SFK(H)02+ LCD

Immersion temperature sensor

Thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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USEapp ✓

»APPLICATION

Immersion sensor for temperature measurement of gases and liquids in pipework applications. The sensor can optionally be screwed directly into a bonded pocket (see accessories). Types SFKH02+ with a 70 mm neck pipe are designed for applications with insulation materials. The measuring insert can be exchanged without disassembling the entire sensor. The devices with relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.

»TYPES AVAILABLE

Immersion sensor with display (optional with neck pipe) temperature – active 0..10 V
- SFK(H)02+ LCD TRV MultiRange <xx>.08

Immersion sensor with display (optional with neckpipe) temperature – active 4..20 mA
- SFK(H)02+ LCD TRA MultiRange <xx>.08

Immersion sensor with display (optional with neckpipe) temperature – active 0..10 V + relay
- SFK(H)02+ LCD TRV MultiRange relay <xx>.08

<xx>: mounting length 50/100/150/200/250/450 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

»PRODUCT TESTING AND CERTIFICATION

CE

Declaration of conformity
The declaration of conformity of the products are available on our website
https://www.thermokon.de/direct/en-gb/categories/sfk02plus

» NOTES ON DISPOSAL

The crossed-out wheelie 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

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 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.

» MOUNTING ADVICES

For risk of condensate permeation in the sensor tube respectively in the immersion pocket the bushing must be installed in a position that occurred condensate can run off. Mounting with immersion pocket for usage in liquid media. Use contact fluid for better heat transfer between sensor and measuring medium.
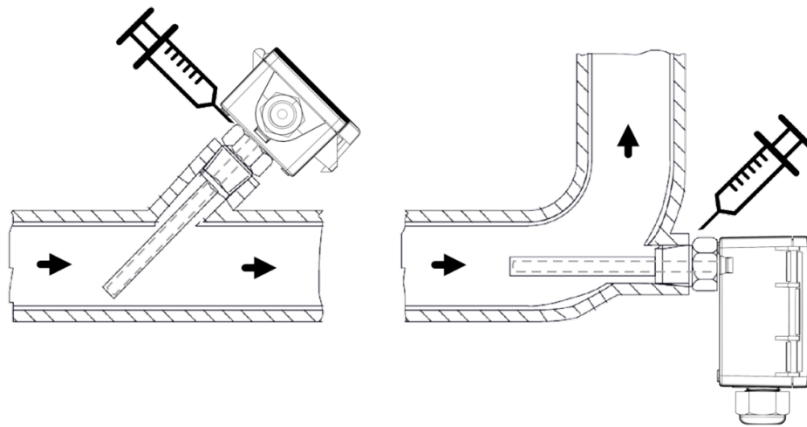
» USE ENCLOSURE WITH UV AND WEATHER RESISTANCE

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 10 kΩ (live-zero configuration via Thermokon USEapp)
Output Amp	4..20 mA, max. load 500Ω
Output switch contact	2 floating contacts for 24 V ~ or 24 V = / 3 A
Power supply	**TRV** 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 temperature*	**sensor pocket** -50..+160 °C **electronic | enclosure** -20..+70 °C
Accuracy temperature	±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, UV resistant
Protection	IP65 according to EN 60529
Cable entry	**TRV | TRA** Flextherm M20, for wire Ø=4,5..9 mm, removable **Relay** M25 with fourfold cable entry for wire with max. Ø=7 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Neck pipe *(optional)*	stainless steel V2A, Ø=12 mm, L=70 mm
Pocket	stainless steel V4A, Ø=8 mm, thread G 1/2", mounting length: 50 | 100 | 150 | 200 | 250 | 450 mm max. operating pressure 40 bar
Ambient condition	max. 85% rH short term condensation

» 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.
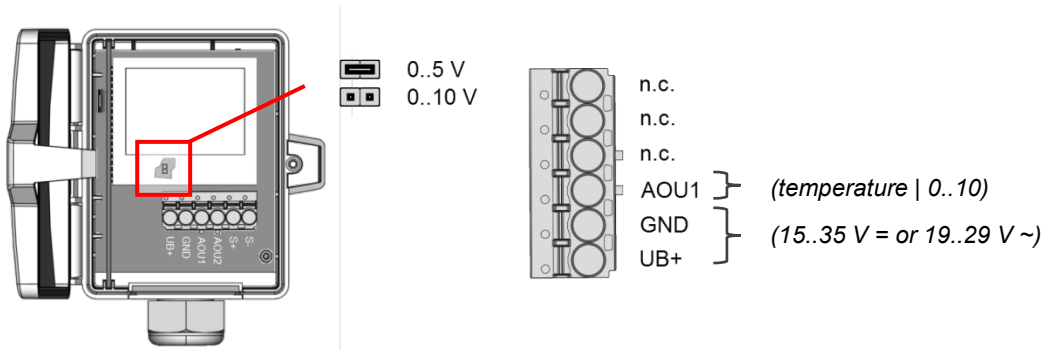
» APPLICATION NOTICE

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.
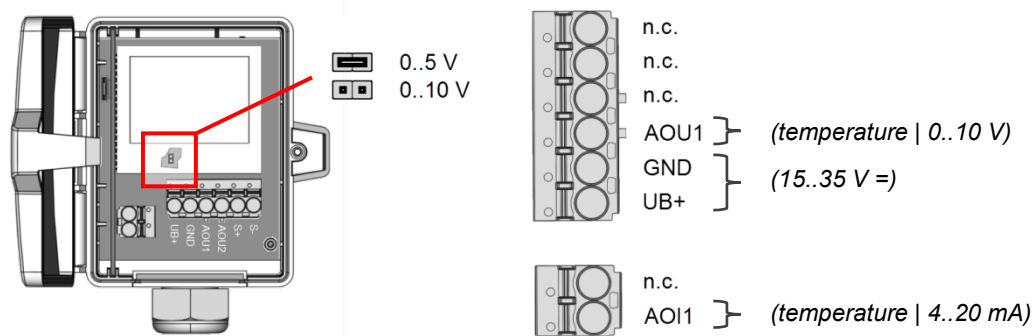
» CONNECTION PLAN

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.
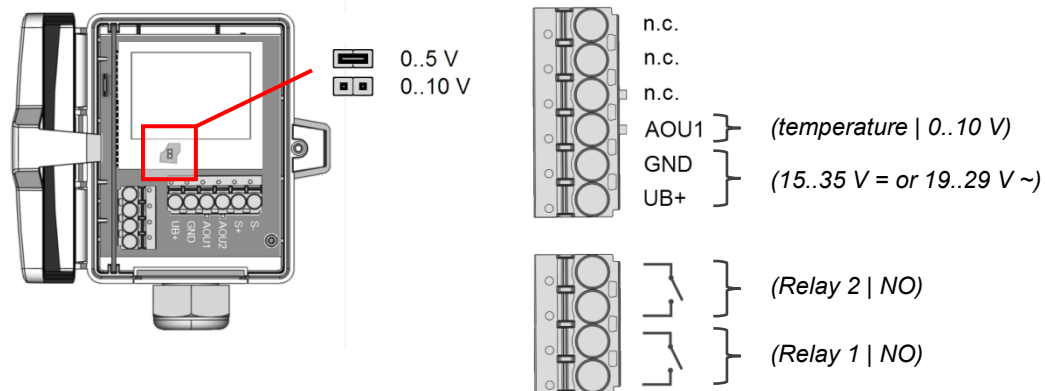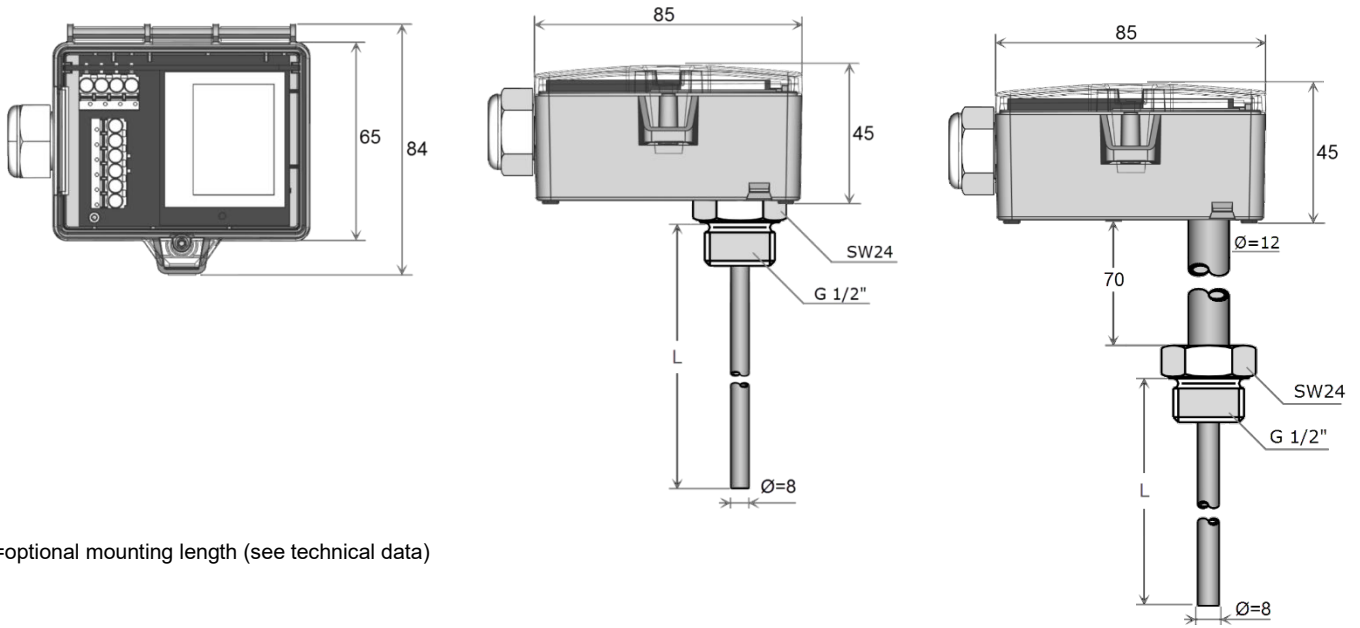
SFK(H)02+ LCD TRV MultiRange

0..5 V
0..10 V

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

SFK(H)02+ LCD TRA MultiRange

0..5 V
0..10 V

n.c.
n.c.
n.c.
AOU1 — *(temperature | 0..10 V)*
GND
UB+ — *(15..35 V =)*

n.c.
AOI1 — *(temperature | 4..20 mA)*

SFK(H)02+ LCD 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 (MM)

L=optional mounting length (see technical data)

»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=7 mm (4 pcs)	Item No. 641364
Bonded pocket St52-3 type ESH110	Item No. 103459
Bonded pocket St52-3 type ESH160	Item No. 103466
Bonded pocket St52-3 type ESH210	Item No. 103473
Bonded pocket St52-3 type ESH260	Item No. 173247
Sealing insert M20 USE white, 2x Ø=7 mm (for 2 wire; PU 10 pieces)	Item No. 641333