

» TF25+ (LCD) LON

Cable temperature sensor

thermokon[®]
HOME OF SENSOR TECHNOLOGY

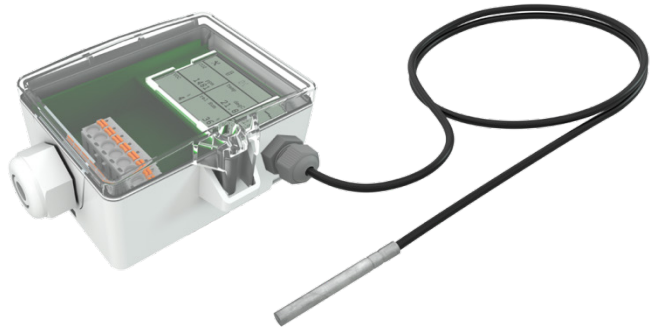
Datasheet

Subject to technical alteration
Issue date: 11.03.2021 • A112



LON

LOCAL OPERATING NETWORK



» 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 optional with LCD -50..+160 °C – active LON

TF25+ (LCD) LON T160 050.06 L1000

TF25+ (LCD) LON T160 100.06 L1000

mounting length 50/100/150/200/250 mm

» 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

» 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 ($\pm 0,2$ 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	0..10 V or 0..5 V, min load 10kΩ (live-zero configuration via Thermokon USEapp)		
Network technology	LON FT		
Power supply	15..35 V = or 19..29 V ~ SELV		
Power consumption	max. 2,3 W (24 V =) max. 4,3 VA (24 V ~)		
Output signal range temp. *Scaling analogue output	default setting: -20..+80 °C 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 optional -50..+250 °C (T250)	enclosure -35..+70 °C	mounting base -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)		
Display <i>(optional)</i>	LCD 29x35 mm with RGB backlight		
Enclosure	enclosure USE-M, PC, pure white, 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	M25, for wire max. Ø=7 mm, seal insert for fourfold cable entry		
Connection electrical	Mainboard removable plug-in terminal, max. 2,5 mm²	Plug-in card removable plug-in terminal, max. 1,5 mm²	
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	PE connection wire available (please request)		

» 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.

» PRODUCT TESTING AND CERTIFICATION



Declaration of conformity

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

» 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



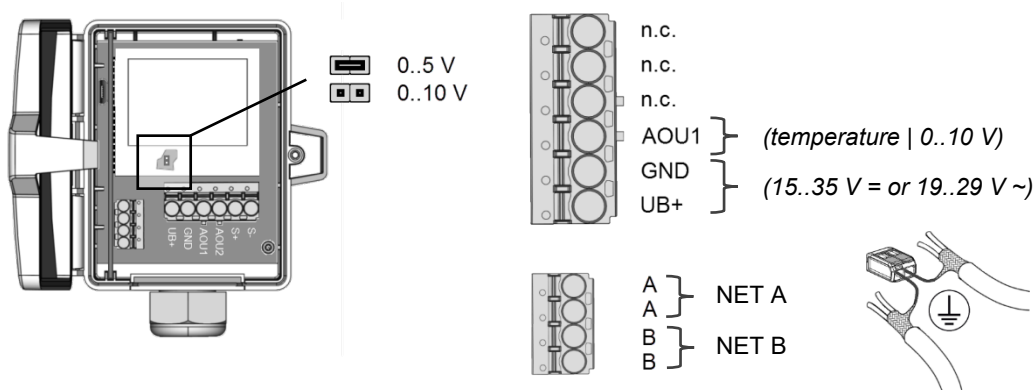
The housing cover must be completely closed in order to ensure the accuracy and reproducibility of the measured values during a test or service log via USEapp.

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

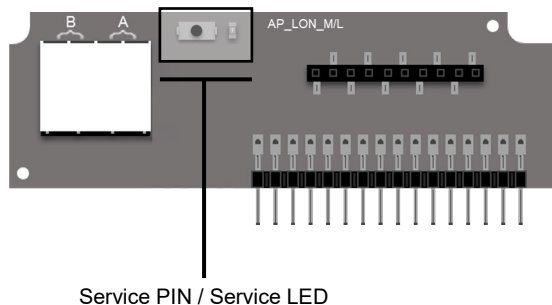
To change the output voltage range (default 0..10 V to 0..5 V) via jumper, the display must be removed from the board first. With looped-through BUS cabling, connect both cable shields using the supplied 2-pole terminal as shown.

TF25+ (LCD) LON



Service-Pin-Telegramm

When the service pin is activated, the service pin telegram is transmitted with the LON device identification - the Neuron Chip ID.



Specification LON: USE-LON Interface

A detailed description of the LON variables can be found in our downloadcenter:

→ [Download](#)

Register 400 = 1 (unit SI)

Address	Access	Description	Resolution / Unit		
0	R	Temperatur	SI	0.1	°C

Register 400 = 2 (unit Imperial)

Address	Access	Description	Resolution / Unit		
0	R	Temperatur	Imperial	0.1	°F

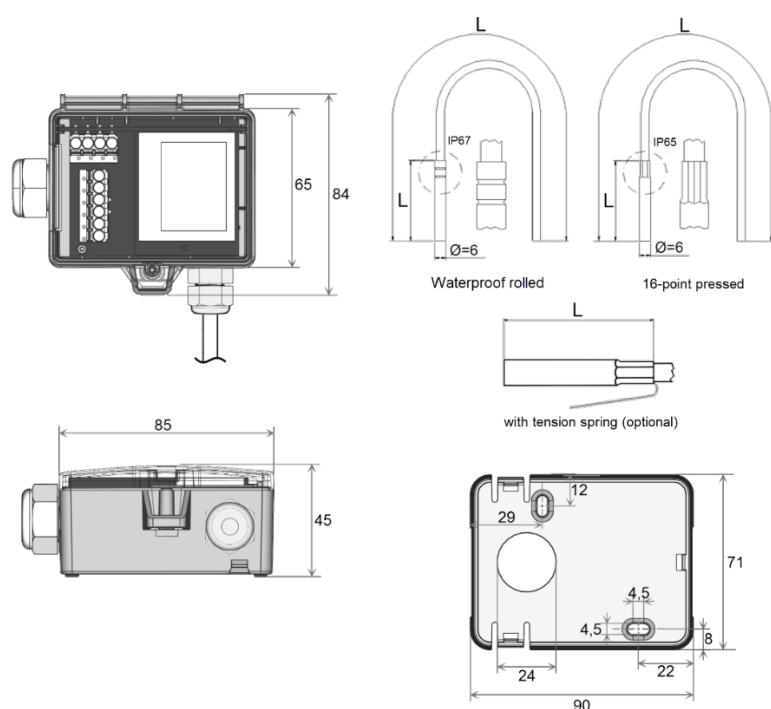
The modbus address of the device is set in the range of 1 ... 31 (binary encoded) using a 5-pole DIP switch. With address 0 via DIP, an extended address range (32..247) is available via USEapp.



Modbus addresses:
USE-LON FT Interface

A detailed description of the Modbus addresses can be found under the following link:

→ [Download](#)

» 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

Mounting flange MF6 (brass)

Item No. 003407

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