

MWF400+ (LCD) (Relay)

Average temperature sensor

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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The following illustrations show the version with LCD

» APPLICATION

Duct averaging temperature sensor with flexible sensor rod in the newly developed hinged lid enclosure USE-M for measuring the average temperature in air ducts. 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.

» TYPES AVAILABLE

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

- MWF400+ LCD TRV MultiRange
- MWF400+ LCD TRA MultiRange

Duct averaging sensor optional with display temperature – active 0..10 V | relay

- MWF400+ (LCD) TRV MultiRange Relay

» 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 are available on our website
<https://www.thermokon.de/direct/en-gb/categories/mwf400plus>

» NOTES ON DISPOSAL



The crossed-out wheeled 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 ($\pm 0,2$ 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.

» 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.

» 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 (type-dependent)	TRA 4..20 mA, max. load 500 Ω		
Output switch contact (type-dependent)	Relay 2 floating contacts for 24 V ~ or 24 V = / 3 A		
Power supply (type-dependent)	TRV Relay 15..35 V = or 19..29 V ~ SELV	TRA 15..35 V = SELV	
Power consumption	max. 2,5 W (24 V =) 4,3 VA (24 V ~)		
Output signal range temp. *Scaling analogue output	-20..+80 °C (default setting), selectable from 8 temperature ranges -50..+50 -20..+80 -15..+35 -10..+120 0..+50 0..+100 0..+160 0..+250 °C, optionally configurable via Thermokon USEapp		
Operating temperature range * Max. permissible operating temp	sensor rod -30..+80 °C	enclosure -20..+70 °C (with LCD) -35..+70 °C (w/o LCD)	mounting base -35..+90 °C
Accuracy temperature	$\pm 0,5$ K (typ. at 21 °C)		
Display (optional)	LCD 29x35 mm with RGB backlight		
Enclosure (type-dependent)	enclosure USE-M, PC, pure white, cover PC, with LCD transparent, with removable cable entry		
Protection	IP65 according to EN 60529		
Cable entry (type-dependent)	TRV TRA Flextherm M20, for wire $\varnothing=4,5..9$ mm, removable	Relay M25 with fourfold cable entry for wire with max. $\varnothing=7$ mm, removable	
Connection electrical	removable plug-in terminal, max. 2,5 mm ²		
Sensor rod	copper, $\varnothing=4$ mm, mounting length: 400 mm, sensor neck stainless steel V4A $\varnothing=6$ mm		
Ambient condition	max. 85% rH short term condensation		

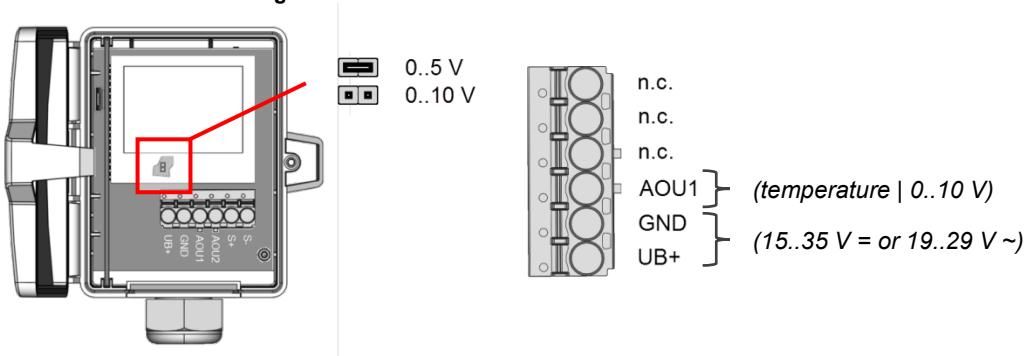
» MOUNTING ADVICES

The sensor can be mounted to the ventilation duct by means of the mounting clip. During the installation, observe that the bending radius of the sensor rod has to be no smaller than 35 mm. **Note: Please pay attention to the sensor rod while mounting and protect it from mechanical damage!**

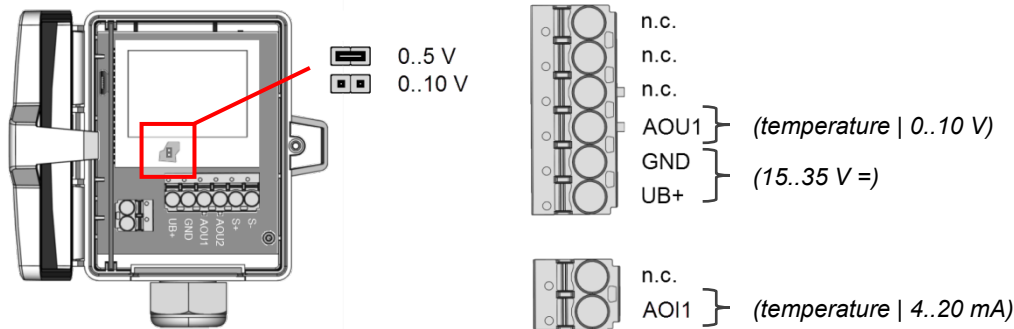
» **CONNECTION PLAN**

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.

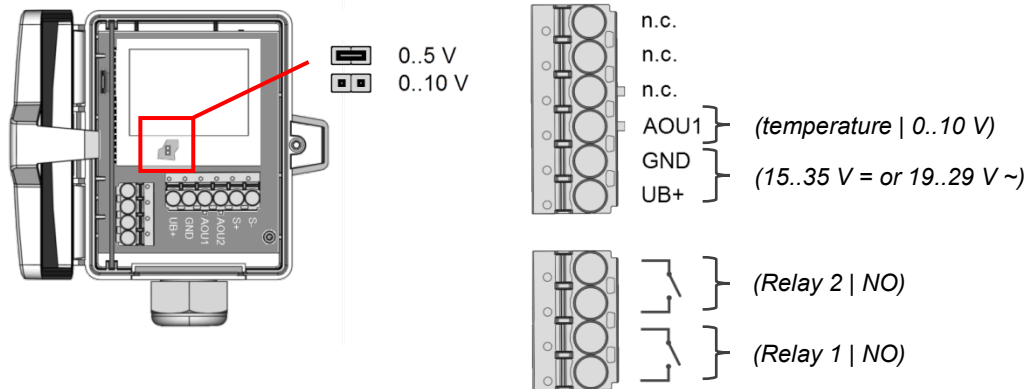
MWF400+ LCD TRV MultiRange



MWF400+ LCD TRA MultiRange



MWF400+ (LCD) TRV MultiRange Relay



» **CONFIGURATION**



The Thermokon bluetooth dongle with micro-USB (Item No.: 668262) is required for communication between USEapp and USE-M / USE L 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.



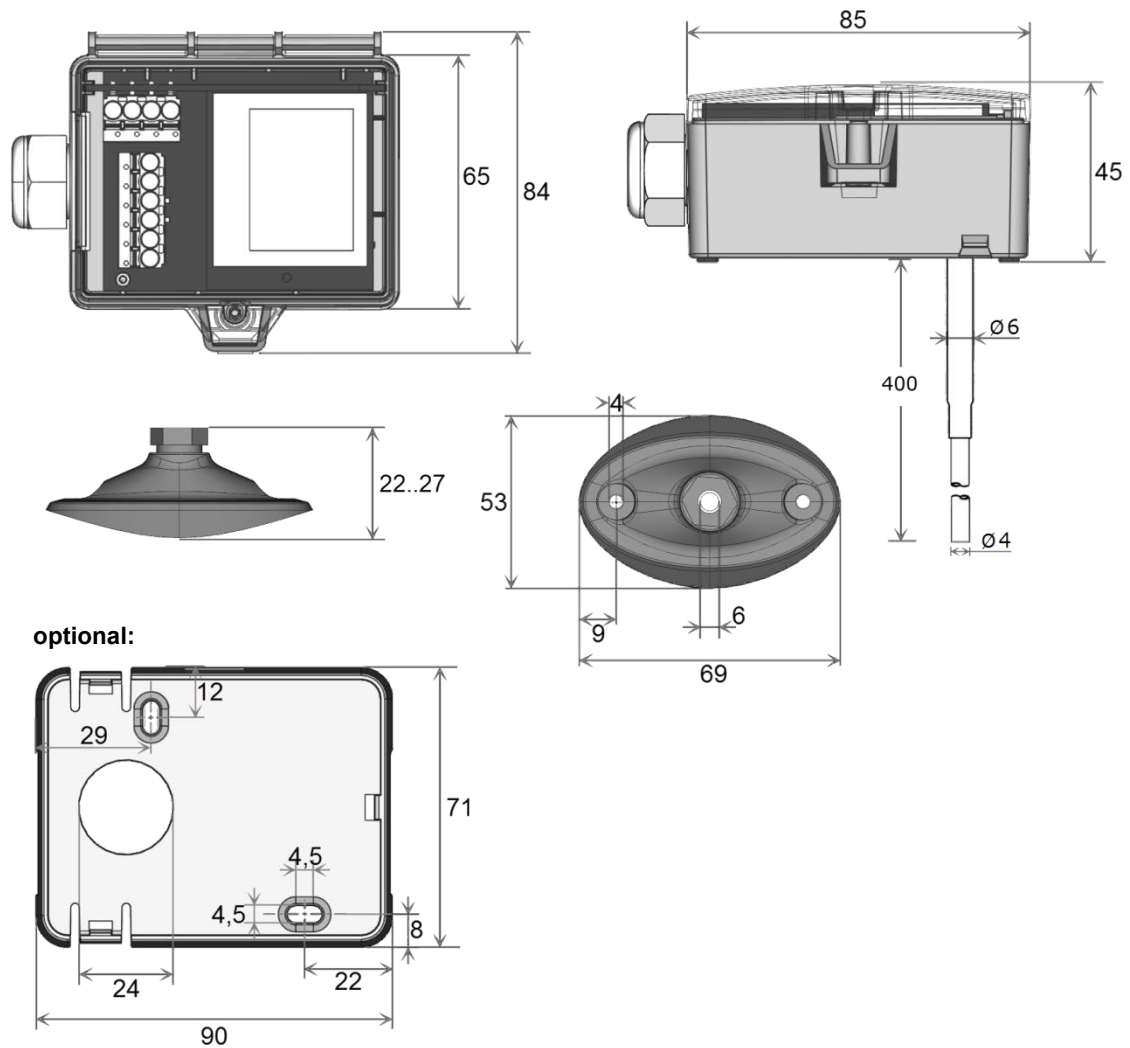
The configuration-app and the app description can be found in the Google Play Store or in the Apple App Store.

» **APPLICATION NOTICE**



The Bluetooth dongle snaps into the socket easily. When removing, please fix the plug-in card (option PCB) so that it is not unintentionally pulled out.

» DIMENSIONS (MM)



» ACCESSORIES (INCLUDED IN DELIVERY)

Mounting flange MF6DS

Item No. 669016

Mounting kit universal

Item No. 698511

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

» ACCESSORIES (OPTIONAL)

Bluetooth dongle

Item No. 668262

Mounting base

Item No. 631228

Cable entry M25 USE white, sealing insert 4x $\varnothing=7$ mm (4 pcs)

Item No. 641364

Sealing insert M20 USE white, 2x $\varnothing=7$ mm (for 2 wire; PU 10 pieces)

Item No. 641333