

MADE IN GERMANY

SILAREX / SILAREX Plus

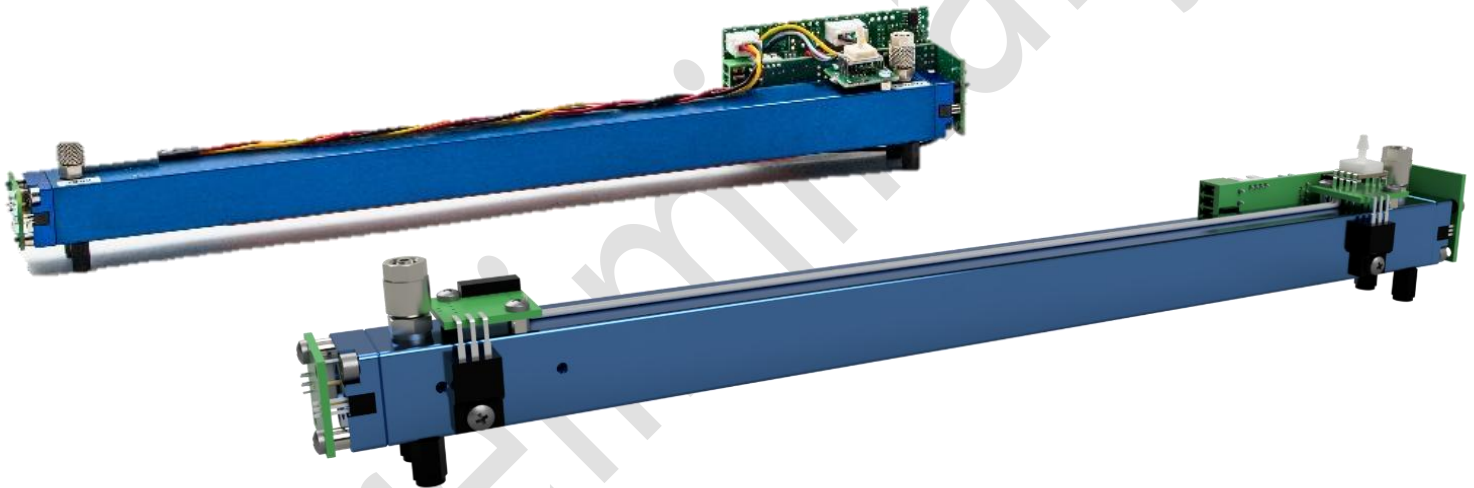
NDIR Multi-Gas Sensor
CO₂ 10 Vol.% / CH₄ 5000 ppm
SILAREX SX-200023 / SILAREX Plus SP-200023-xxx

Product Features:

- 2 active measurement channels
- Ready to use calibrated
- On board pressure compensation
- Modbus ASCII/RTU, autobaud, autoframe
- Status indicated by LED

Product Features SILAREX Plus only:

- Active Noise reduction Filter
- Low noise at lowest T90 time
- Low LDL
- High data frequency
- Wide Range Power Input
- High-end active thermal heat Controller



Options

- Case with thermal isolation
- USB Adapter
- Different gas connections
- Calibration Software
- Data Logger software
- Calibration and Test-Gases
- Gas Cooler, Filter
- Pre-Treatment

Support

- Design-In support
- Customization:
 - Software
 - Protocols
 - Measuring ranges
 - Background gas optimizing
 - Interfaces

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General features

Measurement principle: Non Dispersive Infra-Red (NDIR), quad wavelength	Channel 1:	Channel 2:	Channel 3:	Release Date 11 Jul 2025
Target gas	CO ₂	CH ₄	-/-	
Measurement range	0 ... Full Scale (FS)	FS = 10 Vol.%	FS = 5000 ppm	
Gas supply	by flow (nearly atmospheric pressure)			
Flow rate:	0.1 ... 1.0 l / min			
Gas Cuvette Length	120 mm / Alloy			
Cuvette Volume	≈ 6,03 cm ³			
Gas Connections	5/3mm Rubber Tube Fitting (default)			
Warm-up time	< 2 minutes (start up time) < 30 minutes (full specification)			

	SILAREX CO₂ 10 Vol.% / CH₄ 5000ppm I SX-200023	SILAREX Plus CO₂ 10 Vol.% / CH₄ 5000ppm I SP-200023-xxx
Mounting dimensions: See also technical Drawing	156 mm x 30 mm x 50 mm (L x W x H)	156 mm x 30 mm x 55 mm (L x W x H)

Measuring response*

Response time (t ₉₀) @ 0.7 l / min **:	< 4 s (fast mode), < 8 s (medium mode), < 60 s (slow mode)			< 4 s		
Maximum Data Rate	2,5 Hz			10 Hz		
	Channel 1:	Channel 2:	Channel 3:	Channel 1:	Channel 2:	Channel 3:
Digital resolution:	0.001 Vol.%	1 ppm		0.001 Vol.%	1 ppm	
Detection limit (3 σ) max.:	T90 < 4 sec / Fast Mode	≤ 0.03 Vol.%	≤ 20 ppm	≤ 0.005 Vol.%	≤ 5 ppm	
	T90 < 8 sec / Medium Mode	≤ 0.02 Vol.%	≤ 15 ppm			
	T90 < 60 sec / Slow Mode	≤ 0.01 Vol.%	≤ 10 ppm			
Repeatability	≤ ± 0.03 Vol.%	≤ ± 10 ppm		≤ ± 0.03 Vol.%	≤ ± 10 ppm	
Linearity error (straight line deviation):	≤ ± 0.1 Vol.%	≤ ± 10 ppm		≤ ± 0.1 Vol.%	≤ ± 10 ppm	
Long term stability (zero): after 1000 h operating time	≤ ± 0.02 Vol.%	≤ ± 25 ppm		≤ ± 0.02 Vol.%	≤ ± 25 ppm	
Long term stability (span): after 1000 h operating time	≤ ± 0.05 Vol.%	≤ ± 50 ppm		≤ ± 0.05 Vol.%	≤ ± 50 ppm	

Influence of T, P, flow rate, other*

Temp. dependence (zero): with thermal isolation, heater on	≤ ± 0.005 Vol.% per °C	≤ ± 75 ppm per °C	≤ ± 0.005 Vol.% per °C	≤ ± 75 ppm per °C
Temp. dependence (span): with thermal isolation, heater on	≤ ± 0.01 Vol.% per °C	≤ ± 150 ppm per °C	≤ ± 0.01 Vol.% per °C	≤ ± 150 ppm per °C
Pressure dependence: pressure compensated, residual error in % of actual reading / hPa	≤ ± 0.02	≤ ± 0.02	≤ ± 0.02	≤ ± 0.02
Flow rate dependence per 0.1 l / min	≤ ± 0.02 Vol.%	≤ ± 2 ppm	≤ ± 0.02 Vol.%	≤ ± 2 ppm
Cross sensitivity (zero) other gases	CH ₄ ≤ ± 0.01 Vol.% @ 5000 ppm	CO ₂ < ± 25 ppm @ 10 Vol.%	CH ₄ ≤ ± 0.01 Vol.% @ 5000 ppm	CO ₂ < ± 25 ppm @ 10 Vol.%

Electrical inputs and outputs

Supply voltage	24 V DC ± 10 %	10-26VDC wide range, recommend 24VDC
Average power consumption	< 6 W (while heater on) // < 0.5 W (at stabilized temperature)	< 21 W (while heater on) // < 0.5 W (at stabilized temperature)
Inrush current	< 400 mA	< 400 mA
Digital output signal	RS485 / one wire TTL, Modbus ASCII / RTU, autobaud, autoframe	RS485 / RS232 Modbus ASCII / RTU, autobaud, autoframe, Free ASCII
Calibration	Zero and Span via Modbus ASCII / RTU	

Climatic conditions

Sensor heating temperature	42°C ± 2 K (default, other on request)	45°C ± 0.5 K (default, other on request)
Operating ambient temperature ***	appr. + 10 ... + 40 °C (thermal isolation required)	0 ... + 43°C (thermal isolation required)
Storage temperature:	-20 °C ... + 60 °C	
Air pressure:	800 ... 1150 hPa	
Ambient humidity:	0 ... 95 % rel. H. (not condensing)	

Options SILAREX Plus SP-

SP-nnnnnn-1x1	Heater	Temp. : 45 °C (Default)	SP-nnnnnn-1xx5	Cased 6/4mm tube with pump
SP-nnnnnn-1x3	Heater and Pressure Sensor	Temp. : 45 °C (Default) and cuvette pressure compensation	SP-nnnnnn-1xx6	Cased 5/3mm tube with pump
SP-nnnnnn-1xx1	Cased 6/4mm tube	For case size please refer the drawing	SP-nnnnnn-1xxxp	Pin Configuration ,p' can be Pin configuration (only for cased version)
SP-nnnnnn-1xx2	Cased 5/3mm tube	For case size please refer the drawing	SP-nnnnnn-1xxxxm	Communication mode ,m' the selected communication mode

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

** The shortest T90 time is defined by gas exchange time based on volume, gas flow rate and gas way structure.

*** The used thermal isolation need to ensure a sufficient cooling effect at the highest environment temperature.

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For more information, please visit www.smartgas.eu or contact us at sales@smartgas.eu

Please consult smartGAS sales for parts specified with other temperature and measurement ranges. At first initiation and depending on application and ambient conditions recalibration is recommended. Recurring cycles of recalibration are recommended.