

# LK-SX VOC

Combined sensor mixed gas

**thermokon**  
Sensortechnik GmbH

## Data sheet

Subject to technical alteration  
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## Application

The sensor detects air quality in ventilation ducts. A stronger output signal of the sensor (0..10 V) indicates bad air quality.

For measuring mixed gas, a metal oxide sensor is used. Through automatic self-calibration via a software algorithm, no manual calibration is necessary. For direct hook up to a DCC or monitoring systems analogue outputs (0..10 V) are available.

## 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.

## Application Notice for Air Quality Sensors VOC

Unlike CO<sub>2</sub> sensors, which specifically measure CO<sub>2</sub>, mixed gas sensors detect a wide range of gases. The sensor signal does not indicate the type of gas or its concentration in ppm. Mixed gas sensors detect gases and vapours consisting of carbohydrates, or more generally gases that can be oxidised (burnt): Odours, perfume, cleaning fluid scent, tobacco smoke, new materials fumigations (furniture, carpets, paint, glue ...).

Unlike CO<sub>2</sub>, which humans cannot sense, the amount of odours (VOC) indicates the level of air quality. VOC sensors have proven their value in a multitude of applications for many years.

### Measuring principle:

Similar to a catalyst converter the organic molecules are burnt (oxidized) when in contact with the sensor's heated -dioxide surface, adding a small amount of heat combustion. The increased temperature is measured providing a signal proportional to the number of molecules being burnt. CO<sub>2</sub> cannot be detected as it cannot be further oxidized.

**Refrain from touching the sensor's element sensitive surface. Touching the sensitive surface element will void warranty.**

## Information about Calibration VOC

Similar to a catalyst converter the VOC sensor will deteriorate over time, which will affect the sensitivity. This VOC sensor automatically compensates the decrease in sensitivity by dynamic auto-calibration.

The reference level of air quality is derived from the ambient conditions over a 72h period. The lowest reading within this 72h time period will be used as reference level, representing the "clean and fresh air level".

## Technical Data

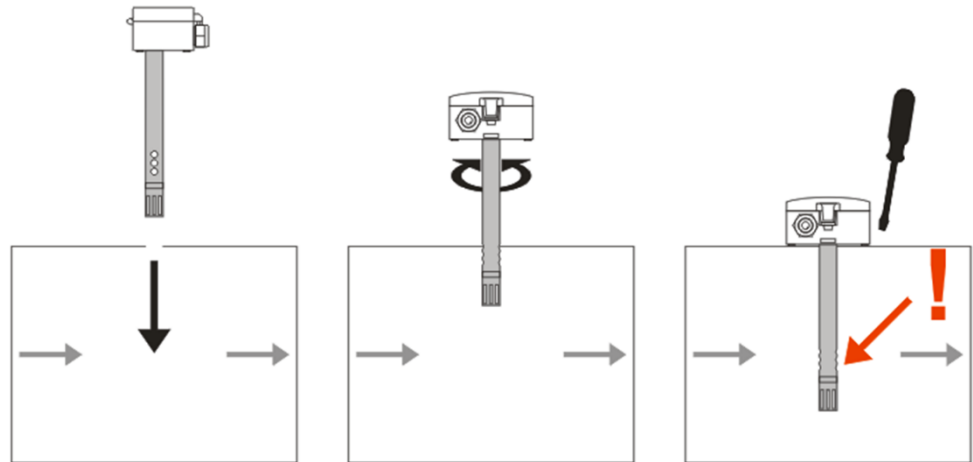
Measuring values	VOC
Output voltage	0..10 V, load min. 10 kΩ
Power supply	15..24 V = (±10%) or 24 V ~ (±10%)
Power consumption	max. 1,5 W (24 V =)   2,9 VA (24 V ~)
Measuring range velocity	0..100%
Air speed	max 10 m/sec
Calibration	self calibration
Sensor	VOC-Sensor (heated tin oxide semiconductor)
Enclosure	PA6, pure white
Protection	IP54 according to EN 60529, IP65 with bolted cover
Cable entry	M20 for wire max. 8 mm
Connection electrical	plug-in terminal max 1,5mm <sup>2</sup>
Pipe	PA6, black, Ø=19,5 mm L=180 mm,
Filter	stainless steel, wire mesh
Ambient condition	0..+50 °C, max 85%rH non-condensing
Weight	400 g
Delivery content	MF20 flange
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

## Mounting advices

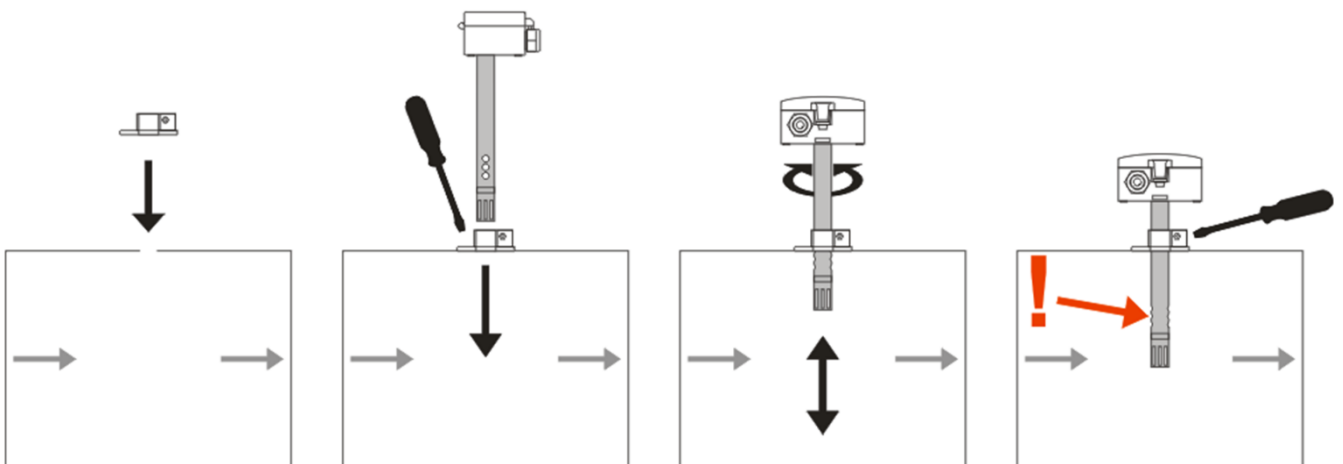
The sensor can be mounted on a flange (recommended) or directly into the ventilation duct.

**Please note that during installation the openings of the pipe are mounted in the direction of air flow!**

Mounting without and with mounting flange:

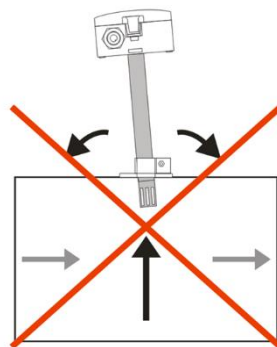


Mounting with mounting flange

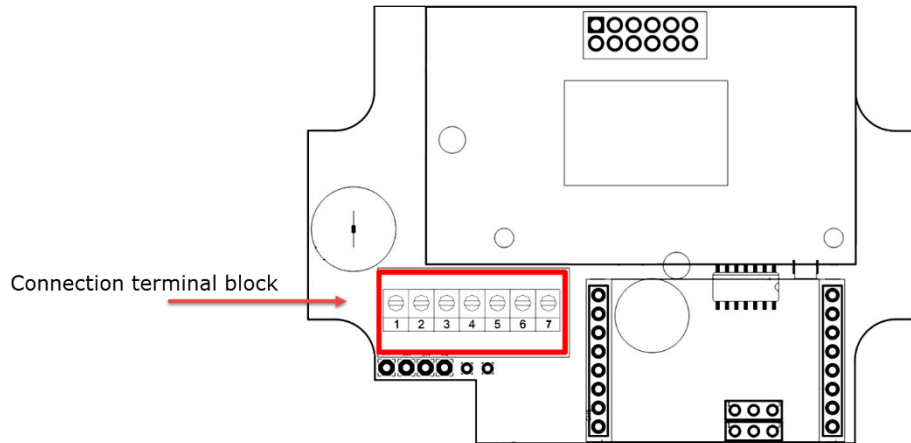


## Dismounting advice

Sensor solve and vertically pull out. **Do not tilt the sensor during withdrawal!**



## Terminal Connection Plan



### Terminal assignment:

Clamps	Function
1	24 V
2	GND
3	Not used
4	Not used
5	Not used
6	Not used
7	Output VOC 0..10 V

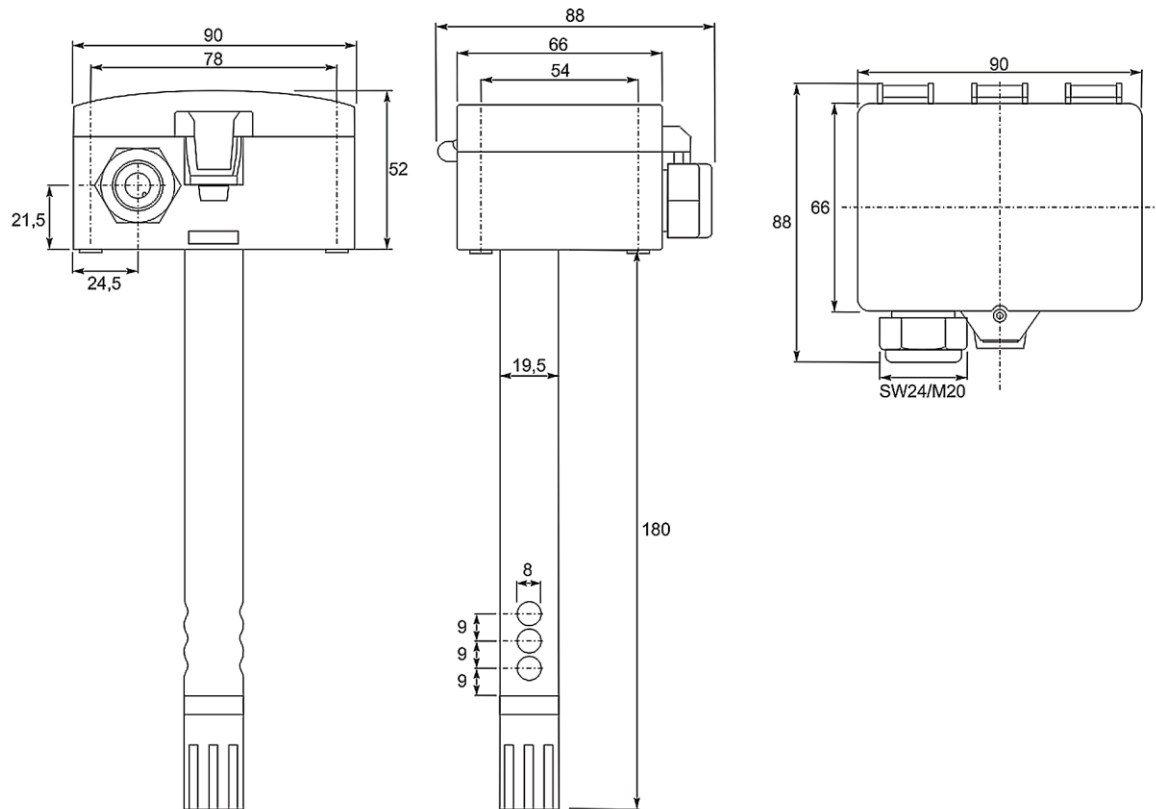
## Application notice

Dirt in the air can collect on the filter and then adversely affect the operation of the sensor after a certain time.

Under normal ambient condition an annual maintenance is recommended. Rinse the filter after cleaning with distilled water and dry it using clean oil-free air or nitrogen. Extremely contaminated filters should be replaced.

At extreme ambient conditions, e.g. corrosive gases, the humidity sensor may have to be changed.

## Dimensions (mm)



## Accessories

Rawl plugs and screws (2 pcs each)  
 Filter stainless steel, wire mesh  
 Mounting flange MF20 TPO

Item No. 102209  
 Item No. 231169  
 Item No. 612562