

DataSheet: COZIR™

Ultra Low Power Carbon Dioxide Sensor

COZIR is an ultra low power (3.5mW^4), high performance CO_2 sensor, ideally suited for battery operation, portable instruments and HVAC. Based on GSS IR LED and Detector technology, and innovative optical designs, the COZIR offers the lowest power NDIR sensor available. COZIR is a third generation product from GSS – leaders in IR LED CO_2 sensing.



- Ultra-low Power 3.5mW
- Measurement ranges from 5% to 100%
- 3.3V supply
- Peak current only 33mA

Models

- GC-0016: 0-100%
- GC-0006: 0-20%
- GC-0015: 0-5%

Specifications

General Performance

Warm-up Time

- < 10s

Operating Conditions

- 0°C to 50°C (standard)
- -25°C to 55°C (extended range, optional)
- 0 to 95% RH, non-condensing

Recommended Storage

- -30°C to +70°C

CO2 Measurement

Sensing Method

- Non-dispersive infrared (NDIR) absorption
- Patented Gold-plated optics
- Patented Solid-state source and detector

Sample Method

- Diffusion

Measurement Range

- 0-5%, 0-20%, 0-65%, 0-100%

Accuracy

- ± 70 ppm \pm 5% of reading¹

Non Linearity

- < 1% of FS

Pressure Dependence

- 0.13% of reading per mm Hg

Operating Pressure Range

- 950 to 40 bar²

Response Time

- 4 secs to 2 mins (user Configurable)³
- Reading refreshed twice per second.³

Electrical/Mechanical

Power Input

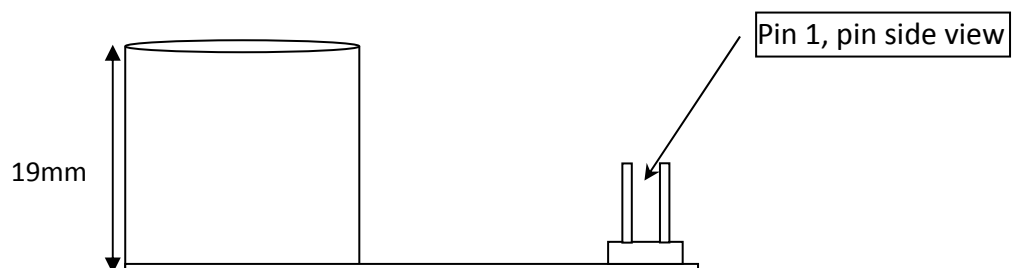
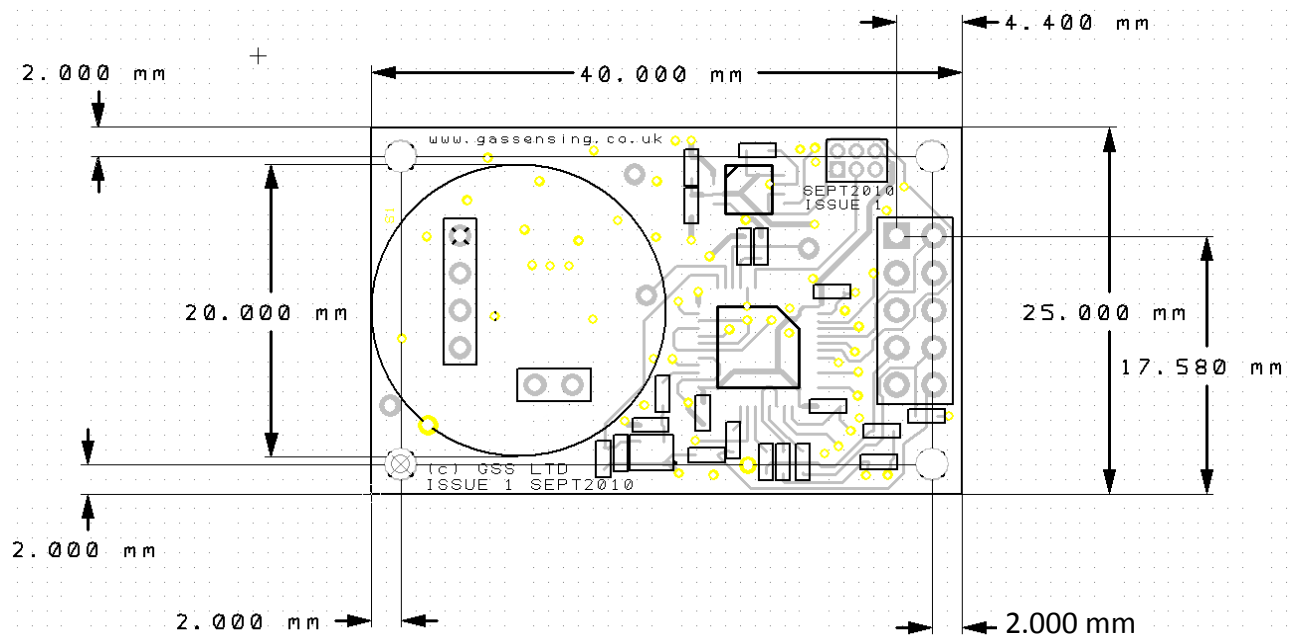
- 3.2V to 3.4V (3.3V recommended).
- Peak Current 33mA⁴.
- Average Current <1.5mA⁴.

Power Consumption

- 3.5 mW⁴

Dimensions and Wiring Connections

- 2x5 0.1" header. Pin 1 is identified on the dimensional drawing.



Function	Pin #	Pin #	Function
0V	1	2	N/C
+3.3V	3	4	0V
Sensor Rx (in)	5	6	0V
Sensor Tx (out)	7	8	Zero N
Analogue O/P	9	10	Zero Air

Pin 2 should not be connected. Pins 4 and 6 do not require connection and are internally connected to GND.

The zeroing options are for hardware zeroing (both active low). These functions can also be implemented by sending a serial command (recommended).

Typical connections for digital interface are GND, 3.3V, Rx and Tx. Note that the Vh for the serial Tx line will be 3V regardless of the supply voltage.

The analog (voltage) output is available only for CO2 measurements with this sensor.

Note 1: All measurements are at STP unless otherwise stated.

Note 2: External Pressure calibration required to eliminate pressure dependence.

Note 3: User Configurable Filter Response.

Note 4: Power measurements for standard CO2 sensor with 2 readings per second. Temperature and humidity measurements increase the power consumption.

Note 5: Temperature and Humidity derived from Sensirion SHT21 chip. See Sensirion data sheet for full details.

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