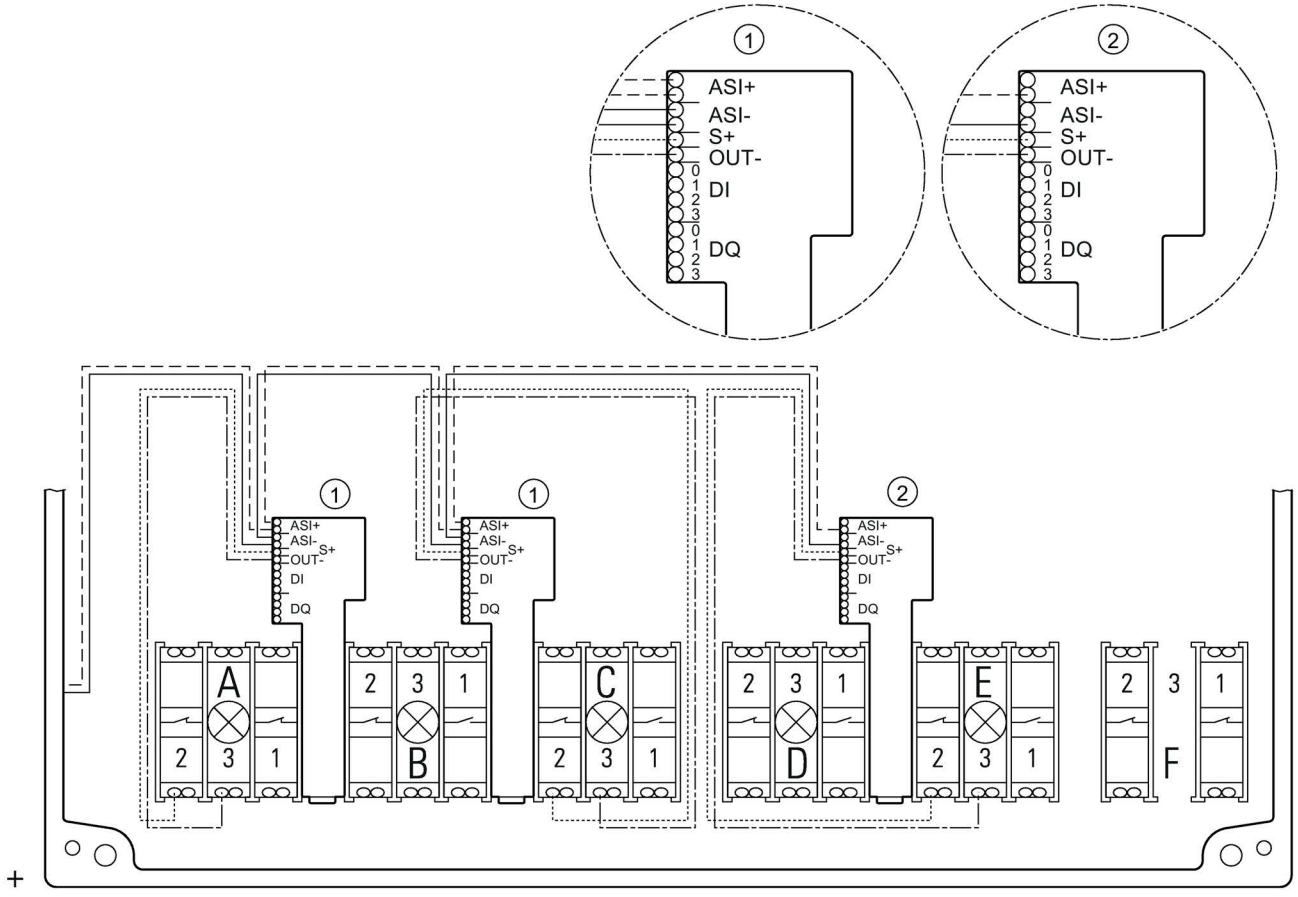
AS-i enclosure with four command points with 2 AS-Interface slaves, wired to the left



AS-i enclosure with six command points with AS-Interface F slave and EMERGENCY STOP in F, wired to the right



AS-i enclosure with six command points with 3 AS-Interface slaves, wired to the left



IO-Link 3SU14

12

12.1 Configuring the IO-Link

12.1.1 Combinations

IO-Link master and IO-Link device combinations are shown in the following table.

IO-Link master...	IO-Link device...	
	... according to the IO-Link communication specification V1.0	... according to the IO-Link communication specification V1.1
...according to IO-Link communication specification V1.0	Operation according to specification V1.0	Operation according to specification V1.0
...according to IO-Link communication specification V1.1	Operation according to specification V1.0	Operation according to specification V1.1[1)]

1) By selection of IODD V1.0.1, the device can be operated according to IO-Link communication specification V1.0.

Differences between IO-Link communication specifications V1.0 and V1.1

- Usable IO-Link message frame length (not relevant)
- Application-specific name: V1.0: 64 bytes max./V1.1: 32 bytes max.
- Parameter server functionality: V1.0: not available/V1.1: available

12.1.2 Configuring with STEP 7 and the S7-PCT Port Configuration Tool

12.1.2.1 Basic procedure and prerequisites

Procedure when configuring IO-Link master and IO-Link devices

Configuration takes place in two steps with STEP 7, V5.4 SP5 or STEP 7 TIA Portal, V12.0 or higher:

1. Configure the IO-Link master in *HW Config*. You will find IO-Link master on the Internet (http://www.siemens.com/industrymall) under "Automation" > "Industrial communication" > "IO-Link" > "Master".
2. With the Port Configuraton Tool *S7-PCT* , you configure the connected IO-Link devices.

Note

An application example facilitates connection of IO-Link devices using a block library, and demonstrates the use of the block library using specific examples. You will find the application example on the Internet (http://support.automation.siemens.com/WW/view/en/90529409).

Requirements

- STEP 7 V5.4 SP5 or higher (you can download Service Pack 5 from the Internet (http://support.automation.siemens.com/WW/view/en/36184684)) or STEP 7 TIA Portal V12.0 or higher.
- The Port Configuration Tool *S7-PCT* is installed on the PG/PC.
  You can either install *S7-PCT* together with or STEP 7 or you can download it from the Internet (http://support.automation.siemens.com/WW/view/en/37936752).
- IO-Link IODD files (IO Device Description) are installed in the *S7-PCT hardware catalog*.
  You can download all current IODD files for the SIRIUS devices from the Internet (https://support.industry.siemens.com/cs/#products?search=IODD&o=DefaultRankingDesc&lc=en-WW).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the IO-Link communication specification V1.0 when replacing devices in existing installations.
- The GSD files of the IO-Link masters are already installed in *STEP 7 HW Config*. You can download all current GSD files for the Siemens IO-Link masters from the Internet (http://www.siemens.com/comdec).

- Optional: Install the IO_LINK_MASTER and IO_LINK_DEVICE function blocks for backing up / restoring IO-Link master parameters, IO-Link device parameters, parameterization of IO-Link devices during operation, and reading out IO-Link port functions.
  You can find the function blocks on the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).
  You can find more information about the function blocks in Chapters "Acyclic data exchange with the IO_LINK_MASTER function block (Page 321) function block" and "Acyclic data exchange with the IO_LINK_DEVICE function block (Page 322)".

12.1.2.2 Configuration

Configuring the IO-Link master in *HW Config*

1. Start the SIMATIC Manager (*STEP 7*) or the TIA Portal and configure the project as described in the *STEP 7* online help.
2. Select the IO-Link master in the hardware catalog of *HW Config*.
3. Drag and drop the IO-Link master from the hardware catalog to the configuration table.
4. Select the IO-Link master in the configuration table (*STEP 7*)/ device view (TIA Portal).
5. Press the right mouse button and select "**Object Properties**" from the shortcut menu.
   Result: The "**Properties**" window of the IO-Link master opens.
6. Check the settings of the addresses.
   Every IO-Link master port needs a corresponding overall address range depending on the IO-Link device used.

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Select the configured IO-Link master.
2. Press the right mouse button and select "**Start device tool**" (*STEP 7* or TIA Portal)/"**Configure IO-Link**" (*STEP 7* or TIA Portal) from the shortcut menu depending on the configuration tool used.
3. Select the IO-Link device in the component catalog of the S7-PCT port configuration tool.
4. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.
5. Start by parameterizing the IO-Link device.
   Additional information is available in the *S7-PCT* online help.

12.1.3 Configuring with the S7-PCT Stand Alone Port Configuration Tool

12.1.3.1 Application

Configuration is always done with the S7-PCT port configuration tool whenever no SIMATIC CPU is available.

12.1.3.2 Basic procedure and prerequisites

Basic procedure when configuring IO-Link master and IO-Link devices with the S7-PCT Port Configuration Tool (stand-alone)

1. You configure the connected IO-Link devices with the *S7-PCT* Port Configuration Tool.

Requirements

- The *S7-PCT* Port Configuration Tool is installed on the PG/PC.

  You can either install *S7-PCT* together with STEP 7 V5.4 SP5 or higher or STEP 7 TIA Portal V12.0 or higher, or you can download it from the Internet (http://support.automation.siemens.com/WW/view/en/37936752).
- IO-Link IODD files (IO Device Description) are installed in the *S7-PCT* hardware catalog. All current IODD files of the SIRIUS devices are available on the Internet (https://support.industry.siemens.com/cs/#products?search=IODD&o=DefaultRankingDesc&lc=en-WW).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the communication specification V1.0 when replacing devices in existing installations.

Note

Configuring with S7-PCT stand-alone is not possible for the CPU versions of the ET 200.

12.1.3.3 Configuration

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Start the *S7-PCT* port configuration tool.
2. Create a new project or open an existing project as described in the online help.
3. Select a bus category (PROFIBUS DP/PROFINET IO).
4. Select an IO-Link master.
5. Select the IO-Link device in the component catalog of the *S7-PCT* port configuration tool.
6. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.
7. Load the configuration into the IO-Link master before parameterizing the IO-Link device.
8. Start by parameterizing the IO-Link device.
   Additional information is available in the *S7-PCT* online help.

12.1.4 Acyclic data exchange with the IO_LINK_MASTER function block

For acyclic data exchange, the IO_LINK_MASTER function block is available as a download for controllers of the S7 families.

With the help of this block, you can back up or restore the device parameters and settings of an IO-Link communication module (e.g. ET 200SP CM 4xIO-Link) via the S7 program.

Requirements

- Install the IO_LINK_MASTERfunction block.
  You can download the IO_LINK_MASTER function block and the description from the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

Procedure when using the IO_LINK_MASTER function block

1. Copy the IO_LINK_MASTER function block (including data block DB10) to a *STEP 7* project.
2. Use the IO_LINK_MASTER function block as described in the documentation.

12.1.5 Acyclic data exchange with the IO_LINK_DEVICE function block

For acyclic data exchange, the IO_LINK_DEVICE function block is available as a download for controllers of the S7 families.

The block supports you in the following tasks:

- Parameterization of an IO-Link device during operation
- Executing IO-Link port functions
- Backing up/restoring IO-Link device parameters

Requirements

- Install the IO_LINK_DEVICEfunction block.
  You can download the IO_LINK_DEVICE function block and the description from the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

Procedure when using the IO_LINK_DEVICE function block

1. Copy the IO_LINK_DEVICE function block (including data block DB10) to a *STEP 7* project.
2. Use the IO_LINK_DEVICE function block as described in the documentation.
3. You can find an application example of how to use the IO-Link devices with the IO_LINK_DEVICE function block on the Internet (http://support.automation.siemens.com/WW/view/en/90529409).

12.1.6 Replacing an IO-Link device

12.1.6.1 Introduction

To replace an IO-Link device, the devices must be isolated from communication and disconnected from the power supply. After the connections have been restored and communication has been resumed, the parameterization can be restored according to the respective IO-Link communication specification:

- IO-Link communication specification V1.0: concerning the IO_LINK_DEVICEfunction block.
- IO-Link communication specification V1.1: concerning the function of automatic parameter assignment by the IO-Link master modules of the ET 200SP, ET 200AL and S7-1200

12.1.6.2 Replacing an IO-Link device (according to IO-Link specification V1.0)

Procedure

When replacing an IO-Link device, the plug-in connection to the IO-Link port can be removed without isolating the control voltage supply.

Parameter data and configuration data specially optimized by the user for a specific application are stored in an IO-Link device This data deviates in many cases from the default values stored in the IO-Link device.

In the event of replacement of an IO-Link device (referred to below as a "module"), the optimized data must be transferred to the new module because the parameters are stored only in the IO-Link device itself.

Data can be transferred via two channels:

- Module replacement with PG/PC
- Module replacement without PG/PC

Procedure with PG/PC

In the event of a replacement, a PG/PC is available with the SIMATIC project of the plant.

With the data stored in the SIMATIC project, and the *S7-PCT* port configuration tool, you transfer the parameters belonging to the replaced IO-Link-Device to the new IO-Link-Device.

Procedure without PG/PC

Requirements

- Install the IO_LINK_DEVICEfunction block.
  You can download the IO_LINK_DEVICE function block and the description from the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

On completion of commissioning, a PG/PC with the project is no longer available. For backing up and restoring the parameter data and configuration data from or to a module, the IO_LINK_DEVICE function block is available for the SIMATIC controllers of the S7 family.

With this function block, you back up all relevant data records of a module after commissioning, in a data block (DB), for example. In the event of a replacement, write the relevant data from the data block to the replaced module with the IO_LINK_DEVICE function block.

Refer to the Appendix "Process data and data sets (Page 593)" for data records to be backed up in the case of a module.

Procedure

1. Copy the IO_LINK_DEVICE function block (including data block DB10) to a STEP 7 project.
2. Use the IO_LINK_DEVICE function block as described in the documentation.
3. You will find an application example of how to use the IO-Link devices with the IO_LINK_DEVICE function block on the Internet (http://support.automation.siemens.com/WW/view/en/90529409).

Note

An IO-Link device is a module that communicates with the IO-Link master via its communication connection.

12.1.6.3 Replacing an IO-Link Device (according to IO-Link specification V1.1)

Automatic saving of parameter data

If IO-Link masters and IO-Link devices according to the IO-Link Communication Specification V1.1 are available, the "parameter server" function can be used to automatically back up parameter data.
When devices are replaced, this parameter data is written back to the new IO-Link device automatically on system startup.
However, this does not apply to individual ID keys in the electronic module for ID key-operated switches. In this case, the ID keys must be recoded when a module is replaced.

12.1.7 Integration into the SIMATIC environment

Integration into the SIMATIC environment

Systematic diagnostics concepts and efficient handling of parameter data are demanded at all levels of automation engineering. It is essential here that sensors and switching devices are integrated into the automation network. The communication standard IO-Link offers new possibilities in this regard by means of intelligent connection of sensors and switching devices to the control level. The core points are switching, protecting, monitoring, commanding and signaling at the field level. A block library is designed to make it easier for end users to connect the IO-Link devices, and to demonstrate use of the library using actual examples

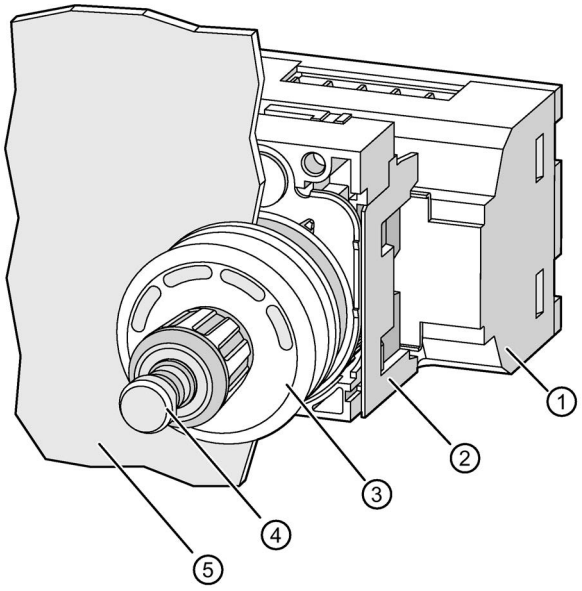
You can download the library from the Internet (https://support.industry.siemens.com/cs/ww/en/view/90529409) free of charge.

12.2 Electronic modules for ID key-operated switches

12.2.1 Design of a command point with ID key-operated switch

Command point with ID key-operated switch on front plate

A modular command point with ID key-operated switch on a front plate consists of the following elements:



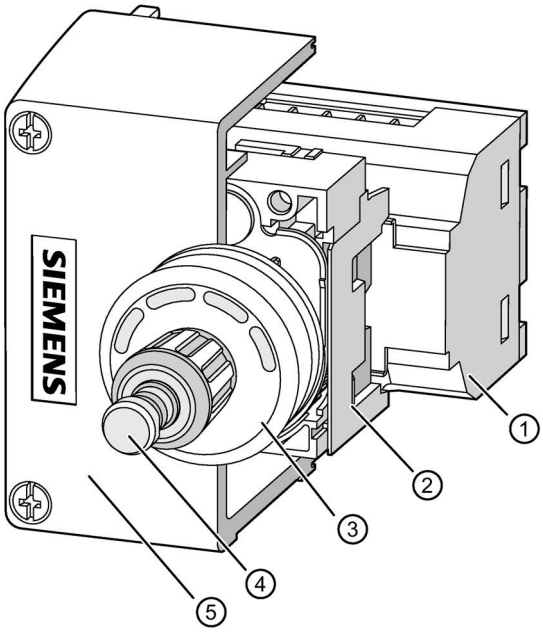
① Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 201)
② 3-slot holder 3SU1500-0AA10-0AA0 (Page 221) for securing behind the front plate
③ ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 89) in front of the front plate
④ ID key 3SU1900-0Fxy0-0AA0 (Page 438)
⑤ Front plate

Note

The minimum clearance between two command points when mounted on the front plate is 10 cm in all directions.

Command point with ID key-operated switch in an enclosure

A modular command point with ID key-operated switch in an enclosure consists of the following elements:



① Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 201)
② 3-slot holder 3SU1500-0AA10-0AA0 (Page 221) for securing in the enclosure
③ ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 89)
④ ID key 3SU1900-0Fxy0-0AA0 (Page 438)
⑤ Enclosure with raised cover, command point in center 3SU18x1-1AA00-1AA1 (Page 230)

12.2.2 Operating principle of the command point with ID key-operated switch

The ID key-operated switch is used primarily to set the current key position by rotation. To set the current key position, the rotary knob of the ID key-operated switch is turned clockwise or counter-clockwise. There is an opening in the rotary knob into which the ID key is inserted. Actuation is only possible if a valid ID key has been recognized, and the authorization level of the relevant ID key corresponds to, or is higher than, the current key position. The rotary knob can be turned clockwise and counter-clockwise through 360° in 45-degree steps.

The switch position delay is started and the temporary key position is incremented by turning clockwise.

The temporary key position is indicated by the illuminated surfaces in the ID key-operated switch flashing green. During the switch position delay, the temporary key position can be changed by turning the knob clockwise or counter-clockwise. The switch position delay is restarted by turning the knob clockwise. During the switch position delay, the outputs are not yet affected by the temporary key position. After the delay has expired, the temporary key position is adopted as the current key position, and the outputs are switched in accordance with this position.

By turning counter-clockwise, the current key position is changed to 0, and the outputs are switched immediately in accordance with this position.

Note

In a configuration with electronic module for ID key-operated switches for IO-Link, the parameters can be set via IO-Link.

You will find additional information in Chapter "Configuring IO-Link (Page 317)".

Settings on the electronic module for ID key-operated switches

The electronic modules for ID key-operated switches have 5 digital outputs. Setting of outputs 0 to 3 depends on the current key position and the module settings. If a valid ID key has been recognized, output 4 is active; otherwise output 4 is inactive.

Table 12- 1 Individual method

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Inactive	Active	Inactive	Inactive
3	Inactive	Inactive	Active	Inactive
4	Inactive	Inactive	Inactive	Active

Table 12- 2 Addition method (incremental method)

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Active	Active	Inactive	Inactive
3	Active	Active	Active	Inactive
4	Active	Active	Active	Active

Note

The addition method (incremental method) can only be set on the electronic modules for ID key-operated switches for IO-Link.

Short-circuit protection

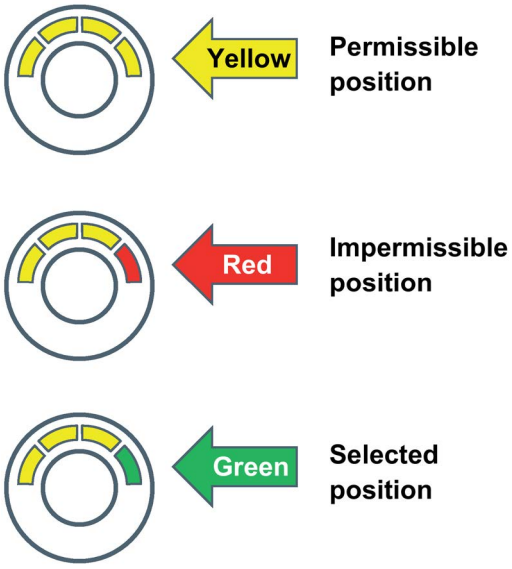
If a short-circuit occurs at one or more outputs, the occurrence of a fault event is sent and the fault flag is set. All outputs are deactivated for one second. Then the relevant outputs are re-activated to monitor whether the short-circuit is still active. This temporary state exists for approximately 0.1 seconds. If no short-circuit is determined during this period, the fault event is revoked, and the fault flag is deleted. However, if a short-circuit is detected during this time, all outputs are deactivated again, and the short-circuit device fault remains.

Function of the LEDs in the ID key-operated switch

In the enclosure of the ID key-operated switch are 4 illuminated surfaces that can assume the following states:

- Showing a green light: Indication of the current key position and the switched outputs.
- Flashing green: Indication of the temporary key position.
- Showing a yellow light: Indication of the associated authorization level (key position that can be reached by turning the rotary knob).
- Flashing yellow (all 4 illuminated surfaces): Indication for the individually codable ID key used that has not yet been configured.
- Showing a red light: Indicates that the relevant key position is higher than permissible for the relevant authorization level. (This key position cannot be reached by turning the rotary knob.) The indicator also shows a red light when there is no ID key plugged in.
- Flashing red (all 4 illuminated surfaces): When using a colored ID key with permanently encoded authorization level (ID group 1 to 4), this indicates when the parameter "Individually codable ID keys only" is enabled.
- Not illuminated: The electronic module is switched off.

Displayed colors



Selectable positions dependent on ID key using the adjustment method

In this case, "DS 131 Incremental switching mode" must be set to "disabled" on the electronic modules for ID key-operated switches for IO-Link.

Key color	Output 4 (DQ.4) active	Outputs 0 and 4 (DQ.0 and DQ.4) active	Outputs 1 and 4 (DQ.1 and DQ.4) active	Outputs 2 and 4 (DQ.2 and DQ.4) active	Outputs 3 and 4 (DQ.3 and DQ.4) active
Green					
Yellow					
Red					
Blue					

Selectable positions dependent on ID key using the addition method (only for electronic modules for ID key-operated switches for IO-Link).

With this method, "DS 131 Incremental switching mode" must be set to "Unlocked" on the electronic modules for ID key-operated switches for IO-Link.

Key color	Output 4 (DQ.4) active	Outputs 0, 4 (DQ.0 and DQ.4) active	Outputs 0, 1, 4 (DQ.0, DQ.1, DQ.4) active	Outputs 0, 1, 2, 4 (DQ.0, DQ.1, DQ.2, DQ.4) active	Outputs 1, 2, 3, 4 (DQ.0, DQ.1, DQ.2, DQ.3, DQ.4) active
Green					
Yellow					
Red					
Blue					

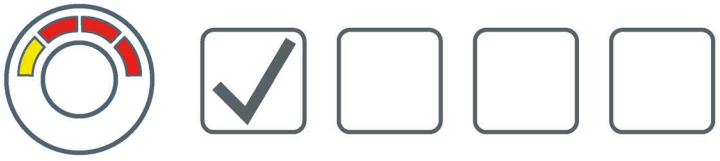
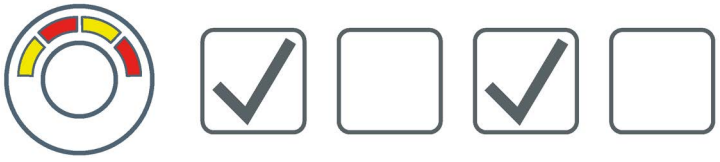
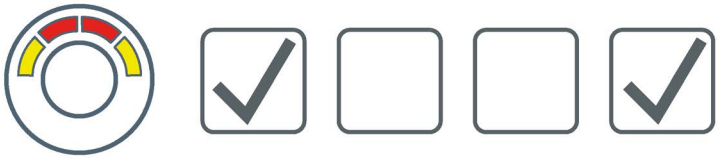
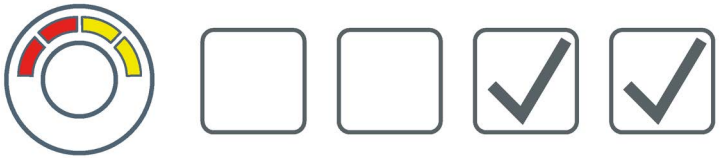
You can find more information about data sets in Section "Electronic modules for ID key-operated switches (Page 593)" in Chapter "Process data and data sets" in the appendix.

12.2.3 New functions as of firmware 2.0.0

Free selection of authorization levels

The authorization levels can be enabled by making a selection in the Port Configuration Tool (PCT). This allows greater flexibility in selecting an application.

Application: A service technician only needs the highest authorization level, for example. An individual ID key with authorization for level 4 is configured.

Authorization levels	
1	
1 and 3	
1 and 4	
3 and 4	

Register ID key by number

The individual ID key can be read in, without it physically existing or being inserted in the module, by entering the individual number in the PCT or by transferring it in the acyclic dataset.

Application: After the system has been delivered, additional ID keys can be logged into the system without them physically existing in the system.

Parameterizable selection mode

The selection mode can be parameterized for turning right and left. This allows the authorization levels to be selected via both directions.

The function must be enabled in the PCT.

Application: If no direct deactivation is necessary, the authorization levels can be selected more quickly and easily using this function.

Change to process image

The outputs or the selected authorization levels are listed in the process image via the cyclic process data.

Application: Direct access on the bit level is possible, thus complex calculations are no longer required.

12.2.4 Compatibility

Due to the compatibility mode, older device versions can be replaced by the new devices (firmware 2.0.0) without having to change the configuration.

The devices with firmware 2.0.0 can be operated in compatibility mode by using the IODD for the device with firmware 1.4.0. The device will have the functions of firmware 1.4.0. The device with firmware version 2.0.0 is downward-compatible with all earlier versions.

To be able to use the new features of firmware update 2.0.0, you need the electronics module as hardware for the ID key-operated switch with the development status E03 (this data can be found on the module) and the current IODD for this device. You can then operate this device in normal mode and you will have all of the features at your disposal.

Compatibility mode

The compatibility mode can be activated by parameterizing the port of the IO-Link Master (e.g. in PCT) with an appropriate IODD.

Switching the device to compatibility mode:

- Parameterize the port of the IO-Link Master with the IODD that was provided for the original **ID key** (Firmware version 1.4.0).

Switching the device to normal mode:

- Parameterize the port of the IO-Link Master with the IODD that was provided for the **ID key 2** (Firmware version 2.0.0).

The device with firmware 2.0.0 is operated in:

	IODD file name
Normal mode	*Siemens-SIRIUS-3SU1-ID2-ReleaseDate-IODD1.(0.)1.xml*
Compatibility mode	*Siemens-SIRIUS-3SU1-ID-ReleaseDate-IODD1.(0.)1.xml*

It is recommended that you operate the device in normal mode if there is no reason for compatibility mode.

Reason for compatibility mode:

If the user has installed the ID key and a failure occurs on this module, the module can be replaced by the new ID key with the product version E03. This can be done without manual parameterization if the data storage is activated on the port of the IO-Link Master. The ID key (with product version E03) is executed after the replacement in compatibility mode. The same parameter format and no new functions.

12.2.5 Parameters

12.2.5.1 Parameters

The following parameters can be set:

- Incremental switching mode
- Switch position memory
- Switch position retentive memory
- Individually codable ID keys only
- Switch position delay
- Select memory range
- Restore Factory Setting
- Add new individual ID key
- Deactivation of the switch-off function (firmware 2.0.0; included in the device as of product version E03)
- Delete individually codable ID key
- Parameter (write) Access Lock (parameters for IO-Link devices according to IO-Link communication specification V1.1)
- Data Storage Lock (parameters for IO-Link devices according to IO-Link communication specification V1.1)

The "Parameter (write) Access Lock" and "Data Storage Lock" parameters can be set in the **"Port Configuration Tool S7-PCT"** V3.0 or higher.

Notes on parameter assignment

Transfer of the parameters with the "Parameterserver" function if IO-Link masters and IO-Link devices according to the IO-Link communication specification V1.1 are available:

1. The "Parameter server" function backs up the parameter data from the IO-Link devices.
2. Replace the IO-Link device.
3. The parameter data is automatically written back to the new IO-Link device on system startup.

12.2.5.2 "Incremental switching mode" parameter

"Incremental switching mode" parameter

The "Incremental switching mode" parameter influences the evaluation of the current key position.

1) "Incremental switching mode" disabled: The adjustment method is used.

- Key position ≥ 1: The output corresponding to the current key position-1 is switched on; the remaining outputs 0 ... 3 are inactive.
- Key position 0: All outputs 0 ... 3 are inactive.

Example: Key position = 2: Output 0: Off, output 1: On, output 2: Off, output 3: Off

2) "Incremental switching mode" enabled: The addition method is used.

- Key position ≥ 1: The outputs with the indices from 0 to the current switch position-1 are switched on; the remaining outputs 0 ... 3 are inactive.
- Key position 0: All outputs 0 ... 3 are inactive.

Example: Key position = 2: Output 0: On, output 1: On, output 2: Off, output 3: Off

Settings	Description	Default setting
0	Incremental switching mode: disabled	Disabled
1	Incremental switching mode: enabled	—

12.2.5.3 "Deactivation of the switch-off function" parameter

"Deactivation of the switch-off function" parameter

The "Deactivation of the switch-off function" parameter is used to define whether or not the selected authorization level can be deactivated by turning to the left.

The table below shows the parameter values.

Value	Description	Default setting
Disabled	The authorization levels are switched off by turning to the left.	Disabled
Enabled	The authorization levels are switched off by turning to the left. The next lower authorization level can be selected directly	—

12.2.5.4 "Switch position memory" parameter

"Switch position memory" parameter

1) "Switch position memory" disabled:

- No ID key recognized. The current switch position is changed to 0 immediately after removing the ID key, and all active outputs are deactivated.

2) "Switch position memory" enabled:

- No ID key recognized. The last current switch position is retained after the ID key has been removed, and all active outputs remain in the switched-on state. The authorization level of the currently used ID key must correspond to the authorization level of the current switch position or higher.

This value can be changed by:

- Using an ID key with suitable authorization level and turning the rotary knob on the ID key-operated switch.
- Switching off the power supply (if the parameter “switch position retentive memory" is disabled).

Settings	Description	Default setting
0	Switch position memory: disabled	Disabled
1	Switch position memory: enabled	—

12.2.5.5 “Switch position retentive memory" parameter

"Switch position retentive memory" parameter

Prerequisite:

The "Switch position retentive memory" parameter only functions in combination with the "Switch position memory" parameter. The "Switch position memory" parameter must be enabled.

1) "Switch position retentive memory" disabled:

- After shutting down the power supply of the electronic module, the last current switch position is lost, and the module is set to 0 after switching on again

2) "Switch position retentive memory" enabled:

- After shutting down the power supply of the electronic module, the last current switch position is saved to the permanent memory and renewed after the electronic module is switched on again.

Settings	Description	Default setting
0	Switch position retentive memory: disabled	Disabled
1	Switch position retentive memory: enabled	—

12.2.5.6 “Individually codable ID keys only" parameter

“Individually codable ID keys only" parameter

1) “Individually codable ID keys only" disabled:

- All authorization levels are activated.

2) “Individually codable ID keys only" enabled:

- Only individually codable ID keys are permitted. In this case, only individually codable ID keys are recognized, regardless of whether they are listed in the key list in the electronic module or not. The ID groups 1 ... 4 are ignored.

Settings	Description	Default setting
0	Individually codable ID keys only: disabled	Disabled
1	Individually codable ID keys only: enabled	—

12.2.5.7 "Switch position delay" parameter

Switch position delay

The switch position delay specifies how long a temporary key position is displayed at the ID key-operated switch (by green flashing of the LED on the electronic module for ID key-operated switches). During this time, it is still possible to change the temporary key position by turning the knob. The switch position delay restarts when turning of the rotary knob is detected. During the switch position delay, the values at the outputs are not changed. When the switch position delay has expired, the temporary key position is accepted as the current key position. The status of the outputs is changed in accordance with this position.

Settings	Description	Default setting
1	Switch position delay: Minimum value	20 (2 seconds)
100	Switch position delay: Maximum value	—

Increment: 0.1 seconds

12.2.5.8 "Select memory range" parameter

"Select memory range" parameter

The Port Configuration Tool *S7-PCT* includes a dropdown menu with which you can select the part of the data set to be displayed. The memory range in which the individually codable ID keys are saved can be selected and displayed.

Settings	Description	Default setting
1	Select memory range: Minimum value	1 (individually codable key 1 ... 10)
5	Select memory range: Maximum value	—

Increment: 10 keys

12.2.5.9 "Restore Factory Setting" parameter

"Restore Factory Setting" parameter

In some situations, the electronic module for ID key-operated switches for IO-Link has to be changed to the standard state quickly and simply. For this purpose, the standardized system command "Restore Factory Setting" (value 0x82 in the data set (index) 2 - system commands or the button in the Port Configuration Tool *S7-PCT*) is used.

This command triggers the following:

- Standard settings for parameters - data set (index) 131
- Deleting the list of keys
- Data set (index) 24 (Application Specific Name) is deleted

Settings	Description
130	Restore Factory Setting

Standard values for parameters - data set (index) 131

Parameters	Setting
Incremental switching mode	Disabled
Switch position memory	Disabled
Switch position retentive memory	Disabled
Individually codable ID keys only	Disabled
Deactivation of the switch-off function	Disabled
Switch position delay	20 (2 seconds)
Select memory range	1 (individually codable key 1 ... 10)

12.2.5.10 Manage authorization level (individually encodable ID keys)

"Add new individual ID key" parameter

The electronic module can store up to 50 individually encodable ID keys in its permanent memory, and it can assign each of these individually encodable ID keys to group 1 ... 4 respectively. When an individually encodable ID key from the list is used, it behaves like an ID key from the relevant authorization level.

A list of the individually encodable ID keys can be displayed in the Port Configuration Tool *S7-PCT* .

If an individually encodable ID key is used in the ID key-operated switch, the electronic module detects that it belongs to the group of individually encodable ID keys.
A check is then made to see whether this key is included in the individual key list stored in the electronics module. If the identification number of the key used is in the list, the corresponding authorization level is determined using this list and assigned to the key used. This key behaves like a key belonging to the relevant authorization level.

Authorization levels 1 ... 4 can be assigned to each individually encodable ID key (white).
If the identification number of the key used is not found in the individual key list, it is assigned to the authorization level "Individually encodable ID key".
In this case, only output 4 is activated, and the illuminated surfaces on the ID key-operated switch flash yellow.

The authorization level is assigned via the Port Configuration Tool *S7-PCT*.

Manage authorization level (individually encodable ID keys)

There are two options of adding an individually encodable ID key to the memory of the device:

1) Add the ID key that is inserted in the ID key-operated switch.

2) Add the ID key based on its number (as of firmware version 2.0.0).

Since any combination of the levels can be selected, the meaning of the level differs:

Meaning of "level"		
	FW 1.4.0 (or FW 2.0.0 in compatibility mode)	**FW 2.0.0**
Level	4 pre-defined levels (numbers 0 - 4), level 0 = no ID key inserted	16 combinations of the levels (1 bit for each level) Selecting the levels with FW 2.0.0: • in the PCT using the checkbox • with DS 79
Level 1	ID key can switch on DQ.0	ID key can switch on DQ.0
Level 2	ID key can switch on DQ.0, DQ.1	ID key can switch on DQ.1
Level 3	ID key can switch on DQ.0, DQ.1, DQ.2	ID key can switch on DQ.2
Level 4	ID key can switch on DQ.0, DQ.1, DQ.2, DQ.3	ID key can switch on DQ.3

Note

ID key with level 0 (all of the levels set to zero) can be added. Not possible to switch on DQ.0 – DQ.3 with this setting.

Procedure with ID key inserted:

To add a new individually encodable ID key to the list of individually encodable ID keys, or to change the authorization level of an already added individually encodable ID key, the following steps are required:

- Insert the individually encodable ID key into the ID key-operated switch.
- Wait until the ID key is recognized. If the ID key is not recognized, all of the LEDs on the ID key-operated switch will flash.
- Select the levels 1 - 4 (any combination) by writing in the index 79, subindex 2, 3, 4, 5.
- Write the system command "**Add new individually encodable ID key**" (write the value 168 in the index 2).
- Check the status of the individually encodable ID key (data set (index) 92 - diagnostics).
- Remove the ID key from the ID key-operated switch.

Procedure using the number of the ID key (as of firmware version 2.0.0):

To add the new, individually encodable ID key based on its number, proceed as follows:

- Select the levels 1 - 4 (any combination) by writing in the index 79, subindex 2, 3, 4, 5.
- Write the valid ID number in the index 79, subindex 1 (5 bytes)
- Write the system command **Add new individually encodable ID key with its number** (write the value 169 in the index 2)
- Check the status of the individually encodable ID key (index 92, subindex: 21 [0x15] hex)

If an individually encodable ID key already exists in the memory and this ID key is re-saved by the system command 168 or 169, its level is overwritten according to DS79, subindex 2, 3, 4, 5.

Status of the individually encodable ID key (data set (index) 92 - diagnostics, byte 19.0 ... 19.7) (FW 1.4.0)

You will find additional information in Chapter "Data set (index) 92 - diagnostics (Page 602)".

Value	Description
0	Individually encodable ID key detected.
1	Electronic module memory is full.
2	No valid individually encodable ID key used.
3	Attempted deletion of an ID key that is not in the memory

Status of the individually encodable ID key (data set (index) 92 - diagnostics, byte 19.0 ... 19.7) (FW 2.0.0)

Value	Description
0	ID key added / deleted (no errors)
1	Memory full
2	Attempted addition/deletion of an ID key that is invalid
3	Attempted deletion of an ID key that is not in the memory

Identification number of the individually encodable ID key dataset (index) 94 - (ID keys)

FW 2.0.0: The authorization level and the switch position have different memory areas:

Byte.Bit	Subindex	Description
21.0 - 21.3	5	Authorization level
21.4 – 21.7	6	Key position

Encoding of the authorization level (dataset (index 94), subindex 5)

FW 2.0.0: The authorization level is not encoded as number 0 - 4, each level is assigned to an individual bit of this parameter.

Bit	Authorization level
0	1
1	2
2	3
3	4

The authorization level can be any number from 0 -15.

Example:

The authorization level is 10 (0x0A): Bit 0 = 0, Bit 1 = 1, Bit 2 = 0, Bit 3 = 1.

This ID key can switch on DQ.1 (bit 1) and DQ.3 (bit 3) by turning the rotary knob.

Parameter values of the authorization level (index 94, subindex 5) for standard ID key

ID key	FW 1.4.0 (or FW 2.0.0 in compatibility mode)	FW 2.0.0
Green	1	1
Yellow	2	2
Red	3	4
Blue	4	8

In compatibility mode, this parameter can have the value 0 - 4 (identical to FW 1.4.0).

Encoding of the key position (dataset (index 94), subindex 5)

FW 2.0.0: The authorization level is not encoded as number 0 - 4, each level is assigned to an individual bit of this parameter.

Bit	Authorization level
0	1
1	2
2	3
3	4

Example:

The value of the key position can be **1** (bit 0 set), **2** (bit 1 set), **4** (bit 2 set), **8** (bit 3 set).

In compatibility mode, this parameter can have the value 0 - 4 (identical to FW 1.4.0).

"Delete individual ID key" parameter

To delete an individually encodable ID key from the key list, the following steps are required.

Procedure:

- Use individually encodable ID key in the ID key-operated switches
- Wait for detection of the ID key
- Write the system command "Delete individual ID key" (value 0xA5 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*)
- Check: Status of the individually encodable ID key (data set (index) 92 - diagnostics)
- Remove the ID key from the ID key-operated switch

Settings	Description
165	Delete individual ID key used in the ID key-operated switch.

Status of the individually encodable ID key (data set (index) 92 - diagnostics, byte 19.0 ... 19.7)

You will find additional information in Chapter "Data set (index) 92 - diagnostics (Page 602)".

Value	Description
0	Individually encodable ID key detected.
2	No valid individually encodable ID key used.
3	Deleted ID key not in the memory of the electronic module.

Delete individually encodable ID key using data set 80

If the individually encodable ID key is lost or stolen, it is possible to remove the individually encodable ID key from the key list without the individually encodable ID key being physically available.

In this case, the electronics module offers the option of deleting the key from the key list using data set 80.

Procedure:

To delete an individually encodable key from the list using data set 80, the following steps are required:

- Write the identification number of the ID key to be deleted to data set (index) 80, or enter it in a form field in the Port Configuration Tool *S7-PCT*
- Load the entered identification number into the electronic module in the Port Configuration Tool *S7-PCT*
- Write the system command "Delete individually encodable ID key using data set 80" (value 0xA6 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*)
- Check: Status of the individually encodable ID key (data set (index) 92 - diagnostics)

Settings	Description
166	Delete individually encodable ID key using data set 80.

Delete all individual ID keys

With the system command "Delete all individual ID keys" (value 0xA7 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*), all ID keys of the key list can be deleted.

The complete list of the set authorization levels for the individually encodable ID keys in the electronic module for ID key-operated switch for IO-Link is deleted (memory of the individually encodable ID keys (1-30) - data set (index) 81 and memory of the individually encodable ID keys (31-50) - data set (index) 82).

Settings	Description
167	All individually encodable keys stored in the electronic module for ID key-operated switches for IO-Link, and the set authorization levels, are deleted.

12.2.5.11 Parameters for IO-Link devices (according to IO-Link communication specification V1.1)

Parameter "Parameter (write) access"

With the "Parameter (write) access" parameter, you define whether or not all write and read access parameters can be accessed.

The table below shows the parameter values.

Table 12- 3 "Parameter (write) Access Lock" parameter

Value	Description	Default setting
0	Parameter (write) access: Unlocked	Unlocked
1	Parameter (write) access: disabled	—

"Data Storage" parameter

With the "Data Storage" parameter, you define whether or not the mechanism for data storage is disabled.

The table below shows the parameter values.

Table 12- 4 "Data Storage Lock" parameter

Value	Description	Default setting
0	Data Storage: Unlocked	Unlocked
1	Data Storage: disabled	—

12.2.6 Process image

Process image input (PII)

The process image input contains the most important status information of the electronic modules for the ID key-operated switch for IO-Link.

Table 12- 5 PII - status information firmware version 1.4.0

DI (2 bytes)	PII
DI0.0	1: Ready
DI0.1	1: Group error
DI0.2	Reserved
DI0.3	Reserved
DI0.4	Reserved
DI0.5	Reserved
DI0.6	Reserved
DI0.7	Reserved
DI1.0	1: ID key recognized
DI1.1 - DI1.3	1: Authorization level
DI1.4 - DI1.6	1: Switch position

Table 12- 6 PII - status information as of firmware version 2.0.0

DI (2 bytes)	PII
DI0.0	Ready
DI0.1	Group error
DI0.2	Inserted ID key - Authorization level 1
DI0.3	Inserted ID key - Authorization level 2
DI0.4	Inserted ID key - Authorization level 3
DI0.5	Inserted ID key - Authorization level 4
DI0.6	Reserved
DI0.7	Reserved
DI1.0	ID key recognized
DI1.1	Digital output 0
DI1.1	Digital output 1
DI1.3	Digital output 2
DI1.4	Digital output 3
DI1.5	Digital output 4
DI1.6	Reserved
DI1.7	Reserved

In compatibility mode, the process image is identical to FW 1.4.0.

12.2.7 Diagnostics

12.2.7.1 IO-Link diagnostics

IO-Link diagnostics

On the electronic modules for ID key-operated switches for IO-Link, it is possible to carry out diagnostics via IO-Link. Short-circuit is signaled via the diagnostics mechanism of IO-Link. With all further diagnostics messages, the corresponding bit is set in data set (index) 92 - diagnostics.

The table below provides information on possible causes and remedial measures:

Table 12- 7 Possible causes and remedial measures

Diagnostics and messages	Possible cause	Possible remedial measures
Short-circuit	• The electrical cable connection on at least one of the digital outputs has been short-circuited. • The connected actuator is defective. The current consumption of the connected actuator is too high.	• Check the electrical cable connection of the digital outputs. • Check the current consumption of the connected actuator. • Use a new actuator.
Self-test error / internal error	• Fault in internal test. • The data saved in the device are invalid.	• Reset the electronic module to the delivery state and reconfigure the electronic module. • Return the device to the manufacturer.
Individually codable ID key cannot be saved: Key list is full	50 individually codable keys have already been saved, and the available memory range is full.	• Check the data in data sets 81 and 82 (memory of the individually codable ID keys (1-30) - data set (index) 81, and memory of the individually codable ID keys (31-50) - data set (index) 82) • Delete the no longer used individually codable ID keys from the memory.
Individually codable ID key cannot be saved: invalid key	• No valid individually codable ID key inserted. • The inserted individually codable ID key is defective.	• Use an individually codable ID key if, for example, a colored ID key has been inserted. • Use another individually codable ID key since the inserted ID key could be defective. • Check that the ID key has been inserted as far as it will go.

Diagnostics and messages	Possible cause	Possible remedial measures
Individually codable ID key cannot be deleted: invalid key	• No valid individually codable ID key inserted. • The inserted individually codable ID key is defective.	• Use an individually codable ID key (white). • Check that the ID key has been inserted as far as it will go. • Delete the corresponding ID key by manually entering the identification number in data set 80.
Individually codable ID key cannot be deleted: Key to be deleted is not in the key list	• The inserted individually codable ID key was not previously assigned an authorization level. • The manually entered identification number in data set 80 has not been assigned an authorization level	• Assign an authorization level to the ID key. • Check the manually entered identification number of the ID key in data set 80.

The table below indicates how the manufacturer-specific diagnostics are reported:

Table 12- 8 Diagnostics and messages

Diagnostics and messages	IO-Link for event code [1]	PII [2]	Data set 92	LED
		SF[3]		DEVICE
Short-circuit	0x7710	X	X	Red
Self-test error / internal error	—	X	X	Red
Individually codable ID key cannot be saved: Key list is full	—	—	X	—
Individually codable ID key cannot be saved: invalid key	—	—	X	—
Individually codable ID key cannot be deleted: invalid key	—	—	X	—
Individually codable ID key cannot be deleted: Key to be deleted is not in the key list	—	—	X	—

[1] The manufacturer-specific diagnostic events listed in the table are reported to the IO-Link master via the diagnostics mechanism of IO-Link.

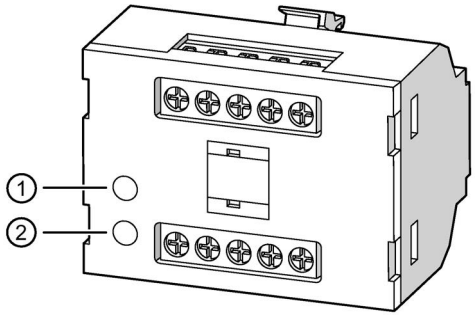
[2] With the "process image input" (see Chapter "Process image (Page 348)"), you can determine via the group error (GE) bit or general warning (GW) bit in the user program whether detailed information on diagnostics or messages is available in diagnostic data set 92. If bit (= 1) is set, you can obtain detailed information on what caused a "group error" by reading data set 92.

[3] GE = Group error: You can find detailed information in diagnostics data set 92 (see Chapter "Data set (index) 92 - diagnostics (Page 602)").

x: Bit set

—: Status does not change.

Device LED



① DEVICE (device LED)
② IO-Link

The device LEDs are used to indicate the correct functioning of the electronic module for ID key-operated switches. If a short-circuit or internal fault occurs, this is indicated by these LEDs.

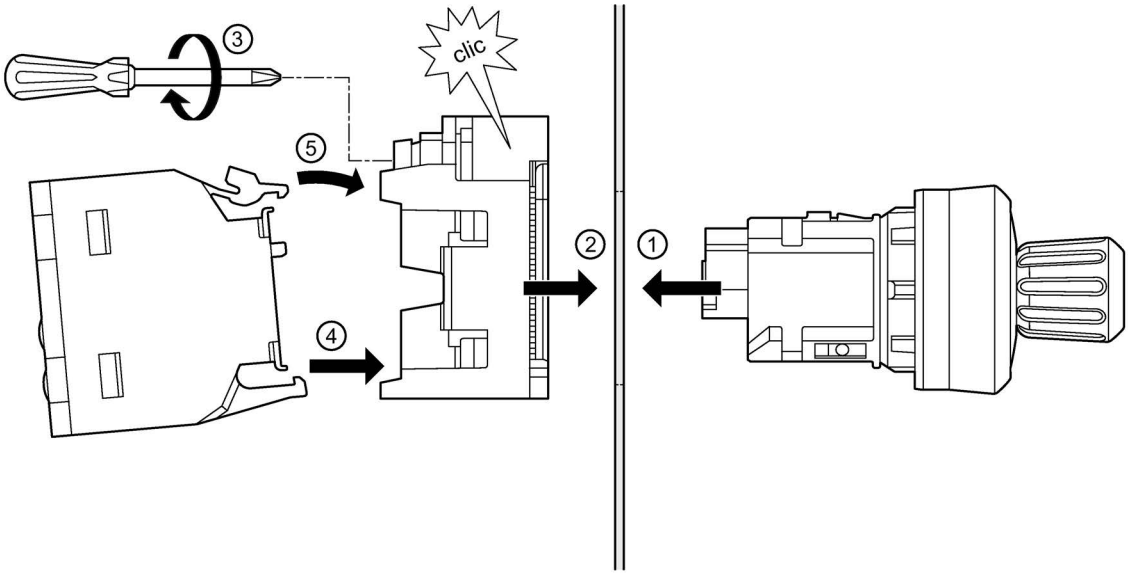
- Green device LED (DEVICE) lights up: Normal operation
- Red device LED (DEVICE) lights up: Fault display

IO-Link LED

The IO-Link LED is only used with the electronic module for ID key-operated switches for IO-Link, and is inactive with the electronic module for ID key-operated switches.

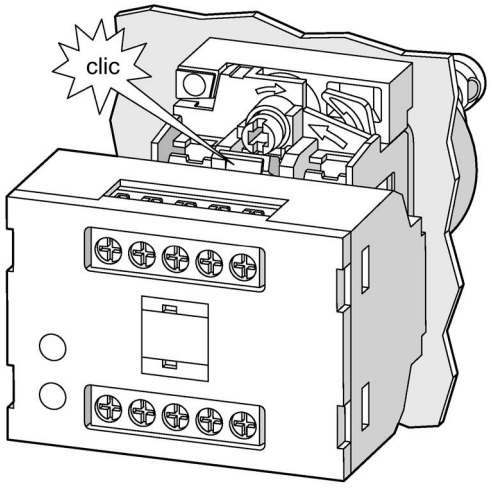
- Normal operation:
  When IO-Link communication functions properly, the green IO-Link LED flashes in accordance with the IO-Link communication specification V1.1 (time duration approximately 1 second, ON time approximately 0.9 seconds).
- Fault display:
  The IO-Link LED shows a red light in the event of IO-Link communication faults.

12.2.8 Mounting a command point with ID key-operated switch



Procedure

1. Insert the ID key-operated switch from the front into the opening of the front plate.
2. Place the holder from behind onto the ID key-operated switch.
3. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
4. Snap the electronic module for ID key-operated switch onto the back of the holder. Fit the narrow snap hook into the associated contour on the holder.
5. Engage the broad snap hook into the associated contour on the holder. Ensure secure latching.

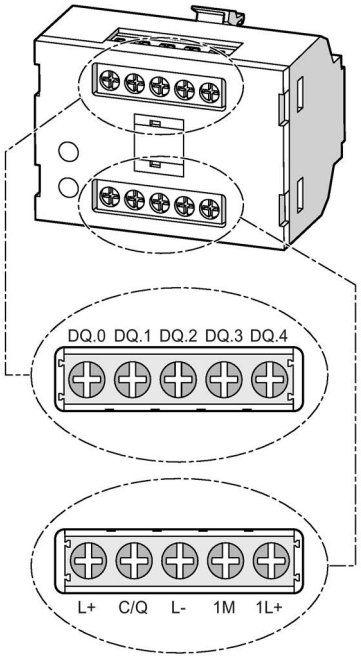


Snapping an electronic module onto the holder ④ / ⑤

12.2.9 Connecting

12.2.9.1 Electronic modules for the ID key-operated switches for IO-Link

3SU1400-1GD10-1AA0 electronic module for ID key-operated switches for IO-Link

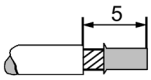
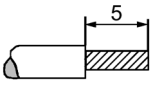


Terminal labeling

The IO-Link device is connected to the IO-Link master via the terminals L+, C/Q and L-. The IO-Link device is powered (24 V DC) via the two cables L+ and L-. The IO-Link device communicates with the IO-Link master via cable C/Q. A 200 mA current is available at an IO-Link port of the IO-Link master. If a current higher than 200 mA is required for the IO-Link device, the terminals 1M and 1L+ can be additionally connected.

Terminal labeling					
Pin	**X1**		**Pin**	**X2**	
1	DQ.0	Digital output	**6**	L+	Supply voltage for IO-Link
2	DQ.1	Digital output	**7**	C/Q	Communication signal/switching signal
3	DQ.2	Digital output	**8**	L-	IO-Link ground
4	DQ.3	Digital output	**9**	1M	Ground
5	DO.4	Digital output	**10**	1L+	24 V DC

Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	0.4 Nm
	1 x (0.2 ... 2.5) mm²
	1 x (0.25 ... 1.5) mm² 2 x (0.25 ... 0.75) mm²
	1 x (0.2 ... 2.5) mm² 2 x (0.2 ... 0.75) mm²
AWG	1 x 26 to 14

12.3 Electronic modules for IO-Link

The electronic modules for IO-Link can be installed in 3SU1 enclosures or mounted on a front plate.

The modules are controlled by IO-Link communication. The rated supply voltage of the module is 24 V.

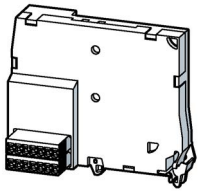
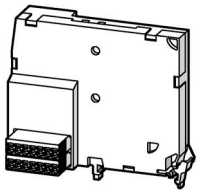
Variants

- **Front variant 6DI/2DO**
  For front plate mounting. The 8 digital inputs and outputs can be parameterized individually as required. The default setting is 6 digital inputs and 2 digital outputs. The inputs and outputs can only be parameterized by IO-Link communication.
- **Basic variant 6DI/2DO**
  For use in a 3SU1 enclosure. The 8 digital inputs and outputs can be parameterized individually as required. The default setting is 6 digital inputs and 2 digital outputs. The inputs and outputs can only be parameterized by IO-Link communication.
- **Basic variant 6DI/2DO**
  6DI/2DO means that the variant has 6 digital inputs and 2 digital outputs. It is not possible to change the number of inputs and outputs.
- **Basic variant 4DI/4DO**
  4DI/4DO means that the variant has 4 digital inputs and 4 digital outputs. It is not possible to change the number of inputs and outputs.
- **Basic variant 2DI/6DO**
  2DI/6DO means that the variant has 2 digital inputs and 6 digital outputs. It is not possible to change the number of inputs and outputs.

Article numbers

Front plate mounting
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221531)

Base mounting (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10251420)

	Mounting type	Digital inputs	Digital outputs	**Article number**
	Front plate mounting	6[1)]	2[1)]	3SU1400-1HL10-6AA0
	Base mounting	6[1)]	2[1)]	3SU1400-2HL10-6AA0
	Base mounting	6[2)]	2[2)]	3SU1400-2HK10-6AA0
	Base mounting	4[2)]	4[2)]	3SU1400-2HM10-6AA0
	Base mounting	2[2)]	6[2)]	3SU1400-2HN10-6AA0

[1)] Default setting. The 8 digital inputs and outputs can be parameterized individually as required.
[2)] It is not possible to change the number of inputs and outputs.

Short-circuit protection

If a short-circuit occurs at one or more outputs, the occurrence of a fault event is sent and the fault flag is set. All outputs are deactivated for one second. Then the relevant outputs are re-activated to monitor whether the short-circuit is still active. This temporary state exists for approximately 0.1 seconds. If no short-circuit is determined during this period, the fault event is revoked, and the fault flag is deleted. However, if a short-circuit is detected during this time, all outputs are deactivated again, and the short-circuit device fault remains.

12.3.1 Functions

12.3.1.1 Input functions

Static input

Description

This function is intended for general use. In this mode, a value at the input can be read and transferred to the IO-Link master via IO-Link communication. The output is deactivated in this mode.

Parameters

- Input delay
- Inverting input

Switching input

Description

A value at the input is read in this mode. Signal changes are monitored. The actual value of the relevant counter "Switching cycle number" is incremented by a predefined signal change. The actual value of this counter is compared to the parameterized number of switching cycles. If the actual switching cycle number reaches this value, the switching cycle number status is set to "threshold reached". If the actual switching cycle number reaches 4 294 967 295 (0xFFFFFFF [hex]), counting ceases and the status for the switching cycle number is set to "expired". If the actual switching cycle number is lower than the number of switching cycles and less than 4 294 967 295 (0xFFFFFFF [hex]), the status for the switching cycle number is set to "active". When the switching input mode is deselected, the status for the switching cycle number is set to "deactivated". The actual switching cycle number is stored in a buffer memory and is available as the start value for continued counting when the switching input mode is selected again. When the device is switched off, the actual switching cycle number is transferred to the non-volatile memory of the device so that it can be retrieved when the device is next switched on.

The actual switching cycle number can be reset to zero by the following methods:

- Change the number of switching cycles.
- Switch over from the switching input mode to the switching output mode, and vice versa.
- Change the type of counted edges.
- Use the standard command "Restore factory setting".
- Use the standard command “Application Reset”.
- Use the standard command "Reset switching cycle counter at pin x" (x refers to the number of the corresponding IO).
- Use the standard command "Switching cycle counter at pins 1-8".

Parameters

- Input delay
- Threshold switching cycle counter
- Active edges
- Inverting input

Switch-on duration input

Description

A value at the input is read in this mode. Signal changes are monitored. The value at the input is monitored. If the input is switched on for 1000 ms, the actual switch-on duration counter is incremented. This increase represents the total period of time during which the input is switched on and may include several pulses that are shorter than 1000 ms. The actual value of this counter is compared to the parameterized time period. If the actual switch-on duration counter reaches this value, the switch-on duration status is set to "threshold reached". If the actual switch-on duration counter reaches 4 294 967 295 (0xFFFFFFF [hex]), counting ceases and the status for the switch-on duration is set to "expired". If the actual switch-on duration count is shorter than the parameterized time period and less than 4 294 967 295 (0xFFFFFFF [hex]), the status for the switch-on duration is set to "active".

When the switch-on duration input mode is deselected, the status for the switch-on duration is set to "deactivated". The actual switch-on duration count is stored in a buffer memory and is available as the start value for continued counting when the switch-on duration input mode is selected again. When the device is switched off, the actual switch-on duration count is transferred to the non-volatile memory of the device so that it can be retrieved when the device is next switched on.

The actual switch-on duration count can be reset to zero by the following methods:

- Change the parameterized time period.
- Switch over from the switch-on duration input mode to the switch-on duration output mode, and vice versa.
- Use the standard command "Restore Factory Setting".
- Use the standard command "Application Reset".
- Use the standard command "Reset switch-on duration at pin x" (x refers to the number of the corresponding IO).
- Use the standard command "Reset switch-on duration at pins 1-8".

Parameters

- Input delay
- Threshold switch-on duration
- Inverting input

12.3.1.2 Output functions

Static output

Description

In this mode, a value for the relevant output can be set and transferred from the IO-Link master to the device. The value for the output is set by means of the output process data.

The output voltage corresponds to EN 61131-2.

Parameters

- Inverting output

PWM output

Description

The value of the output process data is read in this mode. The relevant output can be set as a PWM output in this mode. PWM is activated by means of the output process data.

Parameters

- PWM frequency
- PWM duty cycle
- Inverting output
  If "Inverting output" is deactivated, PWM is active at the output for as long as the corresponding output process data bit is activated. If the relevant process data bit is deactivated, the output is OFF.

  If "Inverting output" is activated, PWM is active at the output for as long as the corresponding output process data bit is deactivated. If the relevant process data bit is activated, the output is OFF.

Dimming output

Description

The relevant output can be switched on gradually in this mode. The dimming output is activated by means of the output process data. The dimming frequency is 100 Hz. The duty factor increases linearly from 0 to 100%. The output is fully ON when the dimming time expires. Dimming is activated when the output is switched on. When the output is switched off, it is deactivated instantaneously. The dimming status can be read in parameter Dimming Status. The possible values of this parameter are "Deactivated", "Active" and "Expired". This function is used primarily to gradually illuminate LED modules.

Parameters

- Dimming time
- Inverting output
  If "Inverting output" is deactivated, dimming activates a rising edge in the output process data. When the parameterized dimming time expires, the output is activated. If the output process data are deactivated, the output is OFF.
  If "Inverting output" is activated, dimming activates a falling edge in the output process data. When the parameterized dimming time expires, the output is activated. If the output process data are activated, the output is OFF.

Switching output

Description

The value of the output process data is read in this mode. Signal changes are monitored. The switching output mode is activated by means of the output process data. The actual value of the relevant counter "Switching cycle number" is incremented by a predefined signal change. The actual value of this counter is compared to the parameterized number of switching cycles. If the actual switching cycle number reaches this value, the switching cycle number status is set to "threshold reached". If the actual switching cycle number reaches 4 294 967 295 (0xFFFFFFF [hex]), counting ceases and the status for the switching cycle number is set to "expired". If the actual switching cycle number is lower than the number of switching cycles and less than 4 294 967 295 (0xFFFFFFF [hex]), the status for the switching cycle number is set to "active". When the switching output mode is deselected, the status for the switching cycle number is set to "deactivated". The actual switching cycle number is stored in a buffer memory and is available as the start value for continued counting when the switching output mode is selected again. When the device is switched off, the actual switching cycle number is transferred to the non-volatile memory of the device so that it can be retrieved when the device is next switched on. The actual switching cycle number can be reset to zero by the following methods:

- Change the number of switching cycles.
- Switch over from the switching output mode to the switching input mode, and vice versa.
- Change the type of counted edges.
- Use the standard command "Restore Factory Setting".
- Use the standard command “Application Reset”.
- Use the standard command "Reset switching cycle counter at pin x" (x refers to the number of the corresponding IO).
- Use the standard command "Switching cycle counter at pins 1-8".

Parameters

- Threshold switching cycle counter
- Active edges
- Inverting output

Switch-on duration output

Description

A value at the output is read in this mode. Signal changes are monitored. The switch-on duration output mode is activated by means of the output process data. The value at the output is monitored. If the output is switched on for 1000 ms, the actual switch-on duration counter is incremented. This increase represents the total period of time during which the output is switched on and may include several pulses that are shorter than 1000 ms. The actual value of this counter is compared to the parameterized time period. If the actual switch-on duration counter reaches this value, the switch-on duration status is set to "threshold reached". If the actual switch-on duration counter reaches 4 294 967 295 (0xFFFFFFF [hex]), counting ceases and the status for the switch-on duration is set to "expired". If the actual switch-on duration count is shorter than the parameterized time period and less than 4 294 967 295 (0xFFFFFFF [hex]), the status for the switch-on duration is set to "active". When the switch-on duration output mode is deselected, the status for the switch-on duration is set to "deactivated". The actual switch-on duration count is stored in a buffer memory and is available as the start value for continued counting when the switch-on duration output mode is selected again. When the device is switched off, the actual switch-on duration count is transferred to the non-volatile memory of the device so that it can be retrieved when the device is next switched on.

The actual switch-on duration count can be reset to zero by the following methods:

- Change the parameterized time period.
- Switch over from the switch-on duration output mode to the switch-on duration input mode, and vice versa.
- Use the standard command "Restore Factory Setting".
- Use the standard command "Application Reset".
- Use the standard command "Reset switch-on duration at pin x" (x refers to the number of the corresponding IO).
- Use the standard command "Reset switch-on duration at pins 1-8".

Parameters

- Threshold
- Inverting output

12.3.2 Parameters

The following input parameters can be set:

- Input delay
- Inverting input
- Switching input
- Active edges
- Threshold switch-on duration

The following output parameters can be set:

- Inverting output
- PWM frequency
- PWM duty cycle
- Dimming time
- Switching output
- Active edges

Notes on parameter assignment

Transfer of the parameters with the "Parameterserver" function if IO-Link masters and IO-Link devices according to the IO-Link communication specification V1.1 are available:

1. The "Parameter server" function backs up the parameter data from the IO-Link devices.
2. Replace the IO-Link device.
3. The parameter data is automatically written back to the new IO-Link device on system startup.

12.3.2.1 "Input delay" parameter

"Input delay" parameter

A delay time must be set at the input as a filter. Signal changes are ignored if they are shorter than the parameterized values. The input values are delayed by the time set for the filter. Values of between 3 and 255 ms can be set as the input delay.

Settings	Description	Default setting
3	Input delay: Minimum value	3 ms
255	Input delay: Maximum value	—

Increment: 1 ms

12.3.2.2 "Inverting input" parameter

"Inverting input" parameter

Each input can be parameterized as a normal or an inverting input.

Settings	Description	Default setting
0	Inverting input: disabled	disabled
1	Inverting input: enabled	—

12.3.2.3 "Switching input" parameter

"Switching input" parameter

Target value with which the actual switching cycle number is compared. The number of switching cycles can be set to between 0 and 4 294 967 295 (0xFFFFFFFF [hex]).

Settings	Description	Default setting
0	Number of switching cycles: Minimum value	0
4294967295	Number of switching cycles: Maximum value	—

Increment: 1

12.3.2.4 "Active edge" parameter input

"Active edge" parameter

Selection of type of edges to be counted. The following edge types are available for selection:

- None
- Rising edge
- Falling edge
- All edges

Settings	Description	Default setting
0	None	Rising edge
1	Rising edge	—
2	Falling edge	—
3	All edges	—

12.3.2.5 "Threshold" parameter input

"Threshold" parameter

Target value with which the actual switch-on duration count is compared. The target value can be set to between 0 and 4 294 967 295 (0xFFFFFFF [hex]) seconds. This approximately corresponds to: 0 to 136 years.

Settings	Description	Default setting
1	Threshold: Minimum value	0
4294967295	Threshold: Maximum value	—

Increment: 1 second

12.3.2.6 "Inverting output" parameter

"Inverting output" parameter

Each output can be parameterized as a normal or an inverting output.

Settings	Description	Default setting
0	Inverting output: disabled	disabled
1	Inverting output: enabled	—

12.3.2.7 "PWM frequency" parameter output

"PWM frequency" parameter

The PWM frequency can be set to values between 1 and 255 Hz.

Settings	Description	Default setting
1	PWM frequency: Minimum value	1 Hz
255	PWM frequency: Maximum value	—

Increment: 1 Hz

12.3.2.8 "PWM duty cycle" parameter output

"PWM duty cycle" parameter

The PWM duty cycle can be set to values between 10 and 90%.

Settings	Description	Default setting
10	PWM duty cycle: Minimum value	50%
90	PWM duty cycle: Maximum value	—

Increment: 1 %

12.3.2.9 "Dimming time" parameter output

"Dimming time" parameter

The dimming time can be set to between 0.1 and 25.5 seconds.

Settings	Description	Default setting
0.1	Dimming time: Minimum value	1 second
25.5	Dimming time: Maximum value	—

Increment: 0.1 seconds

12.3.2.10 "Switching output" parameter

"Switching output" parameter

Target value with which the actual switching cycle number is compared. The number of switching cycles can be set to between 0 and 4 294 967 295.

Settings	Description	Default setting
1	Number of switching cycles: Minimum value	0
4294967295	Number of switching cycles: Maximum value	—

Increment:1

12.3.2.11 "Active edge" parameter output

"Active edge" parameter

Selection of type of edges to be counted. The following edge types are available for selection:

- None
- Rising edge
- Falling edge
- All edges

Settings	Description	Default setting
0	None	Rising edge
1	Rising edge	—
2	Falling edge	—
3	All edges	—

12.3.3 Process image

Process image

The process image contains the most important status information of the electronic modules for IO-Link.

Process image 3SU1400-1(2)HL10-6AA0

Table 12- 9 Process image of the inputs

Byte.Bit	PI
0.0	PII - Ready
0.1	PII - Group error
0.2	PII - Reserved
0.3	PII - Reserved
0.4	PII - Reserved
0.5	PII - Reserved
0.6	PII - Reserved
0.7	PII - Reserved
1.0	PII - Input 0
1.1	PII - Input 1
1.2	PII - Input 2
1.3	PII - Input 3
1.4	PII - Input 4
1.5	PII - Input 5
1.6	PII - Input 6
1.7	PII - Input 7

Table 12- 10 Process image of the outputs

Byte.Bit	PI
0.0	PIQ - Output 0
0.1	PIQ - Output 1
0.2	PIQ - Output 2
0.3	PIQ - Output 3
0.4	PIQ - Output 4
0.5	PIQ - Output 5
0.6	PIQ - Output 6
0.7	PIQ - Output 7
1.0	PIQ - Reserved
1.1	PIQ - Reserved
1.2	PIQ - Reserved
1.3	PIQ - Reserved
1.4	PIQ - Reserved
1.5	PIQ - Reserved
1.6	PIQ - Reserved
1.7	PIQ - Reserved

Process image 3SU1400-2HN10-6AA0

Table 12- 11 Process image of the inputs

Byte.Bit	PI
0.0	PII - Ready
0.1	PII - Group error
0.2	PII - Reserved
0.3	PII - Reserved
0.4	PII - Reserved
0.5	PII - Reserved
0.6	PII - Reserved
0.7	PII - Reserved
1.0	PII - Input 0
1.1	PII - Input 1
1.2	PII -Reserved
1.3	PII -Reserved
1.4	PII -Reserved
1.5	PII -Reserved
1.6	PII -Reserved
1.7	PII -Reserved

Table 12- 12 Process image of the outputs

Byte.Bit	PI
0.0	PIQ - Reserved
0.1	PIQ - Reserved
0.2	PIQ - Output 2
0.3	PIQ - Output 3
0.4	PIQ - Output 4
0.5	PIQ - Output 5
0.6	PIQ - Output 6
0.7	PIQ - Output 7
1.0	PIQ - Reserved
1.1	PIQ - Reserved
1.2	PIQ - Reserved
1.3	PIQ - Reserved
1.4	PIQ - Reserved
1.5	PIQ - Reserved
1.6	PIQ - Reserved
1.7	PIQ - Reserved

Process image 3SU1400-2HM10-6AA0

Table 12- 13 Process image of the inputs

Byte.Bit	PI
0.0	PII - Ready
0.1	PII - Group error
0.2	PII - Reserved
0.3	PII - Reserved
0.4	PII - Reserved
0.5	PII - Reserved
0.6	PII - Reserved
0.7	PII - Reserved
1.0	PII - Input 0
1.1	PII - Input 1
1.2	PII - Input 2
1.3	PII - Input 3
1.4	PII - Reserved
1.5	PII - Reserved
1.6	PII - Reserved
1.7	PII - Reserved

Table 12- 14 Process image of the outputs

Byte.Bit	PI
0.0	PIQ - Reserved
0.1	PIQ - Reserved
0.2	PIQ - Reserved
0.3	PIQ - Reserved
0.4	PIQ - Output 4
0.5	PIQ - Output 5
0.6	PIQ - Output 6
0.7	PIQ - Output 7
1.0	PIQ - Reserved
1.1	PIQ - Reserved
1.2	PIQ - Reserved
1.3	PIQ - Reserved
1.4	PIQ - Reserved
1.5	PIQ - Reserved
1.6	PIQ - Reserved
1.7	PIQ - Reserved

Process image 3SU1400-2HK10-6AA0

Table 12- 15 Process image of the inputs

Byte.Bit	PI
0.0	PII - Ready
0.1	PII - Group error
0.2	PII - Reserved
0.3	PII - Reserved
0.4	PII - Reserved
0.5	PII - Reserved
0.6	PII - Reserved
0.7	PII - Reserved
1.0	PII - Input 0
1.1	PII - Input 1
1.2	PII - Input 2
1.3	PII - Input 3
1.4	PII - Input 4
1.5	PII - Input 5
1.6	PII - Reserved
1.7	PII - Reserved

Table 12- 16 Process image of the outputs

Byte.Bit	PI
0.0	PIQ - Reserved
0.1	PIQ - Reserved
0.2	PIQ - Reserved
0.3	PIQ - Reserved
0.4	PIQ - Reserved
0.5	PIQ - Reserved
0.6	PIQ - Output 6
0.7	PIQ - Output 7
1.0	PIQ - Reserved
1.1	PIQ - Reserved
1.2	PIQ - Reserved
1.3	PIQ - Reserved
1.4	PIQ - Reserved
1.5	PIQ - Reserved
1.6	PIQ - Reserved
1.7	PIQ - Reserved

12.3.4 Diagnostics

12.3.4.1 IO-Link diagnostics

Electronic modules for IO-Link can be diagnosed via IO-Link. Short-circuit is signaled via the diagnostics mechanism of IO-Link. With all further diagnostics messages, the corresponding bit is set in data set (index) 92 - diagnostics.

The table below provides information on possible causes and remedial measures:

Table 12- 17 Possible causes and remedial measures

Diagnostics and messages	Possible cause	Possible remedial measures
Short-circuit	• The electrical cable connection on at least one of the digital outputs has been short-circuited. • The connected actuator is defective. The current consumption of the connected actuator is too high.	• Check the electrical cable connection of the digital outputs. • Check the current consumption of the connected actuator. • Use a new actuator.
Self-test error / internal error	• Fault in internal test. • The data saved in the device are invalid.	• Reset the electronic module to the delivery state and reconfigure the electronic module. • Return the device to the manufacturer.

The table below indicates how the manufacturer-specific diagnostics are reported:

Table 12- 18 Diagnostics and messages

Diagnostics and messages	IO-Link for event code [1]	PII [2] / SF[3]	Data set 92	LED / DEVICE
Short-circuit	0x7710	X	X	Red
Self-test error / internal error	—	X	X	Red

[1] The manufacturer-specific diagnostic events listed in the table are reported to the IO-Link master via the diagnostics mechanism of IO-Link.

[2] With the "process image input", you can determine via the group error (GE) bit in the user program whether detailed information on diagnostics or messages is available in diagnostic data set 92. If bit (= 1) is set, you can obtain detailed information on what caused a "group error" by reading data set 92.

[3] GE = Group error: You can find detailed information in diagnostics data set 92 (see Chapter "Diagnostics - data set (index) 92 (Page 613)").

x: Bit set

—: Status does not change.

12.3.5 Installing and removing electronic modules for IO-Link

12.3.5.1 Installation options

The tables below show the options for mounting IO-Link electronic modules for front plate mounting on the holder.

One IO-Link electronic module can be mounted for each holder.

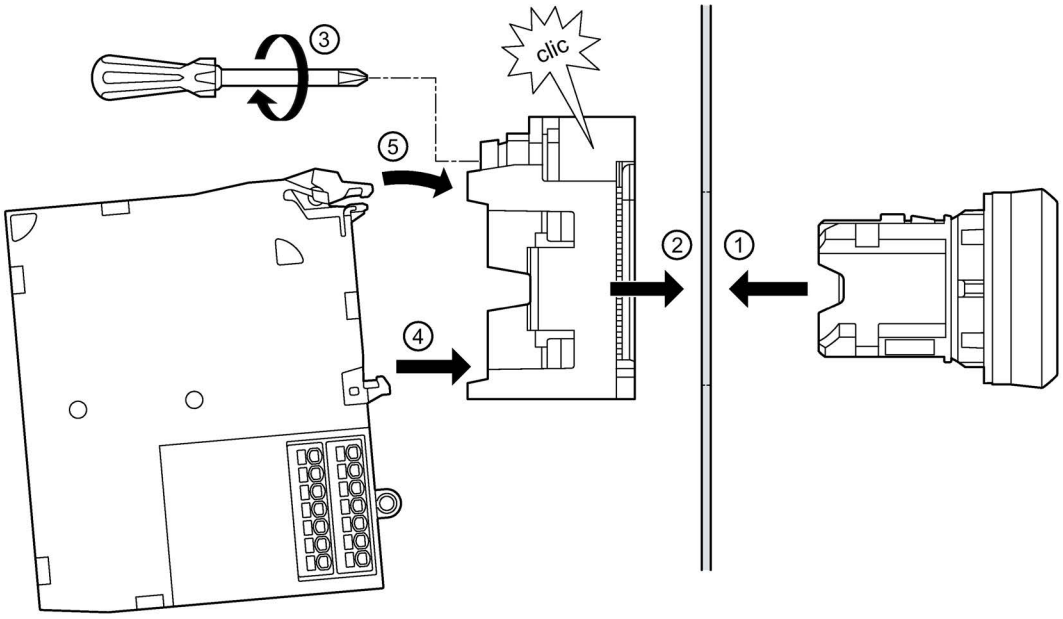
Mounting possibilities on 3-slot holder

3SU10 devices for 3-slot holder	Holder position 1	Holder position 3	Holder position 2
Pushbuttons / mushroom pushbuttons	x	x	x
Pushbuttons / mushroom pushbuttons, illuminable	x	-	x
Stop pushbuttons	x	x	x
Twin pushbuttons	-	x	-
Twin pushbuttons, illuminable	-	-	-
Selector switches, 3 positions	-	x	-
Selector switches, 3 positions, illuminable	-	-	-
Selector switches, 2 positions	x	x	x
Selector switches, 2 positions, illuminable	x	-	x
Selector switches, 3 positions	-	x	-
Key-operated switches, 2 positions	x	x	x
Key-operated switches with monitoring, 3 positions	x	-	x
Indicator lights	x	-	x
Indicator lights with locked handle	x	-	x
Toggle switches	x	x	x
ID key-operated switches	-	-	-
3SU12 compact units			
Indicator lights, compact	-	-	-
Acoustic signaling devices	-	-	-
Pushbuttons with extended stroke	-	-	-
Potentiometers	-	-	-
Sensor switches	-	-	-
Accessories			
Sealing plug	x	x	x
USB adapter	-	-	-
RJ45 adapter	-	-	-

Mounting possibilities on 4-slot holder

3SU10 devices for 4-slot holder	Holder position 1	Holder position 2	Holder position 4	Holder position 3
Coordinate switches, top/bottom	x	-	-	x
Coordinate switches, right/left	-	x	x	-
Coordinate switches, right/left/top/bottom	-	-	-	-
Selector switches, 4 switch positions	-	-	-	-

12.3.5.2 Installing IO-Link electronic modules for front plate mounting

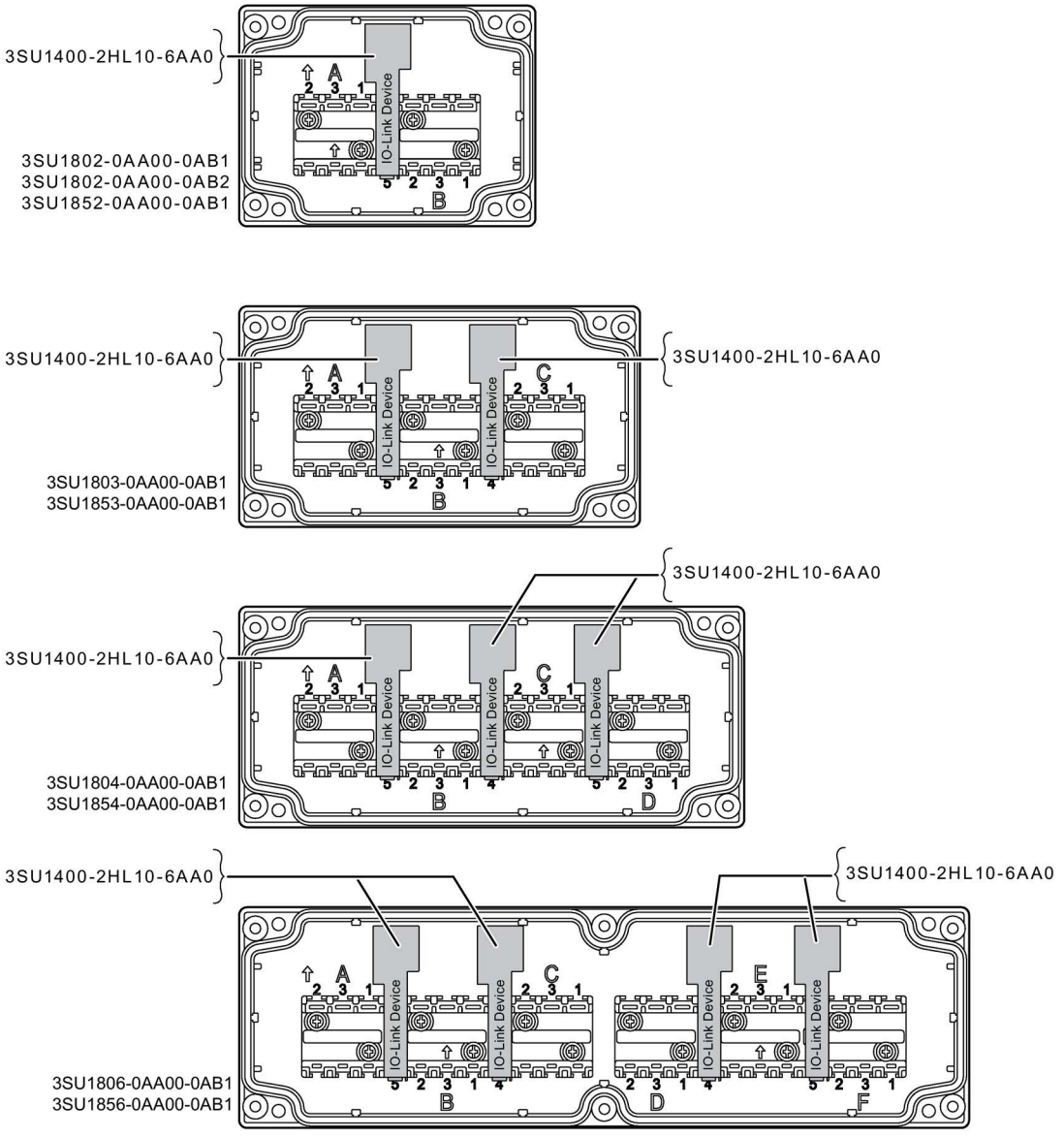


Procedure

1. Insert the push button or signaling device from the front into the opening of the front plate.
2. Fit the holder from behind. Ensure secure latching here.
3. Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).
4. Snap the IO-Link electronic module for front plate mounting from behind onto the holder. ④ / ⑤
   Ensure the IO-Link electronic module for front plate mounting is securely snapped into place.

12.3.5.3 Mounting position of IO-Link modules for base mounting

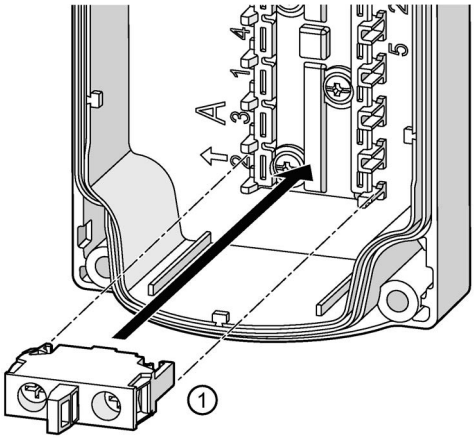
IO-Link modules for base mounting can be mounted in the following positions:



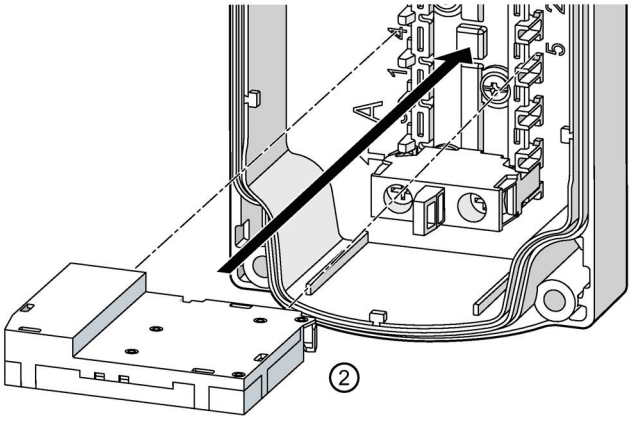
12.3.5.4 Mounting contact modules and IO-Link modules for base mounting

The electronic modules for IO-Link are mounted in the enclosure base like contact modules or LED modules. To equip an enclosure with contact modules and an electronic module for IO-Link, follow these steps:

1. Snap the contact module onto the slot in the enclosure marked "1", "2" or "3".



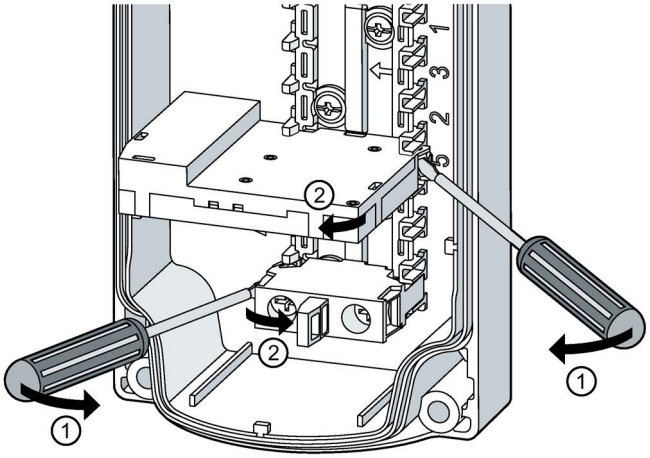
2. Insert the electronic module for IO-Link in an "intermediate slot, e.g. A / B or B / C.



12.3.5.5 Removal of the modules

Requirement

Enclosure cover is disassembled.



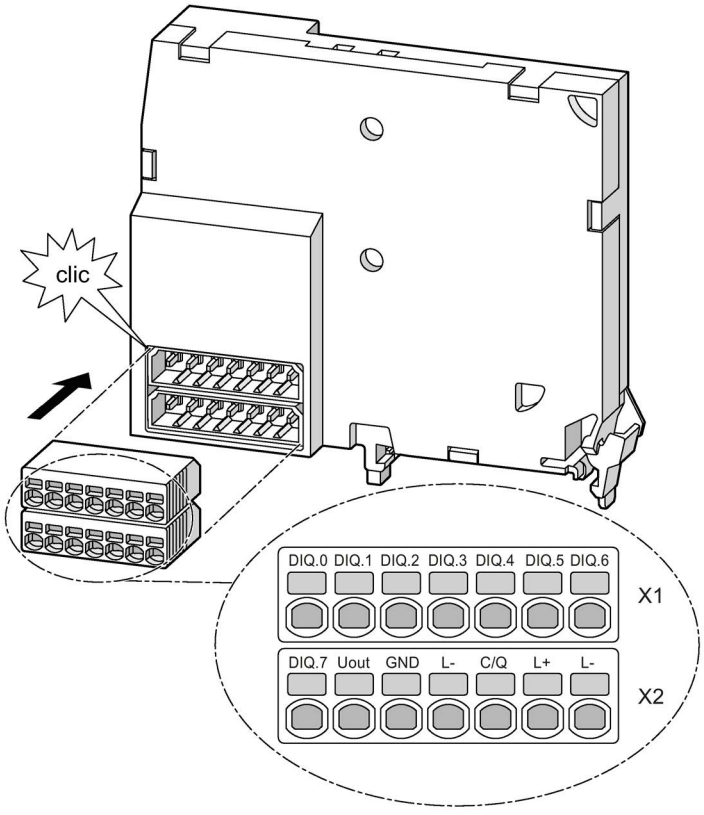
Procedure

1. Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.
   Or insert a screwdriver into the opening of the latches of the electronic modules for IO-Link.
2. Press the screwdriver in the direction of the module you want to remove to open the latches of the modules.
   Remove the modules.

12.3.6 Connecting

12.3.6.1 Electronic modules for IO-Link

IO-Link module for base mounting

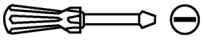
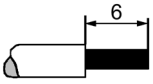
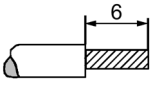


Terminal labeling

The IO-Link device is connected to the IO-Link master via the terminals L+, C/Q and L-. The IO-Link device is powered (24 V DC) via the two cables L+ and L-. The IO-Link device communicates with the IO-Link master via cable C/Q. A 200 mA current is available at an IO-Link port of the IO-Link master.

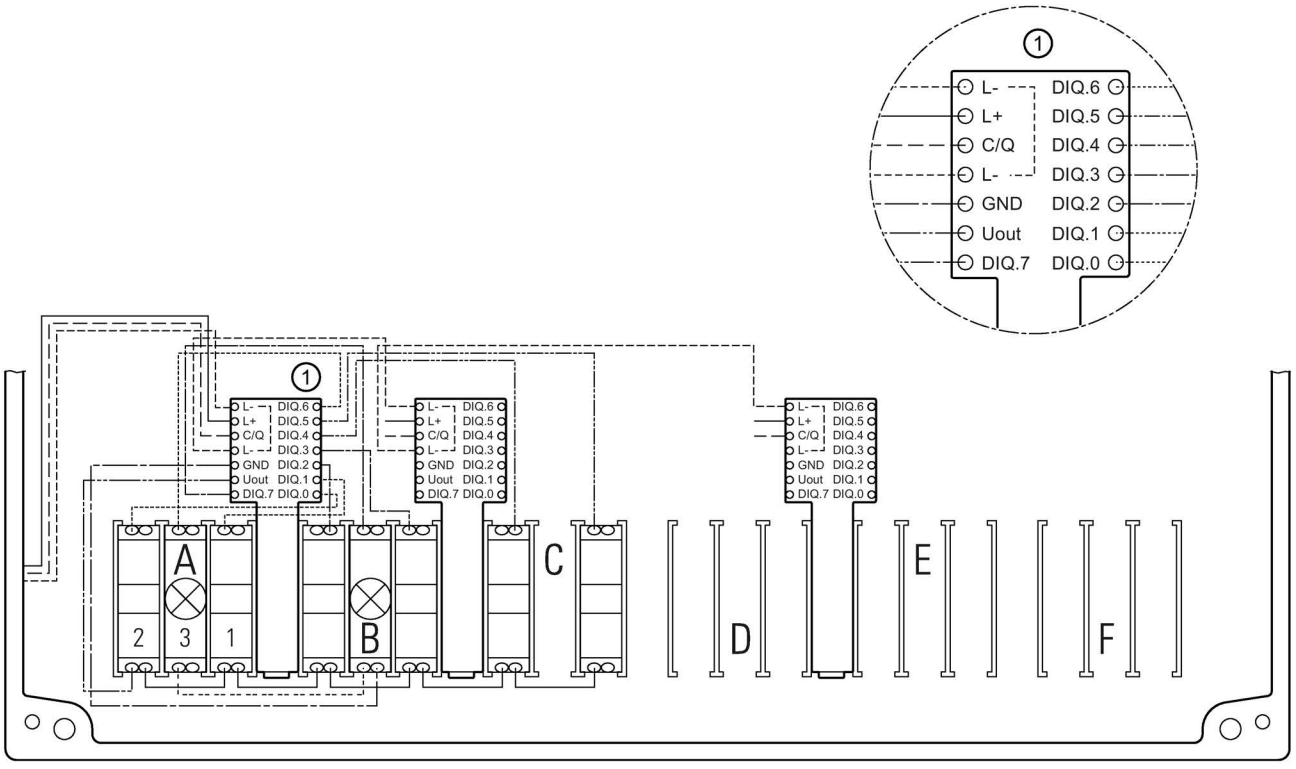
Terminal labeling					
Pin	**X1**		**Pin**	**X2**	
1	DIQ.0	Digital input/output	8	DIQ.7	Digital input/output
2	DIQ.1	Digital input/output	9	U_{out}	Module supply voltage
3	DIQ.2	Digital input/output	10	GND	Grounding for modules
4	DIQ.3	Digital input/output	11	L-	IO-Link ground for further modules
5	DIQ.4	Digital input/output	12	C/Q	Communication signal/switching signal
6	DIQ.5	Digital input/output	13	L+	Supply voltage
7	DIQ.6	Digital input/output	14	L-	Supply voltage

Conductor cross-sections

 SZ 2.0 mm x 0.4 mm	0.4 Nm
	1 x (0.14 ... 0.5) mm²
	1 x (0.2 ... 0.5) mm²
AWG	1 x 26 to 20

12.3.7 Example of wiring

Enclosure with six command points with three IO-Link modules, wired to the left



3SU19 accessories

13

13.1 Influence on the actuators

The accessories described in the following chapters do not affect the degree of protection of the command and signaling device.

Exceptions:

- Backing plate can be illuminated
- Protective caps

13.2 Identification of command points

13.2.1 Backing labels and backing plates

Backing plates and backing labels are used for more detailed labeling of a command point. They are used typically under an emergency stop mushroom pushbutton.

Backing labels and backing plates can be ordered with customized inscriptions via the "Configurator (https://www.siemens.com/sirius-act/configurator)".

Note

By using backing plates, the front plate thickness that can be clamped is reduced to < 4 mm. This is not the case when using backing labels.

13.2.1.1 EMERGENCY STOP

Also note the information in Chapters "Combination options of the accessories (Page 457)" and "Use of accessories for the enclosure (Page 459)".

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10228442)

Backing plate diameter 45 mm

Inscription	Article number
None	3SU1900-0BA31-0AA0

Backing plate diameter 60 mm

Inscription	Article number
NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (de, en, it, sp)	3SU1900-0BN31-0NC0

Backing plate diameter 75 mm

Inscription	Article number
None	3SU1900-0BB31-0AA0
NOT-AUS	3SU1900-0BB31-0AS0
NOT-HALT	3SU1900-0BB31-0AT0

Backing plate diameter 75 mm, self-adhesive

Inscription	Article number
None	3SU1900-0BC31-0AA0
NOT-AUS	3SU1900-0BC31-0AS0
NOT-HALT	3SU1900-0BC31-0AT0
EMERGENCY STOP	3SU1900-0BC31-0DA0
Arrêt d'urgence	3SU1900-0BC31-0GQ0
EMERGENZA	3SU1900-0BC31-0JA0
NODSTOP	3SU1900-0BC31-0LA0
NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (de, en, it, sp)	3SU1900-0BC31-0NB0
紧急停止 (EMERGENCY STOP in Chinese)	3SU1900-0BC31-0MA0

Backing plate diameter 60 mm, illuminable; 5 mm thick

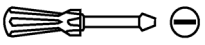
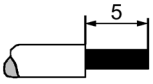
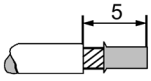
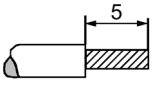
This backing plate has its own power supply connection and can be illuminated. The front plate thickness that can be clamped is reduced to 4 mm.

Inscription	Article number
None	3SU1901-0BD31-0AA0
NOT-AUS	3SU1901-0BD31-0AS0
NOT-HALT	3SU1901-0BD31-0AT0
EMERGENCY STOP	3SU1901-0BD31-0DA0
NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (de, en, it, sp)	3SU1901-0BD31-0NB0

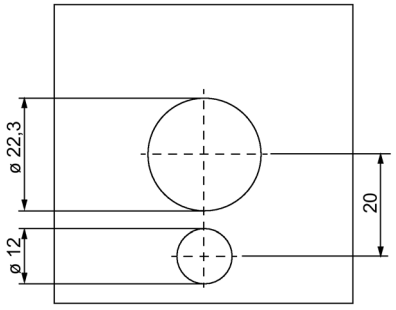
Technical data

- **U:** 24 V AC/DC -10% / +10%
  Class 2 acc. to UL standard or use an additional UL-listed fuse with time delay 1/10 A, 250 V.
- **I:** 20 mA
- **Degree of protection**: IP65

Conductor cross-sections

 SZ 3.5 mm x 0.6 mm	0.4 Nm
 (acc. to DIN 46228)	1x 0.25 ... 1.5 mm²
 (acc. to DIN 46228)	1x 0.14 ... 1.5 mm²
	1x 0.2 ... 2.5 mm²
AWG	28 to 16

Drilling plan for illuminable backing plate



13.2.2 Labeling plates

Labeling plates are used for more detailed labeling of a command point. They are used typically in conjunction with a label holder or an enclosure. The labeling plate for the potentiometer and the labeling plate for the enclosure with emergency stop devices are exceptions here

The labeling plates are available in different colors and variants (black with white print or silver-colored with black print) for sticking or snapping in place.

13.2.2.1 Labeling plate 12.5 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226804)

	Description	Article number
	Labeling plate	3SU1900-0AC16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AC16-0AB0
Aus	3SU1900-0AC16-0AC0
Auf	3SU1900-0AC16-0AD0
Ab	3SU1900-0AC16-0AE0
Vor	3SU1900-0AC16-0AF0
Zurück	3SU1900-0AC16-0AG0
Rechts	3SU1900-0AC16-0AH0
Links	3SU1900-0AC16-0AJ0
Halt	3SU1900-0AC16-0AK0
Zu	3SU1900-0AC16-0AL0
Betrieb	3SU1900-0AC16-0AP0
Störung	3SU1900-0AC16-0AQ0
Hand Auto	3SU1900-0AC16-0DB0
Hand O Auto	3SU1900-0AC16-0DD0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AC16-0DJ0
Off	3SU1900-0AC16-0DK0
Up	3SU1900-0AC16-0DL0
Down	3SU1900-0AC16-0DM0
Forward	3SU1900-0AC16-0DN0
Reverse	3SU1900-0AC16-0DP0
Right	3SU1900-0AC16-0DQ0
Left	3SU1900-0AC16-0DR0
Stop	3SU1900-0AC16-0DS0
Start	3SU1900-0AC16-0DT0
Reset	3SU1900-0AC16-0DU0
Test	3SU1900-0AC16-0DV0
Open	3SU1900-0AC16-0DW0
Close	3SU1900-0AC16-0DX0
Jog	3SU1900-0AC16-0DE0
Running	3SU1900-0AC16-0EB0
Fault	3SU1900-0AC16-0EC0
Run	3SU1900-0AC16-0ED0
Stop Start	3SU1900-0AC16-0DC0
Off On	3SU1900-0AC16-0DH0
Power off	3SU1900-0AC16-0DF0
Power on	3SU1900-0AC16-0DG0
Man O Auto	3SU1900-0AC16-0DY0
Man Auto	3SU1900-0AC16-0EA0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AC16-0GA0
Arrêt	3SU1900-0AC16-0GB0
Montée	3SU1900-0AC16-0GC0
Descente	3SU1900-0AC16-0GD0
Avant	3SU1900-0AC16-0GE0
Retour	3SU1900-0AC16-0GF0
Droite	3SU1900-0AC16-0GG0
Gauche	3SU1900-0AC16-0GH0
Ouvert	3SU1900-0AC16-0GJ0
Fermé	3SU1900-0AC16-0GK0
Rapide	3SU1900-0AC16-0GL0
En Service	3SU1900-0AC16-0GM0
Défaut	3SU1900-0AC16-0GN0
Reglage	3SU1900-0AC16-0GP0
Arrêt d'urgence	3SU1900-0AC16-0GQ0
Hors service	3SU1900-0AC16-0GR0
Sous tension	3SU1900-0AC16-0GS0
Manu Auto	3SU1900-0AC16-0GT0
Marche Arrêt	3SU1900-0AC16-0GU0
Rearmement	3SU1900-0AC16-0GV0

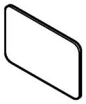
Labeling plate with symbol

Printed symbols	Article number
O	3SU1900-0AC16-0QA0
I	3SU1900-0AC16-0QB0
O I	3SU1900-0AC16-0QG0
1 2	3SU1900-0AC16-0QJ0
Motion arrow direction up	3SU1900-0AC16-0QS0

13.2.2.2 Labeling plate 17.5 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226804)

	Description	Article number
	Labeling plate	3SU1900-0AD16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AD16-0AB0
Aus	3SU1900-0AD16-0AC0
Auf	3SU1900-0AD16-0AD0
Ab	3SU1900-0AD16-0AE0
Vor	3SU1900-0AD16-0AF0
Zurück	3SU1900-0AD16-0AG0
Halt	3SU1900-0AD16-0AK0
Zu	3SU1900-0AD16-0AL0
Betrieb	3SU1900-0AD16-0AP0
Störung	3SU1900-0AD16-0AQ0
Hand Auto	3SU1900-0AD16-0DB0

Labeling plate with inscription in English

Description	Article number
Stop Start	3SU1900-0AD16-0DC0
On	3SU1900-0AD16-0DJ0
Off	3SU1900-0AD16-0DK0
Up	3SU1900-0AD16-0DL0
Down	3SU1900-0AD16-0DM0
Forward	3SU1900-0AD16-0DN0
Reverse	3SU1900-0AD16-0DP0
Right	3SU1900-0AD16-0DQ0
Left	3SU1900-0AD16-0DR0
Stop	3SU1900-0AD16-0DS0
Start	3SU1900-0AD16-0DT0
Open	3SU1900-0AD16-0DW0
Close	3SU1900-0AD16-0DX0
Man Auto	3SU1900-0AD16-0EA0
Running	3SU1900-0AD16-0EB0
Fault	3SU1900-0AD16-0EC0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AD16-0GA0
Arrêt	3SU1900-0AD16-0GB0
Droite	3SU1900-0AD16-0GG0
Gauche	3SU1900-0AD16-0GH0
En Service	3SU1900-0AD16-0GM0
Défaut	3SU1900-0AD16-0GN0
Sous tension	3SU1900-0AD16-0GS0
Manu Auto	3SU1900-0AD16-0GT0
Marche Arrêt	3SU1900-0AD16-0GU0
Rearmement	3SU1900-0AD16-0GV0

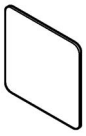
Labeling plate with symbol

Printed symbols	Article number
O	3SU1900-0AD16-0QA0
I	3SU1900-0AD16-0QB0
O I	3SU1900-0AD16-0QG0
Motion arrow direction to right	3SU1900-0AD16-0QR0
Motion arrow direction up	3SU1900-0AD16-0QS0

13.2.2.3 Labeling plate 27 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226804)

	Description	Article number
	Labeling plate	3SU1900-0AE16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AE16-0AB0
Aus	3SU1900-0AE16-0AC0
Auf	3SU1900-0AE16-0AD0
Ab	3SU1900-0AE16-0AE0
Vor	3SU1900-0AE16-0AF0
Zurück	3SU1900-0AE16-0AG0
Rechts	3SU1900-0AE16-0AH0
Links	3SU1900-0AE16-0AJ0
Halt	3SU1900-0AE16-0AK0
Zu	3SU1900-0AE16-0AL0
Betrieb	3SU1900-0AE16-0AP0
Störung	3SU1900-0AE16-0AQ0
Hand Auto	3SU1900-0AE16-0DB0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AE16-0DJ0
Off	3SU1900-0AE16-0DK0
Up	3SU1900-0AE16-0DL0
Down	3SU1900-0AE16-0DM0
Forward	3SU1900-0AE16-0DN0
Reverse	3SU1900-0AE16-0DP0
Stop	3SU1900-0AE16-0DS0
Start	3SU1900-0AE16-0DT0
Emergency Stop	3SU1900-0AE16-0DA0
Stop Start	3SU1900-0AE16-0DC0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AE16-0GA0
Arrêt	3SU1900-0AE16-0GB0
Montée	3SU1900-0AE16-0GC0
Descente	3SU1900-0AE16-0GD0
En Service	3SU1900-0AE16-0GM0
Défaut	3SU1900-0AE16-0GN0
Sous tension	3SU1900-0AE16-0GS0
Manu Auto	3SU1900-0AE16-0GT0
Marche Arrêt	3SU1900-0AE16-0GU0

Labeling plate with symbol

Printed symbols	Article number
O I	3SU1900-0AE16-0QG0
Motion arrow direction to right	3SU1900-0AE16-0QR0

13.2.2.4 Labeling plates for enclosures (22 x 22 mm)

The labeling plates in size 22 x 22 mm can be attached to enclosures with recesses for labels. There are versions in black with white print or silver-colored with black print.

You can find information on labeling in Chapter "Customized inscriptions (Page 404)"

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226805)

	Description	Article No.
	Labeling plate	3SU1900-0AF16-0AA0

Labeling plate with inscription in German

Description	Article No.
Ein	3SU1900-0AF16-0AB0
Aus	3SU1900-0AF16-0AC0
Auf	3SU1900-0AF16-0AD0
Ab	3SU1900-0AF16-0AE0
Vor	3SU1900-0AF16-0AF0
Zurück	3SU1900-0AF16-0AG0
Rechts	3SU1900-0AF16-0AH0
Links	3SU1900-0AF16-0AJ0
Halt	3SU1900-0AF16-0AK0
Zu	3SU1900-0AF16-0AL0
Schnell	3SU1900-0AF16-0AM0
Langsam	3SU1900-0AF16-0AN0
Betrieb	3SU1900-0AF16-0AP0
Störung	3SU1900-0AF16-0AQ0
Einrichten	3SU1900-0AF16-0AR0
NOT-AUS	3SU1900-0AF16-0AS0

Labeling plate with inscription in English

Description	Article No.
On	3SU1900-0AF16-0DJ0
Off	3SU1900-0AF16-0DK0
Up	3SU1900-0AF16-0DL0
Down	3SU1900-0AF16-0DM0
Forward	3SU1900-0AF16-0DN0
Reverse	3SU1900-0AF16-0DP0
Right	3SU1900-0AF16-0DQ0
Left	3SU1900-0AF16-0DR0
Stop	3SU1900-0AF16-0DS0
Start	3SU1900-0AF16-0DT0
Reset	3SU1900-0AF16-0DU0
Test	3SU1900-0AF16-0DV0
Open	3SU1900-0AF16-0DW0
Close	3SU1900-0AF16-0DX0
Running	3SU1900-0AF16-0EB0
Fault	3SU1900-0AF16-0EC0
Fast	3SU1900-0AF16-0EE0
Slow	3SU1900-0AF16-0EF0
Emergency Stop	3SU1900-0AF16-0DA0

Labeling plate with inscription in French

Description	Article No.
Marche	3SU1900-0AF16-0GA0
Arrêt	3SU1900-0AF16-0GB0
Montée	3SU1900-0AF16-0GC0
Descente	3SU1900-0AF16-0GD0
Avant	3SU1900-0AF16-0GE0
Retour	3SU1900-0AF16-0GF0
Droite	3SU1900-0AF16-0GG0
Gauche	3SU1900-0AF16-0GH0
Ouvert	3SU1900-0AF16-0GJ0
Fermé	3SU1900-0AF16-0GK0
Rapide	3SU1900-0AF16-0GL0
En Service	3SU1900-0AF16-0GM0
Défaut	3SU1900-0AF16-0GN0
Sous tension	3SU1900-0AF16-0GS0
Manu Auto	3SU1900-0AF16-0GT0
Marche Arrêt	3SU1900-0AF16-0GU0
Rearmement	3SU1900-0AF16-0GV0
Lent	3SU1900-0AF16-0GW0
Arrêt d'urgence	3SU1900-0AF16-0GQ0

Labeling plate with symbol (ON/OFF)

Printed symbols	Article No.
O	3SU1900-0AF16-0QA0
I	3SU1900-0AF16-0QB0
II	3SU1900-0AF16-0QC0
III	3SU1900-0AF16-0QD0
O I	3SU1900-0AF16-0QG0
I O II	3SU1900-0AF16-0QK0
I O (one below the other)	3SU1900-0AF16-0QP0
II O I (one below the other)	3SU1900-0AF16-0QQ0

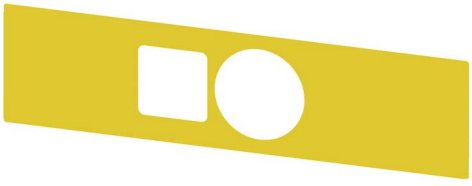
Labeling plate with symbol

Printed symbols	Article No.
Motion arrow direction to right	3SU1900-0AF16-0QR0
Pump	3SU1900-0AF16-0RD0
Fan	3SU1900-0AF16-0RV0
Cooling	3SU1900-0AF16-0RW0
Illumination	3SU1900-0AF16-0RX0
Motor	3SU1900-0AF16-0RY0

13.2.2.5 Labeling plates for enclosures with EMERGENCY STOP

The yellow labeling plates for EMERGENCY STOP mushroom pushbuttons can be stuck onto gray enclosures. The labeling plates can be used on all enclosures without protective collar.

Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10228442)



Typical diagram

Description	Article number
Labeling plates without inscription	3SU1900-0BE31-0AA0
Labeling plate with inscription: NOT-AUS	3SU1900-0BE31-0AS0
Labeling plate with recess w/o inscription	3SU1900-0BF31-0AA0

13.2.2.6 Labeling plate for potentiometer

The labeling plates for potentiometers are used to improve the readability of the potentiometer setting. They are clipped immediately under the actuator. A label holder is not required for this.

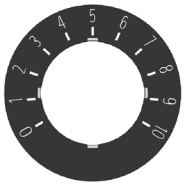
The labeling plates for potentiometers are suitable for:

- Mounting with enclosures without a recess for a labeling plate
  Note that only mounting with front mounting modules is possible.
- Labeling plate 3SU1900-0BV16-0SA0 only: Suitable for enclosures with recess for a labeling plate.
- Front plate mounting

Note

When mounting the labeling plates, please note the maximum front plate thickness < 4 mm.

Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10228442)

	Description	Article No.
 Typical diagram	Labeling plates for self-inscription	3SU1900-0BG16-0AA0
	Labeling plate with inscription: 0 ... 9	3SU1900-0BG16-0RT0
	Labeling plate with inscription: 0 ... 10	3SU1900-0BG16-0SA0
	Labeling plate with graphical symbol: Startup	3SU1900-0BG16-0RU0
	Labeling plate with external diameter of 33.8 mm. The labeling plate is also suitable for mounting on enclosures with a recess for a labeling plate.	3SU1900-0BV16-0SA0

13.2.2.7 Insert label

The insert labels can be inserted under the buttons of the pushbuttons (only with clear button 3SU10x0-0AB70-0AA0) and illuminated pushbuttons. They are also suitable for illuminated pushbuttons of size 30.5 mm. These insert labels are made of translucent plastic with a black inscription. They can be inserted at any 90° angle.
Insert labels without an inscription are intended for user marking using a permanent marker pen.

You can find information on installing and disassembling the pushbuttons in Chapters "Combination options of the accessories (Page 457)" and "Mounting (Page 124)".

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226803)

Description		Article number
	Insert label for self-inscription	3SU1900-0AB71-0AA0

Insert label with inscription in German

Description	Article number
Ein	3SU1900-0AB71-0AB0
Aus	3SU1900-0AB71-0AC0
Auf	3SU1900-0AB71-0AD0
Ab	3SU1900-0AB71-0AE0
Vor	3SU1900-0AB71-0AF0
Zurück	3SU1900-0AB71-0AG0
Rechts	3SU1900-0AB71-0AH0
Links	3SU1900-0AB71-0AJ0
Halt	3SU1900-0AB71-0AK0
Zu	3SU1900-0AB71-0AL0
Schnell	3SU1900-0AB71-0AM0
Langsam	3SU1900-0AB71-0AN0
Betrieb	3SU1900-0AB71-0AP0
Störung	3SU1900-0AB71-0AQ0
Einrichten	3SU1900-0AB71-0AR0

Insert label with inscription in English

Description	Article number
On	3SU1900-0AB71-0DJ0
Off	3SU1900-0AB71-0DK0
Down	3SU1900-0AB71-0DM0
Forward	3SU1900-0AB71-0DN0
Reverse	3SU1900-0AB71-0DP0
Right	3SU1900-0AB71-0DQ0
Left	3SU1900-0AB71-0DR0
Stop	3SU1900-0AB71-0DS0
Start	3SU1900-0AB71-0DT0
Reset	3SU1900-0AB71-0DU0
Test	3SU1900-0AB71-0DV0
Open	3SU1900-0AB71-0DW0
Close	3SU1900-0AB71-0DX0
Running	3SU1900-0AB71-0EB0
Fast	3SU1900-0AB71-0EE0
Slow	3SU1900-0AB71-0EF0

Insert label with symbol (ON/OFF)

Description	Printed symbols	Article number
Black / White (label / inscription)	O I	3SU1900-0AB16-0QE0
White / Black (label / inscription)	O I	3SU1900-0AB61-0QE0
Opaque / Black (label / inscription)	O	3SU1900-0AB71-0QA0
	I	3SU1900-0AB71-0QB0
	II	3SU1900-0AB71-0QC0
	III	3SU1900-0AB71-0QD0

Insert label with symbol (graphical)

Description	Printed symbols	Article number
Opaque / Black (label / inscription)	Motion arrow direction to right	3SU1900-0AB71-0QR0
	Motion arrow direction up	3SU1900-0AB71-0QS0
	Clockwise rotation	3SU1900-0AB71-0QT0
	Counterclockwise rotation	3SU1900-0AB71-0QU0
	Rapid traverse	3SU1900-0AB71-0QV0
	Feed	3SU1900-0AB71-0QW0
	Increase, plus	3SU1900-0AB71-0QX0
	Decrease, minus	3SU1900-0AB71-0QY0
	Electric motor	3SU1900-0AB71-0RA0
	Horn	3SU1900-0AB71-0RB0
	Water tap	3SU1900-0AB71-0RC0
	Pump	3SU1900-0AB71-0RD0
	Coolant pump	3SU1900-0AB71-0RE0
	Lock, tighten	3SU1900-0AB71-0RF0
	Unlock, unclamp	3SU1900-0AB71-0RG0
	Brake	3SU1900-0AB71-0RH0
	Release brake	3SU1900-0AB71-0RJ0
	Interlock	3SU1900-0AB71-0RK0
	Unlock	3SU1900-0AB71-0RL0
	Setting	3SU1900-0AB71-0RM0
	ON-OFF momentary contact type	3SU1900-0AB71-0RN0
	Manual operation	3SU1900-0AB71-0RP0
	Automatic cycle	3SU1900-0AB71-0RQ0
	Suction	3SU1900-0AB71-0RR0
	Blowing	3SU1900-0AB71-0RS0

13.2.2.8 Customized inscriptions

Insert labels

The insert labels can be inscribed with text and symbols not listed in the ordering data.

By default, a letter height of 4 mm (for a single line of text) or 3 mm (for two or three lines of text) is used for text inscriptions.

The typeface used is Arial. Other letter heights and typefaces are possible, but must be specified when ordering.

For round insert labels, the maximum possible number of characters per line is:

- 10 characters for one line of text
- 8 characters for 2 lines of text
- 6 characters for 3 lines of text, but 10 characters in the middle line.

Examples for customized inscription of the insert labels



Figure 13-1 Two-line inscription in upper/lower case lettering (Q0Y)



Figure 13-2 Single-line inscription in upper case lettering (Q1Y)



Figure 13-3 Three-line inscription in lower case lettering (Q2Y)

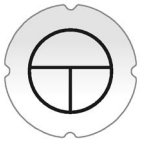


Figure 13-4 Symbol number 5011 according to IEC 60417 (Q3Y)

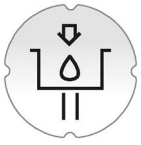


Figure 13-5 Any symbol according to order form supplement (Q9Y)

Labeling plates

The labeling plates can be inscribed with text and symbols not listed in the ordering data.

The following letter heights are used as standard for text inscriptions:

- Label size 12.5 mm × 27 mm: 3 lines with letter height 4 mm (1-line), 3.5 mm (2-line) or 2.5 mm (3-line)
- Label size 17.5 mm × 27 mm: 3 lines with letter height 4 mm (1- to 2-line) or 3 mm (3-line)
- Label size 27 mm × 27 mm: 5 lines with letter height 4 mm (1- to 5-line)
- Label size 22 mm × 22 mm: with letter height 4 mm (1- to 3-line)

Up to 11 characters per line are possible. The typeface used is Arial. Other letter heights and typefaces are possible, but must be specified when ordering.

Examples for customized inscription of the insert labels



Figure 13-6 Two-line inscription in upper/lower case lettering (Q0Y)



Figure 13-7 Single-line inscription in upper case lettering (Q1Y)



Figure 13-8 Three-line inscription in lower case lettering (Q2Y)



Figure 13-9 Symbol number 5011 according to IEC 60417 (Q3Y)



Figure 13-10 Any symbol according to order form supplement (Q9Y)

Ordering notes

If an order involves a specific inscription, the Article No. must be supplemented with one of the following order codes:

- Text line(s) in upper/lower case, upper case always for beginning of line (e.g. "Lift / Off"): **Q0Y**
- Text line(s) in upper case (e.g. "LIFT"): **Q1Y**
- Text line(s) in lower case (e.g. "lift / off / lower"): **Q2Y**
- Text line(s) in upper/lower case, all words begin with upper case letters (e.g. "On Off"): **Q5Y**
- Symbol with number according to ISO 7000 or IEC 60417: **Q3Y**
- Any inscription or symbol according to order form supplement: **Q9Y**

When ordering, specify the required inscription in plain text in addition to the Article No. and order code. In the case of special inscriptions with words in languages other than German, give the exact spelling and specify the language.

In the case of multi-line inscriptions, the text must be assigned to the respective line, e.g. "Z1 = Lift, Z2 =Lower". For long words you can also specify the end-of-line division (see ordering example 1).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

For special symbols (order code Q9Y), a CAD drawing in DXF format must be submitted. The SIRIUS ACT Configurator must be used to select special inscriptions and symbols (order code Q9Y). In this case a "CIN" (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly using the CIN and the SIRIUS ACT Configurator (Mall shopping cart) or via the standard order channels.

Standard ordering channels:

- Configurator: Internet (http://www.siemens.en/sirius-act/konfigurator)
- Electronic Catalog CA 01 on DVD
- Industry Mall: Internet (http://www.siemens.com/industrymall)

Ordering example 1

A label with a two-line text is required: 3SU1900–0AF16-0AZ0
Q1Y
Z1 = LIFT
Z2 = LOWER

Ordering example 2

A label inscribed with symbol No. 5011 according to IEC 60417 is required:
3SU1900–0AF16–0AZ0
Q3Y
Z = 5011 IEC

Ordering example 3

A label inscribed with symbol No. 1118 according to ISO 7000 is required:
3SU1900–0AF16–0AZ0
Q3Y
Z = 1118 ISO

13.2.2.9 Labeling plates for inscription by user

The labeling plates for printing are supplied as preformatted labels on A4 size sheets and can be printed individually.

Using the Label Designer software, which can be downloaded from the Internet, and the labeling plates for laser inscription, you can create your own customized labels with a standard laser printer. The self-adhesive or snap-on labels can be stuck or snapped onto the corresponding label holder. Round labels are provided for inserting in illuminated pushbuttons and switches. The labels are suitable for printing with one to three lines of text or symbols. For applications with more exacting requirements we recommend preprinted labeling plates and insert labels (laser-printed or engraved depending on the type).
You can download the Label Designer software from the following website: LabelDesigner (http://support.automation.siemens.com/WW/view/en/24559069)

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10231346)

Description	Article number
A4 sheets of insert labels, semi-transparent	3SU1900-0BH60-0AA0
DIN A4 sheets of labeling plates 12.5 x 27 mm, white	3SU1900-0BJ61-0AA0
DIN A4 sheets of labeling plates 17.5 x 27 mm, white	3SU1900-0BK61-0AA0
DIN A4 sheets of labeling plates 27 x 27 mm, white	3SU1900-0BL61-0AA0
DIN A4 sheets of labeling plates 22 x 22 mm, white	3SU1900-0BM61-0AA0

Mounting instructions

When mounting the insert labels, the existing insert label must be removed and then the printed label inserted in its place.

For additional information on the procedure, please refer to Chapter "Disassembling pushbuttons (Page 124)".

13.2.3 Label holders

Label holders are used for simple labeling of command points in conjunction with labeling plates.
Label holders are available in different variants (for sticking or for snap-on mounting).

The label holders are suitable for:

- Mounting with enclosures without a recess for a labeling plate
  Note that only front plate mounting is possible.
- Front plate mounting

Also note the information in Chapters "Combination options of the accessories (Page 457)" and "Use of accessories for the enclosure (Page 459)".

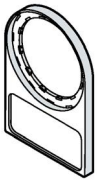
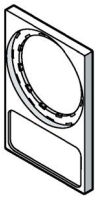
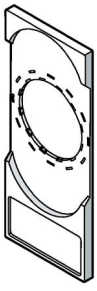
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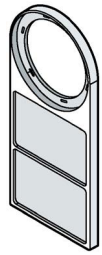
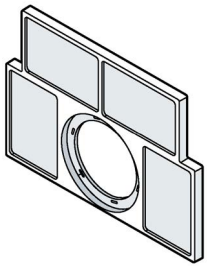
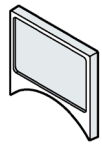
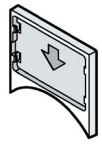
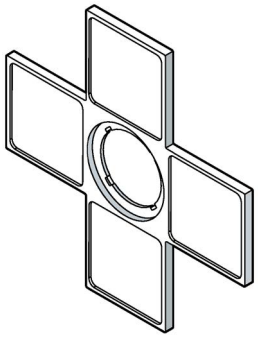
Note

The use of label holders reduces the front plate thickness that can be clamped to < 4 mm.

Note

No combinations of label holders and protective caps are permitted.

	Description	Size of the labeling plate	Shape	Article No.
	Label holder for labeling plate (self-adhesive)	12.5 x 27 mm	Rounded on one side	3SU1900-0AG10-0AA0
		17.5 x 27 mm		3SU1900-0AH10-0AA0
		27 x 27 mm		3SU1900-0AJ10-0AA0
	Label holder for labeling plate (snap-on)	12.5 x 27 mm		3SU1900-0AR10-0AA0
		17.5 x 27 mm		3SU1900-0AS10-0AA0
		27 x 27 mm		3SU1900-0AT10-0AA0
	Label holder for labeling plate (self-adhesive)	12.5 x 27 mm	Square	3SU1900-0AN10-0AA0
		17.5 x 27 mm		3SU1900-0AP10-0AA0
		27 x 27 mm		3SU1900-0AQ10-0AA0
	Label holder for labeling plate for twin pushbutton	12.5 x 27 mm	Rectangular	3SU1900-0AK10-0AA0
	Label holder for labeling plate for coordinate switches and toggle switches (not suitable for combination with enclosures)	27 x 27 mm	Rectangular	3SU1900-0AL10-0AA0

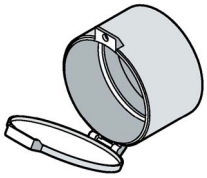
	Description	Size of the labeling plate	Shape	Article No.
	Label holder for labeling plate (self-adhesive)	2 x 17.5 x 27 mm	Rounded on one side	3SU1900-0BQ10-0AA0
	Label holder for labeling plate (snap-on)	2 x 17.5 x 27 mm		3SU1900-0BR10-0AA0
	Label holder for labeling plate (self-adhesive)	4 x 17.5 x 27 mm	Rectangular	3SU1900-0BS10-0AA0
	Label holder for labeling plate (snap-on)	4 x 17.5 x 27 mm		3SU1900-0BT10-0AA0
	Label holder for labeling plate (self-adhesive) Pushbutton and signaling device with 30.5 mm mounting diameter	17.5 x 27 mm	Rectangular Rounded on one side	3SU1960-0AH10-0AA0
	Label holder for labeling plate (snap-on) Pushbutton and signaling device with 30.5 mm mounting diameter	17.5 x 27 mm	Rectangular Rounded on one side	3SU1960-0AS10-0AA0
	Label holder for labeling plate for coordinate switches and 4-position selector switches (not suitable for combination with enclosures)	27 x 27 mm	Cross	3SU1900-0AM10-0AA0

13.3 Protection

13.3.1 Sealable cap

The sealable cap is fitted before the pushbutton is installed so as to prevent unauthorized access to the pushbutton.

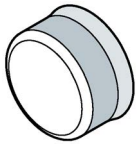
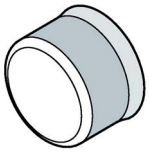
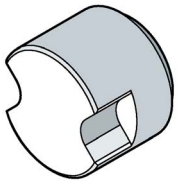
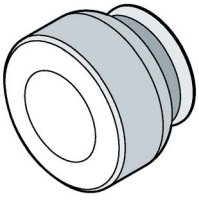
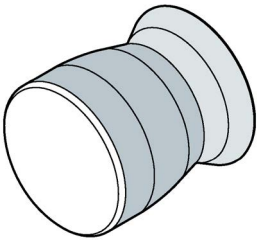
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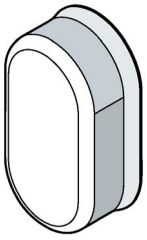
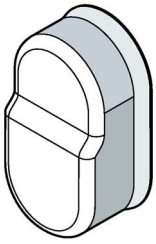
	Description	Color	Article No.
	**Sealable cap** Suitable for: • Pushbuttons with 22.5 mm mounting diameter (twin pushbuttons and pushbuttons with extended stroke cannot be used) • Front plate mounting Front plate thickness < 4 mm	Black	3SU1900-0DA10-0AA0
		Clear	3SU1900-0DA70-0AA0
	Sealable cap Suitable for: • Pushbuttons with 22.5 mm mounting diameter • Pushbuttons with extended stroke (twin pushbuttons cannot be used) • Front plate mounting Front plate thickness < 4 mm	Black	3SU1900-0EL10-0AA0
		Clear	3SU1900-0EL70-0AA0

13.3.2 Protective cap

The protective cap is fitted before the actuating element is installed so as to protect the element against dust and contamination.

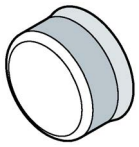
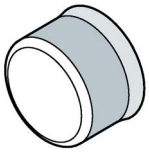
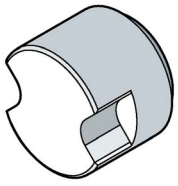
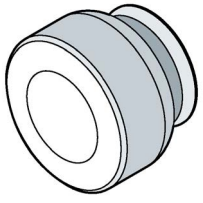
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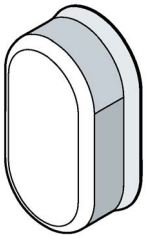
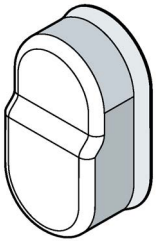
	Description	Article No.
	**Protective cap for flat pushbuttons; material silicone** Suitable for: • All pushbuttons with 22.5 mm mounting diameter with flat button and front ring (not suitable for twin pushbuttons) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DB70-0AA0
	**Protective cap for raised pushbuttons; material silicone** Suitable for: • All pushbuttons with 22.5 mm mounting diameter (not suitable for twin pushbuttons) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DC70-0AA0
	**Protective cap for selector switches, short selector; material silicone** Suitable for: • All selector switches (short selector) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DD70-0AA0
	**Protective cap for mushroom pushbuttons, 30 mm and 40 mm diameter; material: silicone** Suitable for: • 2-pos. mushroom pushbuttons, 30 mm and 40 mm diameter • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DE70-0AA0
	**Protective cap for EMERGENCY STOP button; material: silicone** Suitable for: • EMERGENCY STOP buttons, 30 mm and 40 mm diameter, without key-operated release • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DF70-0AA0

	Description	Article No.
	**Protective cap for twin pushbuttons, flat; material: silicone** • Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting	3SU1900-0DG70-0AA0
	**Protective cap for twin pushbuttons, raised; material: silicone** • Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting	3SU1900-0DH70-0AA0

13.3.3 Protective cap for the food and beverage industry

The purpose of the protective cap is to protect commanding devices (pushbuttons) or signaling devices (indicator lights) against contamination. The protective cap complies with IP degree of protection IPX5 "Protection against water jets from any direction".

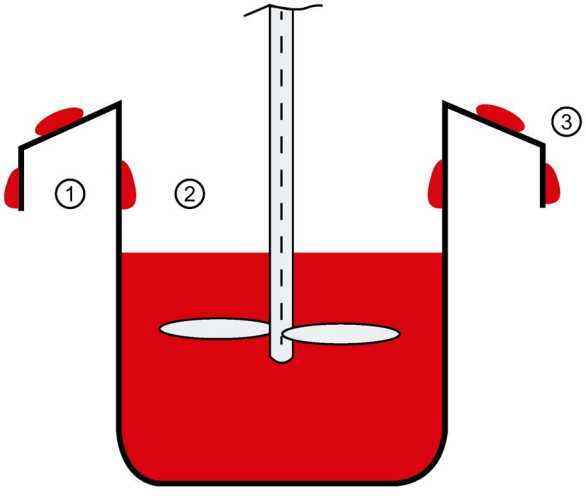
Typical diagrams	Description	Article No.
	**Protective cap for flat pushbuttons; material silicone** Suitable for: • All pushbuttons and indicator lights with 22.5 mm mounting diameter with flat button and front ring (not suitable for twin pushbuttons) • An installation in enclosures is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DB70-0AA0
	**Protective cap for raised pushbuttons; material silicone** Suitable for: • All raised pushbuttons with 22.5 mm mounting diameter (not suitable for twin pushbuttons) • An installation in enclosures is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DC70-0AA0
	**Protective cap for selector switches, short selector; material silicone** Suitable for: • All selector switches (short selector) • An installation in enclosures is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DD70-0AA0
	**Protective cap for mushroom pushbuttons, 30 mm and 40 mm diameter; material: silicone** Suitable for: • 2-pos. mushroom pushbuttons, 30 mm and 40 mm diameter • An installation in enclosures is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DE70-0AA0

Typical diagrams	Description	Article No.
	**Protective cap for twin pushbuttons, flat; material: silicone** • An installation in enclosures (without recess for labeling plates) is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DG70-0AA0
	**Protective cap for twin pushbuttons, raised; material: silicone** • An installation in enclosures (without recess for labeling plates) is only possible in combination with single-pole contact modules for front plate mounting	3SU1900-0DH70-0AA0

The system, consisting of protective cap, actuator or signaling device and holder, can be used in all areas according to EN 1672-2 (Fig.: Classification of hygiene areas).

The holder must be installed in an enclosed space, e.g. control cabinet, distributor box. The actuator or signaling device with its fitted protective cap must be mounted outwards (toward hygiene area).

The temperature range in which the protective caps can be used is: -20 °C to +70 °C.



① Non-foodstuff area
② Foodstuff area: Foodstuff can get back into the main production flow.
③ Spraying area: Foodstuff cannot get back into the main production flow.

Figure 13-11 Classification of hygiene areas

Mounting

Recommendation for the substrate: smooth stainless steel surface or painted metal surface (depending on area, Fig.: Classification of hygiene areas). You must remove any visible scratches, grooves etc. before mounting. The substrate must be free of any contamination or grease. Before mounting, clean the substrate with a suitable cleaning agent and, if necessary, disinfect the substrate.

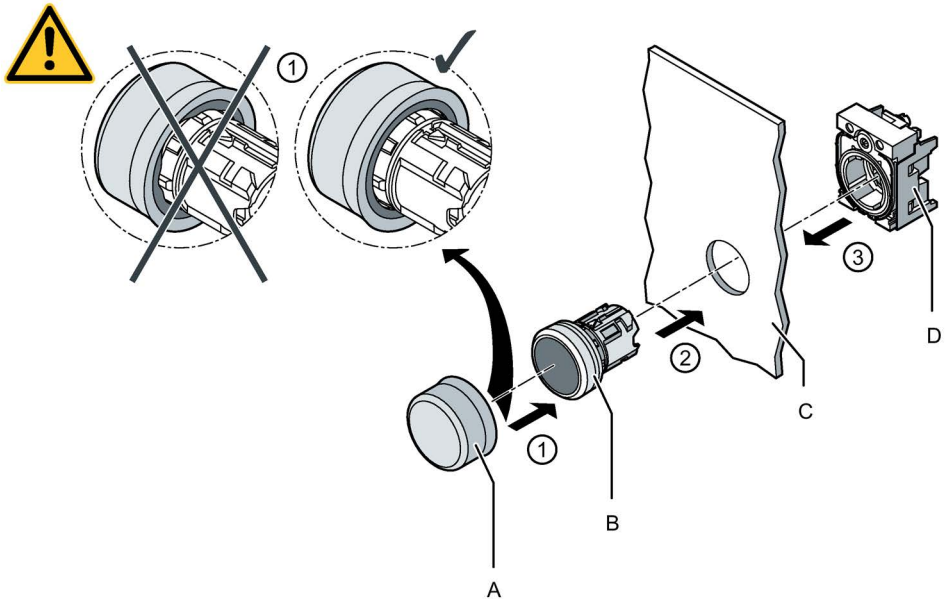
The protective cap is pulled over the front ring (operating/signaling side) of a relevant pushbutton or indicator light. Insert the actuating or signaling element, including protective cap, from the front through the mounting opening of the front plate. Fit the holder from behind (wiring side) onto the actuating or signaling element and lock it into place. Mount the holder and the contact modules.

The installation must only ever be carried out together with the appropriate holder. Observe the tightening torque: 1.0 ... 1.2 Nm, in order to ensure the tight sealing of the protective cap.

The installation must never be carried out with the protective cap pointing vertically upward. The installation location of the system must guarantee that fluids can drain off. Note precisely the shape of the protective cap during installation: The protective cap must not be damaged during installation, e.g. with cracks or deformations caused by excessive stretching.

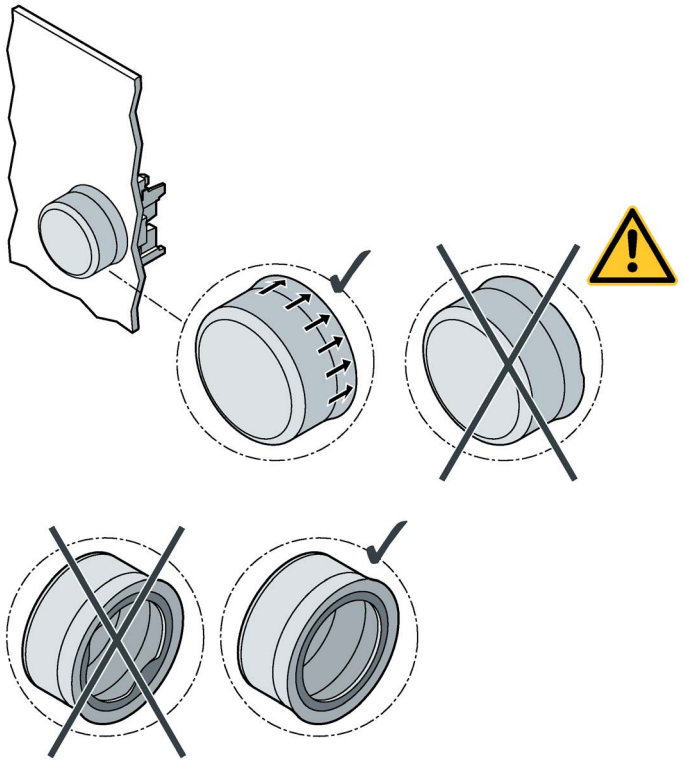
Damaged protective caps may not be used. In this case a hygienic seal can no longer be guaranteed.

Before first commissioning, the protective cap (external surfaces) must be cleaned. An appropriate cleaning agent and, if necessary, disinfectant and procedure must conform with the specifications from the paragraph "Information concerning the protective cap material". The final rinse must be with drinking water.



A Protective cap
B Commanding or signaling element
C Front plate
D Holder

The protective cap must be properly attached and must not have any folds or similar faults. During installation, make sure that no dents, bulges etc. are formed.



When mounting the protective cap for selector switches and twin pushbuttons, observe the mounting location. The mounting location must guarantee that fluids can drain off. The arrow on the protective cap shows you which way is up.

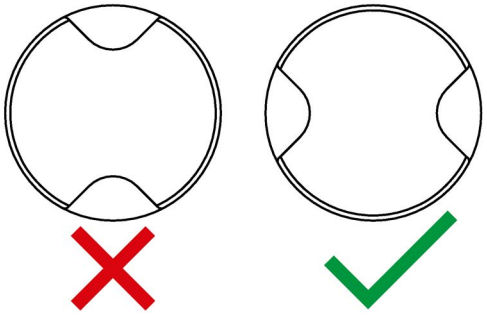


Figure 13-12 Mounting position of protective cap for selector switches

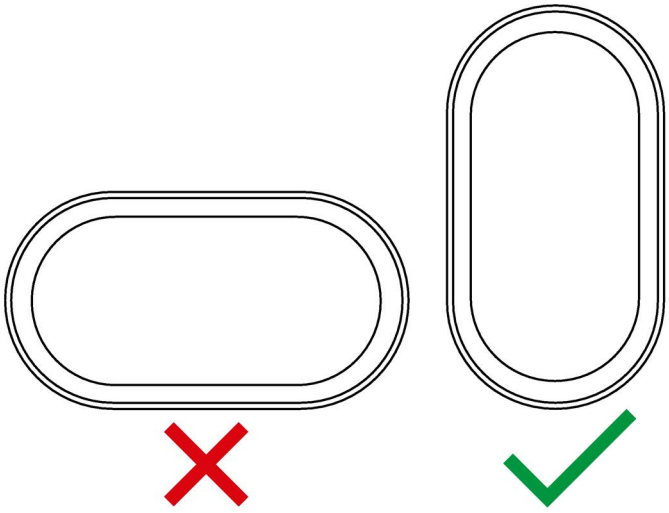


Figure 13-13 Mounting position of protective cap for twin pushbuttons

On the first appearances of material fatigue, e.g. cracks or yellowing, the protective cap must be replaced. In this case a hygienic seal can no longer be guaranteed.

Note

The protective caps must be checked at regular intervals. You must not assume that the operating personnel will watch for damage "on their own initiative".

Cleaning instructions

Type of cleaning, e.g. IPX5 (Protection against water jets from any direction) is possible. The use of high-pressure jet washers is not permissible.
Accessories such as cloths or sponges are generally permitted, if they do not cause any damage to the protective cap. Tools such as brushes with stiff bristles are not suitable.

Use the cleaning tools carefully. For example, do not use excessive pressure which could impair (shift) the proper seating of the cap. Clean carefully, but gently.

Cleaning and disinfection

Information on the material of the protective cap

Silicones are generally highly resistant to many media. If concentrated acids and lyes are used (particularly at high temperatures) a direct attack on the material is to be expected. In the case of hydrocarbons (greases, oils) under test conditions (immersed over long periods at temperature) a reversible swelling of the silicone occurs. In the case of short-term surface contact, however, this will hardly be noticeable.

Cleaning and disinfection

Silicone ages and only has a certain life expectancy. Check and clean the protective caps at regular intervals.

A thorough cleaning should take place:

- Prior to initial commissioning.
- At regular intervals. The cleaning intervals are to be determined by the user.
- On special demand (depending on level of contamination).

Cleaning tools must be checked in advance to ensure they are clean and hygienic to use. Use only those cleaning tools that do not shed any material onto the surfaces to be cleaned. Use the cleaning tools carefully. For example, do not use excessive pressure which could impair (shift) the proper seating of the cap. Clean carefully, but gently. The final rinse must be with drinking water.

No sharp, hard, or pointed objects which could damage the surface should be used for cleaning/disinfection.

Note

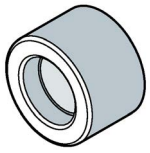
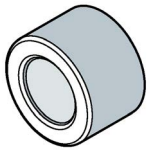
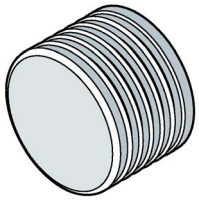
Acids, lyes and cleaning agents containing hydrocarbons are not suitable for cleaning and disinfecting the protective cap.

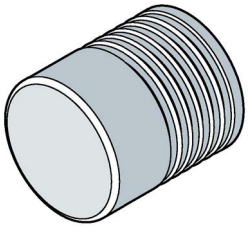
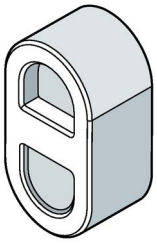
The use of high-pressure washers is not permitted for the cleaning.

13.3.4 Protective cap, silicone-free

The protective cap is fitted before the actuating element is installed so as to protect the element against dust and contamination. The material of the protective caps listed below is silicone-free.

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(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221534)

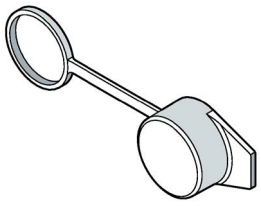
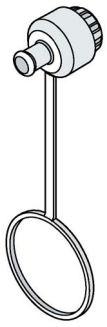
	Description	Article No.
	**Protective cap for pushbuttons, flat** Suitable for: • All pushbuttons with 22.5 mm mounting diameter with flat button and front ring (not suitable for twin pushbuttons) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0ED70-0AA0
	**Protective cap for pushbuttons, raised** Suitable for: • All pushbuttons with 22.5 mm mounting diameter (not suitable for twin pushbuttons) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0EE70-0AA0
	**Protective cap for selector switches, short selector** Suitable for: • All selector switches (short selector) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0EF70-0AA0
	**Protective cap for mushroom pushbutton, diameter 40 mm** Suitable for: • Mushroom pushbuttons, diameter 40 mm • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0EG70-0AA0

	Description	Article No.
	**Protective cap for EMERGENCY STOP pushbuttons** Suitable for: • EMERGENCY STOP buttons, 30 mm and 40 mm diameter, without key-operated release • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0EH70-0AA0
	**Protective cap for twin pushbuttons, raised** • Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting	3SU1900-0EK70-0AA0

13.3.5 Dust cap

You can find information on mounting dust caps in Chapter "Installation steps for dust cap (Page 432)".

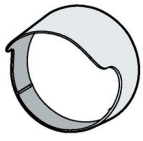
Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221534)

	Description	Article No.
	**Dust cap for key-operated switches** Suitable for: • All key-operated switches with 22.5 mm or 30.5 mm mounting diameter	3SU1900-0EB10-0AA0
	**Dust cap for ID key-operated switches** Suitable for: • All ID key-operated switches with 22.5 mm mounting diameter	3SU1900-0EM70-0AA0

13.3.6 Sun collar

The sun collar is fitted after the illuminated pushbutton is installed and helps to improve the visibility of the illuminated pushbutton.

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	Description	**Article No.**
	**Sun collar** Suitable for: • All pushbuttons with 22.5 mm mounting diameter (not suitable for twin pushbuttons) • Installation in enclosures only in combination with single-pole contact modules for front plate mounting	3SU1900-0DJ10-0AA0

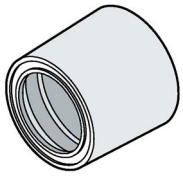
13.3.7 Protective collar

Note

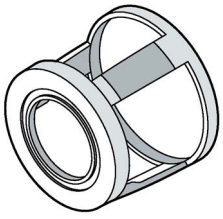
The front plate thickness is restricted to < 4 mm for all accessory components that are installed beneath an actuator.

The protective collar is fitted before the pushbutton / illuminated pushbutton is installed. It is designed to protect the pushbutton. In addition, the visibility of the illuminated pushbutton is improved.

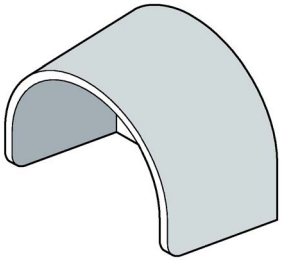
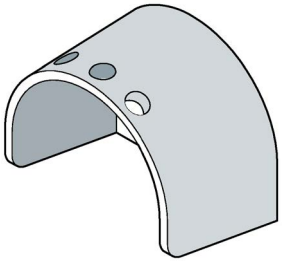
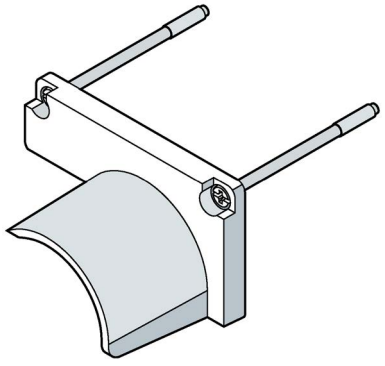
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(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221534)

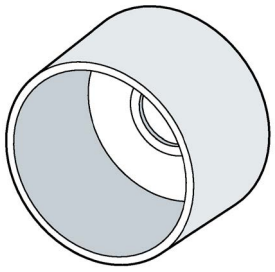
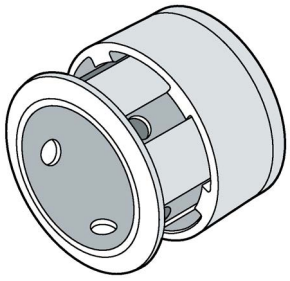
	Description	Material	Article No.
	**360° protective collar** Suitable for: • Pushbuttons and short selector switches, with 22.5 mm mounting diameter • Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting • Front plate mounting Front plate thickness < 4 mm	Plastic, black	3SU1900-0DW10-0AA0

The protective collar is fitted before the pushbutton / mushroom pushbutton is installed and is designed to protect the pushbutton against very heavy blows / shocks.

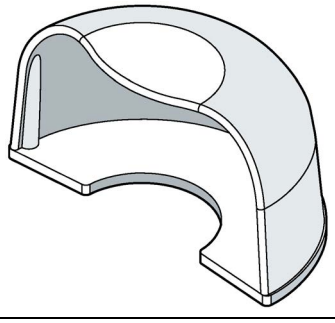
	Description	Material	Article No.
	**360° protective collar visible from the side** Suitable for: • Pushbuttons with 22.5 mm mounting diameter with flat button and front ring • Front plate mounting Front plate thickness < 4 mm	Metal, gray	3SU1950-0DK80-0AA0
	**360° protective collar for mushroom pushbuttons, visible from the side** Suitable for: • All 2-pos. mushroom pushbuttons, 30 mm and 40 mm diameter • Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting • Front plate mounting Front plate thickness < 4 mm		3SU1950-0DL80-0AA0

The protective collar is fitted before the EMERGENCY STOP button is installed and is designed to protect the button against heavy blows/shocks.

	Description	Material	Article No.
	**Protective collar for EMERGENCY STOP** Suitable for: • EMERGENCY STOP, 30/40/60 mm diameter, rotate to unlatch • EMERGENCY STOP, 40 mm diameter, pull to unlatch • EMERGENCY STOP, 40 mm diameter, with Ronis lock • Front plate mounting Front plate thickness < 4 mm The protective collar is suitable for mounting on enclosures with command point in center combined with front plate mounting modules.	Plastic, yellow	3SU1900-0DY30-0AA0
			3SU1900-0DY30-0DA0 (EMERGENCY STOP lasered on internally)
		Plastic, gray	3SU1900-0DY80-0AA0
	**Protective collar for EMERGENCY STOP** Protective collars with 3 holes for up to 3 padlocks. The protective collar is used for disabling a 60 mm EMERGENCY STOP mushroom pushbutton.	Plastic, yellow	3SU1900-0EX30-0AA0
	**Protective collar for enclosure with labeling plate** Suitable for: • EMERGENCY STOP ∅ 30/40 mm Can be mounted on the enclosure, at the topmost position. The packet contains two longer screws. The screws from the standard enclosure must be removed and replaced by the longer screws.	Plastic, yellow	3SU1900-0JH30-0AA0

	Description	Material	Article No.
	**360° protective collar** Suitable for: • All pushbuttons, selector switches and mushroom pushbuttons with a mounting diameter of 22.5 mm • Front plate mounting Front plate thickness < 4 mm The protective collar is suitable for mounting on enclosures with command point in center combined with front plate mounting modules.	Plastic, yellow	3SU1900-0EA30-0AA0
	**Protective collar for padlocks** (Lock not included in the scope of delivery) Suitable for: • EMERGENCY STOP, 40 mm diameter, rotate to unlatch • EMERGENCY STOP, 40 mm diameter, pull to unlatch • EMERGENCY STOP, 40 mm diameter, with Ronis lock. • Front plate mounting Front plate thickness < 4 mm The protective collar is suitable for mounting on enclosures with command point in center combined with front plate mounting modules. Padlocks with a shackle of 6 mm in diameter must be used to ensure reliable locking to prevent tampering.	Metal, yellow	3SU1950-0DX30-0AA0
		Metal, gray	3SU1950-0DX80-0AA0

The protection for sensor switches is used in combination with the sensor switch and is designed to protect the switch against heavy blows/shocks. The protection for sensor switch can be installed retrospectively.

	Description	Material	Article No.
	**Protection for sensor switches** The protection for sensor switches is not suitable for mounting on enclosures	Cover: Transparent plastic Base: Plastic, black	3SU1900-0EC10-0AA0

13.3.8 Locking device

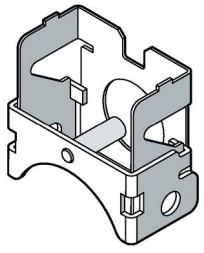
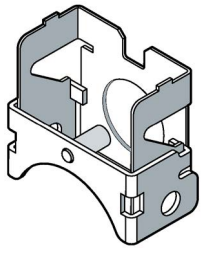
Note

The front plate thickness is restricted to < 4 mm for all accessory components that are installed beneath an actuator.

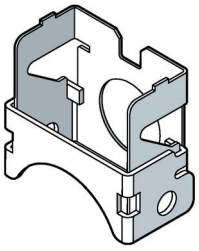
Locking devices are designed to protect pushbuttons and switches against unauthorized actuation. The maximum shackle diameter for the lock is 6 mm. The locking devices lock the button in the actuated position.

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(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221534)

Locking devices for pushbuttons

	Description	Article No.
	**Locking device** Suitable for: • Pushbuttons with flat button, 22.5 mm mounting diameter with: – flat front ring – raised front ring – raised front ring, castellated • Installation in enclosures (command point in center without protective collar) only in combination with single-pole contact modules for front plate mounting • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DM80-0AA0
	**Locking device** Suitable for: • Pushbuttons with raised button and flat front ring, 22.5 mm mounting diameter • Installation in enclosures (command point in center without protective collar) only in combination with single-pole contact modules for front plate mounting • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DN80-0AA0

Locking devices for mushroom pushbuttons

	Description	Article No.
	**Locking device for mushroom pushbuttons** Suitable for: • Mushroom pushbuttons, 30 mm or 40 mm diameter, with 22.5 mm mounting diameter • Installation in enclosures (command point in center without protective collar) only in combination with single-pole contact modules for front plate mounting • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DP80-0AA0

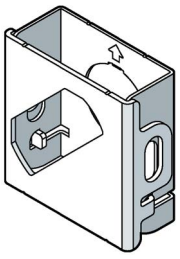
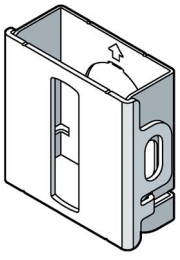
Locking devices for selector switches

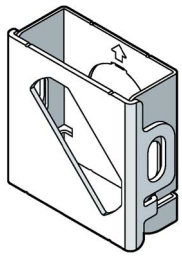
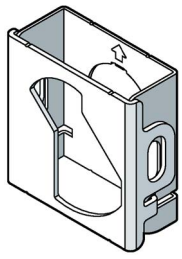
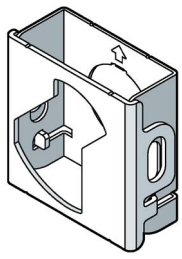
The locking devices for selector switches are not suitable for mounting on enclosures.

Note

Locking devices for selector switches require a hole (∅ 22.5 mm) with knock-out (acc. to IEC 60947-5-1 D22) to prevent unauthorized switch actuation.

You will also find information in Chapter "Mounting dimensions".

	Description	Article No.
	**Locking device, left position** Suitable for: • Selector switches with 22.5 mm mounting diameter, with short or long handle • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DQ80-0AA0
	**Locking device, center position** Suitable for: • Selector switches with 22.5 mm mounting diameter, with short or long handle • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DR80-0AA0

	Description	Article No.
	**Locking device, right position** Suitable for: • Selector switches with 22.5 mm mounting diameter, with short or long handle • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DS80-0AA0
	**Locking device center and right positions possible, left not possible** Suitable for: • Selector switches with 22.5 mm mounting diameter, with short or long handle • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DT80-0AA0
	**Locking device center and left positions possible, right not possible** Suitable for: • Selector switches with 22.5 mm mounting diameter, with short or long handle • Front plate mounting Front plate thickness < 4 mm	3SU1950-0DU80-0AA0

13.3.9 Covers for modules

The cover protects the module against dirt. Degree of protection IP54.

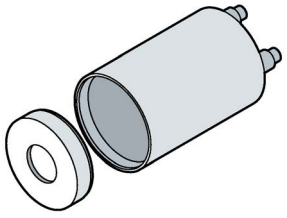
Note

When using the cover, a metal actuator must be grounded via the holder.

Note

Limitation when mounting the modules

No more than 6 contact modules may be installed. If an LED module is installed, only one contact module may be mounted.

	Description	Article No.
	Covers for modules	3SU1900-0EW70-0AA0

13.3.10 Locking device with cover

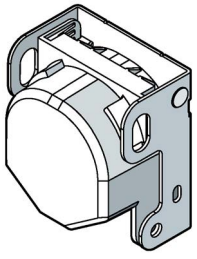
The locking device with cover is designed to prevent unintentional operation of an actuator. The cover can be secured by means of 2 padlocks (not included in the scope of supply) or a lead seal. The maximum shackle diameter for the lock is 6 mm. The maximum diameter of the lead seal is 4 mm.

The locking device with cover is suitable for:

- Pushbuttons
- Selector switches with short handle or rotary knob
- RONIS key-operated switches
- Potentiometers
- 22.5 mm mounting diameter
- Front plate mounting
  Front plate thickness < 4 mm

It is not possible to use the locking device with cover on enclosures.

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221534)

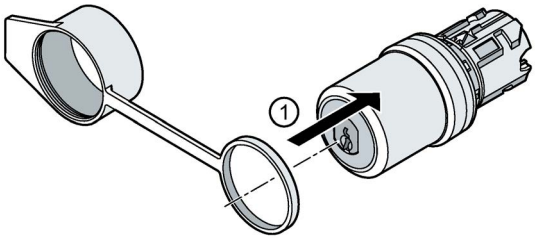
	Description	Article No.
	Cover	3SU1950-0DV80-0AA0

13.3.11 Mounting

13.3.11.1 Installation steps for dust cover

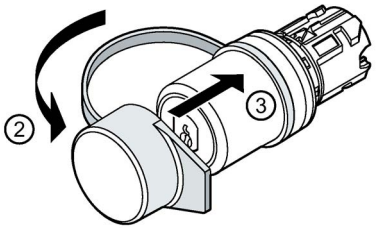
Procedure

The example of a key-operated switch is used to show how to mount the dust cap. The dust cap for ID key-operated switches is mounted in the same way.



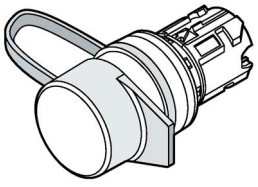
Typical diagram

1. Place the dust cap from the front onto the key-operated switch.



Typical diagram

2. Fold the dust cap over.
3. Push the dust cap onto the key-operated switch to protect the switch surface.



Typical diagram

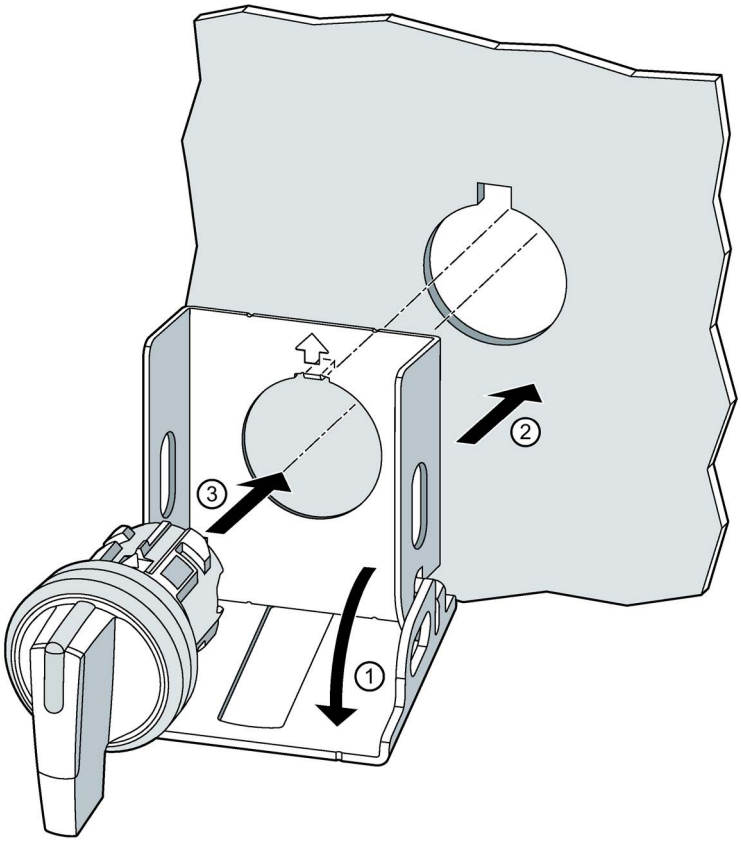
13.3.11.2 Installation steps for locking device

The installation steps for a locking device are shown using a "locking device for selector switches".

Requirement

Before installing the locking device, you must remove the foil from the rear of the locking device.

Procedure

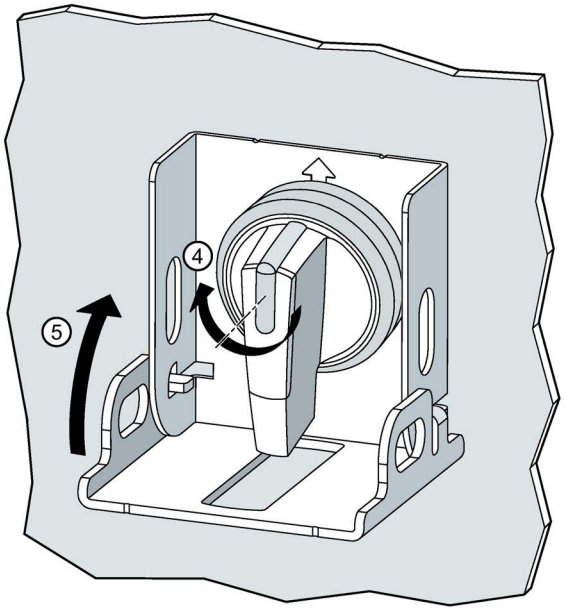


Typical diagram

1. Open the locking device.
2. Hold the locking device at the hole of the front plate.
   Only for selector switches: Ensure here that the recess at the hole and the latch on the locking device fit together.
3. Insert the control element (in this case: selector switch) from the front through the locking device and the front plate.

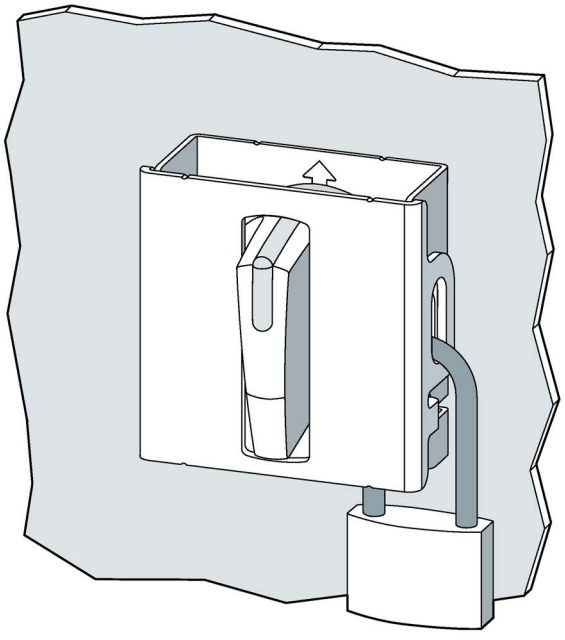
   Mount the holder and the contact modules.

   You can find information in Chapter "Mounting (Page 111)".



Typical diagram

4. Optional step: Turn the selector switch to the switch position provided.
5. Close the locking device.
   Insert a lock into the hole provided to protect the control element against unauthorized access.



Typical diagram. Lock not included in the scope of supply.
Maximum shackle diameter 6 mm.

13.4 Actuators

Flat button

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221535)

Description		Article No.
For 22 mm and 30.5 mm pushbuttons		
	Black	3SU1900-0FT10-0AA0
	Red	3SU1900-0FT20-0AA0
	Yellow	3SU1900-0FT30-0AA0
	Green	3SU1900-0FT40-0AA0
	Blue	3SU1900-0FT50-0AA0
	White	3SU1900-0FT60-0AA0
For 22 mm and 30.5 mm illuminated pushbuttons, as well as 30.5 mm indicator lights		
	Amber	3SU1901-0FT00-0AA0
	Red	3SU1901-0FT20-0AA0
	Yellow	3SU1901-0FT30-0AA0
	Green	3SU1901-0FT40-0AA0
	Blue	3SU1901-0FT50-0AA0
	White	3SU1901-0FT60-0AA0
	Clear	3SU1901-0FT70-0AA0

Raised button

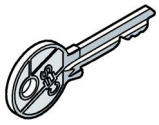
Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221535)

Description		Article No.
For 22 mm pushbuttons		
	Black	3SU1900-0FS10-0AA0
	Red	3SU1900-0FS20-0AA0
	Yellow	3SU1900-0FS30-0AA0
	Green	3SU1900-0FS40-0AA0
For 22 mm pushbuttons that can be illuminated		
	Red	3SU1901-0FS20-0AA0
	Yellow	3SU1901-0FS30-0AA0
	Green	3SU1901-0FS40-0AA0
	Blue	3SU1901-0FS50-0AA0
	Clear	3SU1901-0FS70-0AA0

13.5 Keys

Key

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221535)

Description			Article No.
Ronis key			
	SB30		3SU1950-0FB80-0AA0
	455		3SU1950-0FC80-0AA0
BKS key			
	S1		3SU1950-0FD80-0AA0
CES key			
	LSG1		3SU1950-0FN80-0AA0
	SSG10		3SU1950-0FP80-0AA0
	VL5		3SU1950-0FQ80-0AA0
IKON key			
	360012K1		3SU1950-0FR80-0AA0
OMR key			
	73038	Blue	3SU1950-0FJ50-0AA0
	73037	Red	3SU1950-0FK20-0AA0
	73034	Black	3SU1950-0FL10-0AA0
	73033	Yellow	3SU1950-0FM30-0AA0

13.6 ID keys

The ID keys are used in the ID key-operated switches. Using the four ID keys with different codes, it is possible to select 1 of 4 positions. The ID keys are color-coded (yellow, blue, red, green, white) so that they can be clearly differentiated at a glance. The white ID key is supplied without coding and can be individually encoded via IO-Link using the electronic module for ID key-operated switches for IO-Link.

Different versions of ID keys are available depending on the following features:

- Authorization level (different colors)

For further information refer to Chapters "Operating principle of the command point with ID key-operated switch (Page 328)" and "ID key-operated switches (Page 89)".

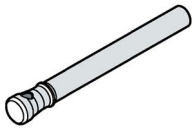
Authorization level

The ID keys are divided into five authorization levels. The authorization levels 1, 2, 3 and 4 as well as "Individually codable ID key". Authorization levels 1 to 4 correspond to the maximum key position. The authorization level "Individually codable ID key" has no maximum key position in the standard setting. The user can configure the key position in accordance with one of the authorization levels 1 to 4. This configuration option is only available with the white ID key.

Article numbers

ID keys

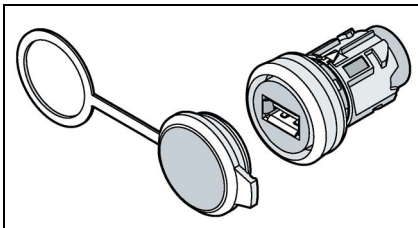
Siemens Industry Mall
(http://mall.industry.siemens.com/mall/de/WW/Catalog/Products/10221535)

		Authorization level	Key color	Article No.
	ID group 1	1	Green	3SU1900-0FV40-0AA0
	ID group 2	1 ... 2	Yellow	3SU1900-0FW30-0AA0
	ID group 3	1 ... 3	Red	3SU1900-0FX20-0AA0
	ID group 4	1 ... 4	Blue	3SU1900-0FY50-0AA0
	• Individually codable • Multiple teach-in capability • Can only be used for IO-Link	Can assume all authorization levels	White	3SU1900-0FU60-0AA0

13.7 USB adapter

The USB adapter (USB 3.0) has a USB port on the front and rear. This enables you to connect your system easily by USB. The USB adapter is downward compatible.

The USB adapter comes with a dust cap.

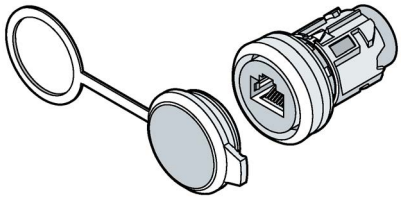


Collar / Front ring material	∅	Article No.	Connectable front plate thickness	
			without protective cap	with protective cap
Plastic / Plastic	22.5 mm	3SU1900-0GA10-0AA0	6 mm	5 mm
Plastic / Metal, matte	22.5 mm	3SU1930-0GA80-0AA0	6 mm	5 mm
Metal / Metal	22.5 mm	3SU1950-0GA80-0AA0	6 mm	5 mm
Metal / Metal, matte	30.5 mm	3SU1960-0GA80-0AA0	4 mm	3 mm

13.8 RJ45 adapter

The RJ45 adapter has an RJ45 terminal on the front and rear. The RJ45 adapter is suitable for Category 6 (Cat.6) and is downward compatible.

The RJ45 adapter comes with a dust cap.



Collar / Front ring material	∅	Article No.	Connectable front plate thickness	
			without protective cap	with protective cap
Plastic / Plastic	22.5 mm	3SU1900-0GB10-0AA0	6 mm	5 mm
Plastic / Metal, matte	22.5 mm	3SU1930-0GB80-0AA0	6 mm	5 mm
Metal / Metal	22.5 mm	3SU1950-0GB80-0AA0	6 mm	5 mm
Metal / Metal, matte	30.5 mm	3SU1960-0GB80-0AA0	4 mm	3 mm

13.9 Sealing plug

The sealing plug is used in place of an actuating or signaling element in a command point. You need the SIRIUS ACT 3-slot holder (3SU15.0-0AA10-0AA0) for mounting. You can thus carry out the complete wiring without the need for the commanding or signaling element to be available. You remove the sealing plug later and install the configured commanding or signaling element in its place.

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221535)

Description	Article number
Sealing plug, plastic, black, mounting diameter 22.5 mm	3SU1900-0FA10-0AA0
Sealing plug, metal matte, mounting diameter 22.5 mm	3SU1930-0FA80-0AA0
Sealing plug, metal, mounting diameter 22.5 mm	3SU1950-0FA80-0AA0
Sealing plug, metal matte, mounting diameter 30.5 mm	3SU1960-0FA80-0AA0

13.10 Accessories for enclosures

13.10.1 Labeling plates for enclosures (22 x 22 mm)

The labeling plates in size 22 mm x 22 mm can be attached to enclosures with recesses for labels. There are versions in black with white print or silver-colored with black print.

You can find information on labeling in Chapter "Customized inscriptions (Page 404)"

Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10226805)

	Description	Article number
	Labeling plate	3SU1900-0AF16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AF16-0AB0
Aus	3SU1900-0AF16-0AC0
Auf	3SU1900-0AF16-0AD0
Ab	3SU1900-0AF16-0AE0
Vor	3SU1900-0AF16-0AF0
Zurück	3SU1900-0AF16-0AG0
Rechts	3SU1900-0AF16-0AH0
Links	3SU1900-0AF16-0AJ0
Halt	3SU1900-0AF16-0AK0
Zu	3SU1900-0AF16-0AL0
Schnell	3SU1900-0AF16-0AM0
Langsam	3SU1900-0AF16-0AN0
Betrieb	3SU1900-0AF16-0AP0
Störung	3SU1900-0AF16-0AQ0
Einrichten	3SU1900-0AF16-0AR0
NOT-AUS	3SU1900-0AF16-0AS0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AF16-0DJ0
Off	3SU1900-0AF16-0DK0
Up	3SU1900-0AF16-0DL0
Down	3SU1900-0AF16-0DM0
Forward	3SU1900-0AF16-0DN0
Reverse	3SU1900-0AF16-0DP0
Right	3SU1900-0AF16-0DQ0
Left	3SU1900-0AF16-0DR0
Stop	3SU1900-0AF16-0DS0
Start	3SU1900-0AF16-0DT0
Reset	3SU1900-0AF16-0DU0
Test	3SU1900-0AF16-0DV0
Open	3SU1900-0AF16-0DW0
Close	3SU1900-0AF16-0DX0
Running	3SU1900-0AF16-0EB0
Fault	3SU1900-0AF16-0EC0
Fast	3SU1900-0AF16-0EE0
Slow	3SU1900-0AF16-0EF0
Emergency Stop	3SU1900-0AF16-0DA0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AF16-0GA0
Arrêt	3SU1900-0AF16-0GB0
Montée	3SU1900-0AF16-0GC0
Descente	3SU1900-0AF16-0GD0
Avant	3SU1900-0AF16-0GE0
Retour	3SU1900-0AF16-0GF0
Droite	3SU1900-0AF16-0GG0
Gauche	3SU1900-0AF16-0GH0
Ouvert	3SU1900-0AF16-0GJ0
Fermé	3SU1900-0AF16-0GK0
Rapide	3SU1900-0AF16-0GL0
En Service	3SU1900-0AF16-0GM0
Défaut	3SU1900-0AF16-0GN0
Sous tension	3SU1900-0AF16-0GS0
Manu Auto	3SU1900-0AF16-0GT0
Marche Arrêt	3SU1900-0AF16-0GU0
Rearmement	3SU1900-0AF16-0GV0
Lent	3SU1900-0AF16-0GW0
Arrêt d'urgence	3SU1900-0AF16-0GQ0

Labeling plate with symbol (ON/OFF)

Printed symbols	Article number
O	3SU1900-0AF16-0QA0
I	3SU1900-0AF16-0QB0
II	3SU1900-0AF16-0QC0
III	3SU1900-0AF16-0QD0
O I	3SU1900-0AF16-0QG0
I O II	3SU1900-0AF16-0QK0
I O (one below the other)	3SU1900-0AF16-0QP0
II O I (one below the other)	3SU1900-0AF16-0QQ0

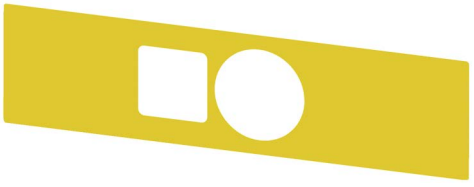
Labeling plate with symbol

Printed symbols	Article number
Motion arrow direction to right	3SU1900-0AF16-0QR0
Pump	3SU1900-0AF16-0RD0
Fan	3SU1900-0AF16-0RV0
Cooling	3SU1900-0AF16-0RW0
Illumination	3SU1900-0AF16-0RX0
Motor	3SU1900-0AF16-0RY0

13.10.2 Labeling plates for enclosures with EMERGENCY STOP

The yellow labeling plates for EMERGENCY STOP mushroom pushbuttons can be stuck onto gray enclosures. The labeling plates can be used on all enclosures without protective collar.

Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10228442)



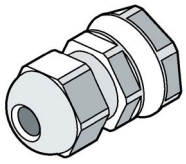
Typical diagram

Description	Article number
Labeling plates without inscription	3SU1900-0BE31-0AA0
Labeling plate with inscription: NOT-AUS	3SU1900-0BE31-0AS0
Labeling plate with recess w/o inscription	3SU1900-0BF31-0AA0

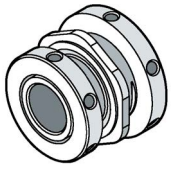
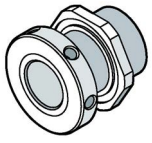
13.10.3 Cable glands and connection pieces

Cable glands

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221536)

	Description	Material	Article No.
 Typical diagram	Metric M20 cable gland for enclosure Clamping range: 5 ...12 mm	Plastic	3SU1900-0HG10-0AA0
	Metric M25 cable gland for enclosure Clamping range: 9 ...14 mm		3SU1900-0HH10-0AA0

Connection pieces

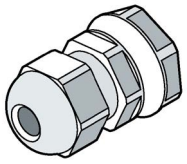
	Description	Material	Article No.
 Typical diagram	**For plastic enclosure**		
	M20/M20 connection piece for connecting 2 enclosures	Plastic	3SU1900-0HJ10-0AA0
	M20/M25 connection piece for connecting 2 enclosures		3SU1900-0HK10-0AA0
	M25/M25 connection piece for connecting 2 enclosures		3SU1900-0HL10-0AA0
	For metal enclosure		
 Typical diagram	M20/M20 connection piece for connecting 2 enclosures	Metal	3SU1950-0HJ10-0AA0
	M20/M25 connection piece for connecting 2 enclosures		3SU1950-0HK10-0AA0
	M25/M25 connection piece for connecting 2 enclosures		3SU1950-0HL10-0AA0

For mounting of the above-named accessories, see Chapter "Mounting of connection pieces (Page 246)".

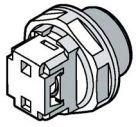
13.10.4 Cable glands and adapters for AS-i

Cable glands for AS-i

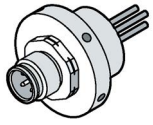
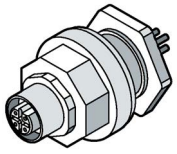
Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221536)

	Description	Material	Article number
 Typical diagram	Metric M20 cable gland with AS-i cable entry	Plastic	3SU1900-0HE10-0AA0
	Metric M25 cable gland with AS-i cable entry		3SU1900-0HF10-0AA0

Adapters for AS-i shaped cables

	Description	Material	Article number
 Typical diagram	Insulation piercing method, for M20	Plastic	3SU1900-0HX10-0AA0
	Insulation piercing method, for M25		3SU1900-0HY10-0AA0

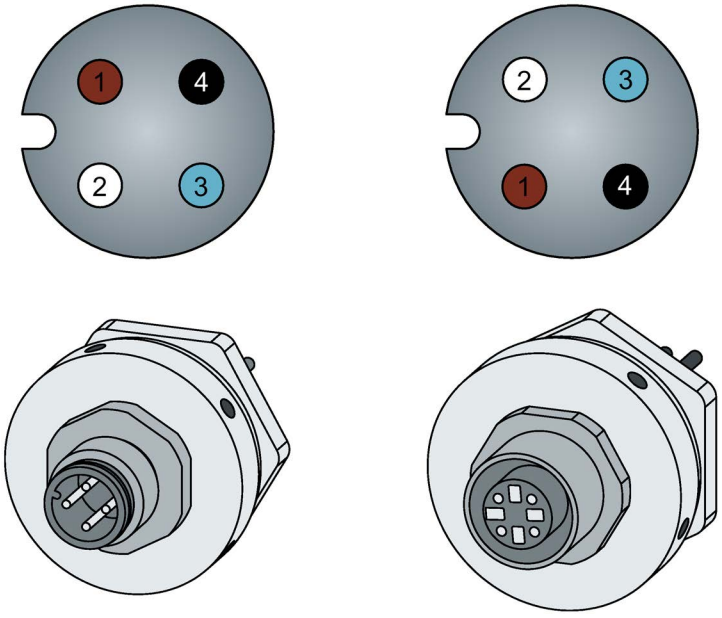
Adapters for AS-i tab connection

	Description	Material	Article number
 Typical diagram	**For plastic enclosures** (cable length 500 mm)		
	M12 socket, 4-pole, for M20	Plastic	3SU1930-0HA10-0AA0
	M12 socket, 4-pole, for M25		3SU1930-0HB10-0AA0
	M12 connector, 4-pole, for M20		3SU1930-0HC10-0AA0
	M12 connector, 4-pole, for M25		3SU1930-0HD10-0AA0
	M12 socket, 5-pole, for M20		3SU1930-0HP10-0AA0
	M12 socket, 5-pole, for M25		3SU1930-0HQ10-0AA0
	M12 connector, 5-pole, for M20		3SU1930-0HR10-0AA0
	M12 connector, 5-pole, for M25		3SU1930-0HS10-0AA0
	M12 socket, 8-pole, for M20		3SU1930-0HT10-0AA0
	M12 socket, 8-pole, for M25		3SU1930-0HU10-0AA0
	M12 connector, 8-pole, for M20		3SU1930-0HV10-0AA0
	M12 connector, 8-pole, for M25		3SU1930-0HW10-0AA0
	For metal enclosures (cable length 500 mm)		
 Typical diagram	M12 socket, 4-pole, for M20	Metal	3SU1950-0HA10-0AA0
	M12 socket, 4-pole, for M25		3SU1950-0HB10-0AA0
	M12 connector, 4-pole, for M20		3SU1950-0HC10-0AA0
	M12 connector, 4-pole, for M25		3SU1950-0HD10-0AA0
	M12 socket, 5-pole, for M20		3SU1950-0HP10-0AA0
	M12 socket, 5-pole, for M25		3SU1950-0HQ10-0AA0
	M12 connector, 5-pole, for M20		3SU1950-0HR10-0AA0
	M12 connector, 5-pole, for M25		3SU1950-0HS10-0AA0
	M12 socket, 8-pole, for M20		3SU1950-0HT10-0AA0
	M12 socket, 8-pole, for M25		3SU1950-0HU10-0AA0
	M12 connector, 8-pole, for M20		3SU1950-0HV10-0AA0
	M12 connector, 8-pole, for M25		3SU1950-0HW10-0AA0

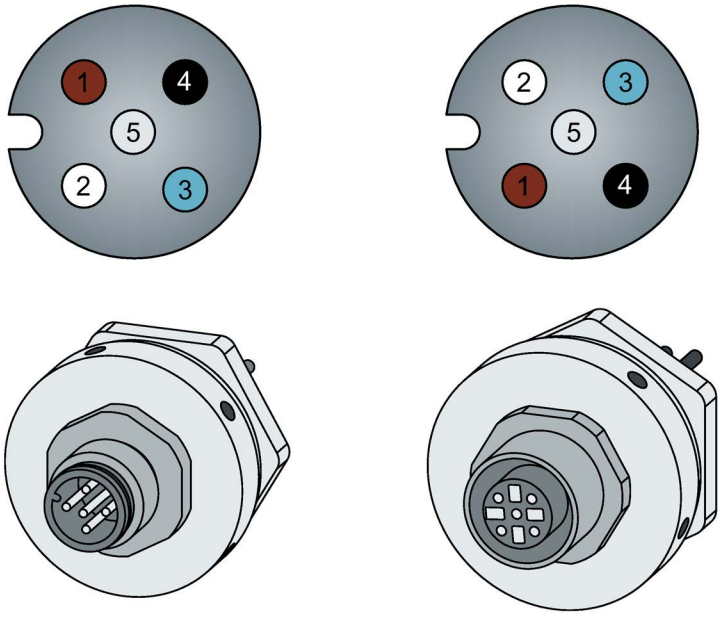
For mounting of the above-named accessories, see Chapter "Mounting of cable glands for AS-Interface bus (Page 250)".

Pin assignments of the adapters for AS-i tab connection

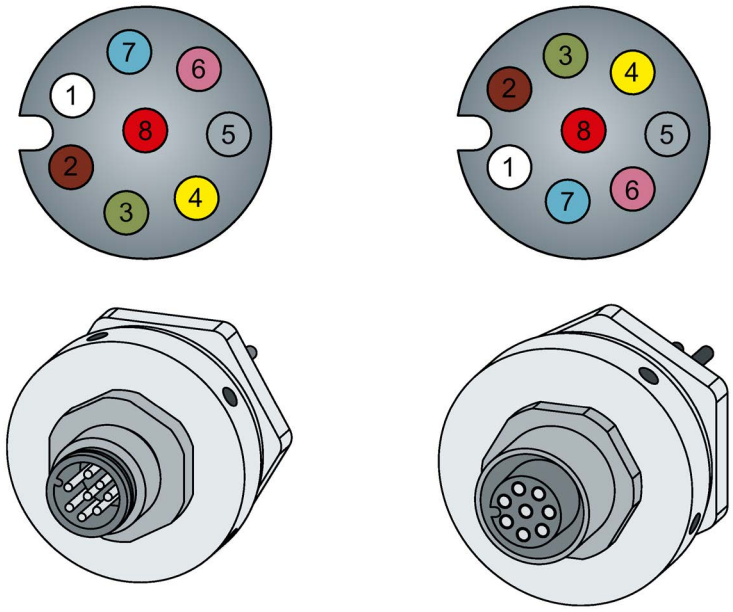
As an example, the figure shows the pin assignments of the 4-pin connector and socket



As an example, the figure shows the pin assignments of the 5-pin connector and socket



As an example, the figure shows the pin assignments of the 8-pin connector and socket



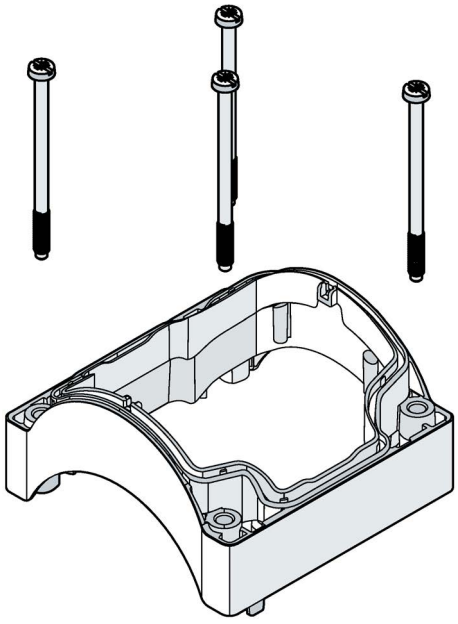
13.10.5 Enclosure adapter

The enclosure adapter makes it possible to install 2-pole contact modules in plastic enclosures with one command point.

The enclosure adapter is suitable for all enclosures with one command point (not suitable for enclosures with raised cover 3SU1801-1AA00-1AA1).

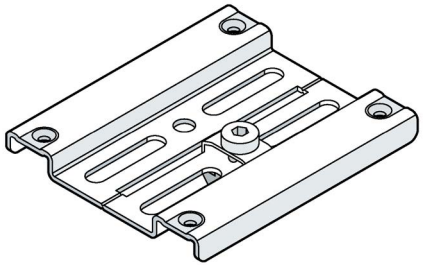
Only front plate mounting modules can be used when using the enclosure adapter.

When mounting the enclosure adapter, the screws of the enclosure must be unscrewed and replaced by the screws included in the delivery kit of the enclosure adapter.

	Description	Material	Article No.
	**Enclosure adapter**	Plastic	3SU1900-0JF10-0AA0

13.10.6 Enclosure mounting adapter

The enclosure mounting adapter allows you to mount a SIRIUS ACT enclosure on a strut profile. For SIRIUS ACT enclosures with 2 command points or more, the adapter must be split along the perforation in the middle. Sliding blocks for a 10 mm groove are included in the scope of supply. To secure the enclosure, you need 4 screws with the following dimensions: min. M4 x 12 mm to max. M4 x 15 mm.

	Description	Material	Article No.
	**Enclosure mounting adapter** for strut profiles	Metal	3SU1950-0JE80-0AA0

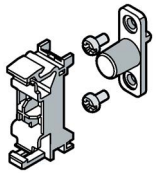
13.10.7 Enclosure cover monitoring

Enclosure cover monitoring

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221536)

Enclosure cover monitoring is fitted at the intermediate position of the command points. The plunger is screwed onto the enclosure cover (tightening torque: plastic: 0.6 ... 0.8 Nm, metal: 0.8 ... 1.0 Nm). The module attachment is snapped into the intermediate position on the enclosure base and fitted with 1 NO (normally-open) contact module (3SU1400-2AA10-.BA0). The entire circuit is routed via this contact module. When the enclosure has been correctly screwed together, the circuit closes and the controlled device can be operated.
Note that the enclosure cover monitoring cannot be used with the raised enclosures with one command point (3SU18.1-1AA00-1AA1).
For further information about installing the enclosure cover monitoring system, refer to Chapter "Installation steps for enclosure cover monitoring (Page 452)".

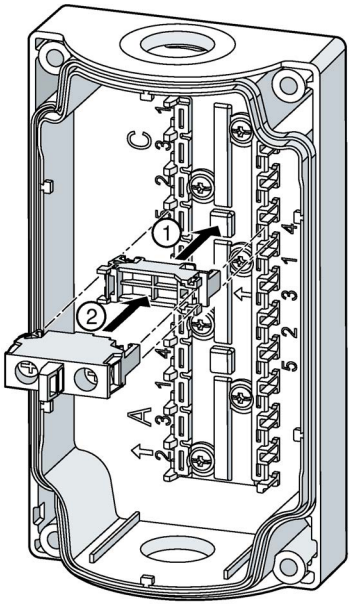
Note also the information in Chapter "Use of accessories for the enclosure (Page 459)".

	Description	Material	Article number
	Enclosure cover monitoring (module with extension plunger)	Plastic	3SU1900-0HM10-0AA0

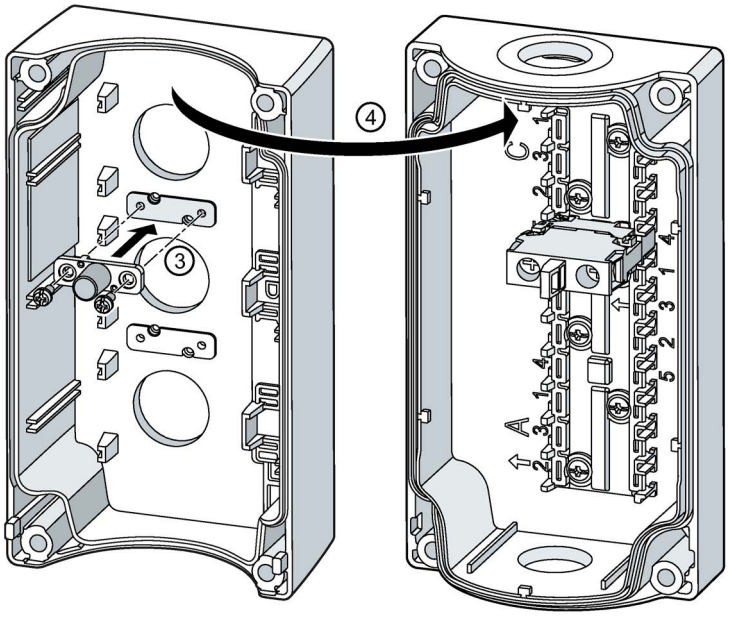
13.10.8 Installation steps for enclosure cover monitoring

Procedure

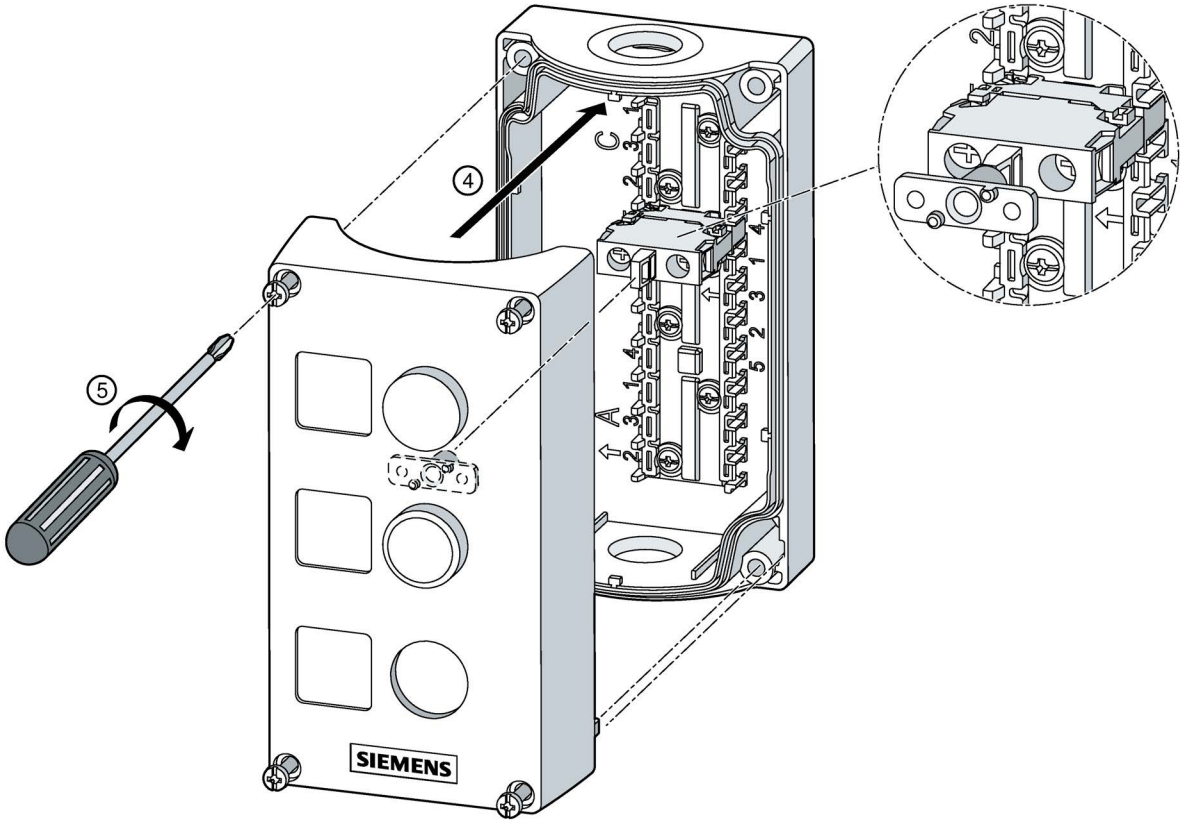
All the diagrams below are examples



1. Fit the adapter for the enclosure cover monitoring system in the enclosure base.
2. Mount the contact module on the base element of the enclosure cover monitoring system.



3. Screw the push rod of the enclosure cover monitoring system to the enclosure cover. Tightening torque:
   - Plastic enclosure: 0.6 ... 0.8 Nm
   - Metal enclosure: 0.8 ... 1.0 Nm
4. Place the enclosure cover on the enclosure base.



4. Place the enclosure cover on the enclosure base (corresponds to para. 4 above)
5. Screw the enclosure cover into position.

13.11 Miscellaneous accessories

13.11.1 Square single frame

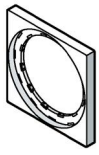
You can mount the square single frame over a round signal panel cutout to change its appearance to "square".

The square single frame is suitable for:

- Actuators with round front ring and a mounting diameter of 22.5 mm
- Installation in enclosures (without recess for labeling plates) only in combination with single-pole contact modules for front plate mounting
- Front plate mounting
  Front plate thickness < 4 mm

Also note the information in Chapters "Combination options of the accessories (Page 457)" and "Use of accessories for the enclosure (Page 459)".

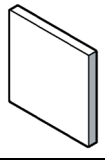
Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Product/?mlfb=3SU1900-0AX10-0AA0)

	Description	Article number
	Square single frame	3SU1900-0AX10-0AA0

13.11.2 Unit labeling plate

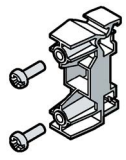
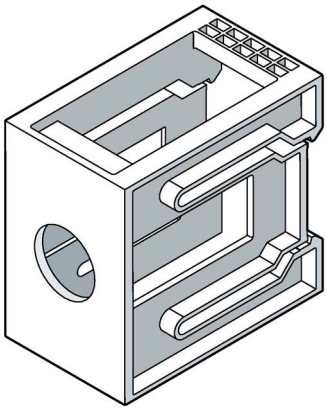
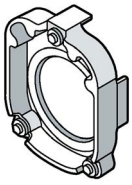
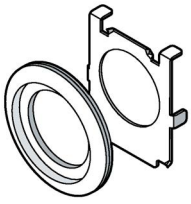
The unit labeling plate is snapped onto the back of the contact modules or LED modules (front mounting) and is used for labeling the modules.

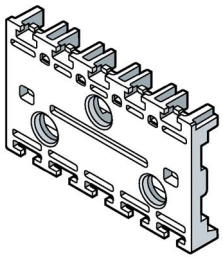
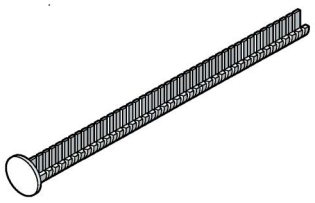
Siemens Industry Mall
(https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10228442)

	Description	Article number
	Unit labeling plate	3SU1900-0AY61-0AA0

13.11.3 Additional Accessories

Siemens Industry Mall
(http://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10221537)

	Description	Material	Article No.
	**PCB carrier** The drill-hole spacing of the PCB carrier is: 20.5 mm	Plastic	3SU1900-0KA10-0AA0
	**Standard mounting rail adapter** The standard mounting rail adapter can be used in conjunction with the 3-slot holder (3SU15.0-0AA00-0AA0), 1-pole contact modules and LED modules. The contact modules must not be stacked in this case. You will find more information in Chapters "3SU15 holders (Page 221)" and "3SU14 modules (Page 173)".	Plastic	3SU1900-0KH80-0AA0
	**Pressure plate** Pressure plate for selector switches, twin pushbuttons and key-operated switches Lock for controlling which contact modules are to be operated. You will also find information in Chapter "Selector switches (Page 69)".	Plastic	3SU1900-0KC10-0AA0
	**Adapter** Adapter for actuators and indicators with front ring for flat mounting The adapter is needed for all 30.5 mm actuators and accessories. The adapter is included in the scope of supply of the actuator and accessories.	Metal	3SU1950-0KJ80-0AA0
	**Adapter** Adapter for installing 22.5 mm actuators in a 30.5 mm mounting hole. The adapter corresponds to the contour of the actuators with a 30.5 mm mounting diameter. With the adapter, all 22.5 mm pushbuttons can also be used in a 30.5 mm mounting hole.	Metal shiny Metal matte	3SU1950-0KB10-0AA0 3SU1960-0KB10-0AA0

	Description	Material	Article No.
	**Mounting adapter** The mounting adapter serves to accommodate modules for base mounting. The mounting screws are not included in the scope of supply.	Plastic	3SU1900-0JG10-0AA0
	Drilling template for 30 x 40 grid, horizontal	Plastic	3SU1900-0KF10-0AA0
	**Extension plungers** For compensation of the distance between a pushbutton and the unlatching button of an overload relay The extension plunger can be used in combination with the pushbutton with extended stroke. The extension plunger cannot be mounted in combination with an enclosure.	Plastic	3SU1900-0KG10-0AA0
	**Grounding stud**	Metal	3SU1950-0KK80-0AA0
	**Angled socket with screw terminals** For connecting the sensor switch The angled socket is suitable for mounting in the enclosure 3SU18.1-1AA00-0AA1 (enclosure with raised cover).	Plastic	3SU1900-0KL10-0AA0

13.12 Combination options for accessories

Please note when ordering accessories that several accessory items from the same group cannot be installed. (Reason: reduced level of protection, etc.)

	Mounting position				
	Behind the illuminated pushbutton / button	On the front ring	Under the command point, in front of the front plate	Behind the front plate	In combination with the enclosure
Insert label (Page 401)	✓	—	—	—	—
Label holder with labeling plate (Page 408)	—	—	✓	—	—
Single frame (Page 454)	—	—	✓	—	—
Backing plates (Page 386)	—	—	✓	—	—
Backing labels (Page 385)	—	—	✓	—	—
Unit labeling plate (Page 454)	—	—	—	✓	—
Sealable cap (Page 411)	—	—	✓	—	—
Protective cap (Page 412)	—	—	✓	—	—
Sun collar (Page 422)	—	✓	—	—	—
360° protective collar (Page 423)	—	—	✓	—	✓
Protective collar visible from the side (Page 423)	—	—	✓	—	✓
Protective collar for EMERGENCY STOP (Page 423)	—	—	✓	—	✓
Protective collar for padlocks (Page 423)	—	—	✓	—	✓[1)]
Protection for sensor switch (Page 423)	—	—	✓	—	—
Locking devices (Page 427)	—	—	✓	—	—
Cover for locking device (Page 431)	—	—	✓	—	—
Sealing plug (Page 440)	—	—	—	—	✓

	Mounting position				
	Behind the illuminated pushbutton / button	On the front ring	Under the command point, in front of the front plate	Behind the front plate	In combination with the enclosure
Labeling plate 22 mm x 22 mm (Page 396)	—	—	—	—	✓[2]
Labeling plates for enclosures with EMERGENCY STOP (Page 399)	—	—	—	—	✓[1]
Labeling plates for enclosures with EMERGENCY STOP with recess (Page 399)	—	—	—	—	✓[2]
Enclosure adapters for mounting 2-pole contact modules (Page 450)	—	—	—	—	✓
Enclosure mounting adapters for strut profiles (Page 451)	—	—	—	—	✓
Adapters for actuators and indicators with front ring for flat mounting (Page 455)	—	—	—	✓	—
Adapter for mounting hole 30.5 mm (Page 455)	—	—	✓	—	—

[1] Enclosure with command point, center without protective collar

[2] Enclosure with recess for labeling plate

13.13 Use of accessories for the enclosure

13.13.1 Enclosure with recess for labeling plate

Please note the following instructions for using the accessories:

Enclosure with recess for labeling plate		
Accessories	**Suitable for front mounting**	**Suitable for base mounting**
Label holder (Page 408)	✓	—
Square single frame (Page 454)	✓	—
EMERGENCY STOP backing plate/backing label (Page 386)	—	—
Protective collar for EMERGENCY STOP (Page 423)	—	—
360° protective collar (Page 423)	—	—
Protective collar for pushbutton (Page 423)	✓	—
Protective collar for mushroom pushbutton (Page 423)	✓	—
Sun collar (Page 422)	✓	✓
Protective collar 360° for pushbutton and short selector (Page 423)	✓	—
Locking device (Page 427)	—	—
Protective collar for padlocks (Page 423)	—	—
Protective caps (Page 412)	✓	—
Dust cap for key-operated switches (Page 412)	✓	✓
Sealable cap (Page 411)	✓	—
Labeling plate for enclosures with EMERGENCY STOP with recess (Page 399)	✓	✓
Sealing plug (Page 440)	✓	✓
Enclosure adapters for mounting 2-pole contact modules (Page 450)	✓	—
Enclosure mounting adapters for strut profiles (Page 451)	✓	✓
Enclosure cover monitoring (Page 451)	—	✓

When using an accessory that is mounted between the actuating element and the front plate, the maximum thickness of the front plate is reduced by the corresponding value of the accessory.

13.13.2 Enclosure without recess for labeling plate

Please note the following instructions for using the accessories:

Enclosure without recess for labeling plate (except enclosures with protective collar)		
Accessories	**Suitable for front mounting**	**Suitable for base mounting**
Label holder (Page 408)	✓	—
Square single frame (Page 454)	✓	—
EMERGENCY STOP backing plate (Page 386)	—	—
Protective collar for EMERGENCY STOP (Page 423)	✓	—
360° protective collar (Page 423)	✓	—
Protective collar for pushbutton (Page 423)	✓	—
Protective collar for mushroom pushbutton (Page 423)	✓	—
Sun collar (Page 422)	✓	✓
Protective collar 360° for pushbutton and short selector (Page 423)	✓	—
Locking device (Page 427)	—	—
Padlock (Page 423)	✓	—
Protective caps (Page 412)	✓	—
Dust cap for key-operated switches (Page 412)	✓	✓
Sealable cap (Page 411)	✓	—
Labeling plates for enclosures with EMERGENCY STOP (Page 399)	✓	—
Sealing plug (Page 440)	—	—
Enclosure adapters for mounting 2-pole contact modules (Page 450)	✓	—
Enclosure mounting adapters for strut profiles (Page 451)	✓	✓
Enclosure cover monitoring (Page 451)	—	✓

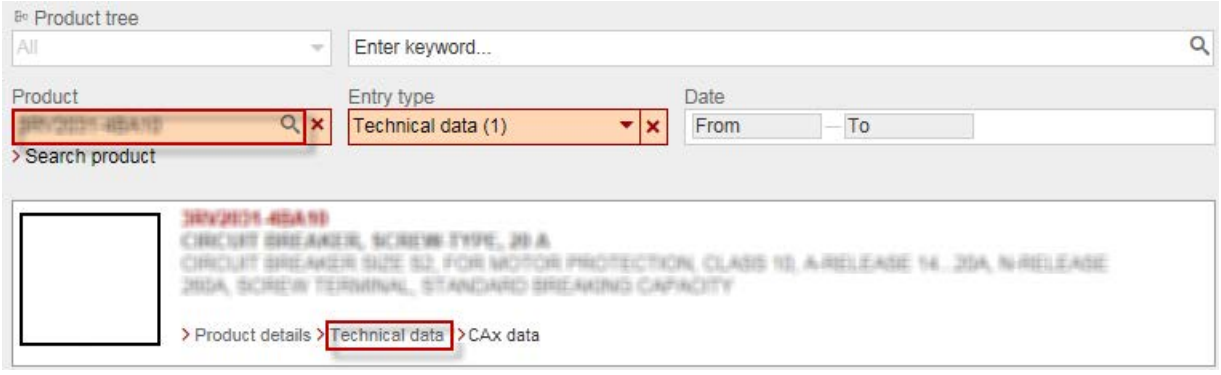
When using an accessory that is mounted between the actuating element and the front plate, the maximum thickness of the front plate is reduced by the corresponding value of the accessory.

Technical data in Siemens Industry Online Support 14

Technical data sheet

You can also find the technical data of the product at Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "Technical data" link.



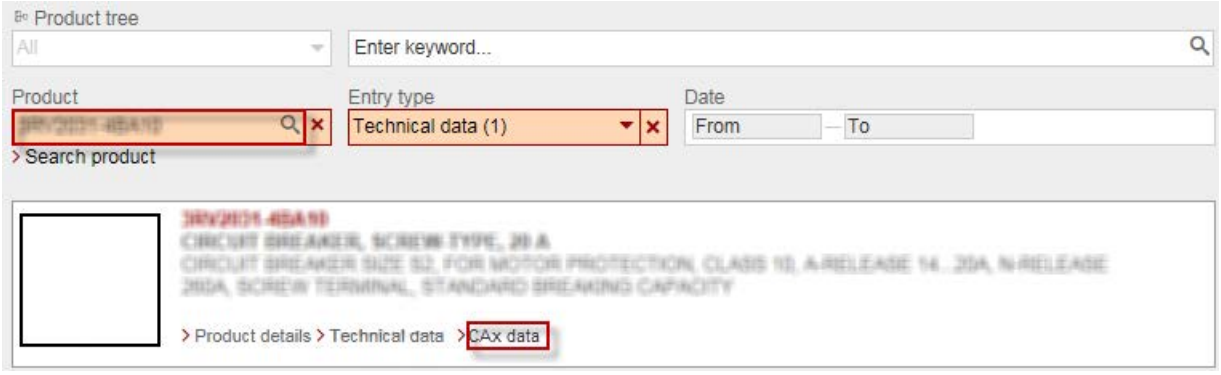
Dimension drawings

15

15.1 CAx data

You can find the CAx data in the Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/ps/).

1. Enter the full article number of the desired device in the "Product" field, and confirm with the Enter key.
2. Click the "CAx data link.

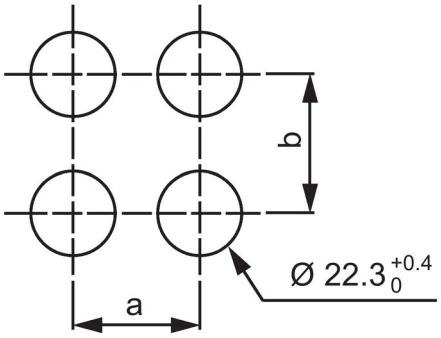


15.2 General dimensions

15.2.1 Minimum clearances

Minimum clearances for devices in the following design series:

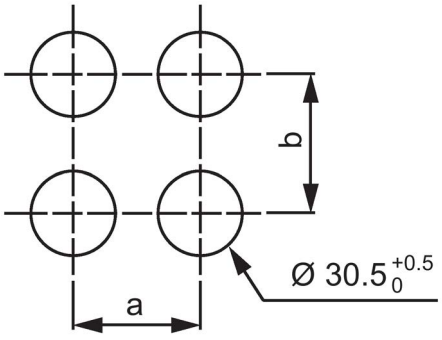
- Plastic
- Metal shiny
- Metal matte



	3-slot holder		4-slot holder	
	a	b	a	b
Standard (all actuators that are not listed below)	30 mm	40 mm	40 mm	40 mm
EMERGENCY STOP mushroom pushbuttons, ∅ 30 mm	33 mm	40 mm	—	—
Mushroom pushbuttons, ∅ 40 mm EMERGENCY STOP mushroom pushbuttons, ∅ 40 mm	40 mm	40 mm	—	—
Mushroom pushbuttons, ∅ 60 mm EMERGENCY STOP mushroom pushbuttons, ∅ 60 mm	60 mm	60 mm	—	—
Twin pushbuttons	30 mm	60 mm	—	—
Sensor switches	55 mm	55 mm	—	—
Electronic module for IO-Link (front variant)	55 mm	70 mm	—	—
AS-Interface modules for front plate mounting	55 mm	70 mm	—	—
Electronic module for ID key-operated switches	100 mm	100 mm	—	—
Label holders 12.5 x 27 mm	30 mm	45 mm	40 mm	45 mm
Label holders 17.5 x 27 mm	30 mm	50 mm	40 mm	50 mm
Label holders 27 X 27 mm	30 mm	60 mm	40 mm	60 mm
Label holders 2 x 27 x 27 mm	30 mm	90 mm	40 mm	90 mm
Label holders 4 x 27 x 27 mm	90 mm	90 mm	90 mm	90 mm
Label holders for twin pushbuttons	30 mm	75 mm	—	—

Minimum clearances for devices in the following design series:

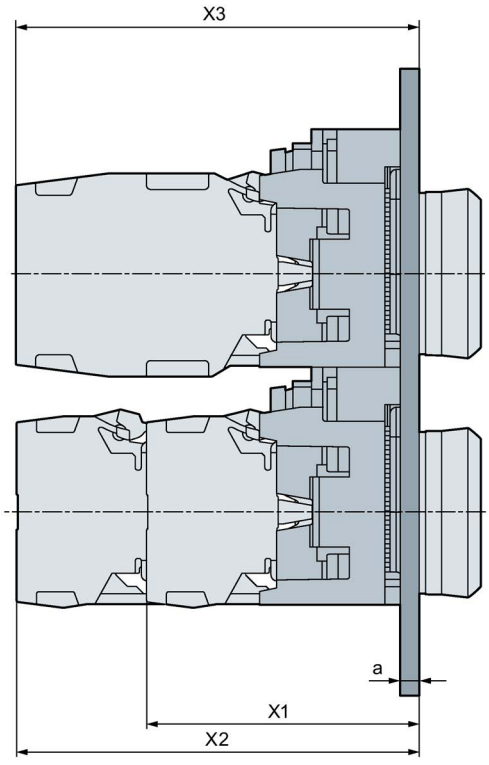
- Metal matte for recessed mounting



	3-slot holder	
	a	b
Standard	40 mm	45 mm

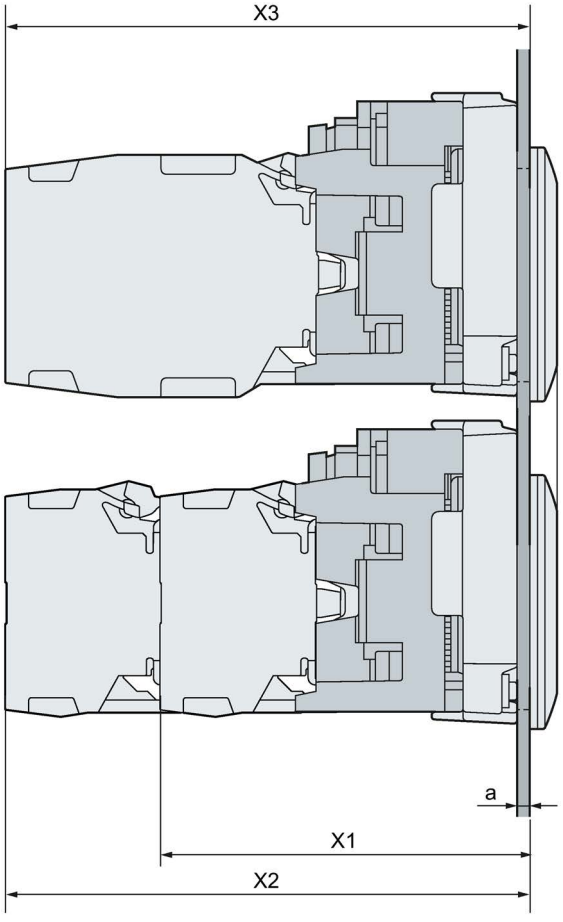
15.2.2 Mounting depths

22.5 mm devices with modules



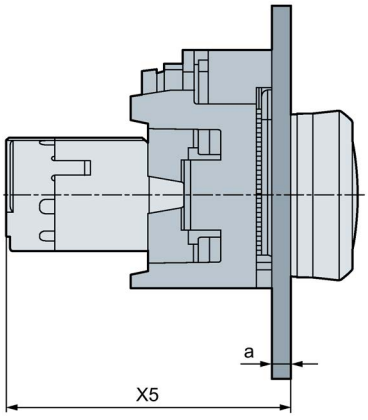
	3-slot holder	4-slot holder
X1	49.7 mm	53.7 mm
X2	71.7 mm	75.7 mm
X3	71.7 mm	75.7 mm
a	1 ... 6 mm	

30.5 mm devices with modules



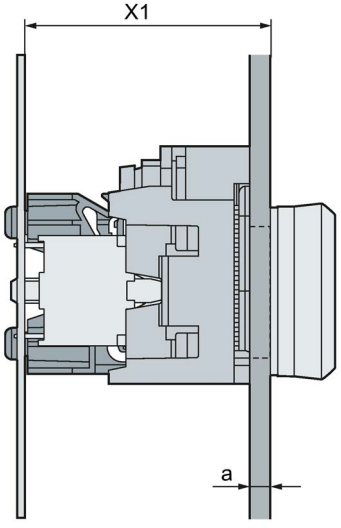
	3-slot holder
X1	56.2 mm
X2	78.2 mm
X3	78.2 mm
a	1 ... 4 mm

Compact units



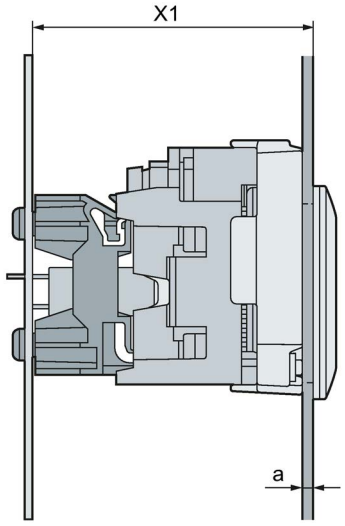
	Device	3-slot holder
X5	Compact units	49.6 mm
a	1 ... 6 mm	

22.5 mm devices with modules, PCB assembly



	3-slot holder	4-slot holder
X1	44 mm	48 mm
a	1 ... 6 mm	

30.5 mm devices with modules, PCB assembly



	3-slot holder
X1	50.5 mm
a	1 ... 4 mm

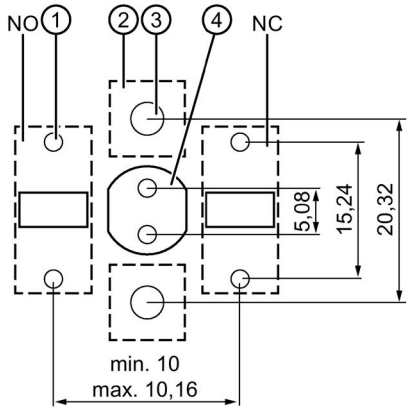
15.2.3 Mounting dimensions of PCB carrier

Overview of mounting depths

Mounting dimensions of PCB carrier

The specified dimensions (min. 10, max. 10.16) apply to 3-slot and 4-slot holders.

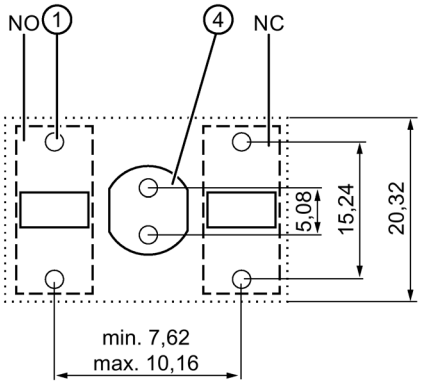
Dimensions in mm.



① Solder connection diameter $1.3^{+0.1}$
② PCB carrier
③ Center hole diameter $4.2^{+0.1}$
④ LED

Without PCB carrier with LED

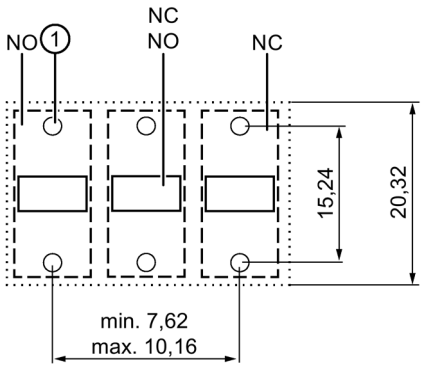
Dimensions in mm.



① Solder connection diameter $1.3^{+0.1}$
④ LED

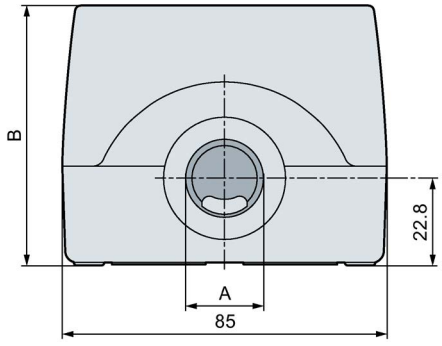
Without PCB carrier with contact modules

Dimensions in mm.



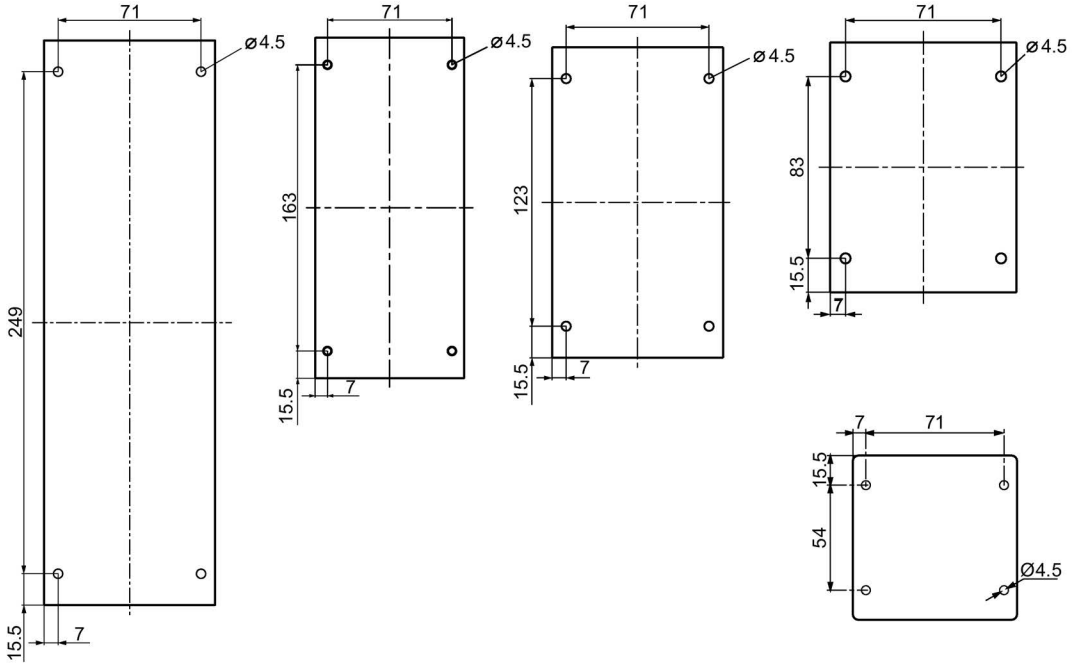
① Solder connection diameter $1.3^{+0.1}$

15.2.4 Mounting dimensions of enclosure



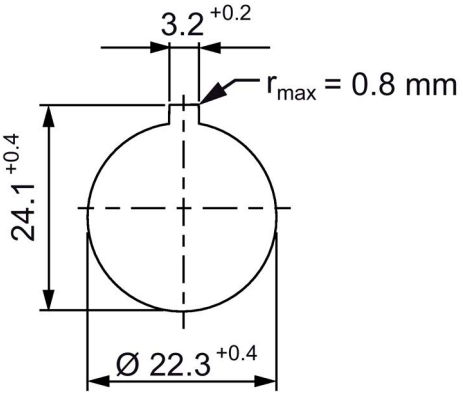
Enclosures with:	A	B
1 command point	20 mm	64 mm
1 command point, raised	20 mm	68 mm
1 command point with protective collar	20 mm	112.5 mm
2 command points	20 mm	64 mm
3 command points	20 mm	64 mm
4 command points	25 mm	64 mm
6 command points	25 mm	64 mm

Drilling plan enclosure



15.2.5 Fastening hole for locking device

Fastening holes in accordance with IEC 60947-5-1 must be provided for locking devices.

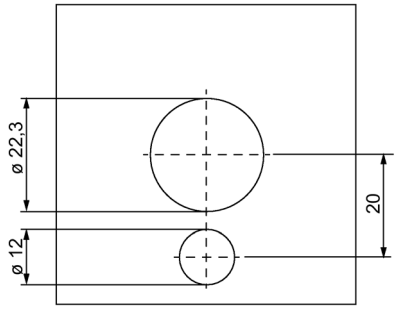


15.2.6 Drilling plan for backing plate

Drilling plan for backing plate ∅ 60 mm, can be illuminated

Article No.: 3SU1901-0BD31-0AA0

3SU1901-0BD31-0(A,D,N)(A,B,S,T)0

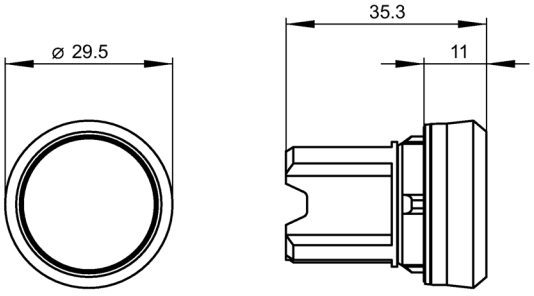


15.3 3SU10 devices

15.3.1 Pushbuttons / illuminated pushbuttons

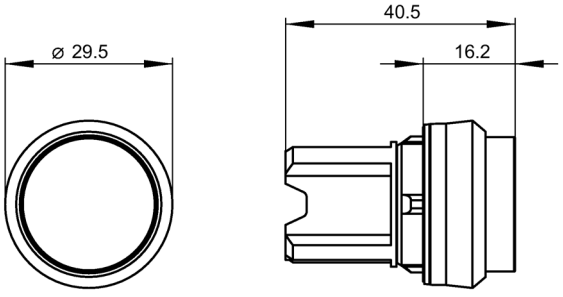
Pushbuttons or illuminated pushbuttons, flat button, flat front ring

Article No.: 3SU1001-0AA20-0AA,
3SU10(0,3,5)(0,1)-0A(A,B,D).0-0A(A,B,C,D,Q,R)0



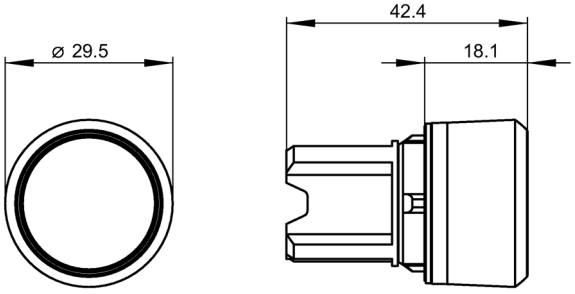
Pushbuttons or illuminated pushbuttons, raised button, flat front ring

Article No.: 3SU1001-0BB20-0AA0,
3SU10(0,3,5)(0,1)-0BB.0-0AA0



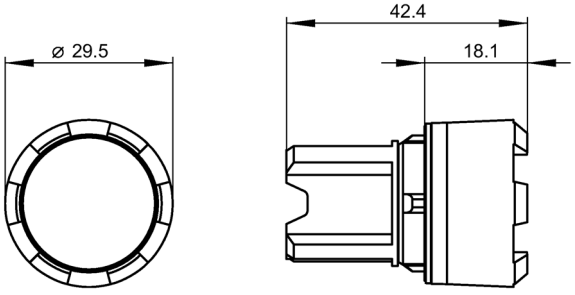
Pushbuttons or illuminated pushbuttons, flat button, raised front ring

Article No.: 3SU1001-0DB50-0AA0,
3SU10(0,3,5)0-0CB.0-0AA0



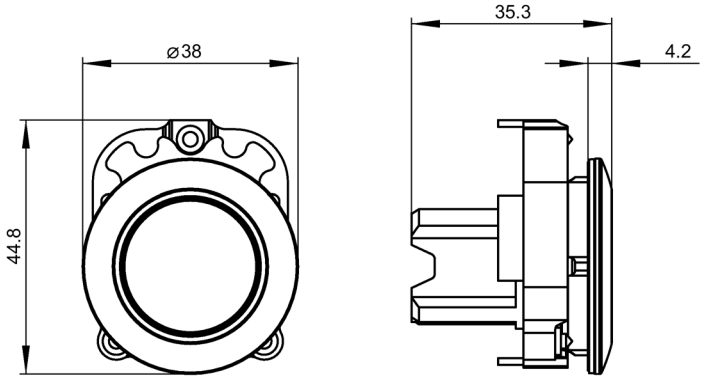
Pushbuttons or illuminated pushbuttons, flat button, raised castellated front ring

Article No.: 3SU1050-0CB20-0AA0,
3SU100(0,1)-0DB.0-0AA0



15.3.2 30.5 mm pushbuttons / illuminated pushbuttons

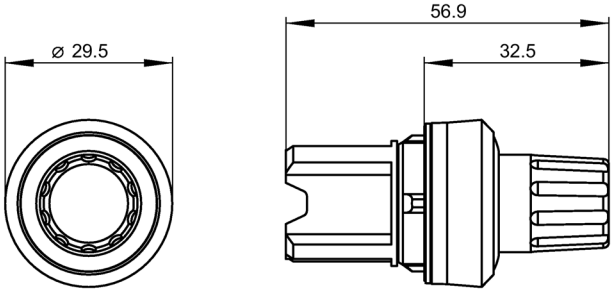
Article No.: 3SU1061-0JA20-0AA0,
3SU106(0,1)-0J(A,B,D).0-0AA0



15.3.3 STOP buttons

STOP buttons

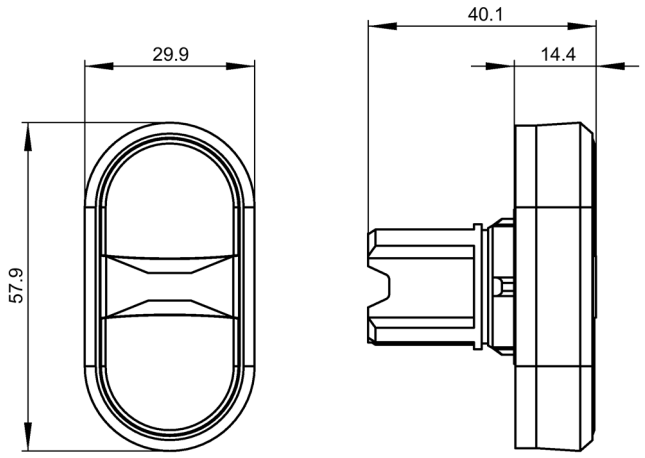
Article No.: 3SU1000-0HC10-0AA0,
3SU1000-0HC(1,2)0-0AA0



15.3.4 Twin pushbuttons

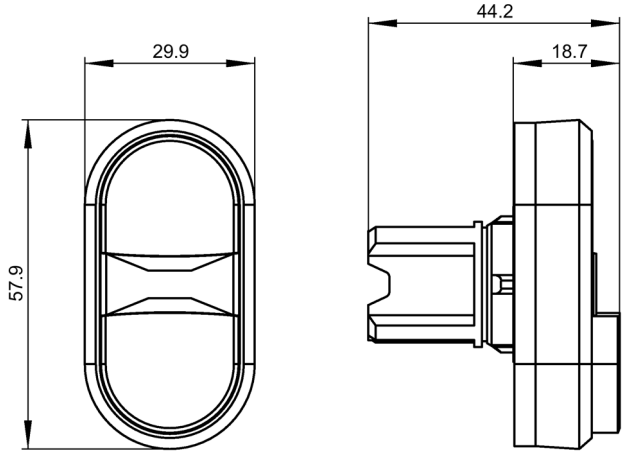
Twin pushbuttons, flat button

Article No.: 3SU1050-3AB42-0AK0,
3SU10(0,3,5)0-3AB(1,4,6)(1,2,6)-0A(A,K,L,M,N,P,Q)0



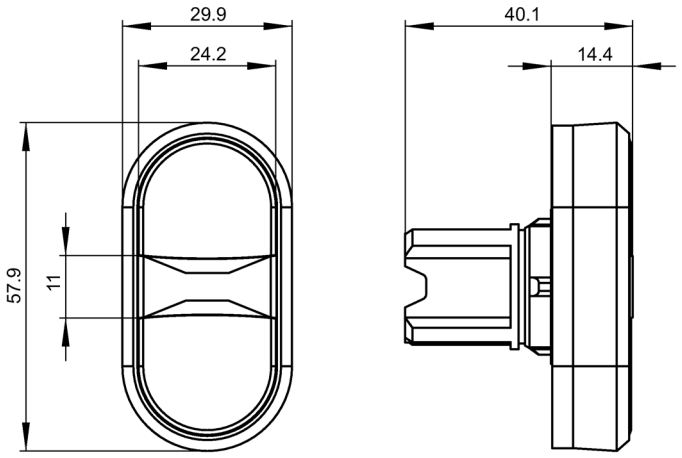
Twin pushbuttons, raised button

Article No.: 3SU1050-3BB42-0AA0,
3SU10(0,3,5)0-3BB(4,6)(1,2)-0A(A,K)0



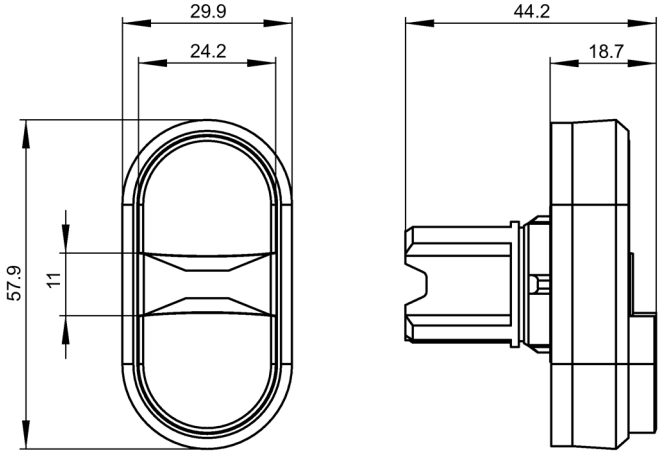
Twin pushbuttons, flat illuminable button

Article No.: 3SU1001-3AB66-0AA0,
3SU10(0,3,5)1-3AB(4,6)(1,2,6)-0A(A,K)0



Twin pushbuttons, raised illuminable button

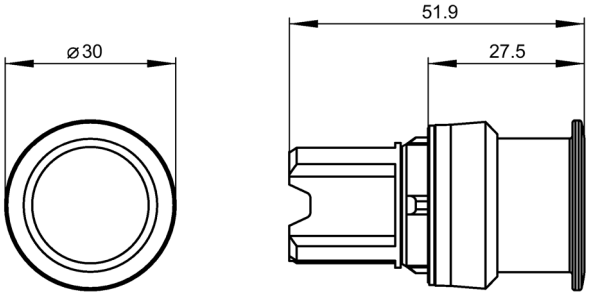
Article No.: 3SU1001-3BB42-0AA0,
3SU10(0,3,5)1-3BB(4,6)(1,2)-0A(A,K)0



15.3.5 Mushroom pushbuttons / illuminated mushroom pushbuttons

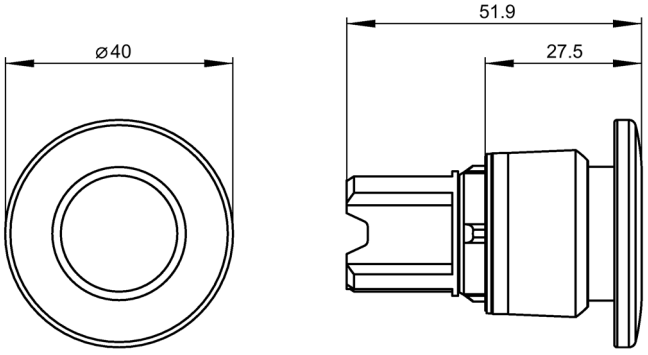
Diameter 30 mm

Article No.: 3SU1000-1AD10-0AA0,
3SU10(0,3,5).-1(A,B)D..-0AA0



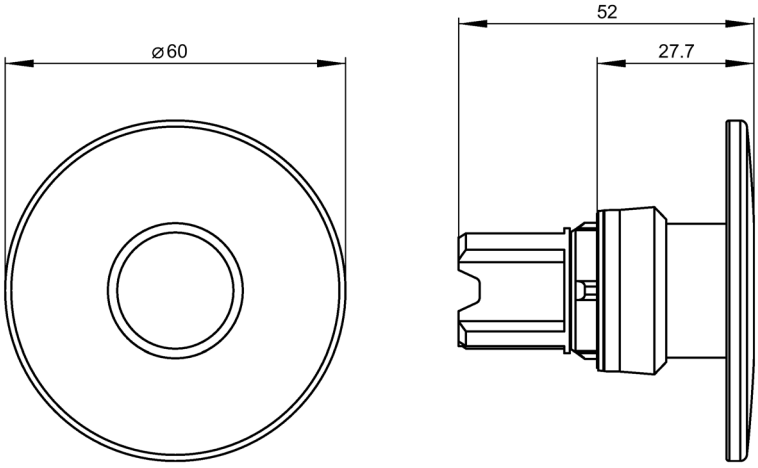
Diameter 40 mm

Article No.: 3SU1000-1BA10-0AA0,
3SU10(0,3,5).-1(B,E)(A,D)..-0AA0



Diameter 60 mm

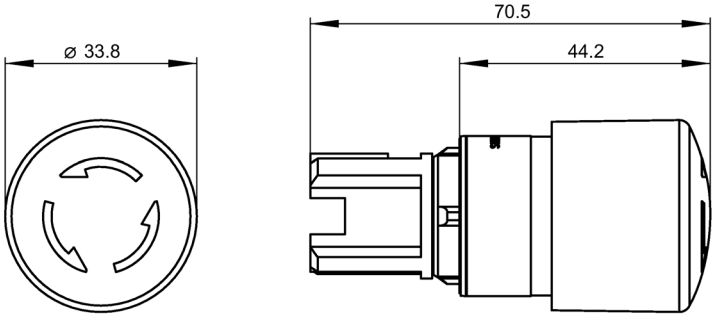
Article No.: 3SU1000-1CD10-0AA0,
3SU10(0,3,5).-1C(A,D)..-0AA0



15.3.6 EMERGENCY STOP with rotate-to-unlatch mechanism

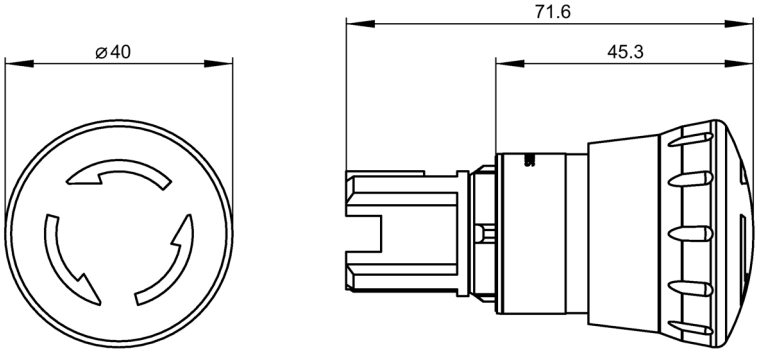
Diameter 30 mm

Article No.: 3SU1000-1GB20-0AA0,
3SU10(0,5)(0,1)-1GB..-0AA0



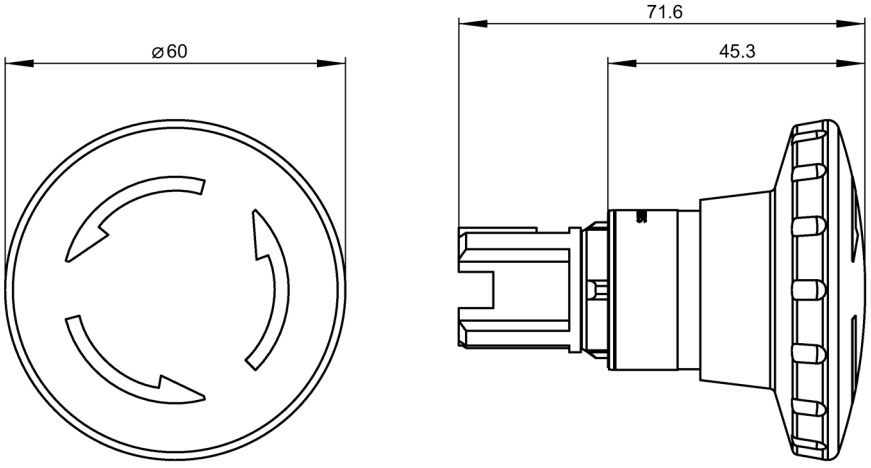
Diameter 40 mm

Article No.: 3SU1000-1HB20-0AA0,
3SU10(0,5)(0,1)-1HB..-0AA0



Diameter 60 mm

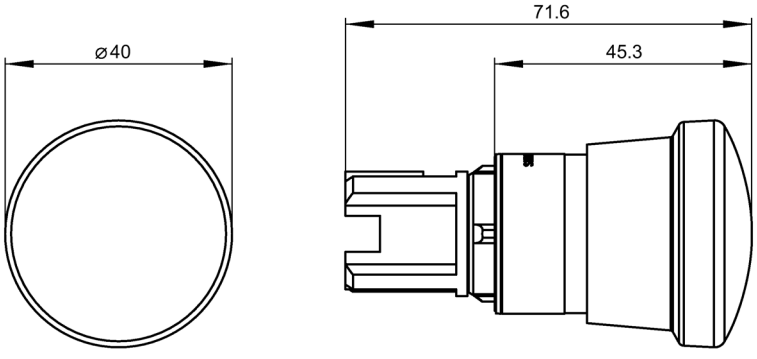
Article No.: 3SU1000-1JB20-0AA0,
3SU10(0,5)(0,1)-1JB..-0AA0



15.3.7 EMERGENCY STOP with pull-to-unlatch mechanism

Diameter 40 mm

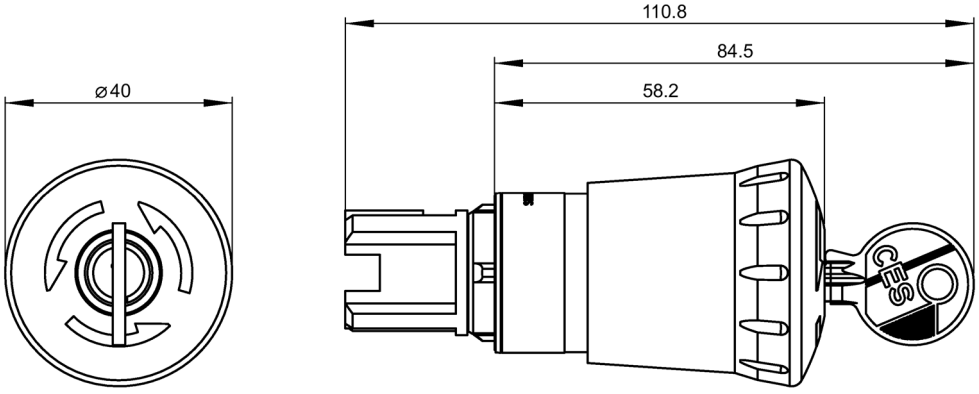
Article No.: 3SU1000-1HA20-0AA0,
3SU10(0,5)(0,1)-1HA..-0AA0



15.3.8 EMERGENCY STOP with lock

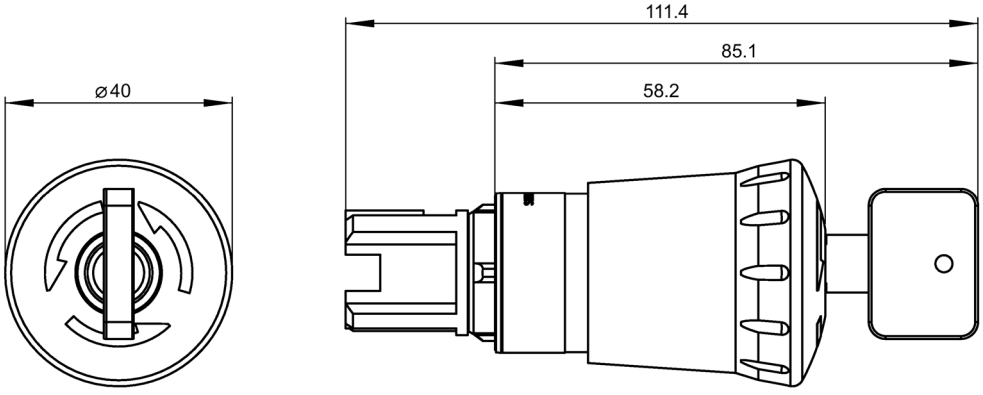
Diameter 40 mm with CES lock

Article No.: 3SU1000-1HR20-0AA0,
3SU10(0,3,5)0-1H(S,T,R)..-0AA0



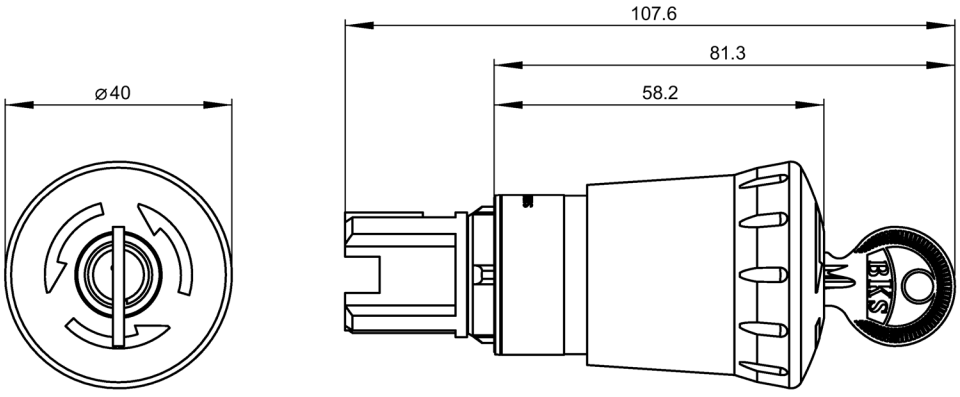
Diameter 40 mm with CES lock

Article No.: 3SU1050-1HU20-0AA0,
3SU1050-1H(U,V)..-0AA0



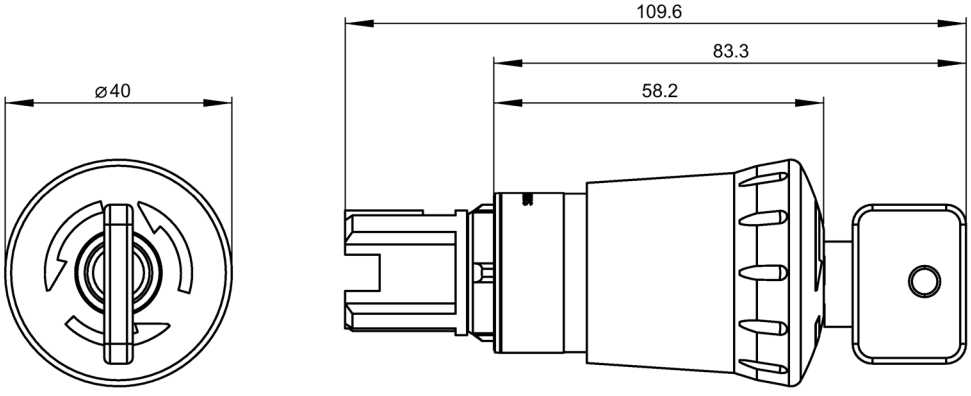
Diameter 40 mm with BKS lock

Article No.: 3SU1000-1HK20-0AA0,
3SU10(0,5)0-1H(K,M,N)..-0AA0



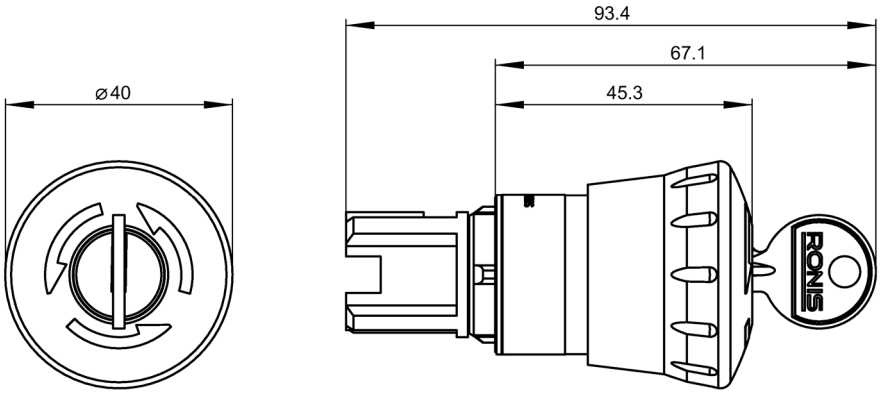
Diameter 40 mm with OMR lock

Article No.: 3SU1000-1HQ20-0AA0,
3SU10(0,5)0-1HQ..-0AA0



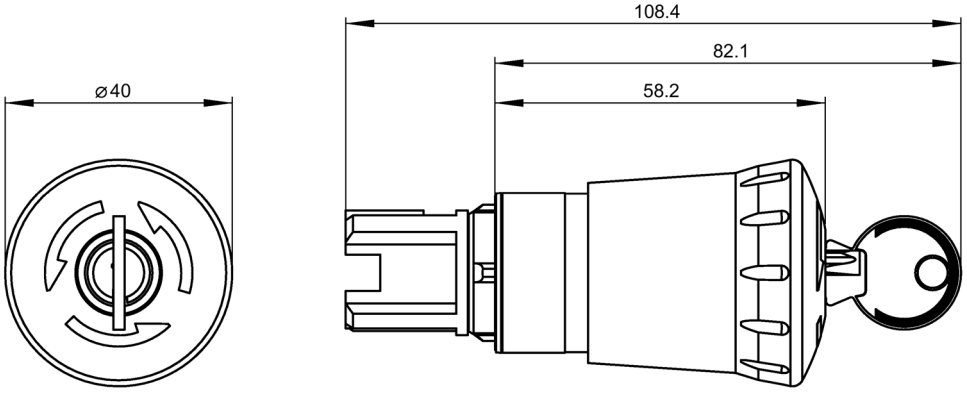
Diameter 40 mm with Ronis lock

Article No.: 3SU1000-1HF20-0AA0,
3SU10(0,3,5)0-1H(F,G,H)..-0AA0



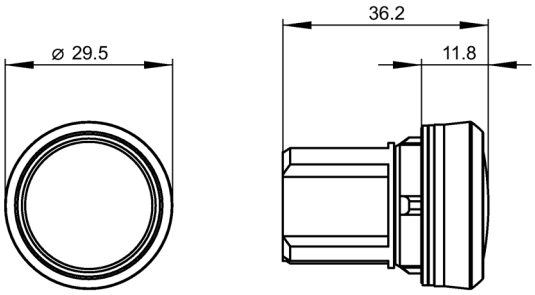
Diameter 40 mm with IKON lock

Article No.: 3SU1050-1HX20-0AA0,
3SU1050-1HX20-0AA0



15.3.9 Indicator lights

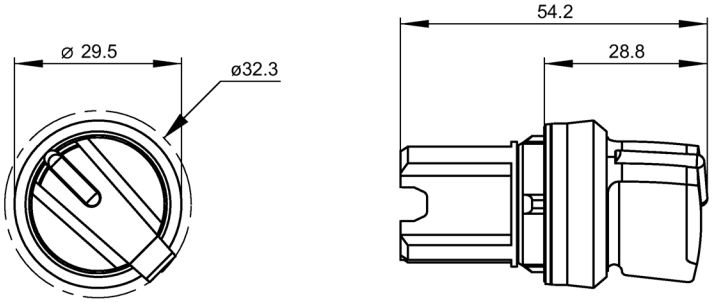
Article No.: 3SU1001-6AA20-0AA0,
3SU10(0,5)1-6AA.0-0AA0



15.3.10 Selector switches

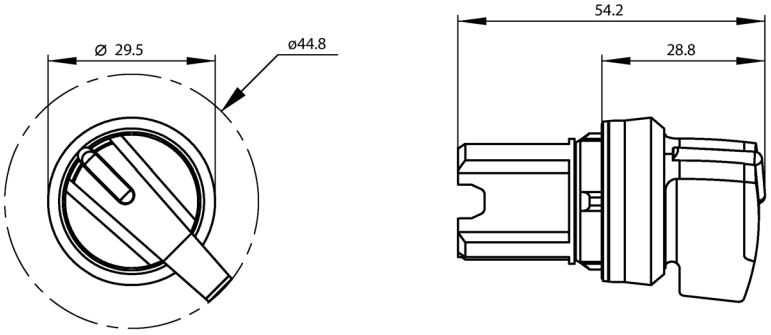
Short actuator

Article No.: 3SU1032-2BF20-0AA0,
3SU10(0,3)2-2B(F,C,L,M,N,P).0-0AA0
3SU1052-2B(C,F,L,M,N,P).0-0AA0



Long actuator

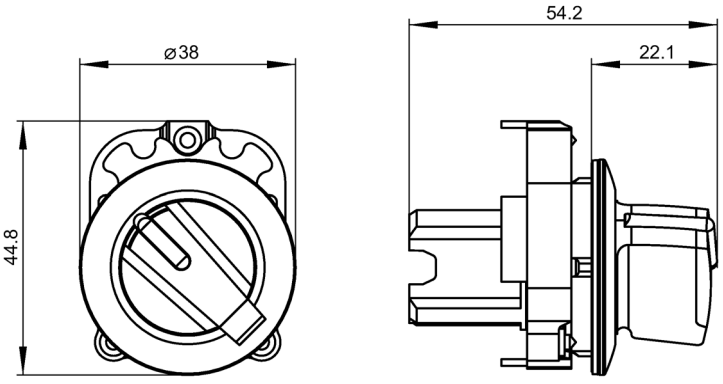
Article No.: 3SU1032-2CF20-0AA0,
3SU10(0,3)2-2CF.0-0AA0
3SU1052-2C(C,F,L,M,N,P).0-0AA0



15.3.11 30.5 mm selector switches

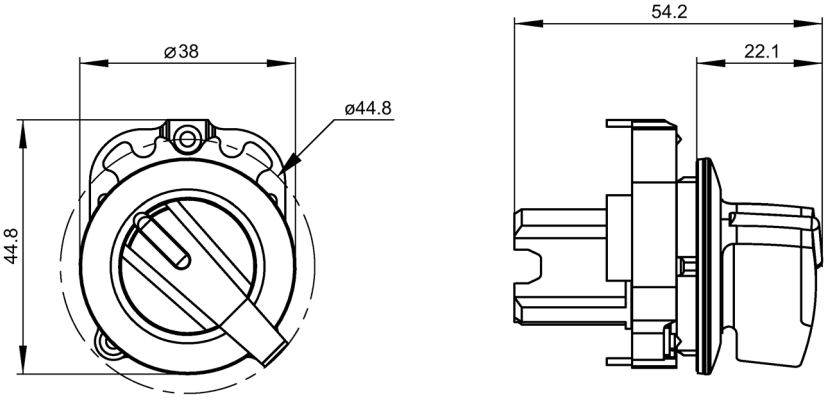
Short actuator

Article No.: 3SU1062-2DF20-0AA0,
3SU1062-2D(C,F,L,M).0-0AA0



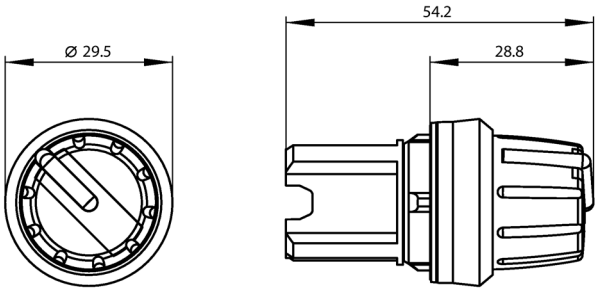
Long actuator

Article No.: 3SU1062-2EF20-0AA0,
3SU1062-2E(C,F,L,M,N,P).0-0AA0



15.3.12 Selector switches 4 switch positions

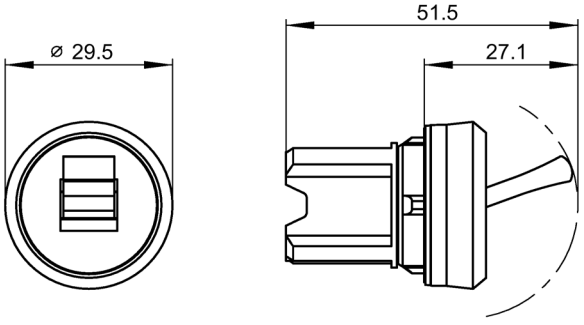
Article No.: 3SU1002-2AF20-0AA0,
3SU10(0,3)2-2AF.0-0AAO



15.3.13 Toggle switches

Toggle switches

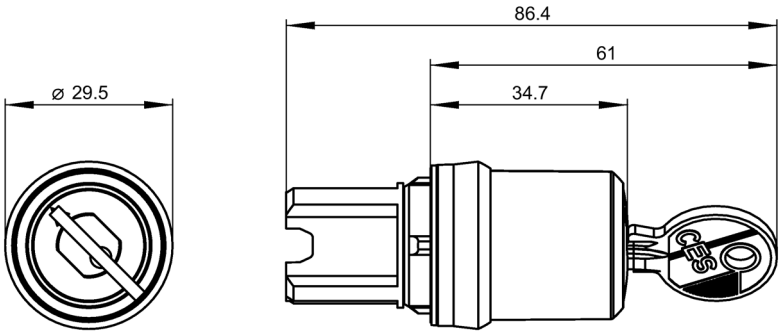
Article No.: 3SU1000-3EA10-0AA0,



15.3.14 Key-operated switches

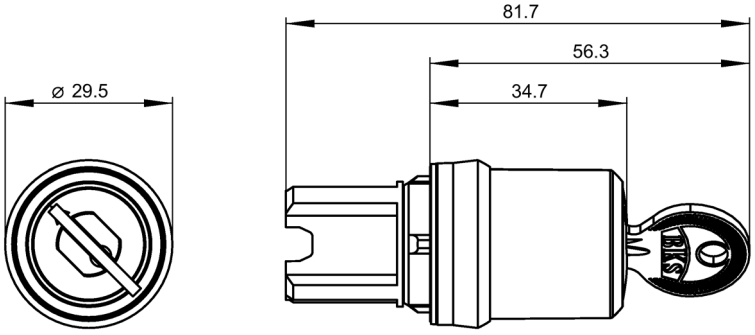
With CES lock

Article No.: 3SU1000-5BF11-0AA0,
3SU10(0,3)0-5(B,L,H)(C,F,L,M,N,P)..-0AA0
3SU1050-5(B,L,H)(C,F,L,M,N,P)..-0AA0



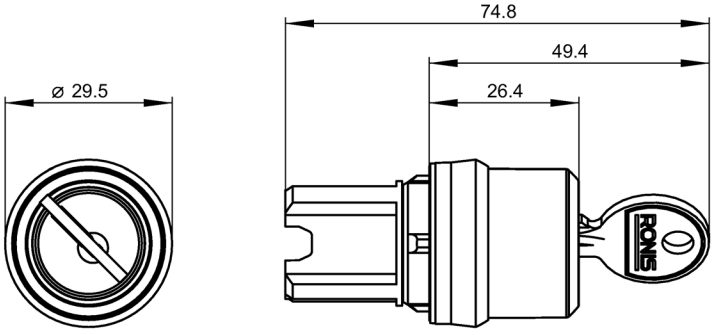
With BKS lock

Article No.: 3SU1000-5PF11-0AA0,
3SU10(0,3)0-5(P,Q,R,S,T)(C,F,L,M,N,P)..-0AA0
3SU1050-5(P,Q,R,S,T)(C,F,L,M,N,P)..-0AA0



With RONIS lock

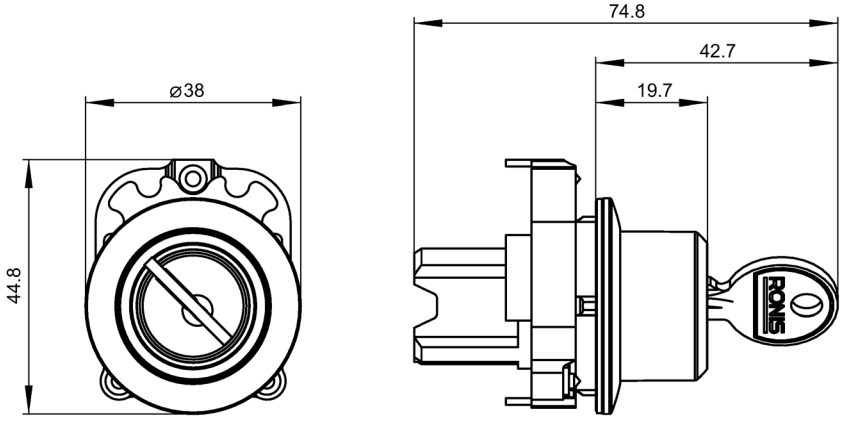
Article No.: 3SU1000-4BF11-0AA0,
3SU10(0,3,5)0-(4,5)(B,C,D,X)(C,F,L,M,N)(0,1,5)1-0AA0



15.3.15 30.5 mm key-operated switches

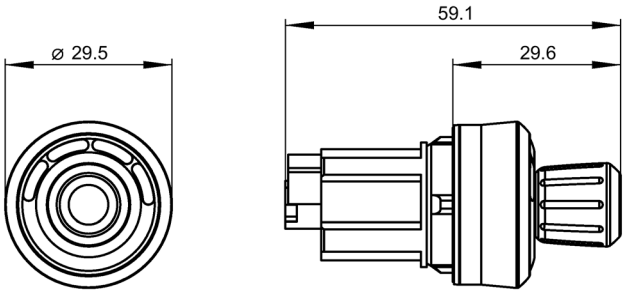
With RONIS lock

Article No.: 3SU1060-4LF11-0AA0,
3SU1060-4L(C,F,L,M,P,N)..-0AA0



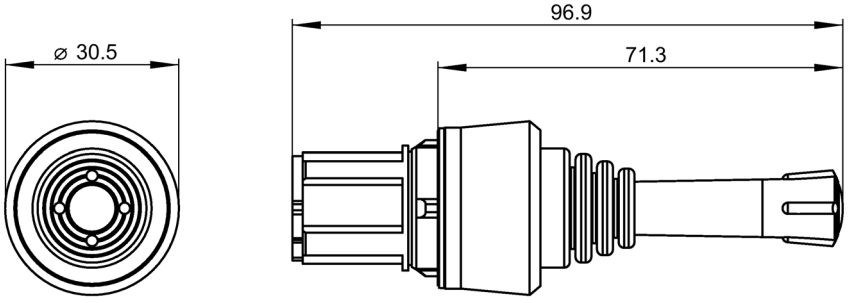
15.3.16 ID key-operated switches

Article No.: 3SU1000-4WS10-0AA0,
3SU10(0,3)0-4WS10-0AA0



15.3.17 Coordinate switches

Article No.: 3SU1000-7AA10-0AA0,
3SU10(0,3,5)0-7A(A,B,C,D,E,F)(1,8)(0,8)-0AA0



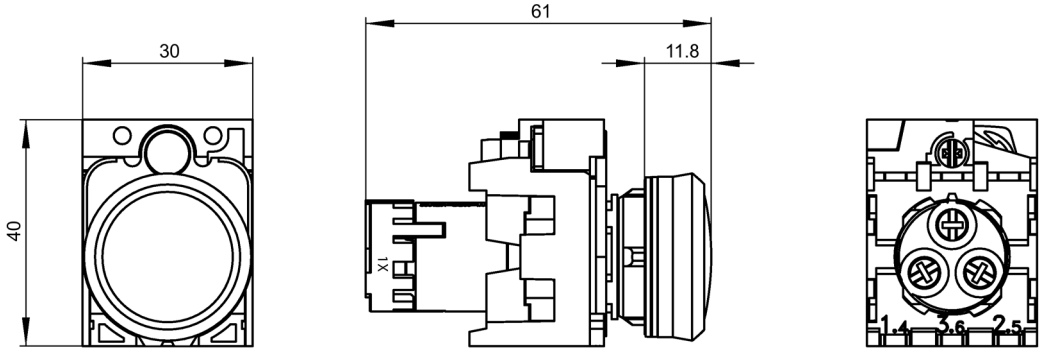
15.4 3SU12 devices

15.4.1 Indicator lights

Article No.: 3SU1201-6AB00-1AA0,
3SU1201-6A(B,C,F).(0,4)-1AA0
3SU1251-6A(B,C,F).(0,4)-1AA0

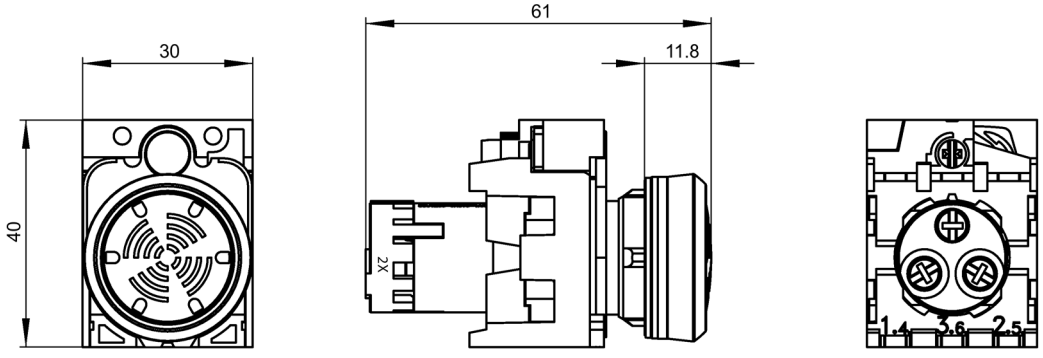
3SU1201-6A(G,C;F)24-1AA0

3SU1251-6A(G,C;F)24-1AA0



15.4.2 Acoustic signaling devices

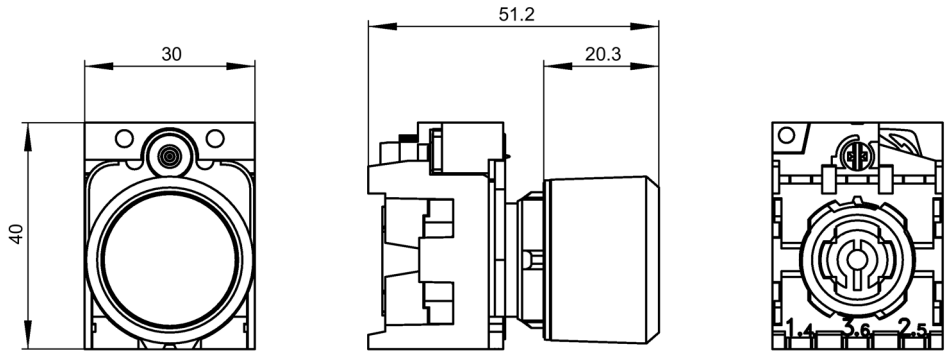
Article No.: 3SU1200-6KG10-1AA0,
3SU1200-6K(G,H)10-1AA0
3SU1250-6K(G,H)10-1AA0



15.4.3 Pushbuttons with extended stroke

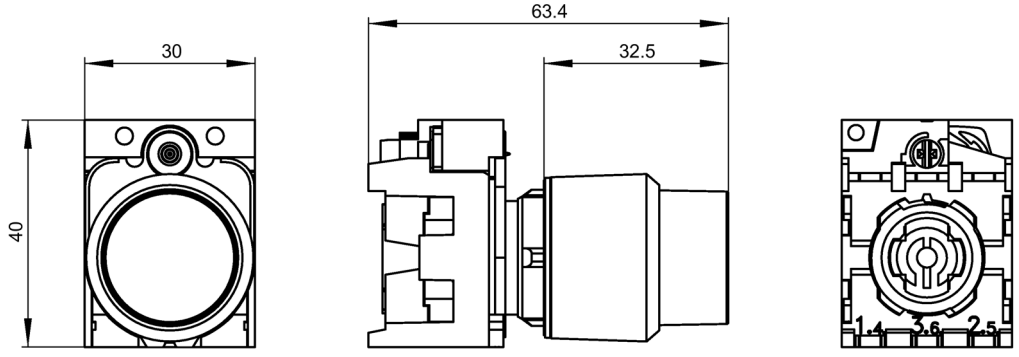
Flat button

Article No.: 3SU1251-0EB20-0AA0,
3SU12(0,3,5)(0,1)-0EB(2,4,7)0-0AA0



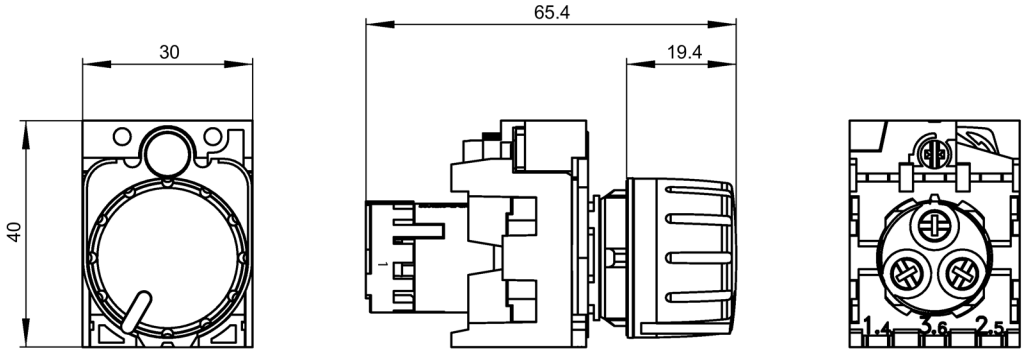
Raised button

Article No.: 3SU1250-0FB10-0AA0,
3SU12(0,3,5)0-0FB10-0AA0



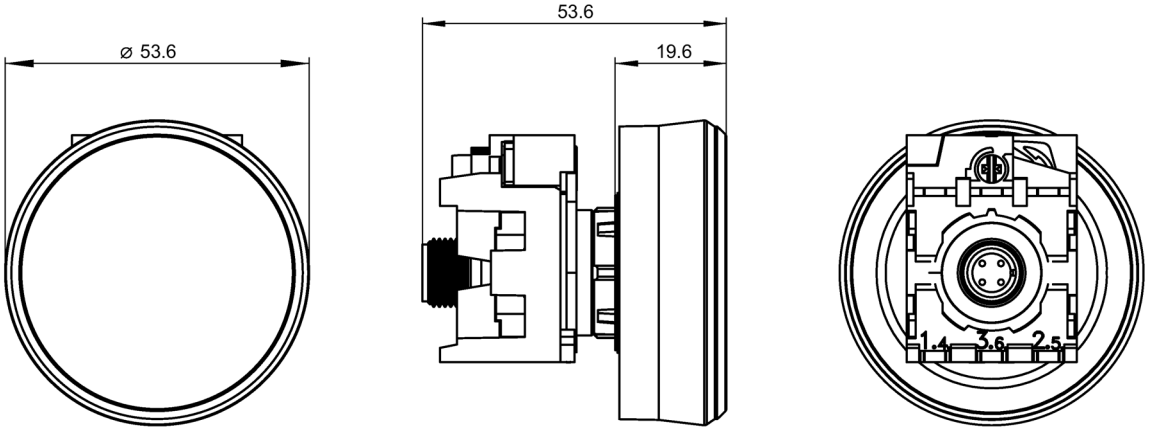
15.4.4 Potentiometers

Article No.: 3SU1201-6AB00-1AA0,
3SU1200-2P(Q,R,S,T,U,V)10-1AAO
3SU1250-2P(Q,R,S,T,U,V)10-1AA0



15.4.5 Sensor switches

Article No.: 3SU1200-1SK10-2SA0



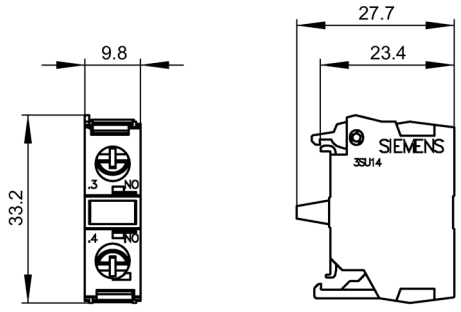
15.5 3SU14 modules

15.5.1 Contact modules for front plate mounting

Contact module 1NO, screw terminals

Article No.: 3SU1400-1AA10-1BA0

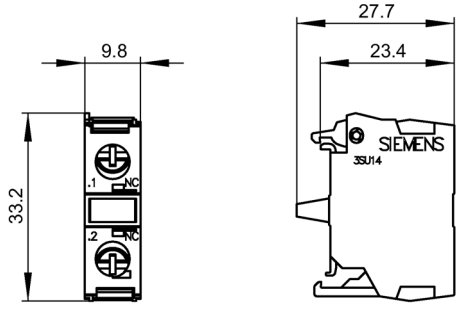
3SU1400-1AA10-1(B,L)A0



Contact module 1NC, screw terminals

Article No.: 3SU1400-1AA10-1CA0

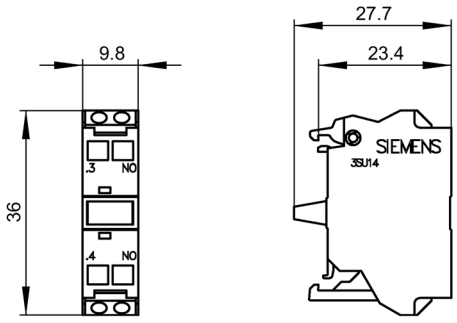
3SU1400-1AA10-1(C,M)A0



Contact module 1NO, spring-type terminals

Article No.: 3SU1400-1AA10-3BA0

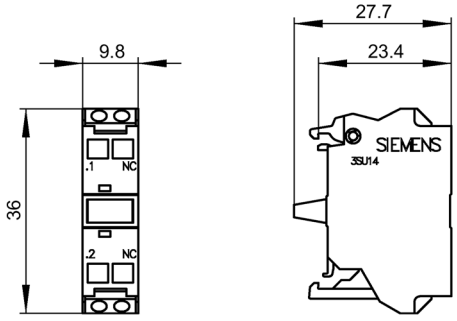
3SU1400-1AA10-3(B,L)A0



Contact module 1NC, spring-type terminals

Article No.: 3SU1400-1AA10-3CA0

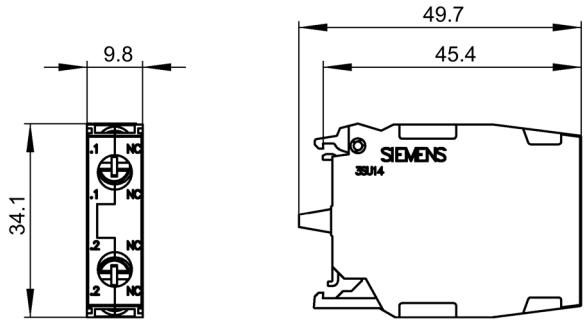
3SU1400-1AA10-3(C,M)A0



Contact module 2NO, screw terminals

Article No.: 3SU1400-1AA10-1DA0

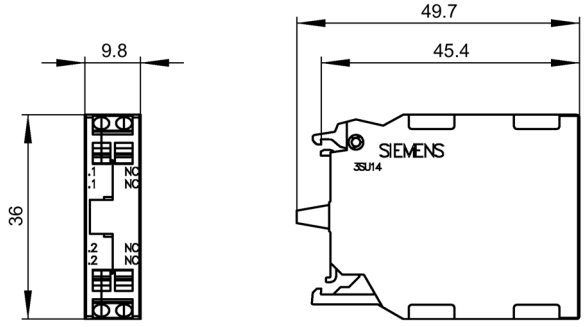
3SU1400-1AA10-1NA0



Contact module 2NO, spring-type terminals

Article No.: 3SU1400-3AA10-1DA0

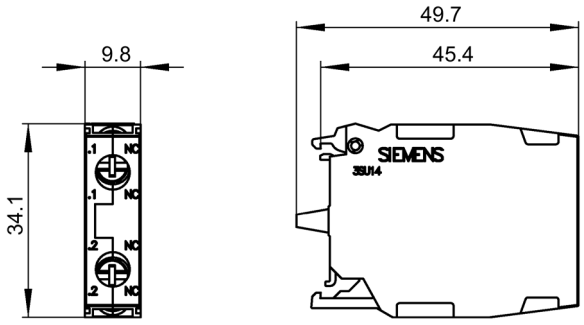
3SU1400-1AA10-3NA0



Contact module 2NC, screw terminals

Article No.: 3SU1400-1AA10-1EA0

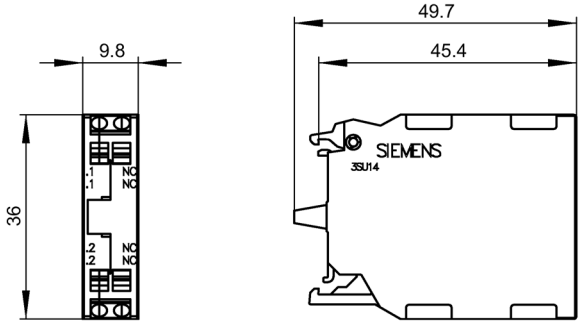
3SU1400-1AA10-1(H.P)A0



Contact module 2NC, screw terminals

Article No.: 3SU1400-1AA10-3EA0

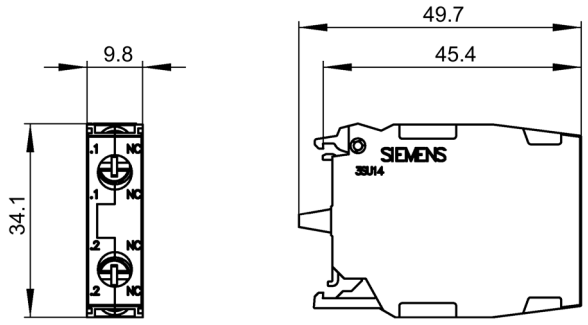
3SU1400-1AA10-3PA0



Contact module 1NO 1NC, screw terminals

Article No.: 3SU1400-1AA10-1FA0

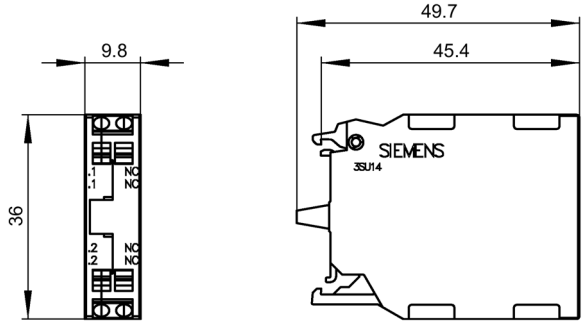
3SU1400-1AA10-1(Q,R)A0



Contact module 1NO 1NC, spring-type terminals

Article No.: 3SU1400-1AA10-3FA0

3SU1400-1AA10-3(Q,R)A0

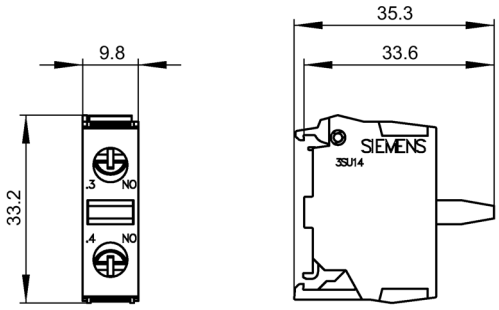


15.5.2 Contact modules for base mounting

Contact module 1NO, screw terminals

Article No.: 3SU1400-2AA10-1BA0

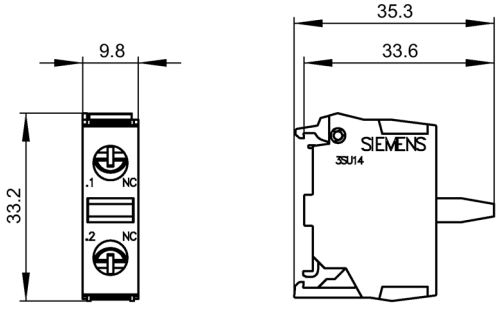
3SU1400-2AA10-1BA0



Contact module 1NC, screw terminals

Article No.: 3SU1400-2AA10-1CA0

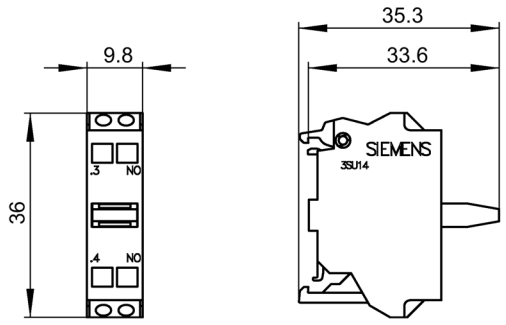
3SU1400-2AA10-1CA0



Contact module 1NO, spring-loaded terminals

Article No.: 3SU1400-2AA10-3BA0

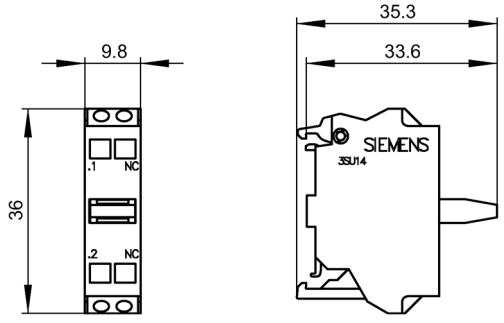
3SU1400-2AA10-3BA0



Contact module 1NC, spring-loaded terminals

Article No.: 3SU1400-2AA10-3CA0

3SU1400-2AA10-3CA0

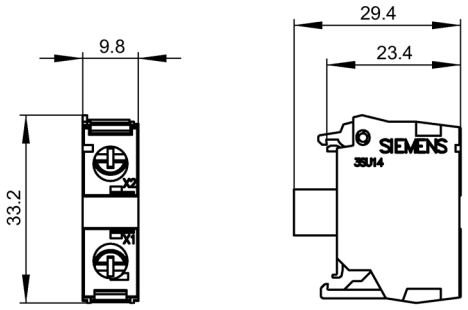


15.5.3 LED modules for front plate mounting

LED module, screw terminals

Article No.: 3SU1401-1BG20-1AA0

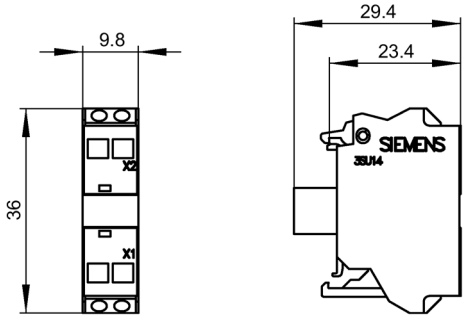
3SU1401-1B..0-1AA0



LED module, spring-loaded terminals

Article No.: 3SU1401-1BG20-3AA0

3SU1401-1B..0-3AA0

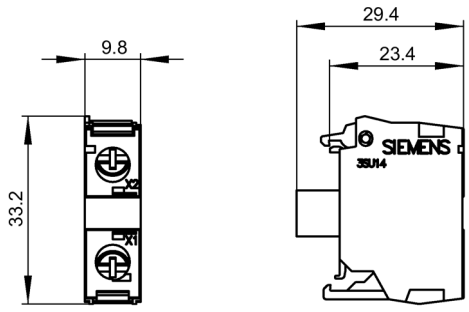


15.5.4 LED modules 24 V for intrinsic safety (front plate mounting)

LED module 24 V for intrinsic safety, screw terminals

Article No.: 3SU1401-1BB00-1AA2

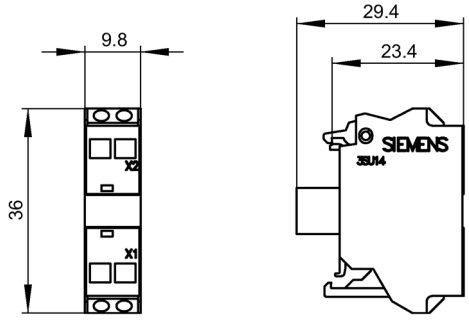
3SU1401-1BB.0-1AA0



LED module 24 V for intrinsic safety, spring-type terminals

Article No.: 3SU1401-1BB00-3AA2

3SU1401-1BB.0-3AA0

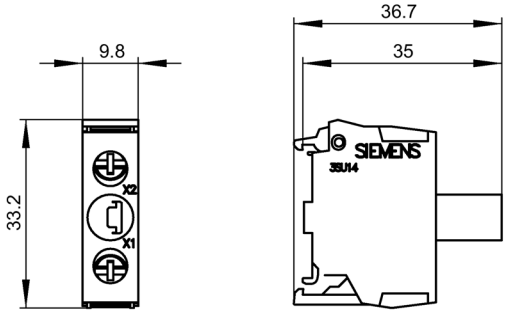


15.5.5 LED modules for base mounting

LED module, screw terminals

Article No.: 3SU1401-2BG20-1AA0

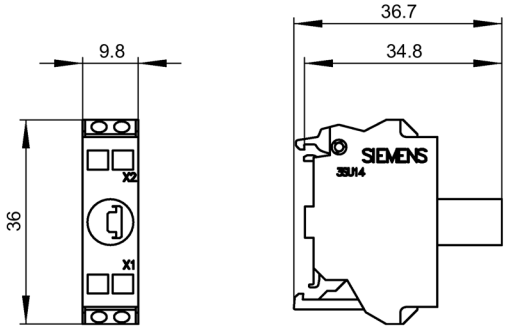
3SU1401-2B(B,C,F,G,H).0-1AA0



LED module, spring-loaded terminals

Article No.: 3SU1401-2BG20-3AA0

3SU1401-2B(B,C,F,G,H).0-3AA0

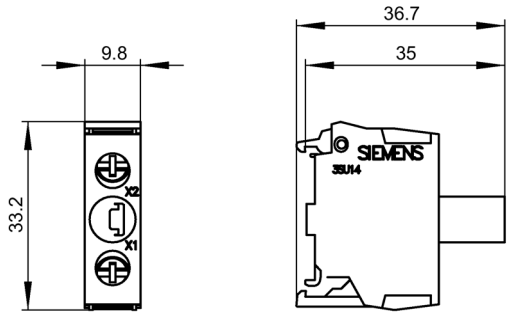


15.5.6 LED modules for 24 V intrinsic safety (base mounting)

LED module 24 V for intrinsic safety, screw terminals

Article No.: 3SU1401-2BB00-1AA0

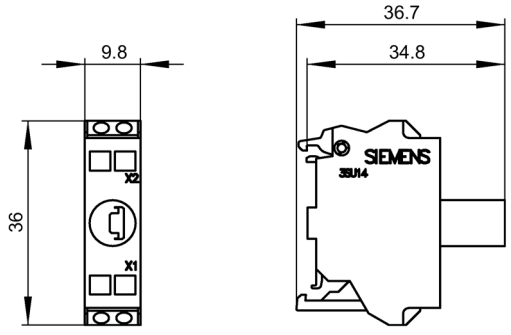
3SU1401-2BB.0-1AA0



LED module 24 V for intrinsic safety, spring-type terminals

Article No.: 3SU1401-2BB00-3AA0

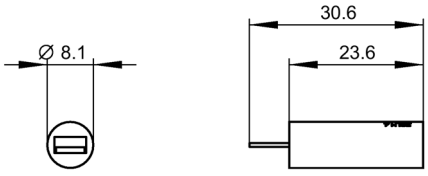
3SU1401-2BB.0-3AA0



15.5.7 LED modules for PCB mounting

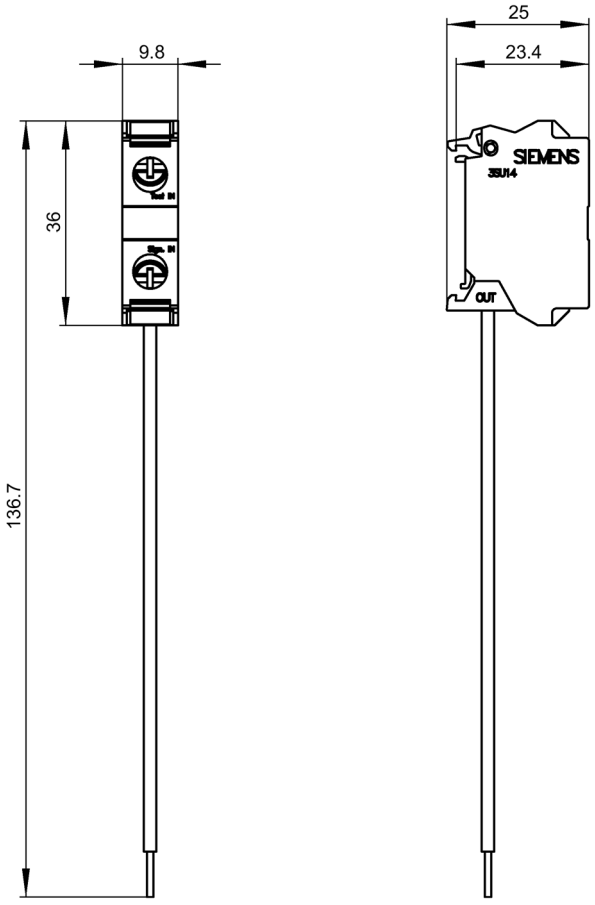
Article No.: 3SU1401-3BA20-5AA0

3SU1401-3BA.0-5AA0



15.5.8 LED test module for base mounting (enclosure mounting)

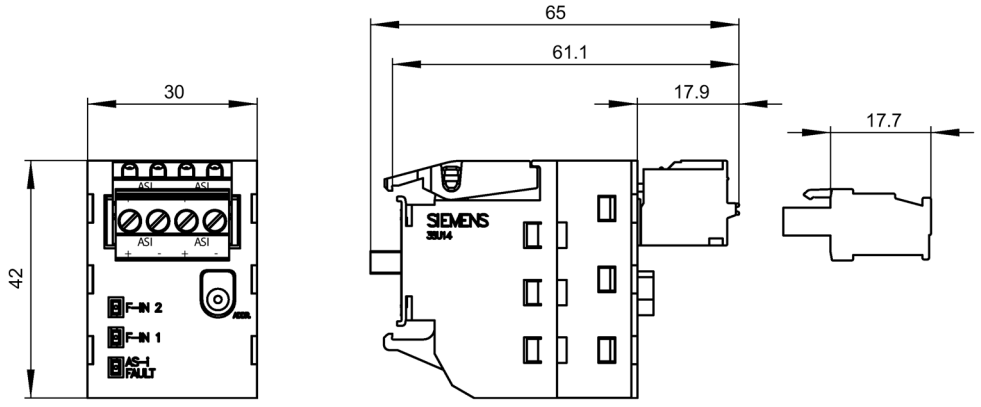
Article No.: 3SU1400-2CK10-1AA0



15.5.9 ASIsafe F adapters for front plate mounting

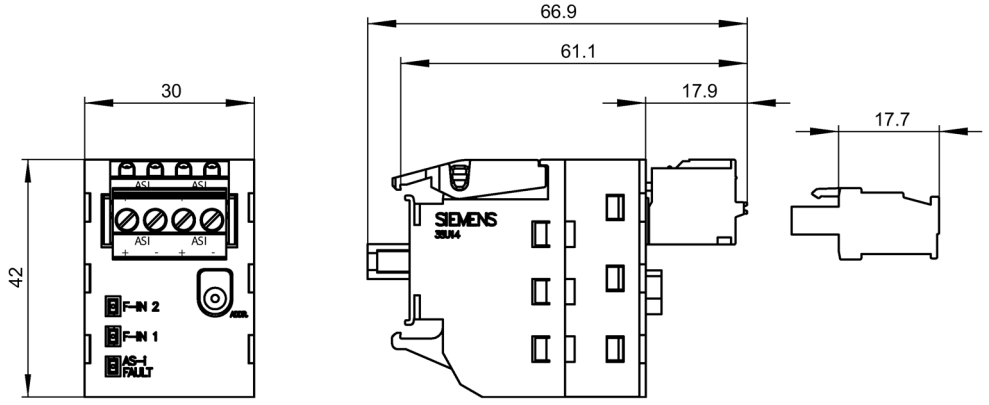
2F-DI screw terminals and spring-loaded terminals

Article No.: 3SU1400-1EA10-2AA0



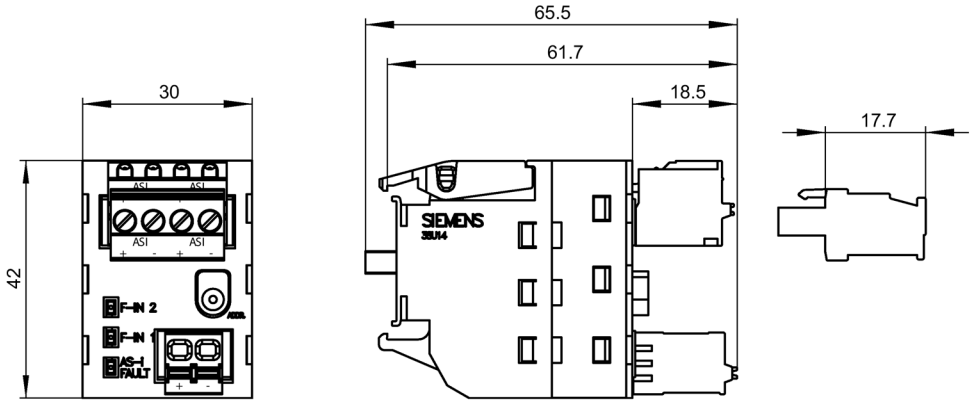
2F-DI + 1 LED screw terminals and spring-loaded terminals

Article No.: 3SU1401-1EE20-2AA0



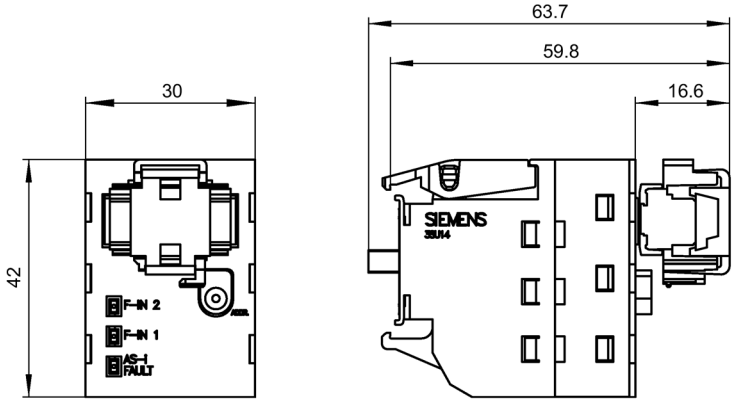
2F-DI + 1 DO screw terminals and spring-loaded terminals

Article No.: 3SU1400-1EC10-2AA0



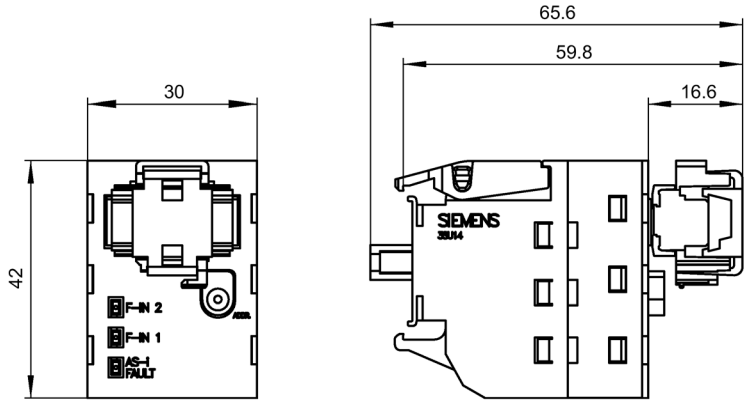
2F-DI insulation piercing method

Article No.: 3SU1400-1EA10-4AA0



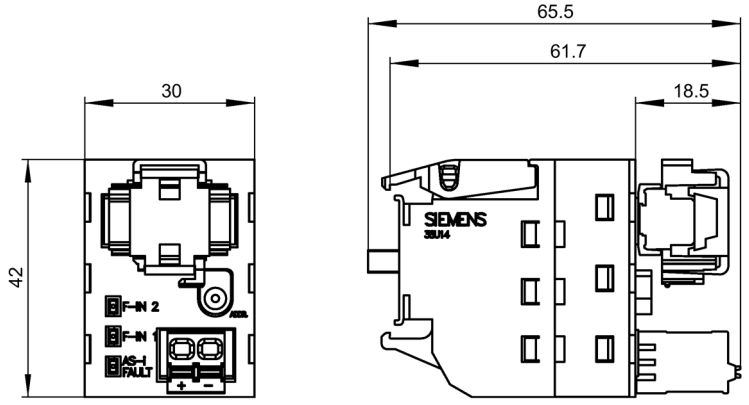
2F-DI + 1 LED insulation piercing method

Article No.: 3SU1401-1EE20-4AA0



2 F-DI + 1 DO spring-loaded terminals and insulation piercing method

Article No.: 3SU1400-1EC10-4AA0

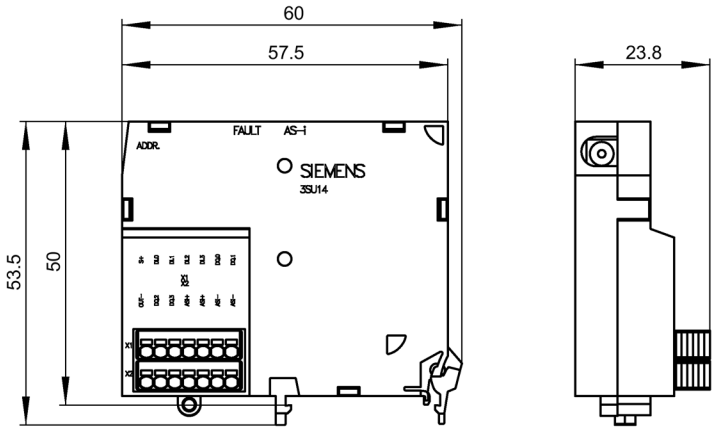


15.5.10 AS-Interface modules for front plate mounting

4DI/3DO AB and 4DI/4DO

Article No.: 3SU1400-1EK10-6AA0

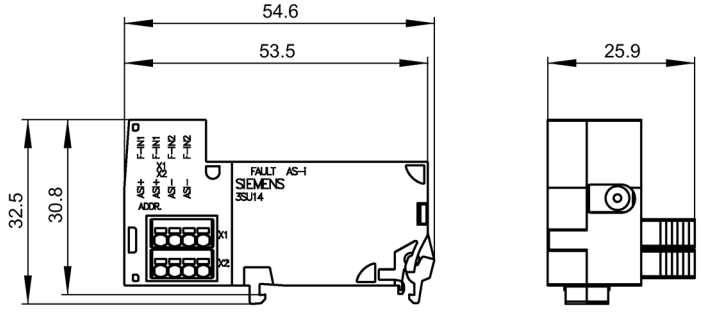
3SU1400-1EJ10-6AA0



15.5.11 AS-Interface modules for base mounting

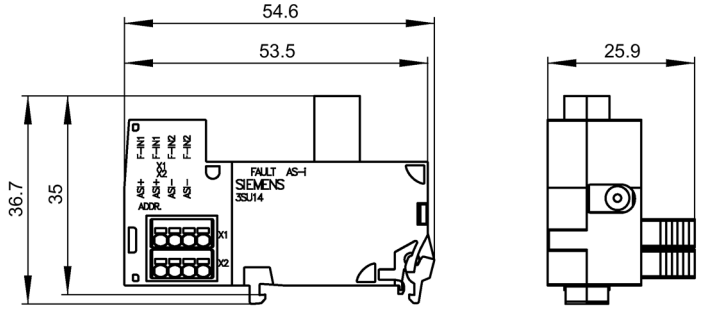
2F-DI

Article No.: 3SU1400-2EA10-6AA0



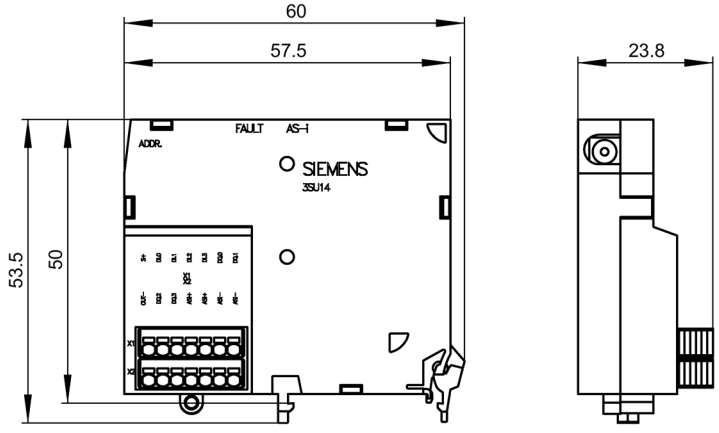
2F-DI/1LED

Article No.: 3SU1401-2EE20-6AA0



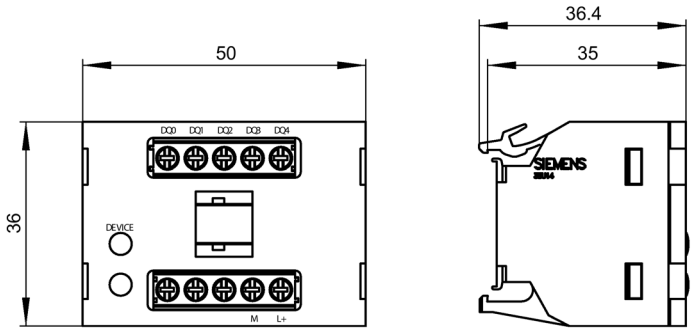
4DI/3DO AB and 4DI/4DO

Article No.: 3SU1400-2E.10-6AA0



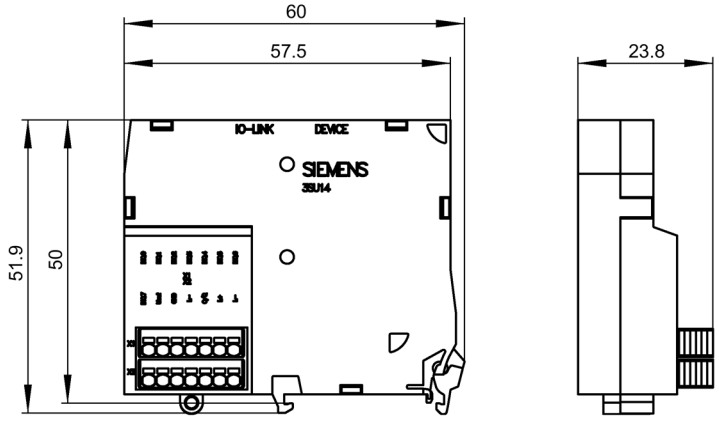
15.5.12 Electronic modules for ID key-operated switches

Article No.: 3SU1400-1G.10-1AA0



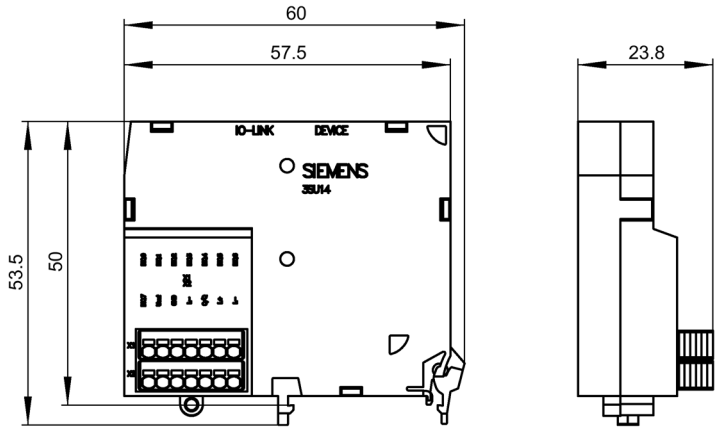
15.5.13 Electronic modules for IO-Link

Article No.: 3SU1400-1HL10-6AA0



Article No.: 3SU1400-2HL10-6AA0

3SU1400-2H(K,M,N)10-6AA0

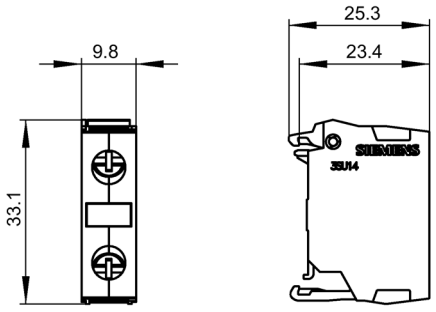


15.5.14 Support terminal for front plate mounting

Support terminal Screw terminals

Article No.: 3SU1400-1DA10-1AA0

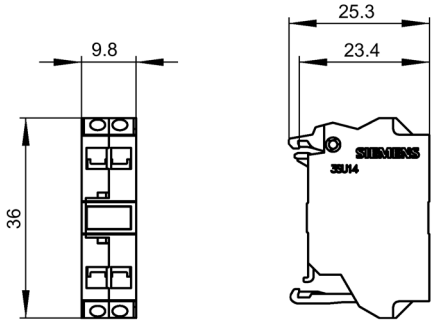
3SU1400-1DA10-1AA0; 3SU1400-1DA43-1AA0



Support terminal, spring-type terminals

Article No.: 3SU1400-1DA10-3AA0

3SU1400-1DA10-3AA0; 3SU1400-1DA43-3AA0

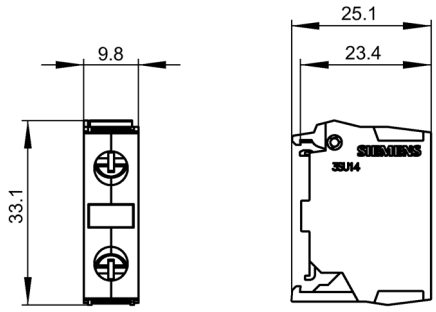


15.5.15 Support terminal for base mounting

Support terminal Screw terminals

Article No.: 3SU1400-2DA10-1AA0

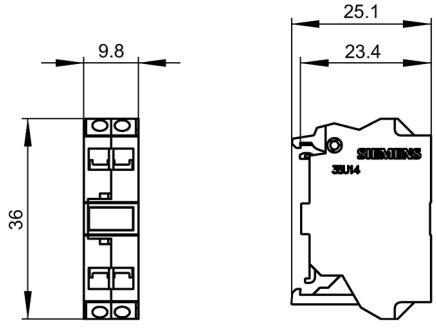
3SU1400-2DA10-1AA0; 3SU1400-2DA43-1AA0



Support terminal, spring-type terminals

Article No.: 3SU1400-2DA10-3AA0

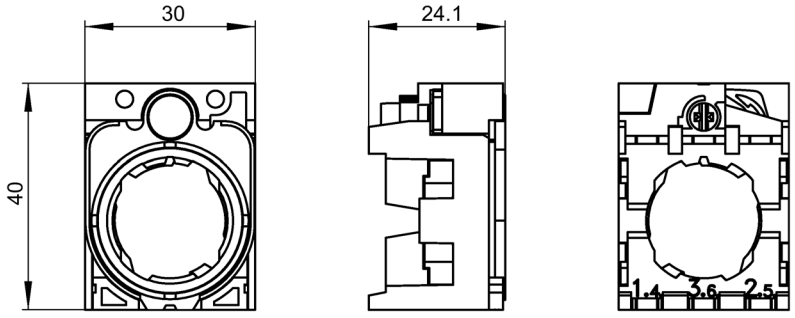
3SU1400-2DA10-3AA0; 3SU1400-2DA43-3AA0



15.6 3SU15 holders

3-slot holder

Article No.: 3SU1500-0AA10-0AA0
3SU15(0, 5)0-0AA10-0AA0



4-slot holder

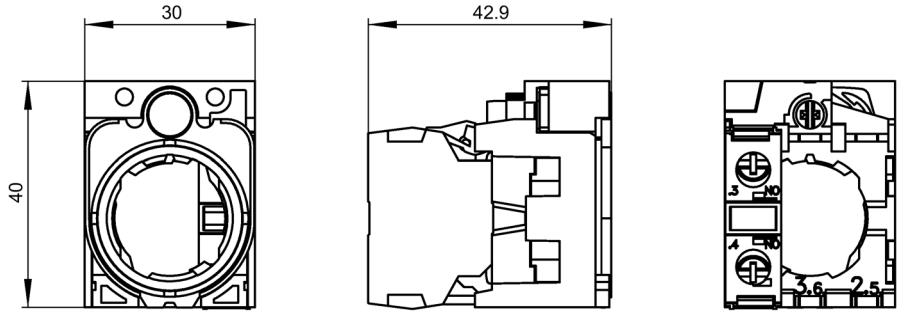
Article No.: 3SU1500-0BA10-0AA0
3SU15(0, 5)0-0BA10-0AA0



15.6.1 Holders with contact modules

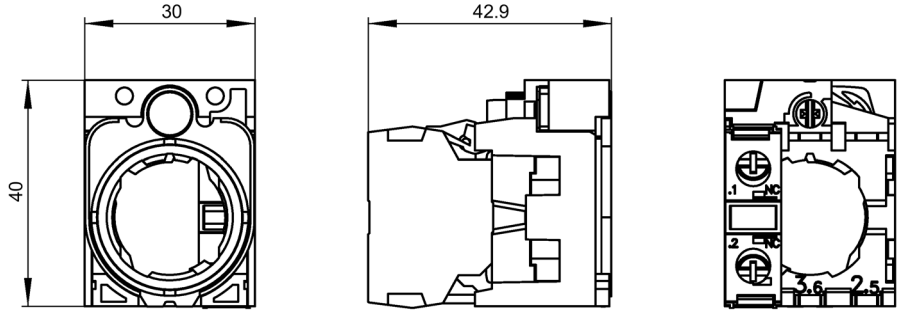
Holder, plastic with contact module 1NO + 1NC

Article No.: 3SU1500-1AA10-1BA0



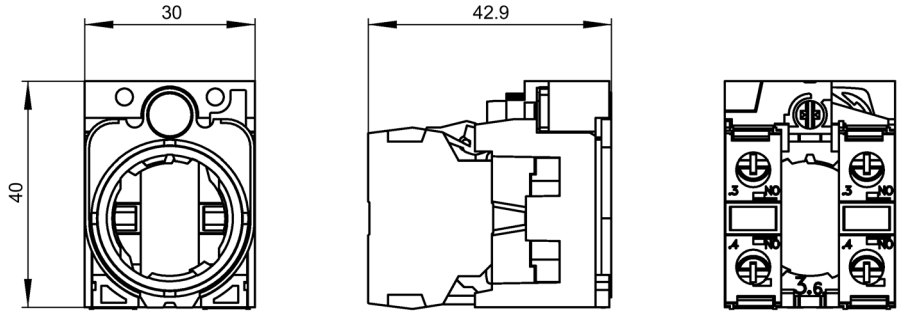
Holder, plastic with contact module 1NC

Article No.: 3SU1500-1AA10-1CA0



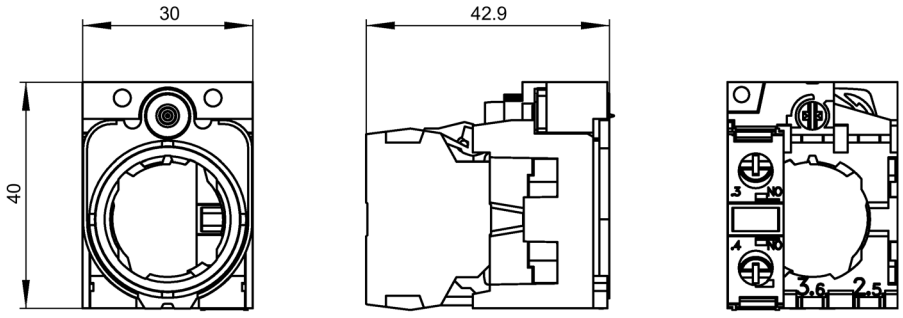
Holder, plastic with contact module 1NO + 1NC

Article No.: 3SU1500-1AA10-1NA0



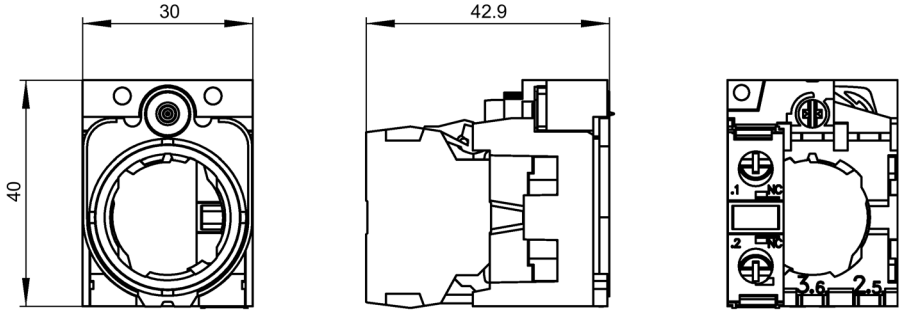
Holder, metal with contact module 1NO

Article No.: 3SU1550-1AA10-1BA0



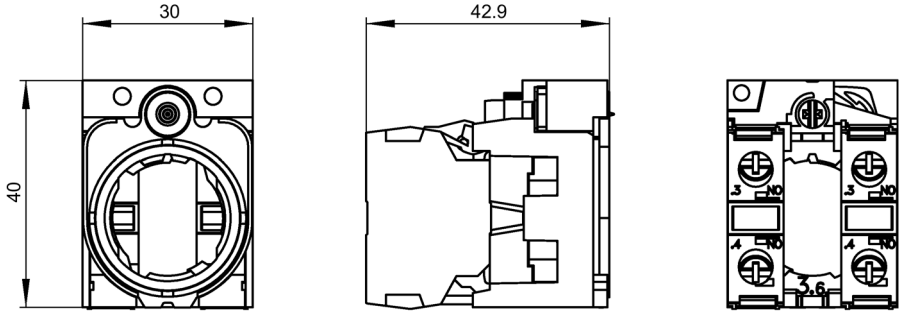
Holder, metal with contact module 1NC

Article No.: 3SU1550-1AA10-1CA0



Holder, metal with contact module 1NO + 1NC

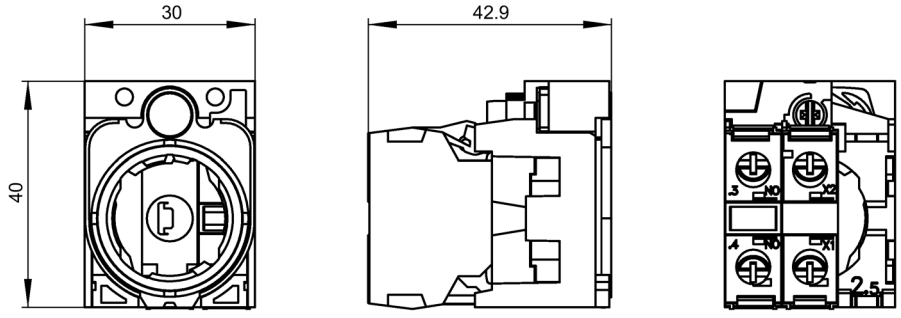
Article No.: 3SU1550-1AA10-1NA0



15.6.2 Holders with contact and LED modules

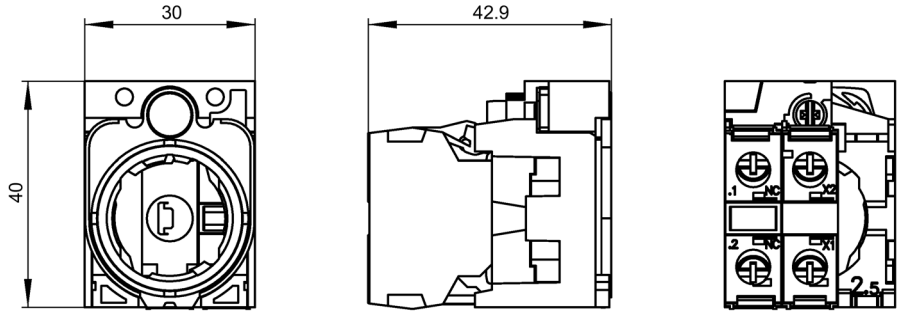
Holder, plastic with contact module 1NO and LED module

Article No.: 3SU1501-1AG.0-1BA0



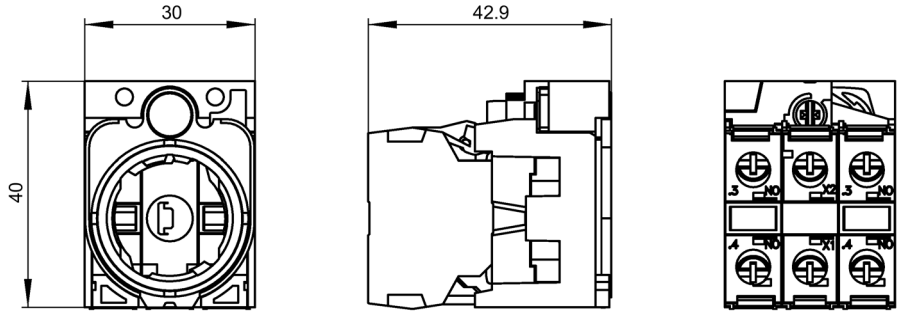
Holder, plastic with contact module 1NC and LED module

Article No.: 3SU1501-1AG.0-1CA0



Holder, plastic with contact module 1NO + 1NC and LED module

Article No.: 3SU1501-1AG.0-1NA0

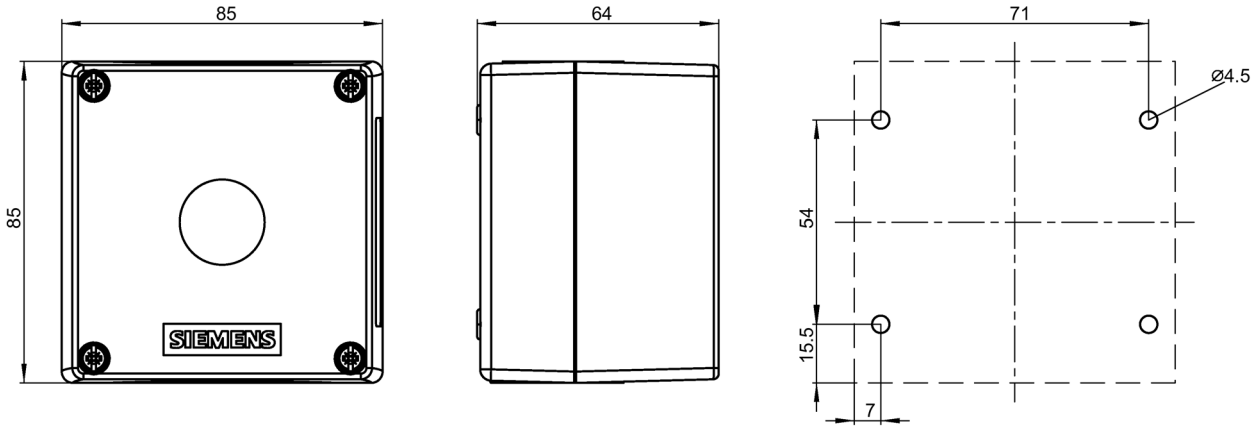


15.7 3SU18 enclosures

15.7.1 Enclosures, plastic

Enclosures with 1 command point

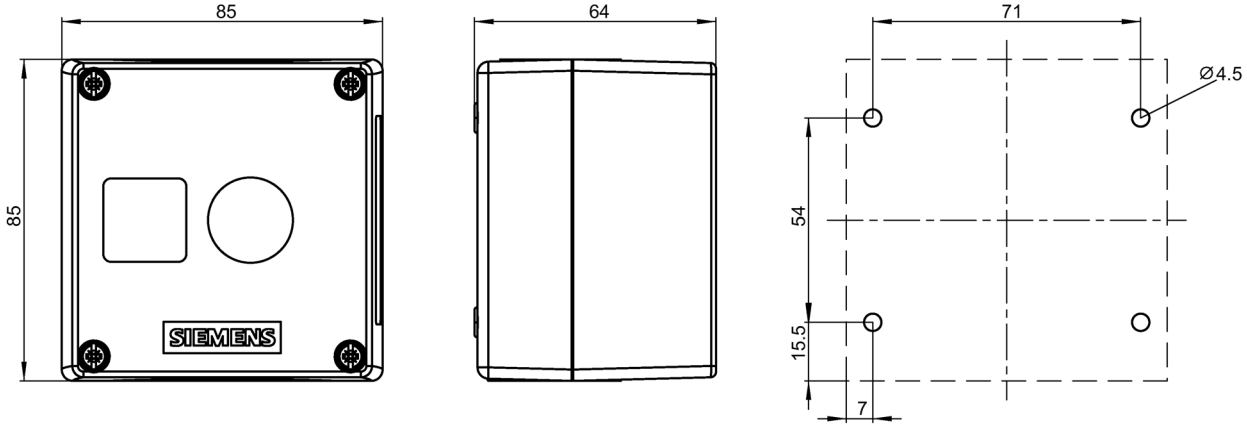
Article No.: 3SU1801-0AA00-0AA2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with recess for labeling plate

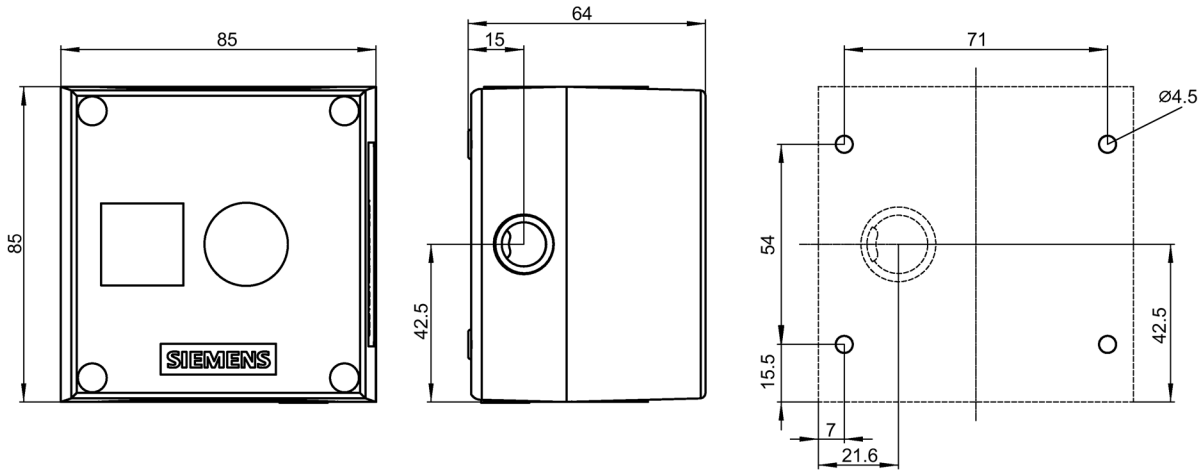
Article No.: 3SU1801-0AA00-0AB1, 3SU1801-0AA00-0AB2



The thickness of the enclosure cover is 4 mm

Enclosure 1 command point with recess for labeling plate and additional holes for cable glands

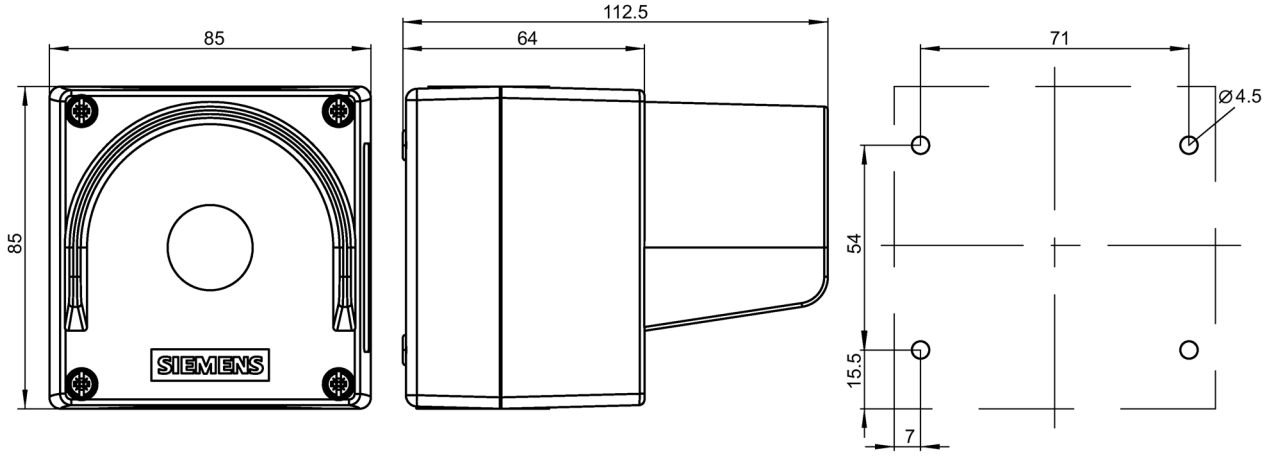
Article No.: 3SU1801-0AA00-0UB1, 3SU1801-0AA00-0UB2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with protective collar

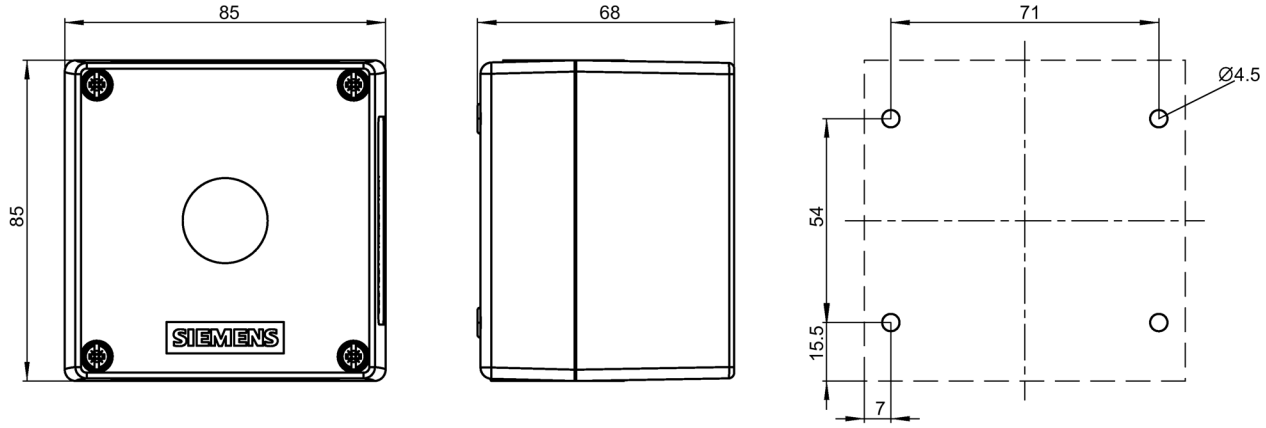
Article No.: 3SU1801-0AA00-0AC2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with raised cover

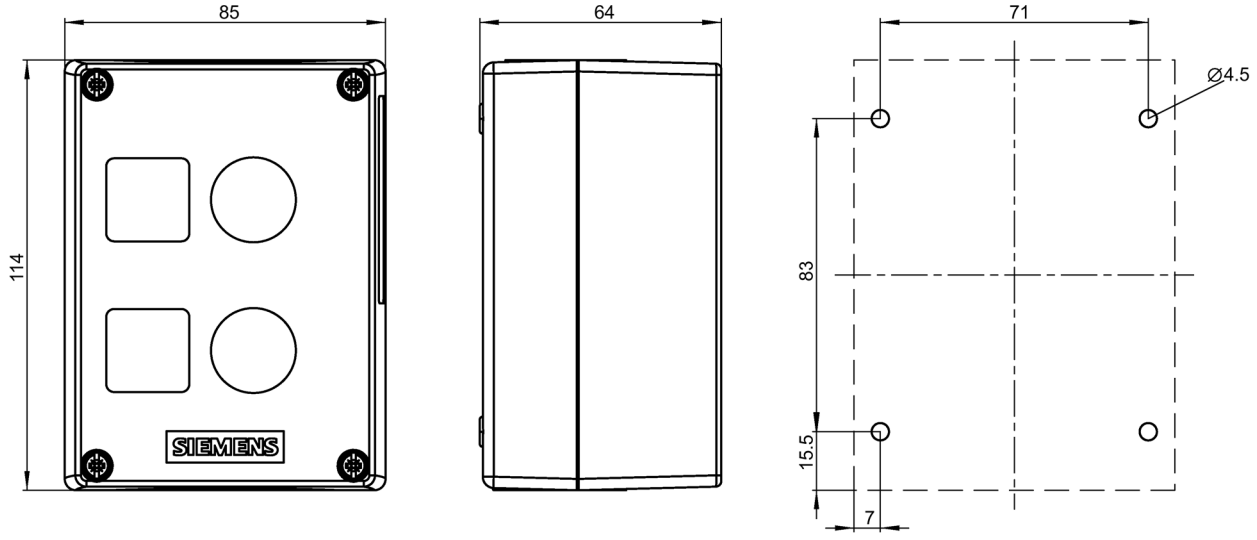
Article No.: 3SU1801-1AA00-1AA1



The thickness of the enclosure cover is 4 mm

Enclosure with 2 command points with recess for labeling plate

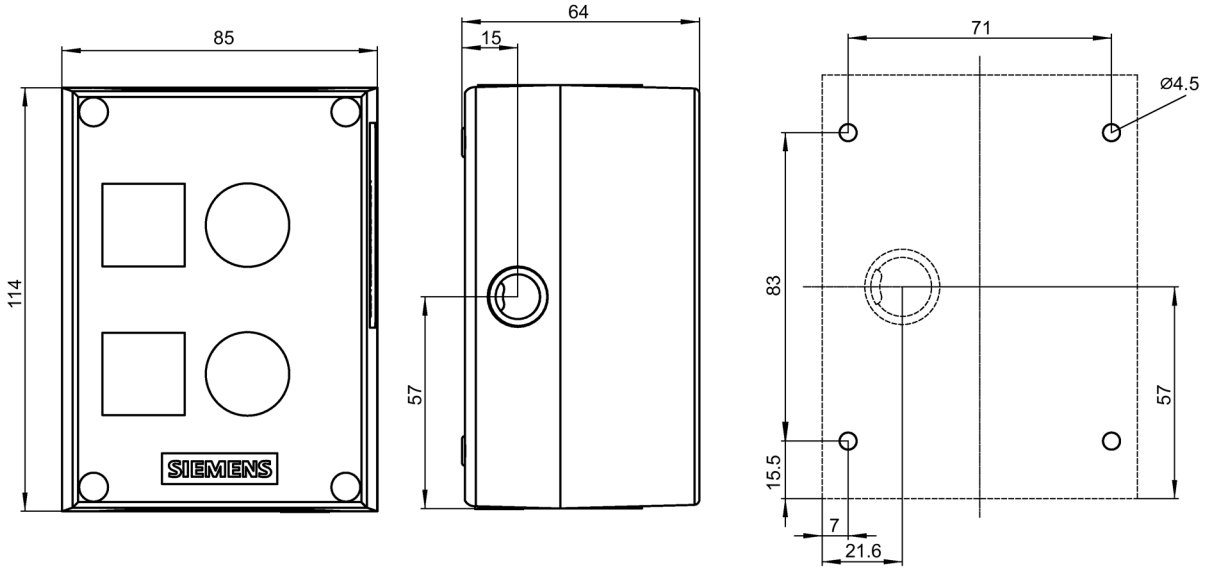
Article No.: 3SU1802-0AA00-0AB1, 3SU1802-0AA00-0AB2



The thickness of the enclosure cover is 4 mm

Enclosure 2 command point with recess for labeling plate and additional holes for cable glands

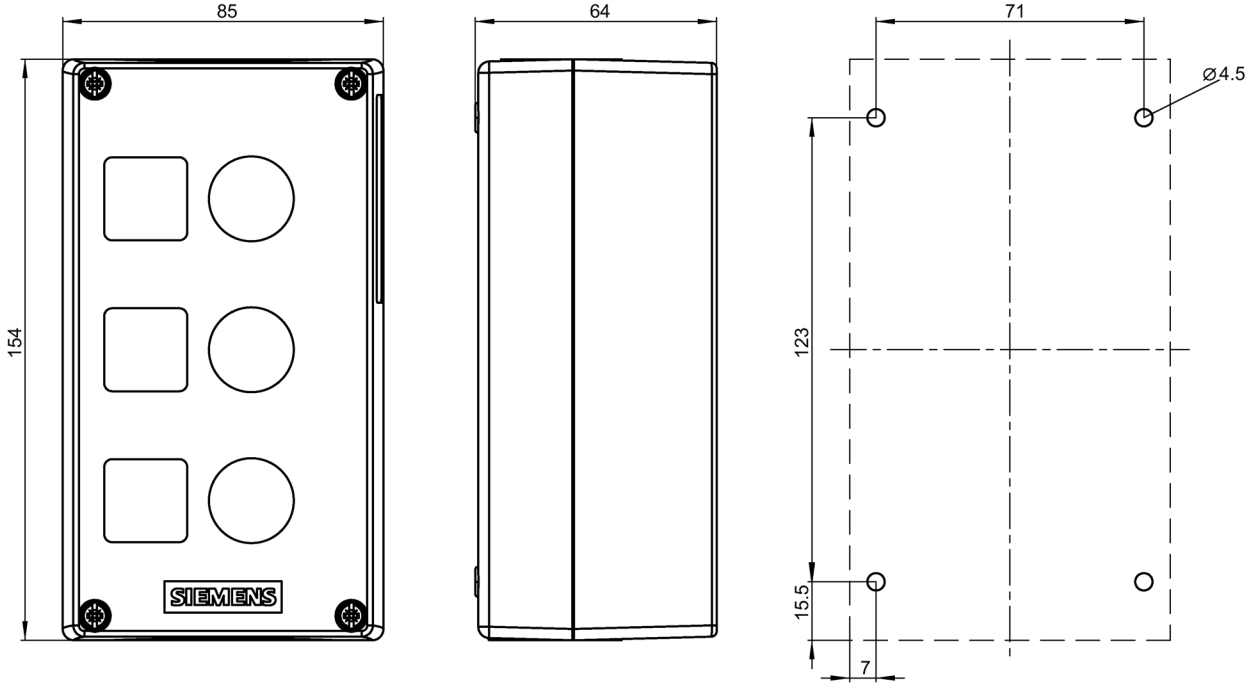
Article No.: 3SU1802-0AA00-0UB1



The thickness of the enclosure cover is 4 mm

Enclosure with 3 command points with recess for labeling plate

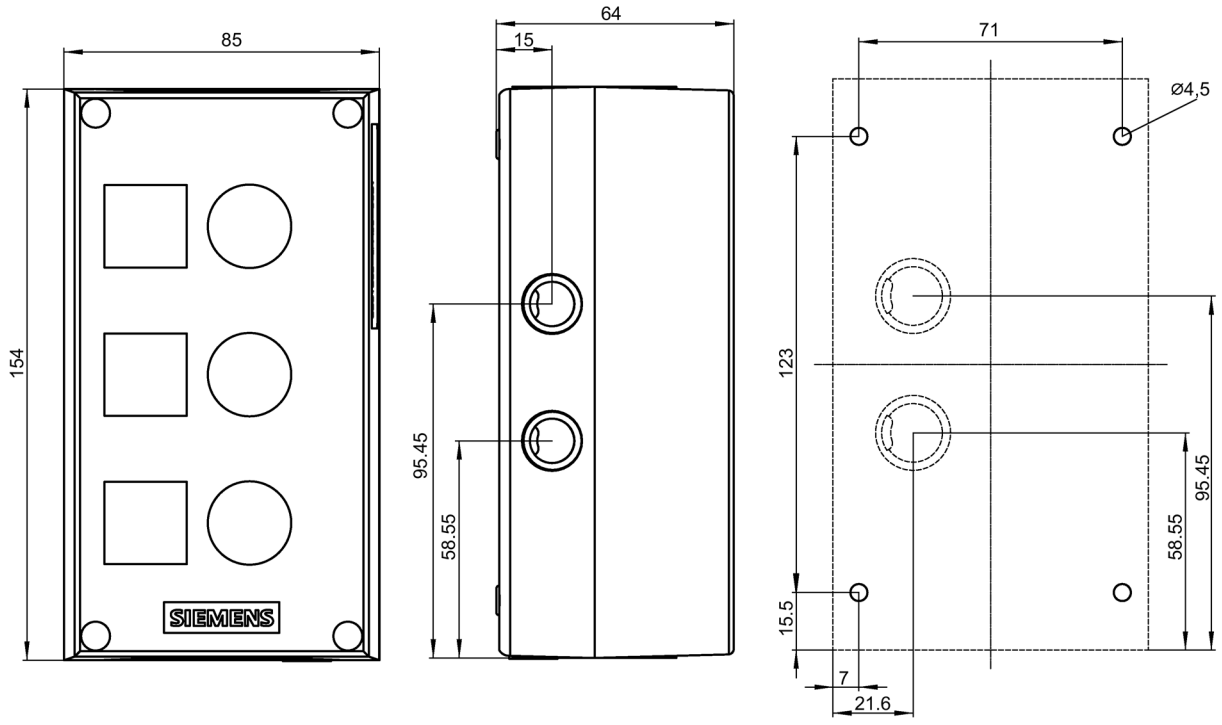
Article No.: 3SU1803-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure 3 command point with recess for labeling plate and additional holes for cable glands

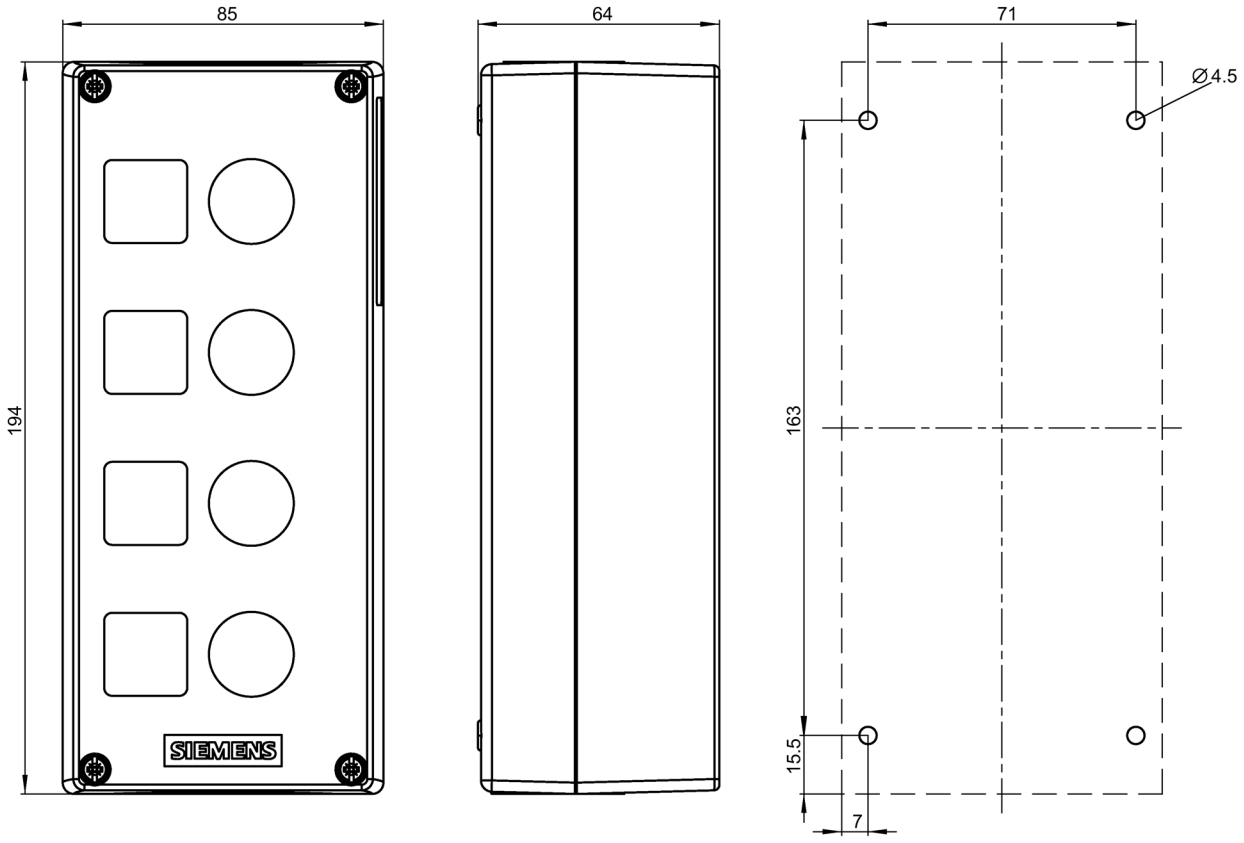
Article No.: 3SU1803-0AA00-0UB1



The thickness of the enclosure cover is 4 mm

Enclosure with 4 command points with recess for labeling plate

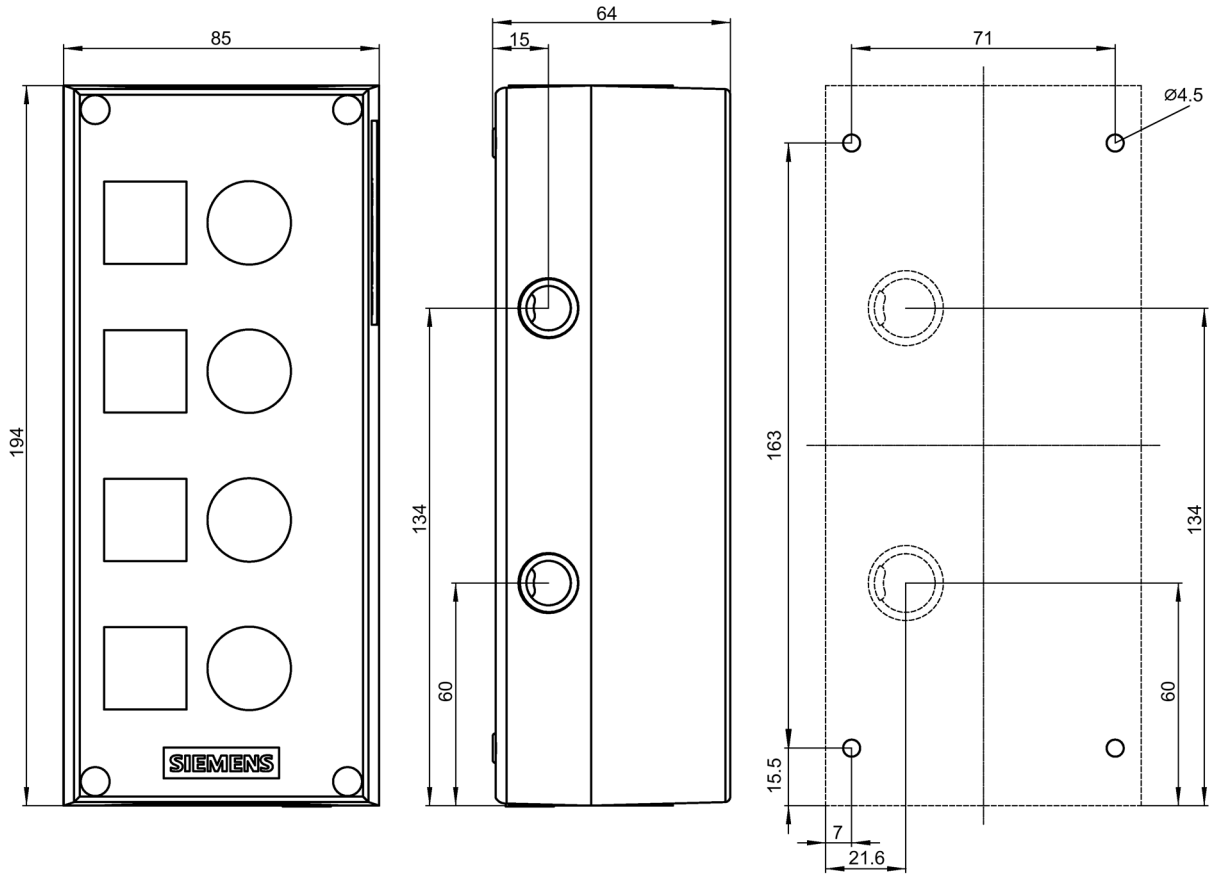
Article No.: 3SU1804-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure 4 command point with recess for labeling plate and additional holes for cable glands

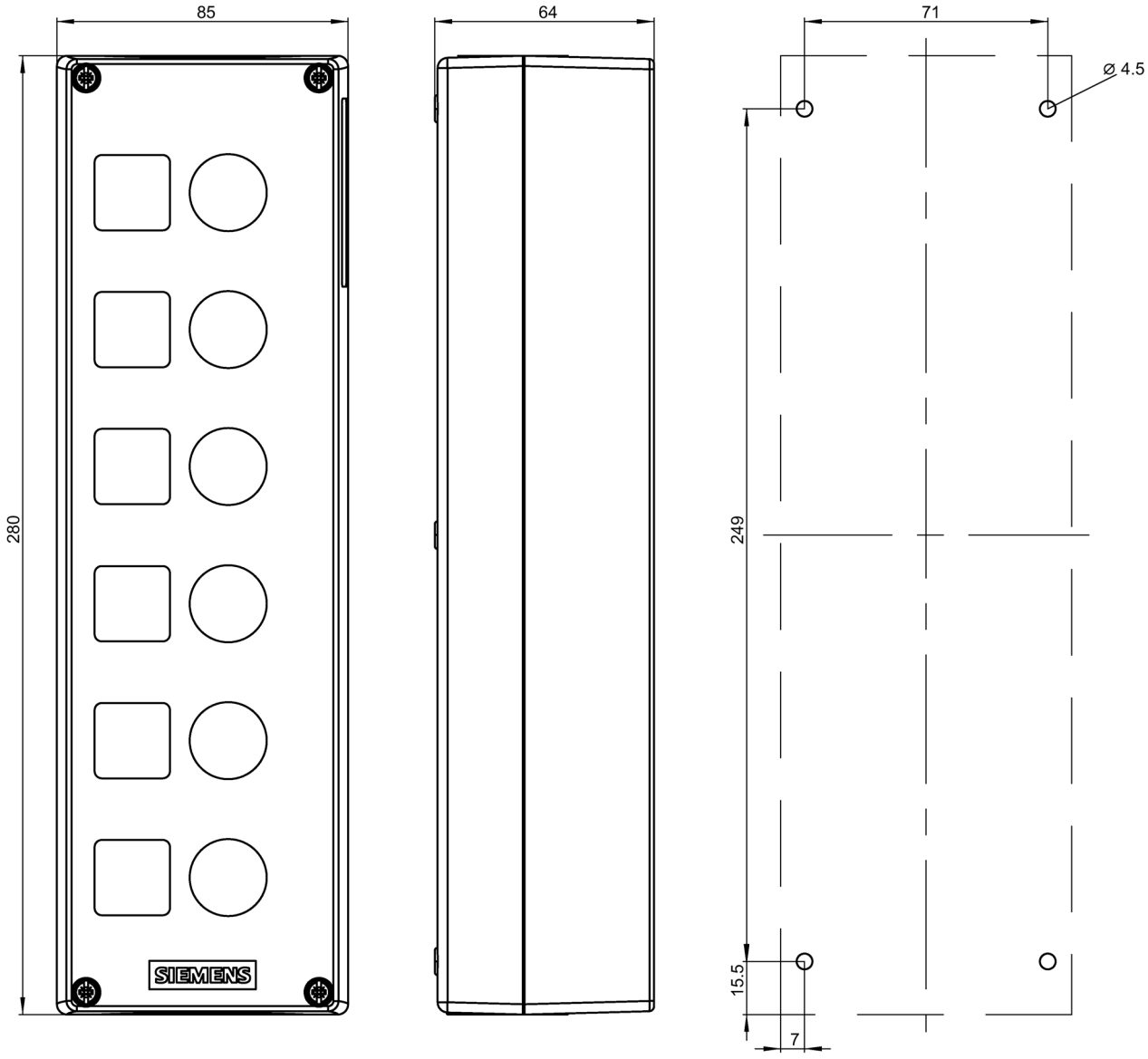
Article No.: 3SU1804-0AA00-0UB1



The thickness of the enclosure cover is 4 mm

Enclosure with 6 command points with recess for labeling plate

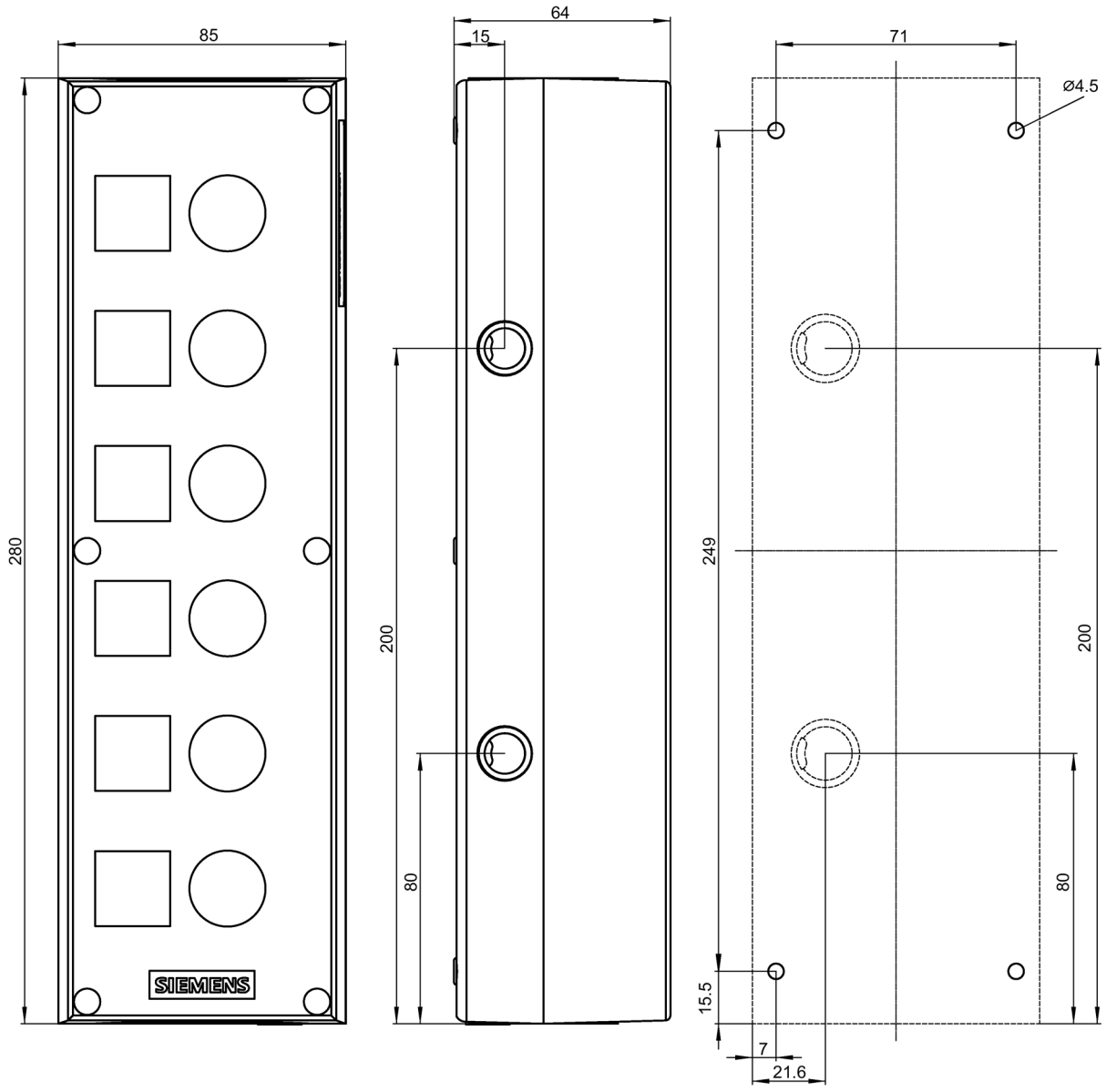
Article No.: 3SU1806-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure 6 command point with recess for labeling plate and additional holes for cable glands

Article No.: 3SU1806-0AA00-0UB1

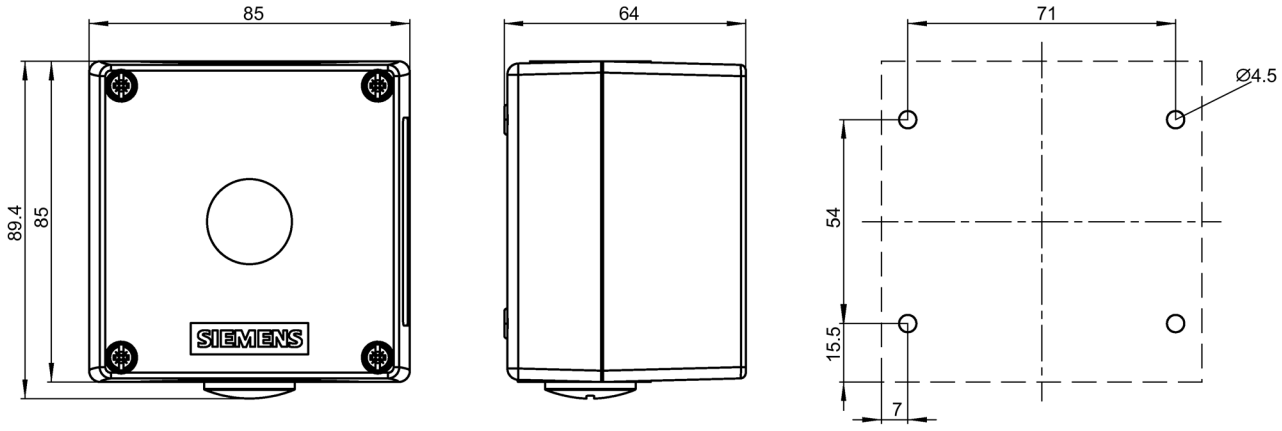


The thickness of the enclosure cover is 4 mm

15.7.2 Enclosures, metal

Enclosures with 1 command point

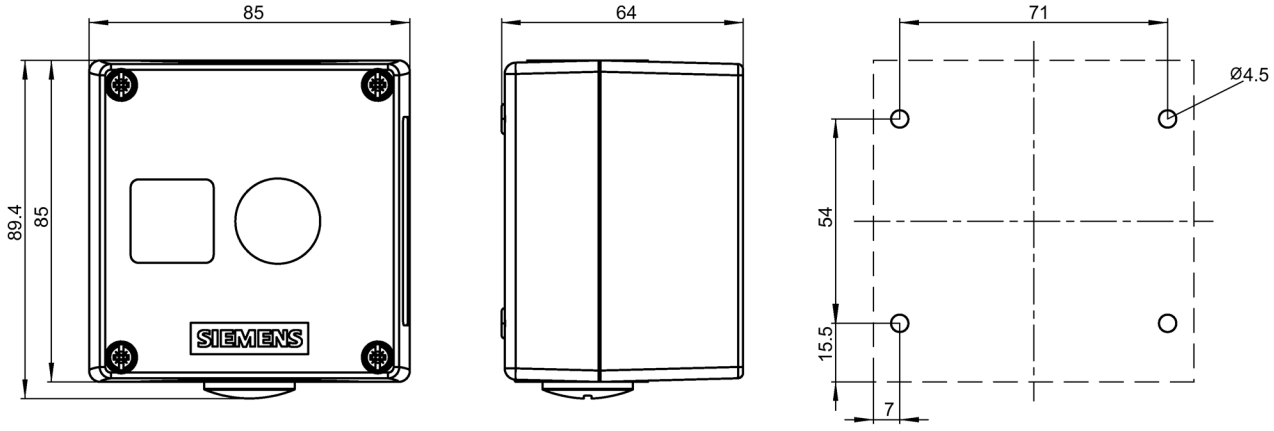
Article No.: 3SU1851-0AA00-0AA2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with recess for labeling plate

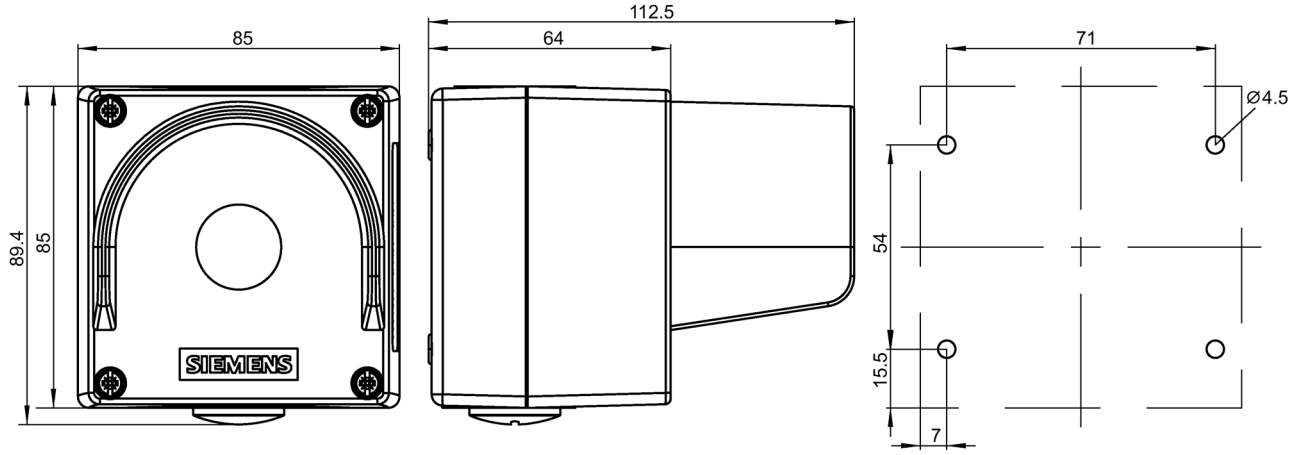
Article No.: 3SU1851-0AA00-0AB1, 3SU1851-0AA00-0AB2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with protective collar

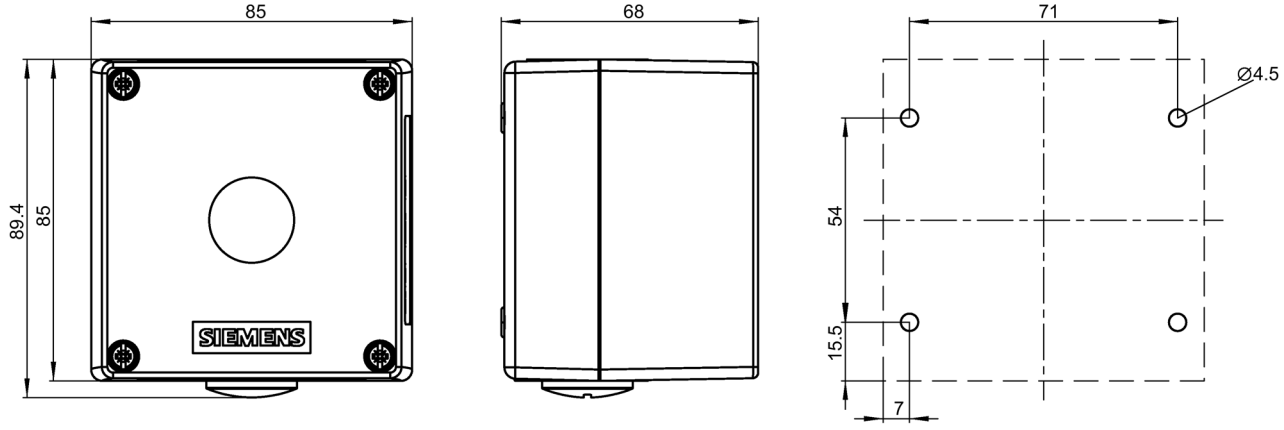
Article No.: 3SU1851-0AA00-0AC2



The thickness of the enclosure cover is 4 mm

Enclosure with 1 command point with raised cover

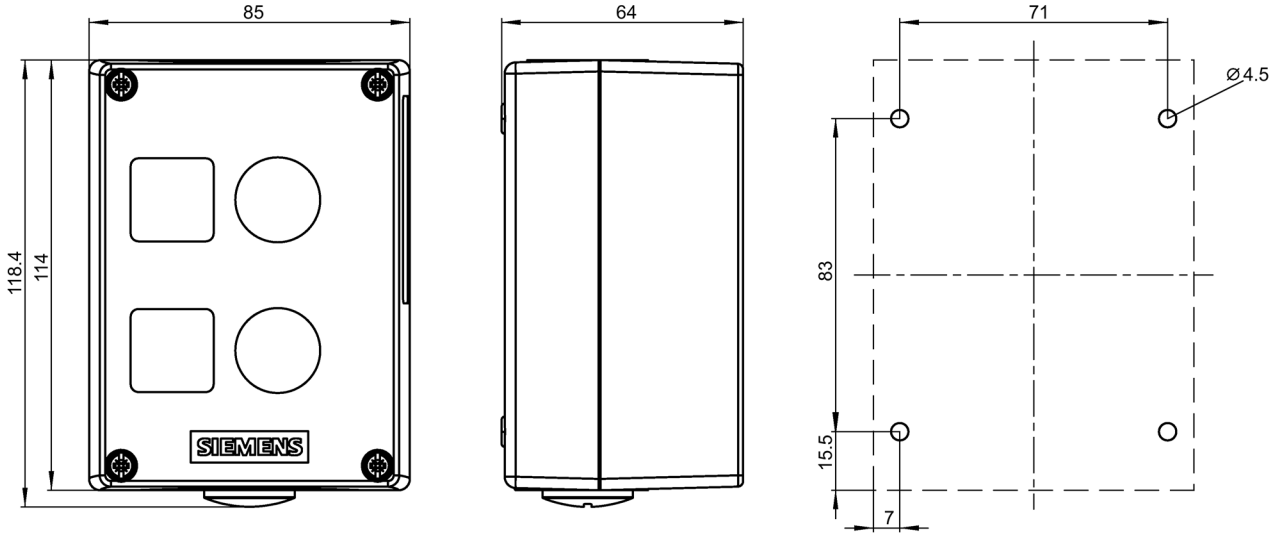
Article No.: 3SU1851-1AA00-1AA1



The thickness of the enclosure cover is 4 mm

Enclosure with 2 command points with recess for labeling plate

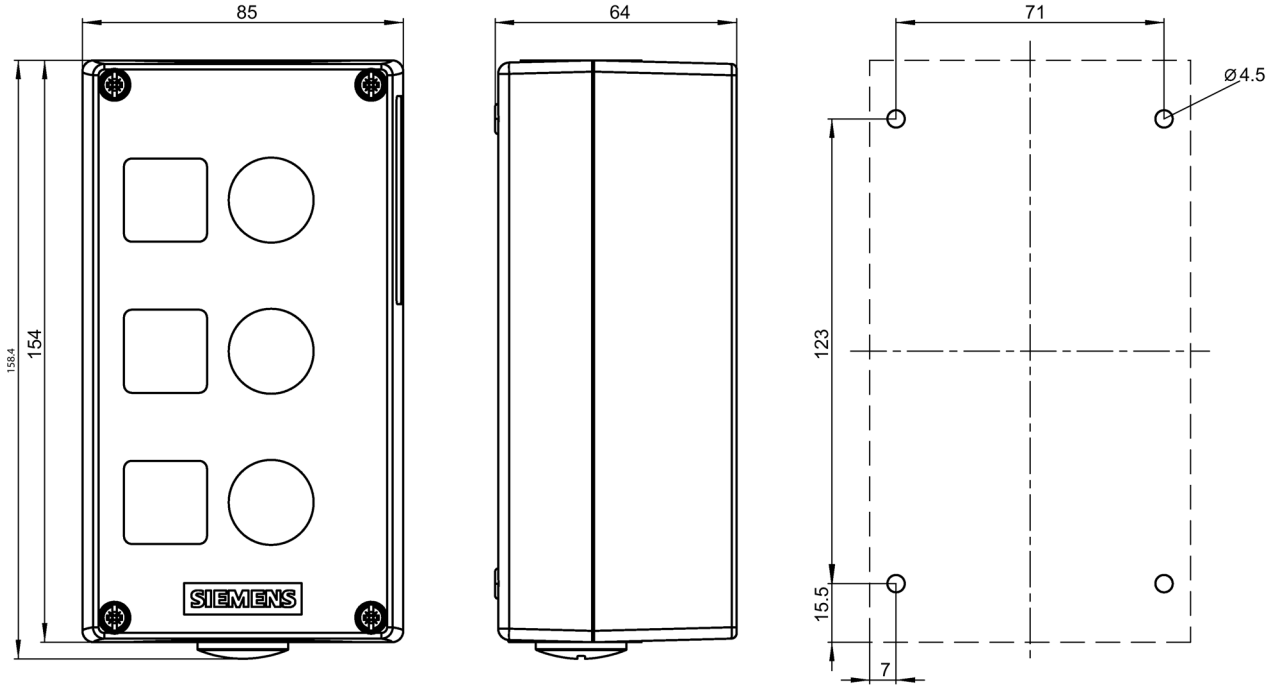
Article No.: 3SU1852-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure with 3 command points with recess for labeling plate

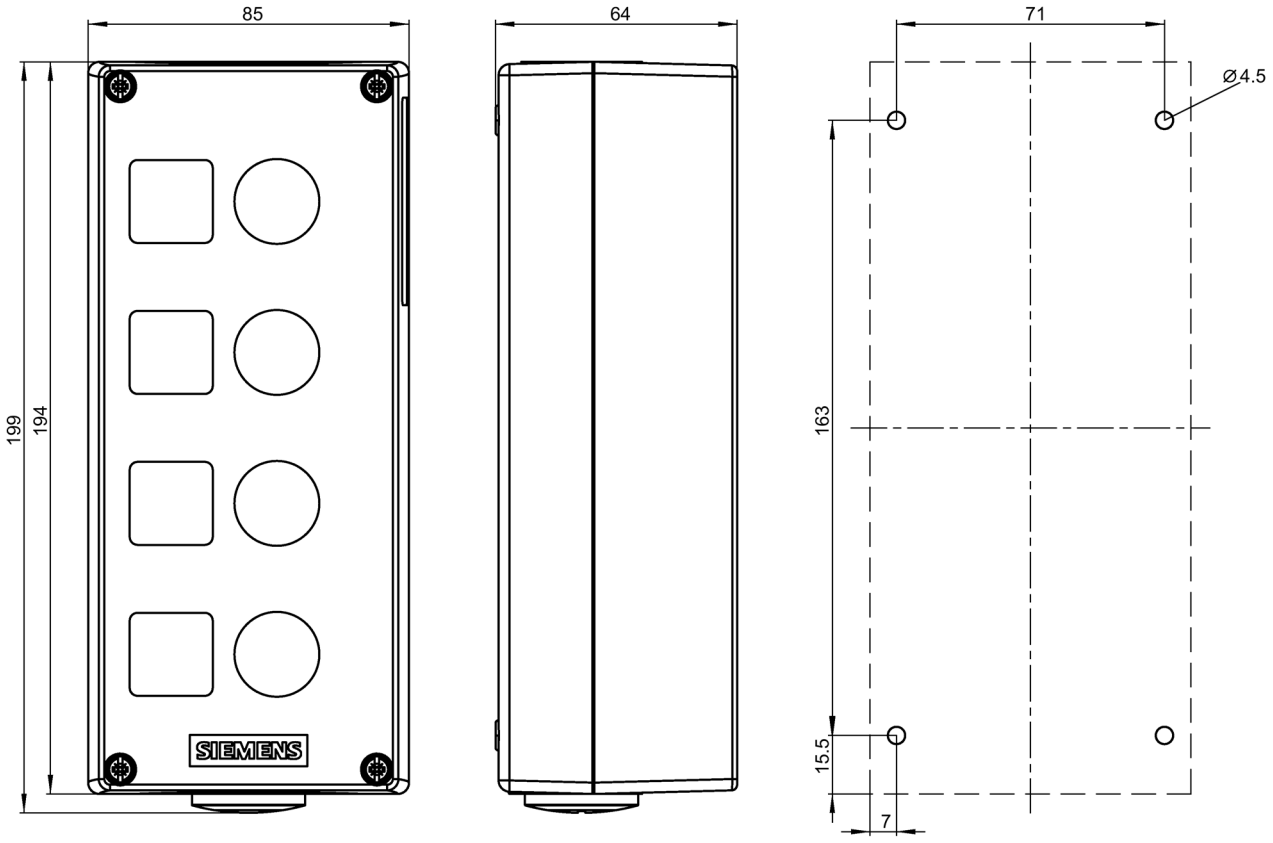
Article No.: 3SU1853-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure with 4 command points with recess for labeling plate

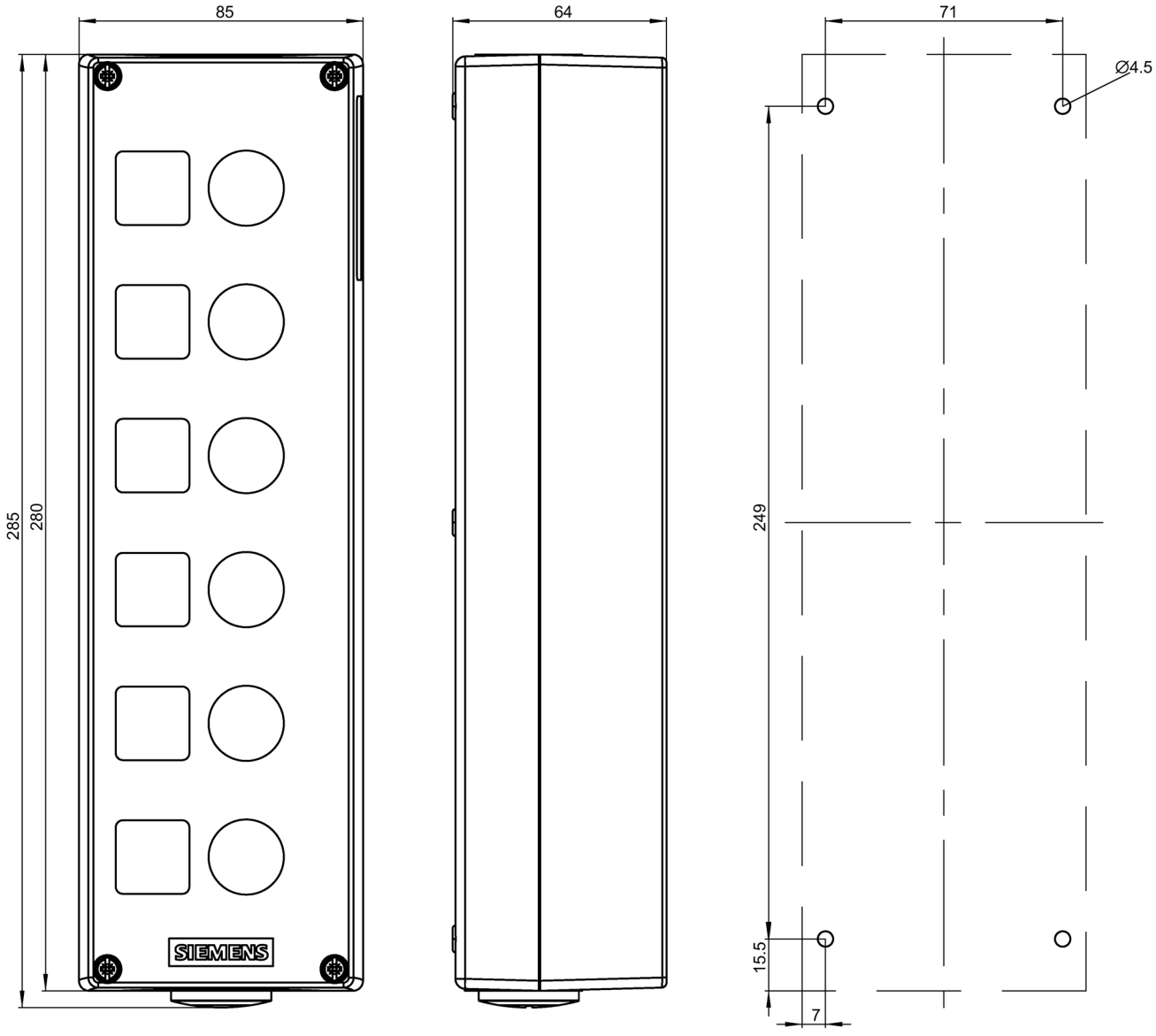
Article No.: 3SU1854-0AA00-0AB1



The thickness of the enclosure cover is 4 mm

Enclosure with 6 command points with recess for labeling plate

Article No.: 3SU1856-0AA00-0AB1



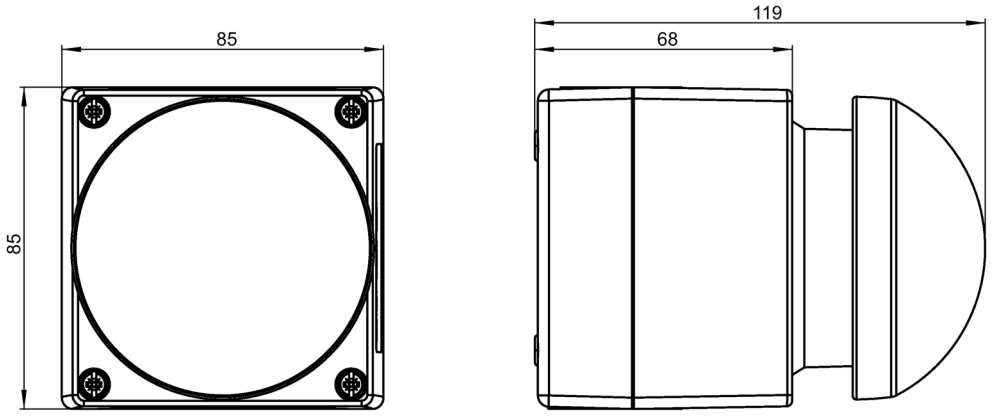
The thickness of the enclosure cover is 4 mm

15.7.3 Palm pushbutton

Palm pushbutton, plastic

Article No.: 3SU1801-2GA00-2AA1

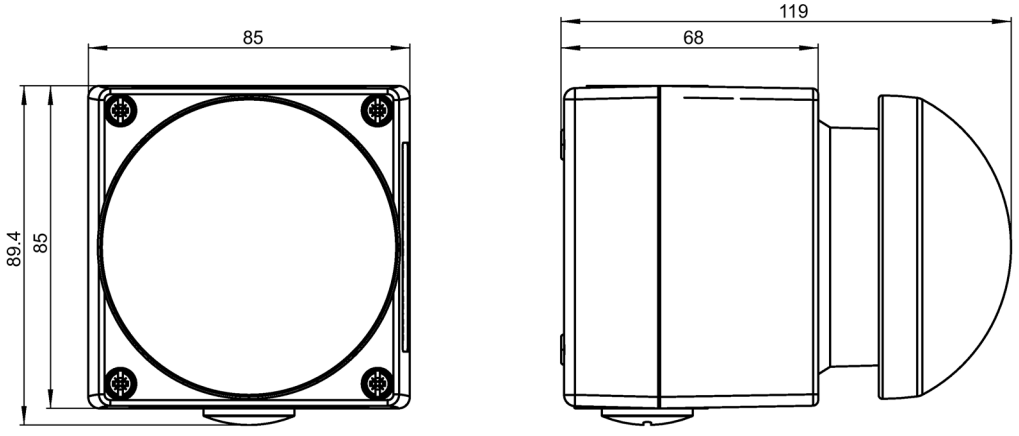
3SU1801-2NG00-2AA2



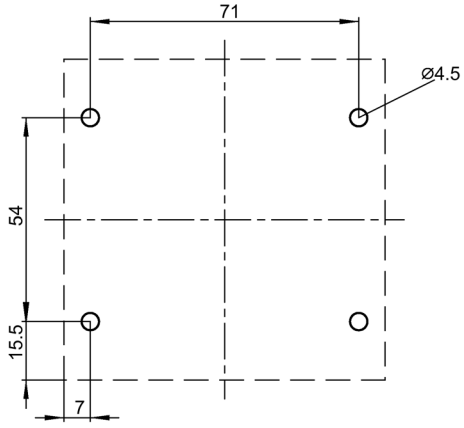
Palm pushbutton, metal

Article No.: 3SU1851-2GA00-2AA1

3SU1851-2NG00-2AA2

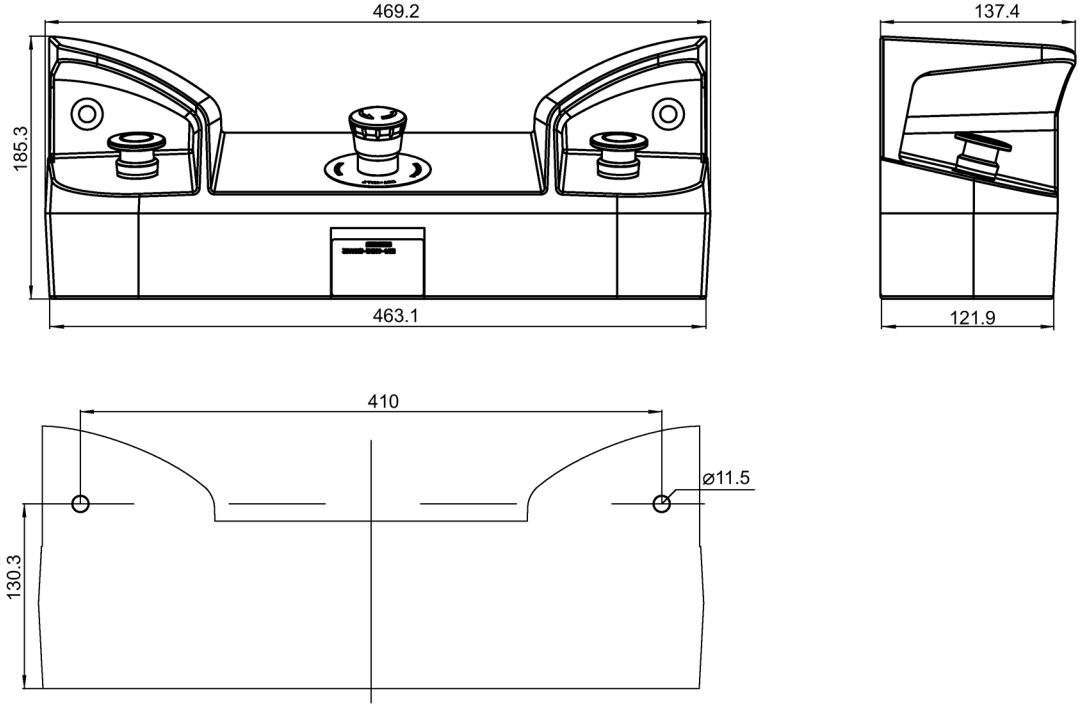


Drilling diagram

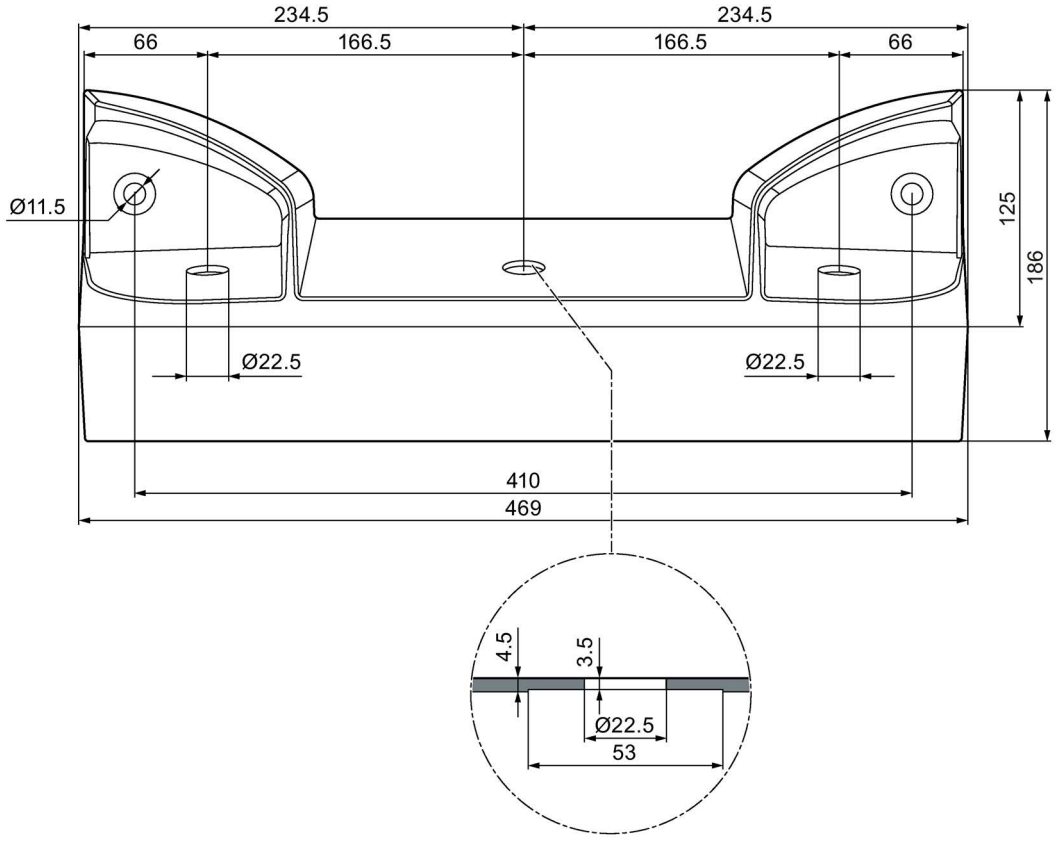


15.7.4 Two-hand operation console

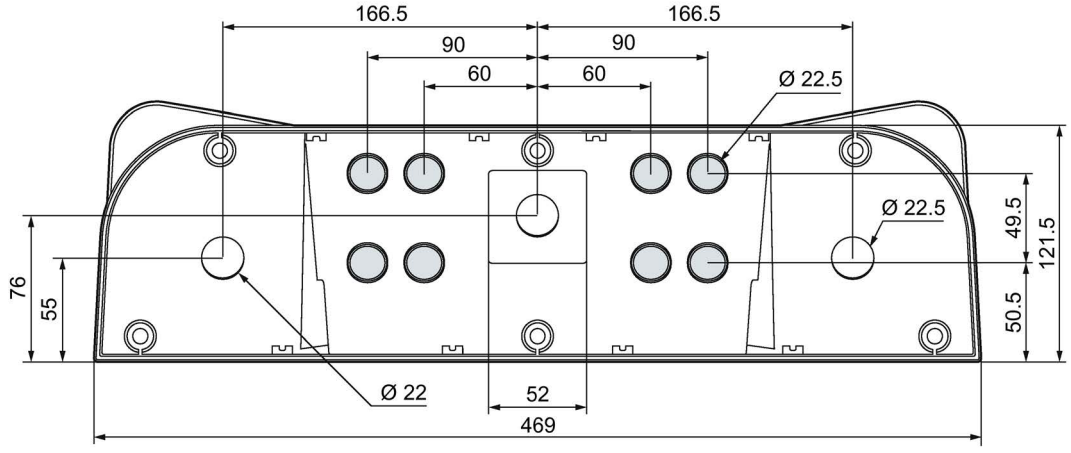
Article No.: 3SU1803-3NB00-1AE1



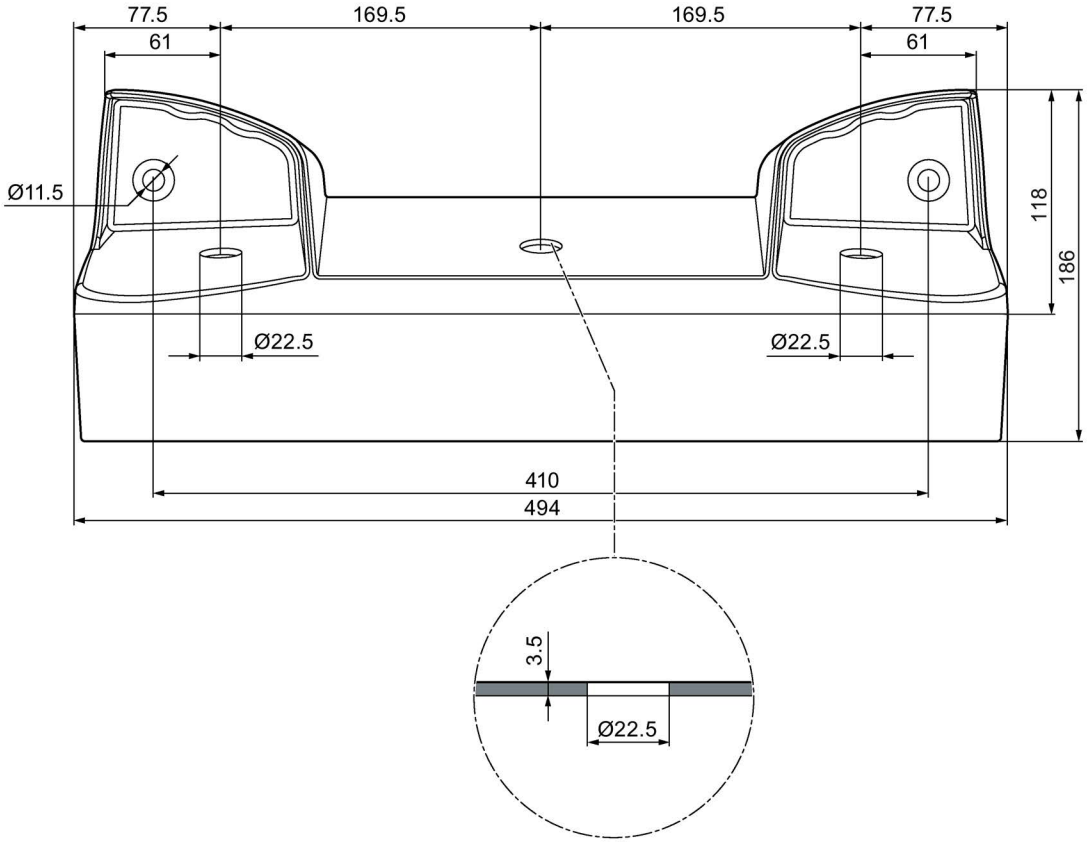
Article No.: 3SU1803-3AA00-0AA1



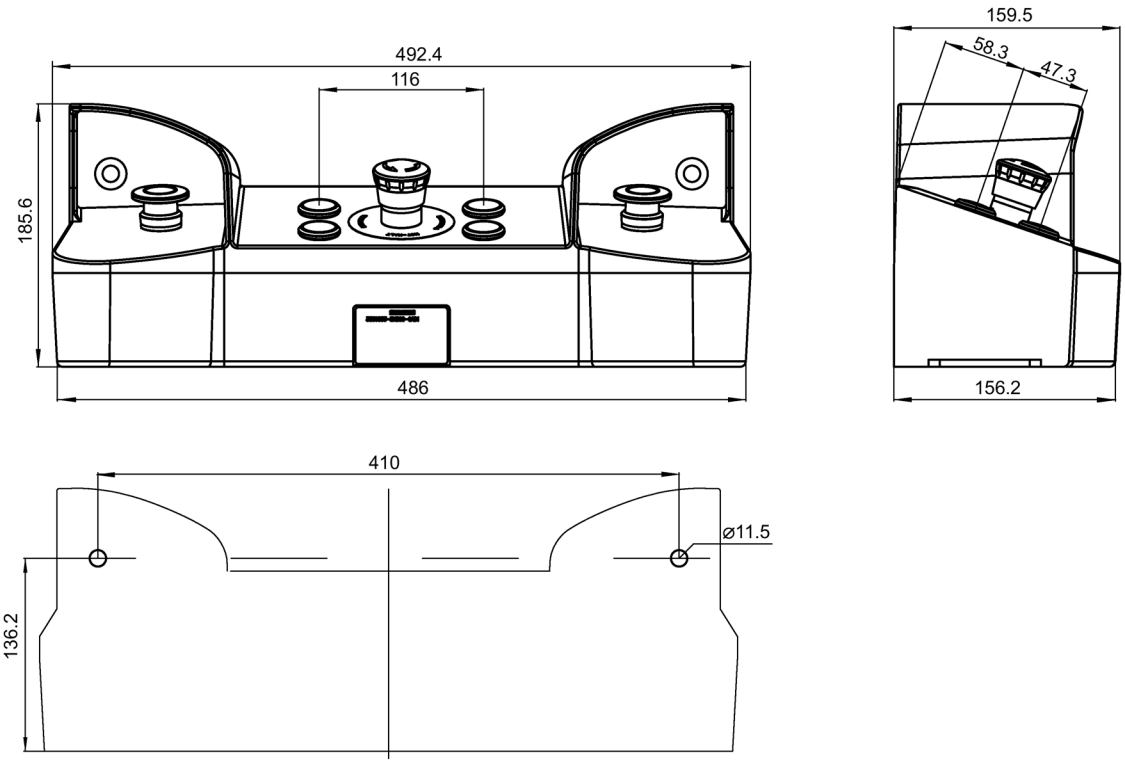
Cover internal view

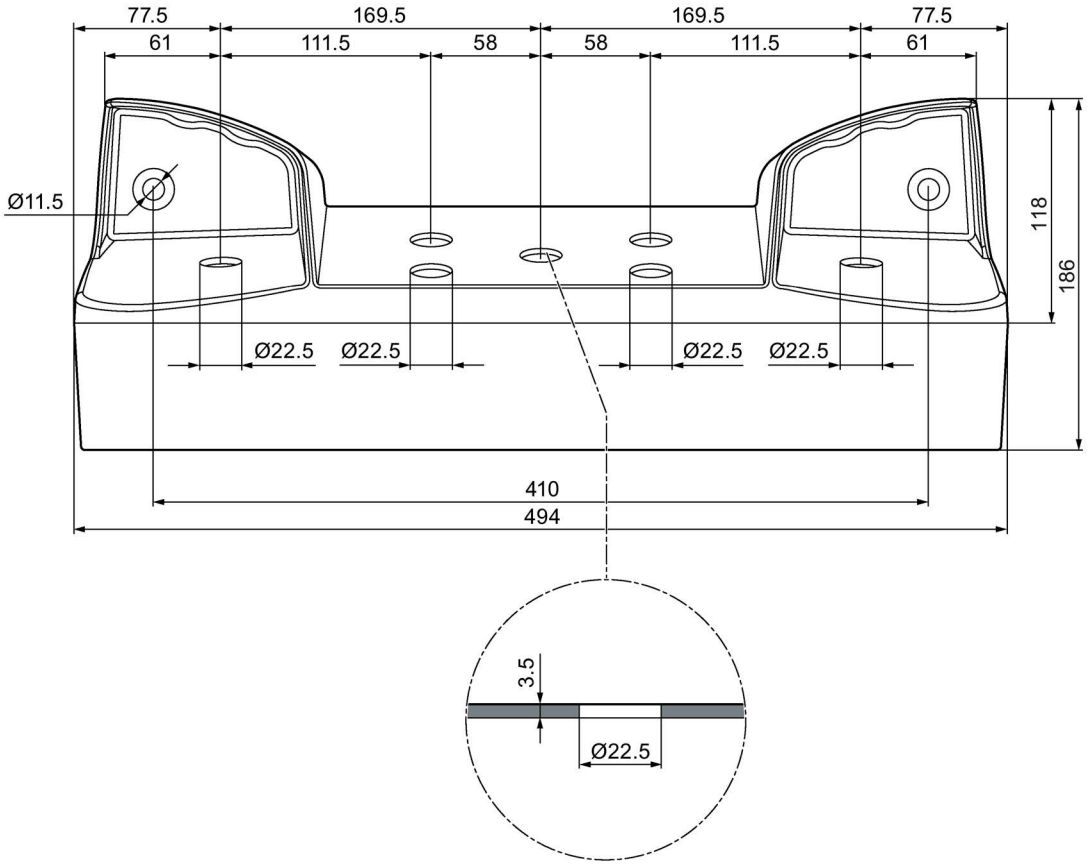


Article No.: 3SU1853-3AA00-0AA1

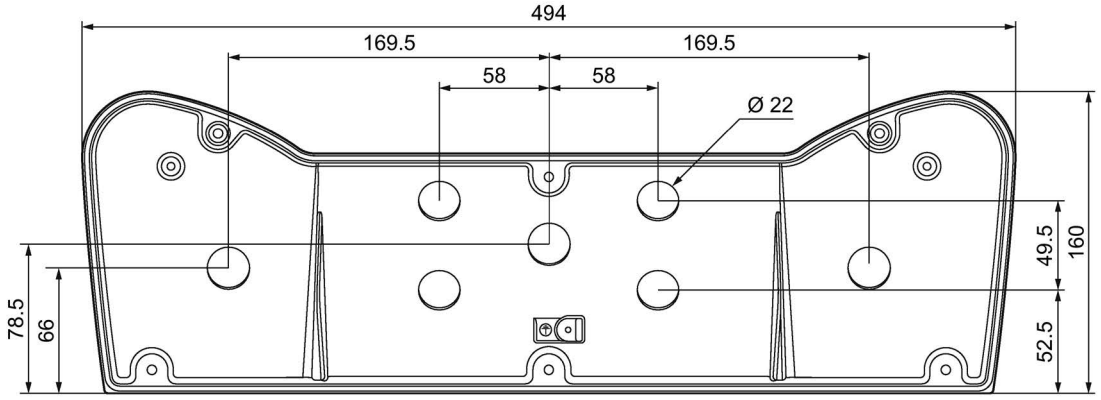


Article No.: 3SU1853-3NB00-1AD1



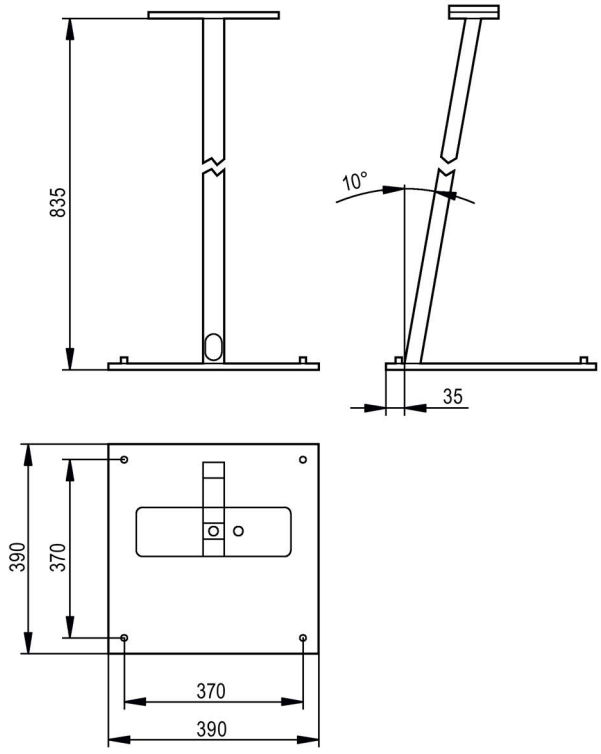


Cover internal view



Stand for two-hand operation console

Article No.: 3SU1950-0HN10-0AA0



15.8 Accessories

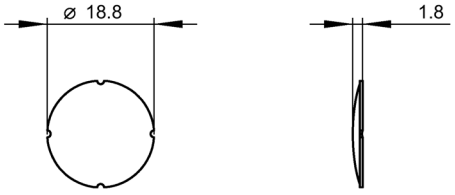
15.8.1 Labels and label holders

15.8.1.1 Labels

Insert labels

Article No.: 3SU1900-0AB71-0AA0

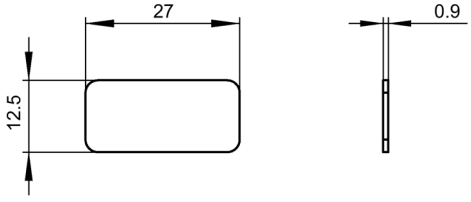
3SU1900-0AB(1,6,7)(1,6)-0(A,D,E,Q,R).0



Labeling plate 12.5 mm x 27 mm

Article No.: 3SU1900-0AC81-0AA0

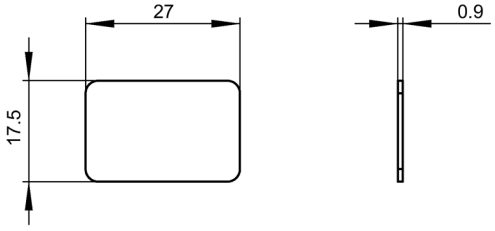
3SU1900-0AC..-0..0



Labeling plate 17.5 mm x 27 mm

Article No.: 3SU1900-0AD16-0AA0

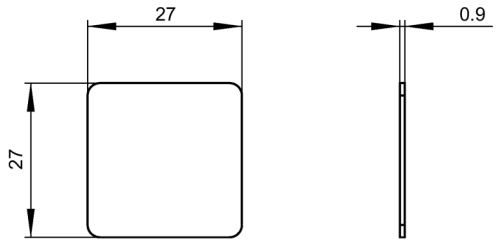
3SU1900-0AD..-0..0



Labeling plate 27 x 27 mm for sticking or snapping onto enclosure

Article No.: 3SU1900-0AE16-0AA0

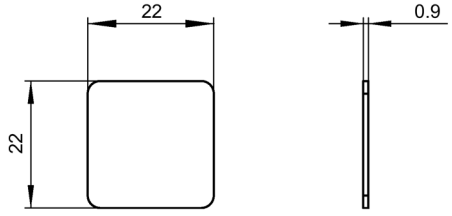
3SU1900-0AE..-0..0



Labeling plate 22 x 22 mm for sticking onto enclosure

Article No.: 3SU1900-0AF16-0AA0

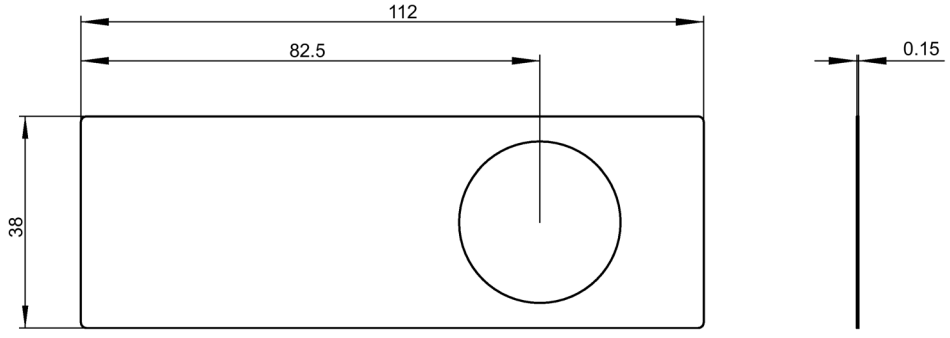
3SU1900-0AF..-0..0



Labeling plate for enclosures with EMERGENCY STOP

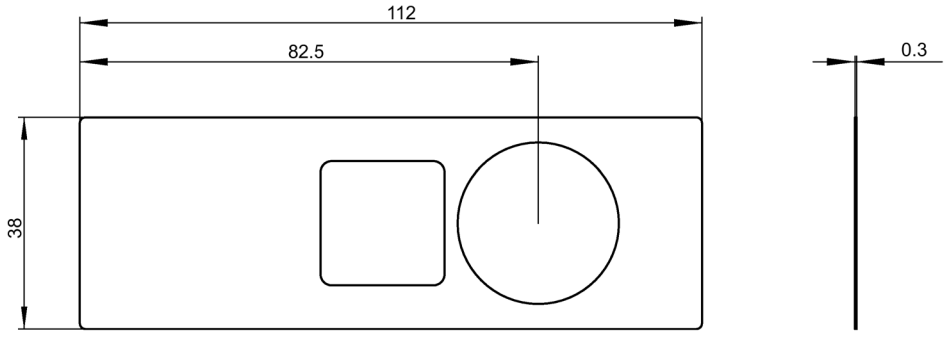
Article No.: 3SU1900-0BE31-0AA0

3SU1900-0BE31-0A(A,S)0



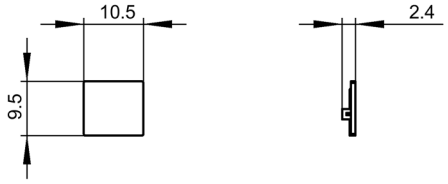
Labeling plates for enclosures with EMERGENCY STOP with recess

Article No.: 3SU1900-0BF31-0AA0



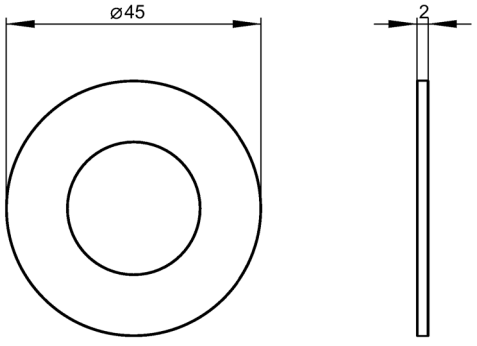
Unit labeling plate

Article No.: 3SU1900-0AY61-0AA0



EMERGENCY STOP backing plate diameter 45 mm

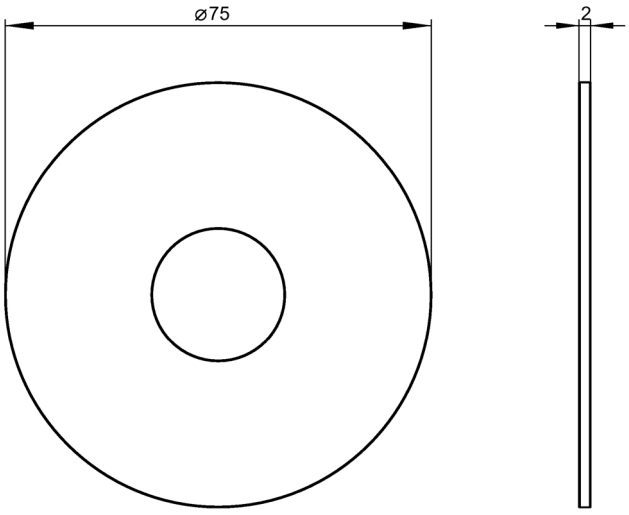
Article No.: 3SU1900-0BA31-0AA0



EMERGENCY STOP backing plate diameter 75 mm

Article No.: 3SU1900-0BB31-0AA0

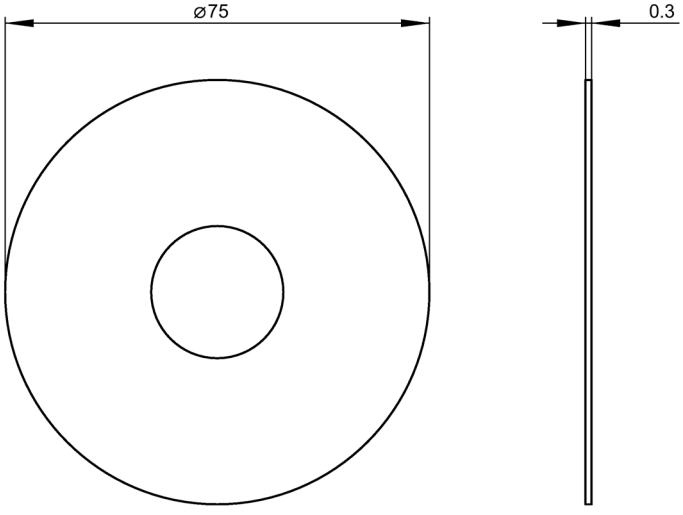
3SU1900-0BB31-0A(A,S,T)0



EMERGENCY STOP backing plate diameter 75 mm

Article No.: 3SU1900-0BC31-0DA0

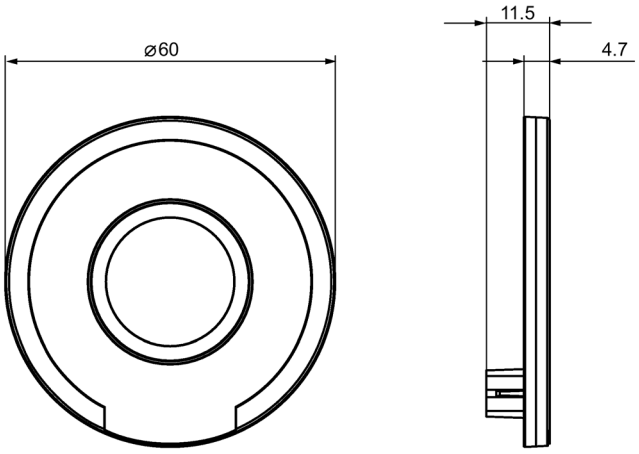
3SU1900-0BC31-0(A,D,G,J,L,M,N)(A,B,Q,S,T)0



Backing plate diameter 60 mm, can be illuminated

Article No.: 3SU1901-0BD31-0AA0

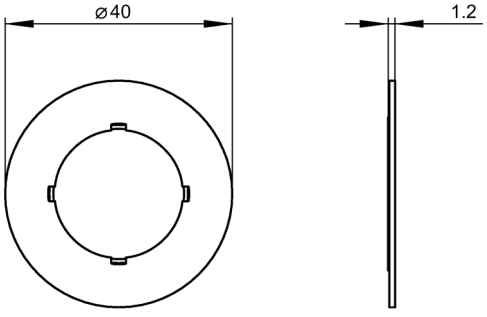
3SU1901-0BD31-0(A,D,N)(A,B,S,T)0



Backing plate for potentiometer

Article No.: 3SU1900-0BG16-0RT0

3SU1900-0BG16-0(A,R)(A,T,U)0

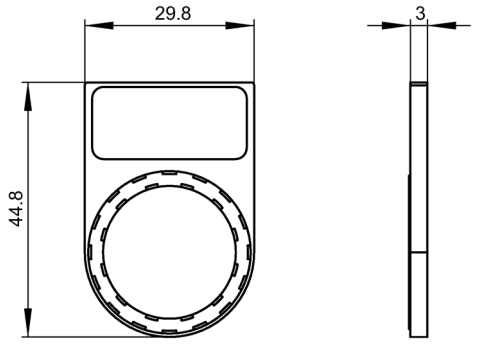


15.8.1.2 Label holders

Label holder for labeling plates with rounded bottom 12.5 mm x 27 mm

Article No.: 3SU1900-0AG10-0AA0 adhesive

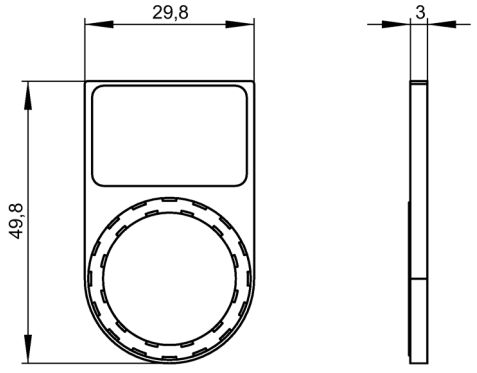
Article No.: 3SU1900-0AR10-0AA0 snap-on



Label holder for labeling plates with rounded bottom 17.5 mm x 27 mm

Article No.: 3SU1900-0AG10-0AA0 adhesive

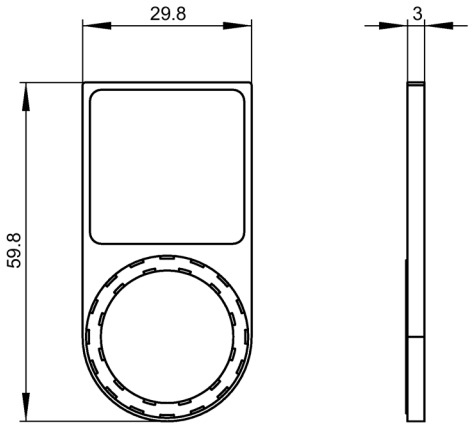
Article No.: 3SU1900-0AS10-0AA0 snap-on



Label holder for labeling plates with rounded bottom 27 mm x 27 mm

Article No.: 3SU1900-0AJ10-0AA0 adhesive

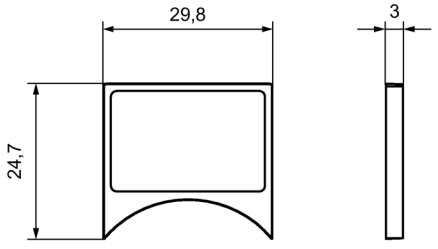
Article No.: 3SU1900-0AT10-0AA0 snap-on



Label holder for labeling plates, frame with rounded bottom 17.5 mm x 27 mm

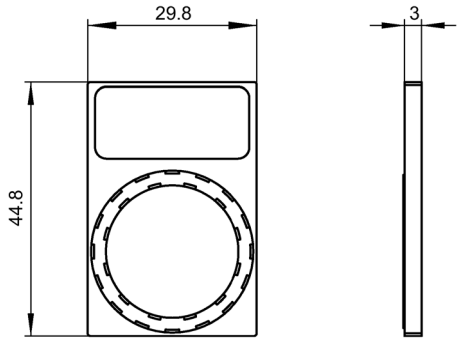
Article No.: 3SU1960-0AH10-0AA0 adhesive

Article No.: 3SU1960-0AS10-0AA0 snap-on



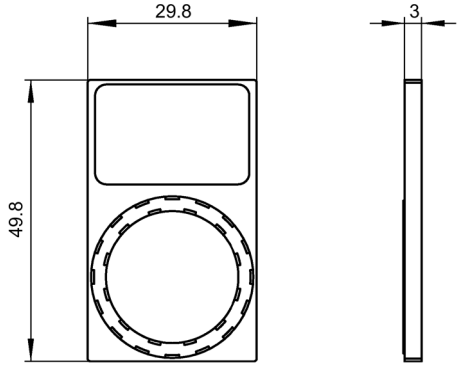
Label holder for labeling plates with square bottom 12.5 mm x 27 m self-adhesive

Article No.: 3SU1900-0AN10-0AA0



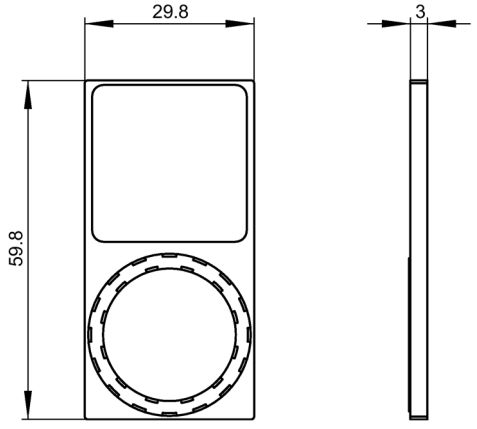
Label holder for labeling plates with square bottom 17.5 mm x 27 mm self-adhesive

Article No.: 3SU1900-0AP10-0AA0



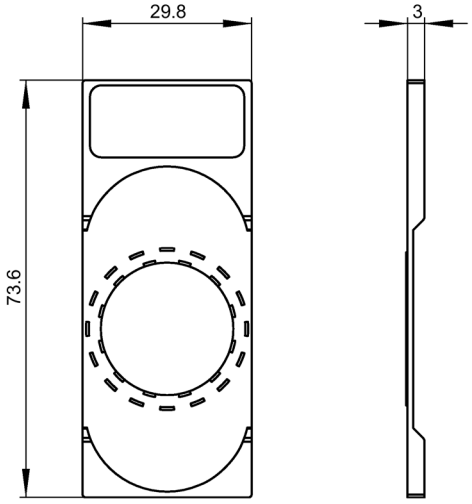
Label holder for labeling plates with square bottom 27 mm x 27 mm self-adhesive

Article No.: 3SU1900-0AQ10-0AA0



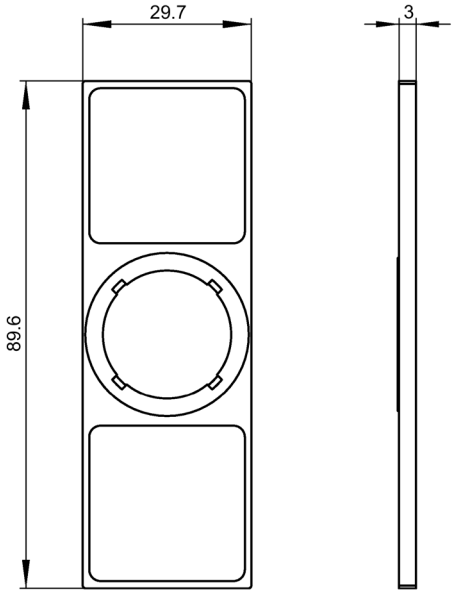
Label holder for twin pushbuttons self-adhesive

Article No.: 3SU1900-0AK10-0AA0



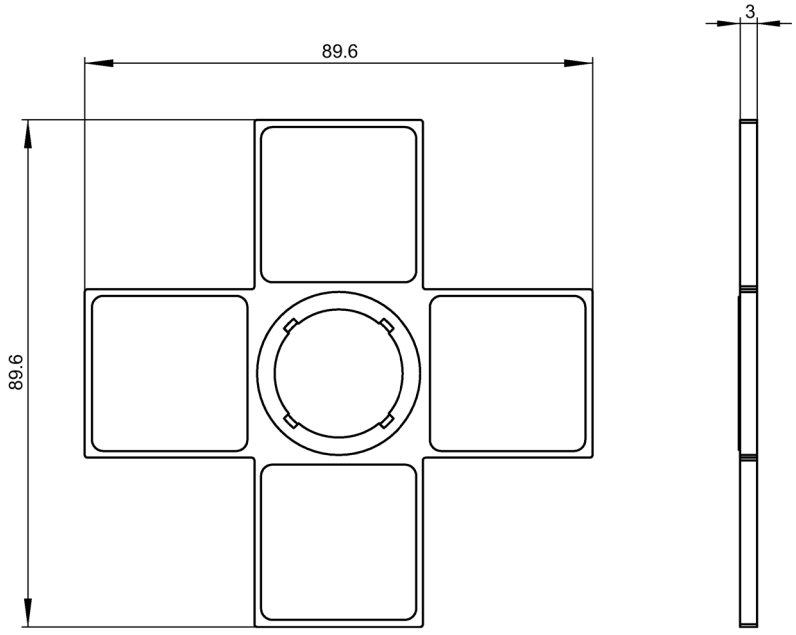
Label holder for coordinate switches self-adhesive

Article No.: 3SU1900-0AL10-0AA0



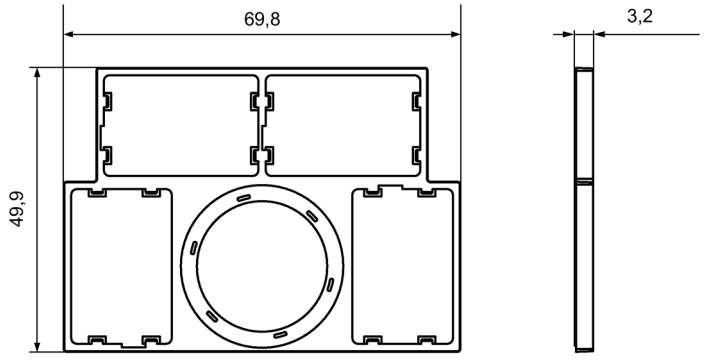
Label holder for coordinate switches self-adhesive

Article No.: 3SU1900-0AM10-0AA0



Label holder for 4 labeling plates, snap-on

Article No.: 3SU1900-0BT10-0AA0



Label holder for 4 labeling plates, adhesive

Article No.: 3SU1900-0BS10-0AA0

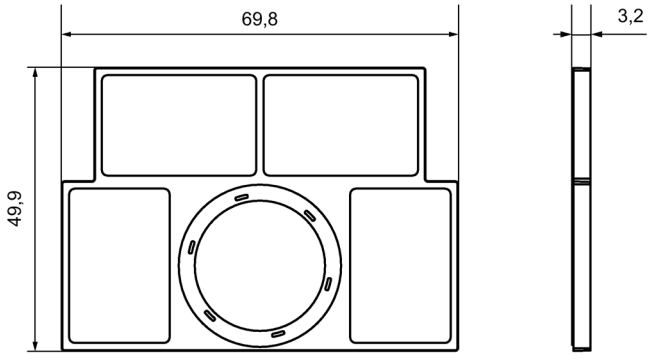
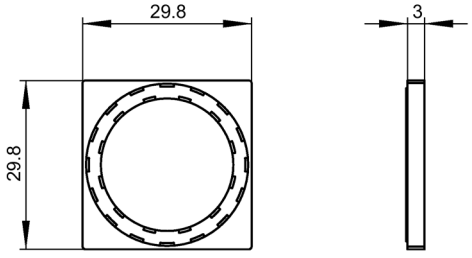


Figure 15-1 3148_3SU1900-0BS10-0AA0_MB_v

Single frame, square

Article No.: 3SU1900-0AX10-0AA0



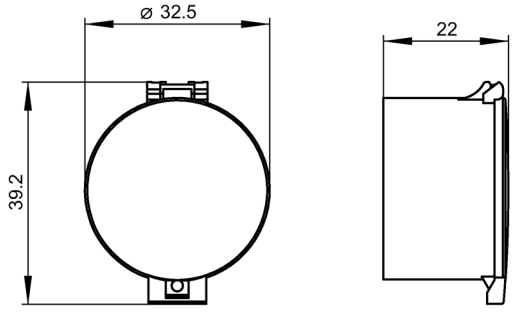
15.8.2 Protection

15.8.2.1 Protective caps

Sealable cap for pushbuttons, flat

Article No.: 3SU1900-0DA10-0AA0

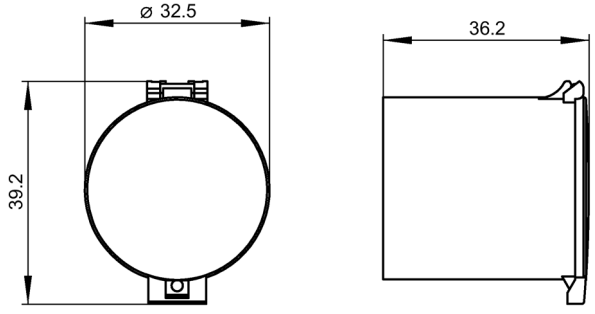
3SU1900-0DA(1,7)0-0AA0



Sealable cap for pushbuttons, raised

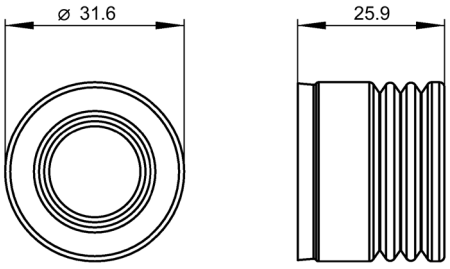
Article No.: 3SU1900-0EL10-0AA0

3SU1900-0EL(1,7)0-0AA0



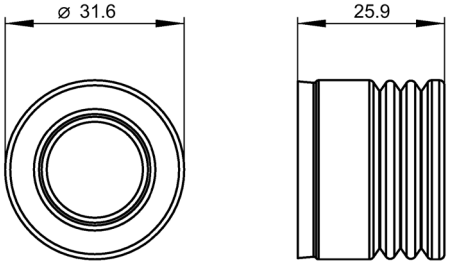
Protective cap for pushbuttons, flat

Article No.: 3SU1900-0DB70-0AA0



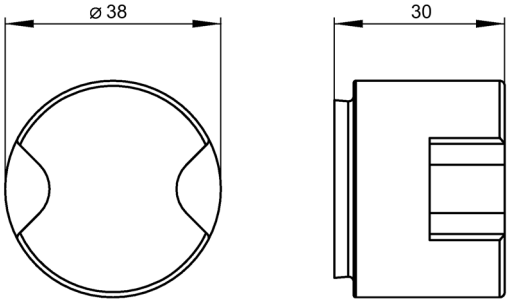
Protective cap for pushbuttons, raised

Article No.: 3SU1900-0DC70-0AA0



Protective cap for selectors, short

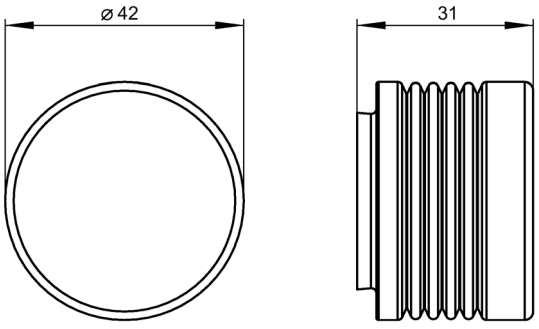
Article No.: 3SU1900-0DD70-0AA0



Protective cap for mushroom pushbuttons, diameter 40 mm

Article No.: 3SU1900-0DE70-0AA0

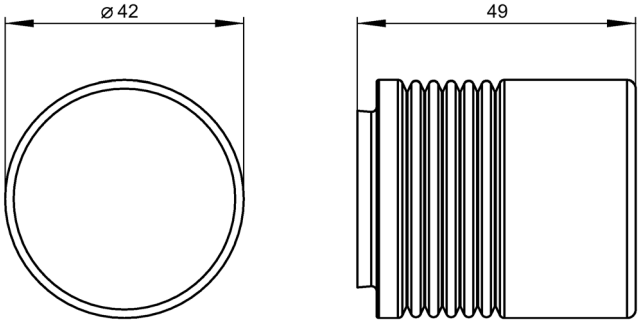
3SU1900-0(D,E)(E,G)70-0AA0



Protective cap for EMERGENCY STOP

Article No.: 3SU1900-0DF70-0AA0

3SU1900-0(D,E)(F,H)70-0AA0

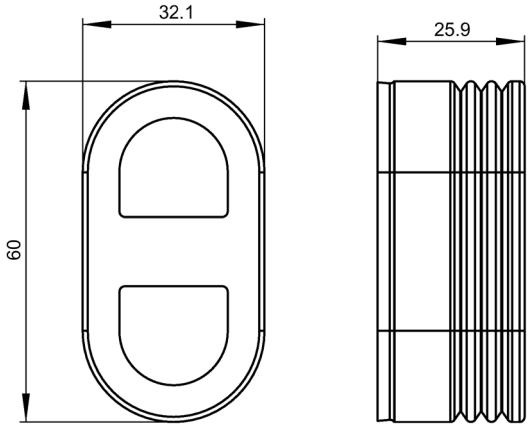


Protective cap for twin pushbuttons

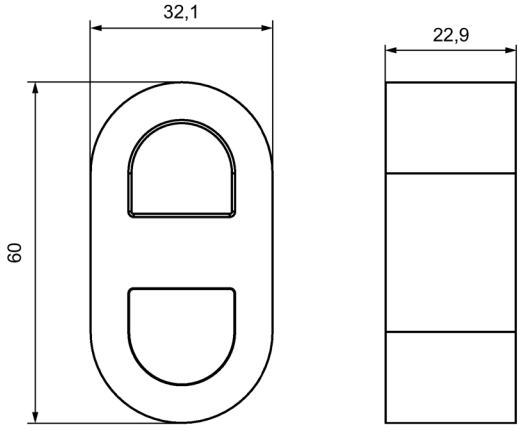
Article No.: 3SU1900-0DG70-0AA0

3SU1900-0(D,E)(H,K)70-0AA0

3SU1900-0(D,E)(G,J)70-0AA0

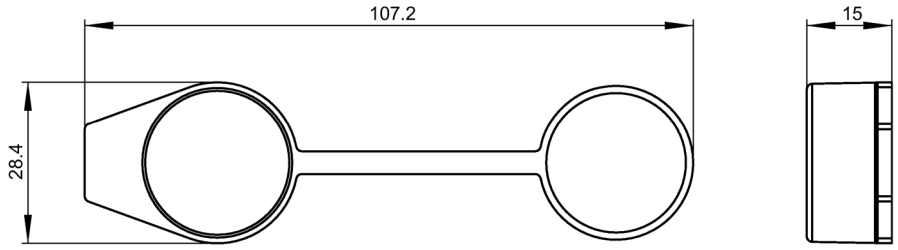


Article No.: 3SU1900-0EK70-0AA0



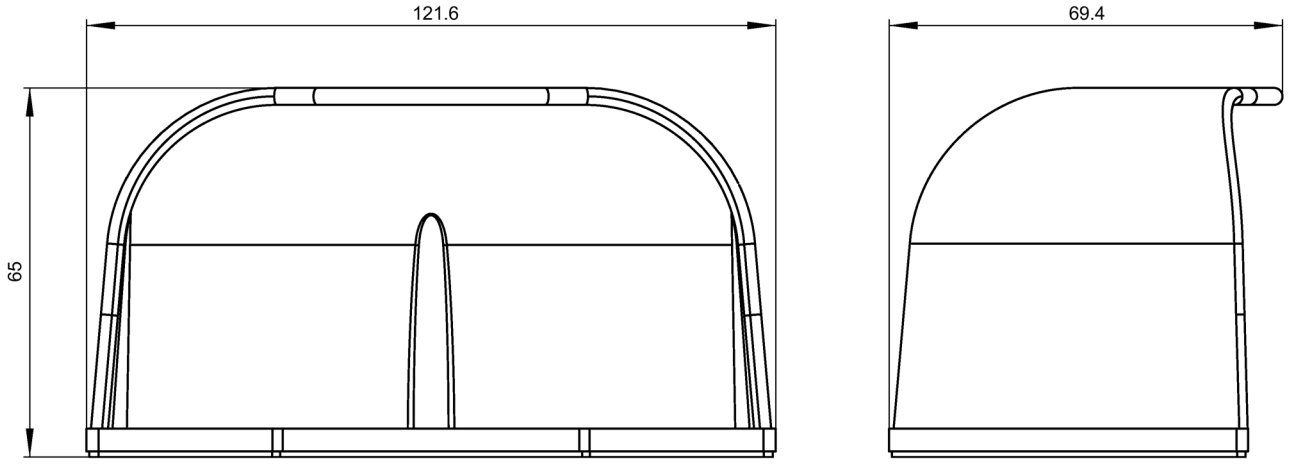
Dust cap for key-operated switches

Article No.: 3SU1900-0EB10-0AA0



15.8.2.2 Protection for sensor switch

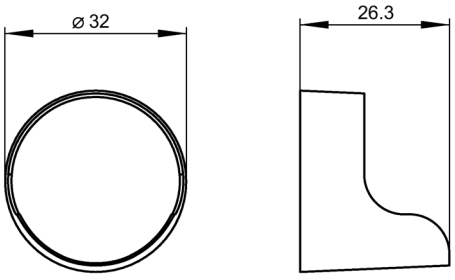
Article No.: 3SU1900-0EC10-0AA0



15.8.2.3 Protective collars

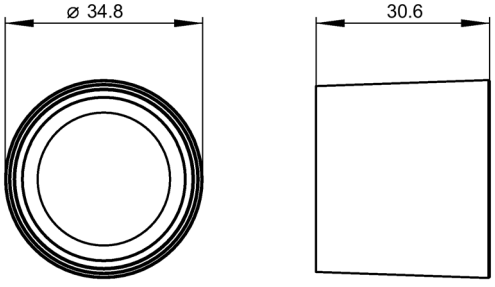
Sun collar

Article No.: 3SU1900-0DJ10-0AA0



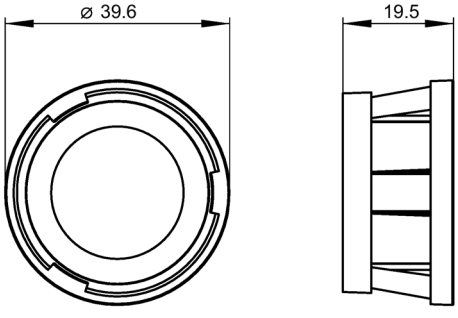
360° protective collar for pushbuttons and selectors, short

Article No.: 3SU1900-0DW10-0AA0



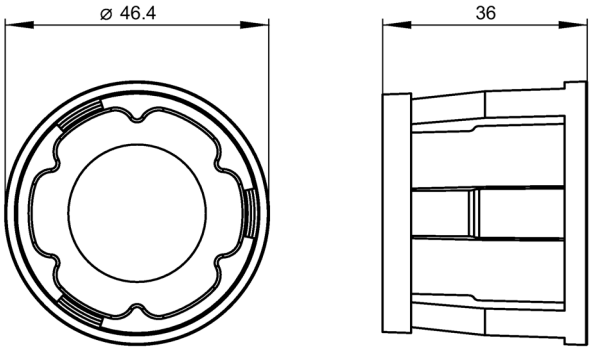
360° protective collar for pushbuttons, visibility from the side

Article No.: 3SU1950-0DK80-0AA0



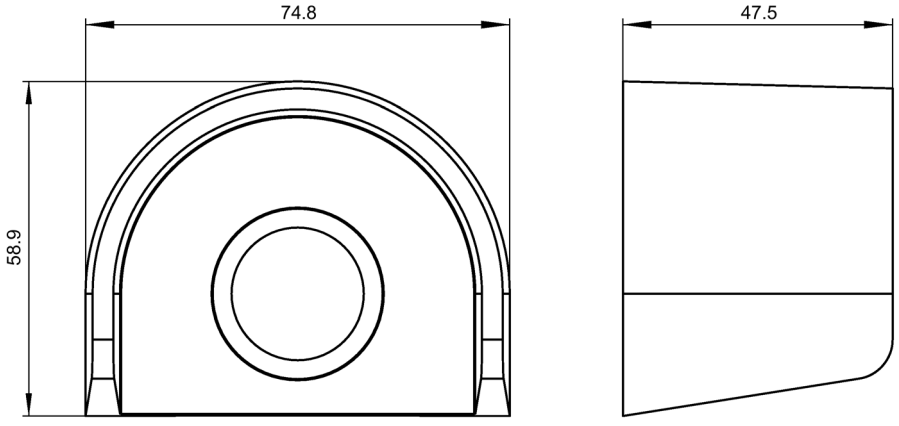
360° protective collar for mushroom pushbuttons 40 mm, visibility from the side

Article No.: 3SU1950-0DL80-0AA0



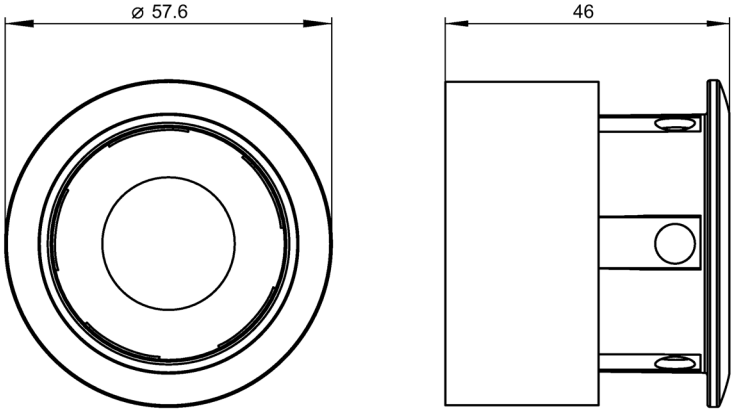
Protective collar for EMERGENCY STOP

Article No.: 3SU1900-0DY30-0AA0



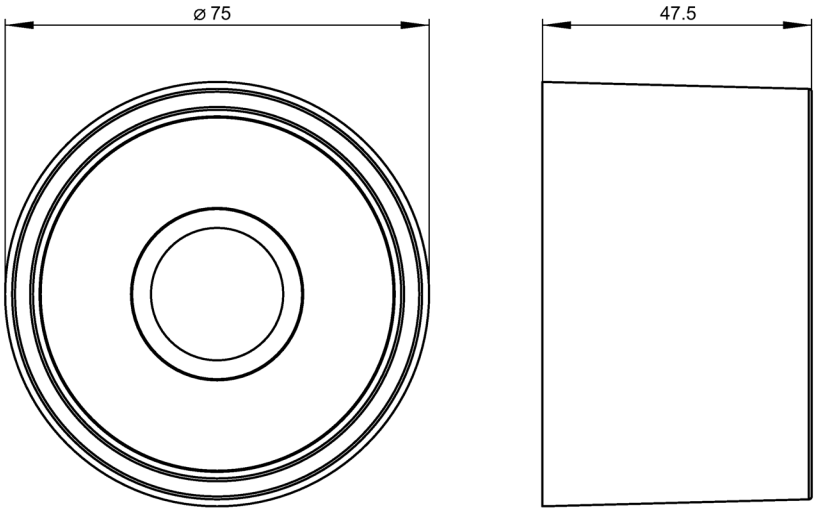
Protective collar for padlocks

Article No.: 3SU1950-0DX30-0AA0



360° protective collar

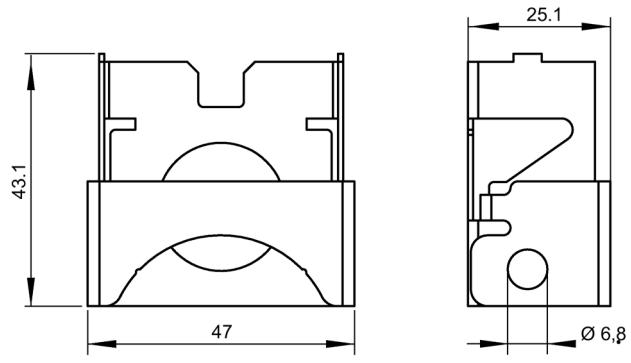
Article No.: 3SU1900-0EA30-0AA0



15.8.2.4 Locking devices

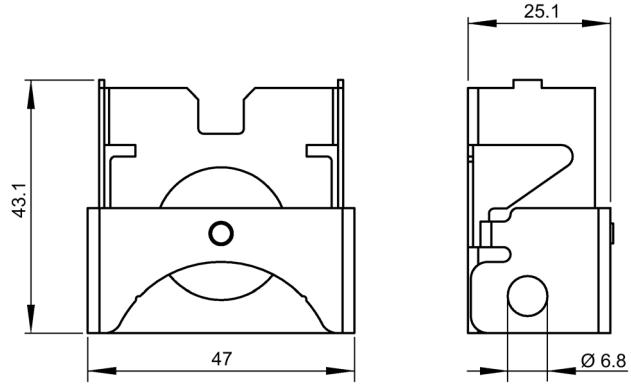
Locking device for pushbuttons, flat

Article No.: 3SU1950-0DM80-0AA0



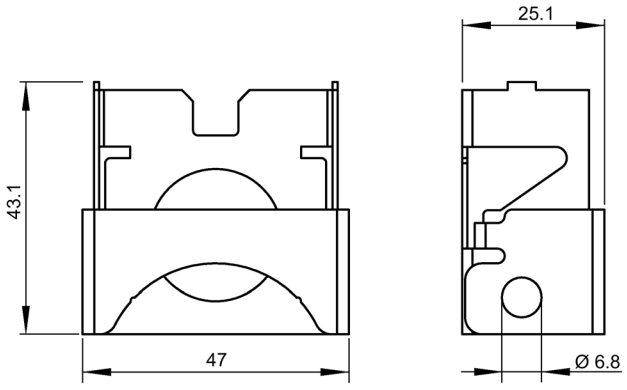
Locking device for pushbuttons, raised

Article No.: 3SU1950-0DN80-0AA0



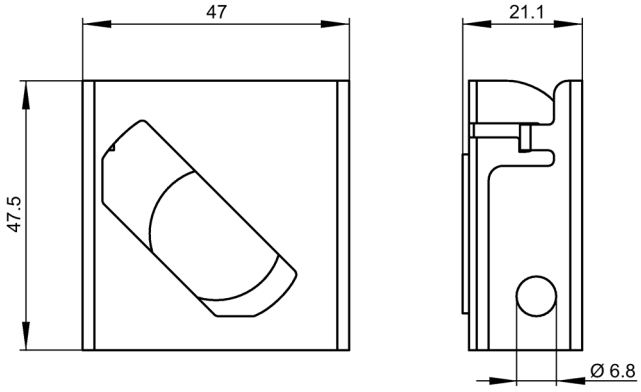
Locking device for mushroom pushbuttons, diameter 30 mm and 40 mm

Article No.: 3SU1950-0DP80-0AA0



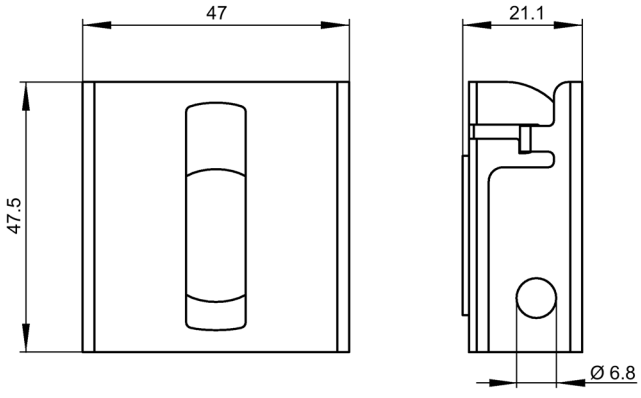
Locking device for selector switches, in the left position

Article No.: 3SU1950-0DQ80-0AA0



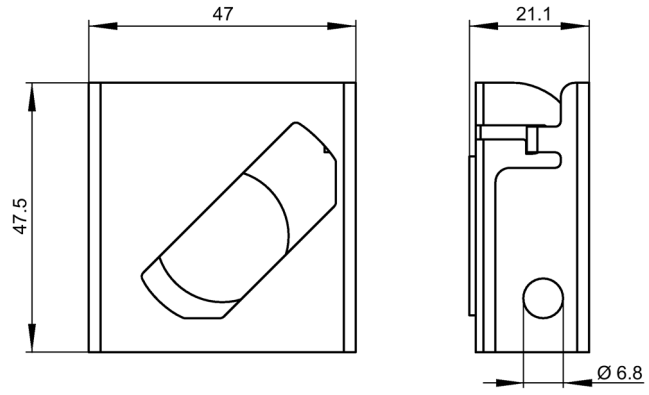
Locking device for selector switches, in the center position

Article No.: 3SU1950-0DR80-0AA0



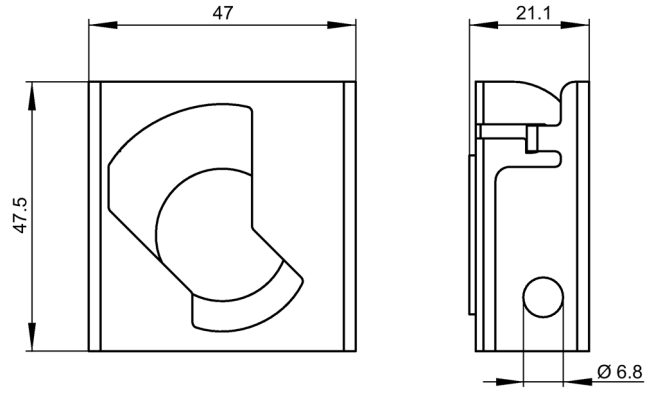
Locking device for selector switches, in the right position

Article No.: 3SU1950-0DS80-0AA0



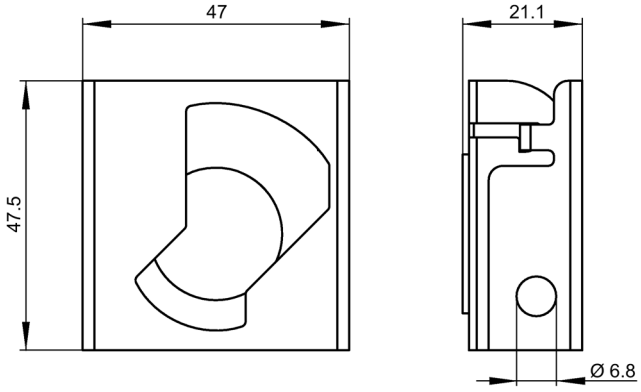
Locking device for selector switches, window from center to left, blocked on right

Article No.: 3SU1950-0DU80-0AA0



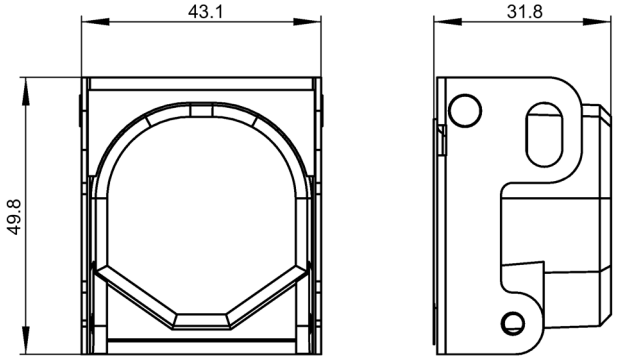
Locking device for selector switches, window from center to right, blocked on left

Article No.: 3SU1950-0DT80-0AA0



Cover for locking device

Article No.: 3SU1950-0DV80-0AA0

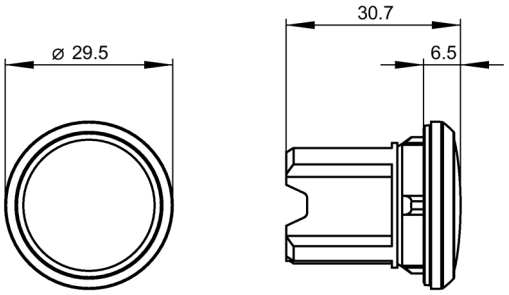


15.8.3 Actuators

Sealing plug

Article No.: 3SU1950-0FA80-0AA0

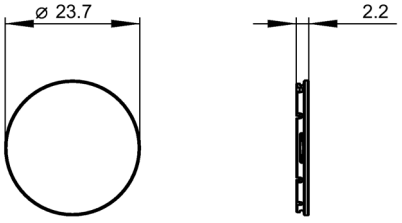
3SU19(0,3,5)0-0FA(1,8)0-0AA0



Flat button

Article No.: 3SU1900-0FT20-0AA0

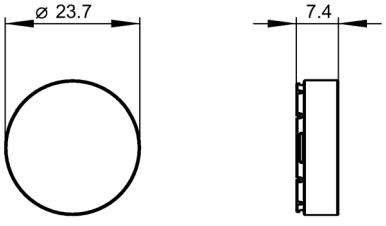
3SU190(0,1)-0FT.0-0AA0



Raised button

Article No.: 3SU1900-0FS20-0AA0

3SU190(0,1)-0FS.0-0AA0

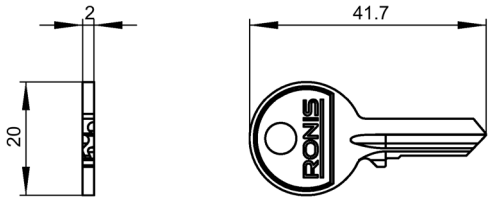


15.8.4 Keys

Ronis keys

Article No.: 3SU1950-0FB80-0AA0

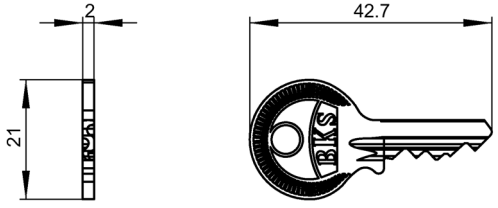
3SU1950-0F(B,C)80-0AA0



BKS keys

Article No.: 3SU1950-0FD80-0AA0

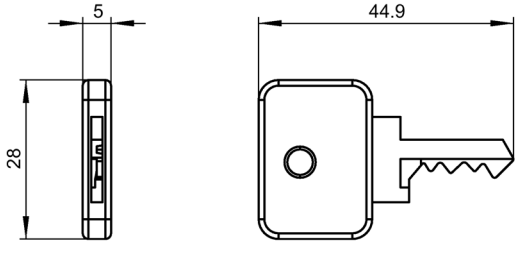
3SU1950-0F(D,E,F,G,H)80-0AA0



OMR keys

Article No.: 3SU1950-0FJ50-0AA0

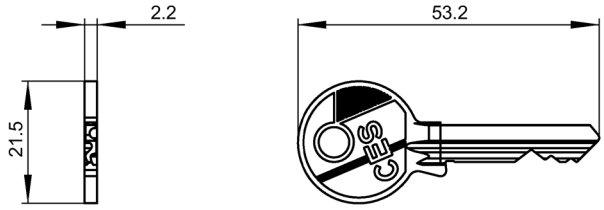
3SU1950-0F(J,K,L,M)(1,2,3,5)0-0AA0



CES LSG1 keys

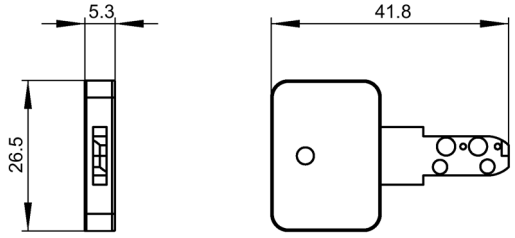
Article No.: 3SU1950-0FN80-0AA0

3SU1950-0F(N,P)80-0AA0



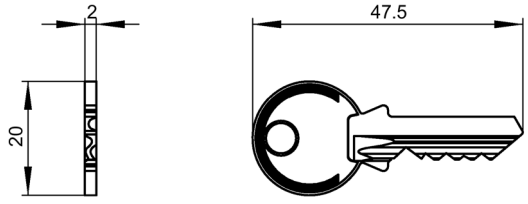
CES VL5 keys

Article No.: 3SU1950-0FQ80-0AA0



IKON keys

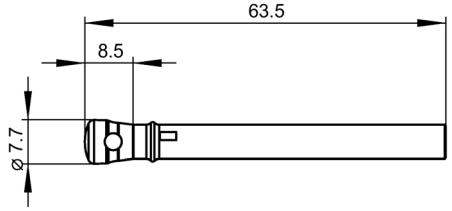
Article No.: 3SU1950-0FR80-0AA0



ID keys

Article No.: 3SU1900-0FV40-0AA0

3SU1900-0F(U,V,W,X,Y).0-0AA0

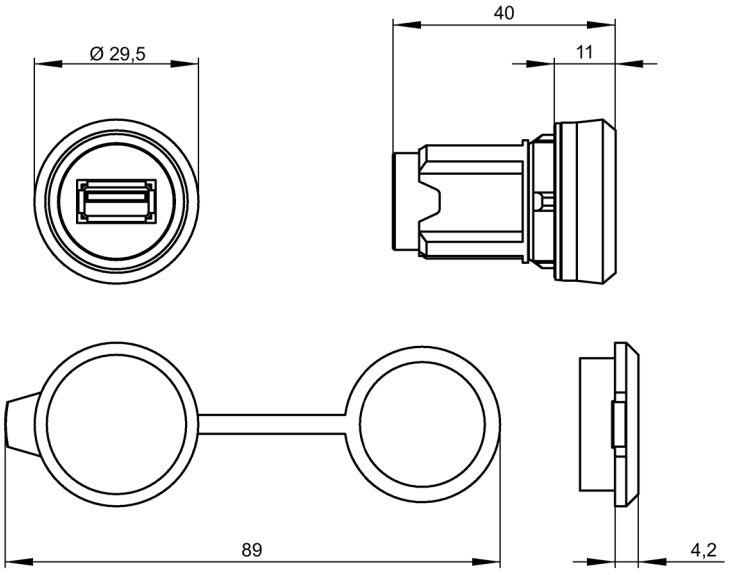


15.8.5 USB adapter

RJ45 adapter 22.5 mm

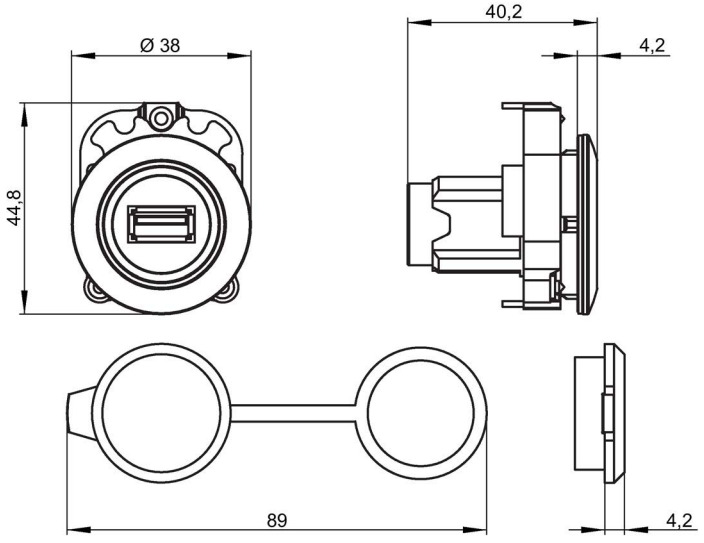
Article No.: 3SU1950-0GA80-0AA0

3SU19(0.3)0-0GA80-0AA0



RJ45 adapter 30.5 mm

Article No.: 3SU1960-0GA80-0AA0

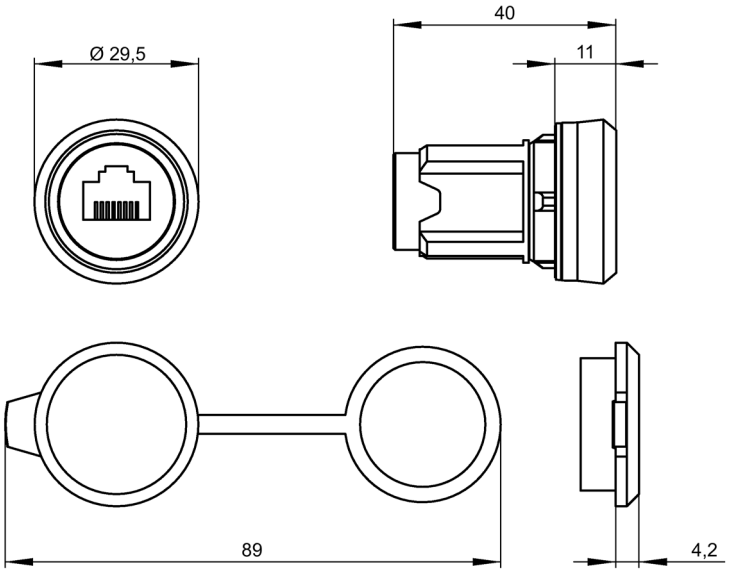


15.8.6 RJ45 adapter

RJ45 adapter 22.5 mm

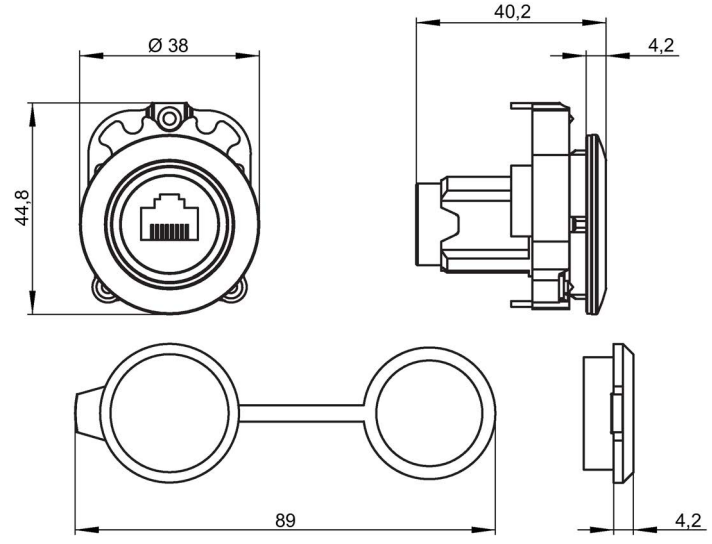
Article No.: 3SU1950-0GB80-0AA0

3SU19(0.3)0-0GB80-0AA0



RJ45 adapter 30.5 mm

Article No.: 3SU1960-0GB80-0AA0



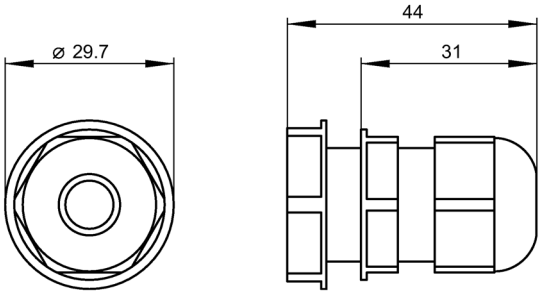
15.8.7 Accessories for enclosures

15.8.7.1 Cable glands and connection pieces

Cable glands for plastic enclosure

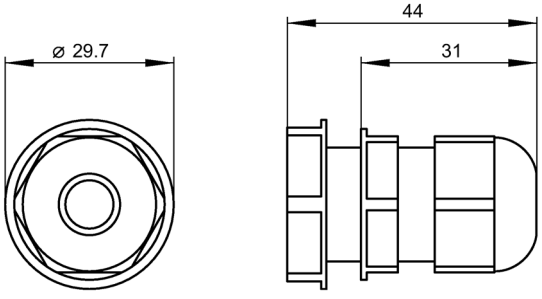
Metric M20 cable gland

Article No.: 3SU1900-0HG10-0AA0



Metric M25 cable gland

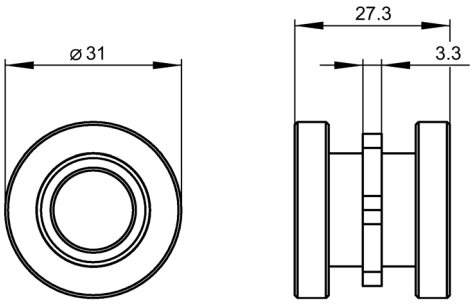
Article No.: 3SU1900-0HH10-0AA0



Connection pieces for plastic enclosures

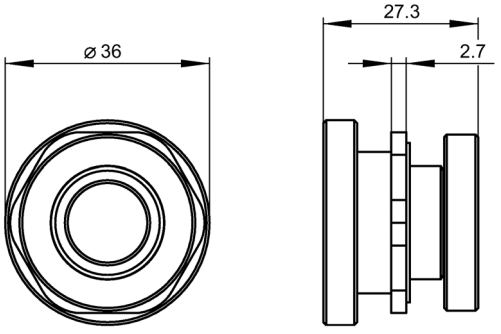
M20/M20 connection piece

Article No.: 3SU1900-0HJ10-0AA0



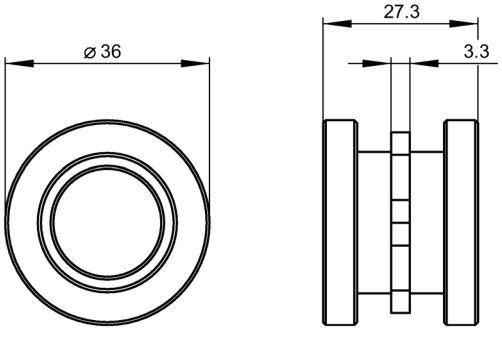
M20/M25 connection piece

Article No.: 3SU1900-0HK10-0AA0



M25/M25 connection piece

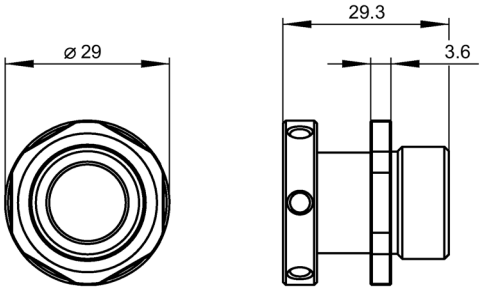
Article No.: 3SU1900-0HL10-0AA0



Connection pieces for metal enclosures

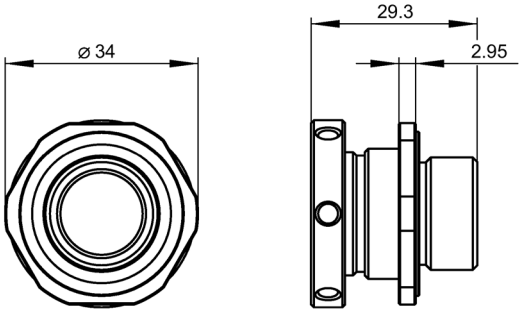
M20/M20 connection piece

Article No.: 3SU1950-0HJ10-0AA0



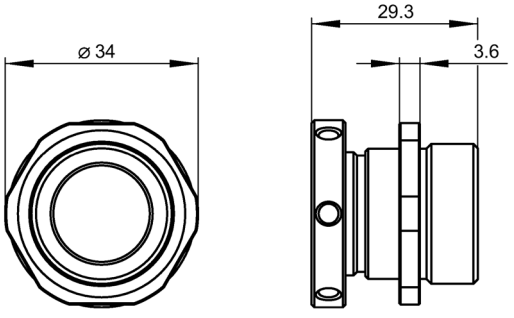
M20/M25 connection piece

Article No.: 3SU1950-0HK10-0AA0



M25/M25 connection piece

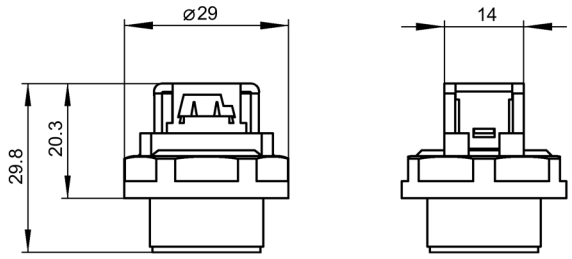
Article No.: 3SU1950-0HL10-0AA0



15.8.7.2 Adapters for AS-i shaped cables

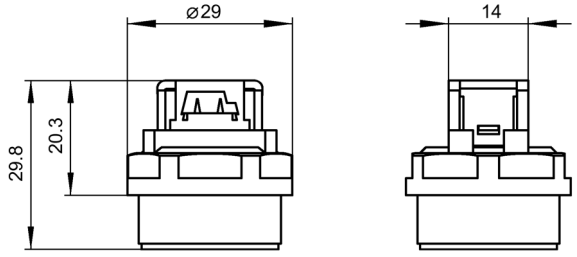
Adapter for AS-i shaped cables, insulation piercing method M20

Article No.: 3SU1900-0HX10-0AA0



Adapter for AS-i shaped cables, insulation piercing method M25

Article No.: 3SU1900-0HY10-0AA0



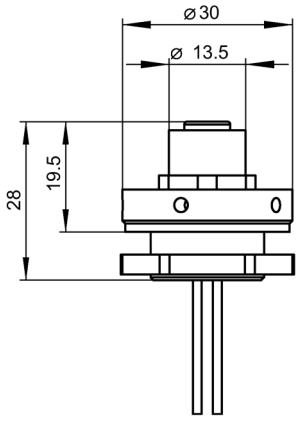
15.8.7.3 Adapters for AS-i tab connection

Adapter for plastic enclosure

M12 socket, M20

Article No.: 3SU1930-0HA10-0AA0

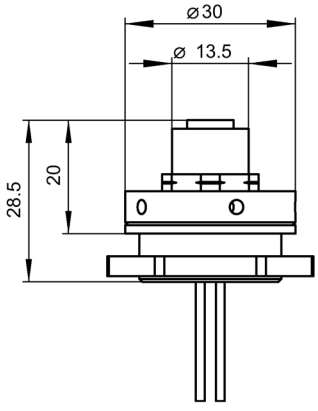
3SU1930-0H(A,P,T)10-0AA0



M12 socket, M25

Article No.: 3SU1930-0HB10-0AA0

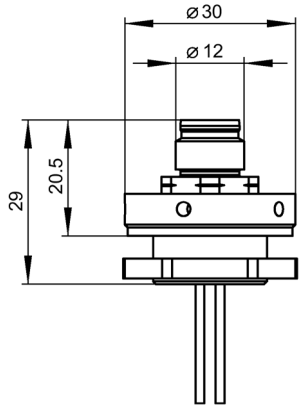
3SU1930-0H(B,Q,U)10-0AA0



M12 connector, M20

Article No.: 3SU1930-0HC10-0AA0

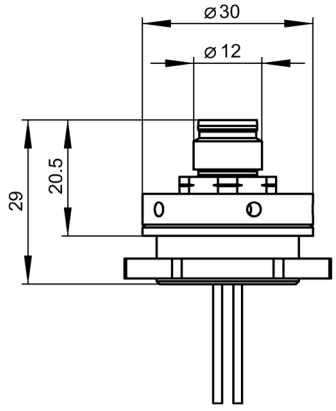
3SU1930-0H(C,R,V)10-0AA0



M12 connector, M25

Article No.: 3SU1930-0HD10-0AA0

3SU1930-0H(D,S,W)10-0AA0

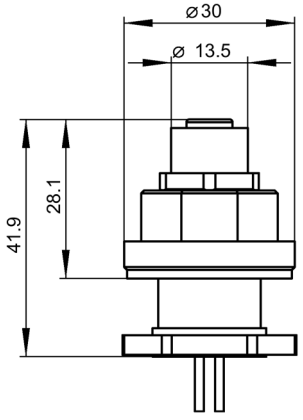


Adapter for metal enclosure

M12 socket, M20

Article No.: 3SU1950-0HA10-0AA0

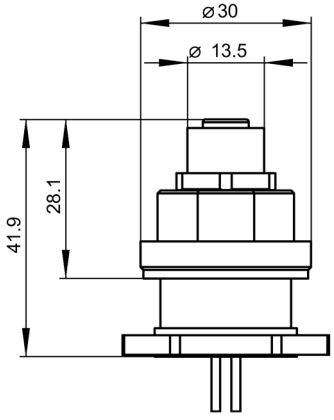
3SU1950-0H(A,P,T)10-0AA0



M12 socket, M25

Article No.: 3SU1950-0HB10-0AA0

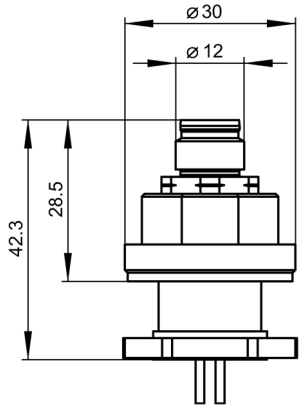
3SU1950-0H(B,Q,U)10-0AA0



M12 connector, M20

Article No.: 3SU1950-0HC10-0AA0

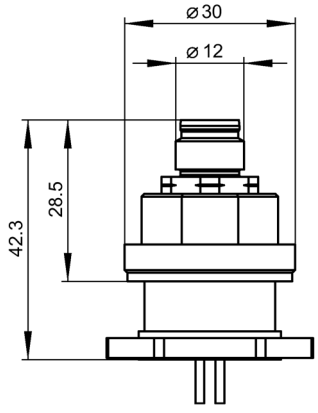
3SU1950-0H(C,R,V)10-0AA0



M12 connector, M25

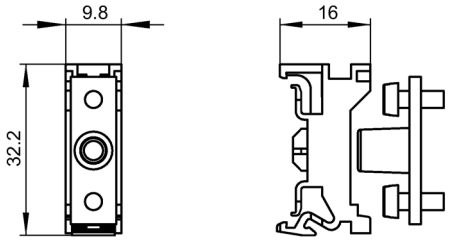
Article No.: 3SU1950-0HD10-0AA0

3SU1950-0H(D,S,W)10-0AA0



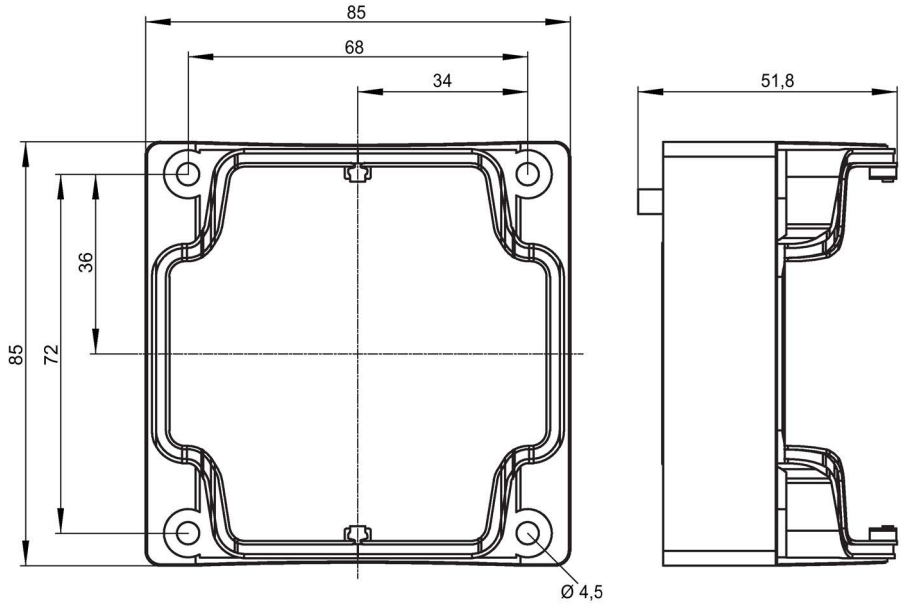
15.8.7.4 Enclosure cover monitoring

Article No.: 3SU1900-0HM10-0AA0



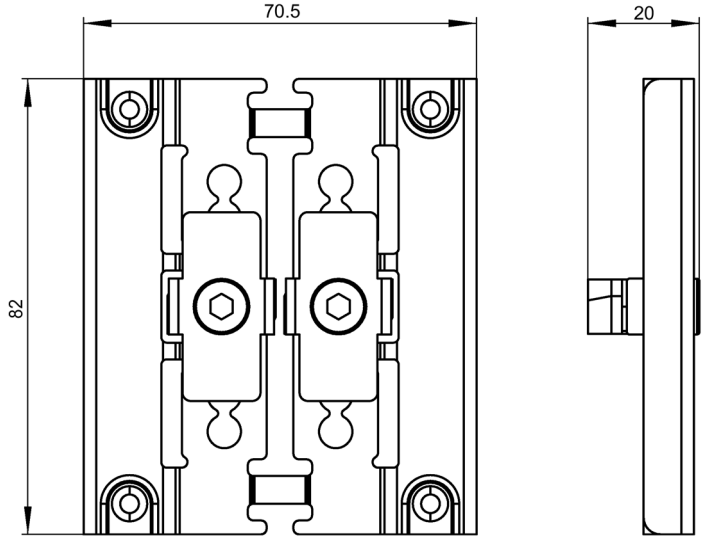
15.8.7.5 Enclosure adapter

Article No.: 3SU1900-0JF10-0AA0



15.8.7.6 Enclosure mounting adapter

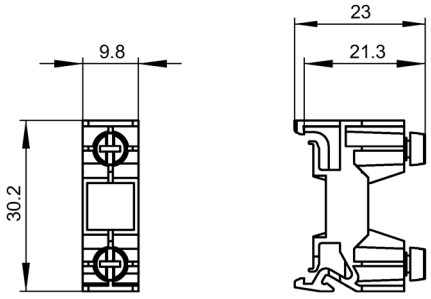
Article No.: 3SU1950-0JE80-0AA0



15.8.8 Miscellaneous accessories

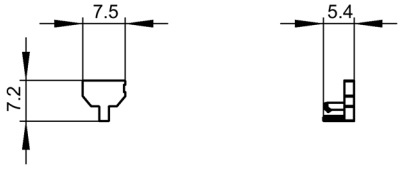
PCB carrier

Article No.: 3SU1900-0KA10-0AA0



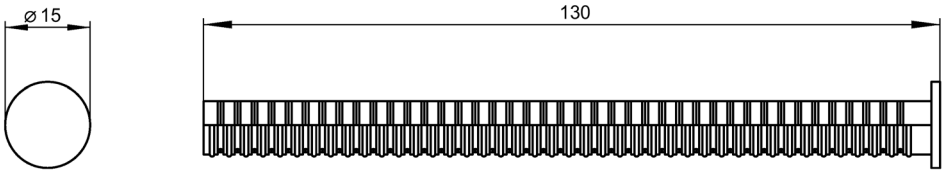
Pressure plate for selectors and locks

Article No.: 3SU1900-0KC10-0AA0



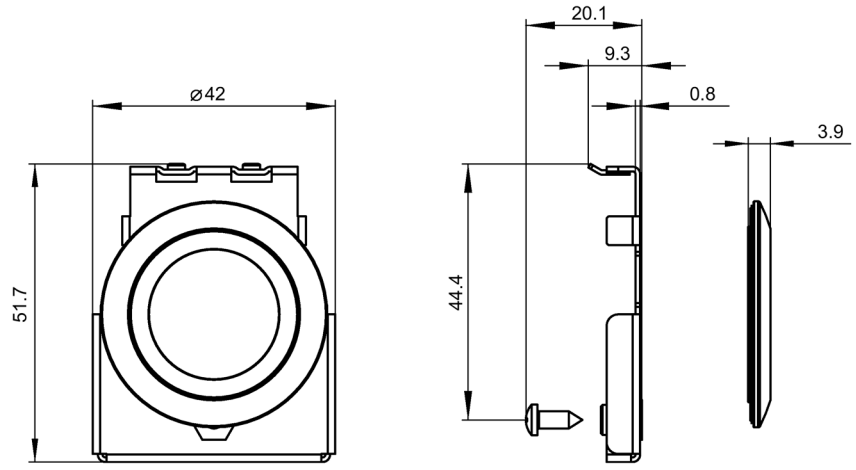
Extension plungers

Article No.: 3SU1900-0KG10-0AA0



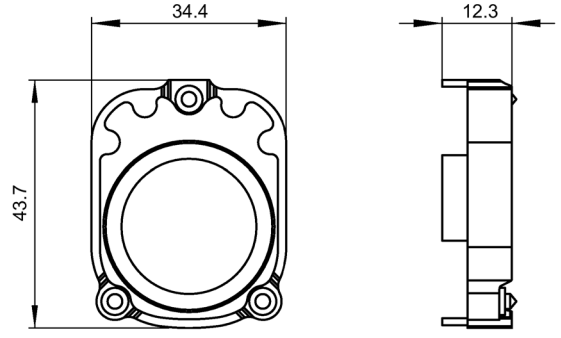
Adapter for installing 22.5 mm actuators in a 30.5 mm mounting hole

Article No.: 3SU1950-0KB10-0AA0; 3SU1960-0KB10-0AA0



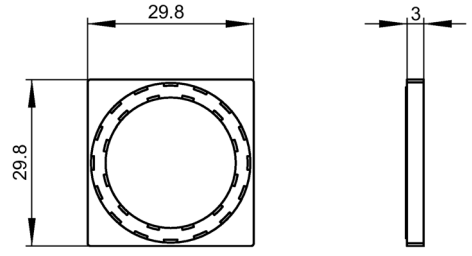
Adapter for actuators and indicators with front ring for flat mounting

Article No.: 3SU1950-0KJ80-0AA0



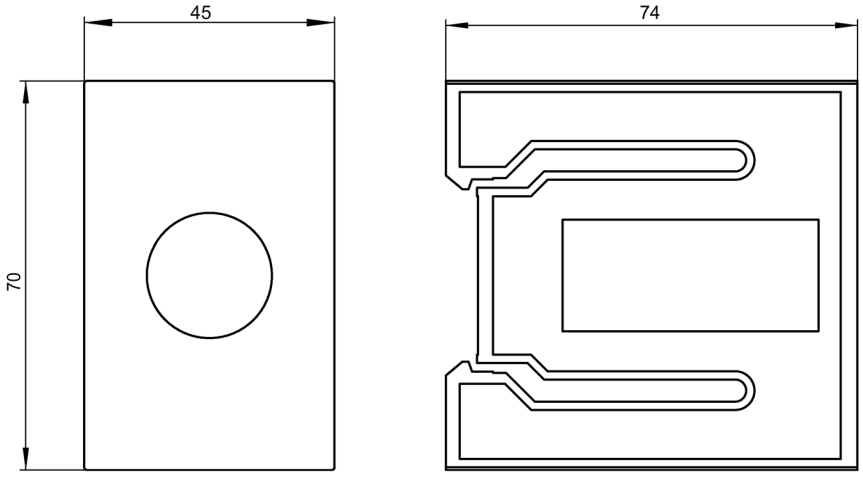
Square single frame

Article No.: 3SU1900-0AX10-0AA0



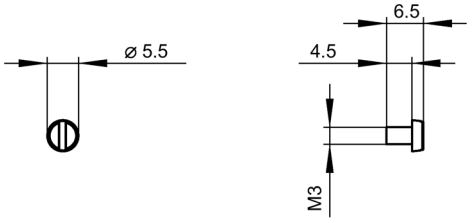
Standard mounting rail adapter

Article No.: 3SU1900-0KH80-0AA0



Grounding stud

Article No.: 3SU1950-0KK80-0AA0



Application examples

16

16.1 Examples of EMERGENCY STOP shutdown applications

16.1.1 Emergency stop shutdown to SIL 3 or PL e with a safety relay

Application

Two-channel emergency stop shutdown of a motor by a 3SK1 safety relay and power contactors.

Configuration

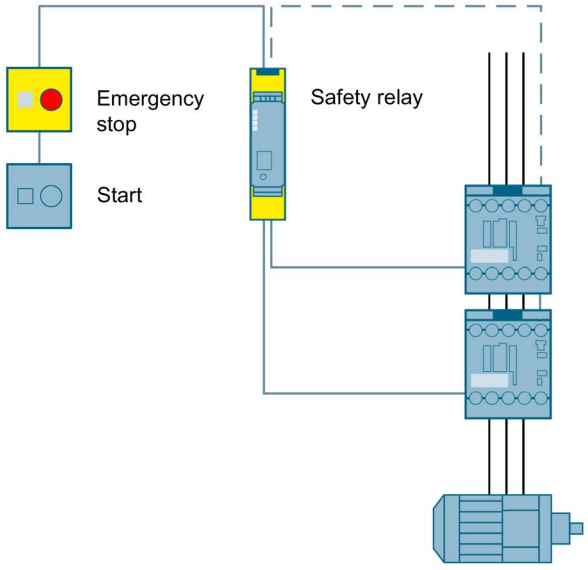
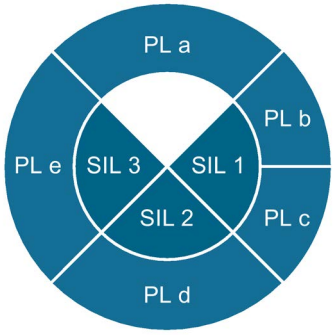


Figure 16-1 Emergency stop shutdown to SIL 3 or PL e with a safety relay

Operating principle

The safety relay monitors the emergency stop device on two channels. When the emergency stop device is actuated, the safety relay opens the enabling circuits and switches the power contactors off in a safety-related way. If the emergency stop device is unlatched and the feedback circuit is closed, the Start button can be used to switch on again.



Safety-related components

Emergency stop device	Safety relay	Contactor
		
3SU1	3SK1	2x 3RT20

16.1.2 Emergency stop shutdown via AS-i with a Modular Safety System to SIL 3 or PL e

Application

Monitoring of multiple emergency stop devices via AS-i with a 3RK3 Modular Safety System.

Configuration

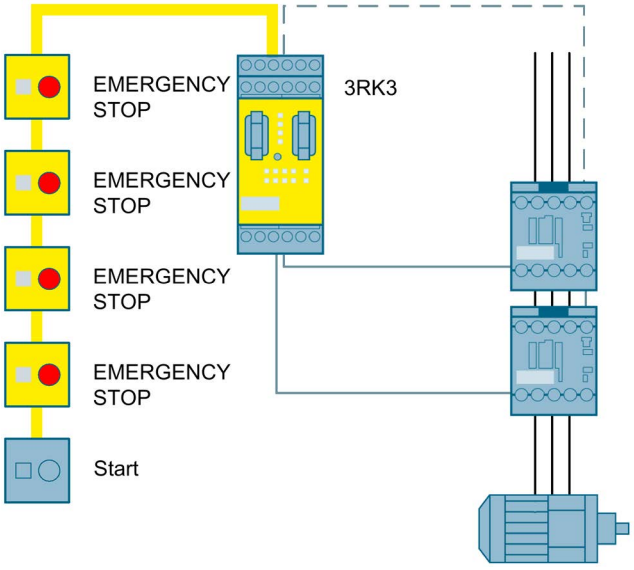
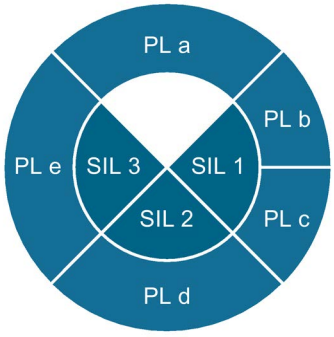


Figure 16-2 Emergency stop shutdown via AS-i to SIL 3 or PL e with a Modular Safety System

Operating principle

The Modular Safety System monitors each of the two-channel emergency stop devices connected to AS-i. When one of the emergency stop devices is actuated, the Modular Safety System opens the enabling circuits and switches the power contactors off in a safety-related way. If the emergency stop device is unlatched and the feedback circuit is closed, the Start button can be used to switch on again.



Safety-related components

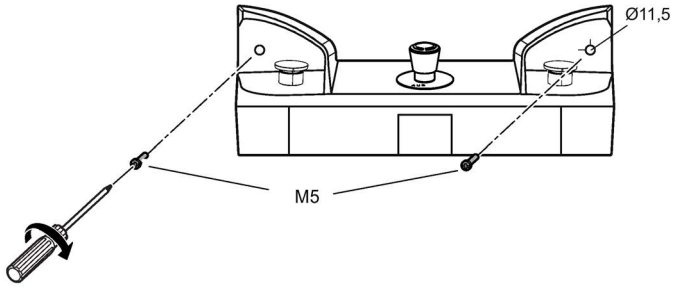
Emergency stop device	Modular Safety System	Contactor
		
3SU1	3RK3	2 x 3RT20

Note

In addition to the safety-related components, operation of an AS-i network requires an AS-i master and an AS-i power supply.

16.2 Examples of two-hand operation console applications

Two-hand operation console, wall-mounted



For further examples of applications refer to Chapter "Application examples (Page 583)"

16.2.1 Safety Evaluation Tool

The Safety Evaluation Tool for the standards IEC 62061 and ISO 13849-1 gets you straight to your goal. This TÜV-tested online tool provides you with swift and reliable help in assessing the safety functions of your machine. It provides you with a standard-compliant report that can be integrated into the documentation as a safety verification.

Link: Safety Evaluation Tool (http://www.industry.siemens.com/topics/global/en/safety-integrated/maschinensicherheit/safety-evaluation-tool/Seiten/default.aspx)

16.2.2 Two-hand operation to SIL 3 or PL e with a safety relay

Application

Two-hand operation consoles comprise two pushbuttons (e.g. mushroom pushbuttons or sensor switches) that must be pressed simultaneously to operate a machine. This prevents the operator from reaching into the danger zone during operation.

Configuration

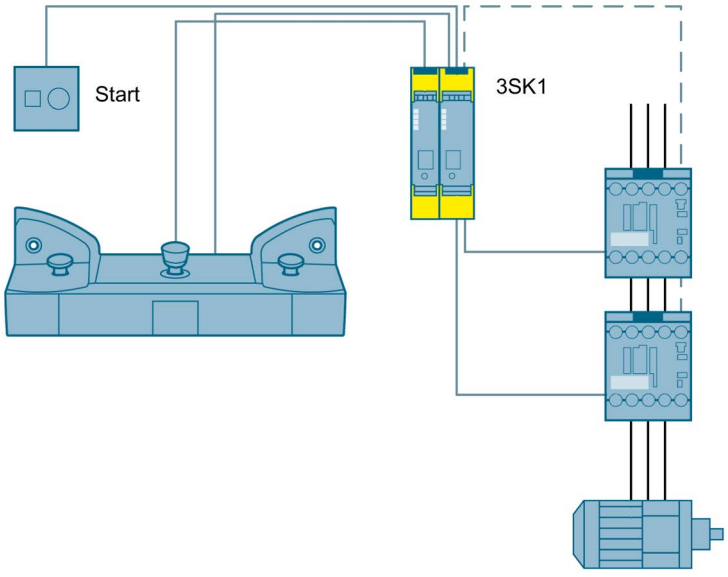


Figure 16-3 Two-hand operation to SIL 3 or PL e with a safety relay

You can find more information on the Internet.

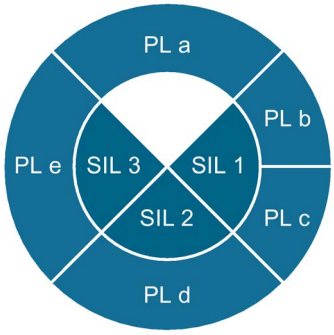
Link: Siemens Industry Online Support (https://support.industry.siemens.com/cs/document/109479531/sirius-act-sensor-buttons-in-two-hand-control-station-?dti=0&lc=en-DE)

Operating principle

By imposing the condition of simultaneous pressing of both pushbuttons, the operator is restricted to the two-hand operation console and is thus unable to reach into the danger zone. The safety relay only switches the enabling circuits when both signals are active within 500 ms and the feedback circuit is closed.

If one of the two pushbuttons is released, the safety relay immediately switches the machine off in a safety-related manner.

After the emergency stop is actuated, the Start button must be used to restart.



Safety-related components

Two-hand operation console	Safety relay	Input expansion	Contactor
			
3SU18	3SK1	3SK1	2x 3RT20

16.2.3 Two-hand operation to SIL 3 or PL e with a Modular Safety System

Application

Two-hand operation consoles comprise two pushbuttons (e.g. mushroom pushbuttons or sensor switches) that must be pressed simultaneously to operate a machine. This prevents the operator from reaching into the danger zone during operation.

Configuration

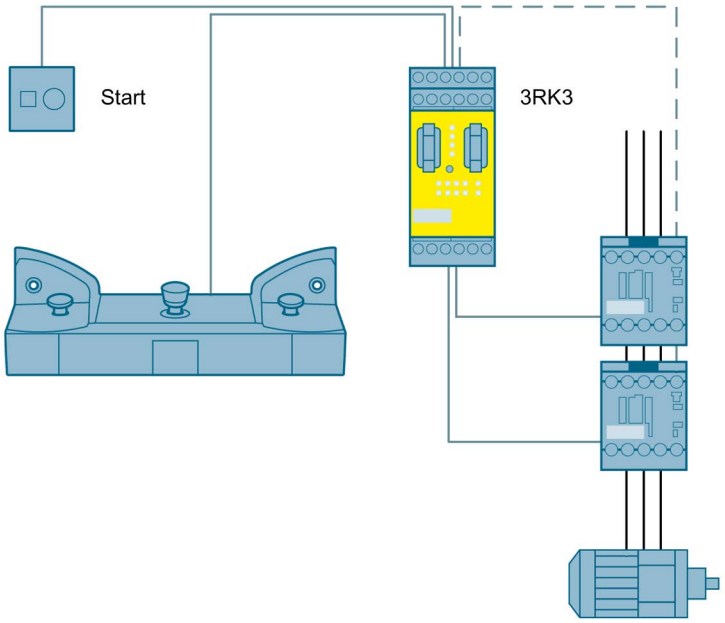
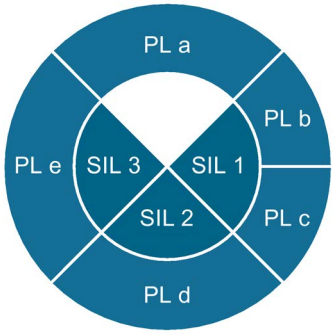


Figure 16-4 Two-hand operation to SIL 3 or PL e with a Modular Safety System

Operating principle

By imposing the condition of simultaneous pressing of both pushbuttons, the operator is restricted to the two-hand operation console and is thus unable to reach into the danger zone. The Modular Safety System only switches the enabling circuits when both signals are active within 500 ms and the feedback circuit is closed.



If one of the two pushbuttons is released, the Modular Safety System immediately switches the machine off in a safety-related manner.

The four-channel design in the two-hand operation console ensures that possible welding of one of the contacts is detected immediately.

After the emergency stop device is actuated, the Start button must be used to restart.

Safety-related components

Two-hand operation console	Modular Safety System	Contactor
		
3SU18	3RK3	2x 3RT20

You will find further information about the use of sensor switches in the two-hand operation console (wiring to Siemens safety relays and safety design) in the following FAQs: Sensor switches in the two-hand operation console (https://support.industry.siemens.com/cs/document/109479531/Einsatz)

16.3 Application examples for ID key-operated switches

Machine tool application

Generally with special-purpose applications on a machine tool

Selection of optional assemblies with 2 differently encoded ID keys / 2 user groups

 **Module 1**	 **Module 2**	 **Module 3**	 **Module 4**
• Drill 1 User authorization	• Drill 1 User authorization • Drill 1+2	• Drill 1 • Usage authorization • Drill 1+2 • Milling machine 1	• Drill 1 User authorization Drill 1+2 • Milling machine 1 • Milling machine 1+2
• **Added value**: Registration of the use of the supplementary devices			

Production line application

Generally with special-purpose applications on a production line, e.g. in automobile manufacture

Mode selector of a measuring machine with 4 differently encoded ID keys / 4 user groups.

 **Automatic mode (operating personnel)**	 **Setting / maintenance mode (setting engineer)**	 **Manual mode (service personnel)**	 **Calibration mode (calibration service)**
• Normal process cycle • Manual infeed and removal	• Setting up the machine for manufacturing a new part • Setting • Cleaning	• Step-by-step switching of the functions in the machine possible to determine the step where the fault occurs	• A special section in the control program is used to align the machine • The machine is provided with a sample part and carries out calibration with that
• **Added value:**Registration of the time required for production	• **Added value**: Registering the time required for setting	• **Added value**: Registration of the fault times / fault frequency	• **Added value**: Registration of the time required for calibration

Appendix

A

A.1 Process data and data sets

A.1.1 Electronic module for ID key-operated switches

A.1.1.1 Structure of the data sets

Overview of the data sets

Table A- 1 Data sets - overview

Data set			Name	Access	Value	Length (bytes)
Index (dec)	Index (hex)	Subindex supported				
0	0	Yes	**Parameter Page 1**	r / w	—	16
2	2	Yes	System Command	w	—	1
3	3	Yes	Data Storage	r / w	—	24
12	0C	No	Device Access locks	r / w	—	2
16	10	No	Vendor Name	r	Siemens AG	10
17	11	No	Vendor Text	r	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)	64
18	12	No	Product Name	r	SIRIUS ACT electronic module for ID key-operated switch	55
19	13	No	Product ID	r	3SU1400-1GD10-1AA0	18
23	17	No	Firmware Revision	r	—	5
24	18	No	Application Specific Name	r / w	—	32
69	45	Yes	Process Data In	r	—	6
79	4F	Yes	Add individually encodable ID key Dataset 79	r / w	—	6
80	50	Yes	Delete individually codable ID key, data set 80	r / w	—	5
81	51	Yes	Memory for the individually codable ID keys (1-30) data set 81	r	—	180
82	52	Yes	Memory for the individually codable ID keys (31-50) data set 82	r	—	120

Data set			Name	Access	Value	Length (bytes)
Index (dec)	Index (hex)	Subindex supported				
92	5C	Yes	Diagnostics - data set 92	r	—	20
94	5E	Yes	Diagnostics - data set 94	r	—	22
131	83	Yes	Parameters - data set 131	r / w	—	20

A.1.1.2 IO-Link communication parameters

Parameter Page 1 - IO-Link communication parameters

Table A- 2 Parameter Page 1

Address	Parameter name	Access	Description
0x00	Master Command	w	—
0x01	Master Cycle Time	r / w	—
0x02	Min. Cycle Time	r	FW 1.4.0 or FW 2.0.0 in compatibility mode: 0x6e FW 2.0.0: 0x32
0x03	M-Sequence Capability	r	0x11
0x04	IO-Link Revision ID	r / w	0x11
0x05	Process data IN	r	FW 1.4.0 or FW 2.0.0 in compatibility mode: 0x50 FW 2.0.0: 0x10
0x06	Process data OUT	r	0x00
0x07	Vendor ID 1	r	0x00
0x08	Vendor ID 2	r	0x2a
0x09	Device ID 1	r / w	0x0c
0x0A	Device ID 2	r / w	0x03
0x0B	Device ID 3	r / w	FW 1.4.0 or FW 2.0.0 in compatibility mode: 0x01 FW 2.0.0: 0x02
0x0C	Function ID 1	r	0x00
0x0D	Function ID 2	r	0x00
0x0E	Reserved	r	—
0x0F	System Command	w	—

A.1.1.3 Identification data

Identification data

Identification data refers to data stored in a module that supports users in the following areas:

- When checking the system configuration
- When locating modified system hardware
- When troubleshooting a system.

Modules can be uniquely identified using the identification data.

Table A- 3 Identification data of the electronic modules for ID key-operated switches for IO-Link

DPP [1]	Data set	Access	Parameter	Length (bytes)	Default setting
Index (dec)	Index (dec)				
0x07 (7)	—	r	Vendor ID	2	0x00
0x08 (8)	—	r			0x2A
0x09 (9)	—	r	Device ID	3	0x0C
0x0A (10)	—	r			0x03
0x0B (11)	—	r			FW 1.4.0 or FW 2.0.0 in compatibility mode: 0x01 FW 2.0.0: 0x02
—	0x10 (16)	r	Vendor Name	11	SIEMENS AG
—	0x11 (17)	r	Vendor Text	64 max.	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)
—	0x12 (18)	r	Product Name	64 max.	SIRIUS ACT electronic module for ID key-operated switch
—	0x13 (19)	r	Product ID	18	3SU1400-1GD10-1AA0
—	0x17 (23)	r	Firmware Revision	7	*Firmware version*
—	0x18 (24)	r / w	Application Specific Name	32 max.	—

[1] Direct Parameter Page

A.1.1.4 System commands - data set (index) 2

Data set (index) 2 - system commands

Table A- 4 Data set (index) 2 - system commands

Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
0x02 (2)	w	System Command[1)]	1	—

[1)] Permissible vendor-specific system commands (firmware-specific):

	FW 1.4.0 (or FW 2.0.0 in compatibility mode)	FW 2.0.0 – supported command
Set authorization level 1 (system command 161 (0xA1))	YES	NO
Set authorization level 2 (system command 162 (0xA2))	YES	NO
Set authorization level 3 (system command 163 (0xA3))	YES	NO
Set authorization level 4 (system command 164 (0xA4))	YES	NO
Delete individually encodable ID key (system command 165 (0xA5))	YES	YES
Delete individually encodable ID key using data set 80 (system command 166 (0xA6))	YES	YES
Delete all ID keys (system command 167 (0xA7))	YES	YES
Add inserted ID key (system command 168 (0xA8))	NO	YES
Add ID key using its number (system command 169 (0xA9))	NO	YES

The new, individually encodable ID key can be added on the basis of the following system commands:

Add ID key - system command	
System command: Index: 2, subindex: 0	
168 [0xA8]hex	Add inserted ID key
169 [0xA9]hex	Add ID key using its number

These new system commands are not supported in compatibility mode.

A.1.1.5 Add individually encodable ID key - dataset (index) 79

Data set (index) 79 - add individually encodable ID key

The dataset 79 is available as of FW 2.0.0.

Table A- 5 Data set (index) 79 - add individually encodable ID key

Byte.Bit	Subindex	Description
0.0 ... 4.7	1	ID number of the individually encodable ID key
5.0	2	Level 1 activated / deactivated
5.1	3	Level 2 activated / deactivated
5.2	4	Level 3 activated / deactivated
5.3	5	Level 4 activated / deactivated

A.1.1.6 Delete individually encodable ID key - data set (index) 80

Data set (index) 80- delete individually encodable ID key

Table A- 6 Data set (index) 80- delete individually encodable ID key

Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
0x50 (80)	r / w	Identification number of the individually encodable ID key to be deleted	5	—

A.1.1.7 Memory for the individually encodable ID keys (1-30) - data set (index) 81

Data set (index) 81- memory for the individually encodable ID keys

Table A- 7 Data set (index) 81- memory for the individually encodable ID keys

Byte.Bit	Subindex	Description
0.0 ... 4.7	1	Key 1
5.0 ... 5.7	2	Authorization level for key 1
6.0 ... 10.7	3	Key 2
11.0 ... 11.7	4	Authorization level for key 2
12.0 ... 16.7	5	Key 3
17.0 ... 17.7	6	Authorization level for key 3
18.0 ... 22.7	7	Key 4
23.0 ... 23.7	8	Authorization level for key 4
24.0 ... 28.7	9	Key 5
29.0 ... 29.7	10	Authorization level for key 5
30.0 ... 34.7	11	Key 6
35.0 ... 35.7	12	Authorization level for key 6
36.0 ... 40.7	13	Key 7
41.0 ... 41.7	14	Authorization level for key 7
42.0 ... 46.7	15	Key 8
47.0 ... 47.7	16	Authorization level for key 8
48.0 ... 52.7	17	Key 9
53.0 ... 53.7	18	Authorization level for key 9
54.0 ... 58.7	19	Key 10
59.0 ... 59.7	20	Authorization level for key 10
60.0 ... 64.7	21	Key 11
65.0 ... 65.7	22	Authorization level for key 11
66.0 ... 70.7	23	Key 12
71.0 ... 71.7	24	Authorization level for key 12
72.0 ... 76.7	25	Key 13
77.0 ... 77.7	26	Authorization level for key 13
78.0 ... 82.7	27	Key 14
83.0 ... 83.7	28	Authorization level for key 14
84.0 ... 88.7	29	Key 15
89.0 ... 89.7	30	Authorization level for key 15
90.0 ... 94.7	31	Key 16
95.0 ... 95.7	32	Authorization level for key 16
96.0 ... 100.7	33	Key 17
101.0 ... 101.7	34	Authorization level for key 17
102.0 ... 106.7	35	Key 18
107.0 ... 107.7	36	Authorization level for key 18

Byte.Bit	Subindex	Description
108.0 ... 112.7	37	Key 19
113.0 ... 113.7	38	Authorization level for key 19
114.0 ... 118.7	39	Key 20
119.0 ... 119.7	40	Authorization level for key 20
120.0 ... 124.7	41	Key 21
125.0 ... 125.7	42	Authorization level for key 21
126.0 ... 130.7	43	Key 22
131.0 ... 131.7	44	Authorization level for key 22
132.0 ... 136.7	45	Key 23
137.0 ... 137.7	46	Authorization level for key 23
138.0 ... 142.7	47	Key 24
143.0 ... 143.7	48	Authorization level for key 24
144.0 ... 148.7	49	Key 25
149.0 ... 149.7	50	Authorization level for key 25
150.0 ... 154.7	51	Key 26
155.0 ... 155.7	52	Authorization level for key 26
156.0 ... 160.7	53	Key 27
161.0 ... 161.7	54	Authorization level for key 27
162.0 ... 166.7	55	Key 28
167.0 ... 167.7	56	Authorization level for key 28
168.0 ... 172.7	57	Key 29
173.0 ... 173.7	58	Authorization level for key 29
174.0 ... 178.7	59	Key 30
179.0 ... 179.7	60	Authorization level for key 30

A.1.1.8 Memory for the individually encodable ID keys (31-50) - data set (index) 82

Data set (index) 82- memory for the individually encodable ID keys

Table A- 8 Data set (index) 82- memory for the individually encodable ID keys

Byte.Bit	Subindex	Description
0.0 ... 4.7	1	Key 31
5.0 ... 5.7	2	Authorization level for key 31
6.0 ... 10.7	3	Key 32
11.0 ... 11.7	4	Authorization level for key 32
12.0 ... 16.7	5	Key 33
17.0 ... 17.7	6	Authorization level for key 33
18.0 ... 22.7	7	Key 34
23.0 ... 23.7	8	Authorization level for key 34
24.0 ... 28.7	9	Key 35
29.0 ... 29.7	10	Authorization level for key 35
30.0 ... 34.7	11	Key 36
35.0 ... 35.7	12	Authorization level for key 36
36.0 ... 40.7	13	Key 37
41.0 ... 41.7	14	Authorization level for key 37
42.0 ... 46.7	15	Key 38
47.0 ... 47.7	16	Authorization level for key 38
48.0 ... 52.7	17	Key 39
53.0 ... 53.7	18	Authorization level for key 39
54.0 ... 58.7	19	Key 40
59.0 ... 59.7	20	Authorization level for key 40
60.0 ... 64.7	21	Key 41
65.0 ... 65.7	22	Authorization level for key 41
66.0 ... 70.7	23	Key 42
71.0 ... 71.7	24	Authorization level for key 42
72.0 ... 76.7	25	Key 43
77.0 ... 77.7	26	Authorization level for key 43
78.0 ... 82.7	27	Key 44
83.0 ... 83.7	28	Authorization level for key 44
84.0 ... 88.7	29	Key 45
89.0 ... 89.7	30	Authorization level for key 45
90.0 ... 94.7	31	Key 46
95.0 ... 95.7	32	Authorization level for key 46
96.0 ... 100.7	33	Key 47
101.0 ... 101.7	34	Authorization level for key 47
102.0 ... 106.7	35	Key 48
107.0 ... 107.7	36	Authorization level for key 48

Byte.Bit	Subindex	Description
108.0 ... 112.7	37	Key 49
113.0 ... 113.7	38	Authorization level for key 49
114.0 ... 118.7	39	Key 50
119.0 ... 119.7	40	Authorization level for key 50

A.1.1.9 Diagnostics - data set (index) 92

Data set (index) 92 - diagnostics

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 9 Data set (index) 92 - diagnostics

Byte.Bit	Subindex	Description
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Ready
16.1	5	Group error
16.2	6	Reserved
16.3	7	Reserved
16.4	8	Reserved
16.5	9	Reserved
16.6	10	Reserved
16.7	11	Reserved
17.0	12	Digital output 0
17.1	13	Digital output 1
17.2	14	Digital output 2
17.3	15	Digital output 3
17.4	16	Digital output 4
17.5	17	Reserved
17.6	18	Reserved
17.7	19	Reserved
18.0	20	Detection of the ID key
19.0 ... 19.7	21	Status of the individually encodable ID key

A.1.1.10 Diagnostics - dataset (index) 92 (FW 2.0.0 or higher)

Data set (index) 92 - diagnostics

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 10 Data set (index) 92 - diagnostics

Byte.Bit	Subindex	Description
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Ready
16.1	5	Group error
16.2	6	Reserved
16.3	7	Reserved
16.4	8	Reserved
16.5	9	Reserved
16.6	10	Reserved
16.7	11	Reserved
17.0	12	Digital output 0
17.1	13	Digital output 1
17.2	14	Digital output 2
17.3	15	Digital output 3
17.4	16	Digital output 4
17.5	17	Reserved
17.6	18	Reserved
17.7	19	Reserved
18.0	20	Detection of the ID key
19.0 ... 19.7	21	Status of the individually encodable ID key 0: ID key added / deleted (no errors) 1: Memory full 2: Attempted addition/deletion of an ID key that is invalid 3: Attempted deletion of an ID key that is not in the memory

A.1.1.11 Diagnostics - data set (index) 94

Data set (index) 94 (ID keys)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 11 Data set (index) 94 (ID keys)

Byte.Bit	Subindex	Description
0.0 ... 15.7	1 ... 3	Reserved
16.0 ... 20.7	4	Identification number of the individually codable ID key
21.0 ... 21.2	5	Authorization level
21.3 ... 21.5	6	Key position

A.1.1.12 Diagnostics - dataset (index) 94 (FW 2.0.0 or higher)

Data set (index) 94 (ID keys)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 12 Data set (index) 94 (ID keys)

Byte.Bit	Subindex	Description
0.0 ... 15.7	1 ... 3	Reserved
16.0 ... 20.7	4	Identification number of the individually codable ID key
21.0 … 21.3	5	Authorization level
21.4 … 21.7	6	Key position

A.1.1.13 Parameters - Data set (index) 131

Data set (index) 131 (parameters)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 13 Data set (index) 131 (parameters)

Byte.Bit	Subindex	Description
Operating system functions		
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Switch in stages Default: [0] [0] disabled [1] enabled
16.1	5	Switch position memory Default: [0] [0] disabled (key position = 0) [1] enabled (last key position is retained)
16.2	6	Switch position retentive memory: Default: [0] [0] disabled [1] enabled
16.3	7	Individually encodable ID keys only: Default: [0] [0] disabled [1] enabled
17.0 ... 17.7	8	Switch position delay Type: 8-bit unsigned (byte) Resolution: 0.1 s = 1 Default: 20 Min: 1 or 0 (disabled) Max: 100 * 0.1 s = 10 s
18.0 ... 18.7	9	Select memory range Default [1] Min: 1 Max: 5
19.0 ... 19.7	—	Reserved

A.1.1.14 Parameters - Data set (index) 131 (from FW 2.0.0)

Data set (index) 131 (parameters)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 14 Data set (index) 131 (parameters)

Byte.Bit	Subindex	Description
Operating system functions		
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Switch in stages Default: [0] [0] disabled [1] enabled
16.1	5	Switch position memory Default: [0] [0] disabled (key position = 0) [1] enabled (last key position is retained)
16.2	6	Switch position retentive memory: Default: [0] [0] disabled [1] enabled
16.3	7	Individually encodable ID keys only: Default: [0] [0] disabled [1] enabled
17.0 ... 17.7	8	Switch position delay Type: 8-bit unsigned (byte) Resolution: 0.1 s = 1 Default: 20 Min: 1 or 0 (disabled) Max: 100 * 0.1 s = 10 s
18.0 ... 18.7	9	Select memory range Default [1] Min: 1 Max: 5
19.0	10	Deactivation of the switch-off function Default [0] [0] A counter-clockwise rotation immediately switches off DQ.0 – DQ.3 [1] The counter-clockwise rotation reduces the switch position by one, according to the level of the inserted ID key
19.1 ... 19.7	—	Reserved

A.1.2 Electronic module for IO-Link

A.1.2.1 Structure of the data sets

Overview of the data sets

Table A- 15 Data sets - overview

Data set			Name	Access	Value	Length (bytes)
Index (dec)	Index (hex)	Subindex supported				
0	0	Yes	Parameter Page 1	r/w	—	16
2	2	Yes	System Command	w	—	1
3	3	Yes	Data Storage	r/w	—	18
12	0c	No	Device Access locks	r/w	—	2
16	10	No	Vendor Name	r	Siemens AG	10
17	11	No	Vendor Text	r	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)	64
18	12	No	Product Name	r	SIRIUS ACT 8DIQ electronic module for IO-Link	40
19	13	No	Product ID	r	3SU1400-2HL10-6AA0 (example of article number)	18
23	17	No	Firmware Revision	r	—	6
24	18	No	Application specific tag	r/w	—	32
67	43	Yes	Process Data Out	r	—	6
69	45	Yes	Process Data In	r	—	6
92	5c	Yes	Diagnostics - data set 92	r	—	24
94	5e	Yes	Diagnostics - data set 94	r	—	82
131	83	Yes	Parameters - data set 131	r/w	—	126

A.1.2.2 IO-Link communication parameters

Parameter Page 1 - IO-Link communication parameters

Address	Parameter name	Access	Description
0x00	Master-Command	w	
0x01	MasterCycle-Time	r/w	
0x02	MinCycle-Time	r	0x49
0x03	M-Sequence Capability	r	0x11
0x04	Revision ID	r/w	0x11
0x05	ProcessDataIn	r	0x50
0x06	ProcessDataOut	r	0x10
0x07	Vendor ID1	r	0x00
0x08	Vendor ID2	r	0x2a
0x09	Device ID1	r/w	0x04
0x0a	Device ID2	r/w	0x40
0x0b	Device ID3	r/w	0x01
0x0c	Function ID1	r	0x00
0x0d	Function ID2	r	0x00
0x0e	Reserved	r	
0x0f	System Command	w	

A.1.2.3 Identification data

Identification data

Identification data refers to data stored in a module that supports users in the following areas:

- When checking the system configuration
- When locating modified system hardware
- When troubleshooting a system.

Modules can be uniquely identified using the identification data.

Table A- 16 Identification data of the electronic modules for IO-Link

DPP [1]	Data set	Access	Parameter	Length (bytes)	Default setting
Index (dec)	Index (dec)				
7	—	r	Vendor ID	2	0x00
8	—	r			0x2A
9	—	r	Device ID	3	0x0C
10	—	r			0x03
11	—	r			0x01
—	16	r	Vendor Name	11	SIEMENS AG
—	17	r	Vendor Text	64 max.	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)
—	18	r	Product Name	64 max.	SIRIUS ACT 8DIQ electronic module for IO-Link
—	19	r	Product ID	18	3SU1400-2HL10-6AA0 (example of article number)
—	21	r	Serial Number	16	
—	22	r	Hardware Revision	6	
—	23	r	Firmware Revision	6	*Firmware version*
—	24	r/w	Application Specific Name	32 max.	—

[1] Direct Parameter Page

A.1.2.4 System commands - data set (index) 2

Data set (index) 2 - system commands

Table A- 17 Data set (index) 2 - system commands

Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
2	w	System Command[1)]	1	—

[1)] Permissible vendor-specific system commands:

0x81 for Application Reset
0x82 for Restore Factory Setting
0xA0 for Reset On-Duration Counter Input/Output 0
0xA1 for Reset On-Duration Counter Input/Output 1
0xA2 for Reset On-Duration Counter Input/Output 2
0xA3 for Reset On-Duration Counter Input/Output 3
0xA4 for Reset On-Duration Counter Input/Output 4
0xA5 for Reset On-Duration Counter Input/Output 5
0xA6 for Reset On-Duration Counter Input/Output 6
0xA7 for Reset On-Duration Counter Input/Output 7
0xA8 for Reset Switching Counter Input/Output 0
0xA9 for Reset Switching Counter Input/Output 1
0xAA for Reset Switching Counter Input/Output 2
0xAB for Reset Switching Counter Input/Output 3
0xAC for Reset Switching Counter Input/Output 4
0xAD for Reset Switching Counter Input/Output 5
0xAE for Reset Switching Counter Input/Output 6
0xAF for Reset Switching Counter Input/Output 7
0xB0 for Reset On-Duration Counter Input/Output 0 - 7
0xB1 for Reset Switching Counter Input/Output 0 - 7

A.1.2.5 Process Data Out - data set (index) 67

Data set (index) 67 (parameter)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 18 Data set (index) 67 (parameter), read access only

Byte.Bit	Subindex	Description	Value
Operating system functions			
0.0 ... 3.7	1	Reserved	
4.0	2	Output 0	[0x00] Output off [0x01] Output on
4.1	3	Output 1	
4.2	4	Output 2	
4.3	5	Output 3	
4.4	6	Output 4	
4.5	7	Output 5	
4.6	8	Output 6	
4.7	9	Output 7	
5.0	10	Reserved	
5.1	11	Reserved	
5.2	12	Reserved	
5.3	13	Reserved	
5.4	14	Reserved	
5.5	15	Reserved	
5.6	16	Reserved	
5.7	17	Reserved	

A.1.2.6 Process Data In - data set (index) 69

Data set (index) 69 (parameter)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 19 Data set (index) 69 (parameter), read access only

Byte.Bit	Subindex	Description	Value
Operating system functions			
0.0 ... 3.7	1	Reserved	
4.0	2	Ready	
4.1	3	Group error	
4.2	4	Reserved	0x00
4.3	5	Reserved	0x00
4.4	6	Reserved	0x00
4.5	7	Reserved	0x00
4.6	8	Reserved	0x00
4.7	9	Reserved	0x00
5.0	10	Input 0	[0x00] Input off [0x01] Input on
5.1	11	Input 1	
5.2	12	Input 2	
5.3	13	Input 3	
5.4	14	Input 4	
5.5	15	Input 5	
5.6	16	Input 6	
5.7	17	Input 7	

A.1.2.7 Diagnostics - data set (index) 92

Data set (index) 92

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 20 Data set (index) 92, read access only

Byte.Bit	Subindex	Description	Value
0.0 ... 15.7	1 ... 3	Reserved	
16.0	4	Ready	
16.1	5	Group error	
16.2	6	Reserved	0x00
16.3	7	Reserved	0x00
16.4	8	Reserved	0x00
16.5	9	Reserved	0x00
16.6	10	Reserved	0x00
16.7	11	Reserved	0x00
17.0 … 17.1	12	Switch-on duration status IO0	Switch-on duration status: [0x00] deactivated [0x01] active [0x02] threshold reached [0x03] expired
17.2 … 17.3	13	Switch-on duration status IO1	
17.4 … 17.5	14	Switch-on duration status IO2	
17.6 … 17.7	15	Switch-on duration status IO3	
18.0 … 18.1	16	Switch-on duration status IO4	
18.2 … 18.3	17	Switch-on duration status IO5	
18.4 … 18.5	18	Switch-on duration status IO6	
18.6 … 18.7	19	Switch-on duration status IO7	

Byte.Bit	Subindex	Description	Value
19.0 … 19.1	20	Dimming status output 0	Dimming status: [0x00] deactivated [0x01] active [0x03] expired
19.2 … 19.3	21	Dimming status output 1	
19.4 … 19.5	22	Dimming status output 2	
19.6 … 19.7	23	Dimming status output 3	
20.0 … 20.1	24	Dimming status output 4	
20.2 … 20.3	25	Dimming status output 5	
20.4 … 20.5	26	Dimming status output 6	
20.6 … 20.7	27	Dimming status output 7	
21.0 … 21.1	28	Switching cycle counter status IO0	Switching cycle counter status: [0x00] deactivated [0x01] active [0x02] threshold reached [0x03] expired
21.2 … 21.3	29	Switching cycle counter status IO1	
21.4 … 21.5	30	Switching cycle counter status IO2	
21.6 … 21.7	31	Switching cycle counter status IO3	
22.0 … 22.1	32	Switching cycle counter status IO4	
22.2 … 22.3	33	Switching cycle counter status IO5	
22.4 … 22.5	34	Switching cycle counter status IO6	
22.6 … 22.7	35	Switching cycle counter status IO7	

A.1.2.8 Diagnostics - data set (index) 94

Data set (index) 94 (electronic module for IO-Link)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 21 Data set (index) 94, read access only

Byte.Bit	Subindex	Description	Value
0.0 ... 15.7	1 ... 3	Reserved	
16.0 … 19.7	4	Switch-on duration IO0	Switch-on duration: Factory setting: 0 seconds Minimum value: 0 seconds Maximum value: 4294967295 seconds Increment: 1 second
20.0 … 23.7	5	Switch-on duration IO1	
24.0 … 27.7	6	Switch-on duration IO2	
28.0 … 31.7	7	Switch-on duration IO3	
32.0 … 35.7	8	Switch-on duration IO4	
36.0 … 39.7	9	Switch-on duration IO5	
40.0 … 43.7	10	Switch-on duration IO6	
44.0 … 47.7	11	Switch-on duration IO7	
48.0 … 51.7	12	Switching cycle counter IO0	Switching cycle counter: Factory setting: 0 Minimum value: 0 Maximum value: 4294967295
52.0 … 55.7	13	Switching cycle counter IO1	
56.0 … 59.7	14	Switching cycle counter IO2	
60.0 … 63.7	15	Switching cycle counter IO3	
64.0 … 67.7	16	Switching cycle counter IO4	
68.0 … 71.7	17	Switching cycle counter IO5	
72.0 … 75.7	18	Switching cycle counter IO6	
76.0 … 79.7	19	Switching cycle counter IO7	

Byte.Bit	Subindex	Description	Value
80.0	20	Input 0	Input: [0x00] activated [0x01] deactivated
80.1	21	Input 1	
80.2	22	Input 2	
80.3	23	Input 3	
80.4	24	Input 4	
80.5	25	Input 5	
80.6	26	Input 6	
80.7	27	Input 7	
81.0	28	Output 0	Output: [0x00] activated [0x01] deactivated
81.1	29	Output 1	
81.2	30	Output 2	
81.3	31	Output 3	
81.4	32	Output 4	
81.5	33	Output 5	
81.6	34	Output 6	
81.7	35	Output 7	

A.1.2.9 Parameters - Data set (index) 131

Data set (index) 131 (parameters)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 22 Data set (index) 131 (parameters)

Byte.Bit	Subindex	Description	Value
0.0 ... 15.7	1 ... 3	Reserved	
16.0 … 16.7	4	Functional mode IO0	Functional mode: Factory setting: [0x01] [0x01] Static input [0x02] Static output [0x03] PWM output [0x04] Dimming output [0x05] Switching input [0x06] Switching output [0x07] Switch-on duration input [0x08] Switch-on duration output
17.0 … 17.7	5	Functional mode IO1	
18.0 … 18.7	6	Functional mode IO2	
19.0 … 19.7	7	Functional mode IO3	
20.0 … 20.7	8	Functional mode IO4	
21.0 … 21.7	9	Functional mode IO5	
22.0 … 22.7	10	Functional mode IO6	
23.0 … 23.7	11	Functional mode IO7	
24.0 … 24.1	12	Setting range	Factory setting: [0x00] [0x00] Individual: Individual setting of all IOs [0x01] Collective: All IOs according to IO 0 mode [0x02] Groups: Group 1 according to IO 0 mode Group 2 according to IO 4 mode
24.2	13	Reset process data	Factory setting: [0x01] [0x00] enabled [0x01] disabled
25.0 … 25.7	14	PWM frequency output 0	Frequency: Factory setting: 1 Hz Minimum: 1 Hz Maximum: 255 Hz Increment: 1 Hz
26.0 … 26.7	15	PWM frequency output 1	
27.0 … 27.7	16	PWM frequency output 2	
28.0 … 28.7	17	PWM frequency output 3	
29.0 … 29.7	18	PWM frequency output 4	
30.0 … 30.7	19	PWM frequency output 5	
31.0 … 31.7	20	PWM frequency output 6	
32.0 … 32.7	21	PWM frequency output 7	

Byte.Bit	Subindex	Description	Value
33.0 … 33.7	22	PWM duty cycle output 0	Duty cycle: Factory setting: 50 % Minimum: 10 % Maximum: 90 % Increment: 1 %
34.0 … 34.7	23	PWM duty cycle output 1	
35.0 … 35.7	24	PWM duty cycle output 2	
36.0 … 36.7	25	PWM duty cycle output 3	
37.0 … 37.7	26	PWM duty cycle output 4	
38.0 … 38.7	27	PWM duty cycle output 5	
39.0 … 39.7	28	PWM duty cycle output 6	
40.0 … 40.7	29	PWM duty cycle output 7	
41.0 … 41.7	30	Dimming time, output 0	Dimming time: Factory setting: 1 second Minimum: 0.1 seconds Maximum: 25.5 seconds Increment: 0.1 seconds
42.0 … 42.7	31	Dimming time output 1	
43.0 … 43.7	32	Dimming time output 2	
44.0 … 44.7	33	Dimming time output 3	
45.0 … 45.7	34	Dimming time output 4	
46.0 … 46.7	35	Dimming time output 5	
47.0 … 47.7	36	Dimming time output 6	
48.0 … 48.7	37	Dimming time output 7	
49.0 … 49.7	38	Input delay 0	Input delay: Factory setting: 3 milliseconds Minimum: 3 milliseconds Maximum: 255 milliseconds Increment: 1 millisecond
50.0 … 50.7	39	Input delay 1	
51.0 … 51.7	40	Input delay 2	
52.0 … 52.7	41	Input delay 3	
53.0 … 53.7	42	Input delay 4	
54.0 … 54.7	43	Input delay 5	
55.0 … 55.7	44	Input delay 6	
56.0 … 56.7	45	Input delay 7	
57.0 … 60.7	46	Threshold I/O 0	Threshold: Factory setting: 0 seconds Minimum: 0 seconds Maximum: 4294967295 seconds Increment: 1 second
61.0 … 64.7	47	Threshold I/O 1	
65.0 … 68.7	48	Threshold I/O 2	
69.0 … 72.7	49	Threshold I/O 3	
73.0 … 76.7	50	Threshold I/O 4	
77.0 … 80.7	51	Threshold I/O 5	
81.0 … 84.7	52	Threshold I/O 6	
85.0 … 88.7	53	Threshold I/O 7	
89.0 … 92.7	54	Threshold switching cycle counter I/O 0	Threshold switching cycle counter: Factory setting: 0 Minimum: 0 Maximum: 4294967295
93.0 … 96.7	55	Threshold switching cycle counter I/O 1	
97.0 … 100.7	56	Threshold switching cycle counter I/O 2	
101.0 … 104.7	57	Threshold switching cycle counter I/O 3	
105.0 … 108.7	58	Threshold switching cycle counter I/O 4	
109.0 … 112.7	59	Threshold switching cycle counter I/O 5	
113.0 … 116.7	60	Threshold switching cycle counter I/O 6	
117.0 … 120.7	61	Threshold switching cycle counter I/O 7	

Byte.Bit	Subindex	Description	Value
121.0 … 121.1	62	Active edges I/O 0	Active edges: Factory setting: [0x01] [0x00] None [0x01] Rising edge [0x02] Falling edge [0x03] All edges
121.2 … 121.3	63	Active edges I/O 1	
121.4 … 121.5	64	Active edges I/O 2	
121.6 … 121.7	65	Active edges I/O 3	
122.0 … 122.1	66	Active edges I/O 4	
122.2 … 122.3	67	Active edges I/O 5	
122.4 … 122.5	68	Active edges I/O 6	
122.6 … 122.7	69	Active edges I/O 7	
123.0	70	Inverting input 0	Inverting input: Factory setting: [0x00] [0x00] disable [0x01] enabled
123.1	71	Inverting input 1	
123.2	72	Inverting input 2	
123.3	73	Inverting input 3	
123.4	74	Inverting input 4	
123.5	75	Inverting input 5	
123.6	76	Inverting input 6	
123.7	77	Inverting input 7	
124.0	78	Inverting output 0	Inverting output: Factory setting: [0x00] [0x00] disable [0x01] enabled
124.1	79	Inverting output 1	
124.2	80	Inverting output 2	
124.3	81	Inverting output 3	
124.4	82	Inverting output 4	
124.5	83	Inverting output 5	
124.6	84	Inverting output 6	
124.7	85	Inverting output 7	

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1.4 Scope of Delivery

Siemens shall deliver the Software as well as the respective CoL to the Customer, according to the Order Data, either on a data medium or via download.

Siemens shall enclose the documentation related to the Software, at the choice of Siemens, either in electronic form with the Software itself or, in electronic form available for download free of charge. Insofar as it is evident from the Order Data that the documentation is not included in the scope of delivery, the documentation shall be purchased separately; in such case the Customer shall not have any right to generate copies but shall purchase the required number of documentation copies. Siemens shall deliver a License Key to the Customer if the Software needs a License Key for technical activation purposes. If the Parties agree that the Customer is to acquire only the Software, but not the rights of use for the Software for the time being, the License Key and the CoL shall not be included in the scope of delivery. If the customer acquires the rights of use limited to validation purposes, a CoL may be included in the scope of delivery.

1.5 Included Third-party Software Components

Insofar Open Source Software is included in the Software, such as is listed in the Readme_OSS file of the Software. The Customer is entitled to use the Open Source Software in accordance with the respective applicable license conditions for the Open Source Software. These OSS license conditions are included with the Software and shall prevail over these General Conditions. The Open Source Software license conditions shall have priority insofar as such grant the Customer on the basis of the connection of OSS components with propriety components certain rights of use also in relation to the propriety components. Siemens shall make available to the Customer, at the request of the Customer, the Open Source Software source code in return for payment of a fee to compensate for expenses insofar as the license conditions of the Open Source Software envisages such a release of the source code. The Software may, in addition to Open Source Software, also contain other licensed software, i.e. software which was not developed by Siemens itself but which Siemens has obtained from third parties, e.g. Microsoft Ireland Operations Ltd, under license. If the Customer shall receive in such case the conditions of the respective licensor of the licensed software in the Readme_OSS file, these shall apply to liability of the licensor in relation to the Customer. In terms of the liability of Siemens to the Customer, the General Conditions shall apply in each case.

1.6 Nature of the Software, Systems Environment

The nature of the Software shall be based exclusively on the Order Data/ the order confirmation in connection with the documentation to the Software available at the time of the concluding of the contract. The Customer shall make available the system environment in accordance with the requirements in the Order Data/ order confirmation or the CoL and the related documentation.

The Customer shall install the Software itself and shall configure such.

2. License Type

Siemens shall grant the Customer the following rights to the Software for the License Types stated hereinafter.

2.1 Single License

The Customer shall be granted a non-exclusive right, valid for an indefinite period of time, to install the Software on one (1) instance and to utilize the Software thus installed in the manner specified in the Order Data or CoL (see "Type of Use").

2.2 Floating License

The Customer shall be granted a non-exclusive right, valid for an indefinite period of time, to install the Software on any desired number of the Customer's hardware devices. The number of objects (e.g. users or devices) permitted to utilize the Software at the same time is to be determined on the basis of the Order Data or the CoL.

2.3 Rental License

The Customer shall be granted the non-exclusive right, limited in time as stipulated in the Order Data or CoL (see "Type of Use"), to install the Software on one (1) instance and to use such. If the period of use is is specified in hours, the usage decisive for the calculation of the respective time limits for usage shall be determined from the Software start-up and end with the closing of such. If the period of usage is specified in days, weeks or months, the specified period commencing with the first start-up of the Software shall apply regardless of actual usage. If the usage period is date-based, the license shall end on this date irrespective of actual usage.

2.4 Rental Floating License

The Customer shall be granted the non-exclusive right, limited in time as stipulated in the Order Data or the CoL (see "Type of Use"), to install the Software on any number of the Customer’s instances. The number of objects (e.g. users or devices) permitted to utilize the Software at the same time is likewise to be determined on the basis of the Order Data or the CoL. If the period of use is is specified in hours, the usage decisive for the calculation of the respective time limits for usage shall be determined from the Software start-up and end with the closing of such. If the period of usage is specified in days, weeks or months, the specified period commencing with the first start-up of the Software shall apply regardless of actual usage. If the usage period is date-based, the license shall end on this date irrespective of actual usage.

2.5 Demo License

The Customer shall be granted the non-exclusive right, limited in time as stipulated in the Order Data or the CoL (see "Type of Use"), to install the Software on one (1) instance and use it for validation purposes. If the period of usage is specified in days, weeks or months, the specified period commencing with the first start-up of the Software shall apply regardless of actual usage. If the usage period is date-based, the license shall end on this date irrespective of actual usage.

2.6 Demo Floating License

The Customer shall be granted the non-exclusive right, limited in time as stipulated in the Order Data or CoL (see "Type of Use"), to install the Software on any number of the Customer's instances. The number of objects (e.g. users or devices) permitted to utilize the Software at the same time for validation purposes can be derived from the Order Data or CoL. If the period of usage is specified in days, weeks or months, the specified period commencing with the first start-up of the Software shall apply regardless of actual usage. If the usage period is date-based, the license shall end on this date irrespective of actual usage.

2.7 Trial License

The Customer shall be granted the non-exclusive right to install the Software on one (1) instance and use it for validation purposes as stipulated in the Order Data or the CoL (see "Type of Use"). The period of usage is limited to 14 days and shall commence with the start-up of the Software, unless a different period of usage is specified in the Order Data or the CoL. The Customer must delete or uninstall the Software after period of use.

3. Software Type

The customer may acquire from Siemens both Engineering Software as well as Runtime Software. If the Software Type is not detailed in the Order Data or the CoL, the rights in relation to the Software shall be those in accordance with Section 3.2 (Runtime Software).

3.1 Engineering Software

In the event that the Customer uses the Engineering Software to generate its own programs or data containing parts of the Engineering Software, the Customer shall have the right, without having to pay any license fee, to copy and to use these parts of the Engineering Software as a part of its own programs or data, or to supply such to third parties for use. Insofar as, in relation to the due use of Engineering Software, parts thereof are included in programs developed by the Customer, such parts of the Engineering Software shall apply as components of its own programs or data. Otherwise, it shall not be permissible to separate parts of Engineering Software; Section 5.3 shall not be affected hereby. If the Customer makes available to any third party the above named developed programs or data, it shall protect the Engineering Software contained therein in accordance with the provisions under Section 5.

3.2 Runtime Software

If the Customer incorporates Runtime Software or any parts thereof into its own programs or data, it shall purchase a license with respect to the Runtime Software each time it installs or otherwise copies its own programs or data containing (Siemens) Software or parts thereof, or which the Customer links with a copied item of its own programs or data, in accordance with the relevant intended type of use and on the basis of the Siemens catalog valid at that time. If the Customer makes available to any third party the specified programs or data, Section 5.4 shall apply in relation to the corresponding Runtime Software. This Section 3.2 does not grant any rights to separate Runtime Software parts; Section 5.3 shall not be affected hereby.

If the runtime software contains tools for parameterization/configuration and extended rights have been granted in this regard, such shall be detailed in the Readme file of the Runtime Software.

4. Earlier Versions, Upgrade and Power Pack

4.1 If from the Order Data or the CoL it is apparent, e.g. through the additional identification of "Upgrade" or "Power Pack" in the product name of the Software, that the Software is to serve as an Upgrade for another Software, on such upgrading the rights of use granted to an Earlier Version shall cease. The rights of use in accordance with Section 4.3 shall not be affected hereby.

4.2 The customer has the right, insofar as it has in its due possession an Earlier Version of the Software, to exercise the rights of use granted to the Software either in relation to the Software itself or –insofar as such is technically foreseen – to the Earlier Version.

4.3 Insofar as Earlier Versions are listed in the Readme file of the Software under the section "Parallel Use", the Customer shall have the right to exercise the rights of use granted to the Software as an alternative also on the Earlier Versions listed therein in one (1) instance. If in the Order Date or in the CoL the named "Type of Use" is: "Installation" or "User", the Customer may use the Earlier Versions listed in the Readme file in addition to the licensed Software and parallel to the Software on the number of instances for which it is allowed to install or use the acquired Software. Any transfer of Earlier Versions to a third party is permissible only together with the transfer of Software in accordance with Section 5.4 et seq.

5. Further Rights and Duties of the Customer

5.1 The Customer shall have no right to rent out or in any other way license Software or to publicly make available or accessible such by way of cable or wireless or make available such to third parties for any charge or free of charge, for example, in the course of the application service providing or as 'Software as a Service'.

5.2 The legal right of the Customer to the generation of a back-up copy shall remain unaffected.

5.3 The Customer shall not change the software nor decompile it or translate the software or extract program elements insofar as such is not permitted in accordance with the provisions of copyright law. Insofar as the Customer acts under any of these provisions of law as such is necessary in order to establish the interoperability to an independently obtained computer program, the Customer shall, before undertaking such measures, request the necessary interface information or other information from Siemens in writing and allow Siemens a reasonable time and opportunity to make such information available so that the legitimate interests of Siemens can be protected. In addition, the Customer is not entitled to remove any alphanumerical identification, brands or copyright labels from the Software or the data medium and shall, insofar as the Customer is entitled to generate copies of the Software, copy such without alteration.

5.4 The Customer is entitled to transfer any Software acquired by the Customer in the course of a purchase from Siemens to a third party. In such case the Customer shall cease fully to use the Software and shall remove all installed copies of the Software from its equipment and its instances and erase any copies located on other data medium or, at the request of Siemens, shall provide such to Siemens insofar as the Customer is not required to retain such for a longer period in accordance with the law. The use of any such retained copies is prohibited.

5.5 If the Customer has received a License Key for the Software, this key shall be supplied to the third party together with the Software. Furthermore, the Customer shall submit to the third party the order confirmation and the CoL together with these General Conditions. The Customer shall submit the CoL received for the Software to Siemens at any time, if requested.

5.6 If the Software is a Power Pack or an Upgrade, the Customer shall keep the CoL of the Earlier Version and submit it to Siemens at any time, if requested, together with the CoL for the Software. The Customer shall transfer to the third party also the CoL of the Earlier Version, when it transfers the Power Pack and the Upgrade according to Section 5.4.

5.7 The Customer shall confirm in writing to Siemens upon the request of Siemens the complete carrying out of the measures set out in Sections 5.4, 5.5 and (insofar as applicable) 5.6 or shall describe to Siemens as necessary and as applicable any reasons for a longer retention. In addition, the Customer shall make any third party expressly subject to the duties to observe the rights granted in accordance with Sections 2 and 3 and the duties in accordance with Sections 5.1 to 5.3.

5.8 If the Customer receives a data medium which, in addition to the Software, contains further software products which are released for use, it shall have the right to use these released software products exclusively for validation purposes, for a limited period of time and free of charge. Such period of use shall be limited to 14 days, commencing with the first start-up of the relevant software program unless a different period is specified, e.g. in the Readme file of the relevant software product. Such software products supplied exclusively for validation purposes shall be governed by the stipulations contained in these General Conditions. The Customer shall not be authorized to pass on these software products separately, i.e. without the Software, to a third party.

5.9 Details in case of use by U.S. government authorities: the Software is commercial computer software.

The terms of the purchase or license contract shall apply with priority. In the event of any conflicts or inconsistencies between these conditions and the terms of the purchase or license agreement, the purchase or license contract shall prevail.

Please note for customers in the United States: The foregoing "General Conditions for the Provision of Software for Automation and Drive Technology to a Customer with its Seat in Germany" do not apply to Software furnished by Siemens Industry, Inc. for customers in the United States. Instead, the terms and conditions incorporated into the purchase contract shall apply.

To Resellers: You have to submit to your customer these notes, the license conditions and the enclosed storage media, if applicable, to avoid a breach of the license conditions by you and your customer.

A.3 Certifications and approvals

Approval markings



Communautés Européennes

(The CE approval mark is required in order to market your products within Europe. The CE mark indicates to European authorities that your claims of product compliance meet the applicable standards.)



Underwriters Laboratories Inc.

(Product safety certification organization)

(Approval mark for Canada and USA)



Underwriters Laboratories Inc.

(Product safety certification organization)



UL Recognized Component Mark

(Approval mark for recognized components)



Canadian Standards Association

(Zertifizierung für den kanadischen Markt)



China Compulsory Certification

(Certification system in China)



Association of German Electrical Engineers
(The VDE logo for electrical/electronic products including products as defined in the German legislation on equipment and product safety (GPSG), and medical products as defined in the medical products legislation (MPG), designates compliance with the VDE regulations or European or internationally harmonized standards, and confirms that the protection requirements of the relevant directives are met).

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