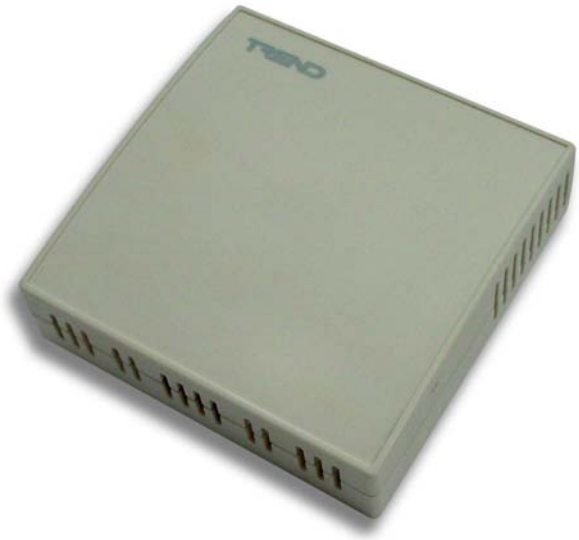
Data Sheet

HT/ST

Space Humidity and Temperature Sensor

Space Humidity and Temperature Sensor



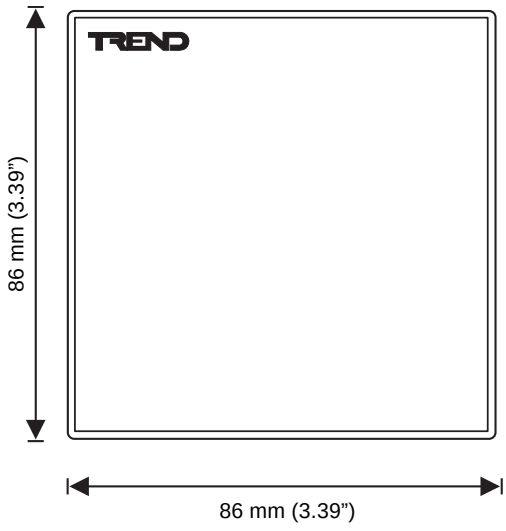
Description

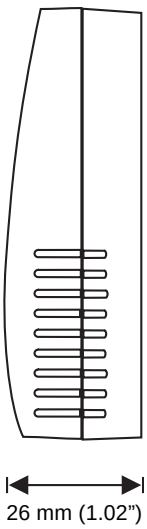
Wall mounted relative humidity measurement combined with temperature measurement. The certified 2% high accuracy (/2%) and standard 3% versions offer excellent linearity and stability over a wide humidity range (20 to 90 %RH).

Features

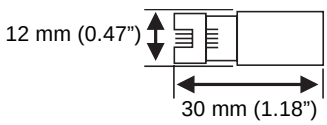
- Precalibrated for ease of commissioning
- Operates over 0 to 100 %RH non-condensing
- ± 2%, and 3% accuracy versions
- 2 part connectors for ease of installation
- Humidity sensor element supplied with protective sleeve
- Capacitative polymer humidity sensor provides excellent long term stability

Physical





ACC/HT/SENSOR TIP
ACC/HT/2%/SENSOR TIP



Replacement sensor tip

FUNCTIONALITY

The HT/ST 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 capacitative polymer humidity sensor element which exhibits excellent long term stability and linearity.
The HT/ST/2% and HT/ST sensors exhibit 2% and 3% humidity measurement accuracy respectively over a 20 to 90 %RH range, with a 4 to 20 mA transmitter output (corresponding to 0 to 100%RH).

The H/ST/2% version incorporates a platinum resistance temperature (PRT) sensor with 4 to 20 mA transmitter output (corresponding to 0 to 40 °C), whereas the standard HT/ST version incorporates a directly connected thermistor temperature sensor.

INSTALLATION

The sensor housing consists of a front panel and a backplate. 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.

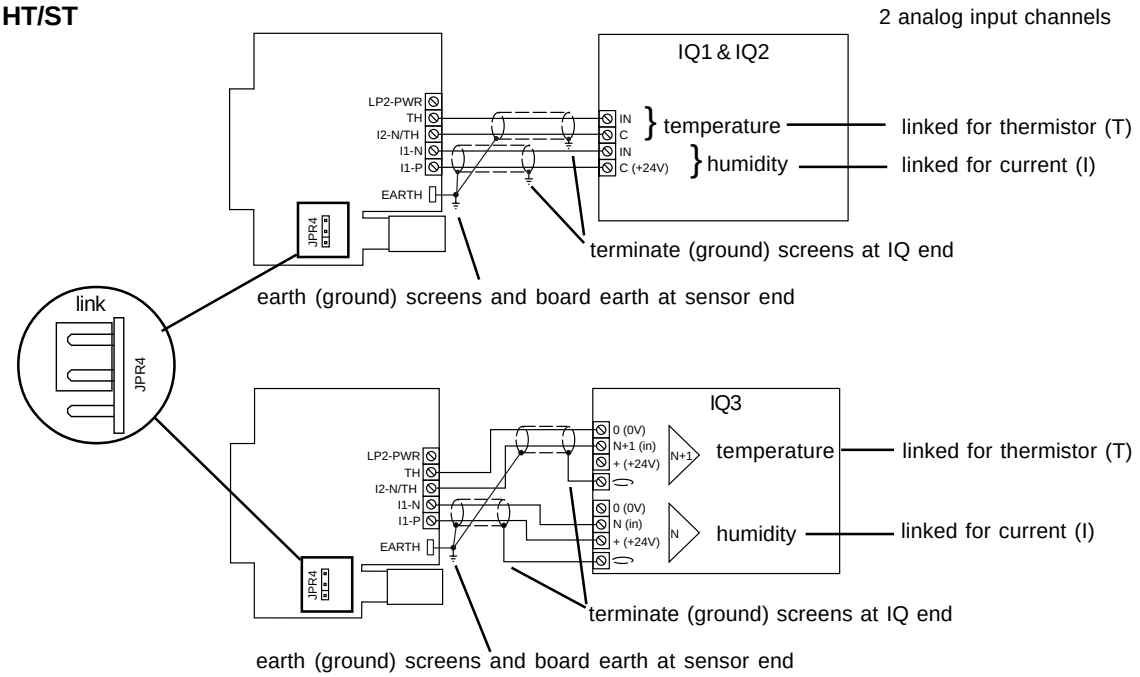
The installation involves:

- choose location
- separate front panel and backplate
- remove cable knockouts (if required)
- mount backplate
- check link position (see 'Connections' section below)
- wire sensor cables
- push front panel onto backplate
- set up IQ channels for current (I) (all humidity channels, and HT/ST/2% temperature)
  - or thermistor (T) (HT/ST temperature)
- configure IQ sensor modules
- test sensor

Full installation details are given in the HT/ST Installation Instructions TG200921, or the HT/ST/2% Installation Instructions TG200922.

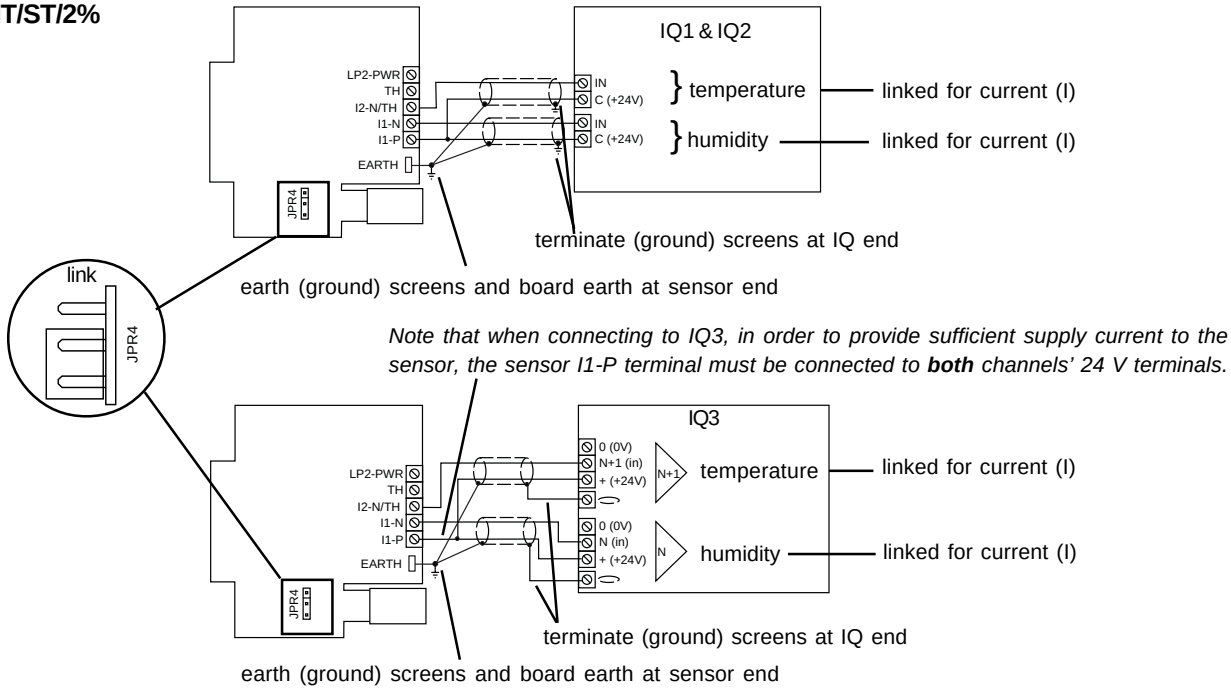
CONNECTIONS

HT/ST



CONNECTIONS (continued)

HT/ST/2%



*Note that when connecting to IQ3, in order to provide sufficient supply current to the sensor, the sensor I1-P terminal must be connected to **both** channels' 24 V terminals.*

Note that for CE compliance

1. *Ensure that the sensor end cable screens and board earth ground wire are connected to the nearest (<1.5 m) earth ground.*
2. *Ensure that the controller end cable screens are connected to the controller earth ground.*

Note that in order to maintain the HT/ST/2% temperature sensor accuracy, the temperature sensor should only be used if the humidity sensor is also used.

FIELD MAINTENANCE

The removal of dust and accuracy checking is covered in the appropriate HT/ST installation instructions.

The accuracy of the sensor should be checked annually. If the sensor falls outside the quoted accuracy or the sensor tip is damaged, replace the tip.

PRODUCT CODES

The HT/ST sensors both have 2 parts (front panel and backplate) for surface mounting on a flat surface or wall box.

HT/ST/2%	Space humidity and PRT temperature sensor with ±2% humidity accuracy over 0 to 95 %RH and calibration certificate
HT/ST	Space humidity and thermistor temperature sensor, ±3% humidity accuracy over 0 to 95 %RH
ACC/HT/SENSOR TIP	Replacement sensor tip for HT/ST
ACC/HT/2%/SENSOR TIP	Replacement sensor tip for HT/ST/2%

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.

SPECIFICATIONS

Electrical

Humidity operating range :0 to 100 %RH non-condensing
Humidity element :Capacitative polymer
Humidity accuracy :of sensor (at 25 °C, 77 °F) including hysteresis linearity, and repeatability
HT/ST :±3 %RH (20 to 90 %RH)
HT/ST/2% :±2 %RH (20 to 90 %RH)
Temperature effect on RH :less than 0.11% per °C
Sensitivity :0.1 %RH
Hysteresis :less than 1 %RH
Repeatability :±0.5 %RH
Linearity :±0.5 %RH
Humidity output signal :4 to 20 mA for 0 to 100 %RH
Temperature measurement range
HT/ST :0 to +40 °C (32 to 104 °F) (recommended)
HT/ST/2% :0 to +40 °C (32 to 104 °F) (recommended)
Temperature element
HT/ST :Thermistor 10 kΩ at 25 °C (77 °)
HT/ST/2% :Platinum 100 Ω RTD
Temperature accuracy :of sensor, (0 to + 40 °C, 32 to 104 °F)
HT/ST :±0.5 °C , ±0.9 °F
HT/ST/2% :±0.5 °C, ±0.9 °F
Stability :±0.2 °C, ±0.36 °F per annum (HT/ST/2% only)
Temperature output signal
HT/ST :Thermistor 10 kΩ at 25 °C (77 °)
HT/ST/2% :4 to 20 mA for 0 to 40 °C (32 to 104 °F)
Supply Voltage :12 to 30 Vdc

Input channels and sensor scaling
The IQ controller's input channels must be set up correctly, and the sensor type modules must be set up with the sensor type scaling. It is recommended to use SET (software tool) for the setting of sensor type modules. For all IQ2 series controllers with firmware of version 2.1 or greater, or IQ3 series controllers, the following SET Unique Sensor References should be used:
Humidity: **Humidity I**
Temperature (HT/ST): **Thermistor HTST DT (°C)**
Thermistor HTST DT F (°F)
(change of values of U and L to those in the thermistor table below)
Temperature (HT/ST/2%): **PRT I 0+40** (°C)
PRT I +32+104 F (°F)

If not using SET, use the following tables for all IQ2 series controllers with firmware of version 2.1 or greater or IQ3; for all other IQ controllers see the Sensor Scaling Reference Card TB100521A.

Humidity
For all HT/ST versions, link input channel for current, I, and use sensor type scaling mode 5, characterise, with the input type set to 2 (current) and the table below:

System Accuracy (including controller) :same as humidity accuracy of sensor

Y	Input type	2 (current)
E	Exponent	3
U	Upper	100
L	Lower	0
P	Points	2
x	**Ix**	**Ox**
1	4	0
2	20	100

Temperature
HT/ST/2%
Link input channel for current, I, and use sensor type scaling mode 5, characterise, with the input type set to 2 (current) and the table below:

System Accuracy (including controller) :same as temperature accuracy of sensor

Units		°C	°F
Y	Input type	2 (current)	
E	Exponent	3	
U	Upper	40	104
L	Lower	0	32
P	Points	2	
x	**Ix**	**Ox**	
1	4	0	32
2	20	40	104

HT/ST
Link input channel for thermistor, T, and use sensor type scaling mode 5, characterise, with the input type set to 1 (thermistor volts) and the table below:

System Accuracy (including controller) :±0.9 °C, ±1.62 °F (0 to +40 °C, 32 to 104 °F)

Units		°C	°F
Y	Input type	1 (thermistor volts)	
E	Exponent	3	
U	Upper	50	122
L	Lower	-5	23
P	Points	6	
x	**Ix**	**Ox (°C)**	**Ox (°F)**
1	2.641	50	122
2	3.47	40	104
3	4.46	30	86
4	6.663	10	50
5	7.668	0	32
6	8.102	-5	23

Mechanical

Dimensions :86 mm (3.39") x 86 mm (3.39") x 35 mm (1.02")
Enclosure Material :Flame retardant (V0) ABS
Connectors :Two part rising cage terminals for 0.5 to 2.5 mm² (14 to 20 AWG) cable
Weight :84 gm (2.96 oz)

Environmental

Ambient limits
temp :-20 °C (-4 °F) to +60 °C (140 °F)
humidity :0 to 100 %RH non-condensing

Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, Ecublens, Route du Bois 37,Switzerland by its Authorized Representative, Trend Control Systems Limited.

Trend Control Systems Limited
P.O. Box 34, Horsham, West Sussex, RH12 2YF, UK. Tel:+44 (0)1403 211888 Fax:+44 (0)1403 241608 www.trend-controls.com
Trend Controls Systems USA
6670 185th Avenue NE, Redmond, Washington 98052, USA. Tel: (425)897-3900, Fax: (425)869-8445 www.trend-controls.com