

Space Humidity and Temperature Sensor

HT/S Space Humidity and Temperature Sensor



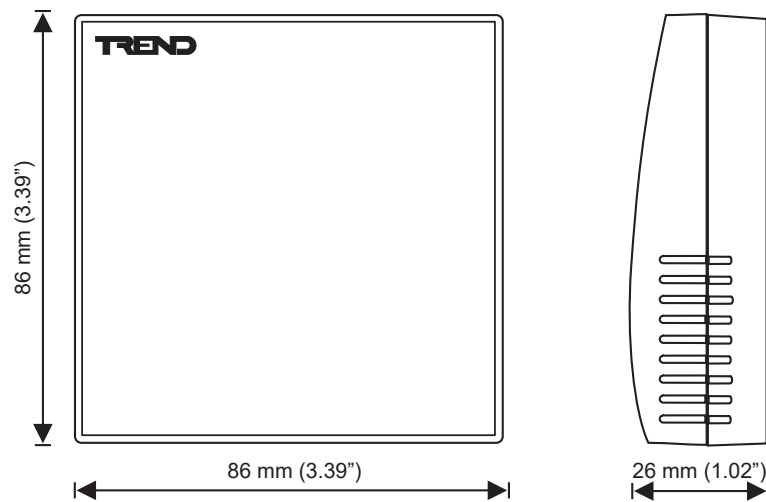
Description

Wall mounted relative humidity measurement combined with temperature measurement. The certified 2% high accuracy (HT/S/2%) and standard 3% (HT/S) versions offer excellent linearity and stability over a wide humidity range.

Features

- Precalibrated for ease of commissioning
- Operates over 0 to 100 %RH non-condensing
- $\pm 2\%$, and 3% accuracy versions
- 2 part connectors for ease of installation
- Capacitive humidity sensing element provides excellent long term stability

Physical



FUNCTIONALITY

The HT/S humidity and temperature sensors can be used for a wide range of HVAC applications, operating over a 0 to 100 %RH (non-condensing) range. They use a capacitive humidity sensing element which exhibits excellent long term stability.

There are two versions: HT/S and HT/S/2%.

HT/S

Humidity output: 4 to 20 mA signal corresponding to 0 to 100%RH with a 3% humidity measurement accuracy over a defined %RH range.

Temperature output: Directly connected thermistor temperature sensor.

HT/S/2%

The HT/S/2% is a higher accuracy variation of the HT/S.

Humidity output: 4 to 20 mA signal corresponding to 0 to 100%RH with a 2% humidity measurement accuracy over a defined %RH range

Temperature output: 4 to 20 mA output corresponding to 0 to 40 °C (32 to 104 °F) from a platinum resistance temperature sensor.

INPUT CHANNELS AND SENSOR SCALING

Appropriate sensor type scaling must be applied – see the THT/S Space Humidity and Temperature Sensor Installation Instruction - (TG200990) for further details.

INSTALLATION

The HT/S sensors both have 2 parts (front panel and a backplate) for surface mounting on a flat surface or wall box. The backplate is designed to be surface mounted on surface conduit, mini trunking, wall box or end box (BESA), or directly onto a wall or other flat surface.

Note that the sensor should not be mounted on a surface which could be washed or splashed.

Supply Voltage: The minimum supply voltage is 15 V when used with an IQ controller; if used with another device, the minimum voltage should be calculated from the equation:

$$\text{minimum voltage} = 10 + 0.02 \times R_{in} \text{ (where } R_{in} \text{ is input resistance)}$$

e.g. if $R_{in} = 500$ ohms

$$\text{minimum voltage} = 10 + 0.02 \times 500 = 10 + 10 = 20 \text{ V}$$

The installation involves:

choose location
separate front panel and backplate
remove cable knockouts (if required)
mount backplate
wire sensor cables

push front panel onto backplate
configure controller inputs
configure IQ sensor modules
test sensor

Full installation details are given in the HT/S Installation Instructions (TG200990).


FIELD MAINTENANCE

The removal of dust is covered in the HT/S installation instructions.

ORDER CODES

HT/S/2%	Space humidity and PRT temperature sensor with $\pm 2\%$ humidity accuracy over 30 to 70 %RH and $\pm 3\%$ over 20 to 90 %RH. Complete with calibration certificate
HT/S	Space humidity and thermistor temperature sensor, $\pm 3\%$ humidity accuracy over 30 to 75 %RH, and $\pm 4.5\%$ over 20 to 95 %RH.

DISPOSAL

	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.
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SPECIFICATIONS

ELECTRICAL

Supply Voltage :15 to 30 Vdc. See calculation on page 2 if connected to a non-IQ device

Humidity

Operating range :0 to 100 %RH non-condensing
 Humidity element :Capacitive RH element
 Linearity :(0 to 98 %RH) $\pm 1.5\%RH$
 Stability :(20 to 30 °C, 68 to 86 °F, 20 to 80 %RH)
 HT/S :drift <math>< 1.5\%/year</math>
 HT/S/2% :drift <math>< 1\%/year</math>
 Accuracy of sensor (at 23 °C, 73.5 °F, and 24 Vdc supply)
 HT/S : $\pm 3\%RH$ (30 to 75 %RH), $\pm 4.5\%RH$ (20 to 95 %RH)
 HT/S/2% : $\pm 2\%RH$ (30 to 70 %RH), $\pm 3\%RH$ (20 to 90 %RH)
 Temperature dependence :(at 60 %RH)
 HT/S typically $-0.18\%RH/^{\circ}C$ ($-0.1\%RH/^{\circ}F$)
 HT/S/2% typically $0.06\%RH/^{\circ}C$ ($0.03\%RH/^{\circ}F$)
 Hysteresis :typically 1.7%RH
 Resolution :0.05%RH
 Response time :(at 23 °C, 73.5 °F) $t_{90} \leq 20$ s
 Humidity output signal :4 to 20 mA for 0 to 100 %RH

Temperature

Measurement range :0 to +40 °C (32 to 104 °F) (recommended)
 Temperature element
 HT/S :Thermistor 10 k Ω at 25 °C (77 °F)
 HT/S/2% :Pt1000 (tolerance class A, DIN EN60751). 0 to 40 °C, 32 to 104 °F, ± 0.65 °C, ± 1.17 °F typical
 Temperature accuracy :of sensor
 HT/S :(0 to 40 °C, 32 to 104 °F) ± 0.5 °C, ± 0.9 °F
 HT/S/2% :(at 23 °C, 73.5 °F) ± 0.4 °C, ± 0.7 °F
 Temperature output signal
 HT/S :Thermistor 10 k Ω at 25 °C (77 °F)
 HT/S/2% :4 to 20 mA for 0 to 40 °C (32 to 104 °F)

MECHANICAL

Dimensions :86 mm (3.39") x 86 mm (3.39") x 26 mm (1.02")
 Enclosure Material :Flame retardant (V0) ABS
 Connectors :Two part rising cage terminals for 0.2 to 2.5 mm² (24 to 16 AWG) cable
 Weight :86 gm (3.03 oz)

ENVIRONMENTAL

CE Compatibility :EN61000-6-1, EN61000-6-3
 Working ambient limits
 temperature :-5 °C (23 °F) to +55 °C (131 °F)
 humidity :0 to 100 %RH non-condensing
 Storage Temperature :-25 °C (-13 °F) to +60 °C (140 °F)
 Protection :IP20 (NEMA1)

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