FTK+ LRW

Duct sensor for air quality, optional temperature and humidity

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

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USEapp ✓

LoRaWAN®

» APPLICATION

Duct air quality sensor for measuring temperature and humidity. The sensor is build with 2x 0..10 V output and a LoRaWAN® radio module. Optionally available with external antenna to optimize the radio connection between device and a gateway.

» TYPES AVAILABLE

Duct sensor – active 2x 0..10 V LRW
FTK+ <xxx> VV incl. MF20 (TPO)

<xxx>: 140/270/400 mm

» 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

» 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/direct/en-gb/categories/ftkplus

» NOTES ON DISPOSAL

The crossed-out wheelie bin symbol indicates that the product or removable batteries must be disposed of with household or commercial waste. Within the EU, you are legally obliged to dispose of the product separately and appropriately in accordance with the national laws of your country. Alternatively, please contact your supplier or Thermokon Sensortechnik GmbH. Further information can be found at: www.thermokon.com

» BUILD-UP OF SELF-HEATING BY ELECTRICAL DISSIPATIVE POWER

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.

Thermokon transducers can be operated with variable operating voltages. The transducers are set at the factory with a reference operating voltage of 24 V =.

At this voltage, the expected measuring error of the output signal will be the least. Other operating voltages, can cause a measurement deviation changing power loss of the sensor electronics.

A recalibration can be carried out directly on the unit or via a software variable (app or bus).

Remark: Occurring draught 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

At regular environmental condition, it is recommended to calibrate the sensor annually to check the compliance with the accuracy required in the application. The following conditions can damage the sensor element or lead in long therm to loss of the specified accuracy:

- Mechanical stress
- Contamination (e.g. dust / fingerprints)
- Aggressive chemicals
- Ambient conditions (e.g. condensation on measuring element)

Do not touch the sensor elements!

Re-calibration or exchange of the sensor element are not subject of the general warranty.

» INFORMATION ABOUT LORAWAN SPECIFICATION

The Thermokon LoRaWAN specification can be downloaded from our website.

» USE ENCLOSURE WITH UV AND WEATHER RESISTANCE

After some time, outdoor mounted plastics can lose their color and quality. Therefore, all USE housings are made of special white polycarbonate (PC). The light-stable colorants and additives are used to achieve optimum protection of the polymer while maintaining color stability. The titanium dioxide used is specially developed for polycarbonate and offers excellent UV protection through the reflection of the entire light spectrum including the UV component by 340 nm. This effectively counteracts the otherwise occurring photochemical polymer degradation. The colors stay full for a long time without fading. The material is also resistant to cold and frost.
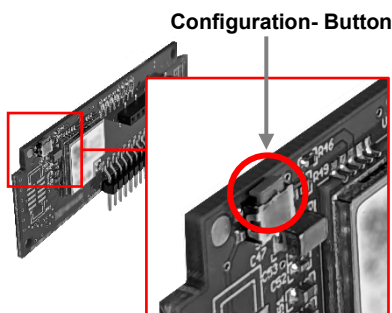
» CONFIGURATION

The Thermokon Bluetooth-Dongle (Item-No. 668262) is required for Communication between USEapp and USE-M/USE-L LRW-products. Commercial bluetooth dongles are not compatible.

Application-specific reconfiguration of the devices can be carried out using the Thermokon USEapp. The configuration is carried out in the voltage-supplied state.

The configuration-app and the app description can be found on the website www.thermokon.de

Configuration- Button

1. Connect the sensor with the power supply according to wiring diagram
2. Plug in the bluetooth dongle
3. Press the button to start configuration mode.
4. Configure the sensor using the USEapp on a mobile device.
5. Disconnect the bluetooth connection.
6. Remove the bluetooth dongle off the sensor.
7. Press the button to stop configuration mode.
8. Configuration values are saved and the device is ready for use.

» USER ADVICE

The bluetooth dongle snaps in the connector, when removing the bluetooth dongle hold the board down to prevent pulling out the board.
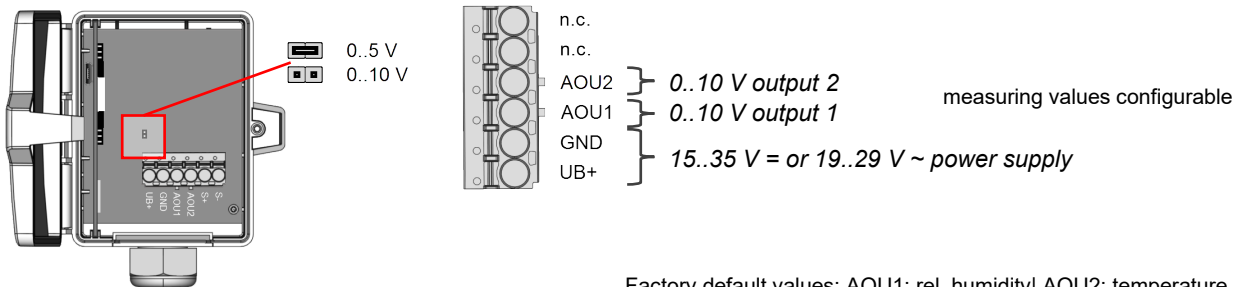
»TECHNICAL DATA (TYPE-DEPENDENT)

Measuring values	Temperature, humidity
Output voltage	2x 0..10 V or 0..5 V, min. load 10 kΩ (live-zero configuration via Thermokon USEapp)
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,3 W (24 V =) | max. 4,3 VA (24 V ~)
Measuring range temp.	-20..+80 °C (default setting), optionally configured via Thermokon USEapp
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,3 K (typ. at 21 °C set to standard measuring range)
Air Speed	max. 12 m/s
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Enclosure	enclosure USE-M / cover, PC, pure white, with removable cable entry
Protection	IP65 according to EN 60529
Cable entry	Flextherm M20, for wire max. Ø=4,5..9 mm (0.18..0.35 in.), removeable
Pipe	PA6, black, Ø=19,5 mm, length 140 | 270 | 400 mm
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Configuration	Thermokon USEapp, LoRaWAN® Downlink, Jumper
Ambient condition	-20..+70 °C, max. 85% rH short term condensation

» LoRaWAN®

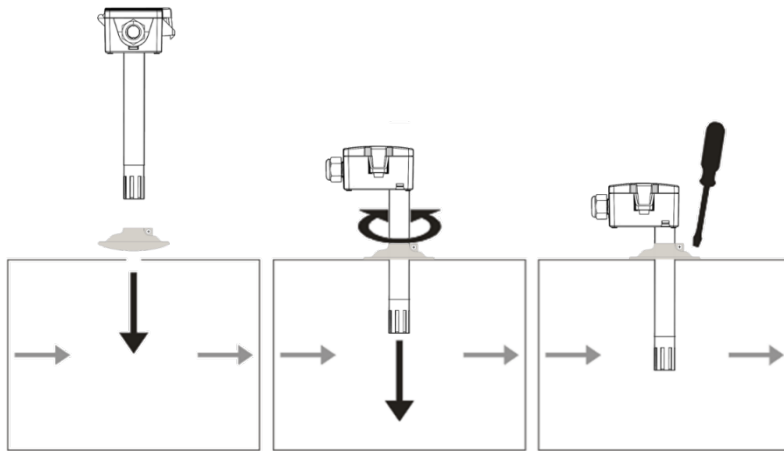|	
Radio technology	LoRaWAN®
LoRaWAN version	1.0.2
Device class	Class A
Frequency	EU868 (863-870 MHz)
Max. transmission power	+14 dBm (25 mW)
Receiver sensitivity	-137 dBm
Antenna	Internal send- / receiver antenna, external antenna available on request
LoRaWAN Features	Over the Air Activation (OTAA), Adaptive Data Rate (ADR)
Data transmission	Configurable transmission interval, factory default value 5 min

»CONNECTION PLAN

Switch off the power (or disconnect the plug in terminal) to change the output voltage range (default: 0..10 V to 0..5 V). The jumper has to be moved in de-energized state. The set output value range is ready approximately 2 seconds after restart of the device.

0..5 V
0..10 V

n.c.
n.c.
AOU2 — *0..10 V output 2*
AOU1 — *0..10 V output 1*   measuring values configurable
GND
UB+ — *15..35 V = or 19..29 V ~ power supply*

Factory default values: AOU1: rel. humidity| AOU2: temperature

»MOUNTING ADVICES

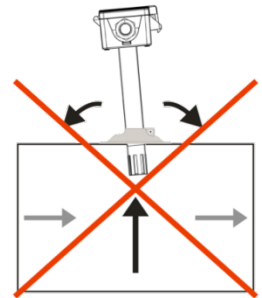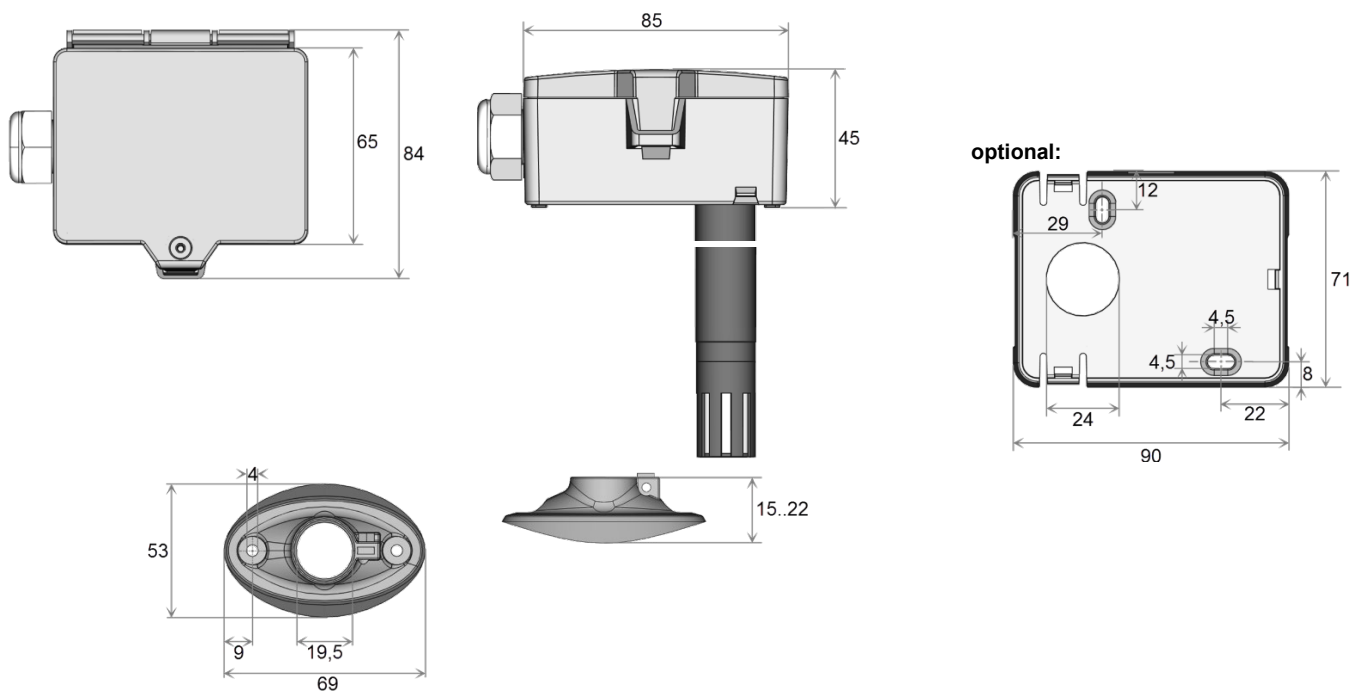| Mounting	Dismount
The sensor can be mounted into the ventilation duct with the mounting flange MF20 TPO. To prevent condensate permeation the pipe must be installed in an orientation that occurring condensate can run off.	Remove the lower section of the sensor carefully and pulling straight out.

Dont tilt the sensor during mounting / dismounting!

»DIMENSIONS (MM)

optional:

»ACCESSORIES (INCLUDED IN DELIVERY)

Mounting flange MF20 TPO	Item No. 612562
Mounting kit universal	Item No. 698511

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

»ACCESSORIES (OPTIONAL)

Mounting base	Item No. 631228
Filter stainless steel, wire mesh (spare part)	Item No. 231169
Rawlplugs and screws (2 pcs each)	Item No. 102209
Weather protection for FTK, FTK+, WSA (replacement)	Item No. 625241
Sealing insert M20 USE white, 2x Ø=7 mm (for 2 wire; PU 10 pieces)	Item No. 641333
Bluetooth dongle Micro-USB	Item No. 668262