Data Sheet

TB/TC, /TI, /TO
Thermistor Temperature Sensors

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Description

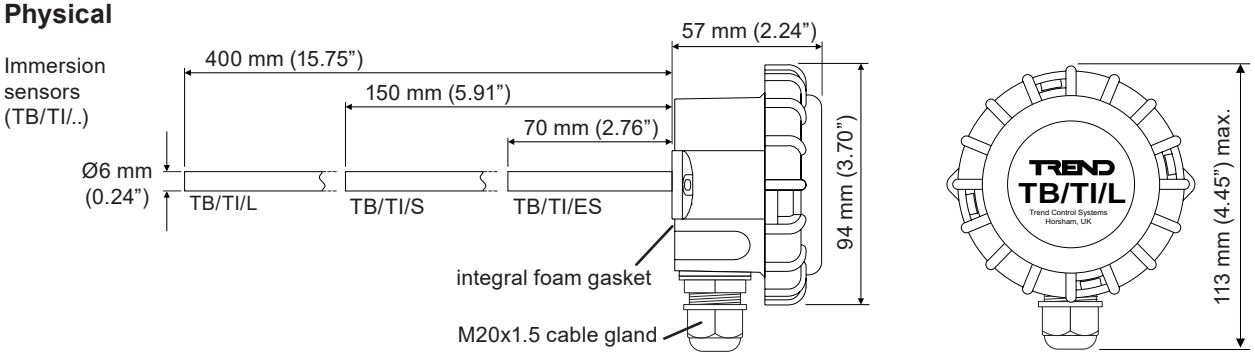
A range of low cost thermistor sensors comprising insertion, clamp-on, and outside air versions. A quick-release lid makes the TB/T.. range easy to install.

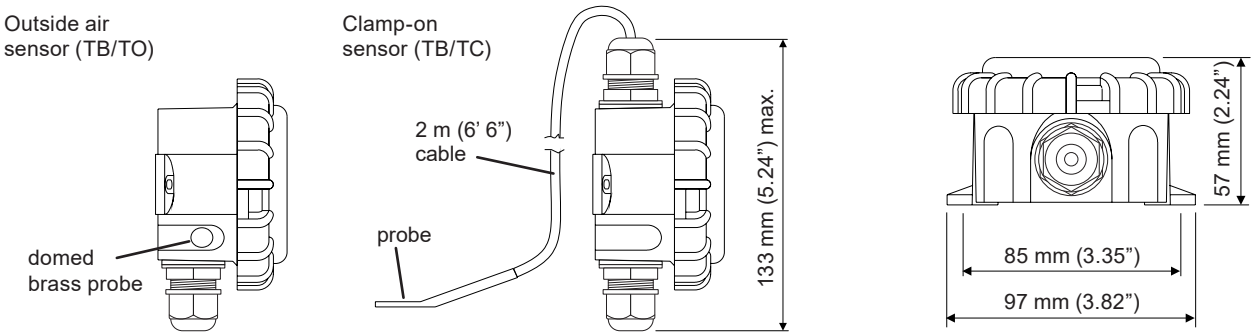
The insertion sensor may be used for duct or immersion purposes. It has a 6 mm diameter brass probe which is suitable for retrofit immersion applications and will fit most existing pockets (universal fitting kit option). Brass and stainless steel pockets are available. A foam gasket is fitted, and an adjustable depth flange option is available for its use as a duct sensor, enabling the insertion depth to be adjusted.

Features

- Low cost
- High quality thermistors
- Brass probes
- M20 conduit entry with M20 cable gland
- IP67 housing
- Quick release lid
- Easy to wire
- Universal fitting kit option for retrofit of immersion sensors
- Adjustable insertion depth flange option for duct sensors

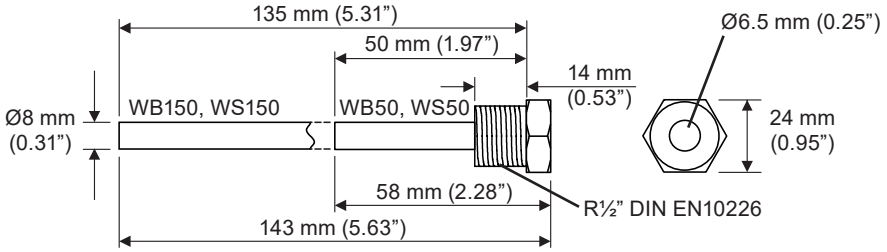
Physical



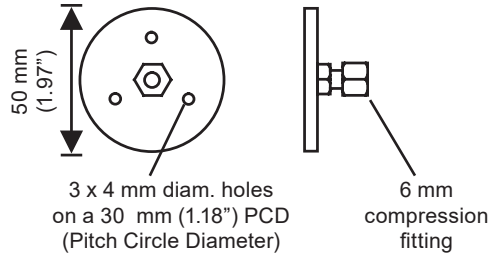


Physical (continued)

Pockets for use as immersion sensor: Brass (WB150 or WB50); Stainless Steel (WS150 or WS50)



Mounting flange for use as duct sensor (ACC/DF)

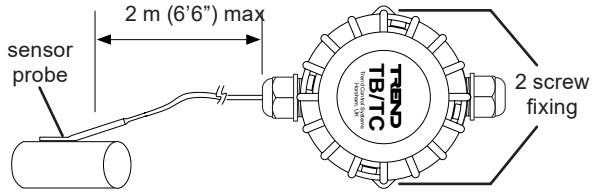


INSTALLATION

MECHANICAL

TB/TC Clamp-on Sensor

The TB/TC features a sensor probe on a flying lead that is designed to be secured to an item of equipment (typically a water pipe) in order to monitor its temperature.



The sensor can either be secured using the jubilee clip provided or cable ties (not supplied). Where possible a thermally conductive paste should be used to ensure a good thermal contact and the sensor probe should be fitted beneath any insulation material.

The junction box can be mounted on a convenient flat surface (using two No.6 screws) up to 2 m (6' 6") away from the sensor probe. The box must not be mounted where it may encounter direct contact with steam.

Full installation instructions are included with the sensor – see TB/TC Clamp-on Thermistor Temperature Sensor Installation Instructions (TG200726).

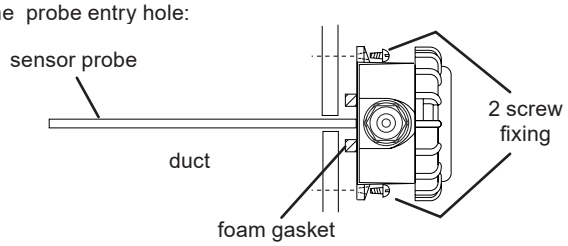
TB/TI Insertion Sensor

The TB/TI is suitable as either a duct or immersion sensor and is available with the following probe lengths:

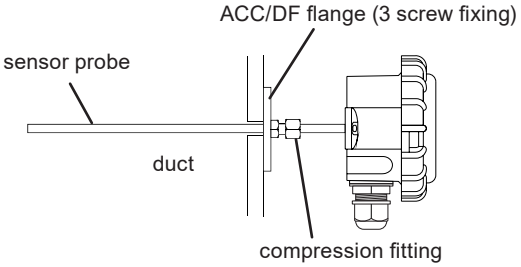
- TB/TI/L 400 mm (15.75")
- TB/TI/S 150 mm (5.91")
- TB/TI/ES 70 mm (2.76")

Use as a Duct Sensor
The sensor can either be mounted directly onto the duct or using an optional flange (ACC/DF). The flange enables the depth of the probe to be adjusted. For either mounting option a 7 mm (0.28") hole is required for the probe.

Direct mounting requires the junction box to be secured using two No.6 screws. A foam gasket ensures a good seal around the probe entry hole:



Flange mounting requires the ACC/DF flange to be secured using three No.6 screws. The probe is secured at the required depth using a compression fitting.



Use as an Immersion Sensor
In immersion applications the sensor probe must be used in conjunction with a suitable pocket, such as the WB150, WS150, WB50 or WS50.

Note: The WB150, WS150, WB50 and WS50 pockets are not suitable for use in a chlorine rich environment.

These pockets and are designed for use with a R½" DIN EN10226 threaded boss and have integral spring compression to retain the sensor probe.

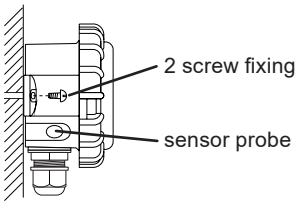
The pocket should be positioned in an accessible location where it will lie in the liquid to be measured. Ensure there is no stratification in the liquid flow being measured (e.g. downstream of mixing valves or junctions). If used for chilled water ensure the pocket is sealed around probe or fill the pocket with thermally conducting oil to avoid the build up of condensation in the bottom of the pocket.

Full installation instructions are included with the sensor – see TB/TI Insertion Thermistor Temperature Sensor Installation Instructions (TG200727).

TB/TO Outside Air Sensor

This sensor must be mounted on an exterior wall located away from direct sunlight, typically north-facing in the northern hemisphere (or south-facing in the southern hemisphere). It must also be positioned away from any heat sources which may come from the building, e.g. heating flues, open windows, etc.

The sensor is secured to the wall using two No.6 screws and suitable wall plugs.



Full installation instructions are included with the sensor – see TB/TO Outside Air Thermistor Temperature Sensor Installation Instructions (TG200725).

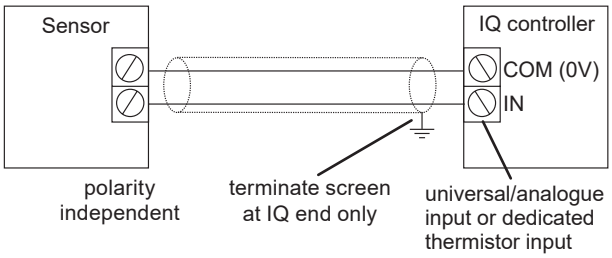
ELECTRICAL

The TB/.. range of sensors are all equipped with a tough ABS junction box which contains connections to the thermistor sensor. The quick-release lid gives access to a screw terminal block.

Cable entry is through an M20x1.5 cable entry gland. Alternatively the gland can be removed and the junction box connected directly to 20 mm rigid or flexible conduit using a suitable adapter.

All sensors are suitable for use with IQ Controllers or I/O modules and can be wired to universal/analogue inputs (configured for thermistor operation) or dedicated thermistor inputs. Appropriate sensor type scaling must be applied (see the relevant sensor Installation Instructions for details).

Wiring example:



Note: These sensors are also suitable for use with Trend wireless plant sensor modules.

ORDER CODES

TB/TC	Clamp-on Thermistor Temperature Sensor supplied with jubilee clip
TB/TI/L	Insertion Thermistor Temperature Sensor (for duct use) with foam gasket fitted (long - 400 mm, 15.75”)
TB/TI/S	Insertion Thermistor Temperature Sensor (for duct or immersion use) with foam gasket fitted (short - 150 mm, 5.91”)
TB/TI/ES	Insertion Thermistor Temperature Sensor (for duct or immersion use) with foam gasket fitted (extra short - 70 mm, 2.76”)
TB/TO	Outside Air Thermistor Temperature Sensor
WS150	Stainless steel pocket for TB/TI (immersion use)
WB150	Brass pocket for TB/TI (immersion use)
WS50	Stainless steel pocket for TB/TI (immersion use)
WB50	Brass pocket for TB/TI (immersion use)
ACC/DF	Adjustable depth flange for TB/TI (duct use)
TB/TI-S/BOX12	Pack of 12 TB/TI/S
TB/TI-L/BOX12	Pack of 12 TB/TI/L
TB/TI-ES/BOX12	Pack of 12 TB/TI/ES

DISPOSAL

COSHH (Control of Substances Hazardous to Health - UK Government Regulations 2002) ASSESSMENT FOR DISPOSAL OF TB/TC, /TI, /TO Temperature Sensors.

RECYCLING ♻.
All plastic and metal parts are recyclable.

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.

SPECIFICATIONS

ELECTRICAL

Measurement Range	
/TC	:-30°C to +100°C (-22°F to +212°F)
/TI	:-30°C to +110 C (-22°F to +230°F)
/TO	:-30°C to +50°C (-22°F to +122°F)
Sensing Element	:Thermistor 10 kΩ at 25°C
Thermistor Accuracy	
-10°C to +40°C	:±0.43°C (14°F to +104°F, ±0.77°F)
-30°C to +50°C	:±0.59°C (-22°F to +122°F, ±1.06°F)
-30°C to +100°C	:±1.11°C (-22°F to +212°F, ±2.0°F)
-30°C to +110°C	:±1.28°C (-22°F to +230°F, ±2.30°F)

MECHANICAL

Dimensions	
/TC box	:57 mm (2.24”) x 133 mm (5.24”) max..
/TC sensor cable	:2 m (6’6”)
/TO	:57 mm (2.24”) x 113 mm (4.45”) max.
/TI box	:57 mm (2.24”) x 113 mm (4.45”) max.
/TI/ES probe	:70 mm (2.76”) x 6 mm (0.24”)
/TI/S probe	:150 mm (5.91”) x 6 mm (0.24”)
/TI/L probe	:400 mm (15.75”) x 6 mm (0.24”)
Cable Entry	:M20 conduit with M20x1.5 cable gland
Connections	:1 part screw terminals for 0.5 to 2.5 mm^2 (20 to 14 AWG) cable
Material	
Junction box	:Impact resistant ABS (grey)
/TI, /TO probes	:Brass
/TC probe	:Plated copper

Pockets

Probe Retention	:Spring compression
Operating Pressure	
WS150, WS50	:25 bar maximum
WB150, WB50	:13 bar maximum
Material	
WS150, WS50	:Stainless steel
WB150, WB50	:Brass

ENVIRONMENTAL

EMC	:EN61326-1:2006
Ambient Limits	
Junction box	:-40°C to +50°C (-40°F to +122°F)
/TC probe	:-40°C to +100°C (-40°F to +212°F)
/TI probe	:-40°C to +110°C (-40°F to +230°F)
Humidity	:0 to 95 %RH
Protection	:IP67 (NEMA6)

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