» FTP+ RS485 BACnet

Room pendelum sensor for relative humidity and temperature

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Sensor for measuring humidity and temperature in outdoor areas. In delivery condition, the sensor is designed for measuring temperature and relative humidity. Alternatively the output can be set to absolute humidity, enthalpy or dew point (changeable via Thermokon USEapp). A mounting base for mounting on a level surface and fixing material are included in delivery.

» TYPES AVAILABLE

Room pendulum sensor temperature + humidity – BUS

FTP+ RS485 BACnet

» SECURITY ADVICE – CAUTION

The installation and assembly of the device 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

» NOTES ON DISPOSAL

As a component of a large-scale fixed installation, Thermokon products are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location, hence the Waste Electrical and Electronic Act (WEEE) is not applicable. However, most of the products may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

»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 has to be considered when measuring temperature. In case of a fixed operating voltage (±0,2 V) this is normally done by adding or reducing a constant offset value. As Thermokon 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 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.

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

»APPLICATION NOTICE FOR HUMIDITY SENSORS

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

For standard environmental conditions re-calibration is recommended once a year to maintain the specified accuracy.

When exposed to 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 re-calibration may be required sooner than specified. Re-calibration and deterioration of the humidity sensor due to environmental conditions are not subject of the general warranty.

»TECHNICAL DATA

Measuring values	temperature, humidity (humidity output configurable)	
Output voltage	2x 0..10 V or 0..5 V, min. load 10 kΩ (live-zero configuration via Thermokon USEapp)	
Network technology	RS485 BACnet	
Power supply	15..35 V = or 19..29 V ~ SELV *With alternating voltage, the correct polarity must be ensured*	
Power consumption	max. 0,4 W (24 V =) | 0,8 VA (24 V ~)	
Measuring range temp.	+40..+240 °F (default setting), optionally configurable via Thermokon USEapp	
Measuring range humidity	0..100% rH non-condensing, optionally configurable via Thermokon USEapp (enthalpy, absolute humidity, dew point)	
Accuracy temperature	±0,3 K (typ. at 70 °F)	
Accuracy humidity	±2% between 10..90% rH (typ. at 70 °F)	
Enclosure	enclosure USE-M, PC, pure white, with removable cable entry	
Protection	IP65 according to EN 60529	
Cable entry	M25 for cable max. Ø=0.24 in., seal insert for fourfold cable entry	
Connection electrical	**Mainboard** removable plug-in terminal, max. 14 AWG	**Plug-in card** removable plug-in terminal, max. 16 AWG
Pipe	PA6, with stainless steel weight, black, Ø=0.79 in., Length 8.27 in.	
Filter	stainless steel wire mesh	
Ambient condition	-4..+158 °F, short term condensation	

When several BUS devices are supplied by one 24 V AC voltage supply, it is to be ensured that all "positive" operating voltage input terminals (+) of the field devices are connected and all "negative" operating voltage input terminals (-) (=reference potential) are connected (in-phase connection of field devices).In the case of reversed polarity at one field device, a supply voltage short-circuit would be caused by that device.
The consequential short-circuit current flowing through this field my cause damage to it. Therefore, pay attention to correct wiring.

»PRODUCT TESTING AND CERTIFICATION

CE

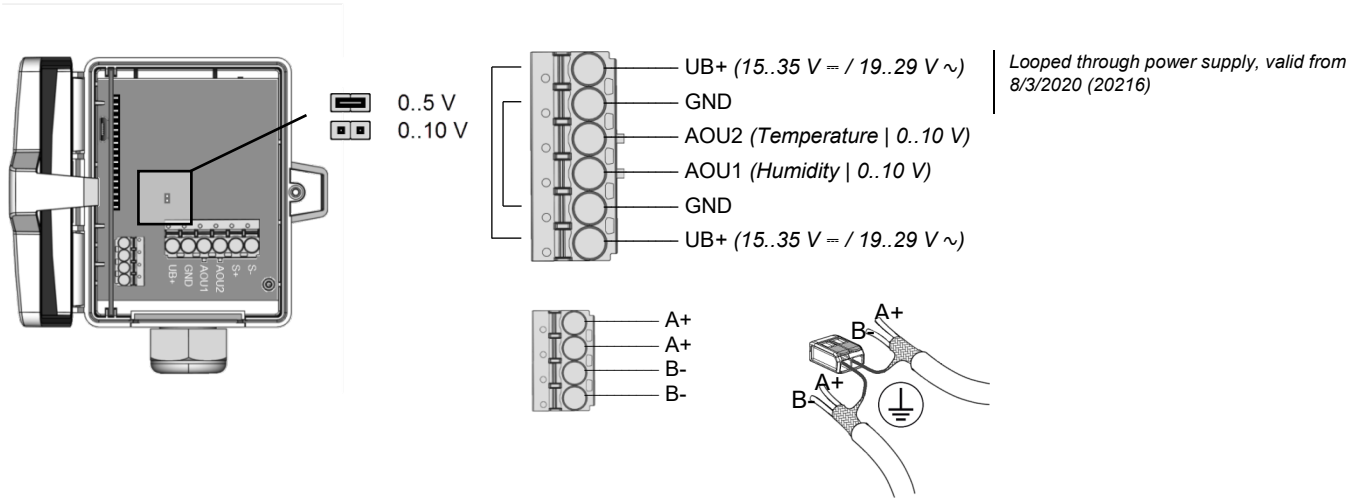
Declaration of conformity

The declaration of conformity of the products can be found on our website https://www.thermokon.de/.

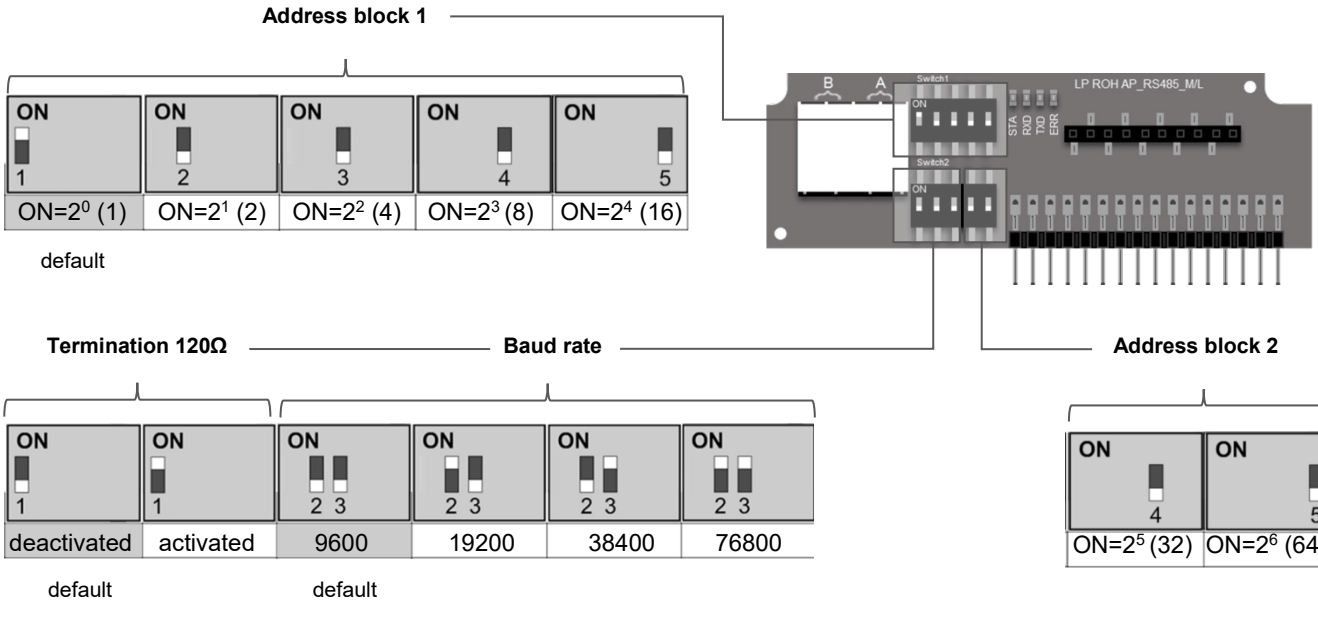
» CONNECTION PLAN

If the RS485 cable is looped through, connect both cable shields using the enclosed 2-pol. Connect terminal as shown.

FTP+ **RS485**



Looped through power supply, valid from 8/3/2020 (20216)



Measuring values

Objects	Access	Description	Unit	
AI-1	R	**relative Humidity**		%rH

Object AV-38 = 1 (Unit SI)

Objects	Access	Description	Unit	
AI-0	R	**temperature**	SI	°C
AI-2	R	**absolute humidity**	SI	g/m³
AI-3	R	**enthalpy**	SI	KJ/kg
Ai-4	R	**dew point**	SI	°C

Object AV-38 = 2 (Unit Imperial)

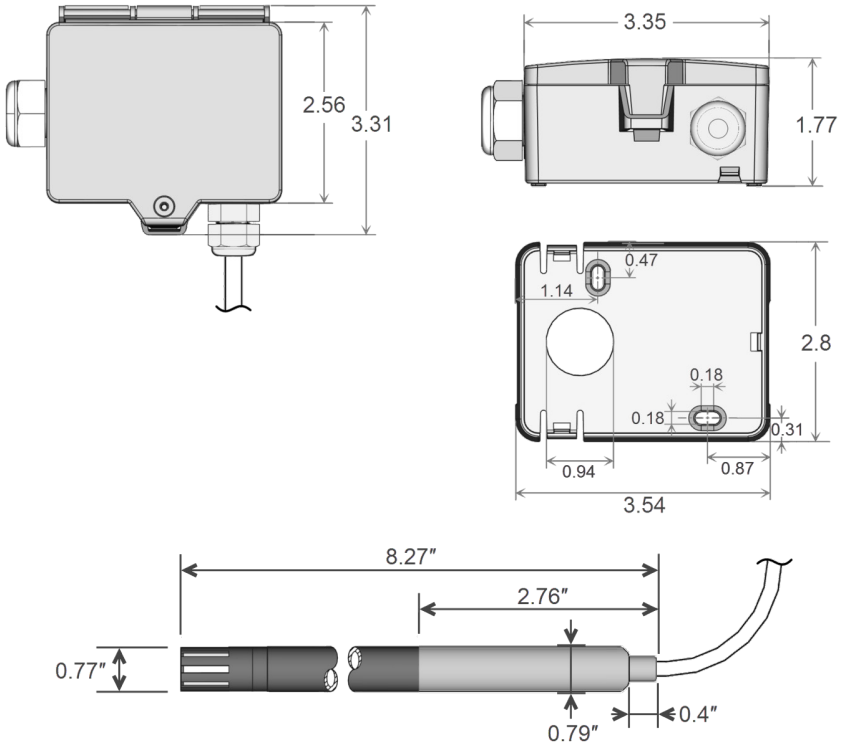
Objects	Access	Description	Unit	
AI-0	R	**temperature**	Imperial	°F
AI-2	R	**absolute humidity**	Imperial	gr/ft³
AI-3	R	**enthalpy**	Imperial	BTU/lb
Ai-4	R	**dew point**	Imperial	°F

The BACnet address of the device is set binary coded in the range of 1 ... 127 via 7 dip-switches. (the address 0 is reserved and cannot be selected).

BACnet Objects:
USE-RS485 BACnet interface

A detailed description of the BAcnet interface can be found at the following link:
→ **Download**

» DIMENSIONS (IN.)



» ACCESSORIES (INCLUDED IN DELIVERY)

Mounting base	Item No. 631228
Mounting kit universal	Item No. 698511

• Cover screw + screw cover• 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

» ACCESSORIES (OPTIONAL)

Filter stainless steel, wire mesh	Item No. 231169