

MADE IN GERMANY

## SILAREX

Infrared Gas Sensor

Channel 1: FS = 25 Vol.-% CO<sub>2</sub>

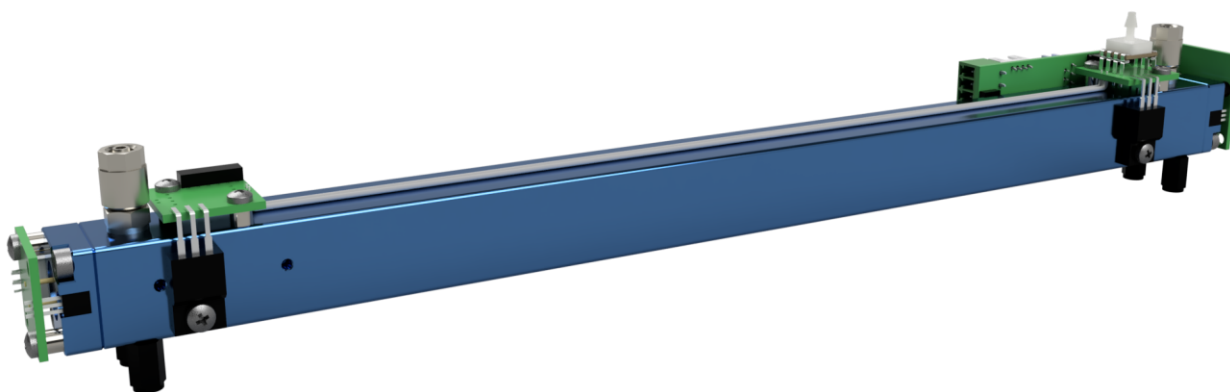
Channel 2: FS = 5000 ppm CO

Channel 3:

smartGAS item number: SX-200017-00000

### Product features:

- Measure up to 3 gases or different concentration ranges simultaneously
- Cross-sensitivity is calculated on-board
- Pressure compensation on board
- Temperature and drift compensated
- Ready to use calibrated



SILAREX gas sensors have been developed to enable parallel concentration measurement of up to three measuring gases or three detection ranges with one single NDIR gas sensor. The cross-sensitivities of the individual gases are compensated directly inside the SILAREX sensor, providing the user with fully prepared and corrected measuring values via Modbus ASCII / RTU for further processing. An on-board pressure compensation and heaters guarantee stable measurement results. Compared to measuring with three individual sensors, the advantages are obvious: **Only one sensor needs to be calibrated and maintained**; varying sample preparation, different accuracies or life cycles of the sensors do not need to be considered.

#### Application Examples for SILAREX series

Gas analysis  
Environmental monitoring  
TOC  
CEMS  
Medical breath control  
... and more

#### Available equipment

Gas cooler  
Heater element  
Case  
Particle filter  
Gas pump  
Mounting equipment

#### Available design in support

Mechanical installation  
Data communication  
Gas pre-treatment  
Operating conditions  
Customized ranges  
Customized gas type

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## General features

		Channel 1:	Channel 2:	Channel 3:
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength			
Target gas:		CO <sub>2</sub>	CO	
Measurement range:	0 ... Full Scale(FS)	FS = 25 Vol.-%	FS = 5000 ppm	
Gas supply:	by flow (nearly atmospheric pressure)			
Flow rate:	0.1 .. 1.0 l / min			
Mounting dimensions:	336 mm x 40 mm x 50 mm (L x W x H)			
Warm-up time(start up time):	< 2 minutes			
Warm-up time(full specification):	< 30 minutes			

## Measuring response\*

Response time (t <sub>90</sub> ) @ 0.7 l / min:	< 4 s (fast), < 8 s (medium), < 60 s (slow)		
Digital resolution:	0.01 Vol.-%	1 ppm	
Detection limit (3 σ) fast mode:	0.12 Vol.-% /	15 ppm /	
Detection limit (3 σ) medium mode:	0.08 Vol.-% /	9 ppm /	
Detection limit (3 σ) slow mode:	0.04 Vol.-%	4 ppm	
Repeatability:	≤ ± 0.1 Vol.-%	≤ ± 15 ppm	
Linearity error (straight line deviation):	≤ ± 0.25 Vol.-%	≤ ± 10 ppm	
Long term stability (zero):	over 1000 h operating time	≤ ± 0.25 Vol.-%	≤ ± 50 ppm
Long term stability (span):	over 1000 h operating time	≤ ± 0.06 Vol.-%	≤ ± 16 ppm

## Influence of T, P, flow rate, other\*

Temp. dependence (zero):	with thermal isolation, heater on	≤ ± 0.01 Vol.-% per °C	≤ ± 0.1 ppm per °C
Temp. dependence (span):	with thermal isolation, heater on	≤ ± 0.02 Vol.-% per °C	≤ ± 0.2 ppm per °C
Pressure dependence:	pressure compensated, residual error in % of actual reading / hPa	≤ ± 0.02	≤ ± 0.02
Flow rate dependence:		≤ ± 0.02 Vol.-%	≤ ± 4 ppm
Cross sensitivity (zero) other gases:	@ 25 Vol.-% CO <sub>2</sub> (compensated for 42 °C): - @ 5000 ppm CO (compensated for 42 °C):	≤ ± 0.04 Vol.-%	≤ ± 20 ppm -

## Electrical parameters

Supply voltage:	24 V DC + 10 %
Inrush current:	< 400mA
Average power consumption:	< 6 W (while heater on) // < 1 W (at stabilized temperature)
Digital output signal:	Modbus ASCII / RTU via RS485, autobaud, autoframe
Calibration:	zero and span by SW

## Climatic conditions

Sensor heating temperature	42°C
Operating temperature:	appr. + 10 ... + 40 °C (thermal isolation required)
Storage temperature:	-20 °C ... + 60 °C
Air pressure:	800 .. 1150 hPa
Ambient humidity:	0 .. 95 % relative humidity (not condensing)

\* Typical values related to 1013 hPa, T<sub>a</sub> = 22 °C, flow = 0.7 l / min for dry (not condensing) and clean sample gas. Stated values exclude calibration gas tolerance.

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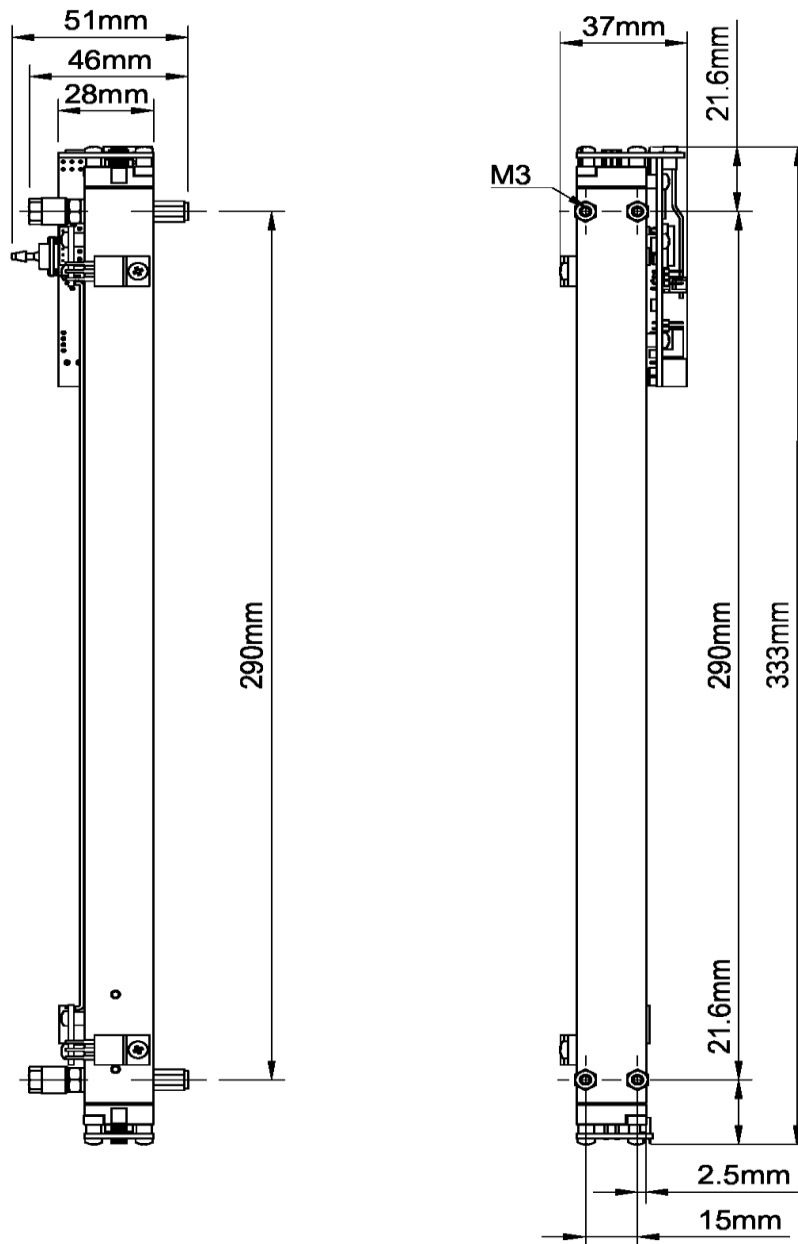
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Technical drawing



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