

» FTW06 RS485 Modbus

Room sensor for relative humidity and temperature

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Flush-mounted room sensor for humidity and temperature detection. The sensor meets increased design requirements and is available in standard switch ranges as well as in different color versions. The device is mounted in a flush-mounted box. The sensor is used for a comfortable indoor climate and for mold avoidance, e.g. in hotels, offices, living rooms and meeting rooms. The accuracy of the humidity sensor is 2%.

» TYPES AVAILABLE

Room sensor + temperature + relative humidity – active BUS

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» SECURITY ADVICE – CAUTION



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

The product should only be used for the intended application. Unauthorised 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.

» REMARKS TO ROOM SENSORS

Location and Accuracy of Room Sensors

The room sensor should be mounted in a suitable location for measuring accurate room temperature. The accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important, that the back plate is completely flush to the wall so that there is sufficient circulation of air through the vents in the cover, otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. The temperature sensor should not be covered by furniture or other objects. Mounting next to doors (due to draught) or windows (due to colder outside wall) should be avoided.

Surface and Flush Mounting

The measuring result is influenced by the thermal characteristics of the wall. A solid concrete wall responds to thermal fluctuations within a room in a much slower than a light-weight structure wall. Room temperature sensors installed in flush-mounted boxes have a longer response time to thermal variations. In extreme cases they detect the radiant heat of the wall even if the air temperature in the room is lower for example. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is the smaller the deviations limited in time are.

» 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 ($\pm 0,2$ 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 recalibration directly at the sensor is necessary during later operation, this is possible with sensors with a BUS interface via a corresponding software variable.

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.

» PRODUCT TESTING AND CERTIFICATION



Declaration of conformity

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

» TECHNICAL DATA

Measuring values	temperature + humidity
Network technology	RS485 Modbus, RTU, ASCII, half-duplex, baud rate 9.600, 19.200, or 57600, parity: none, even or odd
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 1,6 W (24 V = 3,9 VA (24 V =)
Measuring values temp	+32..+122 °F
Accuracy temperature	±0,5 K (typ. at 70 °F)
Measuring range humidity	0..100% rH non-condensing
Accuracy humidity	±2% between 10..90% rH (typ. at 70 °F)
Switch ranges Berker	S.1, B.3 Aluminium, B.7 glass
Switch ranges Busch-Jaeger	Busch-balance® SI, solo®, future® linear, Busch-axcent®
Switch ranges Feller	EDIZIOdue
Switch ranges Gira	E2, E3, Standard 55, Esprit, Event
Switch ranges Jung	LS 990, A 500, AS 500, A plus, A creation, CD 500
Switch ranges Merten	M-Smart, M-Arc, M-Plan, 1-M, Atelier-M, M-Pure, Artec
Switch ranges Peha	Aura, Aura glass
Enclosure	PC, pure white brilliant, pure white matt, aluminium, anthracite
Protection	IP30 according to EN 60529
Connection electrical	terminal block max. 16AWG
Ambient condition	+32..+122 °F, max. 85% rH non-condensing

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 with each other and all "negative" operating voltage input terminals (-) (=reference potential) are connected together (in-phase connection of field devices).

In 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 may cause damage to it.

Therefore, pay attention to correct wiring.

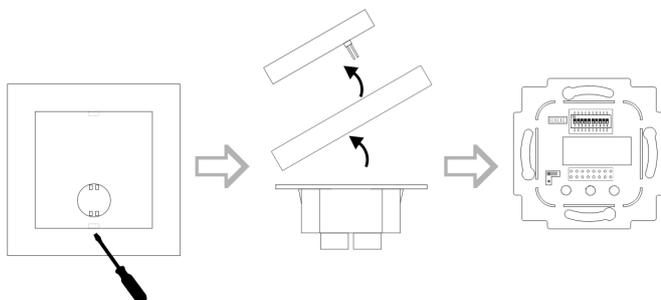
» PROTOCOL DESCRIPTION



Modbus addresses:
RS485 Modbus Interface

A detailed description of the Modbus addresses can be found under the following link:
→ [Download](#)

» MOUNTING ADVICES



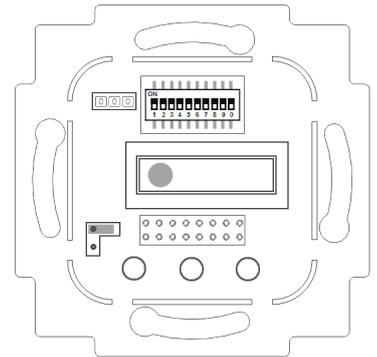
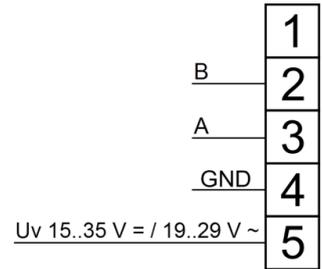
The device is designed for mounting on a flush box. The bus cable is connected to the device by a terminal screw. For pre-wiring, the terminal screw can be drawn from the device.

Due to the extended retaining capacity for the cabling, the use of deep installation boxes is recommended. Installation must be made on representative places for the measurement value logging to avoid a falsification of the measuring result. Solar radiation and draught should be avoided. The end of the installation tube in the flush box must be sealed to avoid any draught in the tube falsifying the measuring result.

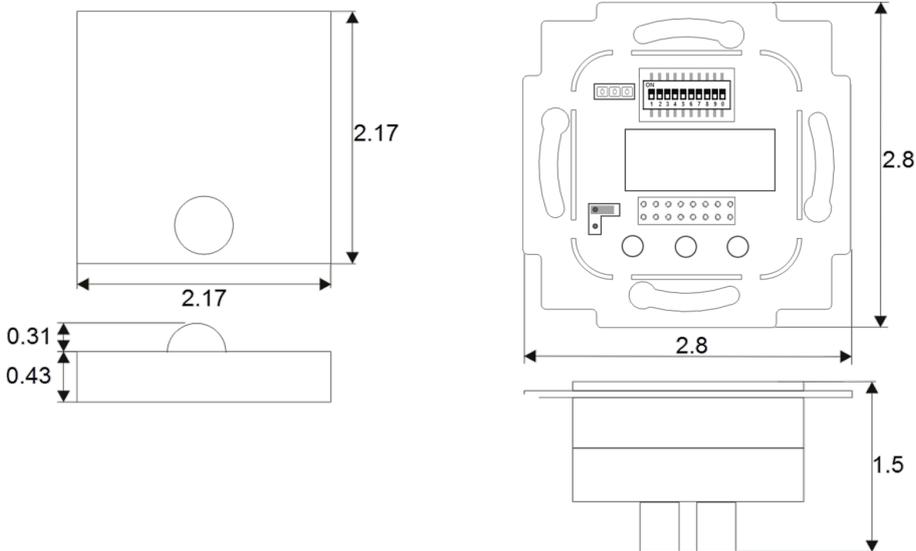
» **CONNECTION PLAN**

DIP switch block

DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	Address (binary coded)
ON	OFF	OFF	OFF	OFF	OFF	1 (default)
ON	ON	OFF	OFF	OFF	OFF	2
...						
ON	ON	ON	ON	ON	ON	63
DIP 7	DIP 8	Baud rate				
OFF	OFF	9600				
ON	OFF	19200 (default)				
OFF	ON	38400				
ON	ON	57600				
DIP 9	DIP 0	Parity				
OFF	OFF	none - 2 stopbits				
ON	OFF	even (default)				
OFF	ON	odd				
ON	ON	none - 1 stopbit				
Jumper	Termination 120 Ohm					
	inactive (default)					
	active					



» **DIMENSIONS (IN.)**



» **ACCESSORIES (OPTIONAL)**

Raw plugs and screws (2 pcs. each)

Item No.: 102209