UNITRONICS SM35-J-TA22 HMI Display Unit User Guide

Contents

UNITRONICS SM35-J-TA22 HMI Display Unit

General Description

All of the controllers covered in this guide are micro-PLC+HMI, rugged programmable logic controllers that comprise built-in operating panels and on-board I/Os.

Item	SM35-J-TA22	SM43-J-TA22	SM70-J-TA22
On-board I/O	Model Dependent		
Screen	3.5″ Color Touch	4.3″ Color Touch	7″ Color Touch
Keypad or Function Keys	None		
Programming Com Port, Built-in			
RS232	Yes	None	None
USB device, mini-B	None	Yes	Yes
Com Ports, separate order, user-installed	The user may install a CANbus module (V100-17-CAN), and **one** of the following: · RS232/RS485 port (V100-17-RS4/V100-17-RS4X) · Ethernet (V100-17-ET2)		

Standard Kit Contents

Standard Kit Contents			
Item	**SM35-J-TA22**	**SM43-J-TA22**	**SM70-J-TA22**
Controller	Yes		
Terminal Blocks	Yes		
Battery	Yes (installed)	Yes (installed)	Yes
Mounting Brackets	Yes (2 parts)	Yes (4 parts)	Yes (6 parts)
Rubber Seal	Yes		

Alert Symbols and General Restrictions

When any of the following symbols appear, read the associated information carefully.

Symbol	Meaning	Description
	Danger	The identified danger causes physical and property damage.
	Warning	The identified danger could cause physical and property damage.
Caution	Caution	Use caution.

- Before using this product, the user must read and understand this document.
- All examples and diagrams are intended to aid understanding, and do not guarantee operation. Unitronics accepts no responsibility for actual use of this product based on these examples.
- Please dispose of this product according to local and national standards and regulations.
- Only qualified service personnel should open this device or carry out repairs.

Failure to comply with appropriate safety guidelines can cause severe injury or property damage.

- Do not attempt to use this device with parameters that exceed permissible levels.
- To avoid damaging the system, do not connect/disconnect the device when power is on.

Environmental Considerations

- Do not install in areas with: excessive or conductive dust, corrosive or flammable gas, moisture or rain, excessive heat, regular impact shocks or excessive vibration, in accordance with the standards given in the product's technical specification sheet.
- Do not place in water or let water leak onto the unit.
- Do not allow debris to fall inside the unit during installation.
- Ventilation: 10mm space required between controller's top/bottom edges & enclosure walls.
- Install at maximum distance from high-voltage cables and power equipment.

UL Compliance

The following section is relevant to Unitronics' products that are listed with the UL.
The following models: V130-33-R34, V130-J-R34, V130-T4-ZK1, V350-35-RA22, V350-J-RA22, V350-35-R34, V350-J-R34, V430-J-R34, SM35-J-T20, SM43-J-T20 are UL listed for Hazardous Locations.

The following models: V130-33-B1, V130-J-B1, V130-33-TA24, V130-J-TA24, V130-33-T38,V130-J-T38 V130-33-TR20, V130-J-TR20, V130-33-TR34, V130-J-TR34, V130-33-RA22, V130-J-RA22, V130-33-TRA22, V130-J-TRA22, V130-33-T2, V130-J-T2, V130-33-TR6, V130-J-TR6, V130-33-R34, V350-35-B1, V130-T4-ZK1, V350-J-B1, V350-35-TA24, V350-J-TA24, V350-35-T38, V350-J-T38, V350-35-TR20, V350-J-TR20, V350-35-TR34, V350-J-TR34, V350-35-TRA22, V350-J-TRA22, V350-35-T2, V350-J-T2, V350-35-TR6, V350-J-TR6, V350-S-TA24, V350-JS-TA24, V350-35-RA22, V350-J-RA22, V350-35-R34, V430-J-B1, V430-J-TA24, V430-J-T38, V430-J-R34, V430-J-RH2, V430-J-TR34, V430-J-RA22, V430-J-TRA22, V430-J-T2, V430-J-RH6, SM35-J-D4, SM35-J-R20 SM35-J-RA22, SM35-J-TA22, SM43-J-R20, SM43-J-RA22, SM43-J-TA22, SM35-J-T20, SM43-J-T20 SM70-J-R20, SM70-J-RA22, SM70-J-T20, SM70-J-T38, SM70-J-TA22, SM70-J-TRA22 are UL listed for Ordinary Location.

For models from series V130, V130-J, V430, that include "T4" or "J4" in the Model name, Suitable for mounting on

the flat surface of Type 4X enclosure.
For examples: V130-T4-R34, V130-J4-R34, V430-J4-T2, SM43-J4-R20.

UL Ordinary Location
In order to meet the UL ordinary location standard, panel-mount this device on the flat surface of Type 1 or 4 X enclosures

UL Ratings, Programmable Controllers for Use in Hazardous Locations, Class I, Division 2, Groups A, B, C and D
These Release Notes relate to all Unitronics products that bear the UL symbols used to mark products that have been approved for use in hazardous locations, Class I, Division 2, Groups A, B, C and D.

Caution This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D, or Non-hazardous locations only.

- Input and output wiring must be in accordance with Class I, Division 2 wiring methods and in accordance with the authority having jurisdiction.
- WARNING—Explosion Hazard—substitution of components may impair suitability for Class I, Division 2.
- WARNING – EXPLOSION HAZARD – Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- WARNING – Exposure to some chemicals may degrade the sealing properties of material used in Relays.
- This equipment must be installed using wiring methods as required for Class I, Division 2 as per the NEC and/or CEC.

Panel-Mounting
For programmable controllers that can be mounted also on panel, in order to meet the UL Haz Loc standard, panel-mount this device on the flat surface of Type 1 or Type 4X enclosures.

Relay Output Resistance Ratings
The products listed below contain relay outputs:
Programmable controllers, Models: V430-J-R34, V130-33-R34, V130-J-R34 and V350-35-R34, V350-J-R34

- When these specific products are used in hazardous locations, they are rated at 3A res.
- Except for models V430-J-R34, V130-33-R34, V130-J-R34, V130-T4-ZK1 and V350-35-R34, V350-J-R34, when these specific products are used in non-hazardous environmental conditions, they are rated at 5A res, as given in the product's specifications.

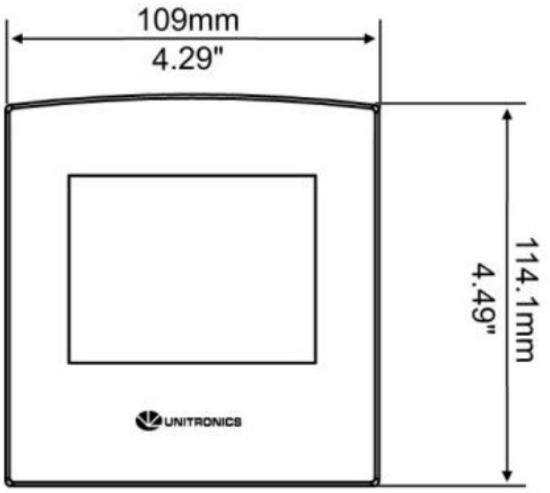
Communication and Removable Memory Storage
When products comprise either USB communication port, SD card slot, or both, neither the SD card slot nor the USB port are intended to be permanently connected, while the USB port is intended for programming only.

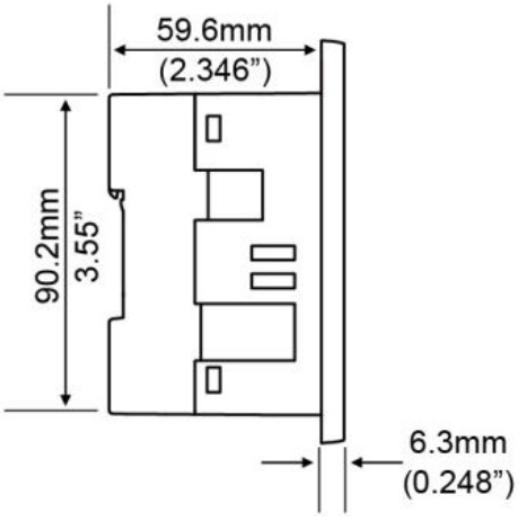
Removing / Replacing the battery
When a product has been installed with a battery, do not remove or replace the battery unless the power has been switched off, or the area is known to be non-hazardous.
Please note that it is recommended to back up all data retained in RAM, in order to avoid losing data when changing the battery while the power is switched off. Date and time information will also need to be reset after the procedure.

Mounting

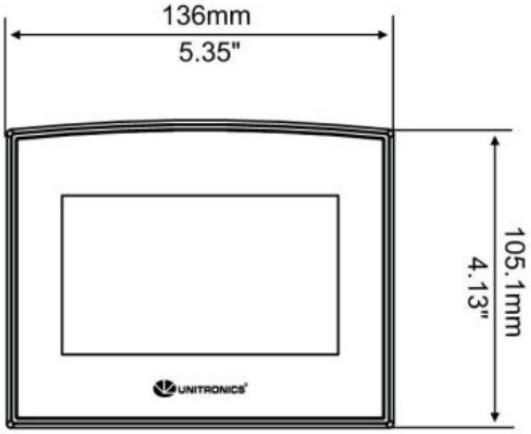
Dimensions

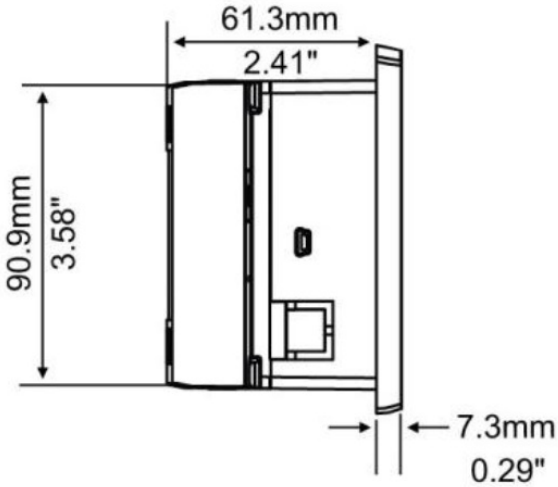
SM35



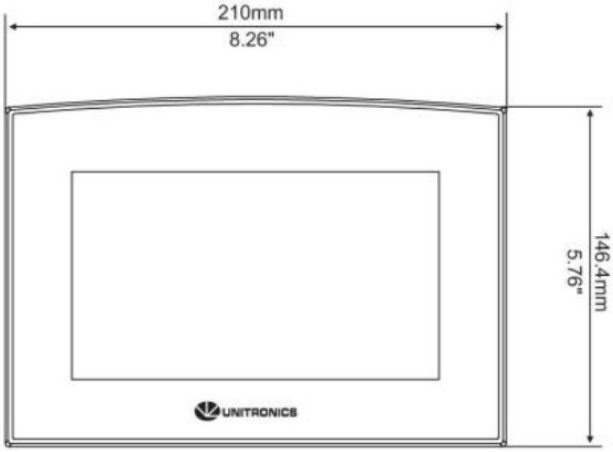


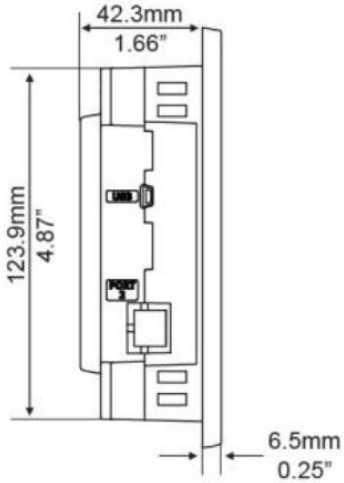
SM43





SM70





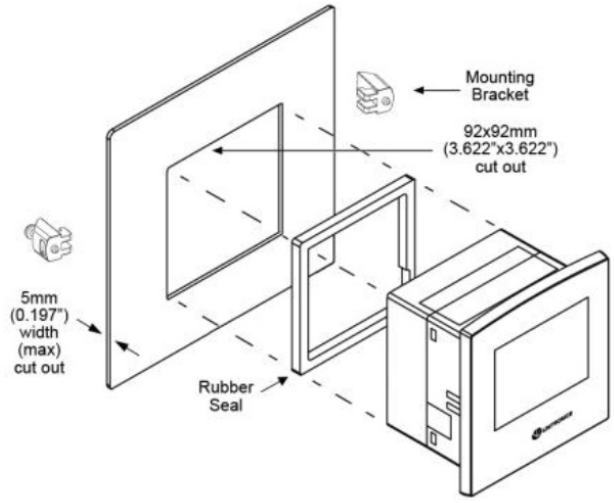
Panel Mounting

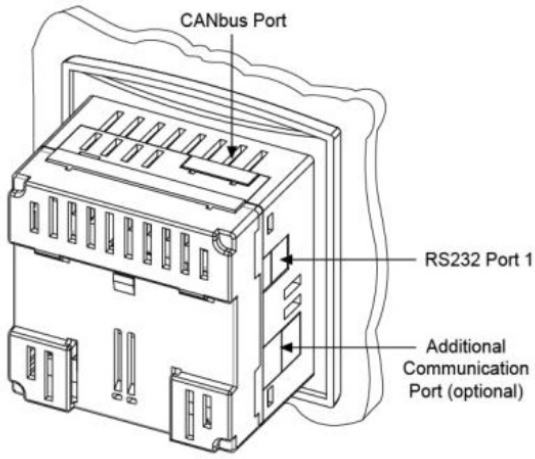
Before you begin, note that the mounting panel cannot be more than 5 mm thick.

UL listed models:
To meet the UL508 standard, panel-mount the device on the flat surface of a Type 1 enclosure.

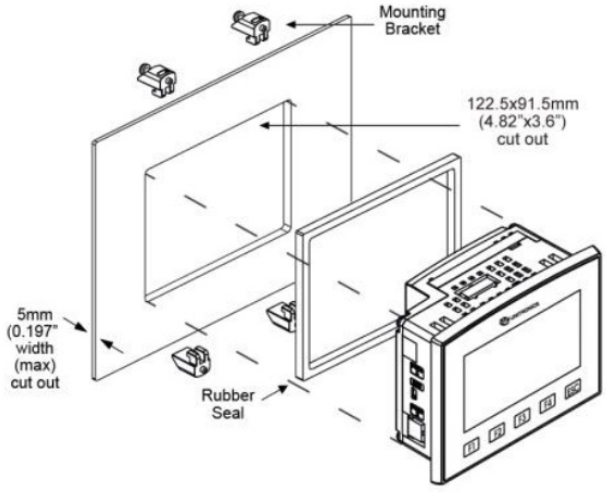
1. Make a panel cut-out of the appropriate size:
   - SM35: 92x92mm (3.622”x3.622”).
   - SM43: 122.5×91.5mm (4.82”x3.6”).
   - SM70: 193x125mm (7.59”x4.92”).
2. Slide the controller into the cut-out, ensuring that the rubber seal is in place.
3. Push the mounting brackets into their slots on the sides of the panel as shown in the figure below.
4. Tighten the bracket’s screws against the panel. Hold the bracket securely against the unit while tightening the screw. The torque required is 0.35 N·m (3.1 in-lb).
5. When properly mounted, the controller is squarely situated in the panel cut-out as shown in the accompanying figures.

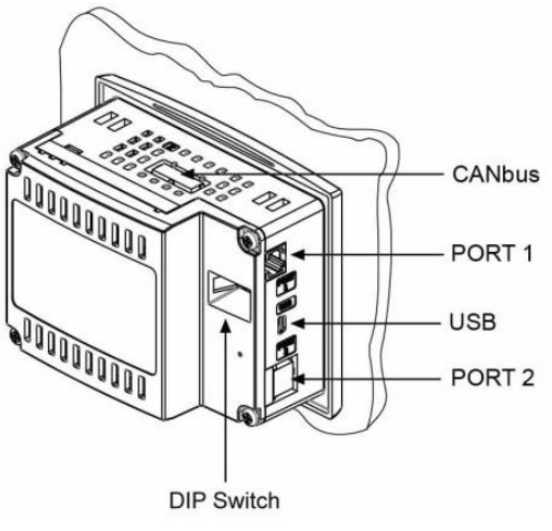
SM35



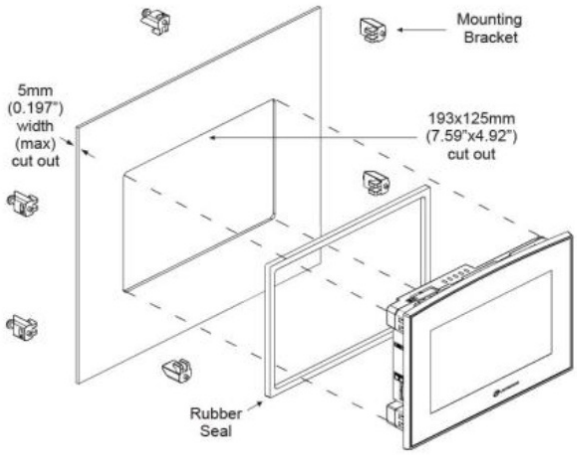


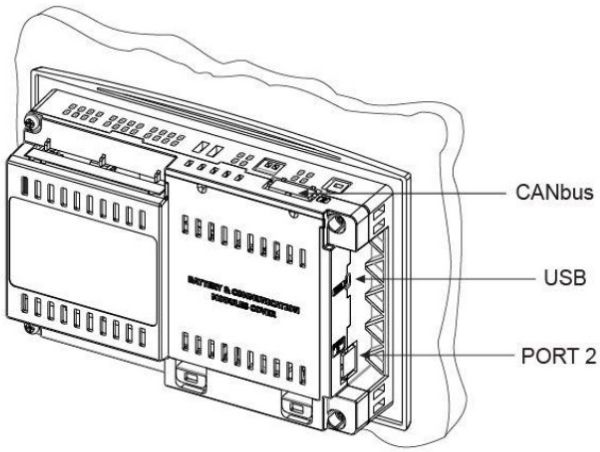
SM43





SM70





Caution

▪ Do not apply torque exceeding 0.35 N·m (3.1 in-lb) of torque to tighten the
▪ bracket screws. Using excessive force to tighten the screw can damage this product.

Wiring

- Do not touch live wires.
- Install an external circuit breaker. Guard against short-circuiting in external wiring.
- Use appropriate circuit protection devices.
- Unused pins should not be connected. Ignoring this directive may damage the device.
- Double-check all wiring before turning on the power supply.
- To avoid damaging the wire, do not exceed a maximum torque of 0.5 N·m (5 kgf·cm).
- Do not use tin, solder, or any substance on stripped wire that might cause the wire strand to break.

Caution Install at maximum distance from high-voltage cables and power equipment.

Wiring Procedure
Use crimp terminals for wiring; use 3.31 mm² –0.13 mm² wire (12-26 AWG):

1. Strip the wire to a length of 7±0.5mm (0.270–0.300“).
2. Unscrew the terminal to its widest position before inserting a wire.
3. Insert the wire completely into the terminal to ensure a proper connection.
4. Tighten enough to keep the wire from pulling free.

- Input or output cables should not be run through the same multi-core cable or share the same wire.
- Allow for voltage drop and noise interference with I/O lines used over an extended distance.
  Use wire that is properly sized for the load.
- The controller and I/O signals must be connected to the same 0V signal.

I/Os

SM35/43/70-J-TA22 models comprise a total 12 inputs, 8 digital outputs and 2 analog outputs.
Input functionality can be adapted as follows:
All 12 inputs may be used as digital inputs. They may be wired in a group via a single jumper as either npn or pnp. In addition, according to jumper settings and appropriate wiring:

- Inputs 5 and 6 can function as either digital or analog inputs.
- Input 0 can function as a high-speed counter, as part of a shaft-encoder, or as a normal digital input.
- Input 1 can function as either a counter reset, normal digital input, or as part of a shaft-encoder.
- If input 0 is set as a high-speed counter (without reset), input 1 can function as a normal digital input.
- Inputs 7-8 and 9-10 can function as digital, thermocouple, or PT100 inputs; Input 11 can also serve as the CM signal for PT100.

Input Jumper Settings
The tables below show how to set a specific jumper to change input functionality. To access the I/O jumpers, you must open the controller according to the instructions on page 11.
Incompatible jumper settings and wiring connections may seriously damage the controller.

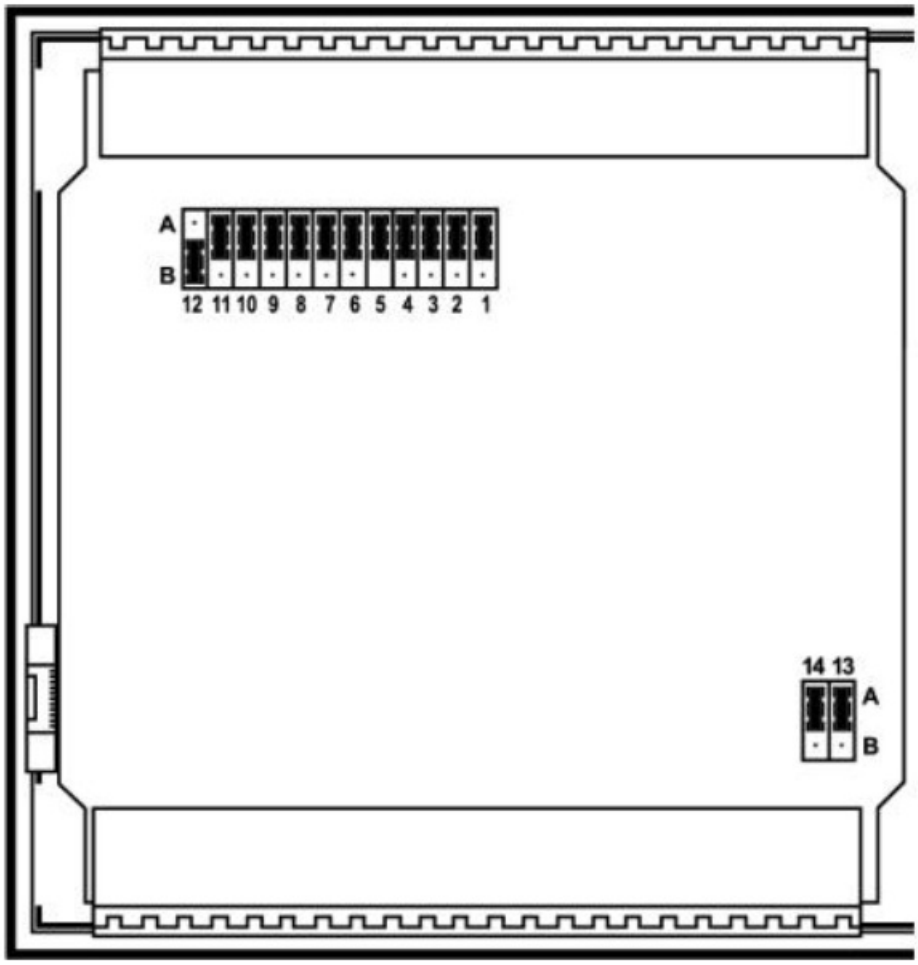
Digital Inputs 0-11: Set Type	
Set to	**JP12 (all Inputs)**
npn (sink)	A
pnp (source)*	B

Inputs 7/8: Set Type – Digital or RTD/TC #1			
Set to	**JP1**	**JP2**	**JP3**
Digital*	A	A	A
Thermocouple	B	B	B
PT100	B	A	B

Inputs 9/10: Set Type – Digital or RTD/TC #0

Set to	**JP5**	**JP6**	**JP7**
Digital*	A	A	A
Thermocouple	B	B	B
PT100	B	A	B
Input 11: Set Type – Digital or CM for PT100			
Set to	**JP11**		
Digital*	A		
CM for PT100	B		
Input 5: Set Type – Digital or Analog #3			
Set to	**JP4**	**JP10**	
Digital*	A	A	
Voltage	B	A	
Current	B	B	
Input 6: Set Type – Digital or Analog #2			
Set to	**JP8**	**JP9**	

Digital*	A	A
Voltage	B	A
Current	B	B

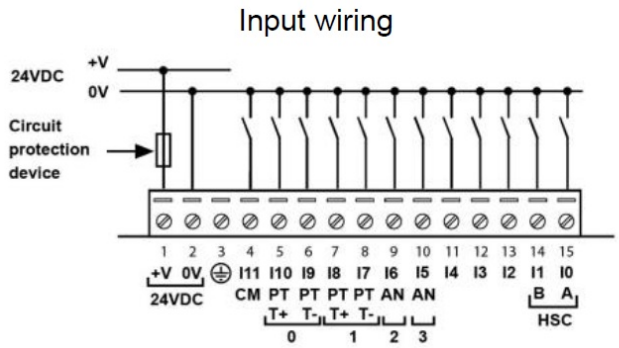


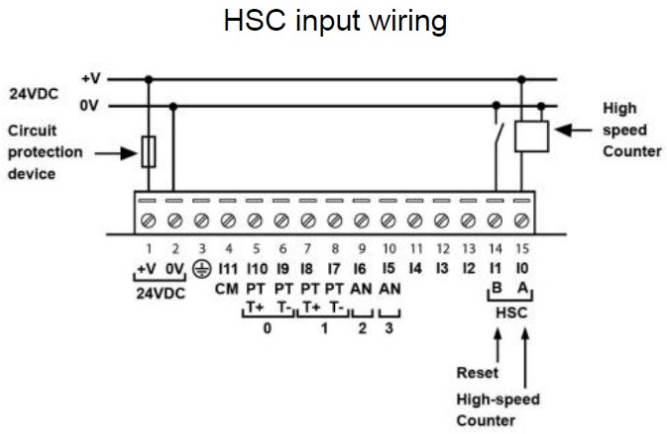
***Default settings**

Analog Output 0: Set to Voltage/Current		
Set to	**JP13**	
Voltage*	A	
Current	B	

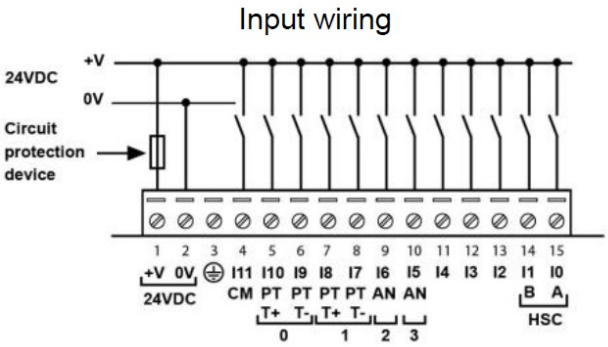
Analog Output 1: Set to Voltage/Current		
Set to	**JP14**	
Voltage*	A	
Current	B	

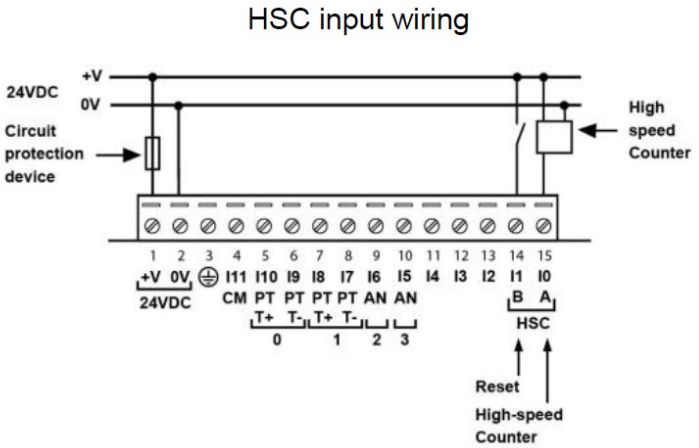
npn (sink) Input



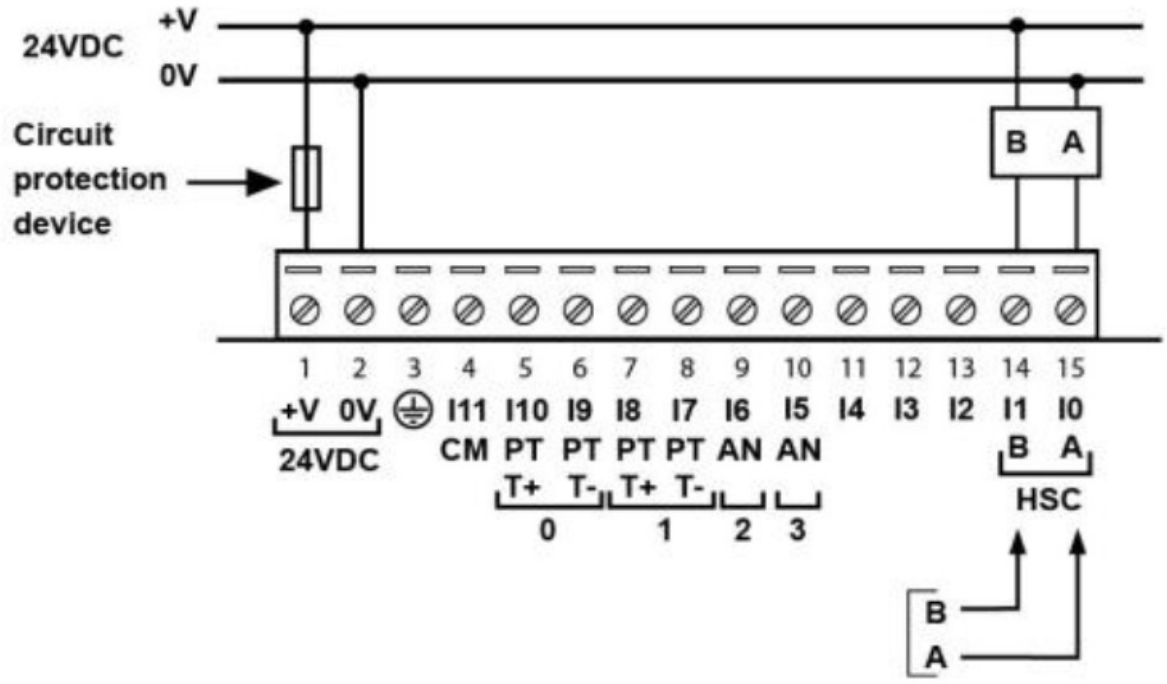


pnp (source) Input



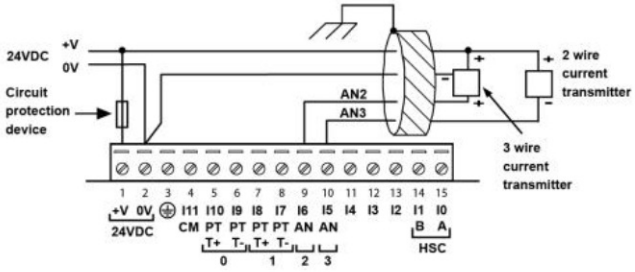


Shaft-encoder

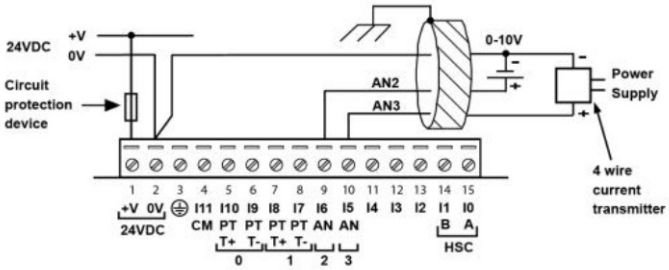


Analog Input

Analog input wiring, current (2/3 wire)

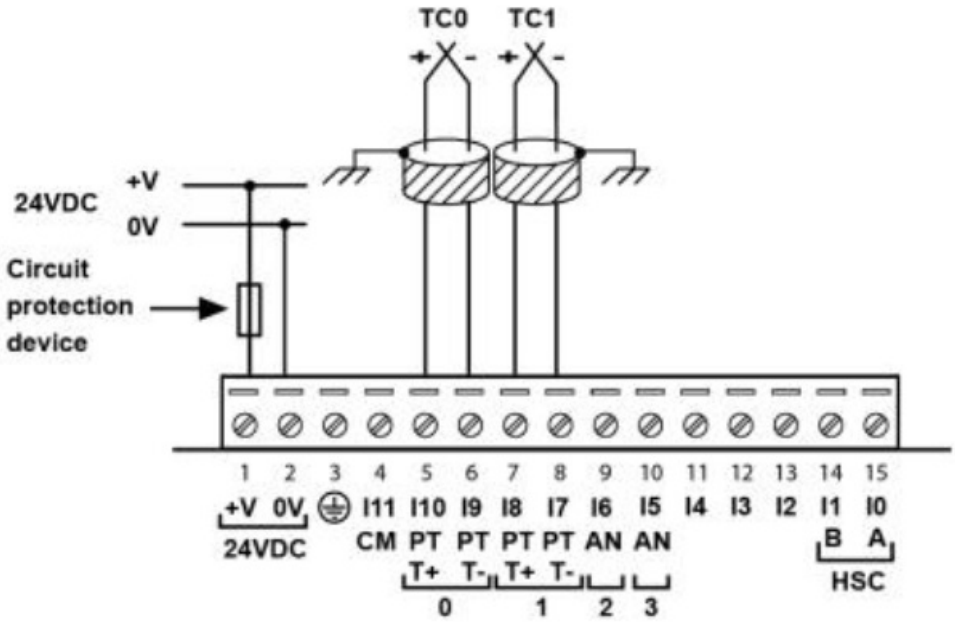


Analog input wiring, current (4-wire), and voltage



- Shields should be connected at the signal's source.
- The 0V signal of the analog input must be connected to the controller's 0V.

Thermocouple



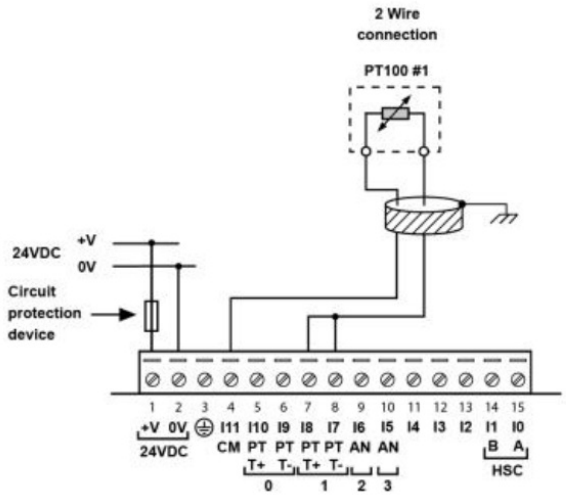
- Thermocouple 0: use Input 9 as negative input and 10 as positive.
- Thermocouple 1: use Input 7 as negative input and 8 as positive.

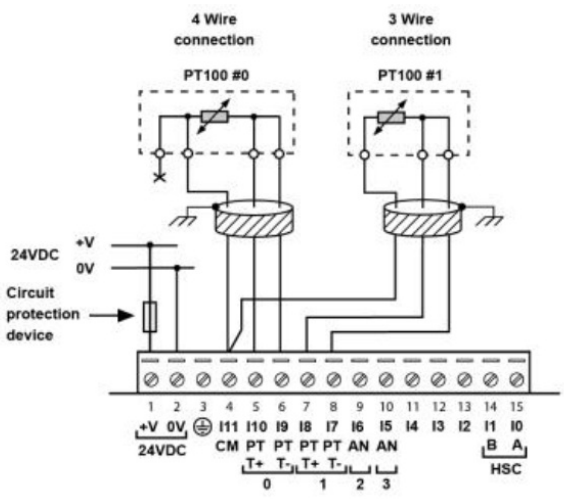
Type	**Temp. Range**	**Wire Color**	
		ANSI (USA)	BS1843 (UK)
mV	-5 to 56mV		
B	200 to 1820˚C (300 to 3276˚F)	+Grey -Red	+None -Blue
E	-200 to 750˚C (-328 to 1382˚F)	+Violet -Red	+Brown -Blue
J	-200 to 760˚C (-328 to 1400˚F)	+White -Red	+Yellow -Blue

K	-200 to 1250˚C (-328 to 2282˚F)	+Yellow -Red	+Brown -Blue
N	-200 to 1300˚C (-328 to 2372˚F)	+Orange -Red	+Orange -Blue
R	0 to 1768˚C (32 to 3214˚F)	+Black -Red	+White -Blue
S	0 to 1768˚C (32 to 3214˚F)	+Black -Red	+White -Blue
T	-200 to 400˚C (-328 to 752˚F)	+Blue -Red	+White -Blue

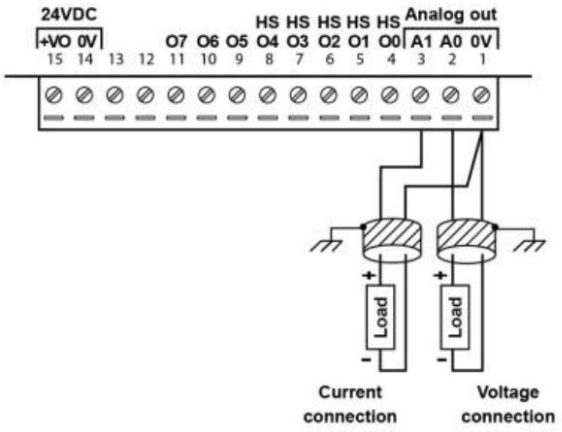
RTD

- PT100 (Sensor 0): use Input 9 and 10, related to CM signal.
- PT100 (Sensor 1): use Input 7 and 8, related to CM signal.
- 4 wire PT100 can be used by leaving one of the sensor leads unconnected.

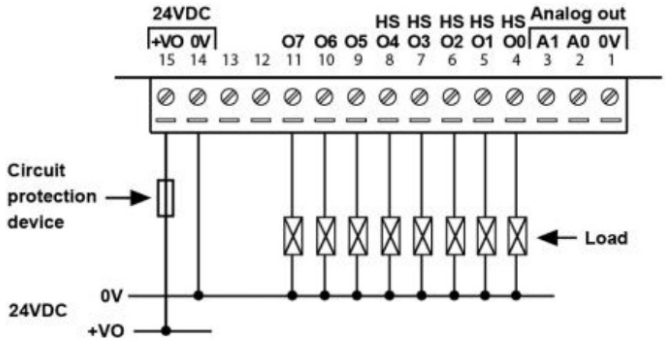




Analog Outputs



Transistor Outputs (pnp)

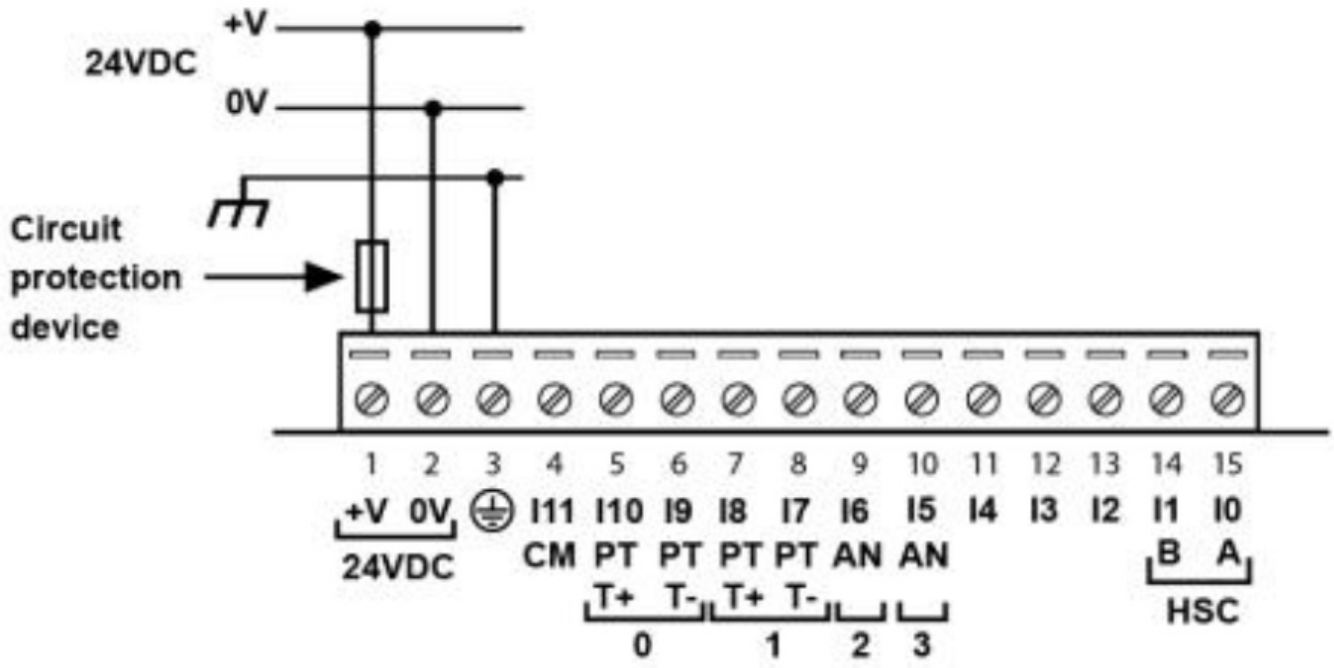


- The 0V signals of the transistor and the analog outputs must be connected to the controller's 0V.
- Outputs 0 to 4 can be used as PWM outputs.

Power Supply

The controller requires an external 24VDC power supply.

- The power supply must include double insulation. Outputs must be rated as SELV/PELV/Class2/Limited Power.
- Use separate wires to connect the functional earth line (pin 3) and the 0V line (pin 2) to the system earth ground.
- Install an external circuit breaker. Guard against short-circuiting in external wiring.
- Double-check all wiring before turning on the power supply.
- Do not connect either the 'Neutral' or 'Line' signal of the 110/220VAC to device's 0V pin
- In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.



Earthing the PLC+HMI
To maximize system performance, avoid electromagnetic interference by:

- Mounting the controller on a metal panel.
- Connect each common and ground connection directly to the earth ground of your system.
- For ground wiring uses the shortest and thickest possible wire.

Communication Port

▪ Turn off power before making communications connections.
▪ Always use the appropriate port adapters.

SM43/SM70-J-TA22
This series comprises a USB port.
Caution The USB port in SM43 Series is not isolated. Make sure that the PC and the controller are grounded to same potential.
The USB port may be used for programming, OS download and PC access.

Pinouts
The pinouts below show the PLC port signals.

RS232	
Pin #	Description
1	Not connected
2	0V reference
3	TXD signal
4	RXD signal
5	0V reference
6	Not connected

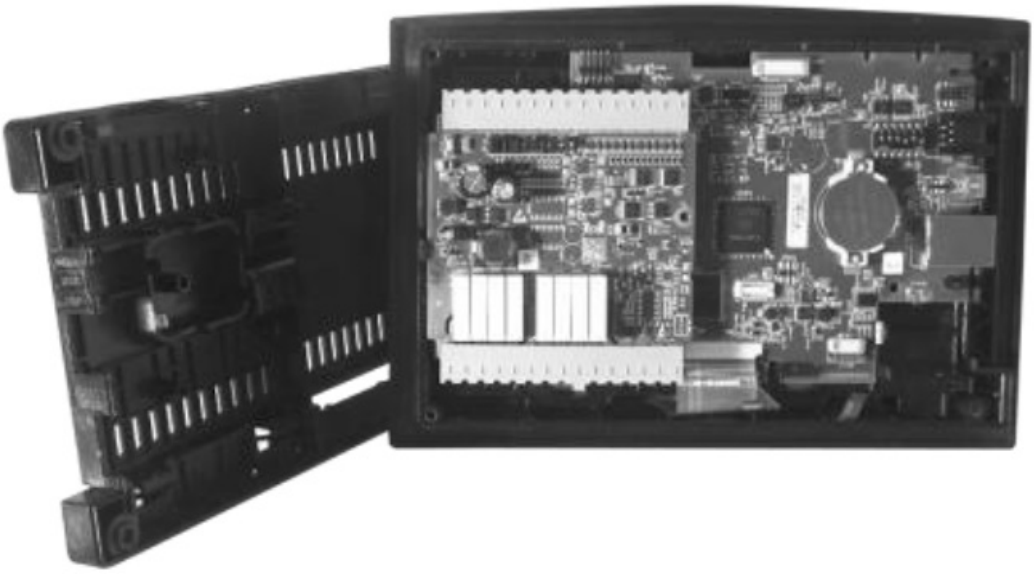
Opening the Controller

- Before performing these actions, touch a grounded object to discharge any electrostatic charge.
- Avoid touching the PCB board directly. Hold the PCB board by its connectors.

1. Turn off the power supply, disconnects, and dismounts the controller.
2. The back cover of the controller comprises 4 screws, located in the corners. Remove the screws, and pull off the back cover.

Changing I/O Settings

The I/O board of the controller is now exposed, enabling you to change
I/O settings (module dependent) according to the jumpers setting above.
Note: Photo is for illustration purposes only. (Using SM70)



Closing the Controller
Replace the back cover of the controller and fasten the corner screws.
Note that you must replace the back cover securely before powering up the controller.

Power Supply				
Item	**SM35-J-TA22**		**SM43-J-TA22**	**SM70-J-TA22**
Input voltage	24VDC			
Permissible rang e	20.4VDC to 28.8VDC with less than 10% ripple			
Max. current con sumption	See Note 1			
npn inputs	225mA@24VDC		225mA@24VDC	350mA@24VDC
pnp inputs	185mA@24VDC		185mA@24VDC	310mA@24VDC
Notes:				
1. To calculate the actual power consumption, subtract the current for each unused element from the maximum current consumption value according to the values below:				
	Backlight	**Ethernet car d**	**All Analog Outputs, voltage/current**	
SM35/SM43	20mA	35mA	48mA/30mA*	
SM70	80mA	35mA	48mA/30mA*	
*If the analog outputs are not configured, then subtract the higher value.				

Digital Inputs	
Number of inputs	12. See Note 2
Input type	See Note 2
Galvanic isolation	None
Nominal input voltage	24VDC
Input voltage	

pnp (source)	0-5VDC for Logic ‘0’ 17-28.8VDC for Logic ‘1’
npn (sink)	17-28.8VDC for Logic ‘0’ 0-5VDC for Logic ‘1’
Input current	3.7mA@24VDC
Input impedance	6.5KΩ
Response time	10ms typical, when used as normal digital inputs
Input cable length	
Normal digital input	Up to 100 meters
High Speed Input	Up to 50 meters, shielded, see Frequency table below

Notes:

1. This model comprises a total of 12 inputs.
   All 12 inputs may be used as digital inputs. They may be wired in a group via a single jumper as either npn or pnp.
   In addition, according to jumper settings and appropriate wiring:
   - Inputs 5 and 6 can function as either digital or analog inputs.
   - Input 0 can function as a high-speed counter, as part of a shaft-encoder, or as normal digital inputs.
   - Input 1 can function as either counter reset, normal digital input, or as part of a shaft-encoder.
   - If input 0 is set as a high-speed counter (without reset), input 1 can function as a normal digital input.
   - Inputs 7-8 and 9-10 can function as digital, thermocouple, or PT100 inputs; input 11 can also serve as the CM signal for PT100.
2. pnp/npn maximum frequency is at 24VDC.

Notes:

1. Conversion times are accumulative and depend on the total number of analog inputs configured.

For example, if only one analog input (fast mode) is configured, the conversion time will be 30ms; however, if two analog (normal mode) and two RTD inputs are configured, the conversion time will be 100ms + 100ms + 300ms + 300ms = 800ms.

2. The analog value can indicate faults as shown below:

Value: 12-bit	**Value: 14-bit**	**Possible Cause**
-1	-1	Deviates slightly below the input range
4096	16384	Deviates slightly above the input range
32767	32767	Deviates greatly above or below the input range
RTD Inputs		
RTD Type		PT100
Temperature coefficient a		0.00385/0.00392
Input range		-200 to 600°C/-328 to 1100°F. 1 to 320Ω.
Isolation		None
Conversion method		Voltage to frequency
Resolution		0.1°C/0.1°F
Conversion time		300ms minimum per channel. See Note 4 above

Input impedance		>10MΩ
Auxillary current for PT100		150µA typical
Full-scale error		±0.4%
Linearity error		±0.04%
Status indication		Yes. See Note 6
Cable length		Up to 50 meters, shielded
Notes:		
6. The analog value can indicate faults as shown below:		
Value	Possible Cause	
32767	Sensor is not connected to input, or value exceeds permissible range	
-32767	Sensor is short-circuited	
Thermocouple Inputs		

Input range		See Note 7
Isolation		None
Conversion method		Voltage to frequency
Resolution		0.1°C/ 0.1°F maximum
Conversion time		100ms minimum per channel. See Note 7 above
Input impedance		>10MΩ
Cold junction compensation		Local, automatic
Cold junction compensation error		±1.5°C/±2.7°F maximum
Absolute maximum rating		±0.6VDC
Full-scale error		±0.4%
Linearity error		±0.04%
Warm-up time		½ hour typically, ±1°C/±1.8°F repeatability

Status indicatio n		Yes. See Note 6 above

Notes: The device can also measure voltage within the range of -5 to 56mV, at a resolution of 0.01mV.
The device can also measure raw value frequency at a resolution of 14-bits (16384). Input ranges are shown in the following table:

Type	Temp. Range
mV	-5 to 56mV
B	200 to 1820˚C (300 to 3276˚F)
E	-200 to 750˚C (-328 to 1382˚F)
J	-200 to 760˚C (-328 to 1400˚F)
K	-200 to 1250˚C (-328 to 2282˚F)

Type	Temp. Range
N	-200 to 1300˚C (-328 to 2372˚F)
R	0 to 1768˚C (32 to 3214˚F)
S	0 to 1768˚C (32 to 3214˚F)
T	-200 to 400˚C (-328 to 752˚F)

Digital Outputs

Digital Outputs	
Number of outputs	8 transistor pnp (source)
Output type	P-MOSFET (open drain)
Isolation	None
Output current (resistive load)	0.5A maximum per output 3A maximum total per common
Maximum frequency	50Hz (resistive load) 0.5Hz (inductive load)
PWM maximum frequency	0.5KHz (resistive load). See Note 8
Short circuit protection	Yes
Short circuit indication	Via software
On voltage drop	0.5VDC maximum
Power supply for outputs	
Operating voltage	20.4 to 28.8VDC
Nominal voltage	24VDC
Notes:	
8. Outputs 0 to 4 can be used as PWM outputs.	

Notes: Outputs 0 to 4 can be used as PWM outputs.

Analog Outputs

Analog Outputs	
Number of outputs	2
Output range	0-10V, 4-20mA. See Note 9
Resolution	12-bit (4096 units)
Conversion time	Both outputs are updated per scan
Load impedance	1kΩ minimum—voltage 500Ω maximum—current
Galvanic isolation	None
Linearity error	±0.1%
Operational error limits	±0.2%

Notes: Note that the range of each I/O is defined by wiring, jumper settings, and within the controller's software.

Graphic Display Screen

Item	SM35-J-TA22	SM43-J-TA22	SM70-J-TA22
LCD Type	TFT, LCD display	TFT, LCD display	TFT, LCD display
Illumination backlight	White LED	White LED	White LED
Display resolution	320×240 pixels	480×272 pixels	800×480 pixels
Viewing area	3.5″	4.3″	7″
Colors	65,536 (16-bit)	65,536 (16-bit)	65,536 (16-bit)
Touchscreen	Resistive, analog	Resistive, analog	Resistive, analog
Screen brightness control	Via software (Store value to SI 9, values range: 0 to 100%)		
Virtual Keypad	Displays virtual keyboard when the application requires data entry.		

Program

Program				
Item	**SM35-J-TA22**		**SM43-J-TA22**	**SM70-J-TA22**
Memory size				
Application Logic	80K		192K	192K
Images	1.5M		3M	8M
Fonts	320K		320K	512K
Operand type	Quantity	Symbol	Value	
Memory Bits	512	MB	Bit (coil)	
Memory Integers	256	MI	16-bit signed/unsigned	
Long Integers	32	ML	32-bit signed/unsigned	
Double Word	32	DW	32-bit unsigned	
Memory Floats	24	MF	32-bit signed/unsigned	
Fast Bits	64	XB	Fast Bits (coil) – not retained	
Fast Integers	32	XI	16 bit signed/unsigned (fast, not retained)	
Fast Long Integers	16	XL	32 bit signed/unsigned (fast, not retained)	
Fast Double Word	16	XDW	32 bit unsigned (fast, not retained)	
Timers	32	T	Res. 10 ms; max 99h, 59 min, 59.99s	
Counters	16	C	32-bit	
Data Tables	32K dynamic data (recipe parameters, datalogs, etc.) 16K fixed data (read-only data, ingredient names, etc)			
HMI displays	Up to 24			
Program scan time	15µs per 1kb of typical application			

Communication Ports

Communication Ports	
Port 1	1 channel, RS232 (SM35) , USB device (SM43/SM70)

Galvanic isolation	SM35 and SM43 – No SM70 – Yes
Baud rate	300 to 115200 bps
RS232 **(SM35 only)**	
Input voltage	±20VDC absolute maximum
Cable length	15m maximum (50')
USB device **(SM43,SM70 only)**	
Port type	Mini-B
Specification	USB 2.0 complaint; full speed
Cable	USB 2.0 complaint; up to 3m
Port 2 (optional)	See Note 10
CANbus (optional)	See Note 10
Notes:	

10. The user may order and install one or both of the following modules:

– A serial RS232/RS485 isolated/non-isolated interface module, or an Ethernet Interface module in port 2.

– A CANbus module

modules documentation is available on the Unitronics website.

Notes: The user may order and install one or both of the following modules:

- A serial RS232/RS485 isolated/non-isolated interface module, or an Ethernet Interface module in port 2.
- A CANbus module modules documentation is available on the Unitronics website.

Miscellaneous

Miscellaneous	
Clock (RTC)	Real-time clock functions (date and time)
Battery back-up	7 years typical at 25°C, battery back-up for RTC and system data, including variable data
Battery replacement	Yes. Coin-type 3V, lithium battery, CR2450

Dimensions

Dimensions			
Item	**SM35-J-TA22**	**SM43-J-TA22**	**SM70-J-TA22**
Size	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67”). See Note 11	136 x 105.1 x 61.3mm (5.35 x 4.13 x 2.41”). See Note 11	210 x 146.4 x 42.3mm (8.26 x 5.76 x 1.66”). See Note 11
Weight	207g (7.3 oz)	346g (12.2 oz)	635g (22.4 oz)

Mounting method

Mounting method			
Item	**SM35-J-TA22**	**SM43-J-TA22**	**SM70-J-TA22**
Panel mounted	IP65/66/NEMA4X	IP65/66/NEMA4X	IP65/66/NEMA4X
DIN-rail mounted	IP20/NEMA1	–	–

Environment

Environment	
Operational temperature	0 to 50ºC (32 to 122ºF)
Storage temperature	-20 to 60ºC (-4 to 140ºF)
Relative Humidity (RH)	10% to 95% (non-condensing)
Operating Altitude	2000m (6562 ft)
Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to 8.4Hz, 3.5mm constant amplitude, 8.4Hz to 150Hz , 1G acceleration.

Documents / Resources

	UNITRONICS SM35-J-TA22 HMI Display Unit [pdf] User Guide SM35-J-TA22, SM43-J-TA22, SM70-J-TA22, SM35-J-TA22 HMI Display Unit, SM35-J-TA22, HMI Display Unit, Display Unit