

**Outdoor Humidity, Temperature Sensor with weather shield**

Protected humidity and temperature sensor for outside applications. The radiation shield protects the outside sensors from rain and radiated heat. With the curved shape and color of the plates air flow is able to move across the sensors to keep radiated temperatures from rooftops and surrounding surfaces from affecting humidity readings. The measured values are transmitted over BACnet.


**Type Overview**

Type	Output Signal	Output Signal Active Temperature	Output Signal Active Humidity
22UTH-160X	BACnet	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V

**Technical Data**

<b>Electrical data</b>	Power Supply DC	15...24 V, ±10%, 0.7 W
	Power Supply AC	24 V, ±10%, 1.8 VA
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm <sup>2</sup>
	Cable entry	Cable gland M20 2 x Ø6 mm, with strain relief 2 x Ø6 mm
<b>Functional data</b>	Sensor Technology	Polymer capacitive sensor with stainless steel wire mesh filter
	Communicative control	BACnet MS/TP (Details see separate document "Sensor BACnet PICS")
	Output signal active note	Output DC 0...5/10 V selectable with switch
	Media	Air

<b>Measuring data</b>	Measured values	Temperature Relative humidity Dew point Enthalpies Absolute humidity	
	Measuring range humidity	0...100% rH selectable via BACnet	
	Measuring range temperature	-35...90 °C [-30...195 °F] selectable via BACnet Attention: max. measuring temperature is restricted by max. medium temperature (see Safety data)	
	Measuring range absolute humidity	0...80 g/m <sup>3</sup> selectable via BACnet	
	Measuring range enthalpy	0...85 kJ/kg selectable via BACnet	
	Measuring range dew point	-20...80 °C selectable via BACnet	
	Accuracy humidity	±2% between 10...90% r.H. @ 21 °C	
	Accuracy temperature active	±0.5 °C @ 25 °C [±0.9 °F @ 77 °F]	
	Operating condition air flow	max. 12 m/s	
	<b>Materials</b>	Cable gland	PA6, white
		Housing	Cover: Lexan, white Bottom: Lexan, white Seal: 0467 NBR70, black
	<b>Safety data</b>	Ambient temperature	-35...50 °C [-30...120 °F]
		Medium temperature	-35...50 °C [-30...120 °F]
Operating condition air flow		max. 12 m/s	
Protection class IEC/EN		III Safety Extra-Low Voltage (SELV)	
Protection class UL		UL Class 2 Supply	
EU Conformity		CE Marking	
Certification IEC/EN		IEC/EN 60730-1 and IEC/EN 60730-2-13	
Certification UL		cULus acc. to UL60730-1A/-2-9/-2-13, CAN/CSA E60730-1:02/-2-9, CE acc. to 2004/108/EC and 2006/95/EC, NEMA 4X, IP65, UL Enclosure Type 4X	
Degree of protection IEC/EN		IP65	
Degree of protection NEMA/UL		NEMA 4X	
Quality Standard		ISO 9001	
Weight	0.24 lbs		

Safety notes



The installation and assembly of electrical equipment should only be performed by authorized personnel.

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 human, animals or assets.

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

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

Remarks

**Build-up of Self-Heating by Electrical Dissipative Power**

Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power should be taken into account when measuring temperature. In case of a fixed operating voltage ( $\pm 0.2$  V) this is normally done by adding or reducing a constant offset value. As Belimo transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0...10 V / 4...20 mA have a standard setting at an operating voltage of DC 24 V. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board.

**Application Notice for Humidity Sensors**

Refrain from touching the sensitive humidity sensor/element. Touching the sensitive surface will void warranty.

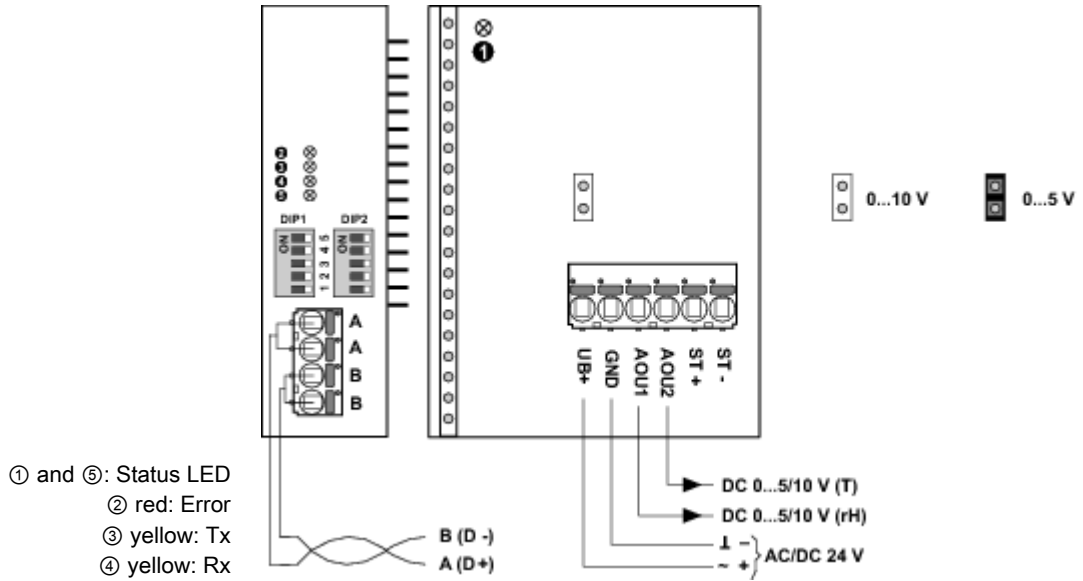
For standard environmental conditions the manufacturing accuracy specified in the datasheet will be covered by the calibration warranty for two years. When exposed to harsh environmental conditions such as; high ambient temperature and/or high levels of humidity or presence of aggressive gases (i.e. chlorine, ozone, ammonia) the sensor element may be affected and readings may be outside specified accuracy. Replacement of deteriorated humidity sensor due to harsh environmental conditions are not subject of the general warranty.

Accessories

**Scope of delivery** Dowel  
Screws  
Cable Gland Nut PG11,  $\varnothing 6...10$  mm  
Strain relief  $\varnothing 6...8$  mm

Optional Accessories	Description	Type
	Replacement filter Stainless steel, wire mesh	A-22D-A06

Wiring diagram



- ① and ⑤: Status LED
- ② red: Error
- ③ yellow: Tx
- ④ yellow: Rx

**Detailed documentation**

The separate document, BACnet PICS, informs about the PICS, MAC addressing and bus Termination (DIP1 & DIP2).

**Notes Wiring RS485**

Connection via safety isolating transformer.

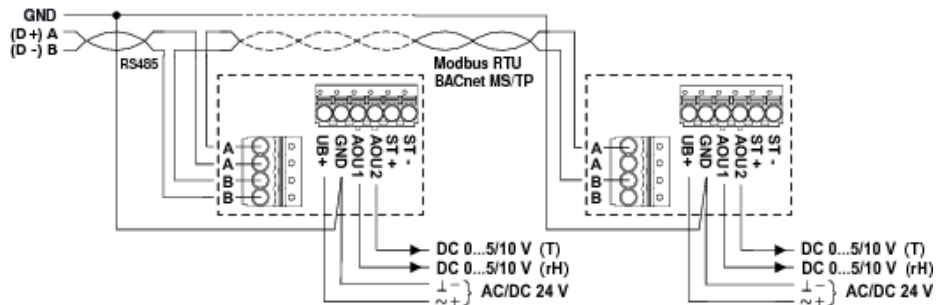


Parallel connection of other devices possible. Observe the performance data.

The wiring of the line for BACnet MS/TP / Modbus RTU is to be carried out in accordance with applicable RS485 regulations.

Modbus / BACnet: Supply and communication are not galvanically isolated. Connect earth signal of the devices with one another.

**Wiring RS485 (Modbus RTU & BACnet MS/TP)**



## Dimensions

