Outside Mounting Temp. & Humidity Transmitter HOD

Jan.09

HOD

Features

- **Outputs 4-20mA or 0-10Vdc (link selectable)**
- **Direct thermistor temperature output option**
- **High stability and reliability**
- **±2% & ±3%rH accuracy versions**
- **Housing IP 65 Protection Class**
- **No loss of accuracy up to 100%rH**
- **Built-in circuitry diagnostics**
- **Additional outputs for enthalpy and dewpoint**
- **Non-standard temperature output ranges can be specified at time of order**

Technical Data

Long term stability	Better than 2%RH p.a
Output ranges	
Temp range	-20…+50°C (standard)
	Others on request
Humidity	0 to 100%rH
Entahlpy	-20 to +269kJ/kg (optional)
Dewpoint	-40 to +60°C (optional)
Temp accuracy	±0,3°C (standard)
Materials	
Housing	ABS
Probe	PVC
End Cap	Delrin
Dimensions	55 mm x 90 mm dia.
Probe length	215 mm x 19mm dia.
Sensor Shield	200 mm x 118mm dia.
Ambient range	-10…+50°C
Power supply	
4-20mA	20 to 35Vdc for 500ohm loop resistan
0-10Vdc	17 to 34Vdc,
	14 to 26Vac (4.7Kohm min)
Connections	0,5-2,5mm² cable
Output ranges	4-20mA or 0-10Vdc (option for direct thermistor temperature output)
EMC emissions	EN50081-1
EMC immunity	EN50082-1

Design Features

Outside air mounting combined RH&T transmitters providing accurate and reliable measurement for use with wide range of BMS controllers.

Ordering Codes

Accuracy 2%	
HOD2 142	4-20 mA/ 0-10Vdc output
HOD2 142DEW	4-20mA/0-10Vdc output RH and entalphy/dewpoint outputs
HOD2 142/T*	4-20mA/0-10Vdc output RH and direct output temp.element
HOD2 142/T/DEW	4-20mA/0-10Vdc output RH, direct output temp.element and enthalpy/dewpoint outputs
Accuracy 3%	
HOD3 142	4-20 mA/ 0-10 Vdc output
HOD3 142/T*	4-20mA/0-10Vdc output RH and direct output temp.element
HRC	Calibration Certificate

T* = Direct output temperature element.

The Element type must be specified at the time of ordering, as this option cannot be changed on site

Compatible temperature element T* see page 3

Other temperature elements on request.

EX-version available

Installation and Connection Details

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 from this purpose.

Caution:

Antistatic precautions must be observed when handling these sensors.

The PCB contains circuitry that can be damaged by static discharge.

1. Fit to a suitable mast using the U bolts supplied

2. When mounting the sensor outside it is recommended that a rain loop be placed in the cable before entry into the sensor

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

4. Feed the cable through the waterporoof gland and terminate the cores at the terminal block.

   Leaving som slack inside the unit, tighten thble gland onto the cable to ensure water tightnes.

5. Repalce the lid after the electrical connections have been made.

6. Ensure the supply voltage is withion the specified tolerances

7. Allow 3 minutes before checking functionality.

8. Allow 30 minutes before carrying out pre-commissioning checks.

NB Standard units are factory set for 4-20mA

Self-Test & Manual Override Mode

The outputs of the HOD can be manually overrideden to one of 3 values by pressing the PCB mounted button.

When this button is pressed once, the outputs will change to 0% of the output´s range, when pressed again the outputs will change to 50% of the output´s range and when pressed a third time will change the outputs to 100% of the outputs range.

Pressing again will return the outputs to automatic control.

Example:

- First Press -

rH output falls to 0% and temperature output falls to -20C. humidity transmitters are

Led flashes slowly

- Second Press -

rH output rises to 50% and temperature output rises to 15C.

Led flashes slowly

- Third Press -

rH output rises to 100% and temperature output rises to +50C.

LED flashes slowly

- Fourth Press

- rH and temperature outputs revert to automatic levels.

The LED should be permanently on.

Failure Mode

If the sensor element assembly fails, the outputs will change to the following fixed default values and the LED will flash rapidly:

RH = 0%

Temperature = 21C

Dewpoint (optional) = 10C

Enthalpy(optional9 = 50kJ/kg

NB -

When using the HOD enthalpy and dewpoint version in 4-20mA loop powered output mode, at least 2 of the loops must be powered before the unit will operate correctly.

Commisioning

To perform an accurate comparison between a transmitter output and a portable reference, it is essential that the two probes are held adjacent for a minimum of 30 minutes in a stable RH environment.

Only this way can speed of response and temperature factors be eliminated.

It is not uncommon for test instruments and transmitters to disagree by 10%RH or more when slite measurements are taken incorrectly.

Under no circumstances should a sling or other mechanical hygrometer be used as a reference.

Connection & jumpers

	RH = 4-20mA T = 4-20mA Dew = 4-20mA Ent = 4-20mA	RH = 0-10Vdc T = 0-10Vdc Dew = 0-10Vdc Ent = 0-10Vdc	RH = 4-20mA T = Direct Dew = 4-20mA Ent = 4-20mA
SW1	Left	Right	Left
SW2	Left	Right	Left
SW3	Left	Left	Right
SW5	Left	Right	Left
SW6	Left	Right	Left
+24V	24Vdc	24Vac/dc	24Vdc
0V	No connection	0V	No connection
RH	RH output (mA)	RH output (Vdc)	RH output (mA)
T/TD1	T output (mA)	T output (Vdc)	T output (direct)
TD2	No connection	No connection	T output (direct)

Compatible temperature element T*

xxx/NTC	Cylon, Trend, Honeyell (Aquatrol), Thorn, Smart Kontrol, Siox, Elesta, AP
xxx/PTC	EM, Satchwell, NCS
xxx/PT100	INU, ABB, Serck, Exomatic
xxx/PT1000	Cylon, Johnson, Honeywell, Elesta, Bastec, Diana, KTC, SAIA
xxx/Ni 1000	Sauter, Exomatic
xxx/TA	TAC
xxx/LGNi	Landis & Staefa (Siemens), Exomatic (QAA 23, QAD 21)
xxx/ALE	Alerton, Satchwell(DDU 1804), Honeywell(TE200AD-6)
xxx/AND	Andover, York<40C, Siebe(TSserie)
xxx/SAT1	Satchwell(DDT,DWT, DOS some)
xxx/SAT2	Satchwell(DD, DR, DW 1202, DWS1301)
xxx/SAT3	Satchwell(DW 1204, DW 1202)
xxx/SAT4	Satchwell(DWS 1202)
xxx/T1	Staefa(T1)
xxx/T30	Staefa(t30)
xxx/SIE	Siebe

Other temperature elements on request.

Warning

Relative humidity transmitters are sensitive electronic devices and care should be taken at all times to ensure that they are not exposed to extreme ambient conditions or incorrect electrical connection.

Transmitters should not be exposed to direct moisture contact (e.g.rain9 and saturation of the transmitter at very high humidity should be avoided wherver possible.