Duct Averaging Sensors

Features

- IP65 Housing
- Wide range of element types

Specification

Output types:
Thermistor	Resistive
Active	4-20mA or 0-10Vdc (selectable)

Accuracy:
Thermistor	±0.2°C (0°C to 70°C)
PT100a	±0.35°C (0°C to 100°C)
PT1000a	±0.35°C (0°C to 100°C)
NI1000	±0.35°C (0°C to 100°C)

Probe:
Material	Nylon 12
Dimensions	2m x 8mm dia.

Housing:
Material	ABS (fire retardant)
Dimensions	50mm x 90mm dia.
Protection	IP65
Ambient range	-40°C to +60°C
Max. operating temp.	120°C
Country of origin	UK

Product Codes

TT-525-A	(10K3A1) Trend, Seachange, Honeywell Aquatrol
TT-525-B	(10K4A1) Andover, Delta Controls, York <40°C, Siebe
TT-525-C	(20K6A1) Honeywell
TT-525-D	(PT100a) Serck
TT-525-E	(PT1000a) Cylon
TT-525-F	(NI1000a) Sauter
TT-525-G	(Ni1000a/TCR(LAN1)) Siemens
TT-525-H	(SAT1) Satchwell
TT-525-K	(STA1) Landis & Staefa
TT-525-L	(TAC1) TAC
TT-525-M	(2.2K3A1) Johnson Controls
TT-525-N	(3K3A1) Alerton
TT-525-P	(30K6A1) Drayton
TT-525-Q	(50K6A1) Ambiflex
TT-525-R	(100K6A1) York >40°C
TT-525-S	(SAT2) Satchwell
TT-525-T	(SAT3) Satchwell
TT-525-W	(SIE1) Siebe
TT-525-Y	(STA2) Landis & Staefa

Active output:
TT-525-CVO
  4-20mA/0-10Vdc selectable output
TT-525-CVO-C
  4-20mA/0-10Vdc selectable output custom temp. scaling

Options (at extra cost):

-5M
  5m Probe

Comfort Temperature

Comfort temperature measurement is best achieved by taking into account the radiant effect of surfaces within the controlled space. The comfort temperature is specified as the average of the conductive temperature and the radiant temperature.

$$T_{comfort} = \frac{T_{radiant} + T_{conductive}}{2}$$

Technical Overview

The **TT-525** range of duct averaging temperature sensors are used for measuring temperature in ducts where an average reading across the air flow is required.

Units contain either a high quality thermistor, Nickel or Platinum sensing element. The **TT-525** sensing elements are housed in an 8mm diameter Nylon 12 tube, spaced at 0.5m intervals along the standard 2m length, which is terminated in an IP67 sensor head.

The **TT-525-CVO** (active output), combines 4 preset ranges and selectable output mode, customised output range scaling enabling a choice of outputs and ranges on one unit

Installation

1. It is recommended that the unit be mounted with the cable entry at the bottom.

2. 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.

3. Remove the front cover by twisting the lid and separating from the main body.

4. Drill an 8.5mm hole in the duct and feed the averaging probe through into the duct and secure probe with suitable fixings., inside the duct so that the sensor elements are evenly spaced

5. Using the base of the housing as a template mark the hole centres. Drill two pilot holes at 85mm centres in the surface to which the sensor is to be mounted.

6. Fix the sensor to the duct using appropriate screws.

7. The housing is designed to make it easy for an electrical screwdriver to be used if desired.

8. Feed the cable through the waterproof gland and terminate at the terminal block. Leaving some slack inside the housing, tighten the cable gland onto the cable to ensure water tightness.

9. Replace the lid after the electrical connections have been made.

Connections

Resistive output:
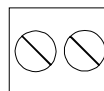
Connections are made via the 2-way terminal block. Connections for the thermistor/platinum and nickel element are polarity independent.

4-20mA/0-10Vdc:
For full connection and specification please refer to the TT-CVO datasheet.

Trend Scaling

IQ1xx and early IQ2x series (without type 5, characterise)
Thermistor A (10K3A1 TYPE 2 linearise thermistor volts)

(-10 to +40°)		(-10 to +110°)	
Brange	-10	Brange	-10
Trange	40	Trange	110
F	8.47	F	8.47
G	7.42	G	5.55
H	6.11	H	2.65
I	4.73	I	1.12
J	3.48	J	0.49

IQ1xx and early IQ2x series (with type 5, characterise)

(-10 to +40°C)

	Resistance input	Temp. Output
1	5.32	40.0
2	5.89	37.5
3	6.53	35.0
4	7.24	32.5
5	8.05	30.0
6	8.96	27.5
7	10.00	25.0
8	11.16	22.5
9	12.49	20.0
10	14.00	17.5
11	15.71	15.0
12	17.67	12.5
13	19.90	10.0
14	22.47	7.5

Trend Scaling (continued)

15	25.40	5.0
16	28.79	2.5
17	32.66	0.0
18	37.18	-2.5
19	42.35	-5.0
20	55.30	-10.0

Upper	40.0
Lower	-10.0
Exp	3
Points used	20
Input type	3(kohms)

(-10 to +110°C)

	Resistance input	Temp. Output
1	0.51	110.0
2	0.60	104.0
3	0.72	98.0
4	0.86	92.0
5	1.03	86.0
6	1.25	80.0
7	1.53	74.0
8	1.87	68.0
9	2.31	62.0
10	2.87	56.0
11	3.60	50.0
12	4.54	44.0
13	5.77	38.0
14	7.40	32.0
15	9.57	26.0
16	12.49	20.0
17	16.47	14.0
18	21.93	8.0
19	29.53	2.0
20	55.30	-10.0

Upper	110.0
Lower	-10.0
Exp	3
Points used	20
Input type	3(kohms)

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