» AKF10+ (LCD) LON

Duct-/Immersion temperature sensor

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
Issue date: 11/5/2020 • A110

USEapp

LON
LOCAL OPERATING NETWORK

The following illustrations show the version with LCD

» APPLICATION

Duct/Immersion sensor for measurement of air temperature and other gaseous mediums for HVAC applications (e.g. supply and exhaust ducts) with pocket Ø=6 mm. LCD models with RGB background light have a transparent cover. Display configuration and threshold values for color changes can be parameterized via Thermokon USEapp. Can be used as an immersion temperature sensor combined with a thermowell pocket.

» TYPES AVAILABLE

Duct/Immersion sensor optional with Display temperature – active LON

AKF10+ (LCD) LON <xx>.06

<xx>: mounting length 1.97/3.94/5.9/7.87/9.84/11.81/17.7 in.

» 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. 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.

»PRODUCT TESTING AND CERTIFICATION

CE

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.

»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 (free tpoplogy)		
Power supply	15..35 V = or 19..29 V ~ SELV *With alternating voltage, the correct polarity must be ensured*		
Power consumption	max. 2,3 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 temperature	**sensor pocket** -58..+320 °F	**electronic | enclosure** -4..+158 °F (with LCD) -31..+158 °F (w/o LCD)	**mounting base** -31..+194 °C
Accuracy temperature	±0,5 K (typ. at 70 °F)		
Display (optional)	LCD 1.14x1.38 in. with RGB backlight		
Enclosure (type-dependent)	enclosure USE-M, PC, pure white, cover PC, with display transparent, with removable cable entry, UV resistant		
Protection	IP65 according to EN 60529		
Cable entry	M25, for wire max. Ø=0.28 in., seal insert for fourfold cable entry		
Connection electrical	**Mainboard** removable plug-in terminal, max. 14AWG	**Plug-in card** removable plug-in terminal, max. 16AWG	
Pocket	stainless steel V4A, Ø=0.24 in., mounting length: 1.97 | 3.94 | 5.9 | 7.87 | 9.84 | 11.81 | 17.7 in.		
Ambient condition	max. 85% rH short term condensation		
Mounting	with duct temperature of 194..248 °F mounting flange MF6DS flexible, at 248..500 °F mounting flange MF6 (brass) is recommended		

»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.

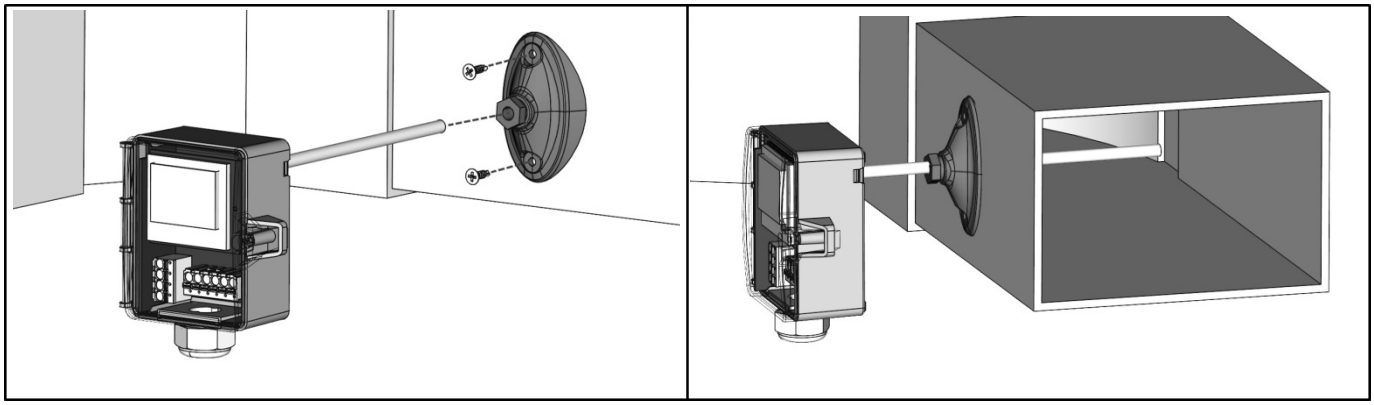
»APPLICATION NOTICE

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.

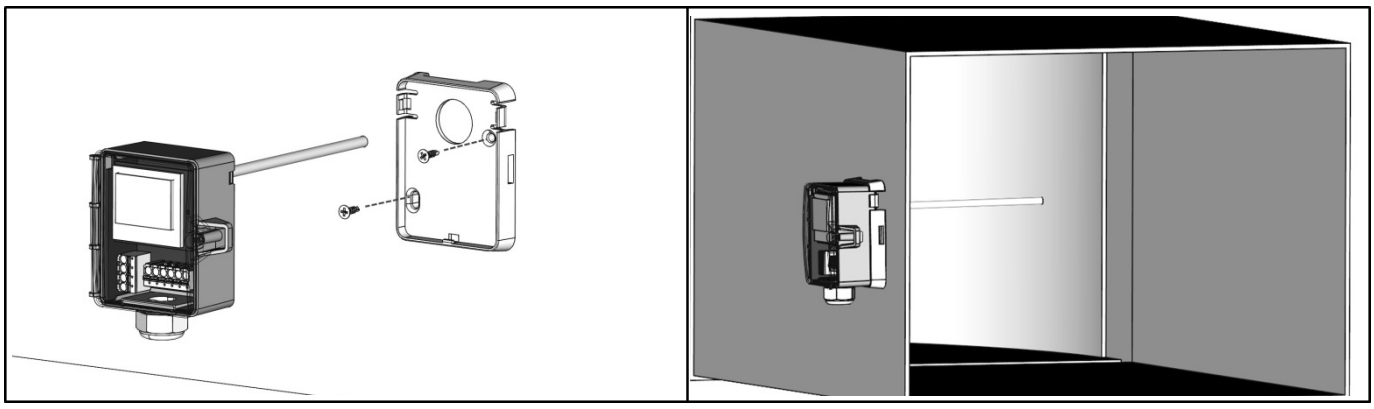
The Bluetooth dongle snaps into the socket easily. When removing, please fix the plug-in card (option PCB) so that it is not unintentionally pulled out.

»MOUNTING ADVICES

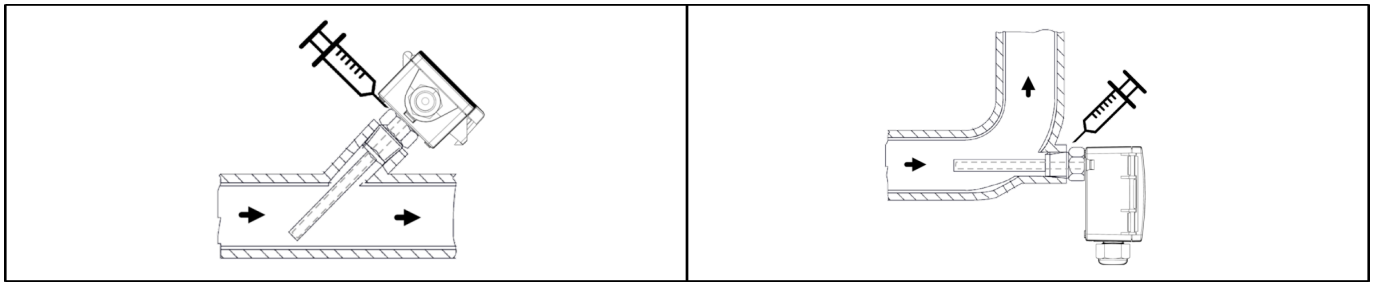
The sensor can be mounted on the ventilation duct by means of the mounting flange MF6DS (optional with mounting base).



Optional mounting with mounting base (Item No. 631228), please note the installation depth of the sensorpocket. (permissible ambient temperature -35..+70 °C)



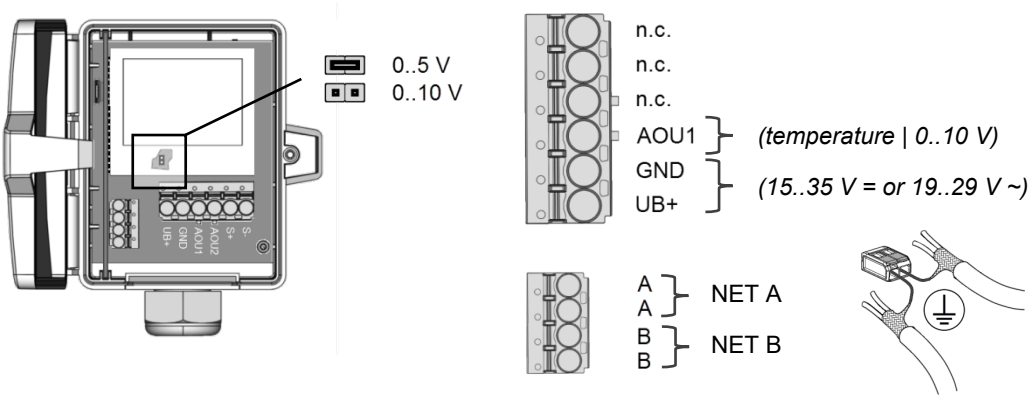
Mounting with immersion pocket or compression fitting for usage in liquid media. Use contact fluid for better heat transfer between sensor and measuring medium.



»CONNECTION PLAN

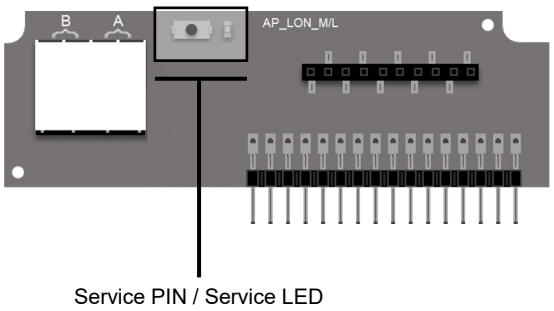
To change the output voltage range (default 0..10 V to 0..5 V) via jumper, the display must be removed from the board first. With looped-through RS485 cabling, connect both cable shields using the supplied 2-pole terminal as shown.

AKF10+ **(LCD) LON**



Service-Pin-Telegramm

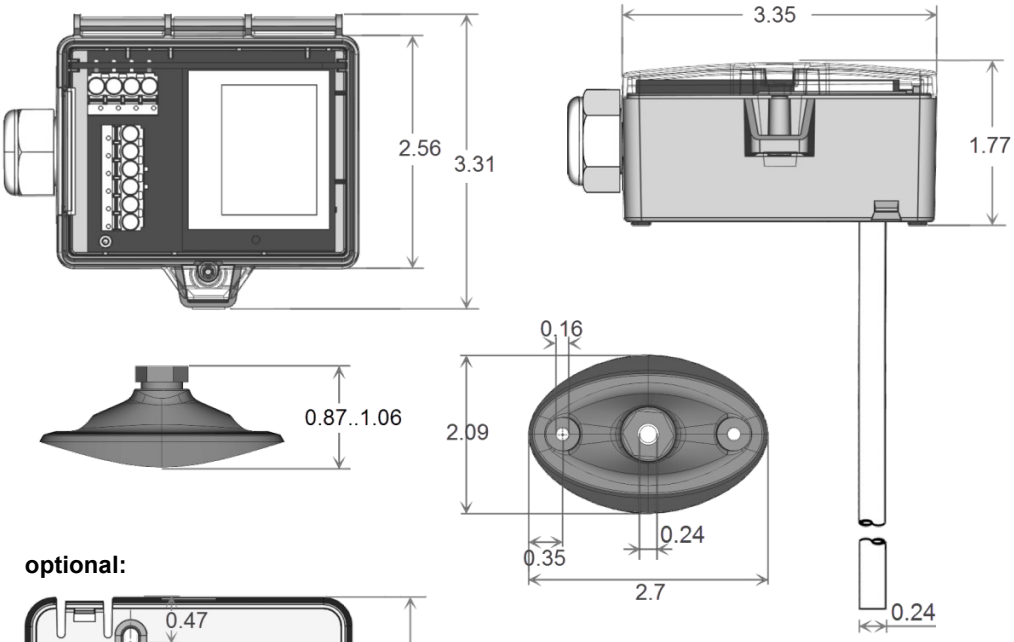
When the service pin is activated, the service pin telegram is transmitted with the LON device identification - the Neuron Chip ID.



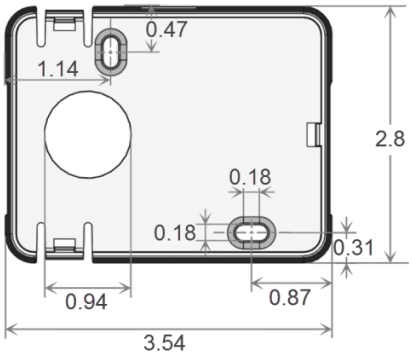
Specification LON:
USE-LON Interface

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

» DIMENSIONS (IN.)



optional:



» ACCESSORIES (INCLUDED IN DELIVERY)

Mounting flange MF6DS	Item No. 669016
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 base	Item No. 631228
VA-Compression fitting type KL6VA	Item No. 103213
Mounting flange MF6 (brass)	Item No. 003407

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

length	1.97 in.	3.94 in.	5.9 in.	7.87 in.	9.84 in.	11.81 in.	17.7 in.
THMSDS	610995	611008	611015	611022	611763	611039	611046
THVADS	611152	611817	611824	611848	611862	611879	611893

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>.