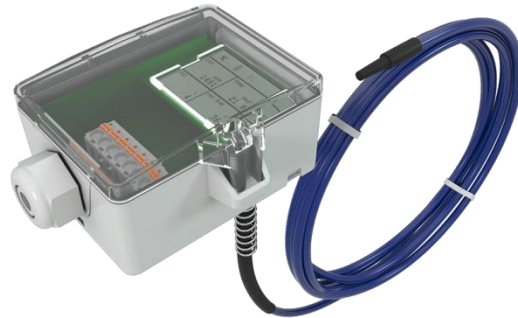


Datasheet

Subject to technical alteration
Issue date: 28.07.2017



Application

Duct averaging temperature sensor in enclosure USE-S (active/passive) resp. in the newly developed enclosure USE-M for measuring the average temperature in air ducts. The sensor detects the applied temperature value throughout the entire length. LCD models with RGB background light have a transparent cover. Display configuration and threshold values for color changes can be parameterized via Thermokon USEapp. With the option board relay two-point controllers or a 2-stage 2-point controller for temperature can be realized. Mounting angles for uncomplicated duct mounting are included in delivery. A spring at the connection head reduces vibrations.

Types Available

Duct averaging sensor with display temperature – active 0..10 V | 4..20 mA | relay

MWF+ LCD TRV MultiRange L<x> incl. Installation kit
MWF+ LCD TRA MultiRange L<x> incl. Installation kit
MWF+ LCD TRV MultiRange Relay L<x> incl. Installation kit

<x>: sensor rod length 3000/6000 mm
MultiRange: Measuring ranges adjustable at the transducer

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.

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 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.

Technical Data

Measuring values		temperature
Output voltage		0..10 V or 0..5 V, min load 10k Ω (live-zero configuration via Thermokon USEapp)
Output Amp	TRA	4..20 mA, max load 500 Ω
Output switch contact	Relay	2 floating contacts for 24 V ~ or 24 V = / 3 A
Power supply		15..35 V = or 19..29 V ~,
	TRA	15..35 V =
Power consumption		max. 2,5 W (24 V =) max. 4,3 VA (24 V ~)
Measuring range temp.		-20..+80 °C (default setting), optionally configured via Thermokon USEapp
Accuracy temperature		$\pm 0,5$ K (typ. at 21 °C)
Display		LCD 29x35 mm with RGB backlight
Enclosure		enclosure USE-M, PC, pure white, cover PC, transparent, with removable cable entry
Protection		IP65 according to EN 60529
Cable entry	TRV TA Relay	M16, for wire max. $\varnothing=8$ mm M20, for wire max. $\varnothing=10$ mm, seal insert for double cable entry for wire max. $\varnothing=6$ mm
Connection electrical		removeable plug-in terminal, max. 2,5 mm ²
Sensor rod		3000 mm, 6000 mm
Ambient condition		-20..+70 °C, max. 85% rH short term condensation

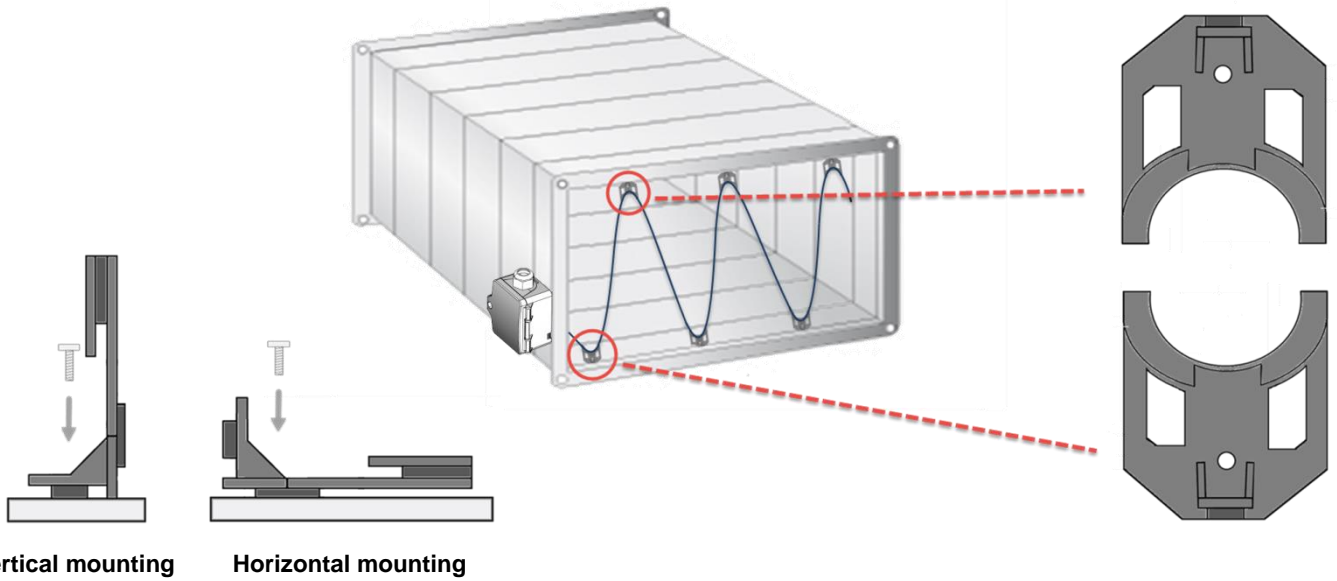
Mounting Advices

Model MWF can either be mounted directly on the ventilation duct by means of a mounting flange or by screws.

By means of the mounting brackets included the sensor rod is braced to the ventilation duct.

Note: Please pay attention to the sensor rod while mounting and protect it from mechanical damage!

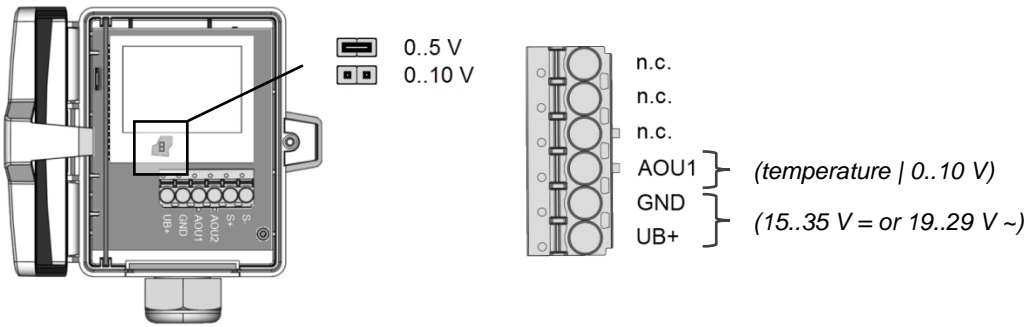
Mounting angle:



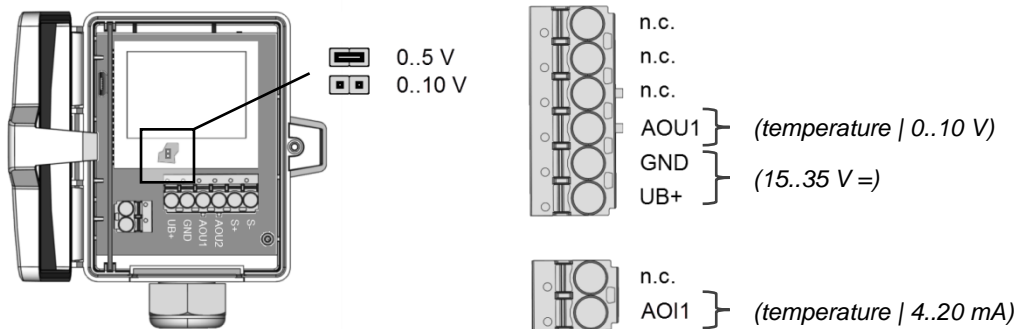
Connection Plan

To change the output voltage range (default 0..10 V to 0.5 V) via jumper, the display must be removed from the board first.

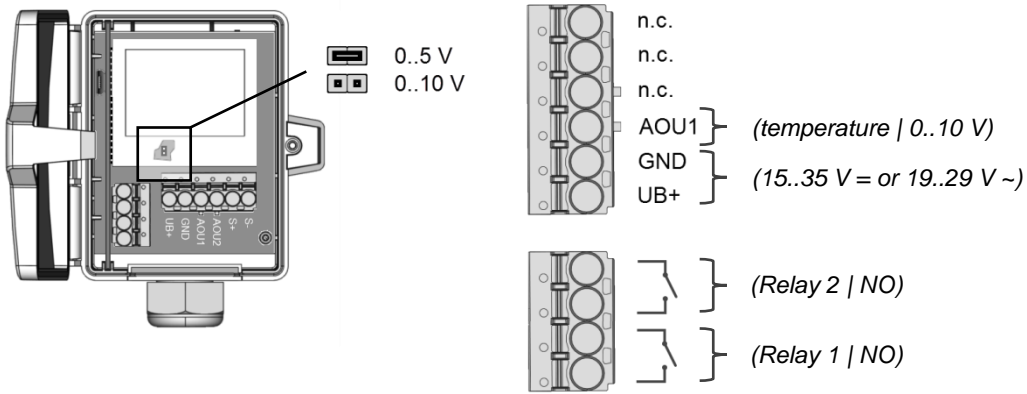
MWF+ LCD TRV MultiRange



MWF+ LCD TRA MultiRange



MWF+ LCD TRV MultiRange Relay



Configuration



The Thermokon bluetooth dongle with micro-USB is required for communication between USEapp and USE-M / USE L (Item No.: 668262). Commercial bluetooth dongles are not compatible.

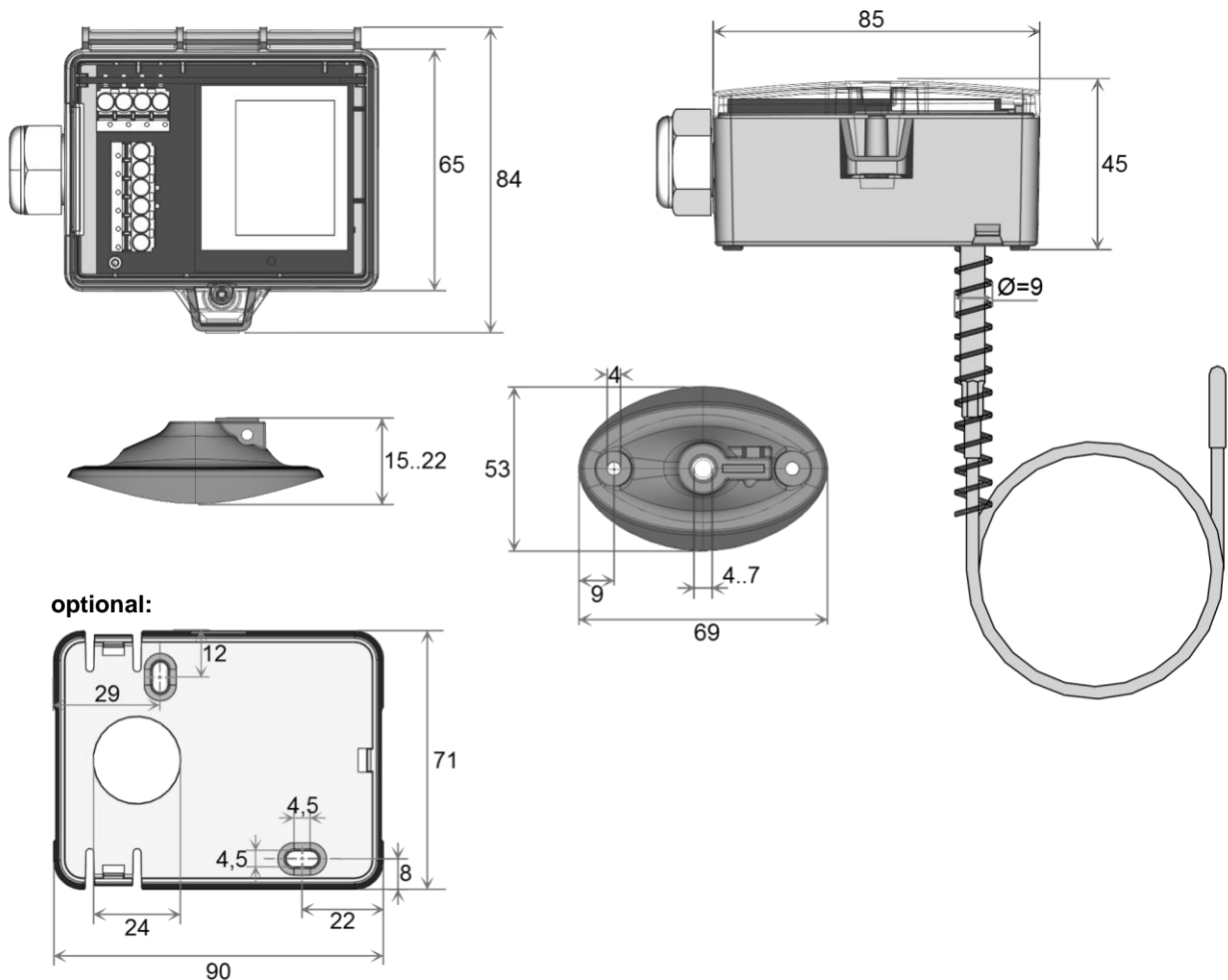
Application-specific reconfiguration of the devices can be carried out using the Thermokon USEapp. The configuration is carried out in the voltage-supplied state.



The configuration-app and the app description can be found in the download area of our webpage.

→ [Download \(APK-file for Android\)](#)

Dimensions (mm)



Accessories (included in delivery)

Mounting flange MF6 flexible (incl. inserts for $\varnothing=4$ 6 7 mm)	Item No. 399098
Mounting kit 2 (only version TRV & TRA)	Item No. 640503
• Cable entry M16 • Cover screw • 2 Screws (rounded head)	
Mounting kit 3 (only version Relay)	Item No. 674133
• Cable entry M20 • seal insert for double cable entry 2x 6 mm • Cover screw • 2 Screws (rounded head)	

Accessories (optional)

Bluetooth dongle	Item No. 668262
Cable entry M25 USE white, sealing insert 4x $\varnothing=7$ mm (4 pcs)	Item No. 641364
Mounting base	Item No. 631228

M16 Sealing inserts cable entry (packaging unit 10 pcs.)

\varnothing	3 mm	5 mm	7 mm	8 mm
Item No	641036	641012	639248	641340

M20 Sealing inserts cable entry (packaging unit 10 pcs.)

\varnothing	2x6 mm	2x7 mm	6 mm	8 mm
Item No	641319	641333	641074	641081