

PRT Immersion Temperature Sensor

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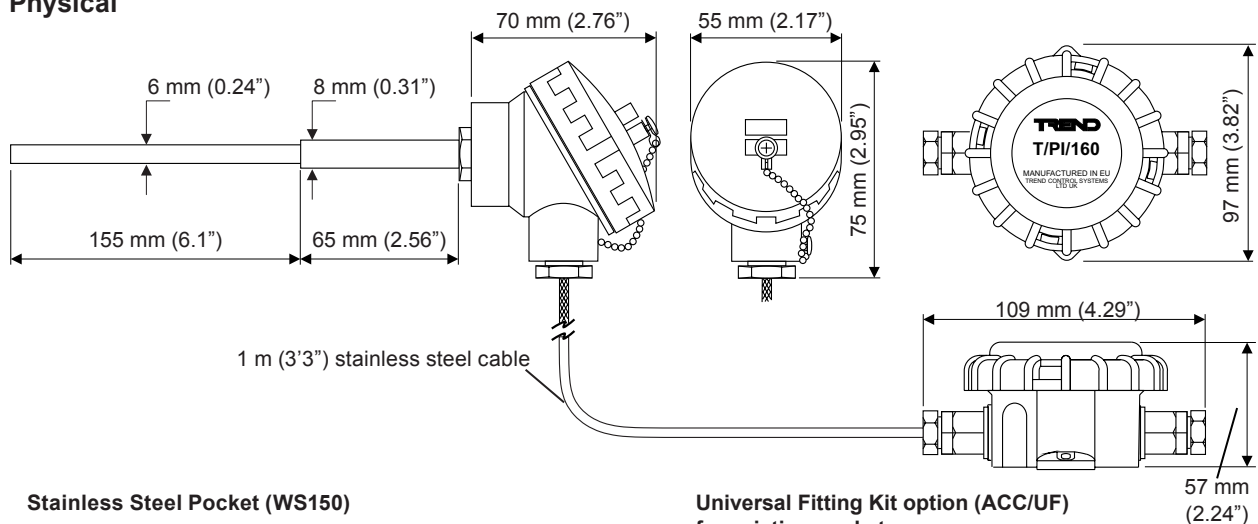
Description

PT100 Immersion temperature sensor for accurate measurement of fluid temperatures in medium and high pressure hot water systems. 6 mm (0.24") diameter stainless steel probe with 65 mm (2.56") stand-off (to prevent overheating of sensor head), and cast aluminium head pre-wired with braided S/S cable. The electronics are mounted in a IP67 (NEMA 6) rated housing with M20 conduit entry, and provide a 4 to 20 mA output. For new applications, a stainless steel pocket with spring compression to fix the probe is available.

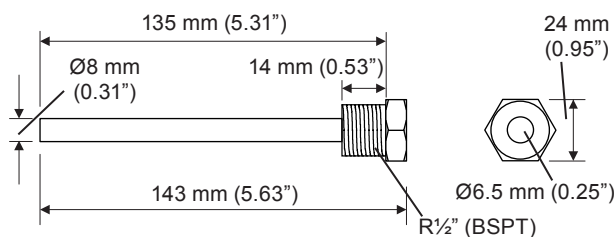
Features

- PT100 accuracy
- 4 to 20 mA output
- 316 stainless steel probe with stand-off
- IP67 (NEMA 6) housing rated sensor head and electronic housing
- M20 conduit entry/M16 cable gland
- Suitable for MPH and HPH applications.

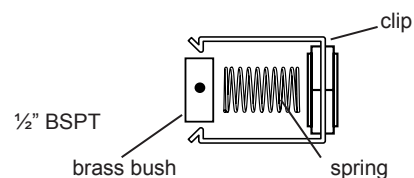
Physical



Stainless Steel Pocket (WS150)



Universal Fitting Kit option (ACC/UF) for existing pockets



INSTALLATION

The probe and measurement temperature range is -10 °C to +160 °C (14 °F to +320 °F). The box temperature range is -40 °C to +50 °C (-40 °F to +122 °F).

New Pocket

Choose an accessible location for the sensor pocket where it will lie in the liquid to be measured. Ensure no stratification in the liquid flow being measured (e.g. downstream of mixing valves or junctions).

Note that the Stainless Steel (WS150) pocket is not suitable for use in a Chlorine rich environment.

Screw the pocket into a ½" BSPT threaded boss using M24 spanner. Apply sealant to boss thread. If the boss is threaded incorrectly, an adaptor should be used.

Slide sensor probe into pocket against spring compression with the cable entry at the desired angle.

Ensure that the end of the probe is hard against the end of the pocket.

Retrofit to existing pocket

The Universal Fitting Kit enables sensor to be mounted in a number of different pocket types.

Adjust position of brass bush on probe so that probe inserts fully into pocket using 2 mm hexagonal socket key to adjust grub screw.

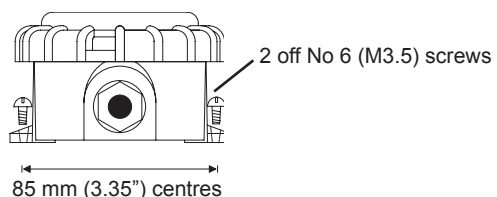
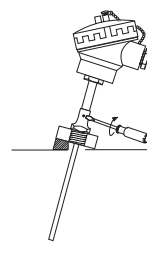
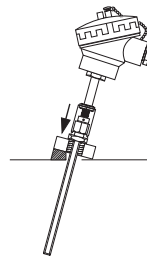
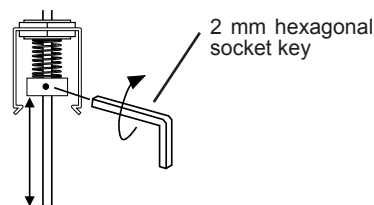
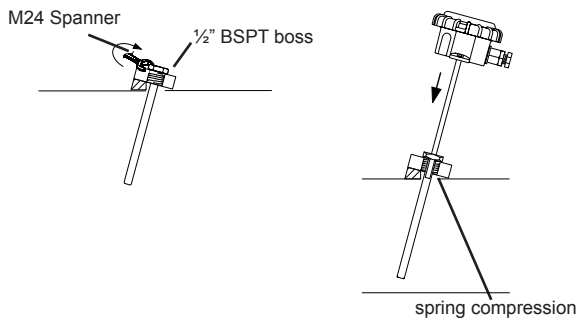
For pockets with a clip retaining groove simply insert probe into pocket and pull the metal clip over the top of the pocket to engage in the groove.

For pockets which hold sensor by a grub screw, tighten pocket grub screw onto brass bush. If necessary, spring and clip can be removed.

Box

The junction box should be mounted on a flat surface. Choose a position which is a maximum of 1 m (3'3") 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.

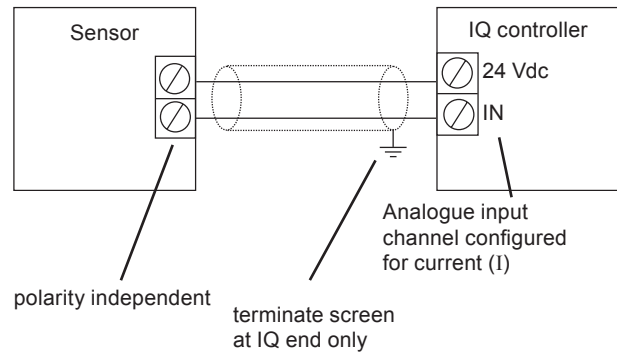
Mark the position of the 2 fixing holes with 85 mm (3.35") mounting centres. Drill holes in the positions marked. Screw the junction box in position using suitable wall plugs (if required) and 2 No. 6 (M3.5) screws, (85 mm 3.35" fixing centres).



CONNECTIONS

Connect to the IQ controller as below:

- (1) Remove quarter turn quick release box lid and unplug 2 part connector.
- (2) Insert cable through gland and connect signal wires as shown using either polarity.
- (3) The cable screen should be terminated at the controller.
- (4) 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/PI/160 Installation Instructions (TG200310).

DISPOSAL



WEEE Directive:

At the end of their useful life the packaging, and product, and battery (if fitted) should be disposed of by a suitable recycling centre.

Do not dispose of with normal household waste.
Do not burn.

ORDER CODES

T/PI/160
ACC/UF
WS150

PRT Immersion Temperature Sensor, -10 °C to +160 °C (14 °F to 320 °F)
Universal Fitting Kit
6 mm stainless steel pocket

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 range :-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 :-10 °C to +160 °C (+14 °F to +320 °F)

Humidity (box) :0 to 90 % RH non condensing

Cable entry :M20 conduit (or M16 cable gland)

Connections :2 part screw terminals for 0.5 to 2.5 mm² cross section area (20 to 14 AWG) cable

Pockets :Spring compression
 WS150 :Maximum pressure 25 bar

Dimensions
 box :57 mm (2.24") x 109 mm (4.29") max diameter
 cable :1 m (3'3") stainless steel
 probe :155 mm (6.1") + shoulder 65 mm (0.31")

Material
 box :impact resistant ABS
 probe :316 stainless steel
 sensor head :cast aluminium
 WS150 :pocket, 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:

PRT I -10+160 (°C)
 PRT I +14+320 F (°F)

Alternatively use sensor scaling mode 5, characterise, and enter the scaling manually as defined in the table below. Note that for IQ3/4 the scaling mode and exponent (E) don't need to be set up.

Y	input type	2 (current)	
E	Exponent	3	
	Units	°C	°F
U	Upper	160	320
L	Lower	-10	14
P	Points	2	2
x	Ix	Ox	Ox
1	4	-10	14
2	20	160	320

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

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Trend Control Systems Limited

Albery House, Springfield Road, Horsham, West Sussex, RH12 2PQ, UK. Tel:+44 (0)1403 211888 Fax:+44 (0)1403 241608 www.trendcontrols.com