TF25+ LRW

LoRaWAN® cable temperature sensor

Datasheet

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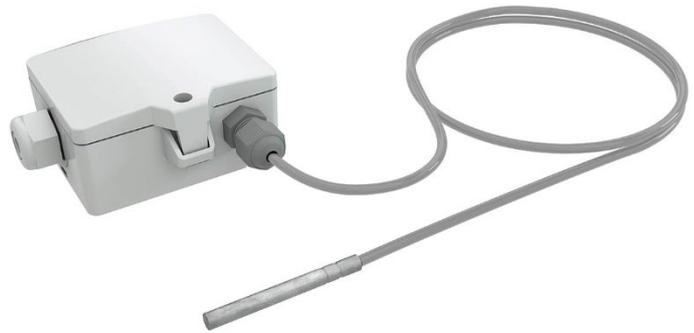
» APPLICATION

LoRaWAN® cable sensor for temperature measurement in gaseous media of heating, ventilation and air conditioning systems. In conjunction with an immersion sleeve, also suitable for measurement in liquid media (e.g. piping systems). The device is optionally available with an external antenna to optimise the radio connection between the device and the gateway.

» TYPES AVAILABLE

Duct/Immersion sensor – active 2x 0..10 V LRW
- TF25+ LRW T160 100.06 L2000

Mounting length: 50/100/150/200/250 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

Declaration of conformity
The declaration of conformity of the products can be found on our website
https://www.thermokon.de/direct/en-gb/categories/tf25plus

» NOTES ON DISPOSAL

The crossed-out wheelie bin symbol indicates that the product or removable batteries must not 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.

» INFORMATION ABOUT LORAWAN SPECIFICATION

The Thermokon LoRaWAN specification can be downloaded from our website.

» TECHNICAL DATA (TYPE-DEPENDENT)

Measuring values	Temperature
Output voltage	0..10 V or 0..5 V, min. load 10 kΩ (live-zero configuration via Thermokon USEapp)
Power supply	15..24 V = (±10%) oder 24 V ~ (±10%) 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
Operating temperature range* **max. permissible operating temperature*	**sensor pocket** -50..+160 °C　　　**electronic | enclosure** -35..+70 °C　　　**mounting base** -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C set to standard measuring range)
Enclosure	enclosure USE-M / cover, PC (UV resistant), pure white, with removable cable entry
Protection	**enclosure** IP65 according to EN 60529　　　**sensor pocket** IP65 according to EN 60529, SI-Protection, 16-point pressed, optional, Rolled: IP67 according to EN 60529 with SI-Protection
Cable entry	Fleytherm M20, for wire max. Ø=4,5..9 mm, removeable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pocket	stainless steel V4A, Ø=6 mm, mounting length: 50 | 100 | 150 | 200 | 250 mm, tension spring (optional)
Ambient condition	max. 85% rH, short term condensation
Configuration	Thermokon USEapp, LoRaWAN® Downlink, Jumper

» LoRaWAN®

Radio technology	LoRaWAN®
LoRaWAN version	1.0.3
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
AOU1 ⎤ 0..10 V output 1
GND
UB+ ⎦ 15..35 V = or 19..29 V ~ power supply
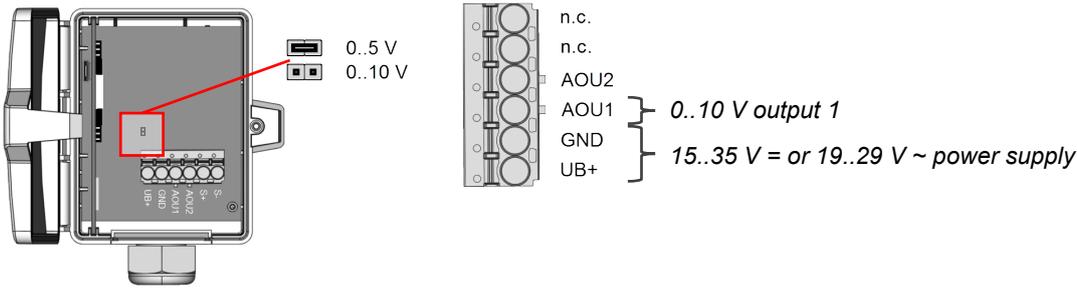
»CONFIGURATION

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
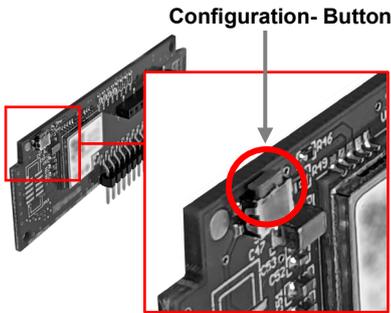
1. Connect the sensor with the power supply according to wiring diagram
2. Plug in the bluetooth dongle
3. Press the button to start configuration mode.
4. Configure the sensor using the USEapp on a mobile device.
5. Disconnect the bluetooth connection.
6. Remove the bluetooth dongle off the sensor.
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.

» DIMENSIONS (MM)
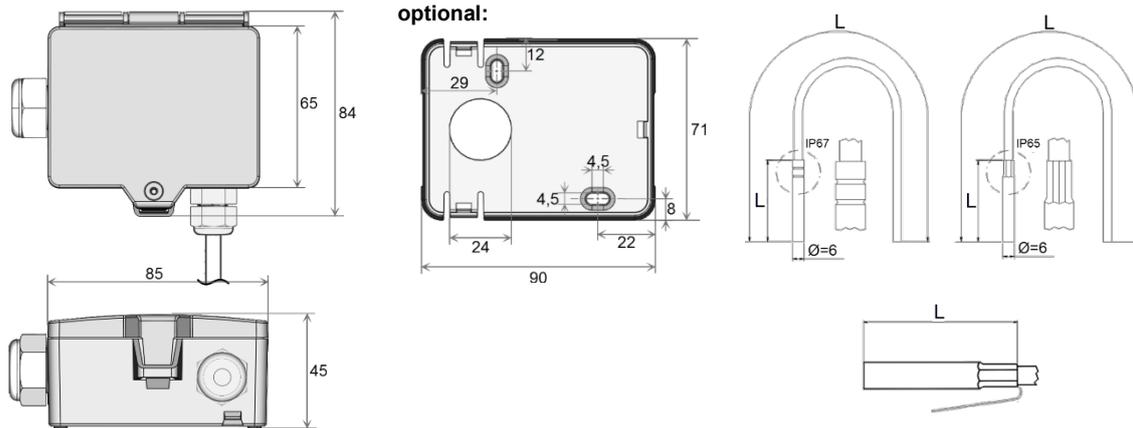
optional:

» 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)

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

Thermowell pockets stainless steel / brass for sensors with pocket Ø=6 mm

length	50 mm	100 mm	150 mm	200 mm	250 mm	300 mm	450 mm
THMSDS	610995	611008	611015	611022	611763	611039	611046
THVADS	611152	611817	611824	611848	611862	611879	611893

MS-thermowell pocket (brass, suitable up to 16 bar) type THMSDS <xx>

VA-thermowell pocket (stainless steel, suitable up to 40 bar) type THVADS <xx>.