Data Sheet

T/FG

Flue Gas Temperature Sensor

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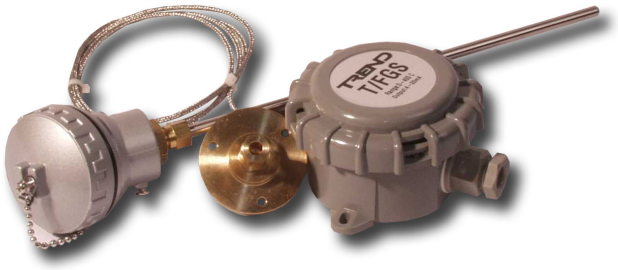


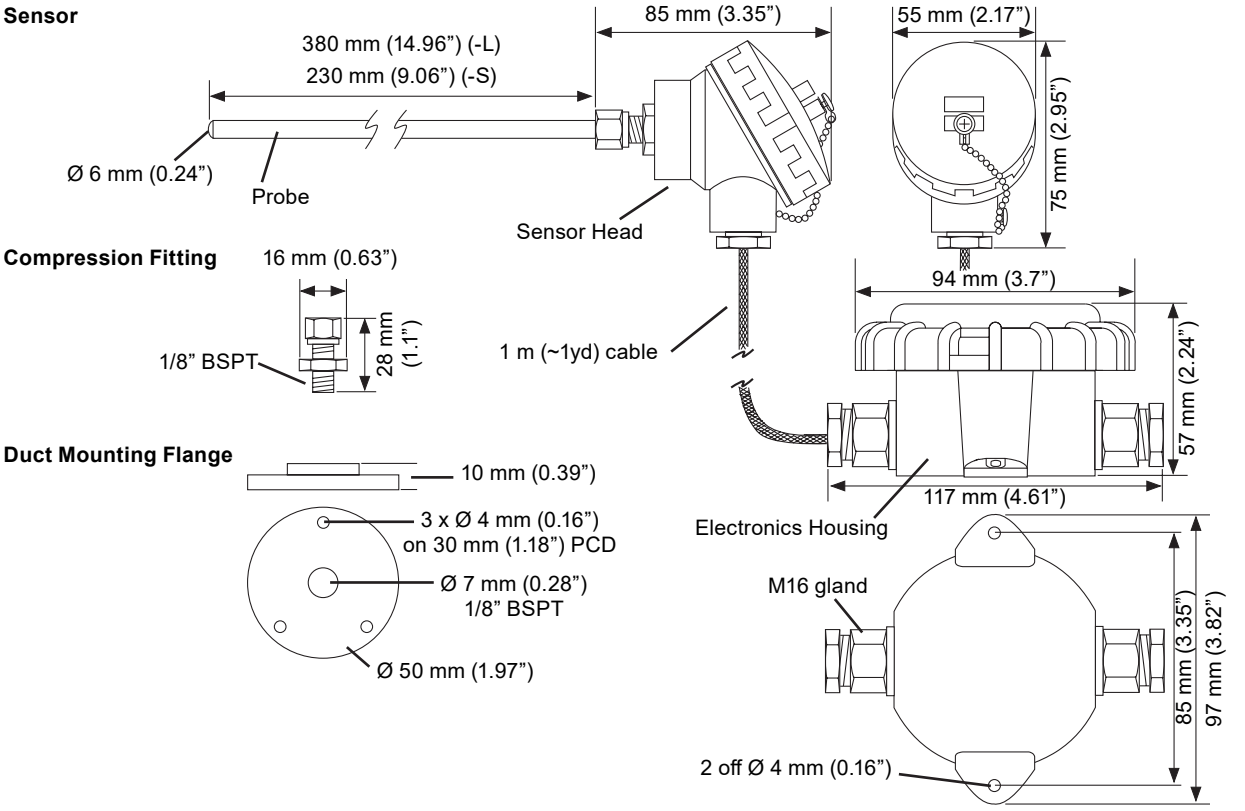
Description

Duct mounted PRT sensor for high temperature monitoring applications up to 400 °C (752 °F). Electronics housed in a separate box produce a 4 to 20 mA output signal. 1/8” BSPT compression fitting allows probe depth to be varied. Supplied complete with brass mounting flange for thin wall duct applications.

Features

- 2 probe lengths available
- Probe depth adjustable
- 1/8” BSPT or flange mounting
- PRT accuracy
- Separate electronics for reliability
- Sensor head pre-wired for convenience with 1 m (~1 yd) of fibreglass insulated stainless steel braided cable

Physical)



FUNCTIONALITY

The T/FG Flue Gas sensor consists of a stainless steel PRT sensor probe (either short or long probe) attached to the die cast sensor head which is connected to the electronics housing by a pre-wired fibre glass insulated braided cable. The electronics housing contains the transmitter which converts the temperature dependent resistance value to a 4 to 20 mA signal. This is supplied complete with a brass compression fitting, and duct mounting flange. If the material is thick enough (> 6 mm, 0.24"), the sensor may be mounted on the duct by tapping a 1/8" BSPT hole in the material and screwing the compression fitting into the hole. For thinner material, a 6.5 mm (0.26") hole should be drilled in the duct and the duct mounting flange fixed over this via three self tapping screws; the compression fitting can then be screwed into the flange. The compression fitting enables the sensor length into the duct to be varied, although it is recommended to allow 50 mm (~ 2") minimum between the duct and the sensor head.

INSTALLATION

The sensor probe ambient limits and the sensor measuring range are both 0 to 400 °C (32 to 752 °F). However, the sensor head's ambient limits are 0 to 100 °C (32 to 212 °F), so use the compression fitting or similar to allow 50 mm (~ 2") minimum between the duct and the sensor head to keep the sensor head cool. The ambient range for the electronics housing is -40 to + 70 °C (-40 to 158 °F).

The installation process involves:

Choose location - check maximum temperatures
Either tap 1/8" BSPT hole and mount compression fitting
Or drill hole and mount duct flange via 3 self tapping screws
Mount sensor into compression fitting and adjust depth
Mount electronics housing using 2 screws (No. 6 or M3.5)
Connect electronics housing to controller, observing polarity
Configure IQ analogue input channel for current (I)
Configure strategy
Test

For full installation details see T/FG Installation Instructions (TG100245A)

DISPOSAL

COSHH (Control of Substances Hazardous to Health - UK Government Regulations 2002) ASSESSMENT FOR DISPOSAL OF T/FG Flue Gas Temperature Sensor . No parts affected.

RECYCLING ♻.
All plastic and metal parts are recyclable. The printed circuit board may be sent to any PCB recovery contractor to recover some of the components for any metals such as gold and silver.

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/FG-S	:Flue Gas Temperature sensor with 230 mm probe complete with compression fitting and duct mounting flange
T/FG-L	:Flue Gas Temperature sensor with 380 mm probe complete with compression fitting and duct mounting flange

SPECIFICATION

ELECTRICAL

Measuring range :0 to 400 °C (32 to 752 °F)
Output signal :4 to 20 mA
Reverse and over voltage supply protection
Sensor element :Platinum resistance thermometer, 100 Ω ±0.1 % at 0 °C (32 °F), BS1904 class B 1980
Accuracy :± 0.1% of span, typical
Supply voltage :24 Vdc ±15 %

MECHANICAL

Connections :Screw terminals for 0.5 to 1.5 mm^2 cross section area (15 to 20 AWG) cable
Dimensions
- Probes :Projection into duct adjustable using compression fitting
- Short :230 mm x 6 mm diameter (9.06” x 0.24”)
- Long :380 mm x 6 mm diameter (14.96” x 0.24”)
- Sensor head :irregular 75 x 85 x 55 mm (2.95 x 3.35 x 2.17”) maximum
- Cable :1 m (~1 yd) length
- Electronics housing :117 x 97 x 57 mm (4.61 x 3.82 x 2.24”) maximum
- Duct mounting flange :50 mm (1.97”) diameter x 10 mm (0.39”)
- Compression fitting :28 mm x 16 mm (1.1” x 0.63”)

Weight
- Short :508 gms, 17.9 ozs
- Long :532 gms, 18.7 ozs

MATERIALS

- Probe :Stainless steel
- Sensor head :Die cast aluminium and brass, cable gland - brass, nickel plated
- Cable :Fibre glass insulated stainless steel braided cable
- Electronics housing :Impact resistant ABS
- Duct mounting flange :Brass
- Compression fitting :Brass

ENVIRONMENTAL

Temperature
- Sensor head :0 to +100 °C (32 to 212 °F)
- Probe :0 to +400 °C (32 to 752 °F)
- Electronics housing :-40 to +70 °C (-40 to 158 °F)

Humidity :0 to 95 %RH
Protection :IP67, NEMA6 throughout

INPUT CHANNEL AND SENSOR SCALING

For IQ controllers configure 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 controllers, one of the following SET Unique Sensor References should be used:

PRT I 0+400 (for °C)
PRT I +32+752 F (for °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.

Units		°C	°F
Y	Input type	2 (current)	
E	Exponent	4	
U	Upper	400	752
L	Lower	0	32
P	Points	2	
x	Ix	Ox	
1	4	0	32
2	20	400	752

System Accuracy (including controller): ±2 °C (0 to 400 °C) ±3.6 °F (32 to 752 °F)

Please send any comments about this or any other Trend technical publication to techpubs@trendcontrols.com

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