

Senseair S8 Residential

A very small, versatile and mass-producible CO₂ transmitter module

More than 25 years experience of research and development within the field of infrared gas sensing has brought us our smallest NDIR CO₂ sensor. The sensor has excellent performance such as high accuracy and low power consumption.

Senseair S8 Residential 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.

Senseair S8 Residential is a module that is designed for simple integration into products. Senseair S8 Residential can be used in a wide range of applications such as 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.



Standard specification

Measured gas	Carbon dioxide (CO ₂)
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range CO ₂	400-2000ppm
Accuracy CO ₂	±70ppm ±3% of reading ^{1,2}
Maintenance	No maintenance required
Life Expectancy	>15 years
Power supply	4.5-5.25VDC
Operation temperature range	0-50°C
Communication	UART (Modbus)
Dimensions	33.9 x 19.8 x 8.7mm
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) ABC periods 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.

Key benefits

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



Senseair S8 Residential Technical Specification

General Sensor Performance:

Required storage/operation environment	Non-corrosive and non-condensing
Sensor lifetime expectancy	>15 years
Service interval and maintenance	Maintenance-free for normal indoor applications with Senseair ¹
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 ¹

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	Optional ²
Dimensions	33.9 x 19.8 x 8.7mm (Max. Length x Width x Height)

CO₂ Measurement:

Operating principle	Non-dispersive infrared (NDIR)
Measurement Range	400–2000ppm. Up to 10000ppm extended range ³
Accuracy	±70ppm ±3% of reading ^{4,5}
Measurement interval	2 seconds

Note 1: When using ABC (Automatic Baseline Correction) algorithm of Senseair.

Note 2: Optional

Note 3: 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 4: In normal IAQ applications. Accuracy is defined after minimum three (3) weeks of continuous operation with ABC on. Some industrial applications do require maintenance. Please, contact Senseair for further information!

Note 5: Accuracy is specified over operating temperature range. Specification is referred to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.