TREND IQ5 Controller Installation Guide

Installation Instructions – Mounting
IQ5
Controller

Important: Retain these instructions
These instructions shall be used by trained service personnel only. If the equipment is used in a manner not specified by these instructions, the protection provided by the equipment may be impaired.

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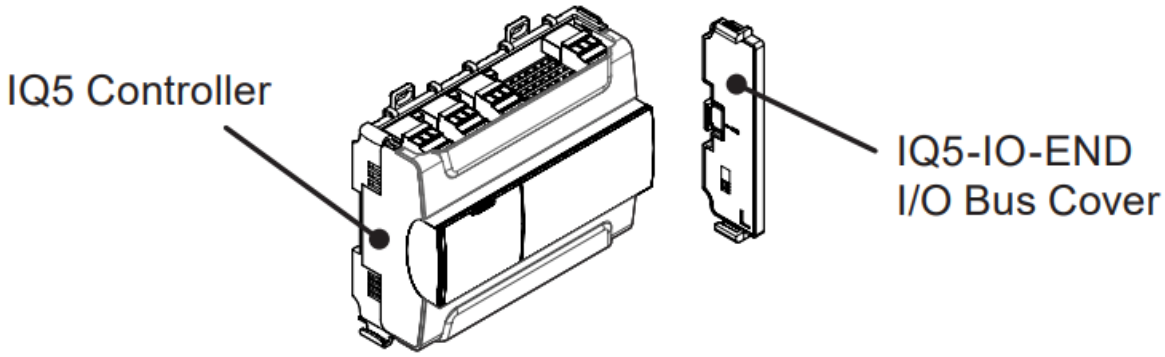
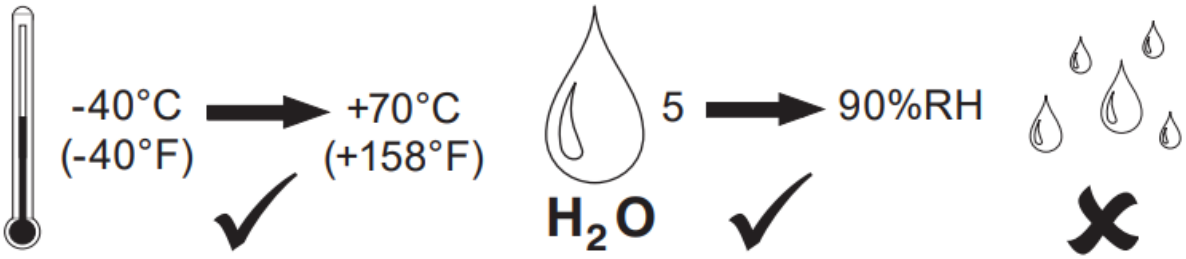


STORING



Note: For temperatures below 0°C (32°F) special care must be taken that there is no condensation on or within the unit.

INSTALLATION

Labels used on IQ5

⚠	Caution, consult documentation	⚡	Caution, possibility of electric shock
POWER 24V	24 Vac/dc input power connector	RS485 1, 2, 3	RS-485 connector
1031410	104, XCITE I/O bus connector	1 2	Ethernet connectors
1	USB local engineering port		RS-485 Terminator switch
2	USB (for future use)		Service button
RS485 1 2 3	RS485 port status indicators		
	Trend LAN status indicator	T1L	T1L 10 bus status indicator

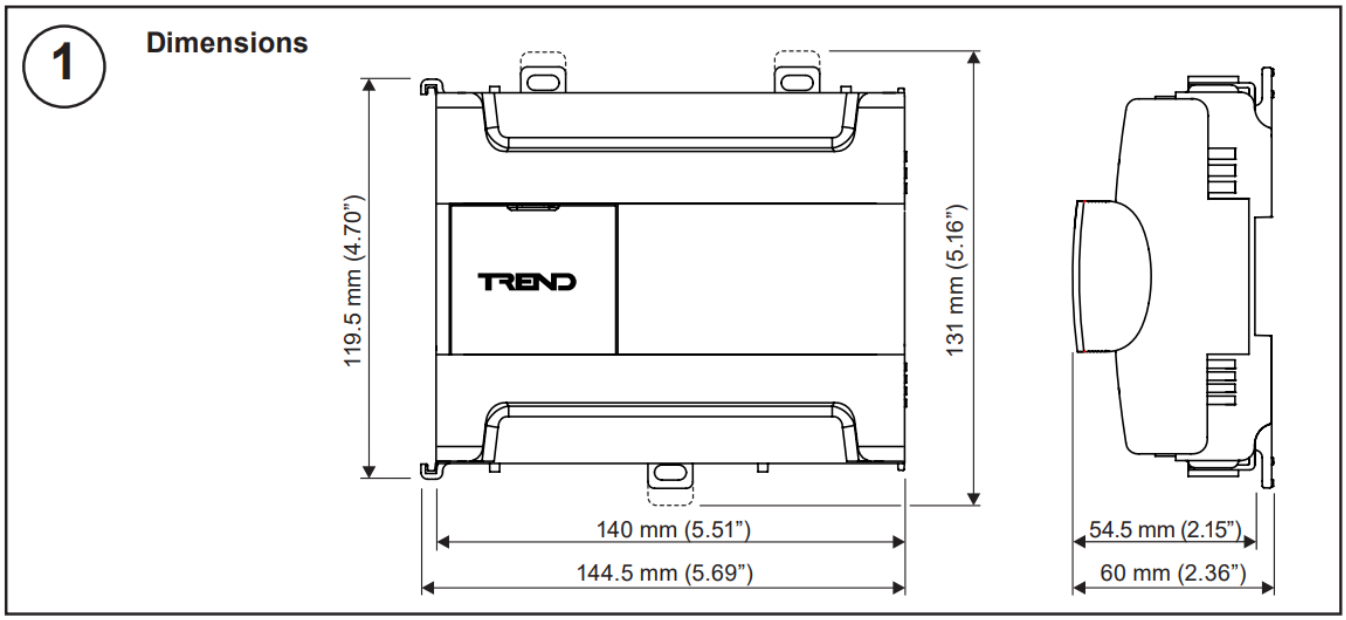
It is recommended that the installation should comply with the local electrical safety installation practices (e.g. HSE Memorandum of Guidance on Electricity at Work Regulations 1989, USA National Electric Code).
Any connected devices must be insulated from mains by reinforced insulation.

WARNING Removal of cover exposes dangerous voltages.

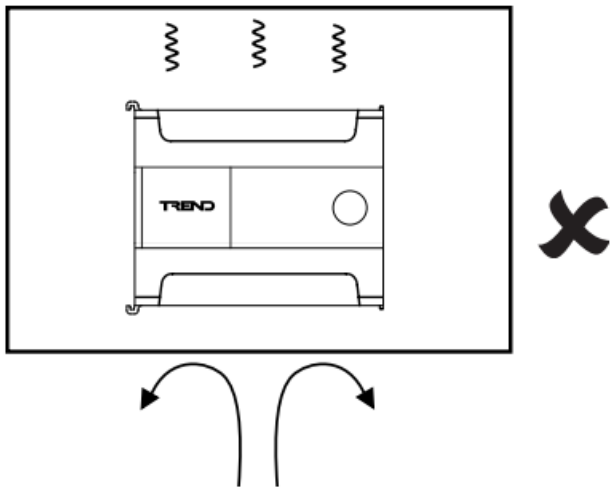
WARNING To reduce the risk of electrical shock or fire do not interconnect the output of different Class 2 circuits.

Device status indicator

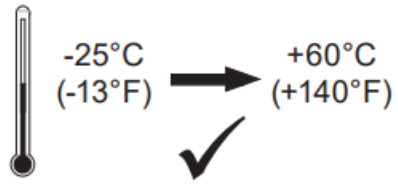
Service status indicator



Mounting Requirements

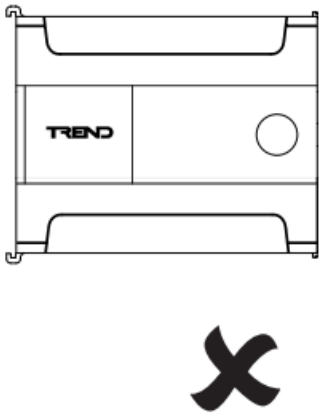


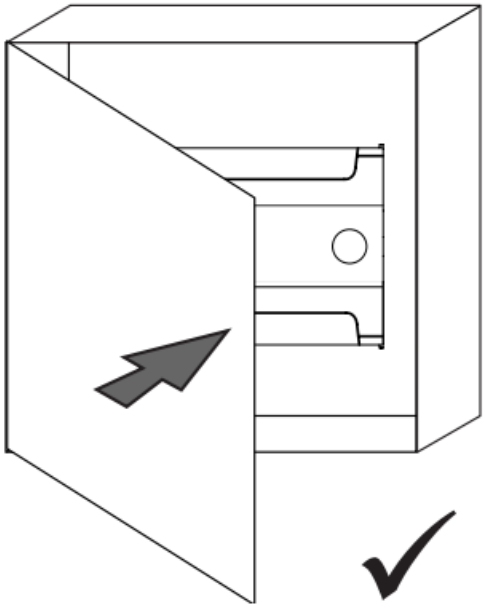
Protection	IP20, NEMA1
Altitude	≤4000 m (13124 ft)
Pollution degree	2 (Only non-conducting pollution occurs)

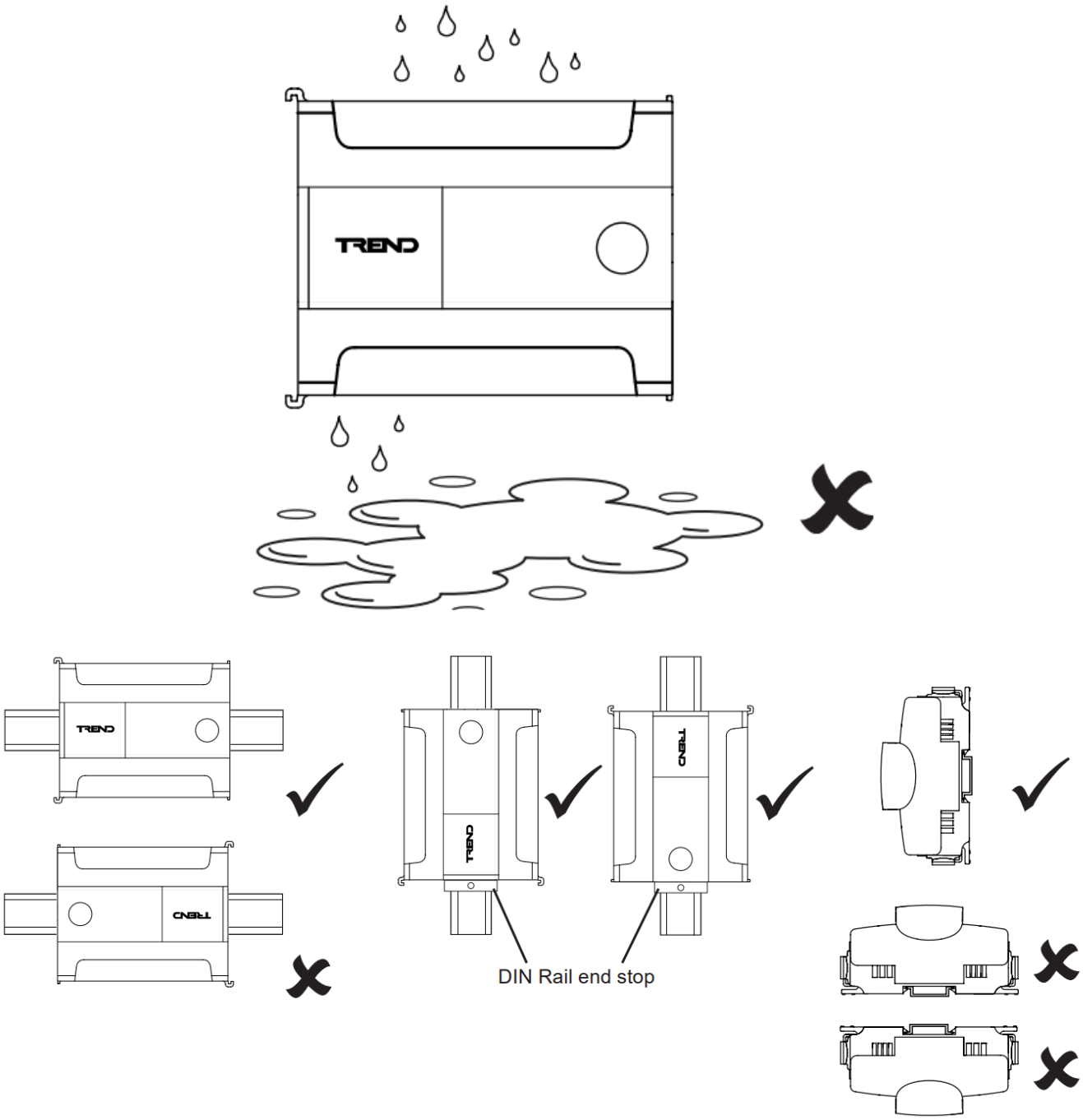


Note: For temperatures below 0°C (32°F) special care must be taken that there is no condensation on or within the unit.

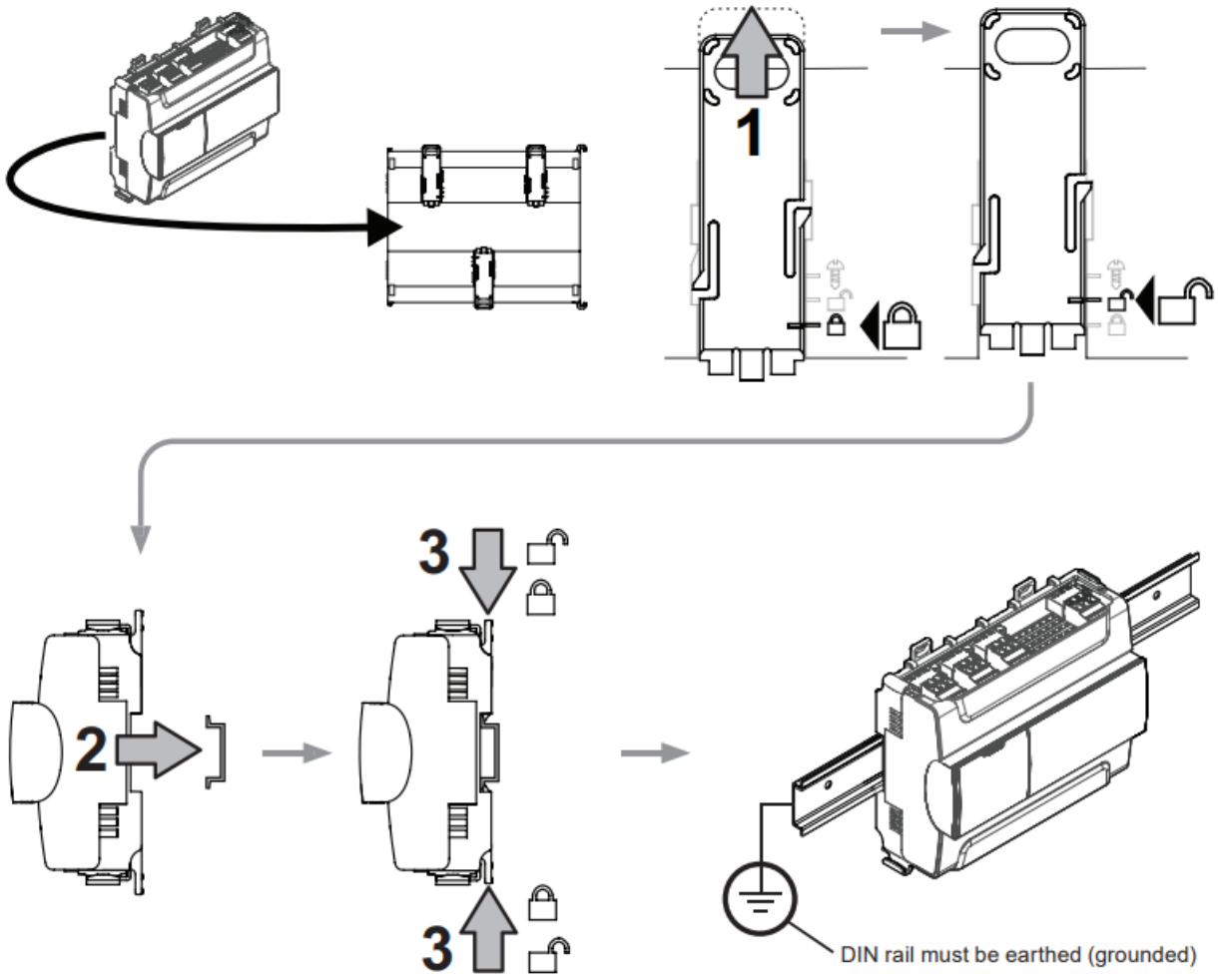
The IQ5 should be installed in an enclosure or outside normal reach (e.g. in a plenum).
The unit is UL rated as UL60730-1 Automatic electrical controls for household and similar use.



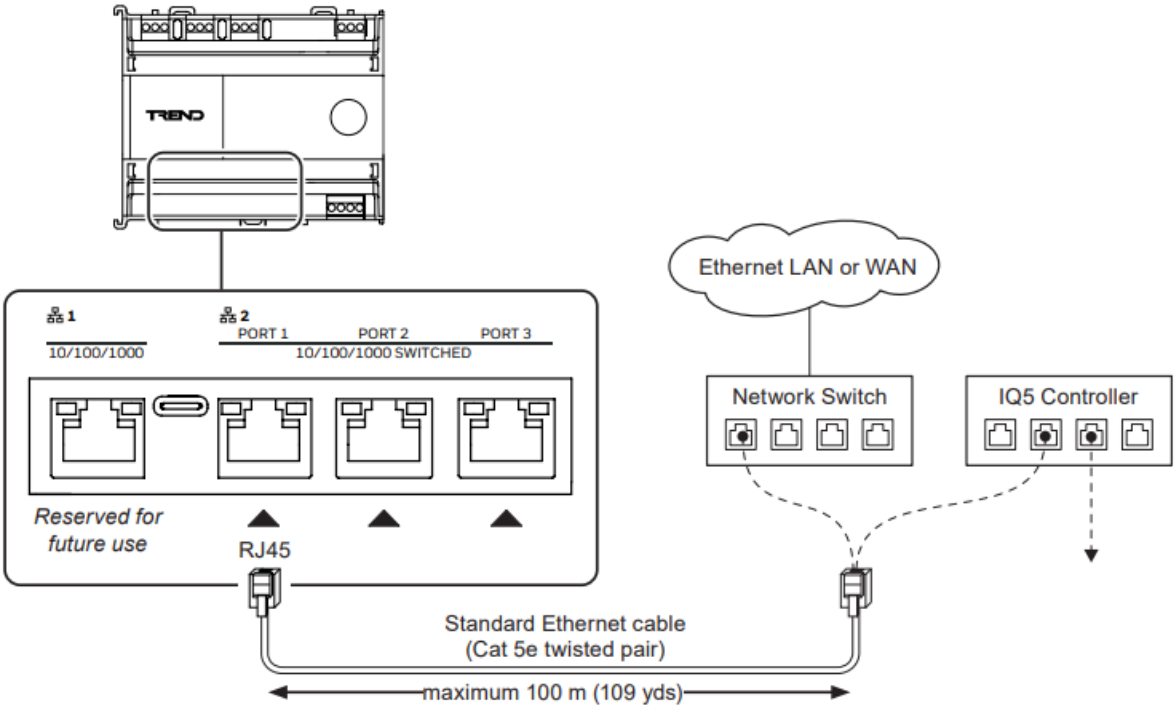




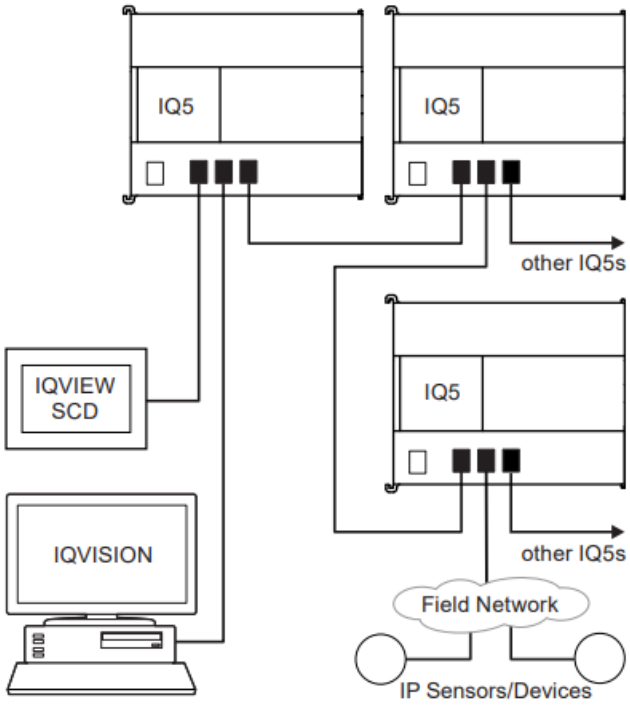
Mount Unit
Set the rear mounting clips to the correct position



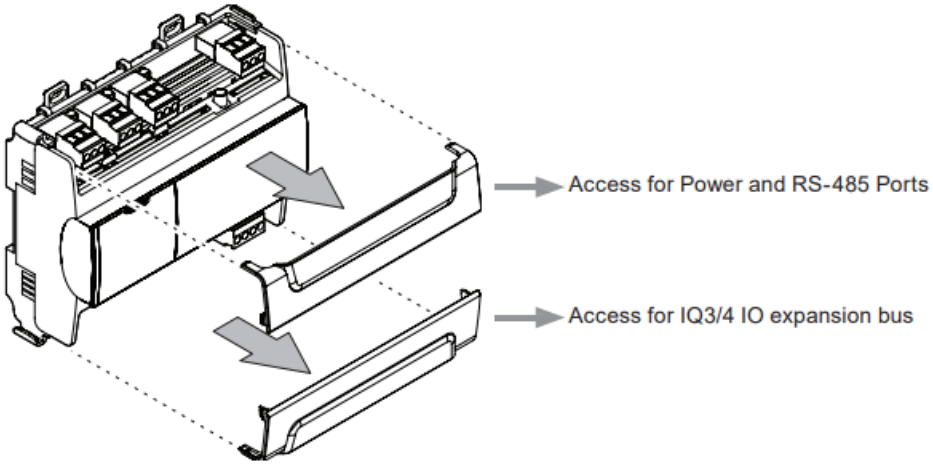
Connect Ethernet Network(s)



IQ5 Controller Network Example

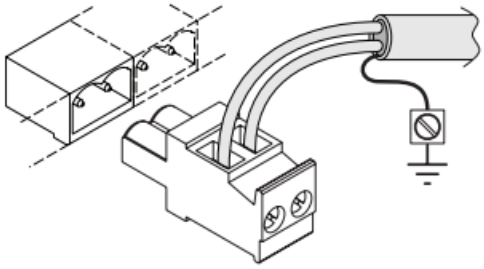


Unclip the Terminal Covers

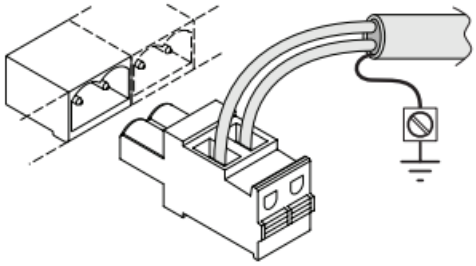


Make Connections – Overview

Plug-in connectors with screw terminals
(as supplied)



Optional connectors with push-fit terminals



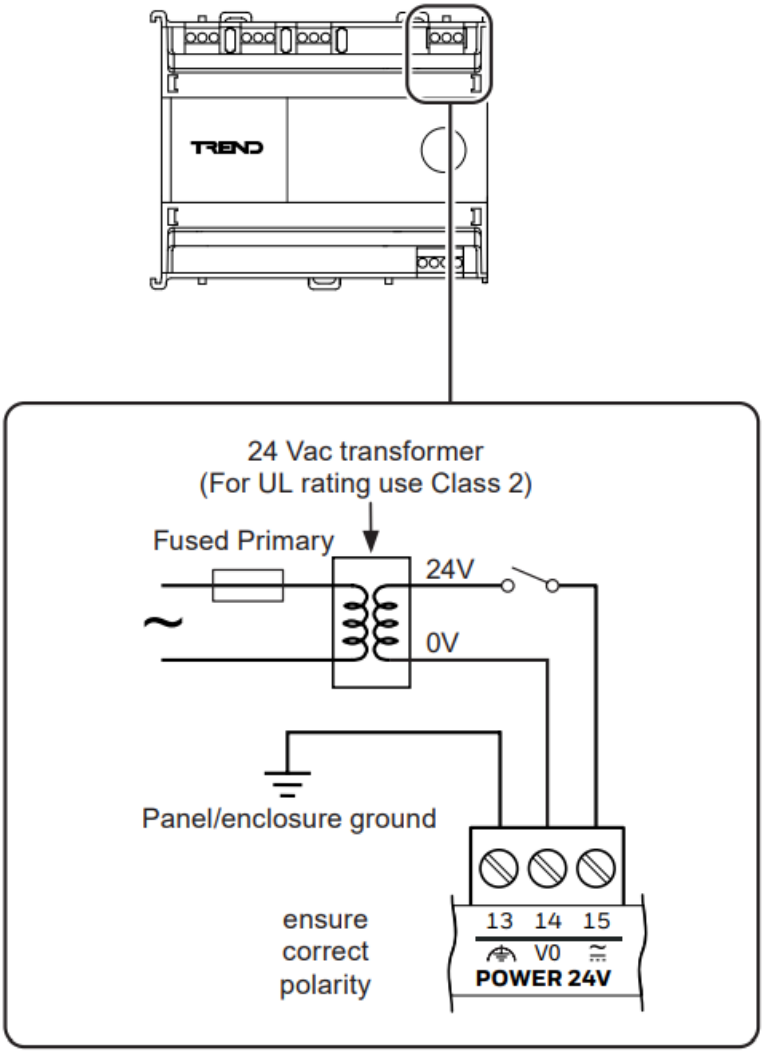
Terminal size:	0.5 to 2.5 mm² (20 to 14 AWG).
Terminal torque	0.45 to 0.62 Nm (4 to 5.5 lb-in).

Note: For UL rating use 22 to 14 AWG – Cu only cable.

Connection Type	Go to step…
Power	7
RS-485 Ports	8
T1L Bus	9
IQ3/4 IO Bus	10

Note: It is recommended that wire ends are terminated using suitable ferrules, especially when using stranded wire with push-fi t terminals.

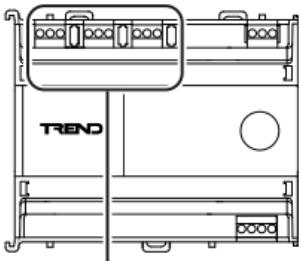
Connect Power



This equipment must be earthed (grounded).
Supply rating:
24 Vac ±20%, 50/60 Hz, 34VA (1.42A);
24 Vdc ±20%, 12.5W (0.52A).
If IO modules are to be powered from the controller's T1L bus, the above rating must be increased to take account of the additional load. Refer to the IQ5-IO Modules Data Sheet (TA201481) for details of module power consumption.
Power supply cable must have maximum operating temperature of 80°C or greater.
For UL rating the input power connections must be made using 18 AWG or larger wire rated at least 90ºC (194ºF).
The primary supply must include a fuse or circuit breaker appropriate for the transformer.
The 24 V supply must include a suitably rated switch in close proximity and be clearly marked as the disconnecting device for the unit.
Do not position the equipment so that the disconnecting device is difficult to operate.

DO NOT SWITCH ON POWER

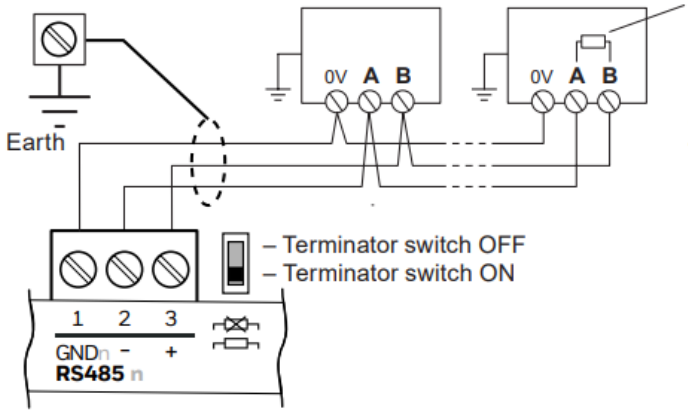
Connect RS-485 Networks (if required)

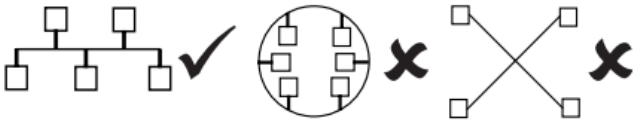


For use with Modbus, M-Bus, and/or XNC functionality. One port can also be used for an MSTP LAN of IQECOs.

Note: An appropriate converter will be required to enable connection to an RS-232 M-Bus network (e.g. using a PW60) or connection to an RS-485 4-wire network.

Where Modbus, M-Bus or XNC functionality is required this must be enabled by installing an INT licence. Where an MSTP LAN is required an NC licence must be installed and the controller operated in NC mode (see IQ5, IQ5-IO Installation Instructions - Configuration (TG201483).





The GND/0V terminal **MUST** be connected on all devices.

It is not recommended to use the screen as the 0V connection.

Termination: The bus must be terminated at each end with a resistor matched to the cable characteristic impedance (i.e. ±1%, ¼ Watt, range 100 to 130 Ω). If the IQ5 is at one end of a 120 Ω cable, switch ON its built-in terminator, otherwise switch it OFF. Termination must be applied at the far end(s) of the cable.

Bias: The IQ5 does not need the bus to be biased as it has a fault tolerant transceiver and applies a small bias. Other devices on the bus may require biasing, in which case it should be provided at one point on the bus.

Protocol	Device Count	Cable Type	Max Length* metres (feet)
Modbus	32**	120 Ω twisted pair	900 (2953)
M-Bus	60	120 Ω twisted pair	1000 (3280)
MSTP	30	120 Ω twisted pair	1200 (4000)
XNC	32	depends on chosen application	

** dependent on cable specification and baud rate.*
*** up to 32 unit loads.*

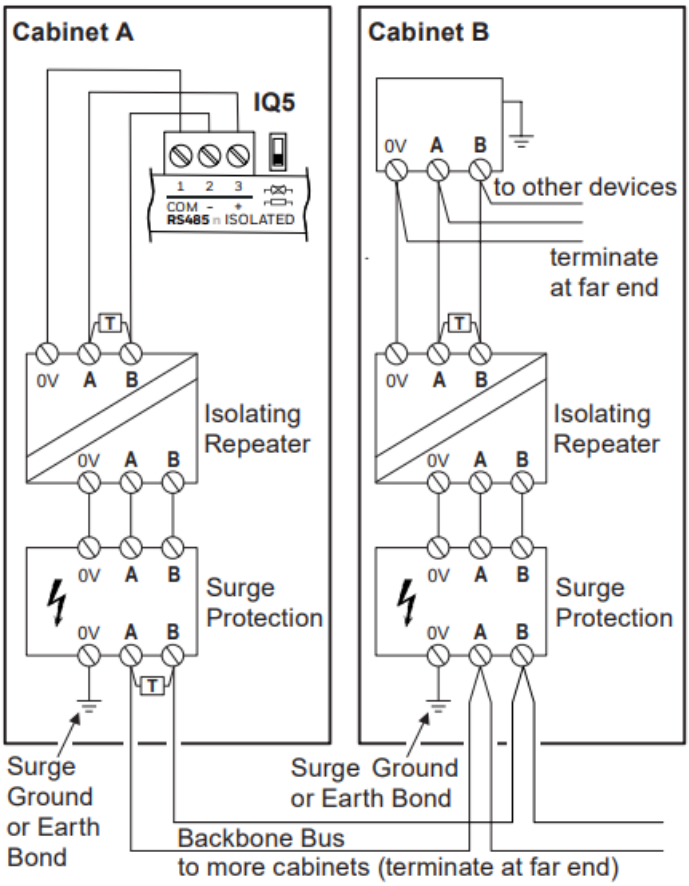
Cable screening is recommended for reliable operation in electrically noisy environments. The cable screen should be connected to earth at one point.

Earthing (Grounding) & Isolation Requirements

If the IQ5 and other units on the bus are in the same cabinet using the same power supply, each device must have a good physical earth (ground) connection.

If the IQ5 and other units on the bus are in different cabinets or use different power supplies (e.g. different UPS units), the cabinets must be isolated from each other.

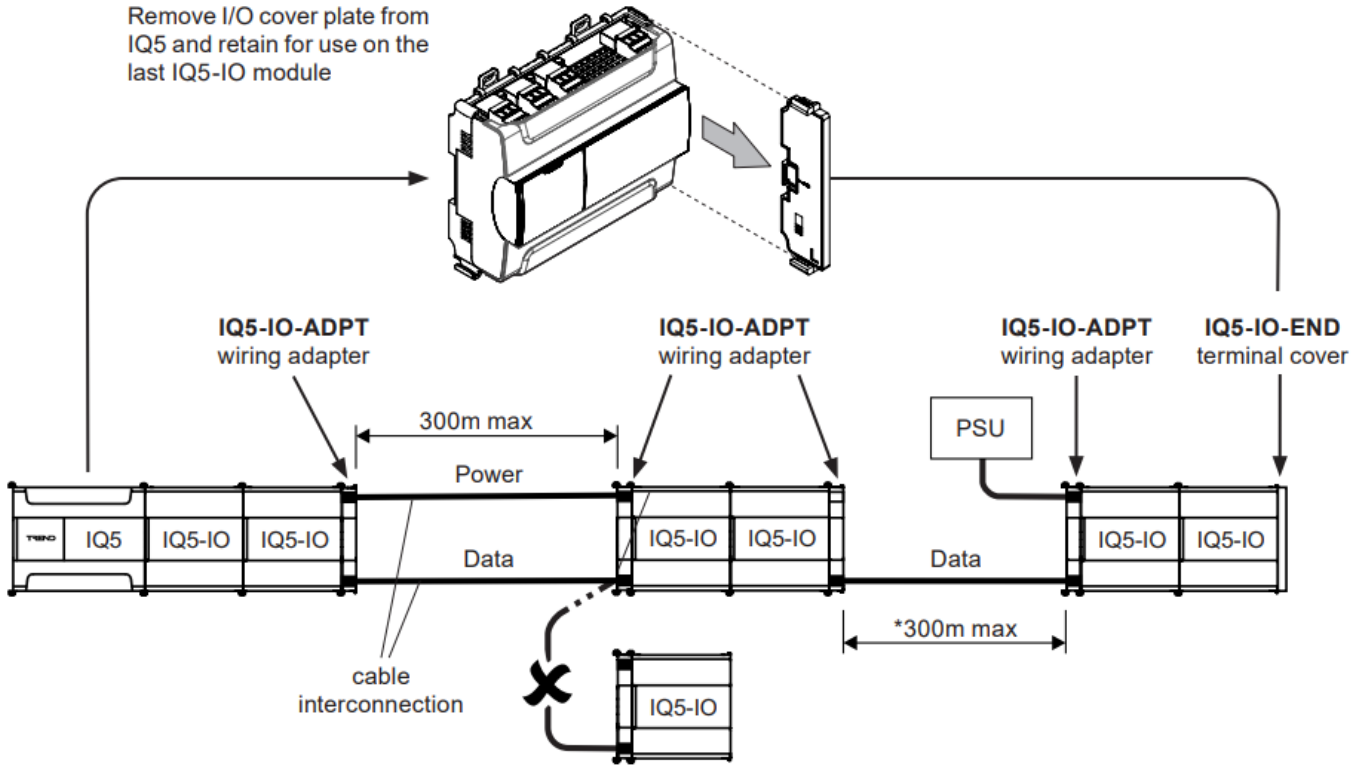
If the bus is likely to suffer from surge and grounding problems, surge protection should be added. The isolator should be connected to the earth (ground) of the nearest device, the 0V of the isolator and the surge protector should be connected together, and earth (ground) of the surge protector's exposed side (e.g. backbone bus) should be connected as directly as possible to the surge ground or earth bond. Ensure that terminators are fitted where indicated.



Install and Connect IQ5-IO Modules (T1L Bus) (if required)

Depending on the controller licence, up to 300 I/O channels are supported.

Remove I/O cover plate from IQ5 and retain for use on the last IQ5-IO module



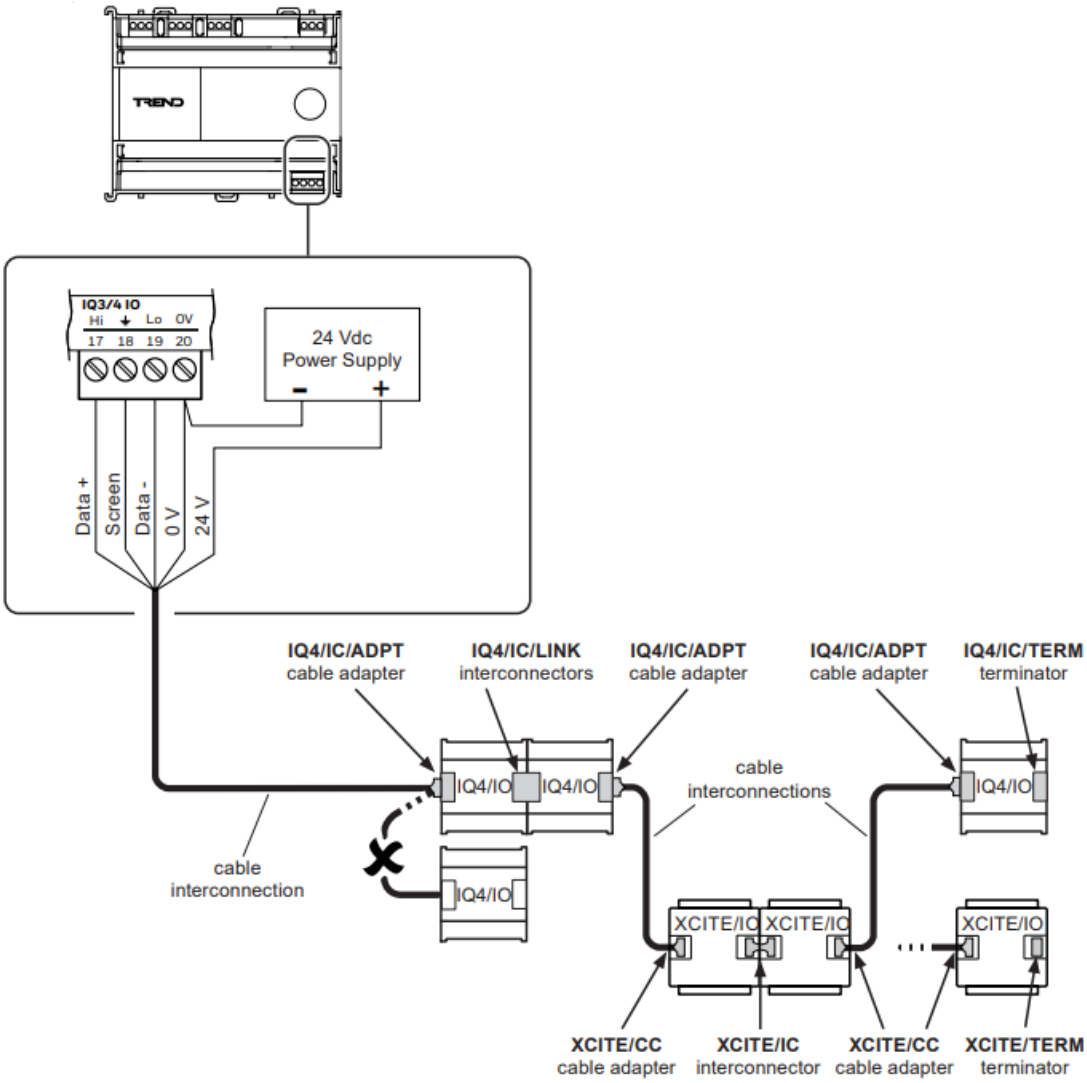
*Cable Length

Lon cable TP/1/0/16/HF/200 (Belden 8471) – up to 300 m (1000 ft) between modules.

MSTP cable TP/1/1/24/HF/305 or Belden equivalent 9841NH – up to 100 m (320 ft) between modules

For full IO module installation details and power requirements, please refer to: IQ5-IO Installation Instructions – Mounting (TA201484)

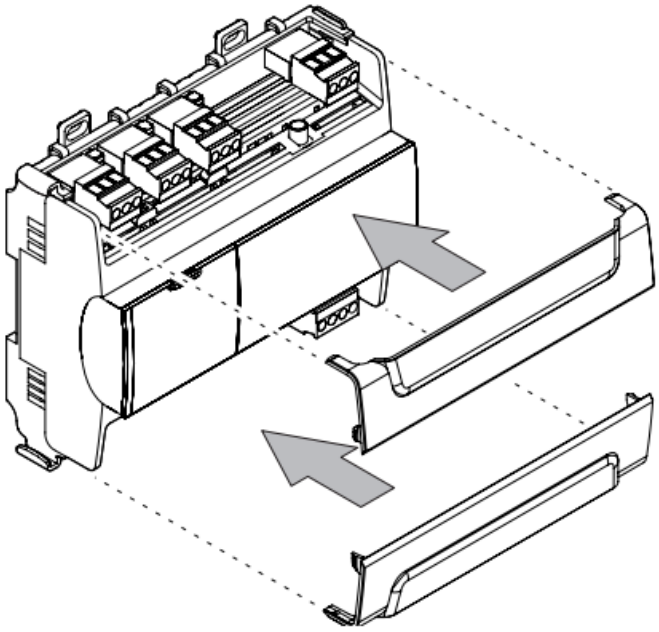
Install and Connect IQ4/IO or XCITE/IO Modules (IQ3/4 IO Bus) (if required)



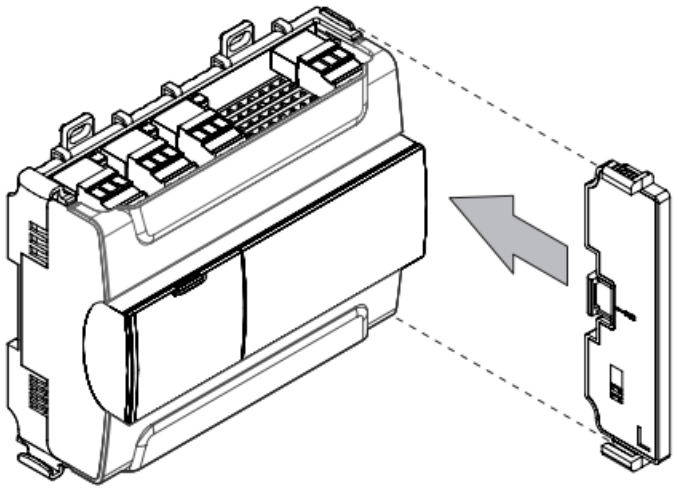
The IQ3/4 IO bus provides compatibility with I/O modules from the IQ4/IO and XCITE/IO ranges. Up to 192 I/O channels are supported on this bus.
Note: To use this bus it must be enabled by installing a CAN licence. See IQ5 Data Sheet (TA201480) for further details.
Note: No power is available via this connector. A separate 24 Vdc power supply must be provided. For all installations, if the bus voltage at an I/O module drops below 19.2 V at full load, install another power supply at that module.

Controller and 10 Module Configuration	Maximum I/O bus length depending on cable type (excluding rigid interconnectors)		Maximum No. of Modules
	Belden 3084A	Belden 7895A	
IQ5 controller with IQ4/10 modules only	total bus length up to 100 m (109 yards) or total bus length up to 300 m (328 yards) if IQ4/10 modules are within 100m (109 yards) of a power supply	total bus length up to 300 m (328 yards)	30
IQ5 controller with IQ4/10 modules and/or XCITE/I0 modules	total bus length up to 30 m (33 yards) Note: Maximum 10 m (11 yards) for certain system configurations – for details check the XCITE/I0 Modules Data Sheet (TA201352) and XCITE/I0 Installation Instructions – Mounting (TG200627).		15

Refit Terminal Covers
Note: Spare covers are available to order (e.g. IQ5-TCVR-140-10)

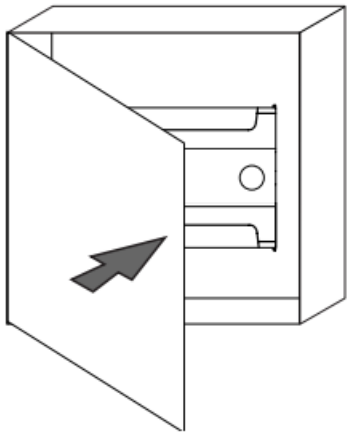


Fit IO Terminal Cover

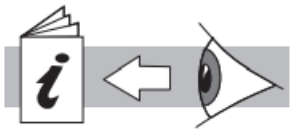


Note: Spare covers are available to order (e.g. IQ5-IO-END-10)

Close Panel / Enclosure



Configure IQ5 Controller and I/O Modules



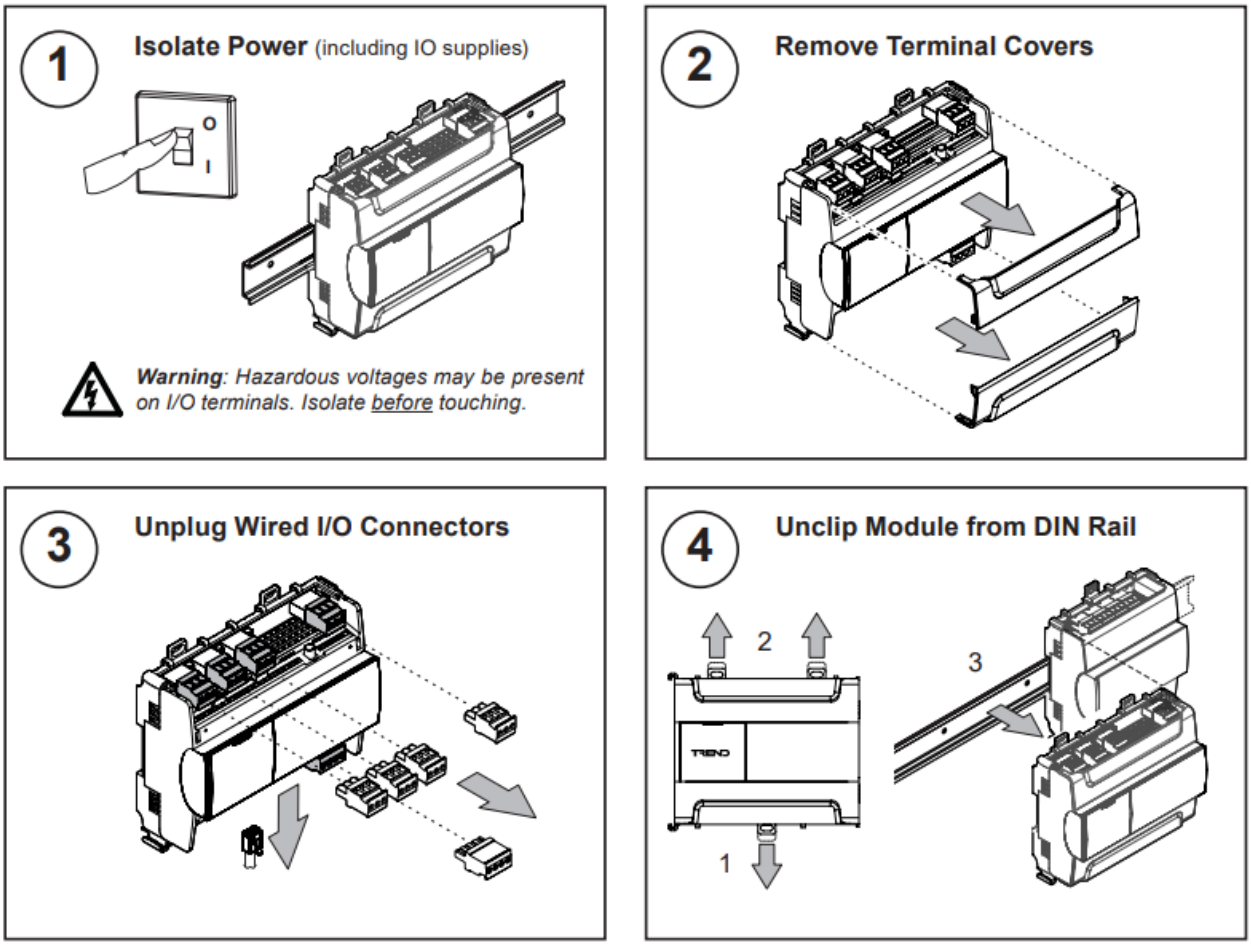
IQ5, IQ5-IO Installation Instructions – Configuring (TG201483)
IQ4/IO/.. Installation Instructions – Configuring (TG201343)
XCITE/IO/.. Installation Instructions – Configuring (TG201161)

FIELD MAINTENANCE

The IQ5 require no routine maintenance.

⚠**WARNING:** Contains no serviceable parts. Do notattempt to open the unit. Failure to comply may cause damage to the unit.

REMOVING CONTROLLER FROM DIN RAIL



DISPOSAL

WEEE Directive:

At the end of their useful life the packaging and product should be disposed of by a suitable recycling centre.

Do not dispose of with normal household waste.

Do not burn.

CHINA HAZARDOUS SUBSTANCES TABLE

Component Name	Hazardous Substances					
	(Pb) Lead (Pb)	(Hg) Mercury (Hg)	(Cd) Cadmium (Cd)	(Cr6+) Chromium VI Compounds (Cr6+)	(PBB) Polybrominated Biphenyls (PBB) Polybrominated	(PBDE) Diphenyl Ethers (PBDE)
Cables	X	0	X	0	0	0
PCB Assembly	X	0	X	0	0	0
Connectors	X	0	X	0	0	0
Enclosures (Plastic)	0	0	0	0	0	0
Enclosures (Metal)	X	0	0	0 0	0	
This table is prepared in accordance with the provisions of SJ/T 11364.						
Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.						
Indicates that said hazardous substance contained in all of the homogeneous materials for this part is above the limit requirement of GB/T 26572.						
All other components, not listed in the table, do not contain restricted substances above the threshold level						

TR CU Certification

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www.trendcontrols.com

Documents / Resources

	TREND IQ5 Controller [pdf] Installation Guide IQ5-IO, IQ5 Controller, IQ5, Controller

References

- Trend Controls | Honeywell Building Technologies
- Pages - default
- User Manual