» SFK02+ FR Relay

Immersion temperature sensor

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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USEapp ✓

»APPLICATION

Immersion sensor with hinged lid enclosure USE complete and integrated thermowell pocket for temperature measurement of gases and liquids in pipework applications. With the option board relay two-point controllers or a 2-stage 2-point controller for temperature can be realized.

»TYPES AVAILABLE

Immersion sensor temperature – active 0..10 V + relay

SFK02+ FR TRA MultiRange Relay 050.04
SFK02+ FR TRA MultiRange Relay 100.06/04
SFK02+ FR TRA MultiRange Relay 200.06/04

Optional mounting length 1.97/3.94/7.87/9.84/17.8 in

»SECURITY ADVICE – CAUTION

⚠️

The installation and assembly of the device should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorized 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 (±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 the USEapp software and an optional Bluetooth interface.

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 10kΩ (live-zero configuration via Thermokon USEapp)
Output switch contact	2 floating contacts for 24 V ~ or 24 V = / 3 A
Power supply	15..35 V = or 19..29 V ~
Power consumption	max. 2,5 W (24 V =) | max. 4,3 VA (24 V ~)
Output signal range temp. *Scaling analogue output	+40..+240 °F (default setting), selectable from 8 temperature ranges-30..+130 | 0..+250 | +40..+140 | 0..+150 | +30..+480 | 0..+100 | +40..+240 | +40..+90 °F, optionally configurable via Thermokon USEapp
Operating temperature range * Max. permissible operating temp	**sensor pocket** -58..+320 °F	**electronic | enclosure** -31..+158 °F
Accuracy temperature	±0,5 K (typ. at 70 °F), time constant: $T_{63\%}$ 2,5 s
Enclosure	enclosure USE-M, PC, pure white, with removable cable entry
Protection	IP65 according to EN 60529
Cable entry	M25 with fourfold cable entry for wire with max. Ø=0.28 in., removable
Connection electrical	removable plug-in terminal, max. 14 AWG
Pocket	stainless steel V4A, Ø=0.24 | 0.16 in., mounting length: 1.97 | 3.94 | 7.87 | 11.8 in., thread R 1/2" max. operating pressure 10 bar (145psi)
Ambient condition	max. 85% rH short term condensation

»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.

»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 Google Play Store or in the Apple App Store.
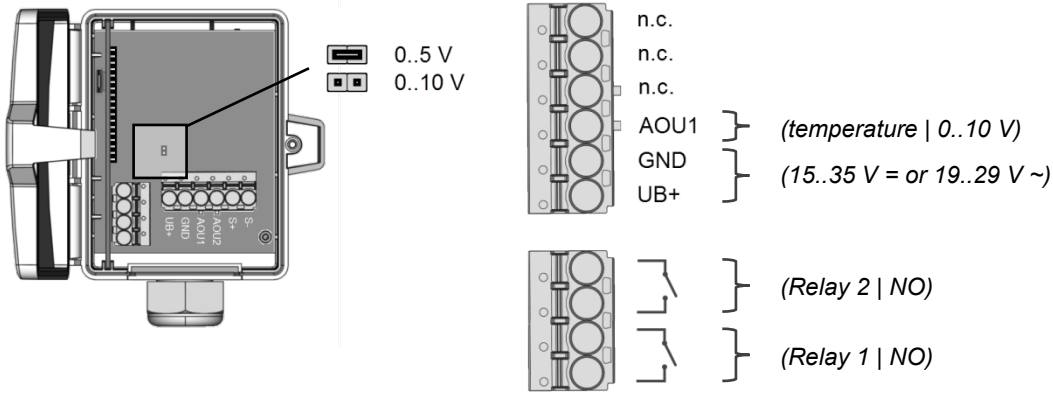
»APPLICATION NOTICE

The housing cover must be completely closed in order to ensure the accuracy and reproducibility of the measured values during a test or service log via USEapp.
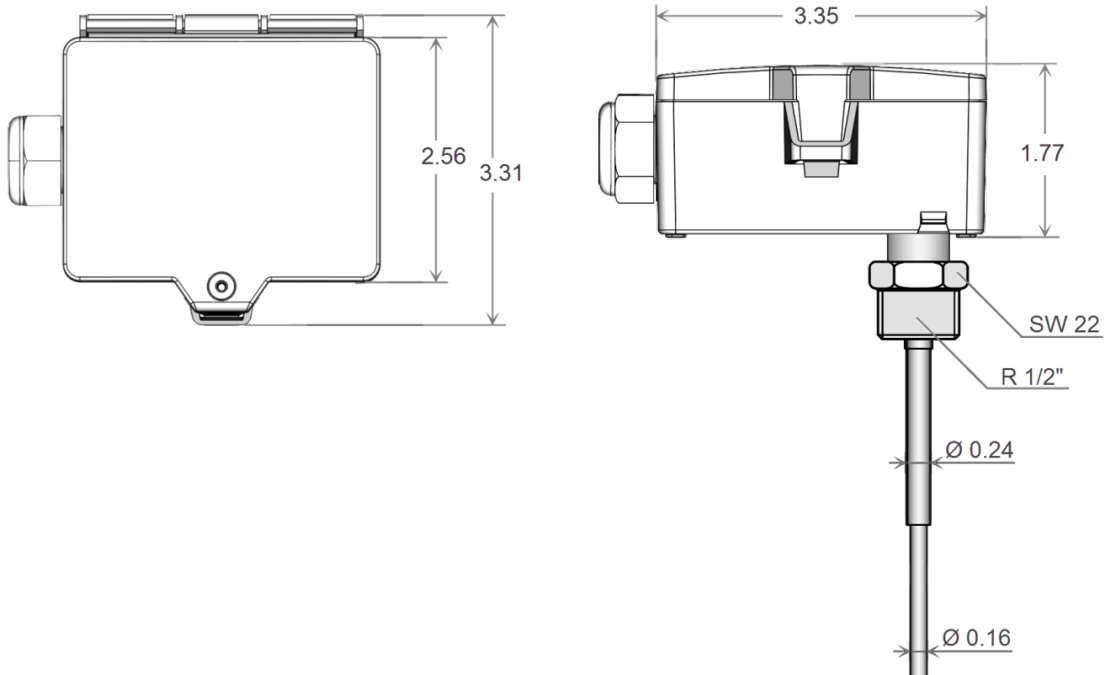
The Bluetooth dongle snaps into the socket easily. When removing, please fix the plug-in card (option PCB) so that it is not unintentionally pulled out.

»CONNECTION PLAN

SFK02+ FR **TRV MultiRange Relay**

0..5 V
0..10 V

n.c.
n.c.
n.c.
AOU1 — (temperature | 0..10 V)
GND —
UB+ — (15..35 V = or 19..29 V ~)

(Relay 2 | NO)

(Relay 1 | NO)

»DIMENSIONS (IN.)

2.56 3.31

3.35

1.77

SW 22

R 1/2"

Ø 0.24

Ø 0.16

» ACCESSORIES (INCLUDED IN DELIVERY)

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
Cable entry M25 USE white, sealing insert 4x Ø=0.28 in. (4 pcs)   Item No. 641364