LK+ CO2 V

Duct sensor for air quality

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

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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

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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

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 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.

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 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

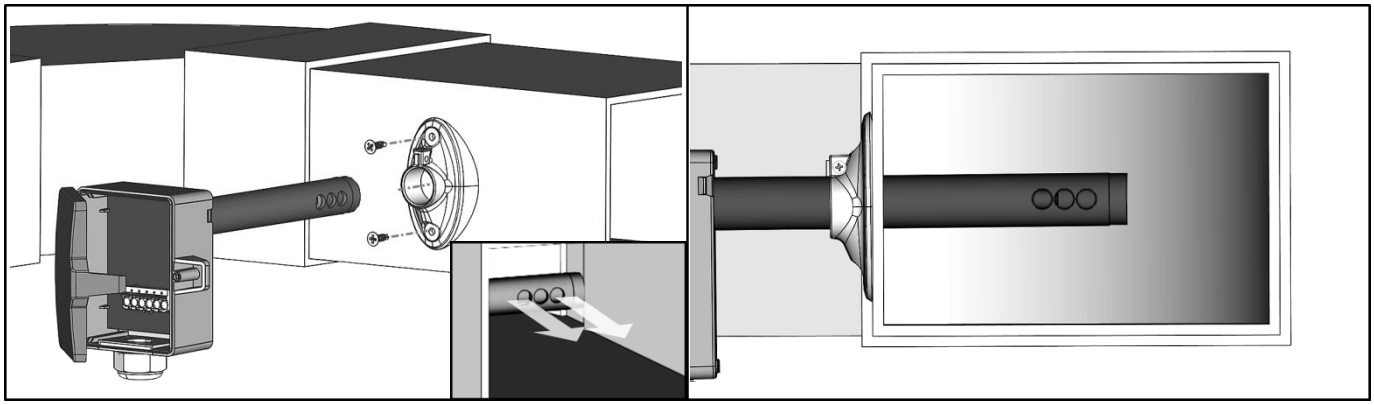
Measuring values	CO2
Output voltage	0..10 V, min. load 10 kΩ
Output passive	**passive** Options: additional passive temperature sensor eg: PT100/PT1000/NI1000/NI1000TK5000/NTC10K... and other sensors on request
Power supply	15..35 V = or 19..29 V ~
Power consumption	max. 2,3 W (24 V =) | max. 4,3 VA (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	M16, for wire max. Ø=8 mm
Connection electrical	removeable plug-in terminal, max. 2,5 mm²
Pipe	PA6, black, Ø=19,5 mm, length 177 mm
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Mounting	installation is also possible using mounting base

Application notice

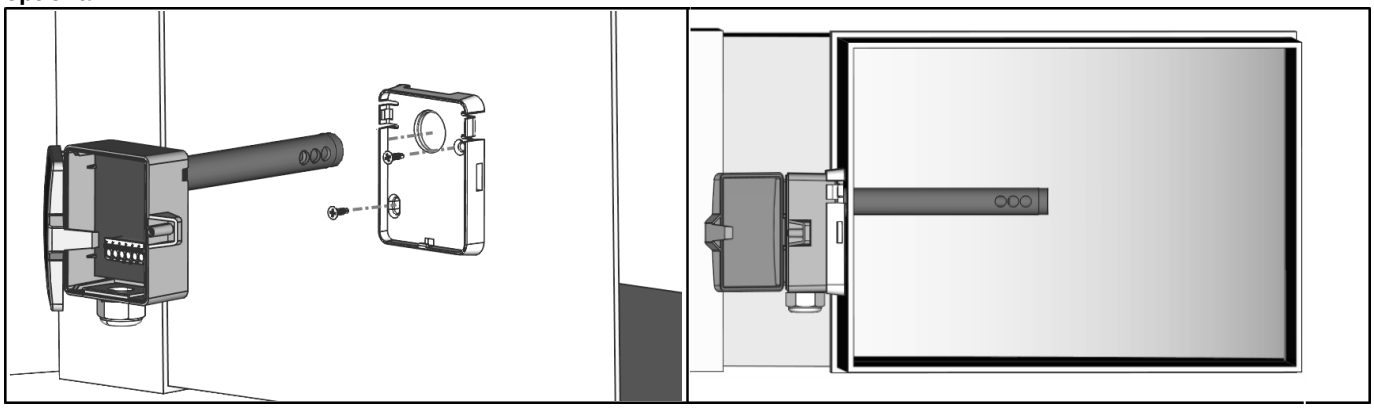
The housing cover must be completely closed in order to ensure the accuracy and reproducibility of the measured values during a test or service log via USEapp.

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

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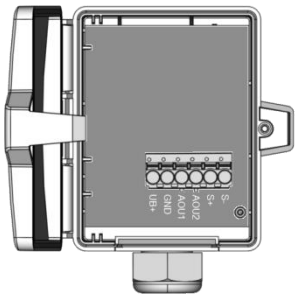
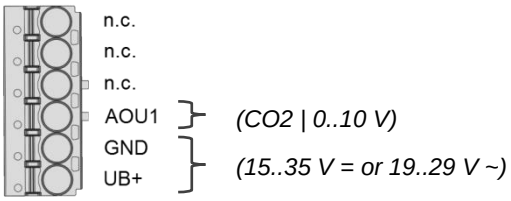
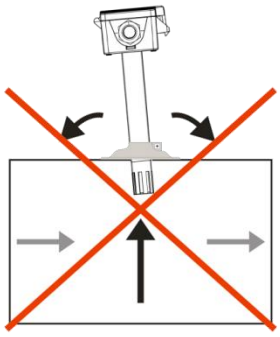


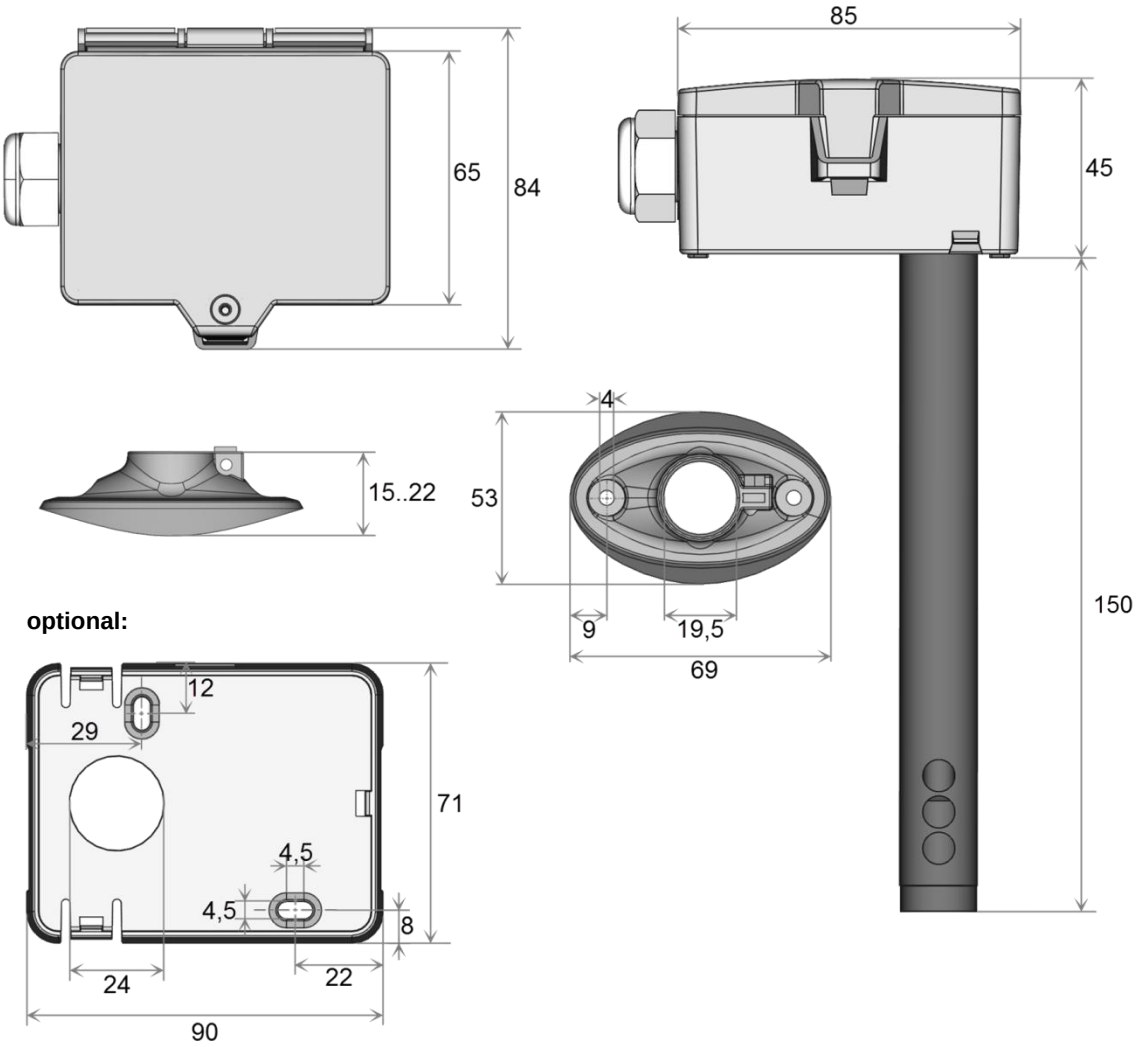


Dismounting Advices

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



Dimensions (mm)



Accessories (included in delivery)

Mounting flange MF20 Item No. 612562
Mounting kit 2 Item No. 640503

- Cable entry M16
- Cover screw
- 2 Screws (rounded head)

Accessories (optional)

Mounting base Item No. 631228
Filter stainless steel, wire mesh Item No. 231169

M16 Sealing inserts cable entry (packaging unit 10 pcs.)

for wire with Ø	3 mm	5 mm	7 mm	8 mm
Item No	641036	641012	639248	641340