

S8 LP

The smallest CO₂ sensor with NDIR-technique in the world



More than 25 years experience of research and development within the field of infrared gas sensing has now brought us the smallest CO₂ sensor, with NDIR-technique, in the world – **S8 LP**. The new sensor has excellent performance such as high accuracy and low power consumption.

S8 LP is designed for high volume production with full traceability by sensor serial number on all manufacturing processes and key components. Every sensor is individually calibrated and is provided with UART digital interface. The sensor is maintenance-free and has an estimated life time of more than 15 years.

STANDARD SPECIFICATION

Measured gas	Carbon dioxide (CO ₂)
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range CO ₂	400 to 2000ppm
Accuracy CO ₂	±40ppm ±3% of reading ^{1,2} 0 to 10000ppm extended range
Maintenance	No maintenance required
Life Expectancy	>15 years
Power supply	4.5 to 5.25VDC
Operation temperature range	0 to 50°C
Communication	UART (Modbus)
Dimensions Max. (L x W x H)	33.4 x 19.9 x 8.5mm 004-0-0053 33.4 x 19.9 x 9.3mm 004-0-0018
Energy consumption	300mA peak, 30mA average
Response time	2 minutes by 90%

Note 1: In normal IAQ applications. Accuracy is defined after minimum three (3) weeks of continuous operation with ABC on.

Note 2: Accuracy is specified over operating temperature range. Specification is referenced to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.

APPLICATION

S8 LP is a module that is designed for simple integration into products. **S8 LP** can be used in a wide range of applications such as in ventilation control to improve energy savings and to assure a good indoor climate. Other fields of use are personal safety and measurements to increase process yield and to increase economic value in bio-related processes.

KEY BENEFITS

- Miniature size
- Individually calibrated
- Maintenance-free
- Long term stability
- Low power consumption



S8 LP Technical Specification

General Sensor Performance:

Required storage/operation environment	Non-corrosive ¹ and non-condensing ²
Sensor lifetime expectancy	>15 years
Service interval and maintenance	Maintenance-free for normal indoor applications with Senseair [®] 2
Self-diagnostics	A full system test is executed automatically every time the power is turned ON

Operative environment required for keeping calibrated and specified accuracy in gas measurement:

Operative temperature range	0 – 50°C
Operative relative humidity range.....	0 – 85%RH, non-condensing ²

Electrical Properties:

Power supply	4.5 – 5.25V unprotected against surges and reverse connection
Power consumption	300mA peak, 30mA average

Mechanical Properties:

Electrical Connections	DVCC, G+ and G0
Pin headers ³	
Dimensions	33.4 x 19.9 x 8.5mm 004-0-0053 (Max. Length x Width x Height) 33.4 x 19.9 x 9.3mm 004-0-0018

CO₂ Measurement:

Operating principle.....	Non-dispersive infrared (NDIR)
Measurement Range ⁴	400 – 2000ppm. Up to 10000ppm extended range
Accuracy ^{5, 6}	±40ppm ±3% of reading
Measurement interval	4 seconds

Note 1: SO₂ enriched environments excluded.

Note 2: When using ABC (Automatic Baseline Correction) algorithm of Senseair.

Note 3: Optional

Note 4: Sensor is designed to measure in the range 400 to 2000ppm. Exposure to concentrations below 400ppm may result in incorrect operation of ABC algorithm and shall be avoided for model with ABC on.

Note 5: In normal IAQ applications. Accuracy is defined after minimum three (3) AQBC periods of continuous operation with ABC on. Some industrial applications do require maintenance. Please, contact Senseair for further information!

Note 6: Accuracy is specified over operating temperature range. Specification is referenced to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.