

# COZIR™

## Ultra Low Power Carbon Dioxide Sensor

COZIR is an ultra low power (3.5mW<sup>4</sup>), high performance CO<sub>2</sub> sensor, ideally suited for battery operation and portable instruments. Based on patented IR LED and Detector technology and innovative optical designs, COZIR is the lowest power NDIR sensor available. Optional temperature and humidity sensing are available. COZIR is a third generation product from Gas Sensing Solutions Ltd – leaders in IR LED CO<sub>2</sub> sensing.

With measurement ranges of 0-5%, 0-20%, 0-60% and 0-100%, COZIR **Wide Range** sensors are suited for process control applications such as diving, industrial safety and automotive.

- Ultra-low Power 3.5mW
- Measurement ranges from 0 to 100%
- 3.3V supply
- Peak current only 33mA
- Optional Temperature and Humidity Output



**COZIR™ Wide Range Sensor**

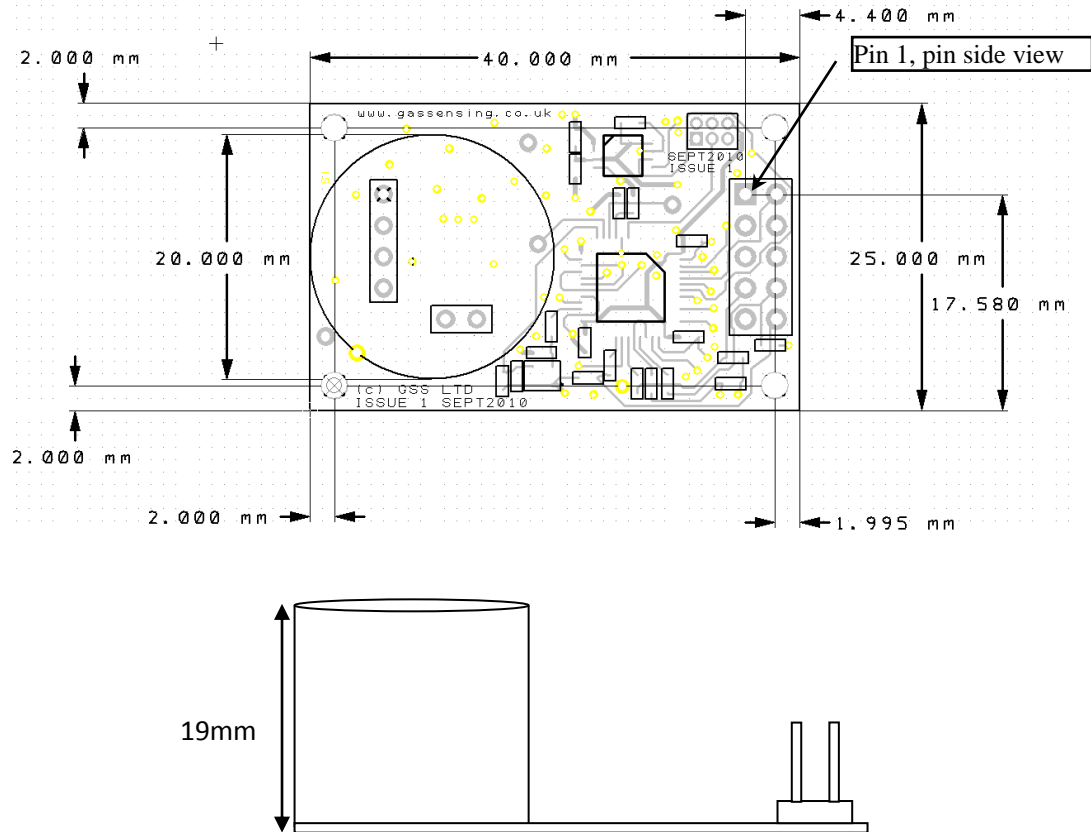
## Specifications

General Performance	
Warm-up Time	< 10s
Operating Conditions	0°C to 50°C (Standard) -25°C to 55°C (Extended range) 0 to 95% RH, non-condensing
Recommended Storage	-30°C to +70°C
CO <sub>2</sub> 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%,0-60%,0-100%
Accuracy	±70 ppm +/- 5% of reading <sup>1</sup> (100% Range ±300 ppm +/-5% of reading <sup>1</sup> )
Non Linearity	< 1% of FS
Pressure Dependence	0.13% of reading per mm Hg in normal atmospheric conditions.
Operating Pressure Range	950 mbar to 10 bar <sup>2</sup>
Response Time	4 secs to 2 mins (user Configurable) <sup>3</sup> Reading refreshed twice per second. <sup>3</sup>

<b>Electrical/ Mechanical</b>	
<b>Power Input</b>	3.2 to 5V. (3.3V recommended). Peak Current 33mA <sup>4</sup> . Average Current <1.5mA <sup>4</sup> .
<b>Power Consumption</b>	3.5 mW <sup>4</sup>

### 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 when specified. Otherwise, N/C.

<b>Temperature &amp; Humidity Measurement<sup>5</sup></b>	
Optional Temperature and Humidity sensor (only available as digital output)	
<b>Sensing Method</b>	Humidity: Capacitive Temperature: Bandgap
<b>Measurement Range</b>	-25 to +55 °C 0 to 95% RH
<b>Resolution</b>	0.08 °C 0.08% RH
<b>Absolute Accuracy<sup>5</sup></b>	+/- 1 °C      0°C to 55°C. +/- 3% RH    20°C to 55°C. +/- 2 °C      over the full temperature range. +/- 5% RH    over the full temperature range.
<b>Repeatability</b>	+/- 0.1 °C +/- 0.1 % RH

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

**Note 2:** External Pressure calibration required.

**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. Please request data sheet for full details.

This documentation is provided on an as-is basis and no warranty as to its suitability or accuracy for any particular purpose is either made or implied. Gas Sensing Solutions Ltd will not accept any claim for damages howsoever arising as a result of use or failure of this information. Your statutory rights are not affected. This information is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice.