TF25+ LCD

Cable temperature sensor

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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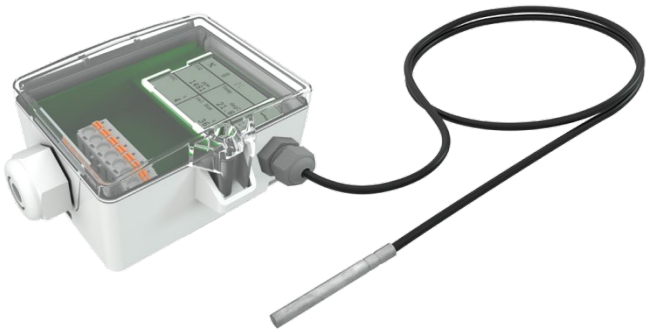


» APPLICATION

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.. LCD models with RGB background light have a transparent cover. Display configuration and threshold values for color changes can be parameterized via Thermokon USEapp.

» TYPES AVAILABLE

Cable sensor with display temperature – active 0..10 V
- TF25+ LCD TRV MultiRange T160 050.06 L1000

Cable sensor with display temperature – active 4..20 mA
- TF25+ LCD TRA MultiRange T160 050.06 L1000

Cable sensor with display temperature – active 0..10 V + relay
- TF25+ LCD TRV MultiRange T160 050.06 L1000 relay

TF25+	**LCD**	**TRV**	**MultiRange**	**T160**	**050**	**.06**	**L1000**	**relay**
								relay variant with switch contacts (optional)
							cable length	standard cable length, additional cable lengths on request
						pocket diameter		
					pocket length			mm (in.) | 50 (1.97) | 100 (3.94) | 150 (5.91) | 200 (7.87) | 250 (9.84)
				max. temperature				default 160 °C, optional up to 250 °C [482°F] (T250-variant)
			Measuring range					adjustable via USEapp
		0-10V signal						TRV= 0..10V | TRA= 4..20mA
	LCD display version							(optional)
product designation								

» 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/ .

»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

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.

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 10kΩ (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*	**TRV | TRA** default setting: -40..+240 °F 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 temperature*	**sensor pocket** -58..+320 °F optional -58..+482 °F (T250)	**enclosure** -4..+158 °F	**mounting base** -31..+194 °F
Accuracy temperature	±0,5 K (typ. at 70 °F)		
Display	LCD 1.14x1.38 in. with RGB backlight		
Enclosure	enclosure USE-M, PC, pure white, cover PC, transparent, with removable cable entry		
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	**TRV | TRA** Flextherm M20, for wire Ø=0.18..0.35 in., removable	**Relay** M25, for wire max. Ø=0.28 in., seal insert for fourfold cable entry	
Connection electrical	removable plug-in terminal, max. 14 AWG		
Pocket	stainless steel V4A, Ø=0.24 in., tension spring (optional), mounting length: 50 (1.97) | 100 (3.94) | 150 (5.91) | 200 (7.87) | 250 (9.84) | mm (in.)		
Ambient condition	max. 85% rH short term condensation		
Notes	PE connection wire available (please request)		

» 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.

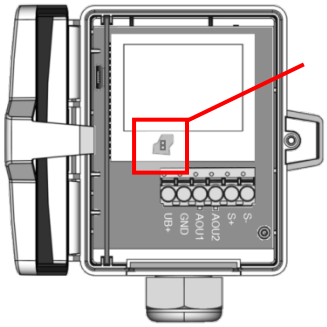
» APPLICATION NOTICE

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.

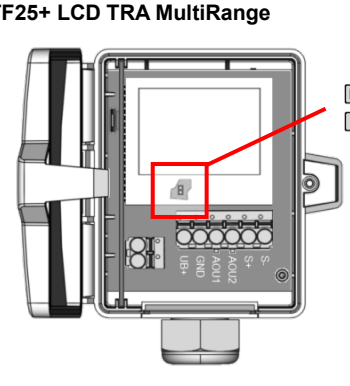
»CONNECTION PLAN

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.

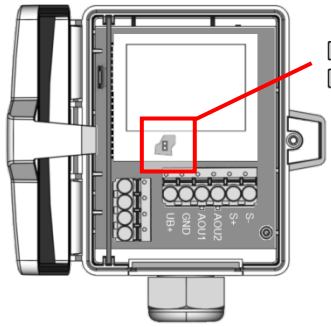
TF25+ LCD TRV MultiRange



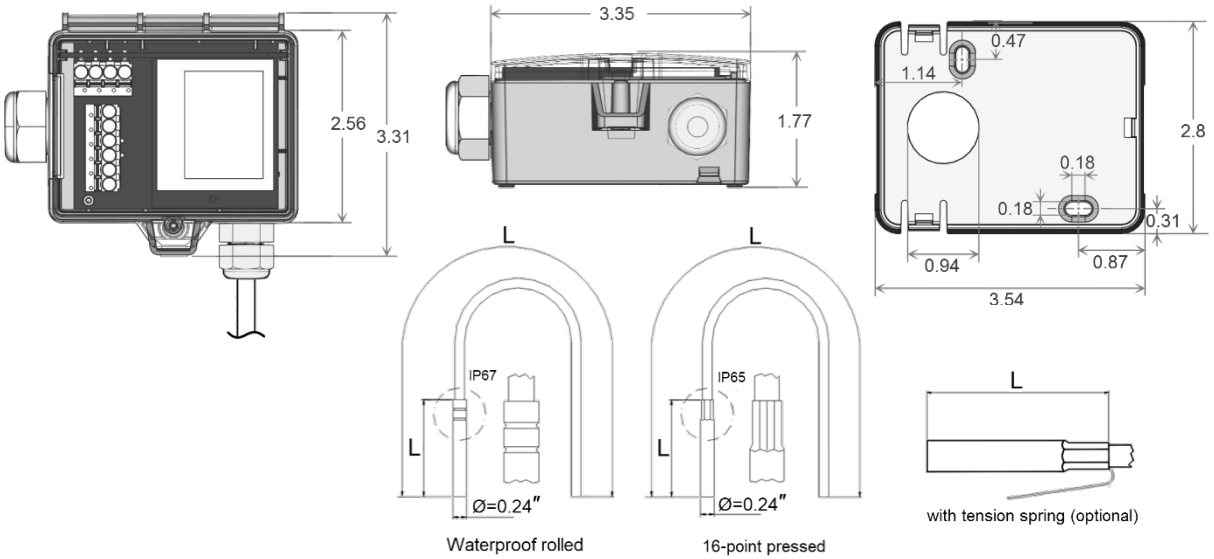
TF25+ LCD TRA MultiRange



TF25+ LCD TRV MultiRange Relay



» DIMENSIONS (MM)



» ACCESSORIES (INCLUDED IN DELIVERY)

Mounting base	Item No. 631228
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 flange MF6DS	Item No. 669016
Cable entry M25 USE white, sealing insert 4x Ø=0.28 in. (4 pcs)	Item No. 641364
VA-Compression fitting type KL6VA	Item No. 103213
Mounting flange MF6 (brass)	Item No. 003407
Sealing insert M20 USE white, 2x Ø=0.28. in. (for 2 wire; PU 10 pieces)	Item No. 641333

Thermowell pockets stainless steel / brass for sensors with pocket Ø=0.24 in.

length	1.97 in.	3.94 in.	5.9 in.
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>.