

Datasheet

Subject to technical alteration
Issue date: 14.07.2015



Application

Contact temperature sensor for measuring temperature on pipes and arched surfaces. Designed for control and monitoring systems.

Types Available

| | | |
|-------|---------|--|
| VFG54 | passive | passive, with sensor according to customer's need* |
| VFG54 | TRV | active, 0..10 V** |
| VFG54 | TRA | active, 4..20 mA** |

* eg: PT100/PT1000/Ni1000/Ni1000TK5000/LM235Z/NTCxx/PTCxx, for other sensors please request.

** 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 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 the product 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.

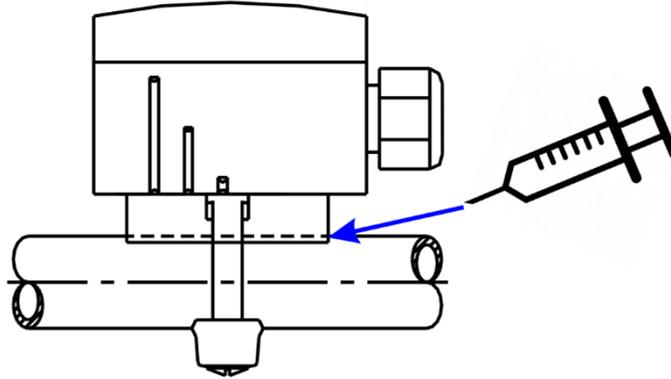
Technical Data

| | |
|-----------------------------|--|
| Measuring values | Temperature |
| Output voltage | passive: depending on used sensor TRV: 0..10 V, min. load 5 k Ω |
| Output Amp | TRA: 4..20 mA, max. load 500 Ω (24 V =) |
| Power supply | TRV: 15..24 V = ($\pm 10\%$) or 24 V ~ ($\pm 10\%$) TRA: 15..24 V = ($\pm 10\%$) |
| Power consumption | TRV: typ. 0,42 W (24 V =) 0,84 VA (24 V ~) TRA: max. 20 mA (24 V =) |
| Measuring range temperature | passive: depending on used sensor TRV/TRA: adjustable at the transducer TRV1/TRA1 -50.. +50 $^{\circ}$ C TRV2/TRA2 -10..+120 $^{\circ}$ C TRV3/TRA3 0.. +50 $^{\circ}$ C TRV4/TRA4 0..+160 $^{\circ}$ C TRV8/TRA8 -15.. +35 $^{\circ}$ C |
| Accuracy temperature | $\pm 1\%$ of measuring range (typ. at 21 $^{\circ}$ C) passive: depending on used sensor, measuring current typ. <1 mA |
| Enclosure | PA6, pure white |
| Protection | IP65 according to EN 60529 |
| Cable entry | M16 for wire max. $\varnothing=8$ mm |
| Connection electrical | terminal block max. 1,5 mm ² passive: 2-wire (standard), 3-wire or 4-wire TRV: 3-wire TRA: 2-wire |
| Pocket | brass, sprung sensor contact |
| Ambient condition | enclosure passive: -35..+90 $^{\circ}$ C, max. 85% rH short term condensation enclosure TRV/TRA: -35..+70 $^{\circ}$ C, max. 85% rH short term condensation |
| Weight | passive: 80 g TRV/TRA: 120 g |
| Notes | for other sensors please request, type with display available for active models |

Mounting Advices

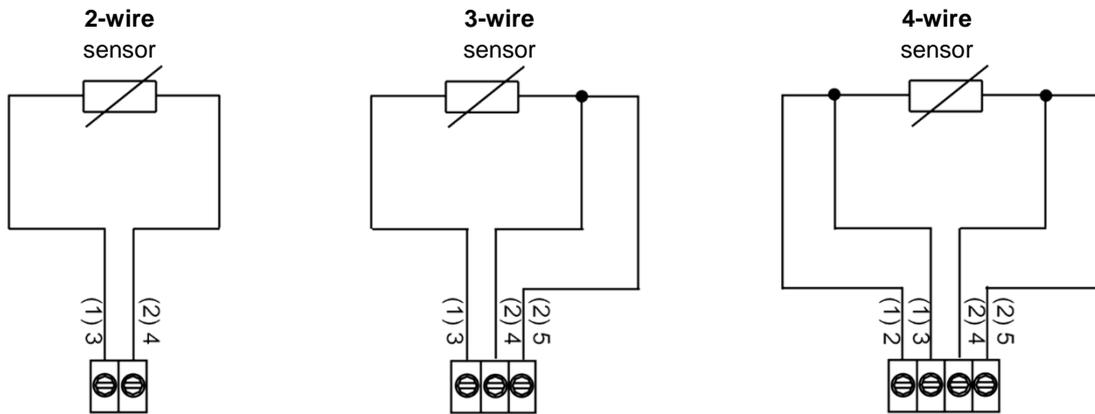
The device is fixed using the tightening strap. **Use contact fluid for better heat transfer between sensor and measuring medium.**

To avoid permeation of condensate, mount the sensor on top of the tube, if possible.



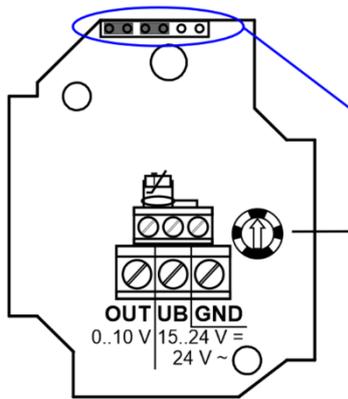
Terminal Connection Plan

Passive



Active

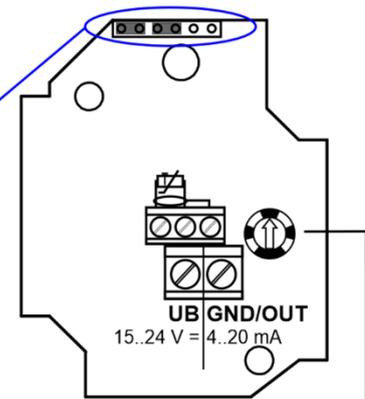
TRV



Measuring range adjustment

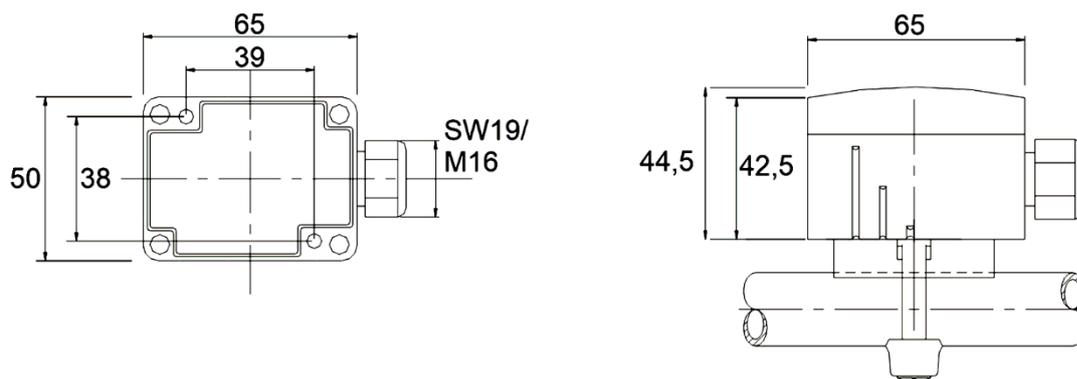
| | |
|-----------|-----------------|
| ● ○ ○ ○ ○ | 1: -50.. +50 °C |
| ○ ● ○ ○ ○ | 2: -10..+120 °C |
| ○ ○ ● ○ ○ | 3: 0.. +50 °C |
| ○ ○ ○ ○ ● | 4: 0..+160 °C |
| ○ ○ ○ ○ ○ | 8: -15.. +35 °C |

TRA



Offset adjustment

Dimensions (mm)



Accessories

Tightening strap 2" with contact fluid

Item No. 102254

Tightening strap 900 mm with contact fluid

Item No. 102315