



### Features and Benefits

- Weatherproof Housing
- Stainless steel probe
- Optional probe lengths, 150 & 250mm
- Hinged lid with the facility of tamper proofing

### Technical Overview

The TT-IH is an immersion / duct sensor for use in high temperature applications such as boiler flues, medium / high temperature hot water and steam systems to monitor temperatures up to 400°C.

The unit consists of a stainless steel probe fitted to an aluminium head. This is connected by a 1m cable to a plant sensor housing, where terminations and transmitters can be located.

The -CVO active output option combines 4 pre-set ranges and selectable output mode, customised output range scaling enabling a choice of outputs and ranges on one unit.

### Product Codes

**TT-IH** High Temperature Immersion/Duct Sensor

Sensing Element (add type to above code)

Passive output:

**-D** (PT100a) Serck

**-E** (PT1000a) Cylon

Active output:

**-CVO** 4-20mA/0-10Vdc selectable output

**-CVO-C** 4-20mA/0-10Vdc selectable output with custom temp. scaling -10 to +400°C

Suffix (at extra cost):

**-250** 250mm Probe length

### Accessory

**TT-DFP** Duct penetration adjustment flange plate

### Specification

Output types:

Passive

Active (selectable)

Resistive

Current 4-20mA or

Voltage 0-10Vdc

Accuracy:

PT100a

±0.2°C @ 25°C

PT1000a

±0.2°C @ 25°C

-CVO

±0.4°C @ 25°C

Probe:

Material

Stainless steel

Dimensions

150, 250mm x 6mm dia.

Cable length

1 Meter

Terminal head

53 x 49mm dia.

Housing:

Material

PC/GF (Halogen free, flame retardant & UV stabilized)

Dimensions

80 x 79 x 44mm

Protection

IP65

Environmental:

Housing:

-30 to 70°C

0 to 95% non-condensing

Media:

-10 to +400°C

Weight

340g

Country of origin

UK

Conformity (CVO types only)

EMC, CE & UKCA Marked

#### WEEE Directive:



At the end of the products useful life please dispose as per the local regulations. Do not dispose of with normal household waste. Do not burn.

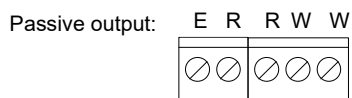


## Installation

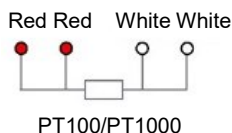
1. Select a location in the system where the liquid is to be measured, install pocket as per datasheet TT-PO. Alternatively it can be used to measure high temperatures within duct work systems, install a duct flange (TT-DFP)
2. Insert the probe into the pocket or duct flange and secure with the grub screw provided.
3. Using the main housing as a template mark the hole centres, drill and fix the housing to a suitable surface using suitable screws supplied (surface temp. must not exceed 70°C).
4. Release the snap-fit lid by gently squeezing the locking tab and feed the cable through the waterproof gland & terminate the cores at the terminals. Leaving some slack inside the unit, tighten the cable gland onto the cable to ensure water tightness.
5. If the sensor is to be mounted outside, it is recommended that the unit be mounted with the cable entry at the bottom.  
If the cable is fed from above then into the cable gland at the bottom, it is recommended that a rain loop be placed in the cable before entry into the sensor.
6. Snap shut the lid after the connections have been made.

## Connections

All connections to BEMS controllers, data recorders etc. should be made using screened cable. Normally, the screen should be earthed at one end only (usually the controller end) to avoid earth hum loops which can create noise. Low voltage signal and supply cables should be routed separately from high voltage or mains cabling. Separate conduit or cable trays should be used. Where possible, the controller's earth should be connected to a FUNCTIONAL EARTH, rather than the mains safety earth. This will provide better immunity to high frequency noise. Most modern buildings have a separate earth for this purpose.

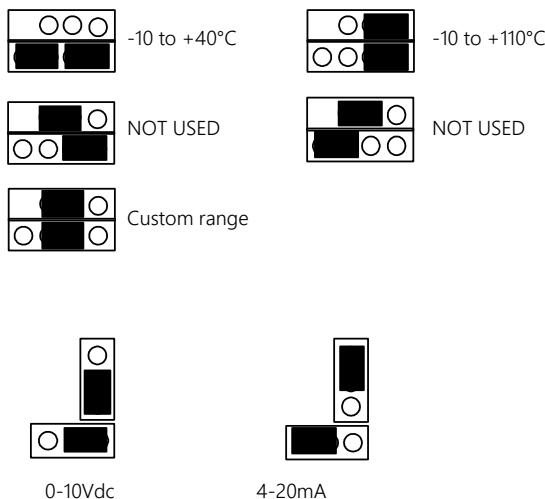
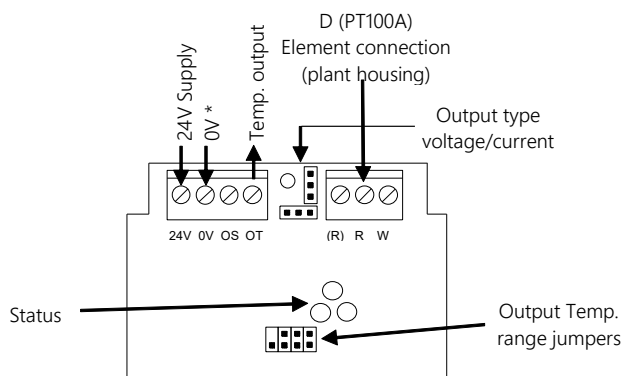


E = Earth



Connections are made via the 2-way terminal block. Connections for thermistor, platinum and nickel sensing elements are polarity independent.

Active output:



\* Not required with 4-20mA output

Notes: Voltage output Nominal voltage 24Vac/dc.  
Current output If using in current output mode, the sensor must only be used with a 24Vdc supply. The sensor may be damaged if supplied with AC.

The selectable output temperature ranges are dependent on sensor type, ambient and application.  
For full connection and specification please refer to the TT-CVO data sheet.

### Temperature vs Resistance Charts

°C	D	E
	P T 100 A Ω	P T 1000 A Ω
-50	80.3	803
-40	84.3	843
-30	88.2	882
-20	92.2	921
-15	—	—
-10	96.1	961
-5	—	—
0	100.0	1000
1	—	—
2	—	—
3	—	—
4	—	—
5	—	—
6	—	—
7	—	—
8	—	—
9	—	—
10	103.9	1039
11	—	—
12	—	—
13	—	—
14	—	—
15	—	—
16	—	—
17	—	—
18	—	—
19	—	—
20	107.8	1078
21	—	—
22	—	—
23	—	—
24	—	—
25	109.8	1098
26	—	—
27	—	—
28	—	—
29	—	—
30	111.7	1117
35	—	—
40	115.5	1155
45	—	—
50	119.4	1194
55	—	—
60	123.2	1232
65	—	—
70	127.1	1271
75	—	—
80	130.9	1309
85	—	—
90	134.7	1347
95	—	—
100	138.5	1385
105	—	—
110	142.3	1423
115	—	—
120	146.1	1461
125	—	—
130	149.8	1498
140	153.6	1536
150	157.3	1573
200	157.8	1758
250	194.1	1941
300	212.0	2121
350	229.7	2297
400	247.0	2470

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