

## Datasheet

Subject to technical alteration  
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The following illustrations show the version with LCD

## Application

Air quality sensor for measuring CO<sub>2</sub> in outdoor areas with 1 0..10 V output. 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

### Outdoor sensor CO<sub>2</sub> – active RS485 Modbus MS/TP | LCD

LA+ CO<sub>2</sub> RS485 Modbus

LA+ CO<sub>2</sub> LCD RS485 Modbus

## 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.

## Information about Indoor Air Quality CO<sub>2</sub>

EN 13779 defines several classes for indoor air quality:

Category	CO <sub>2</sub> content above the content in outdoor air in ppm		Description
	Typical range	Standard value	
IDA1	<400 ppm	350 ppm	Good indoor air quality
IDA2	400.. 600 ppm	500 ppm	Standard indoor air quality
IDA3	600..1.000 ppm	800 ppm	Moderate indoor air quality
IDA4	>1.000 ppm	1.200 ppm	Poor indoor air quality

## Information about Self-Calibration Feature CO<sub>2</sub>

All gas sensors are subject to drift caused by components. This fact results generally in the need to recalibrate the sensors regularly.

With dual channel technology Thermokon integrates automatic self-calibration for different fields of operation. In contrast to common used ABC-Logic sensors with self-calibration dual channel are suitable for applications operating 24 hours, 7 days a week as for example hospitals.

**Manual calibration is not necessary!**

## Technical Data

<b>Measuring values</b>	CO <sub>2</sub>	
<b>Output voltage</b>	0..10 V or 0..5 V, min. load 10 kΩ (live-zero configuration via Thermokon USEapp)	
<b>Network technology</b>	RS485 Modbus, RTU, half-duplex, baud rate 9.600, 19.200, 38.400 or 57600, parity: none (2 stopbits), even or odd (1 stopbit)	
<b>Power supply</b>	15..35 V = or 19..29 V ~	
<b>Power consumption</b>	max. 2,3 W (24 V =)   max. 4,3 VA (24 V ~)	
<b>Measuring range CO<sub>2</sub></b>	0..2000 ppm (default), 0..5000 ppm (optionally configured via Thermokon USEapp)	
<b>Accuracy CO<sub>2</sub></b>	±50 ppm +3% of reading (typ. at 21 °C, 50% rH)	
<b>Calibration</b>	self-calibration, Dual Channel	
<b>Sensor</b>	NDIR (non-dispersiv, infrared)	
<b>Display</b> (optional)	LCD 29x35 mm with RGB backlight	
<b>Enclosure</b> (type-dependent)	enclosure USE-M, PC, pure white, with removable cable entry	<b>LCD</b> cover PC, transparent
<b>Protection</b>	IP65 according to EN 60529	
<b>Cable entry</b>	M25, for wire max. Ø=7 mm, seal insert for fourfold cable entry	
<b>Connection electrical</b>	<b>Mainboard</b> removable plug-in terminal, max. 2,5 mm <sup>2</sup>	<b>Plug-in card</b> removable plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Pocket</b>	stainless steel V2A, Ø=6 mm, L=25 mm	
<b>Ambient condition</b>	0..+50 °C, max. 85% rH short term condensation	
<b>Mounting</b>	installation is also possible using mounting base	

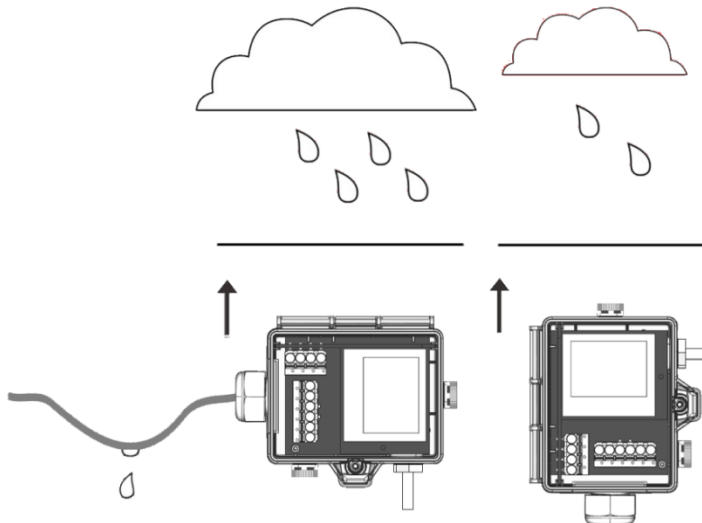


### Declaration of conformity

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

## 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.



## 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.

## 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.

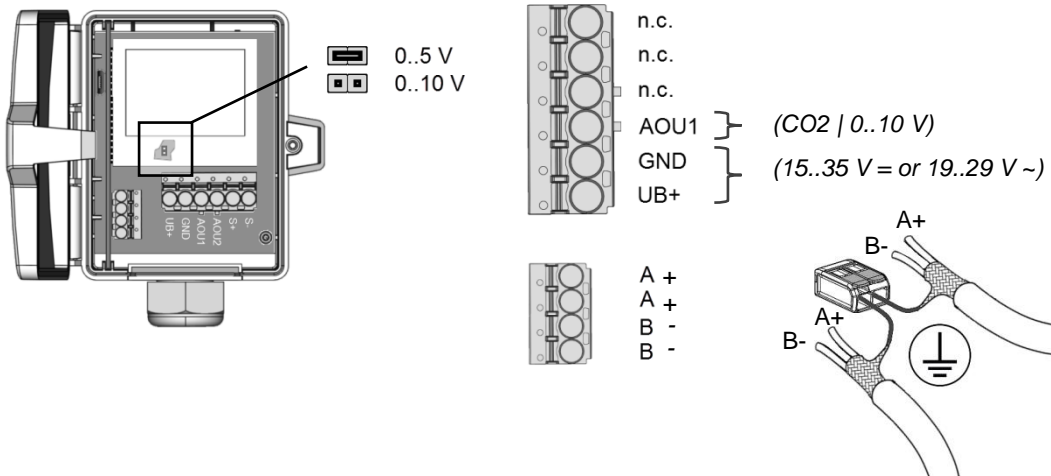


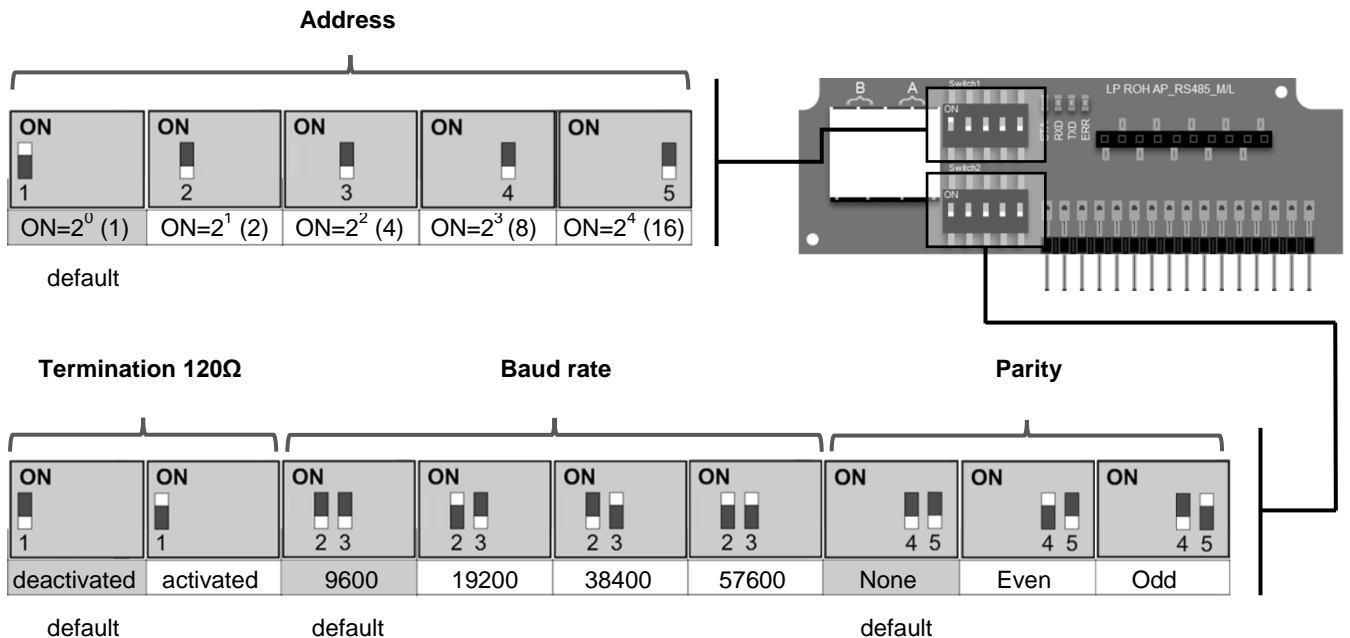
The configuration-app and the app description can be found in the Google Play Store or in the Apple App Store.

## 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.

### LA+ CO2 (LCD) RS485 Modbus





Address	Access	Description	Resolution / Unit	
5	R	CO2	1.0	ppm

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.



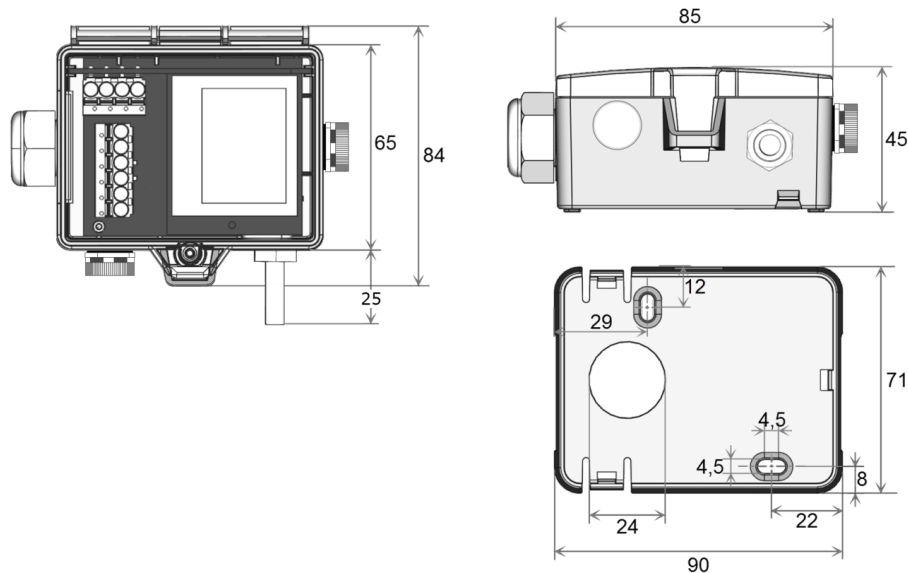
**Modbus addresses:**

USE-RS485 Modbus Interface

A detailed description of the Modbus addresses can be found in our downloadcenter:

→ [Download](#)

**Dimensions (mm)**



**Accessories (included in delivery)**

- Mounting base
- Mounting kit universal
- Cover screw + screw cover • 2 Rawplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

Item No. 631228  
Item No. 698511

**Accessories (optional)**

- Bluetooth dongle
- Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs)

Item No. 668262  
Item No. 641364