

» TF25+

Cable temperature sensor

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Cable sensor for temperature measurement in HVAC applications. In conjunction with a Thermowell pocket suitable for temperature measurement in duct applications. Designed for control and monitoring applications.

» TYPES AVAILABLE

Cable sensors -50..+180 °C – active TRV 0..10 V

TF25+ TRV MultiRange T180 050.06 L1000
TF25+ TRV MultiRange T180 100.06 L1000
TF25+ TRV MultiRange T180 150.06 L1000

Cable sensors -50..+180 °C – active TRA 4..20 mA

TF25+ TRA MultiRange T180 050.06 L1000
TF25+ TRA MultiRange T180 100.06 L1000
TF25+ TRA MultiRange T180 150.06 L1000

TF25+ TRV:

Product designation

MultiRange:

Measuring range adjustable via USEapp

T160:

max. temperature, default 160 °C, optional up to 250 °C (T250)

050.06:

Pocket length.Diameter, optional mounting length 50 | 100 | 150 | 200 | 250 mm

L1000:

standard cable length 1000 mm, additional cable lengths on request

TF25+ TRV MultiRange T160 050.06 L1000

» 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.

» 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

» 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.

» PRODUCT TESTING AND CERTIFICATION



Declaration of conformity

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

» USE ENCLOSURE WITH UV AND WEATHER RESISTANCE

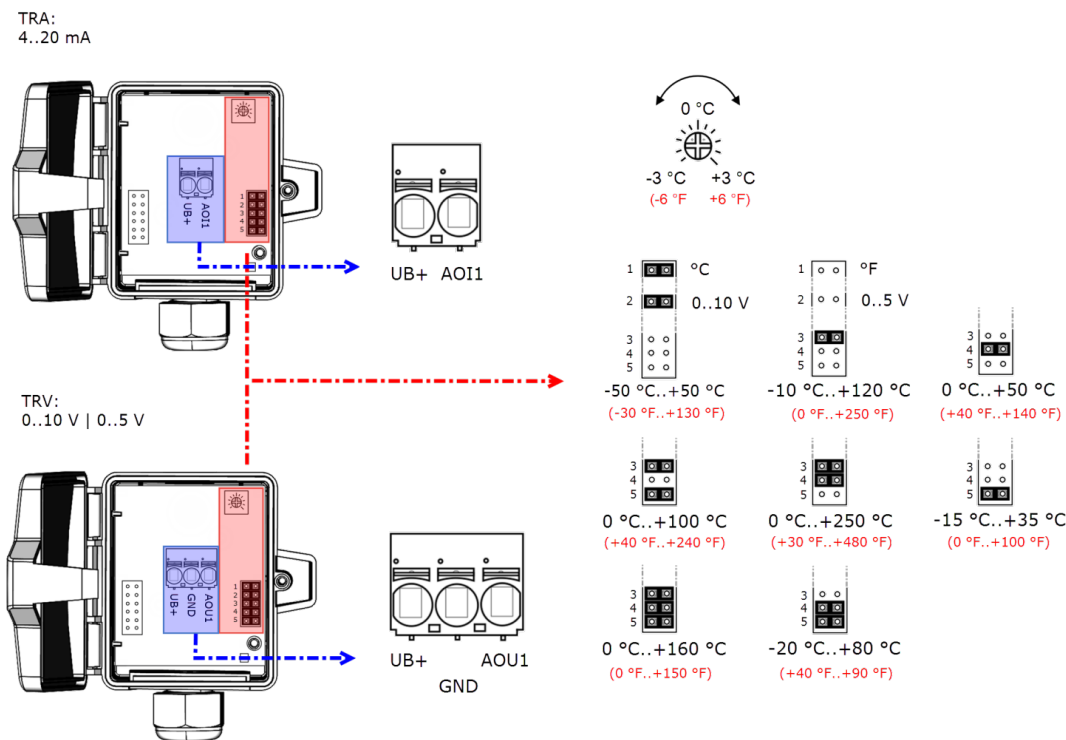
After some time, outdoor mounted plastics can lose their color and quality. Therefore, all USE housings are made of special white polycarbonate (PC). The light-stable colorants and additives are used to achieve optimum protection of the polymer while maintaining color stability. The titanium dioxide 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

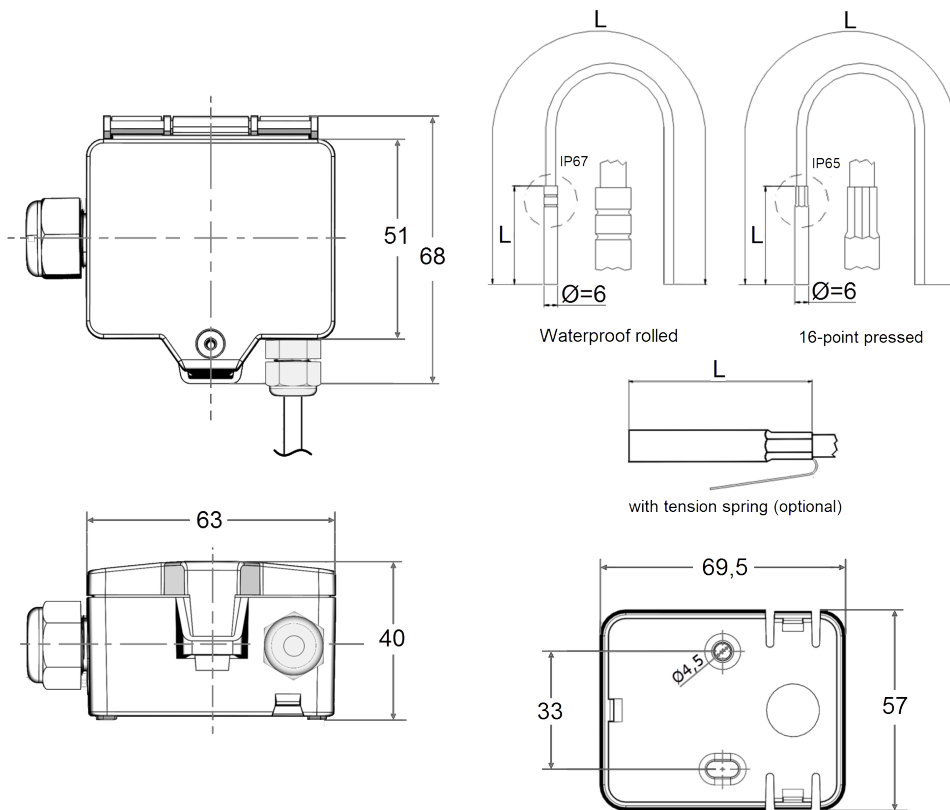
Measuring values	temperature		
Output voltage <i>(type-dependent)</i>	TRV 1x 0..10 V or 0..5 V, configurable via jumper, min. load 5 kΩ		
Output ampere <i>(type-dependent)</i>	TRA 1x 4..20 mA, max. load 500 Ω		
Power supply <i>(type-dependent)</i>	TRV 15..24 V = (±10%) or 24 V ~ (±10%) SELV	TRA 15..24 V = (±10%) SELV	
Power consumption <i>(type-dependent)</i>	TRV typ. 0,4 W (24 V =) 0,8 VA (24 V ~)	TRA typ. 0,5 W (24 V =)	
Output signal range temp. *Scaling analogue output	TRV TRA default setting: 0..+160 °C selectable from 8 temperature ranges -50..+50 -20..+80 -15..+35 -10..+120 0..+50 0..+100 0..+160 0..+250 °C, adjustable at the transducer		
Operating temperature range * Max. permissible operating temperature	sensor pocket -50..+180 °C optional -50..+250 °C (T250)	enclosure -35..+70 °C	mounting base -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C within default measuring range)		
Enclosure	enclosure USE-S, PC, pure white		
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	Flextherm M20, for wire Ø=4,5..9 mm, removable		
Connection electrical	removable plug-in terminal, max. 2,5 mm ²		
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		
Notes	other cable lengths on request		

» CONNECTION PLAN AND CONFIGURATION

The adjustment of the measuring ranges is made by changing the jumpers in a de-energized state. The output value of the new measuring range is available after 2 seconds. *fig. (Measuring range and offset adjustment, default settings: 0 °C..+160 °C | 0 K)*



» DIMENSIONS (MM)



» ACCESSORIES (INCLUDED IN DELIVERY)

Mounting base enclosure USE pure white
 Mounting kit universal
 • Cover screw + screw cover • 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

Item No. 667722
 Item No. 698511

» ACCESSORIES (OPTIONAL)

Mounting clip enclosure USE pure white
 VA-Compression fitting type KL6VA
 Mounting flange MF6 flexible (suitable for $\varnothing=4$ | 6 | 7 mm)
 Mounting flange MF6 (brass)
 Syringe thermal contact fluid
 Sealing insert M20 USE white, 2x $\varnothing=7$ mm (for 2 wire; PU 10 pieces)

Item No. 667739
 Item No. 103213
 Item No. 399098
 Item No. 003407
 Item No. 102308
 Item No. 641333

Thermowell pockets stainless steel / brass for sensors with pocket $\varnothing=6$ mm

length	50 mm	100 mm	150 mm
THMSDS	610995	611008	611015
THVADS	611152	611817	611824

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>.