**T/PC PRT Contact Temperature Sensor**

Description

PT100 temperature sensor for accurate measurement of surface temperatures. Suitable for use in exposed locations, the stainless steel element has a flat surface that can make good contact with a wide range of pipework from ½" diameter upwards. Junction box mounted electronics provide 4 to 20 mA output. IP67 rated housing with M20 conduit entry fitted with M16 cable gland. Supplied with strong, quick fit jubilee clip suitable for pipes up to 8" (203 mm) diameter.

Features

- PT100 accuracy
- Simple 2 wire connection
- 4 to 20 mA output
- Stainless steel probe
- IP67 (NEMA6) housing
- Junction box mounted electronics
- M20 conduit entry/M16 cable gland
- Suitable for retrofit
- Quick fit jubilee clip or cable ties

Physical

2 m (6'6") cable

stainless steel probe

117 mm (4.61")

M20 conduit
M16 gland

57 mm (2.24")

97 mm (3.82")
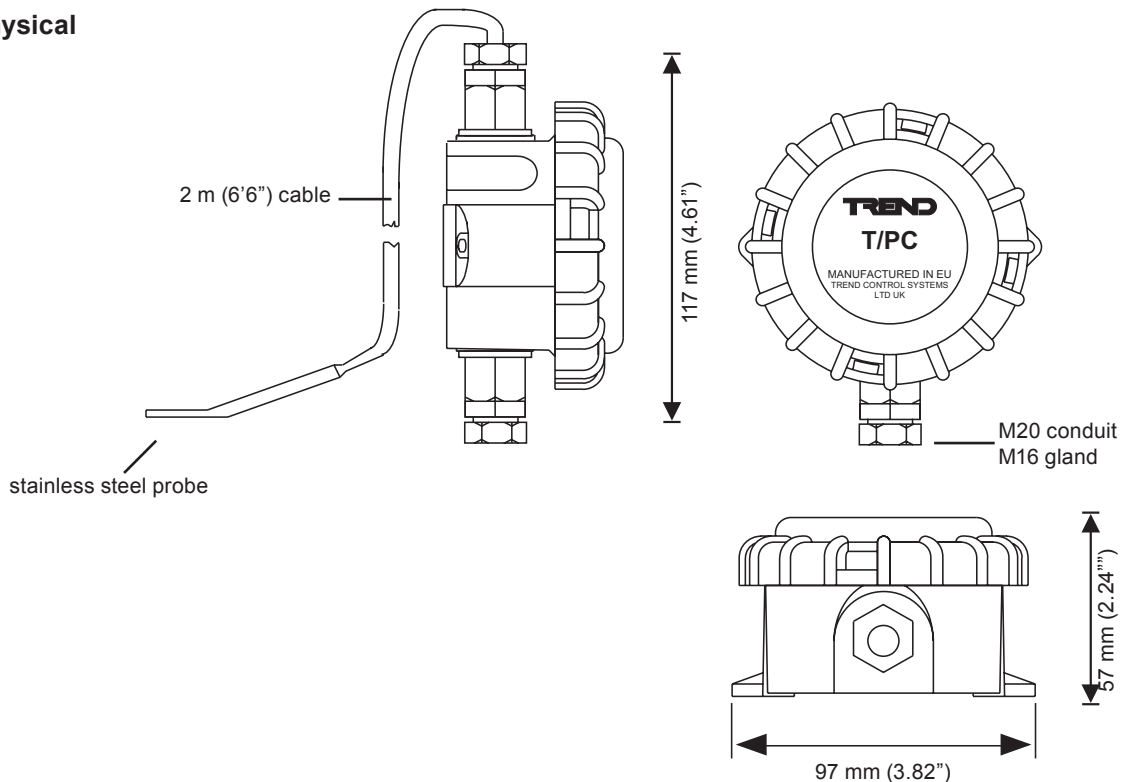
INSTALLATION

Sensor Head

Choose an accessible location for the sensor head, where the element will make good contact with the surface that is to be measured. The probe temperature range is -40 °C to +160 °C (-40 °F to +320 °F).

However the sensor's measurement ranges are:

T/PC/-40	-40 °C to +50 °C (-40 °F to +122 °F)
T/PC/40	-10 °C to +40 °C (+14 °F to +104 °F)
T/PC/110	-10 °C to +1100 °C (+14 °F to +230 °F)
T/PC/160	-10 °C to +160 °C (+14 °F to +320 °F)

either use jubilee clip (provided)   or use cable tie(s) (not provided)

Strap the sensor head to the pipe using the jubilee clip provided or cable ties. If using the clip, wrap it around the pipe, pass the sensor head under the strap, and tighten the screw (as shown). Ensure that good contact is made between the sensor head and the surface. Where possible use a thermally conductive paste to ensure a good thermal contact and apply any insulation over both sensing element and pipe.

jubilee clip

cable ties

sensor head

Ø 8" (203 mm) max.
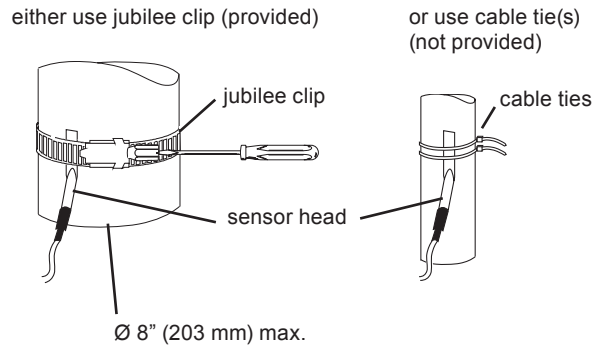
Junction Box

The junction box should be mounted on a flat surface. Choose a position which is a maximum of 2 m (6½') away from the sensor head. The permitted ambient temperature range is -40 °C to +50 °C (-40 °F to +122 °F). Avoid direct contact with steam.

Mark the position of the 2 fixing holes with 85 mm (3.35") fixing centres. Drill holes in positions marked. Screw the junction box in position using suitable wall plugs (if required) and 2 No. 6 (M3.5) screws, (85 mm, 3.35" fixing centres).

2 off No 6 (M3.5) screws

85 mm (3.35") centres
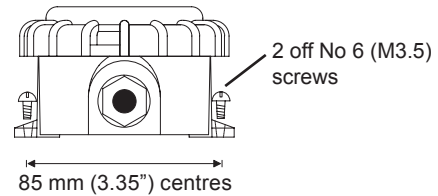
CONNECTIONS

Connect to the IQ controller as shown:

(1)   Remove quarter turn quick release box lid and unplug 2 part connector.

(2)   Insert cable through cable gland and connect signal wires as shown using either polarity.

(3)   Plug in connector and replace lid

(4)   The cable screen should be terminated at the controller.

(5)   Configure controller input channel for current (I).
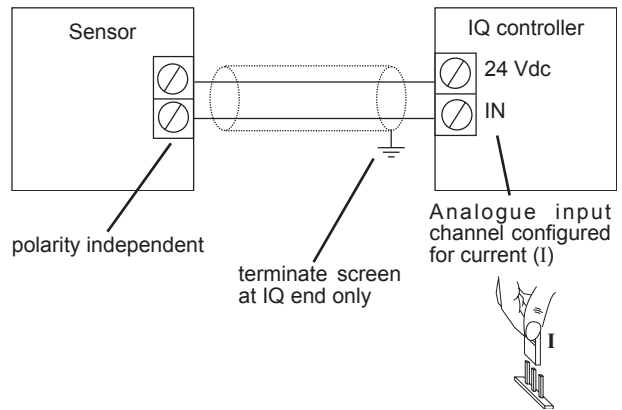
Note: The IP67, NEMA6, rating is only achieved if correctly installed with cable gland, or conduit connection, fully tightened.

Note: If connecting to an IQ22x controller (including /ADL and /OC), do not connect to C (+24V), instead connect to AUX+ (+24V).

Full installation details are given in the T/PC installation instructions TG100508A.

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.

ORDER CODES

T/PC/-40	PRT contact sensor with jubilee clip (-40 °C to +50 °C, -40 °F to +122 °F)
T/PC/40	PRT contact sensor with jubilee clip (-10 °C to +40 °C, +14 °F to +104 °F)
T/PC/110	PRT contact sensor with jubilee clip (-10 °C to +110 °C, +14 °F to +230 °F)
T/PC/160	PRT contact sensor with jubilee clip (-10 °C to +160 °C, +14 °F to +320 °F)

SPECIFICATIONS

Sensing Element   :Platinum RTD, 100 Ω @ 0 °C (32 °F)
                      DIN EN60751 (according to IEC 751)
                      Class A. dt= ±(0.15+0.002.|t|) °C
Measurement ranges
  /-40   :-40 °C to +50 °C (-40 °F to +122 °F)
  /40   :-10 °C to +40 °C (+14 °F to +104 °F)
  /110   :-10 °C to +110 °C (+14 °F to +230 °F)
  /160   :-10 °C to +160 °C (+14 °F to +320 °F)
Output Signal   :4 to 20 mA
Accuracy transmitter :0.2 % span
Supply voltage   24 Vdc ±15 %
Ambient limits
box   :-40 °C to +50 °C (-40 °F to +122 °F)
probe   :-40 °C to +160 °C (-40 °F to +320 °F)
Humidity (box)   :0 to 90 % RH non condensing
Cable entry   :M20 conduit (or M16 cable gland)
Connections   :2 part screw terminal for 0.5 to 2.5
                      mm^2 cross section area (20 to 14 AWG)
                      cable

Dimensions
  box   :57 mm (2.24") x 117 mm (4.61") max
                      diameter
  cable   :2 m (6'6")

Material
  enclosure   :impact resistant ABS
  probe   :316 stainless steel

Environmental protection   :IP67, NEMA6

Input channels and sensor scaling

For IQ controllers link input channel for current, I, and set up the sensor type scaling; the recommended method of setting the sensor type scaling is to use SET.

For all IQ2 series controllers with firmware of version 2.1 or greater, or IQ3/4 series controller, one of the following SET Unique Sensor References should be used:

(T/PC/-40)	**PRT I -40 +50** (°C)	**PRT I -40 +122** (°F)
(T/PC/40)	**PRT I -10 +40** (°C)	**PRT I -14 +104** (°F)
(T/PC/110)	**PRT I -10 +110** (°C)	**PRT I -14 +230** (°F)
(T/PC/160)	**PRT I -10 +160** (°C)	**PRT I -14 +320** (°F)

Alternatively set sensor scaling mode to 5 (characterise) and enter the scaling manually as defined in the appropriate table below. Note that for IQ3 the scaling mode and exponent (E) do not need to be set up.

	Unit	/-40		/40		/110		/160	
Y	input type	2 (current)		2 (current)		2 (current)		2 (current)	
E	Exponent	3		3		3		3	
	Units	°C	°F	°C	°F	°C	°F	°C	°F
U	Upper	50	122	40	104	110	230	160	320
L	Lower	-40	-40	-10	14	-10	14	-10	14
P	Points	2	2	2	2	2	2	2	2
x	Ix	Ox	Ox	Ox	Ox	Ox	Ox	Ox	Ox
1	4	-40	-40	-10	14	-10	14	-10	14
2	20	50	122	40	104	110	230	160	320

For all other IQ Controllers see the Sensor Scaling Reference Card, TB100521A.

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