BELIMO®

Outdoor Humidity, Temperature Sensor with Weather Shield

Protected ± 2% accurate humidity and temperature sensor (0 to 5/10 V) for outdoor 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 temperature and humidity readings. The measured values are available over BACnet MS/TP.

5 YEAR WARRANTY

ASHRAE BACnet™

Type Overview

Type	Output Signal	Output Signal Active Temperature	Output Signal Active Humidity
22UTH-560X	BACnet	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V

Technical Data

Electrical Data	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. 11 GA [2.5 mm²]
	Cable Entry	cable gland M20 2 x Ø6 mm, with strain relief 2 x Ø6 mm, 1/2" conduit adapter included
Functional Data	Sensor Technology	polymer capacitive sensor with stainless steel wire mesh
	Communicative Control	BACnet MS/TP (for details see separate document "Sensor BACnet PICS")
	Output Signal Active Note	output DC 0 to 5/10 V selectable with switch
	Media	air

Measuring Data	Measured Values	temperature relative humidity dew point enthalpy absolute humidity
	Measuring Range Humidity	0 to 100% RH selectable via BACnet
	Measuring range temperature	-30°F to 195°F [-35°C to 90°C] selectable via BACnet Attention: max. measuring temperature is restricted by max. medium temperature (see Safety data)
	Measuring Range Absolute Humidity	0 to 80 g/m³ selectable via BACnet
	Measuring Range Enthalpy	0 to 85 kJ/kg selectable via BACnet
	Measuring Range Dew Point	0°F to 200°F [-20°C to 80°C] selectable via BACnet
	Accuracy Humidity	±2% between 10 to 90% RH @ 70°F [21°C]
	Accuracy temperature active	±0.9°F @ 77°F [±0.5°C @ 25°C]
	Operating Condition Air Flow	max. 40 ft/s [12 m/s]
Materials	Cable Gland	PA6, black
	Housing	cover: lexan, gray base: lexan, gray seal: 0467 NBR70, black
Safety Data	Ambient Temperature	-30°F to 120°F [-35°C to 50°C]
	Medium Temperature	-30°F to 120°F [-35°C to 50°C]
	Operating Condition Air Flow	max. 40 ft/s [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.

The product should only be used for the intended application. Unauthorized modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, 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. 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 to 10 V / 4 to 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.
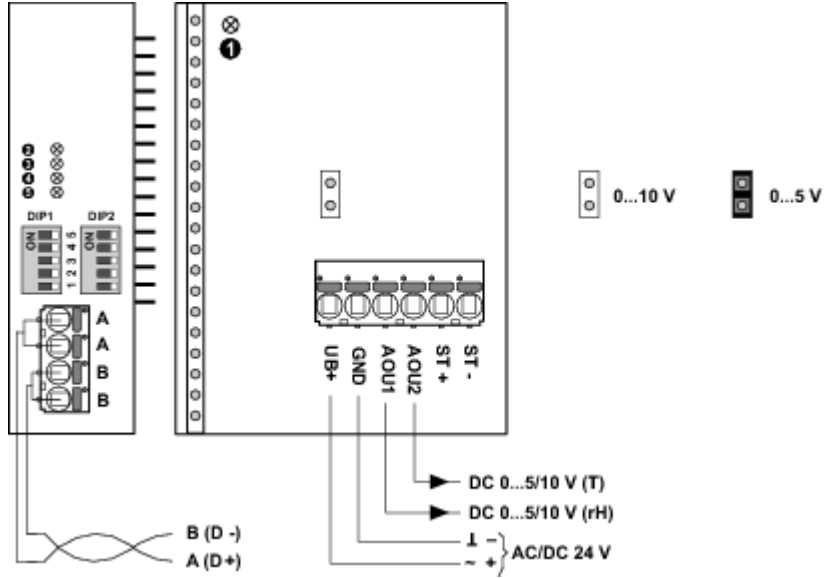
Accessories

Scope of Delivery

dowel
screws
strain relief Ø6 to 8 mm
cable gland nut conduit 1/2" NPT, 2 x Ø6 mm
cable gland nut PG11, Ø6 to 10 mm
cable gland nut conduit 1/2" NPT

Optional Accessories

Description	Type
mounting flange for duct humidity and CO_2 sensor	A-22D-A34

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

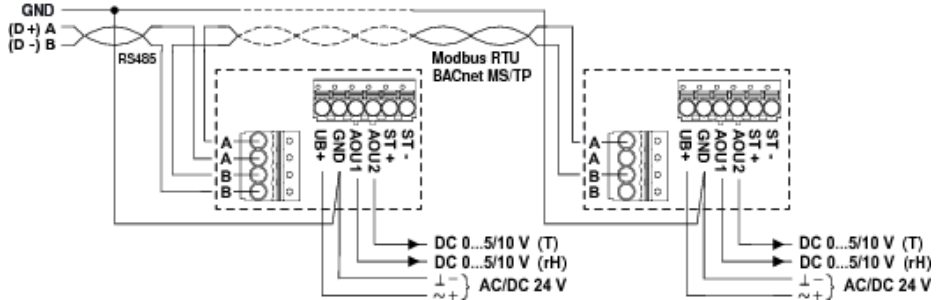Connection via safety isolating transformer.

⚠ Parallel power connection of additional actuators is possible. Observe the transformer size and 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