

Contact sensor Humidity / Temperature

Active contact sensor (0...10 V) for measuring the relative or absolute humidity and temperature on pipe surfaces. Instead of the humidity signal, the enthalpy or the dew point can be selected as an output signal. IP65 / NEMA 4X rated housing.


Type Overview

| Type | Output signal active humidity | Output signal active temperature | Cable length |
|------------|-------------------------------|----------------------------------|--------------|
| 22HTH-110X | 0...5 V, 0...10 V | 0...5 V, 0...10 V | 2 m |

Technical data

| Electrical data | Nominal voltage | AC/DC 24 V | | | | | | | | | | | | | | | | | | | | |
|---|---|---|------------|-----------------|------------|-----------------|----|----------|-----------|--|----|--------|----------|--|----|----------|---------|--|----|----------|---------|---|
| | Nominal voltage range | AC 21.6...26.4 V / DC 13.5...26.4 V | | | | | | | | | | | | | | | | | | | | |
| | Power consumption AC | 0.8 VA | | | | | | | | | | | | | | | | | | | | |
| | Power consumption DC | 0.4 W | | | | | | | | | | | | | | | | | | | | |
| | Electrical connection | Pluggable spring loaded terminal block max. 2.5 mm ² | | | | | | | | | | | | | | | | | | | | |
| | Cable entry | Cable gland with strain relief ø6...8 mm | | | | | | | | | | | | | | | | | | | | |
| Functional data | Application | Air Water | | | | | | | | | | | | | | | | | | | | |
| Measuring data | Measured values | Relative humidity Absolute humidity Dew point Enthalpies Temperature | | | | | | | | | | | | | | | | | | | | |
| Specification temperature active | Sensing element technology | Polymer-based capacitive sensor with plastic cap and filter membrane | | | | | | | | | | | | | | | | | | | | |
| | Measuring range temperature settings | Active sensor: range selectable Attention: The maximum measuring range listed does not indicate the allowable fluid temperature for the sensor. Refer to safety data for the maximum fluid temperature limits. <table border="1"> <thead> <tr> <th>Setting</th> <th>Range [°C]</th> <th>Range [°F]</th> <th>Factory setting</th> </tr> </thead> <tbody> <tr> <td>S0</td> <td>-40...60</td> <td>-40...160</td> <td></td> </tr> <tr> <td>S1</td> <td>0...50</td> <td>40...140</td> <td></td> </tr> <tr> <td>S2</td> <td>-15...35</td> <td>0...100</td> <td></td> </tr> <tr> <td>S3</td> <td>-20...80</td> <td>0...200</td> <td>✓</td> </tr> </tbody> </table> | Setting | Range [°C] | Range [°F] | Factory setting | S0 | -40...60 | -40...160 | | S1 | 0...50 | 40...140 | | S2 | -15...35 | 0...100 | | S3 | -20...80 | 0...200 | ✓ |
| | Setting | Range [°C] | Range [°F] | Factory setting | | | | | | | | | | | | | | | | | | |
| | S0 | -40...60 | -40...160 | | | | | | | | | | | | | | | | | | | |
| | S1 | 0...50 | 40...140 | | | | | | | | | | | | | | | | | | | |
| | S2 | -15...35 | 0...100 | | | | | | | | | | | | | | | | | | | |
| S3 | -20...80 | 0...200 | ✓ | | | | | | | | | | | | | | | | | | | |
| Accuracy temperature | ±0.3°C @ 25°C [±0.5°F @ 77°F] | | | | | | | | | | | | | | | | | | | | | |
| Long term stability | ±0.05°C p.a. @ 21°C [±0.09°F p.a. @ 70°F] | | | | | | | | | | | | | | | | | | | | | |
| Time constant τ (63%) in the room | Typical 143 s | | | | | | | | | | | | | | | | | | | | | |
| Specification Humidity | Sensing element technology | Polymer-based capacitive sensor with plastic cap and filter membrane | | | | | | | | | | | | | | | | | | | | |
| | Measuring range | 0...100% RH | | | | | | | | | | | | | | | | | | | | |

Technical data

| | | | |
|-------------------------------|--|---|--|
| Specification Humidity | Measuring range absolute humidity | adjustable at the transducer: 0...50 g/m ³ (default setting) 0...80 g/m ³ | |
| | Measuring range enthalpy | 0...85 kJ/kg | |
| | Measuring range dew point | adjustable at the transducer: 0...50°C [40...140°F] (default setting) -20...80°C [0...200°F] | |
| | Accuracy | ±2% between 20...80% RH @ 25°C | |
| | Long term stability | ±0.3% RH p.a. @ 21°C @ 50% RH | |
| | Time constant τ (63%) in the room | Typical 10 s | |
| | Safety data | Protection class IEC/EN | III, Protective Extra-Low Voltage (PELV) |
| | | Degree of protection IEC/EN | IP65 |
| Degree of protection NEMA/UL | | NEMA 4X | |
| EU Conformity | | CE Marking | |
| Certification IEC/EN | | IEC/EN 60730-1 | |
| Quality Standard | | ISO 9001 | |
| Type of action | | Type 1 | |
| Rated impulse voltage supply | | 0.8 kV | |
| Pollution degree | | 3 | |
| Ambient humidity | | Max. 95% RH, non-condensing | |
| Ambient temperature | | -20...50°C [-4...122°F] | |
| Fluid temperature | | -20...60°C [-4...140°F] | |
| Materials | Housing | Cover: PC, orange Bottom: PC, orange Seal: NBR70, black UV resistant | |
| | Cable gland | PA6, black | |

Safety notes


This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

General remarks concerning sensors Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (± 0.2 V). When switching the supply voltage on/off, onsite power surges must be avoided.

Remark: Occurring draft leads to a better carrying-off of dissipative power at the sensor. Thus temporally limited fluctuations might occur upon temperature measurement.

Remarks

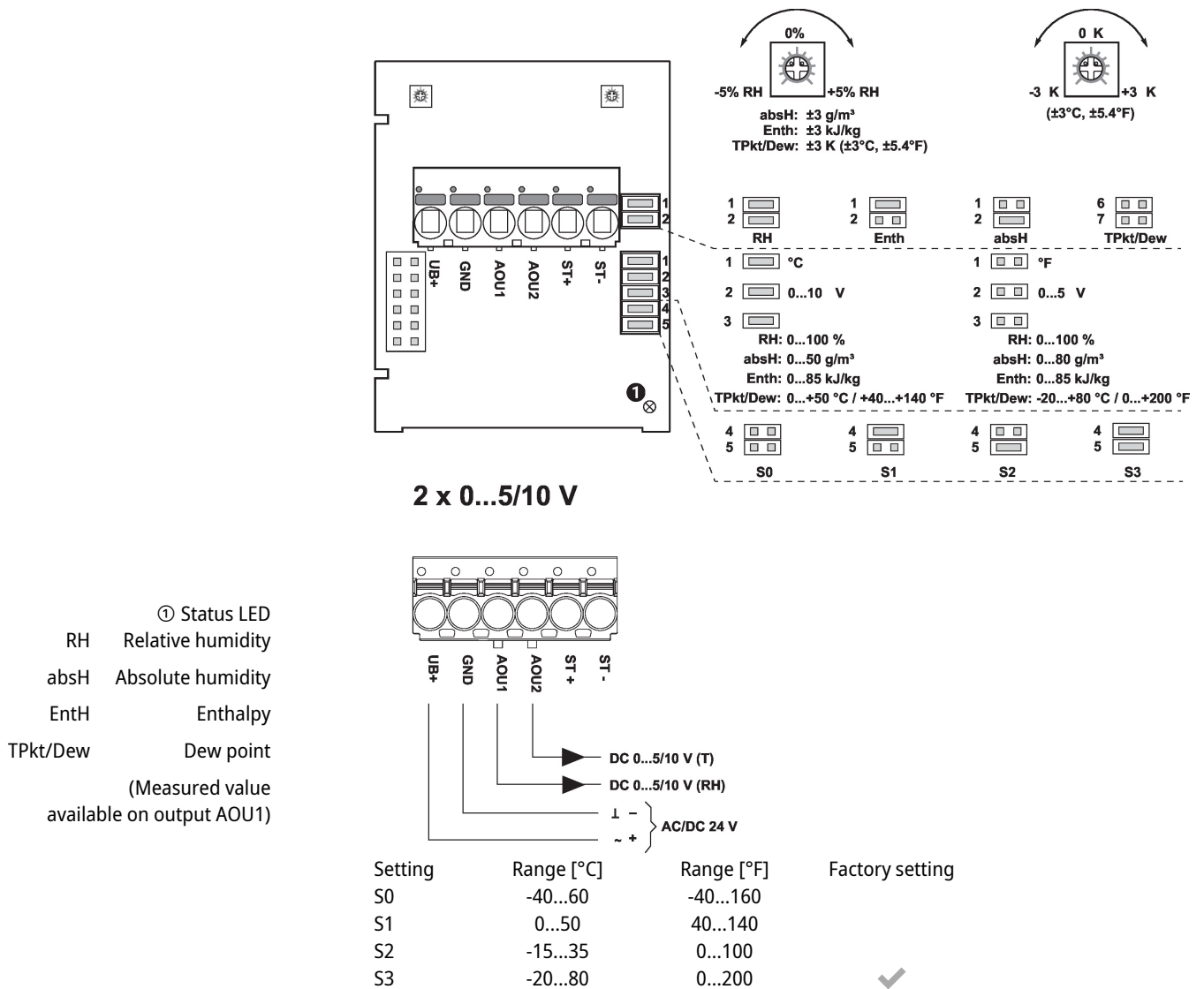
Remark surface measurements When measuring temperature, humidity or condensation on a surface, both the temperature of the surface and that of the ambient air influence the measurement result. When measuring on a pipe surface, the influence of the ambient air can be minimised by using thermal contact fluid.

Application notice for humidity sensors The humidity sensor is extremely sensitive. Touching the sensor element or exposing it to aggressive substances like chlorine, ozone, ammonia, hydrogen peroxide or ethanol (i.e. as a cleaning agent) may affect the measurement accuracy.
Long term operation outside the recommended conditions (5...60°C and 20...80% RH) can result in a temporary offset. After returning into the recommended range, this effect disappears.

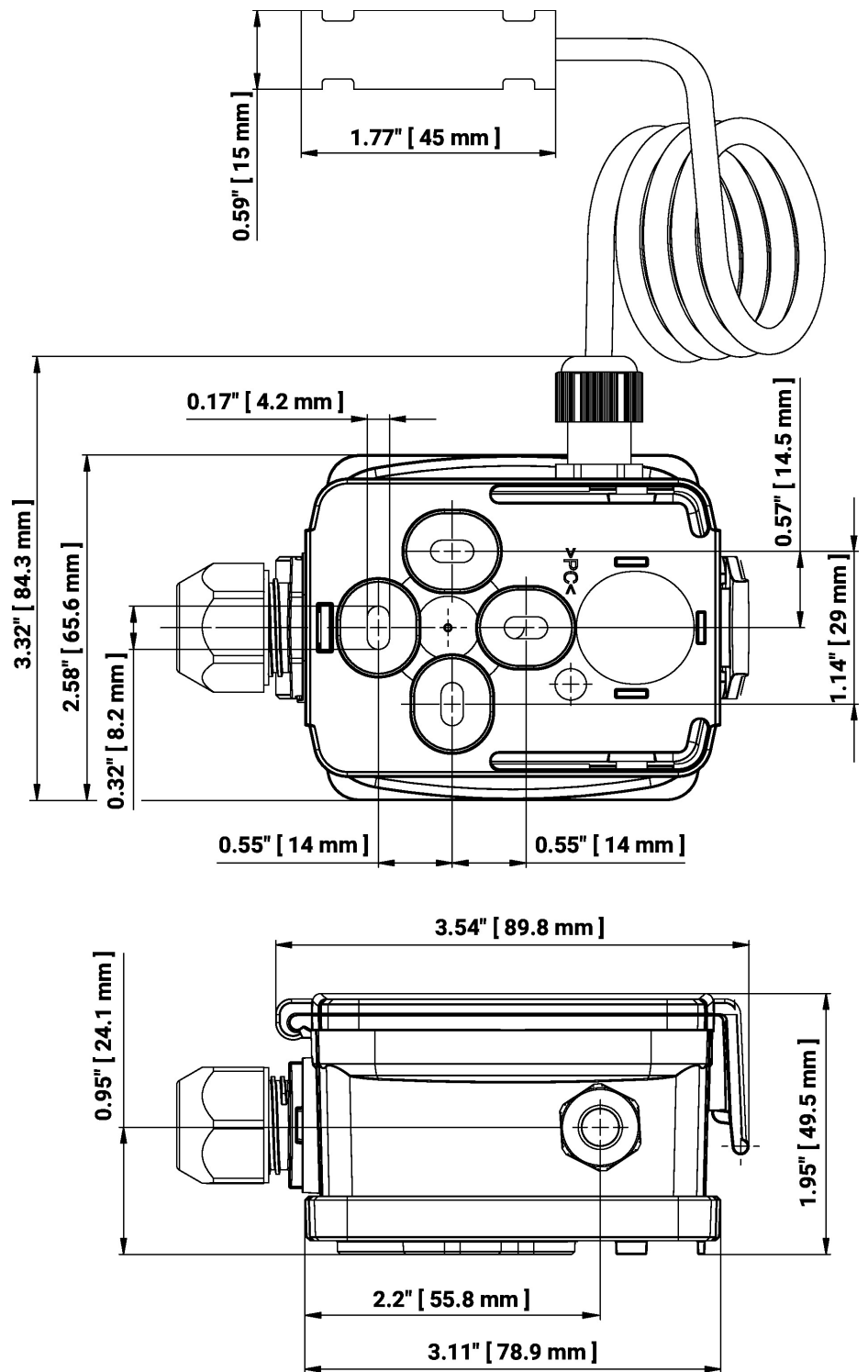
Accessories

| Optional accessories | Description | Type |
|----------------------|--|-------------|
| | Connection adapter flex conduit, M20x1.5, for cable gland 1x 6 mm, Multipack 10 pcs. | A-22G-A01.1 |

Wiring diagram



Dimensions



| Type | Cable length | Weight |
|------------|--------------|---------|
| 22HTH-110X | 2 m | 0.14 kg |

Further documentation

- Installation instructions