Sontay®
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TT-1015
Internal Black Bulb Temperature Sensors

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Features & Benefits

- Wide range of sensing element types
- Black bulb to measure radiant heat
- Greater comfort

Technical Overview

The TT-1015 range of black bulb temperature sensors are used for radiant heat in indoor spaces. Black bulb temperature sensors are used to calculate comfort temperature which is specified as the average of the conductive and the radiant temperature. Units contain either a high quality thermistor, Nickel or Platinum sensing element.

Product Codes

TT-1015 Internal Black Bulb Sensor

Sensing Element (add type to above code)
Passive output:

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

Interface Options (add to part code)

-SP	Resistive set point 0-10kΩ or 11-1kΩ
-FS3	Resistive 3-speed fan switch
-FS4	Resistive 3-speed fan switch
-FS5	Resistive 5-speed fan switch
-LEDG	24V green LED
-MS	Momentary switch

Accessories

DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

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.

Specification

Output types:		
	Thermistor	Resistive
	PT types	Resistive
	NI types	Resistive
	Set point	Resistive
	Fan speed	Resistive
	Mom. switch	N/O push button
Accuracy:		
	Thermistor	±0.2°C 0 to 70°C
	PT types	±0.2°C @ 25°C
	NI types	±0.4°C @ 0°C
Housing:		
	Material	ABS (flame retardant)
	Dimensions	115 x 85 x 28mm
	Colour	RAL 9003 polished white finish
Black bulb:		
	Material	Anodised aluminium
	Dimensions	17.5 x 37mm dia.
Protection		IP30
Ambient range		-10 to +60°C
Weights		120g
Country of origin		UK

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.

$$\text{Tcomfort} = \frac{\text{Tradiant} + \text{Tconductive}}{2}$$

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Installation

1. Select a location on a wall of the controlled space which will give a representative sample of the prevailing room condition. Avoid sitting the sensor in direct sunlight, on an outside wall or near heat sources. An idea mounting height is 1.5m from the floor.

2. Undo the tamperproof screw at the bottom of the housing.

3. Remove the front panel from the base.
4. Using the base as a template mark the hole centres and fix to the wall with suitable screws. Alternatively the base plate can be mounted on to a conduit box or standard recessed back box. The base plate is suitable for EU & North America fixings.

5. Feed cable through the hole in the base plate of the housing and terminate the cores at the terminal block as required. Leaving some slack inside the unit.

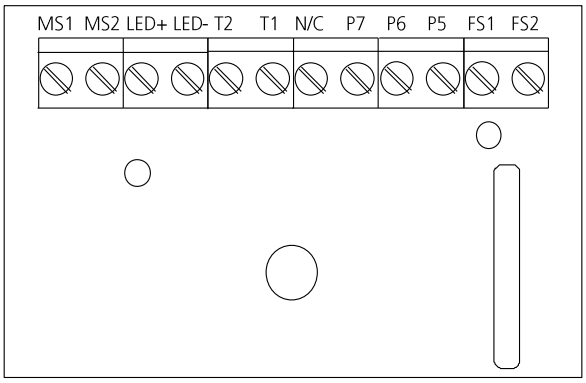
6. Replace the housing to the base plate and re-fit the tamperproof screw (if required) through the lug at the bottom of the base plate.

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.

All thermistor/RTD elements and options are polarity independent

- MS1 & MS2 Momentary switch
- LED+ & LED- 24V supply for LEDG
- T2 & T1 Temperature sensor
- P5 & P6 Set point, resistive 0-10kΩ
- P6 & P7 Set point, resistive 11-1kΩ
- FS1 & FS2 Fan speed, resistive



Set point, this is available in two standard values;

-	+	(legend markings on housing fascia)
0kΩ	10kΩ	
11kΩ	1kΩ	

Using an external 1kΩ resistor (not supplied) on the 0-10k terminals 1-11kΩ can be achieved if required.
Potentiometer tolerances are ±30%

Fan speed, the position of the selector switch will cause the resistance between the terminals to alter as shown below.

Switch position	Output
0	Open circuit
1	22.7kΩ
2	26kΩ
3	29.3kΩ
Auto	32.6kΩ

Momentary switch, rated at 24Vac/dc @ 500mA max.