Datasheet

Subject to technical alteration
Issue date: 03.08.2020 • A110
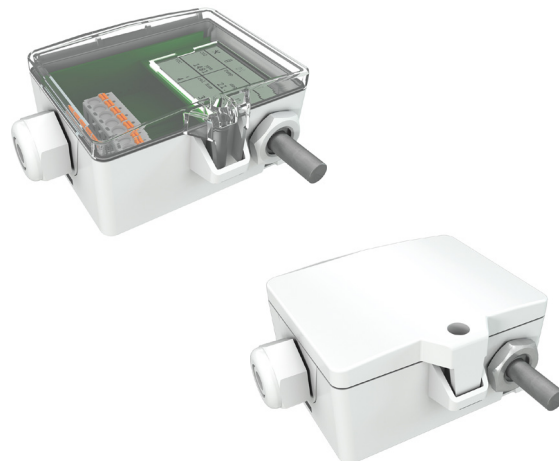
The following illustrations show the version with LCD

»APPLICATION

Sensor for outdoor temperature measurement: cold rooms, greenhouses, production plants and warehouses. Stainless Steel external probe for faster response. LCD models with RGB background light have a transparent cover. Display configuration and threshold values for colour changes can be parameterized via Thermokon USEapp.

»TYPES AVAILABLE

Outdoor temperature sensor optional with display – active RS485 BACnet MS/TP

AGS55+ (LCD) RS485 BACnet

»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 (±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)
Network technology	RS485 BACnet MS/TP
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	-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	**electronic | enclosure with LCD** -20..+70 °C **electronic | enclosure without LCD** -35..+70 °C **mounting base** -35..+90 °C
Accuracy temperature	±0,5 K (typ. at 21 °C)
Display (optional)	LCD 29x35 mm with RGB backlight
Enclosure	enclosure USE-M, PC, pure white, cover PC, transparent, with removable cable entry
Protection	IP65 according to EN 60529
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 V2A, Ø=6 mm, L=25 mm
Ambient condition	max. 85% rH short term condensation

When several BUS devices are supplied by one 24 V AC voltage supply, it is to be ensured that all "positive" operating voltage input terminals (+) of the field devices are connected and all "negative" operating voltage input terminals (-) (=reference potential) are connected (in-phase connection of field devices).In the case of reversed polarity at one field device, a supply voltage short-circuit would be caused by that device.

The consequential short-circuit current flowing through this field my cause damage to it. Therefore, pay attention to correct wiring.

» 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.
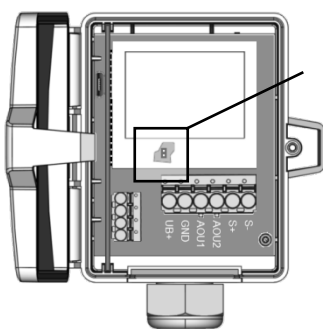
» MOUNTING ADVICES
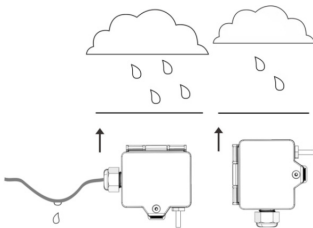
In case of outdoor installation avoid direct rain and sun contact. Probably use sun respectively rain protection. Cable entry from bottom or side. For side cable routing set loop so that precipitation can drain defined. Observe permissible ambient condition.
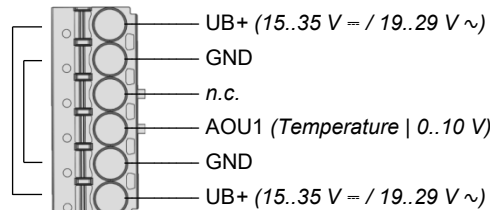
» CONNECTION PLAN

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. If the RS485 cable is looped through, connect both cable shields using the enclosed 2-pol. Connect terminal as shown.
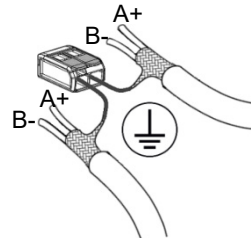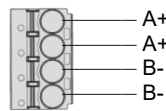
AGS55+ (LCD) **RS485**

0..5 V
0..10 V

UB+ *(15..35 V ⎓ / 19..29 V ∼)*
GND
n.c.
AOU1 *(Temperature | 0..10 V)*
GND
UB+ *(15..35 V ⎓ / 19..29 V ∼)*

Looped through power supply, valid from 03.08.2020 (20216)

A+
A+
B-
B-

A+
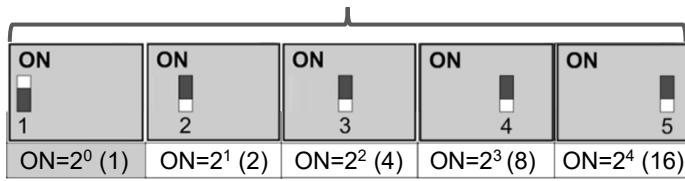B-
A+
B-

BACnet Objects:
USE-RS485 BACnet interface

A detailed description of the BACnet interface can be found at the following link:
→ **Download**

The BACnet address of the device is set binary coded in the range of 1 ... 127 via 7 dip-switches. (the address 0 is reserved and cannot be selected).

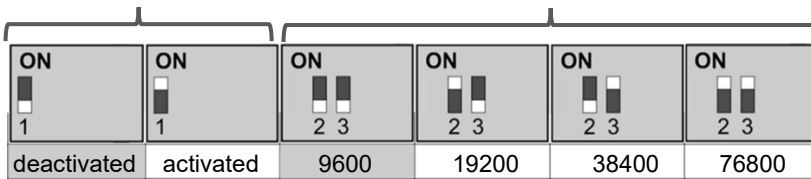## »MEASURING VALUES

Objects	Access	Description	Unit
AI-0	R	**temperature**	°C

Address block 1

ON 1	ON 2	ON 3	ON 4	ON 5
ON=2^0 (1)	ON=2^1 (2)	ON=2^2 (4)	ON=2^3 (8)	ON=2^4 (16)
default				

Termination 120Ω

ON 1	ON 1
deactivated	activated
default	

Baud rate

ON 2 3	ON 2 3	ON 2 3	ON 2 3
9600	19200	38400	76800
default			

Address block 2

ON 4	ON 5
ON=2^5 (32)	ON=2^6 (64)
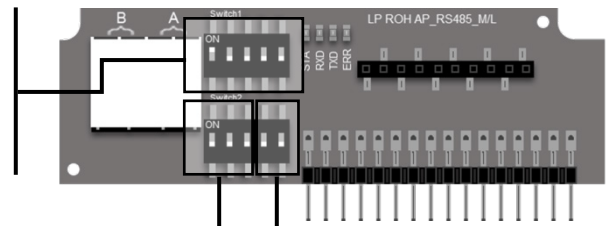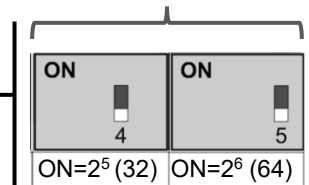
»DIMENSIONS (MM)
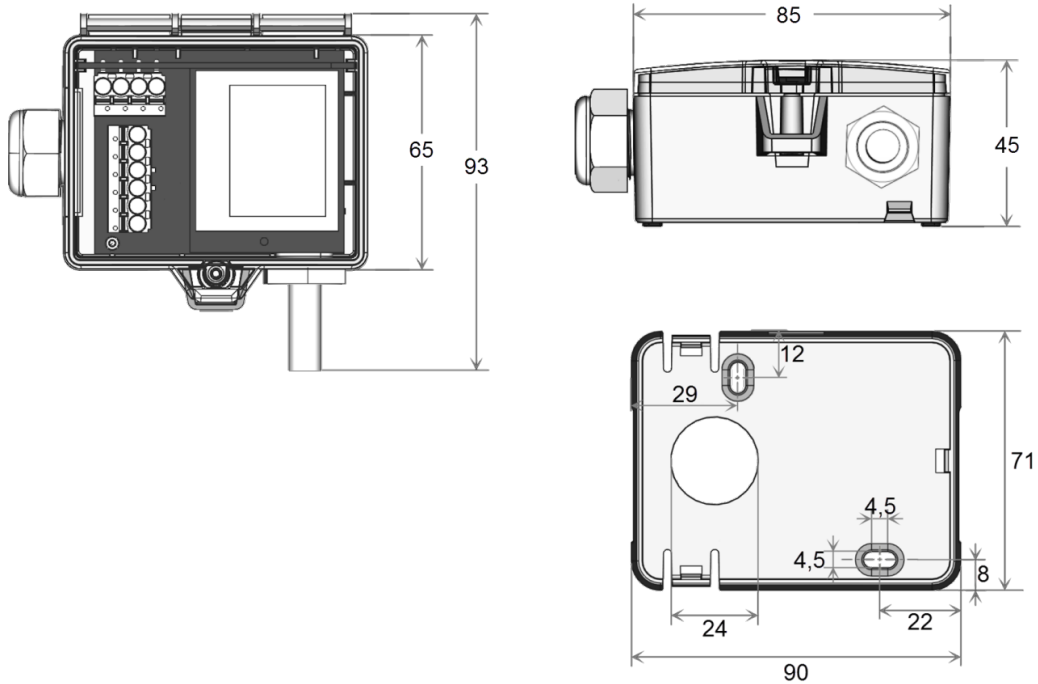
»ACCESSORIES (INCLUDED IN DELIVERY)

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