SAFETY NOTES

WARNINGS

1. Any interruption of the protective conductor inside or outside the apparatus, or disconnection of the protective earth terminal will make the apparatus dangerous under some fault conditions. Intentional interruption is prohibited.
2. Live sensors: The unit is designed to operate if the temperature sensor is connected directly to an electrical heating element. It must be ensured that service personnel cannot touch connections to such inputs whilst the inputs are live. With live sensors, all cables, connections and switches for connecting the sensor must be mains rated for use in CAT II Environments.
3. Grounding the temperature sensor shield: Where it is common practice to replace the temperature sensor whilst the instrument is live, it is recommended that the shield of the temperature sensor be grounded to safety earth, as an additional protection against electric shock.
4. The instrument must not be wired to a three-phase supply with an unearthed star connection, because, under fault conditions, such a supply could rise above 240V RMS with respect to ground, thus rendering the instrument unsafe.

Notes:

1. Safety requirements for permanently connected equipment state:
   - **a.** A switch or circuit breaker shall be included in the building installation.
   - **b.** It shall be in close proximity to the equipment and within easy reach of the operator.
   - **c.** It shall be marked as the disconnecting device for the equipment.
2. Recommended external fuse ratings are: 2A Type T 250V.

1. This instrument is intended for industrial temperature and process control applications within the requirements of the European directives on safety and EMC.
2. Installation must be carried out only by qualified personnel.
3. To prevent hands or metal tools coming into contact with parts that are electrically live, the instrument must be installed in an enclosure.
4. Where conductive pollution (e.g. condensation,carbon dust) is likely, adequateair conditioning/filtering/ sealing etc. must be installed in the enclosure.
5. The equipment is designed for process monitoring and supervision in an indoor environment.If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.
6. The mains supply fuse within the power supply is not replaceable. If it is suspected that the fuse is faulty, the Eurotherm global support team should be contacted for advice.
7. Whenever it is likely that protection has been impaired, the unit shall be made inoperable,and secured against accidental operation. The Eurotherm global support team should be contacted for advice.
8. The unit must be wired according to the instructions in this installation sheet.
9. Before any other connection is made, the protective earth terminal shall be connected to a protective conductor. The mains (supply voltage) wiring must be terminated in such a way that, should it slip, the Earth wire would be the last wire to become disconnected. The protective earth terminal must remain connected (even if the equipment is isolated from the mains supply), if any of the I/O circuits are connected to hazardous voltages*. The protective earth connection must always be the first to be connected and the last to be disconnected.
   Wiring must comply with all local wiring regulations, e.g. in the UK, the latest IEEE wiring regulations (BS7671) and in the USA, NEC class 1 wiring methods.
10. Signal and supply voltage wiring should be kept separate from one another. Where this is impractical, shielded cables should be used for the signal wiring.
11. The maximum continuous voltage applied between any of the following terminals must not exceed 240Vac.
    1. Relay output to logic, dc or sensor input connections
    2. Any connection to ground.

    The ac supply must not be connected to sensor input or low-level inputs or outputs.
12. Over-temperature protection: Aseparateover-temperatureprotectionunit(withan independent temperature sensor) shall be fitted to isolate the process heating circuit should a fault condition arise.
    Alarm relays within the recorder/controller do not provide protection under all fault conditions.
13. In order to allow the power supply capacitors to discharge to a safe voltage, the supply must be disconnected at least two minutes before the instrument is removed from its sleeve. The touching of the exposed electronics of an instrument which has been removed from its sleeve must be avoided.
14. Instrument labels may be cleaned using iso-propyl alcohol, or water or water-based productsA mild soap solution may be used to clean other exterior surfaces.

* A full definition of 'Hazardous' voltages appears under 'Hazardous live' in BS EN61010. Briefly, under normal operating conditions, hazardous voltages are defined as being > 30V RMS (42.2V ac peak) or > 60V dc.

RECORDER LABELLING

The following table defines the meaning of the symbols which may appear on the recorder labelling.

⚠	Refer to the Manual for instructions		Risk of electrical shock
⏚	Protection Earth		Precautions against static electrical discharge should be taken when handling this unit
~	This recorder for ac supply only		Ethernet connector
⎓	This recorder for dc supply only		USB connector
≂	This recorder for either ac or dc supply only		Serial communications connector

Eurotherm: International sales and service www.eurotherm.com

Eurotherm Ltd
Faraday Close, Worthing,
West Sussex, BN13 3PL
United Kingdom

Sales Enquiries
T +44 (01903) 695888

General Enquiries
T +44 (01903) 268500
E info.eurotherm.uk@se.com

Eurotherm Automation SAS
6 chemin des joncs - CS 20214
69574 Dardilly cedex
France

T +33 (0)4 78 66 45 00
E info.eurotherm.fr@se.com

Worldwide Offices
www.eurotherm.com/contact-us

Scan for local contacts

Eurotherm Part No. HA028910ENG006 - November 2021

SPECIFICATION

Environmental Performance

Temperature limits:	Operation:	0 to +50°C
	Storage:	-20 to 60°C
Humidity limits (Non-condensing)	Operation:	5% to 80%
	Storage:	5% to 90% RH
	Altitude (max):	<2000 meters
Protection:	Bezel and display:	IP66
	Sleeve:	IP20
	6100A Portable case:	IP21
Shock:		BS EN61010
Vibration (10Hz to 150Hz):	6100A/6180A:	BSEN60873 Section 9,18
	6100XIO/6180XIO:	1g peak

Electromagnetic Compatibility (EMC)

Emissions/Immunity:	BS EN61326

Electrical safety

	BS EN61010 Installation category II, Pollution degree 2

6100A/6180A Power requirements

Supply voltage	Standard:	100 to 230V ac ±15%; 47 to 63Hz or 110 to 370V dc
Power (Max):		60VA (Inrush current 36A)
Fuse type:		None
Interrupt protection	Standard:	Holdup >200msec, at 240V ac, with full load

6100XIO/6180XIO Power requirements

Supply voltage:		19.2 to 28.8V dc (24V dc nominal)
Power consumed:	6100XIO:	20W
	6180XIO:	24W
Fuse:		No user replacement fuses
Inrush current:		10A max

6100A/6180A Input board

Isolation:	Channel to channel:	300V RMS or dc (double insulation)
	Channel to ground:	300V RMS or dc (basic insulation)
Overvoltage protection:		50 volts peak (150V with attenuator)
Max number channels:	6100A:	18
	6180A:	48

6100A/6180A Relay Board

Isolation:	Relay to relay:	300V RMS (double insulation)
	Relay to ground:	300V RMS (basic insulation)
Max ratings contact:		250V ac 2 Amps 500VA
Max switching power: Max number of relay boards / relays	6100A:	4 boards / 12 relays
	6180A:	9 boards / 27 relays

6100A only Isolated Transmitter PSU

Max rating:		25V at 20mA
Isolation:	Channel to channel:	100V RMS or dc (double insulation)
	Channel to ground:	100V RMS or dc (basic insulation)

Fuse (20mm Anti-surge type T):

Supply Voltage	Fuse Rating
110/120V ac	100mA
220/240V ac	63mA

6100A/6180A Serial Communications

Isolation:	Term to ground:	50V RMS or dc (basic insulation)

6100A/6180A Analogue (retransmission) Output

Isolation:	Channel to channel:	300V RMS (double insulation)
	Channel to ground:	150V RMS (basic insulation)
Range:	Voltage:	0 to 10V
	Current:	0-20mA (max load resistance 1Kohm

6100A/6180A Event Input

Isolation:	Channel to channel:	0V (common end)
	Channel to ground:	100V RMS or dc (basic insulation)
Logic level:	Low:	-30 to +0.8V
	High:	+2 to +30V

Schneider Electric

6000

Series Data Management ...

Eurotherm®

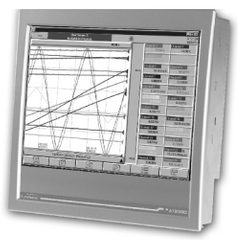
Expertise in systems and solutions, services and support

PRODUCT TOOLS UPDATES

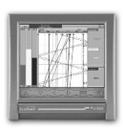
https://www.eurotherm.com/en/eurotherm-products/recorders-and-data-acquisition-en/recorders-software-en/

6100XIO
Small Frame ¼VGA

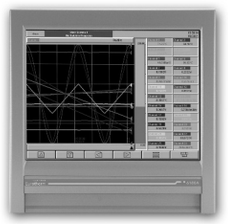
6180XIO
Large Frame XGA



6100A
Small Frame ¼VGA



6180A
Large Frame XGA



ELECTRICAL INSTALLATION

Supply Voltage Wiring

AC Supply
Recommended wire size
16/0.2 (0.5mm²) (AWG20)

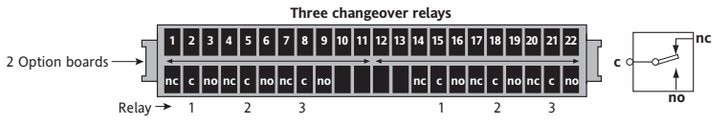
Signal Wiring

Supply
See Specification Side 2 for ratings

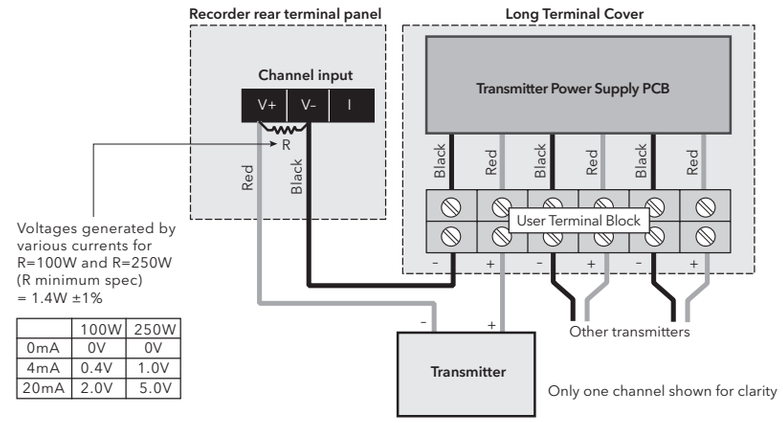
Recommended wire size
28-11 AWG (0.081mm² – 4.13mm²)
Use Copper conductors only
3.5Lb-in (0.35Nm) Terminal tightening torque

Diagrams show connector locations for the input channel wiring and optional relay output wiring for the basic small and large frame recorders respectively.

6100A/6180A RELAY BOARD WIRING

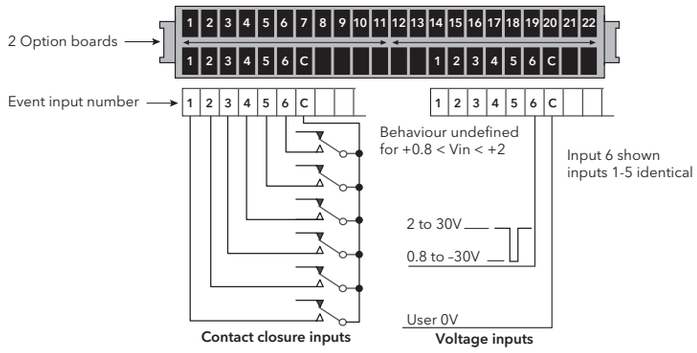


6100A ONLY ISOLATED TRANSMITTER POWER SUPPLY UNIT

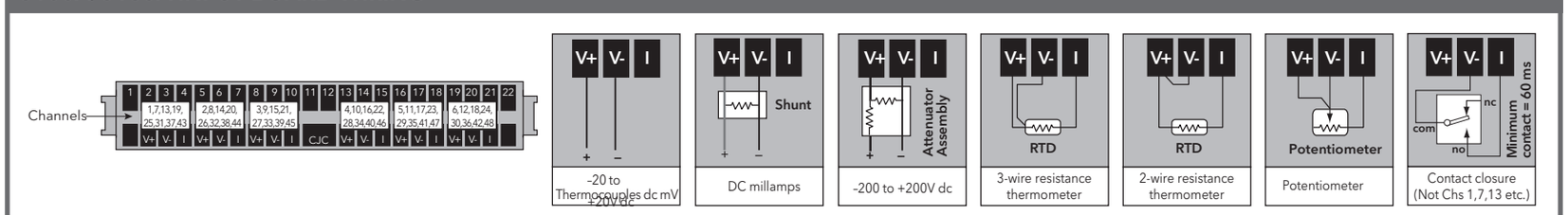


	100W	250W
0mA	0V	0V
4mA	0.4V	1.0V
20mA	2.0V	5.0V

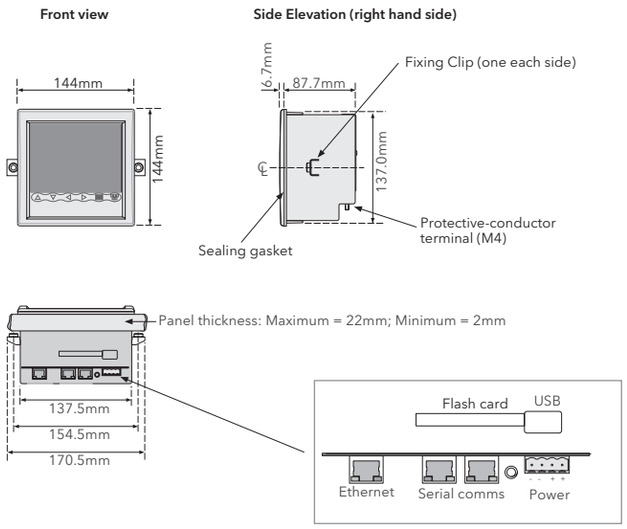
6100A/6180A EVENT INPUT WIRING



6100A/6180A INPUT BOARD WIRING



6100XIO MECHANICAL INSTALLATION DETAILS

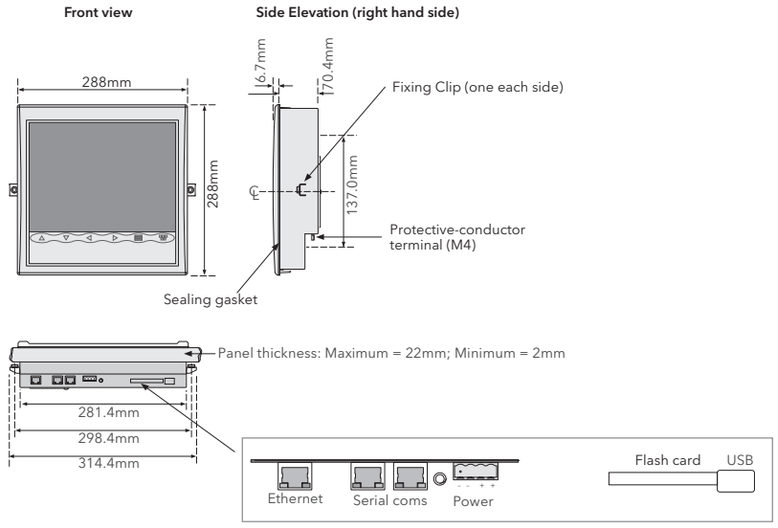


Panel Cutout Details
138mm x 138mm (+1 - 0)

PANEL MOUNTING DETAILS
Installed panel angle:
Vertical panels only
Minimum inter-spacing: 50mm vertical or horizontal

Note. Where multiple units are mounted in close proximity with one another, steps must be taken to ensure that the resulting ambient temperature does not exceed the specified maximum operating temperature of 50°C.

6180XIO MECHANICAL INSTALLATION DETAILS

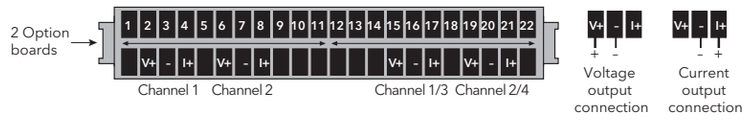


Panel Cutout Details
282mm x 282mm (+1.3 - 0)

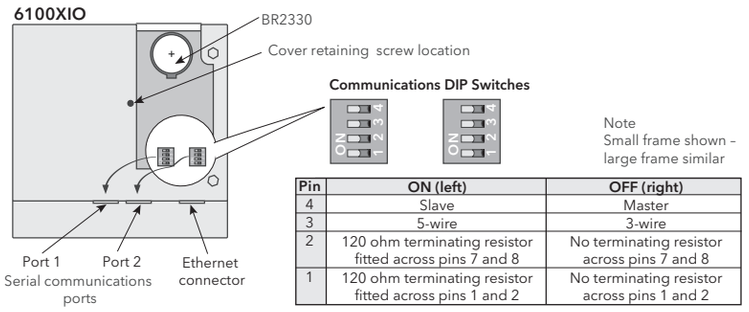
PANEL MOUNTING DETAILS
Installed panel angle:
Vertical panels only
Minimum inter-spacing: 50mm vertical or horizontal

Note. Where multiple units are mounted in close proximity with one another, steps must be taken to ensure that the resulting ambient temperature does not exceed the specified maximum operating temperature of 50°C.

6100A/6180A ANALOGUE OUTPUT WIRING

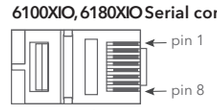


6100XIO/6180XIO CONNECTION LOCATION – Small and Large Frame Unit



Pin	ON (left)	OFF (right)
4	Slave	Master
3	5-wire	3-wire
2	120 ohm terminating resistor fitted across pins 7 and 8	No terminating resistor across pins 7 and 8
1	120 ohm terminating resistor fitted across pins 1 and 2	No terminating resistor across pins 1 and 2

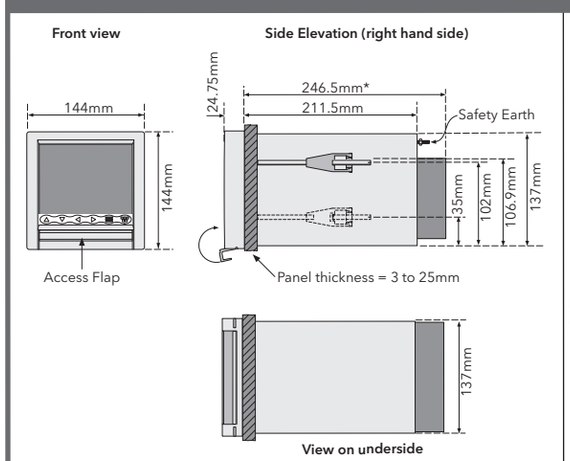
6100XIO, 6180XIO Serial communication port pinout

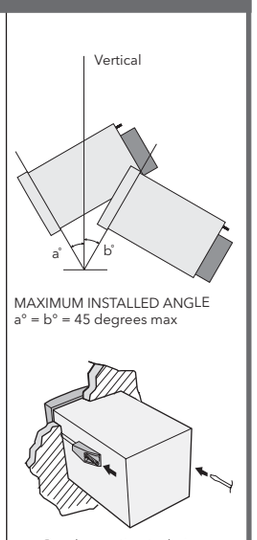


RJ 45 plug
View on underside

Pin	5-wire Master	5-wire Slave	3-wire Master/Slave
1	RxB	TxB	B
2	RxA	TxA	A
3	Common	Common	Common
4	NC	NC	NC
5	NC	NC	NC
6	Common	Common	Common
7	TxB	RxB	NC
8	TxA	RxA	NC

6100A MECHANICAL INSTALLATION DETAILS





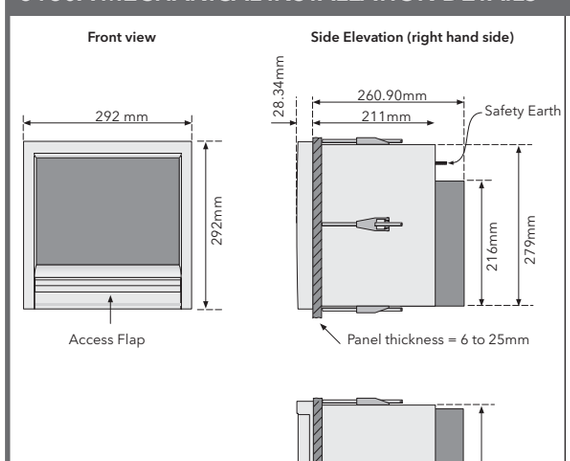
Minimum recommended inter-unit spacing	
Side clamps	Top/bottom clamps
x = 15mm (0.6 inch) y = 10 mm (0.4 inch)	x = 10mm (0.4 inch) y = 15mm (0.6 inch)

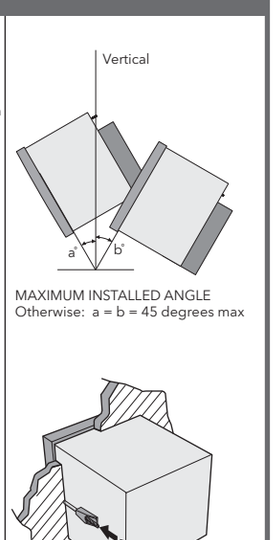
* Standard Terminal Cover
246.5 mm

* Long Terminal Cover
288mm (closed)
415mm (open)

Panel Cutout Details
138mm x 138mm (+1 - 0)

6180A MECHANICAL INSTALLATION DETAILS





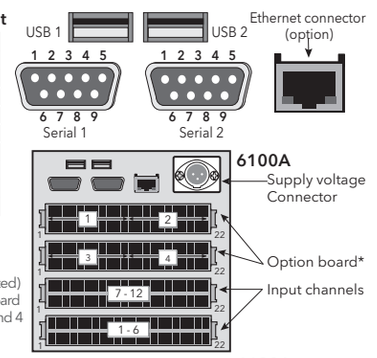
Minimum recommended inter-unit spacing	
Side clamps	Top/bottom clamps
x = 25mm (1 inch) y = 12.5 mm (0.5 inch)	x = 12.5mm (0.5 inch) y = 25mm (1 inch)

Panel Cutout Details
281mm x 281mm (+1 - 0)

6100A/6180A CONNECTION LOCATION – Small and Large Frame Unit

6100A, 6180A Serial communication port pinout

Pin	EIA232	EIA485 (5-wire)	EIA485 (3-wire)
1	Not connected	RxA	Link to pin 7
2	Rx	Not connected	Not connected
3	Tx	Not connected	Not connected
4	DTR	Not connected	Not connected
5	Signal ground		
6	Not Connected	RxB	Link to pin 8
7	Not Connected	TxA	TxA/RxA
8	Not Connected	TxB	TxB/RxB
9	5.0V via 1500W		



Low supply voltage option