

RHT-Dx & RHT-Ox

RH & T Transmitter - Duct and Outside-Air



Product overview

A range of accurate, high quality RH & T transmitters with selectable current or voltage analogue outputs. The units are extremely reliable, have excellent stability and a quick response time. Both 2% and 3% accuracy versions are available.

Options for this range of sensors include the addition of various passive temperature sensors for most BMS systems.

Features

- 2% and 3% Accuracy Versions
- 24Vac/dc powered
- 0-5/10Vdc and 4-20mA selectable output
- Optional thermistor output for temperature

Product specifications

Accuracy	RH : $\pm 2\%$ or $\pm 3\%$ typical, Temperature : $\pm 0.3^\circ\text{C}$ typical
Sensor Type / Protection	Capacitive / PTFE filter
Long Term Stability	$\pm 1\%$ RH at 50% RH in 5 years
Repeatability / Hysteresis	$\pm 0.5\%$ RH / $\pm 1\%$ of span max
Response Time	15 seconds @ 25°C , but dependant on airflow
Supply Voltage	24Vac/dc ($\pm 15\%$)
Output (Voltage)	0-10Vdc, 0-5Vdc at 10mA maximum load
Output (Current)	4-20mA at 500 Ohms maximum load
Output Range - RH	0 to 95%
Output Range - Temperature	Duct 0°C to $+70^\circ\text{C}$, Outside -20°C to $+50^\circ\text{C}$
Terminals	Rising clamp 0.5-1.5mm ² cable
Ambient Temperature Range	-10°C to 50°C , 0-95% RH
Dimensions, Weight & Ingress	Duct Housing: 115 x 80 x 52mm - 230(L) x 12 \varnothing maximum probe, 115g, IP65 Outside Air: 115 x 80 x 52mm, 140g, IP65 (housing only)
Country of Origin	United Kingdom

Order codes

- RHT-D2 Duct RH & T Sensor - 2 x analogue outputs, 2%
- RHT-D3 Duct RH & T Sensor - 2 x analogue outputs, 3%
- RHT-O2 Outside Air RH & T Sensor - 2 x analogue outputs, 2%
- RHT-O3 Outside Air RH & T Sensor - 2 x analogue outputs, 3%
- x Additional passive thermistor output. See below for options

Sensor type selection

Replace part number suffix (-x) with one of the below thermistor types. Eg -T for Trend.

T	10K3A1 Trend	N1K	Ni1000a Siemens
3K	3K3A1 Alerton	100	PT100a Serek
A	10K4A1 York, Andover	1K	PT1000a Cylon
H	10K6A1 Honeywell	2.2K	2.2K Johnsons
D	30K3A1 Drayton	SAT	Satchwell
50K	50K6 Priva	TAC	1K87A1 TAC

Installation

The RHT range of sensors should be installed by suitably qualified technician in conjunction with any guidelines for the equipment it is to be connected to and any local regulations. Field wiring should be installed to satisfy the requirements set out by the manufacturer of the equipment that the sensor is being connected to. Anti-static precautions must be observed when handling these transmitters. The PCB contains circuitry that can be damaged by static discharge.

Transmitters should only be fitted to a system after airflow calibration has been carried out and preferably following full fan running of at least several days, in order that the main contaminants have been removed from the system. The transmitter board should not be mounted where temperatures will exceed the ambient temperature range specified.

Duct unit:

Select a location in the duct where dust & contaminants are at a minimum (i.e. after filters etc.) and which will give a representative sample of the prevailing air condition. Drill a 13mm (up to 15mm) diameter hole in the return air duct. Insert probe through the hole and secure the enclosure to the duct with suitable sheet metal screws on 92mm centres. Orientation of the enclosure and probe will have no effect on the operation of the device.

Outside-Air unit:

Orient the housing such that the cable gland is pointing downwards. Fit the housing to the mounting surface using suitable screws on 92mm centres.

All units:

Allow 3 minutes before checking functionality, and allow a further 30 minutes before carrying out pre-commissioning checks.

Chemical vapours at high concentration in combination with long exposure times will offset the sensor reading. This includes transportation before installation.

Operation and connections

The transmitters should be connected to the controller using 0.5 to 1.5mm² cable. The units require a minimum of five wires (power, 0V supply, RH output, Temperature output and 0V Signal) for all operations. The use of shielded cable is optional but recommended for the highest noise immunity. Do not route signal wires in the same conduit with power cables as signal degradation may occur. Before applying power, ensure that the AX-RHT transmitter output is configured correctly for the unit being supplied. If using 0-10V or 0-5V output modes ensure that the load is of a suitably high impedance. If using 4-20mA output mode ensure the load has less than 500 Ohm impedance.

Remove power to the transmitter before changing between voltage and current output signal type. Use caution when changing jumper positions as not to damage the circuit board, any components or the sensing elements. The unit comes factory set for current output. To change the output signal to voltage move the 2-position shorting jumper from position 'I' and place it in the 'V' position. Place the 3-position shorting jumper in the correct position for the required span (4-20mA, 0-10V or 0-5V).

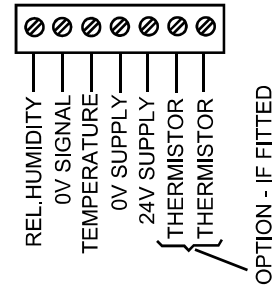
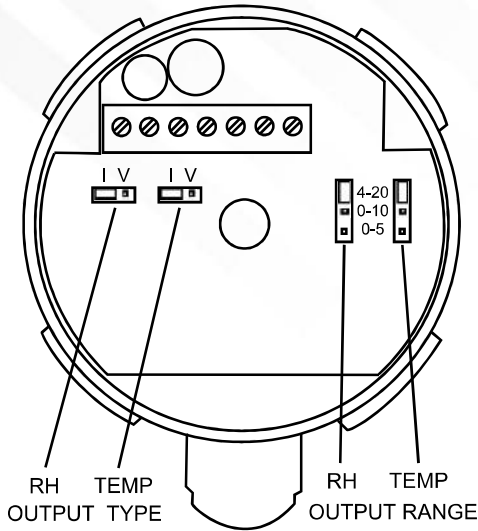
All units:

Ensure that the supply voltage is within the specified tolerances.

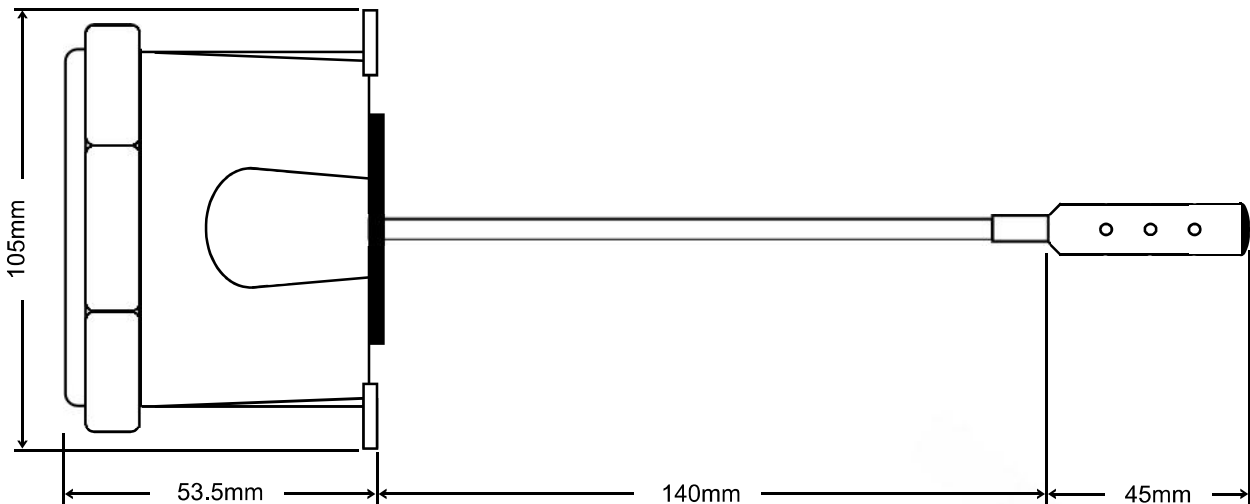
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DUCT & OUTSIDE-AIR Tx CONNECTIONS



DUCT HOUSING / PROBE DIMENSIONS



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