LK+ CO2 V

Duct sensor for air quality

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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»APPLICATION

Duct air quality sensor for detection of CO2. Designed for duct mounted applications with 0..10 V output.

»TYPES AVAILABLE

Duct sensor CO2 – active 0..10 V
- LK+ CO2 V

optionally with shorter sensor tube, type 100
- LK+ CO2 100 V

Options: additional passive temperature sensor, eg: PT100/PT1000/NI1000/NI1000TK5000/NTC10K... and other sensors on request.

»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

CE UKCA

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.

» GENERAL REMARKS CONCERNING SENSORS

Especially with regard to passive sensors in 2-wire conductor versions, the wire resistance of the supply wire has to be considered. If necessary the wire resistance has to be compensated by the follow-up electronics. Due to self-heating, the wire current affects the measurement accuracy, so it should not exceed 1 mA.

When using lengthy connection wires (depending on the cross section used) the measuring result might be falsified due to a voltage drop at the common GND-wire (caused by the voltage current and the line resistance). In this case, 2 GND-wires must be wired to the sensor - one for supply voltage and one for the measuring current.

Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (±0,2 V). When switching the supply voltage on/off, onsite power surges must be avoided.

» INFORMATION ABOUT INDOOR AIR QUALITY CO$_2$

EN 13779 defines several classes for indoor air quality:

Category	CO$_2$ 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$_2$

All gas sensors are subject to drift. The degree of drift is dependent on the use of components and product design. In addition, the following environmental conditions, among others, can accelerate/ favor the aging and wear of the sensors:

- Mechanical stress (also due to temperature fluctuation)
- Contamination (dust / fingerprints e.g.)
- Abrasive chemicals
- Environmental influences (high humidity / condensation on measuring element)

An internal self calibration function with dual channel technology compensates the caused drift. Thermokon sensors are for permanent use. (e.g. hospitals).

» TECHNICAL DATA

Measuring values	CO2
Output voltage	0..10 V, min. load 10 kΩ
Output passive	**Passive** Options: additional passive temperature sensor eg: PT100/PT1000/NI1000/NI1000TK5000/NTC10K... and other sensors on request
Power supply	15..35 V = or 19..29 V ~ SELV
Power consumption	max. 2,3 W (24 V =) | max. 4,3 VA (24 V ~)
Measuring range temp.	**Passive** depending on used sensor
Measuring range CO2	0..2000 ppm
Accuracy temperature	**Passive** depending on used sensor
Accuracy CO2	±50 ppm +3% of reading (typ. at 21 °C, 50% rH)
Air speed	min. 0,3 m/s, max. 12 m/s
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non-dispersiv, infrared)
Enclosure	enclosure USE-M, PC, pure white, cover PC, transparent, with removable cable entry
Protection	IP65 according to EN 60529
Cable entry	Flextherm M20, for wire Ø=4,5..9 mm, removable
Connection electrical	removable plug-in terminal, max. 2,5 mm²
Pipe	PA6, black, Ø=19,5 mm, length 150 mm, optional length 70 mm
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	installation is also possible using mounting base

»MOUNTING ADVICES

The sensor can be mounted on the ventilation duct by means of the mounting flange MF20 TPO (optional with mounting base). Align the openings on the sensor tube according to the flow direction.
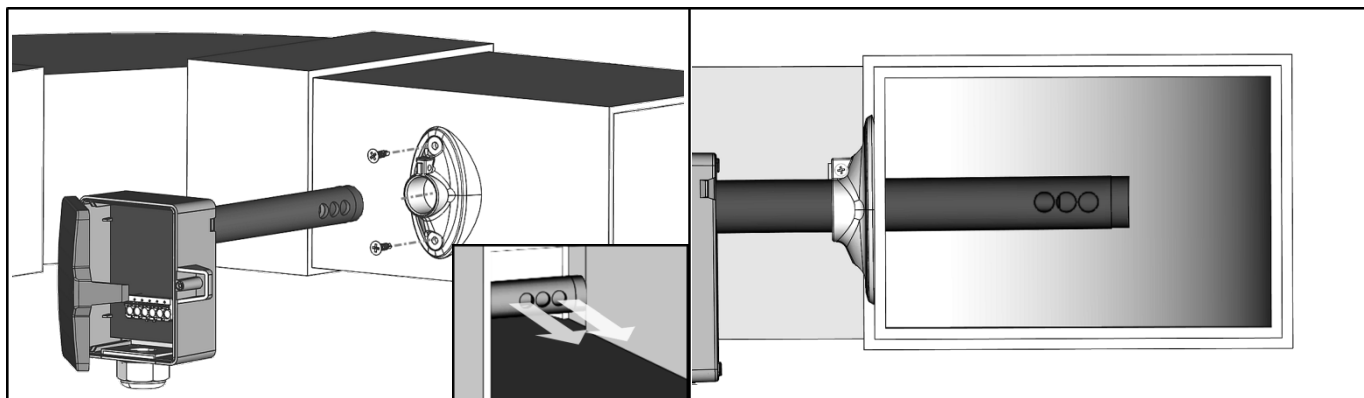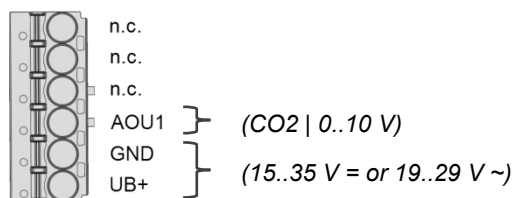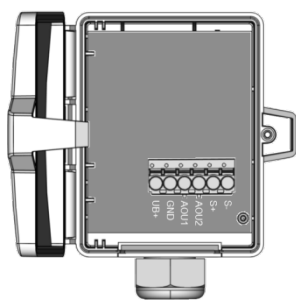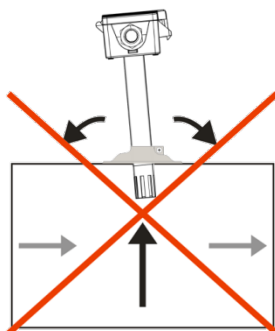

optional:
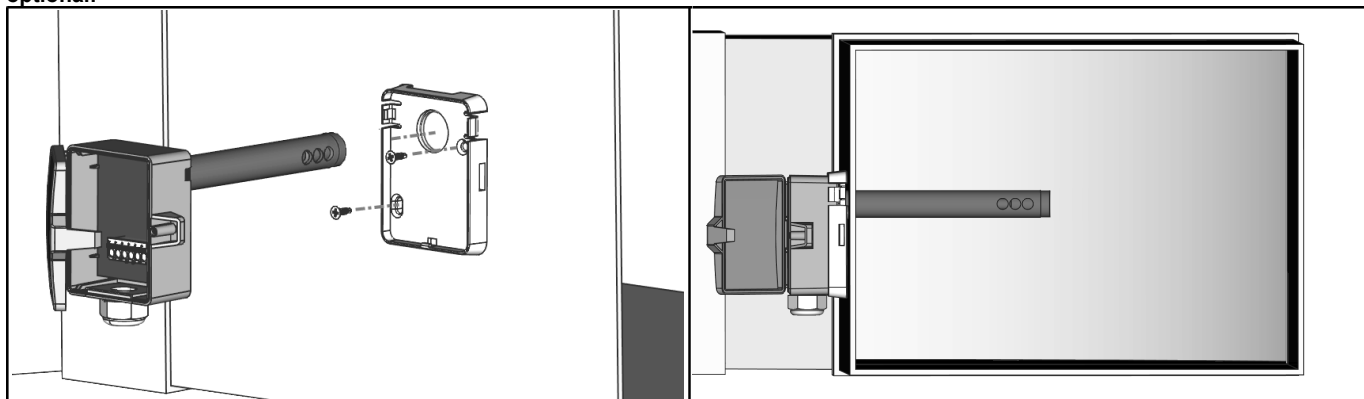
»CONNECTION PLAN

LK+ CO2 (100) V

n.c.
n.c.
n.c.
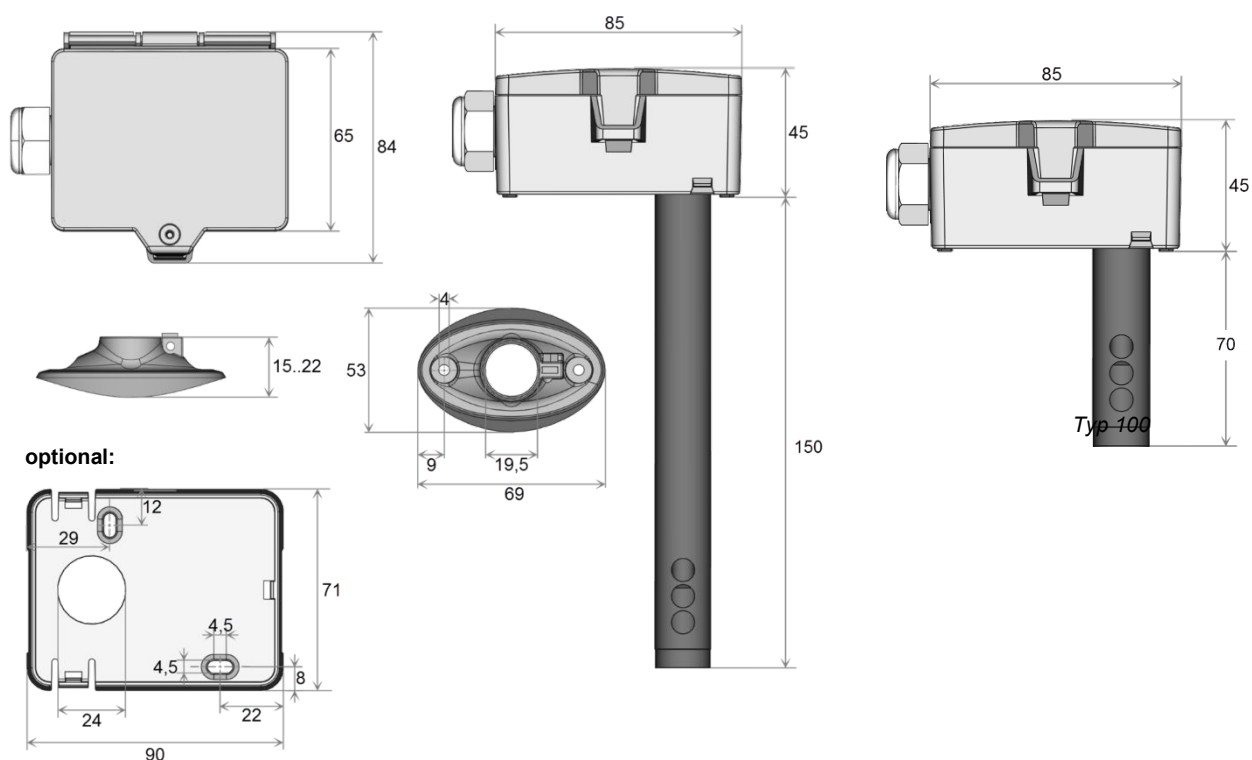AOU1 — *(CO2 | 0..10 V)*
GND
UB+ — *(15..35 V = or 19..29 V ~)*

»DISMOUNTING ADVICES

Remove the lower section of the sensor carefully and pulling straight out. **Pay close attention to the correct dismantling of the component!**

»DIMENSIONS (MM)

optional:

Typ 100

»ACCESSORIES (INCLUDED IN DELIVERY)

Mounting flange MF20	Item No. 612562
Mounting kit universal	Item No. 698511

• Cover screw + screw cover• 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

»ACCESSORIES (OPTIONAL)

Mounting base	Item No. 631228
Filter stainless steel, wire mesh	Item No. 231169
Sealing insert M20 USE white, 2x Ø=7 mm (for 2 wire; PU 10 pieces)	Item No. 641333