Installation Instructions - Mounting

IQECO31/230

BACnet MS/TP Terminal Unit Controller

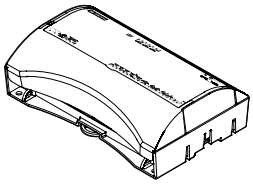
Important: Retain these instructions

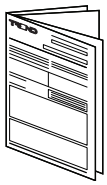
These instructions shall be used by trained service personnel only. If the equipment is used in a manner not specified by these instructions, the protection provided by the equipment may be impaired.

https://partners.trendcontrols.com

CONTENTS

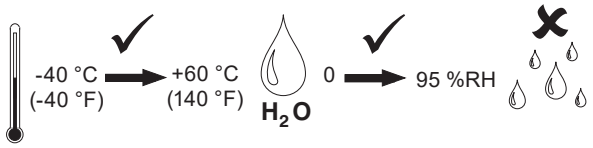
1 BOX CONTENTS





IQECO31/230
Installation Instructions - Mounting (TG201224)

2 STORING



Note: For temperatures below zero special care must be taken that there is no condensation on or within the unit.

3 INSTALLATION

Labels used on IQ™ECO31/230

	Service button
AUX	Connector for auxiliary power output
WMB 31 | 32	Connector for Wallbus displays
MS/TP 33 | 34	Connector for MS/TP trunk
	Connector for USB
230 VAC L N	Connector for 230 Vac input power.
	Connector for Universal Input
	Connector for Digital Input
	Connector for Thermistor Input
	Connector for Analogue Output

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).

MS/TP Network
This product should be connected to a BACnet MS/TP network. The network installation requirements are different from an IQL on its LonWorks® network.

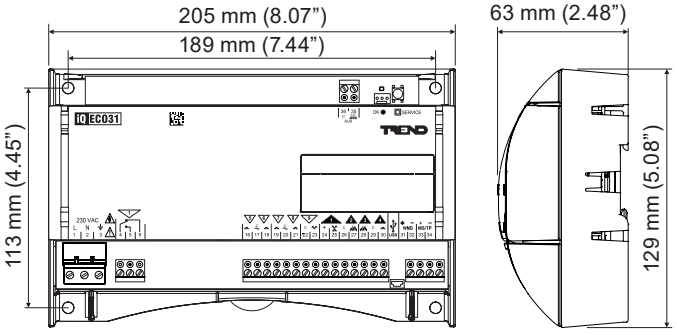
WARNING Removal of cover exposes dangerous voltages.

	Connector for Solid State Digital Output
	Connector for High Current Relay Output
OK	MSTP OK LED
	Caution, consult documentation
	Caution, possibility of electric shock

3.1 Installation - Mounting

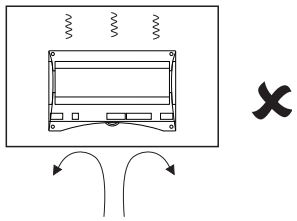
1

Dimensions

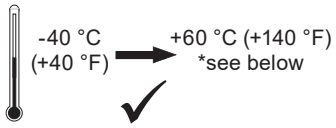


3.1 Installation - Mounting (continued)

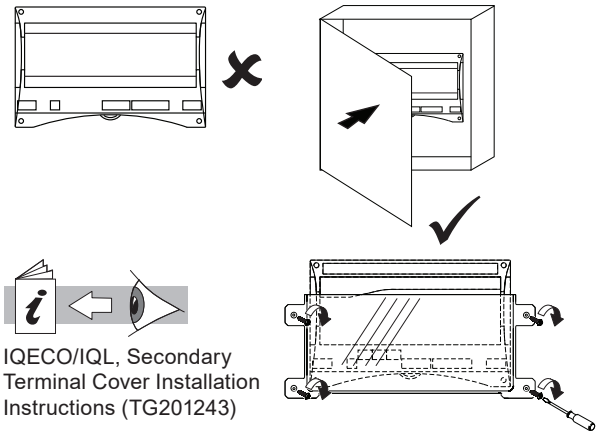
2 Mounting Requirements



Altitude	<2000 m (6562')
Pollution degree	2 (Only non-conducting pollution occurs)

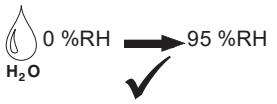


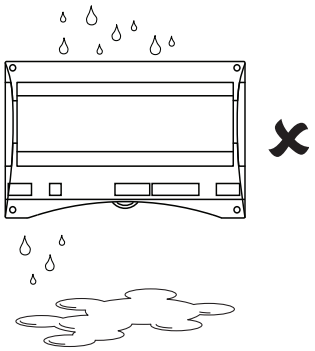
Either install in an enclosure rated to at least IP20 or equivalent or install with IQECO/IQL Secondary terminal cover.

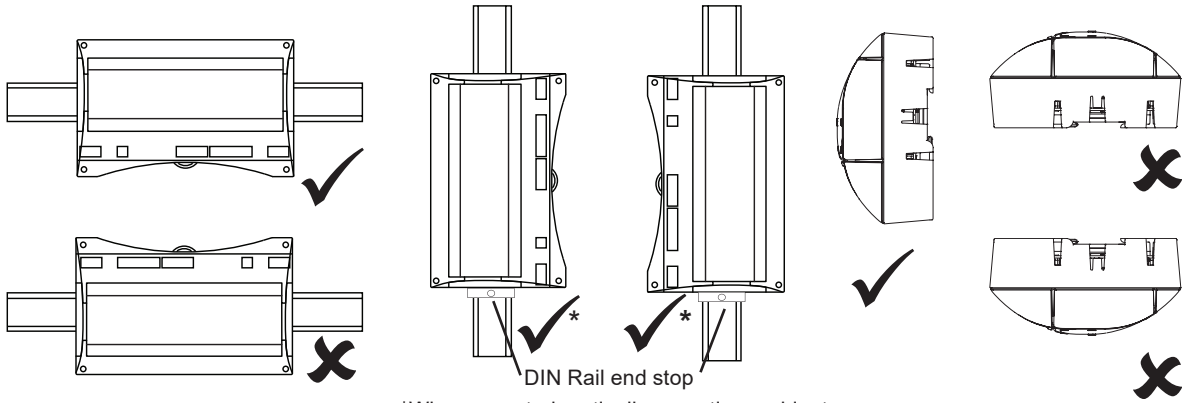


IQECO/IQL, Secondary Terminal Cover Installation Instructions (TG201243)

Note: For temperatures below zero special care must be taken that there is no condensation on or within the unit.

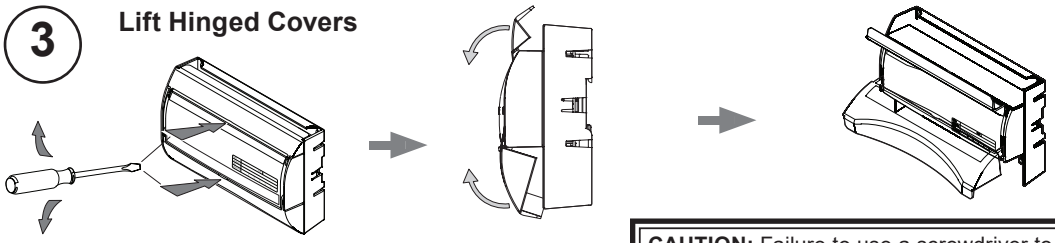






*When mounted vertically operating ambient limited to -40 °C (-40 °F) → +40 °C (+104 °F)

3 Lift Hinged Covers

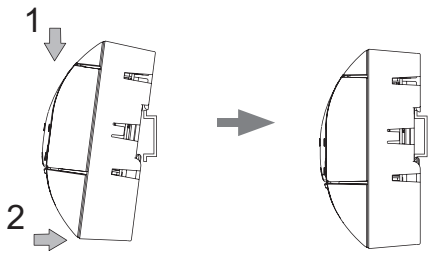


CAUTION: Failure to use a screwdriver to open the cover will cause damage to the unit.

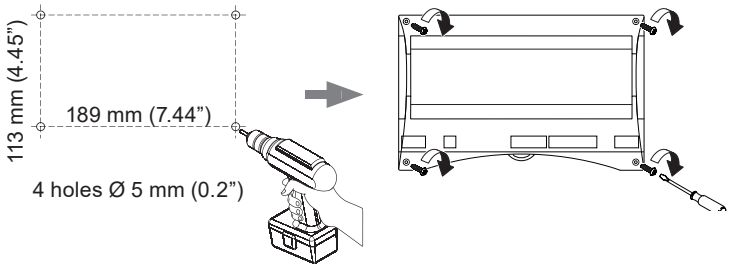
3.1 Installation - Mounting (continued)

4 Mount Unit

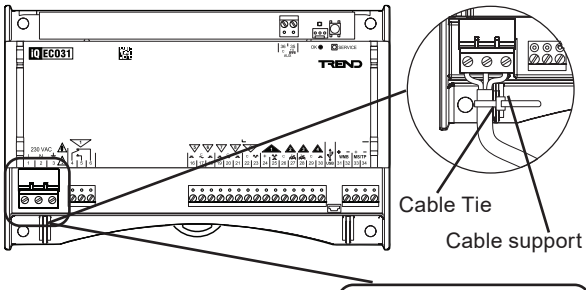
Either; DIN rail mounting

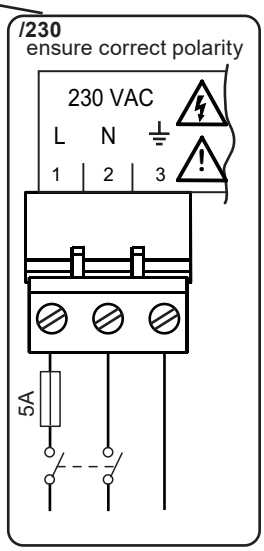


Or; surface mounting



5 Connect Power





Terminal size 0.14 to 2.5 mm² (22 to 12 AWG)

Terminals can exceed 60 ºC (140 ºF) in normal use. Ensure wire/cable rating has an appropriate temperature rating. Wire/Cable rated to 105 ºC (221 ºF) is recommended.

This equipment must be earthed (grounded).

A panel/enclosure clean earth (ground) consisting of a short (<300 mm, 12") stranded copper wire (>=1.5 mm², 16 AWG) to a short substantial earthed (grounded) metal part is recommended.

/230 230 Vac ±15% 50/60 Hz at 45 VA max (under full load) The 230 V supply must include a dedicated 5A fuse complying with BS1362 and a suitably rated switch in close proximity and be clearly marked as the disconnecting device for the unit. A 5 A circuit breaker with high breaking capacity may be used as an alternative.

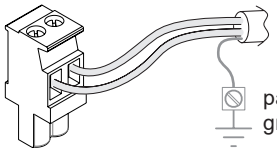
Do not position the equipment so that the disconnecting device is difficult to operate.

DO NOT SWITCH ON POWER

3.1 Installation - Mounting (continued)

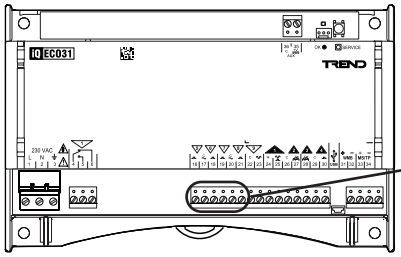
6 Connect Inputs/Outputs - Overview

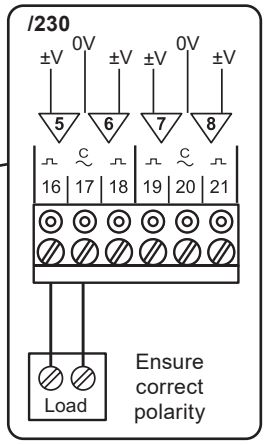
Plug-in connectors with screw terminals



Terminal size: 0.14 to 2.5 mm² (22 to 12 AWG).
Twisted pair cable recommended for all inputs/outputs e.g. TP/1/1/22/HF/200 (Belden 8761).
Screened cable is not generally required unless the cable passes through electrically noisy environments. If used, the screen must be connected to the local panel/enclosure ground and left unterminated at the far end.

7 Connect Solid State Digital Outputs (OUT5, OUT,6, OUT7, OUT8)

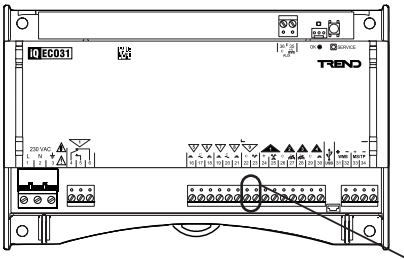


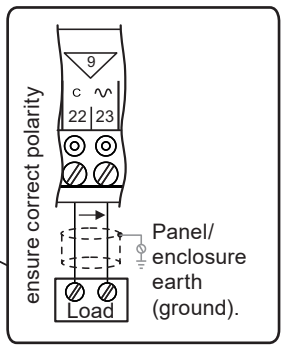


See IQECO 31, 32, 35, 38 Data Sheet (TA201176) to calculate available current.

/230 24 Vac synthesised.

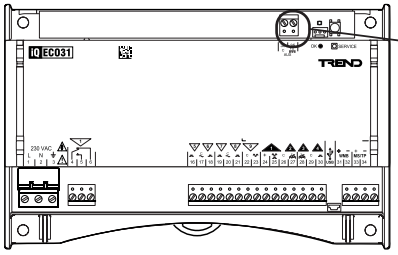
8 Connect Analogue Output (OUT9)

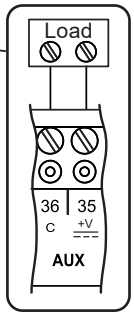




0 to 10 Vdc. Part of 21 Vdc combined supply shared with wallbus and auxiliary supply outputs see IQECO 31, 32, 35, 38 Data Sheet (TA201176) to calculate available current.

9 Connect Auxiliary Power Output (if required)





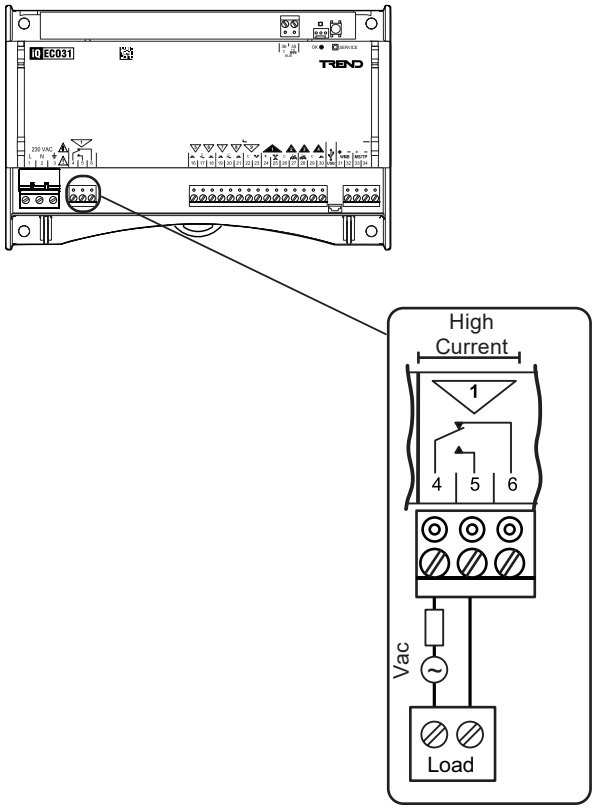
Use to power sensors, e.g. loop powered - see step (13).

+21 Vdc ±10%. Part of 21 Vdc combined supply shared with the analogue output and wallbus, see IQECO 31, 32, 35, 38 Data Sheet (TA201176) to calculate available current.

WARNING: Do not connect output of an external supply to the AUX output terminals.

3.1 Installation - Mounting (continued)

10 Connect Relay Output (OUT1)

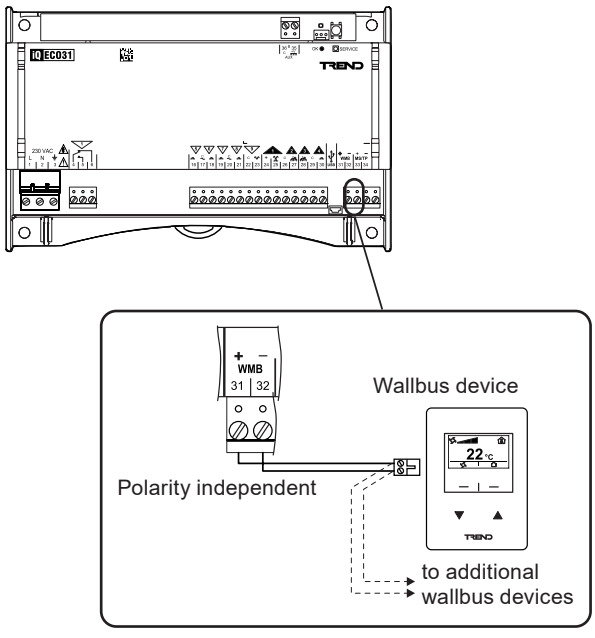


High Current 250 Vac 8 A.

Arc suppression recommended.
Relay Output Arc Suppression Installation Instructions (TG200208)

Ensure that external circuits are suitably protected against fault currents that would exceed the ratings for the switching circuits provided in this product.

11 Connect to Wallbus Device (if required)



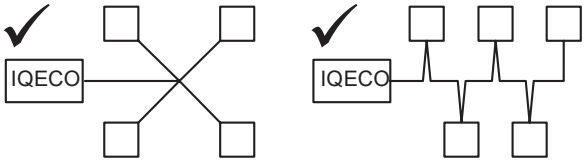
The IQECO can communicate with up to 14 wallbus devices (e.g. room sensor or display) dependant on available controller memory and power requirements of connected devices. It uses part of 21 Vdc combined supply shared with the analogue output and auxiliary supply outputs, see IQECO 31, 32, 35, 38 Data Sheet (TA201176) to ensure sufficient current is available for wallbus device.

Terminal size 0.14 to 2.5 mm^2 (22 to 12 AWG). Use twisted pair cable maximum length 60 m (200 feet).

Note: These terminals provide power to connected Wallbus product that is within the limits described by EN60950-1 (table 2B).

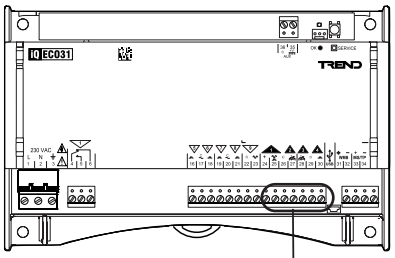
Number of devices: up to 14 (subject to power loading - refer to device documentation and controller memory).

IQECO Configuration Manual (TE201089)



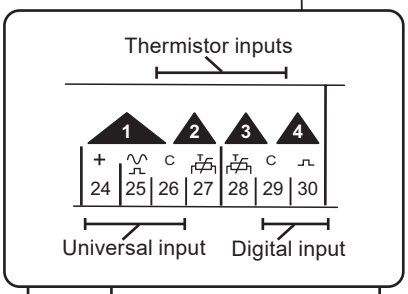
3.1 Installation - Mounting (continued)

12 Connect Inputs (IN1, IN2, IN3, IN4)

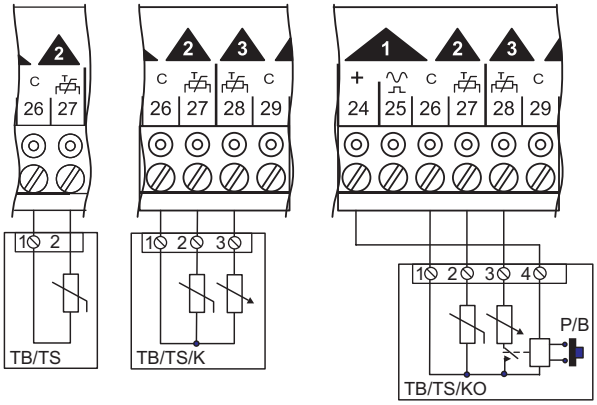


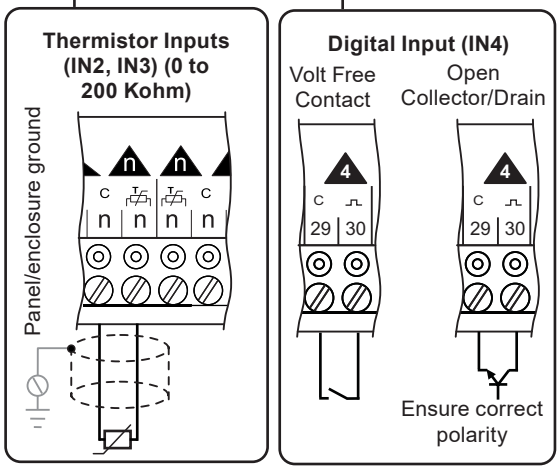
For loop powered current inputs the auxiliary supply is part of 21 Vdc combined supply shared with the analogue output, wallbus, and auxiliary supply outputs, see IQECO 31, 32, 35, 38 Data Sheet (TA201176) to calculate available current.

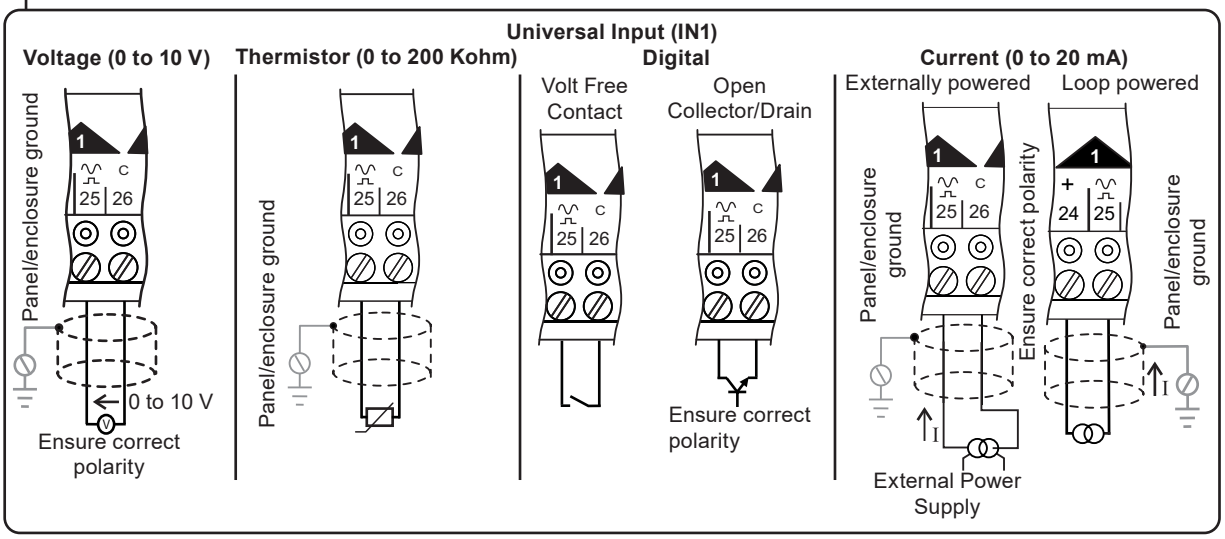
For universal inputs the sensor type module used for the input channel (as set up in the strategy) sets up the input conditioning (no linking required).



Example connections of TB/TS room temperature sensor, adjustment knob, and occupation override, inputs

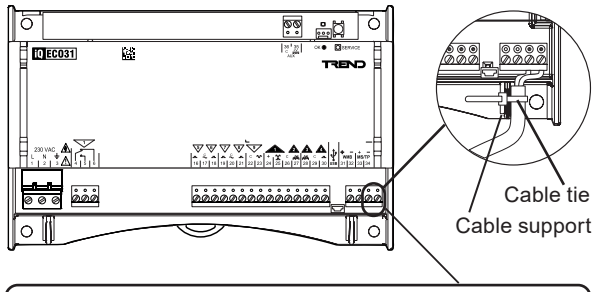


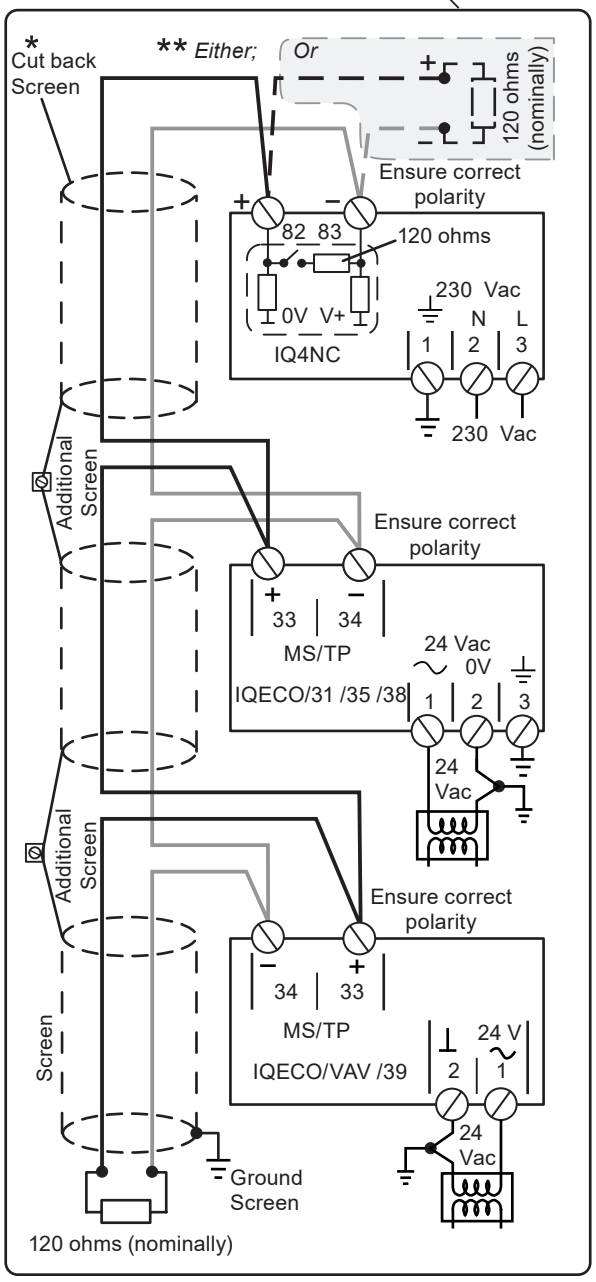




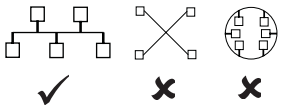
3.1 Installation - Mounting (continued)

13 Connect MS/TP Trunk





Lay cable as bus topology (not loop or star).

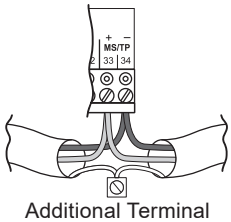


Ensure correct polarity. Ensure maximum number of devices described below is not exceeded.

Earthing: Connect all ground terminals and 24 Vac power supply neutrals to the panel/enclosure ground. Ensure normal safety earthing (grounding) practice.

Cable specification/Maximum length: Use tinned copper, screened, twisted-pair cable with characteristic impedance between 100 and 130 ohms. Distributed capacitance between conductors shall be less than 100 pF per meter (30 pF per foot). Distributed capacitance between conductors and screen shall be less that 200 pF per meter (60 pF per foot). Foil or braided screens are acceptable. The maximum recommended length of an MS/TP segment is 1200 meters (4000 feet) with AWG 18 (0.82 mm^2) conductor area) cable. There may be up to 3 repeaters between devices. The use of greater distances and/or different wire gauges shall comply with the electrical specifications of EIA-485. Details of recommended cable are given in the Trend TP Cable Data Sheet (TA200541).

***Screen** Each MS/TP segment must have a single point screen ground. Screen should be continuous. Do not ground the MS/TP screen using a controller terminal. Ground screen at one end and cut back at the other end. At connecting points, tie the screen through a terminal.



Additional Terminal

****Terminators:** 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 ohms). If the IQ4NC is at one end of a 120 ohm cable, switch in its built-in terminator, otherwise switch it out and fit a resistor at that end of the cable; the other end must be terminated with a matching resistor.

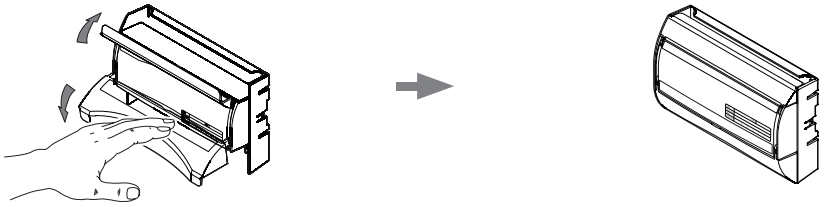
Maximum number of devices: There may be IQ4NC with up to 64 IQECO's or other manufacturers' devices on the MS/TP trunk. A separate limitation is that the MS/TP segment supports up to 32 'unit' loads. IQECO, IQ4NC and IQ3/BINC present a ¼ BACnet 'unit' load; other manufacturers' devices may have different 'unit' loads.

Biassing The IQ4NC provides network biassing (470 ohms); a maximum of two devices on the network can provide network biassing.

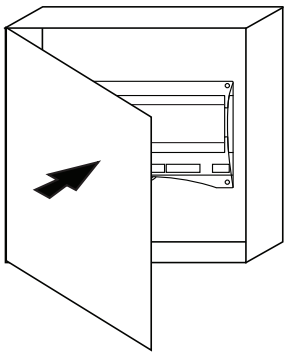
Failure to comply with these practices will result in significant impairment of the communication performance.

3 Installation - Mounting (continued)

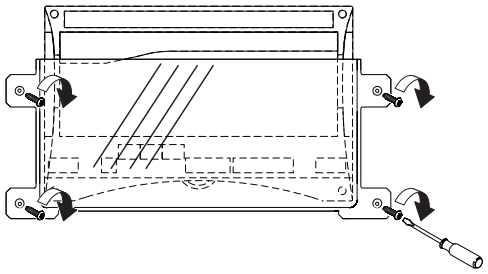
14 **Close Hinged Covers**



15 **Close Enclosure**



Or: replace IQECO/IQL secondary terminal cover



IQECO/IQL, Secondary Terminal Cover Installation Instructions (TG201243)

16 **Configure IQECO**

IQECO31, 35, 38 Installation Instructions - Configuration (TG201222)

5 CLEANING AND MAINTENANCE

The IQECO requires no routine maintenance.

6 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.

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TR CU Certification

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