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 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.

With measurement ranges of 0-2,000ppm, 0-5,000ppm and 0-10,000ppm the **COZIR Ambient** Sensor is suitable for applications such as building ventilation control and indoor greenhouses.

- Ultra-low Power 3.5mW
- 3 Measurement ranges
- 3.3V supply
- Peak current only 33mA
- Temperature plus humidity sensors built-in (serial output only).

COZIR™ Ambient Sensor

CO2 Only

- GC-0010: 0-2,000ppm
- GC-0011: 0-5,000ppm
- GC-0012: 0-10,000ppm

CO2 + RH/T

- GC-0020: 0-2,000ppm
- GC-0022: 0-10,000ppm

Specifications

General Performance	
Warm-up Time	< 10s. 1.2 secs to first reading.
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
CO2 Measurement	
Sensing Method	Non-dispersive infrared (NDIR) absorption Patented Gold-plated optics, Solid-state source and detector
Sample Method	Diffusion
Measurement Range	0-2000ppm, 0-5000ppm, 0-1%
Accuracy	±50 ppm +/- 3% of reading[1]
Calibration	Autocalibration[6]
Non Linearity	< 1% of FS
Pressure Dependence	0.13% of reading per mm Hg in normal atmospheric conditions.
Operating Pressure Range	950 mbar to 1050 mbar[2]
Response Time	30 secs to 3 mins (Configurable via filter type and application)[3] Reading refreshed twice per second.[3]

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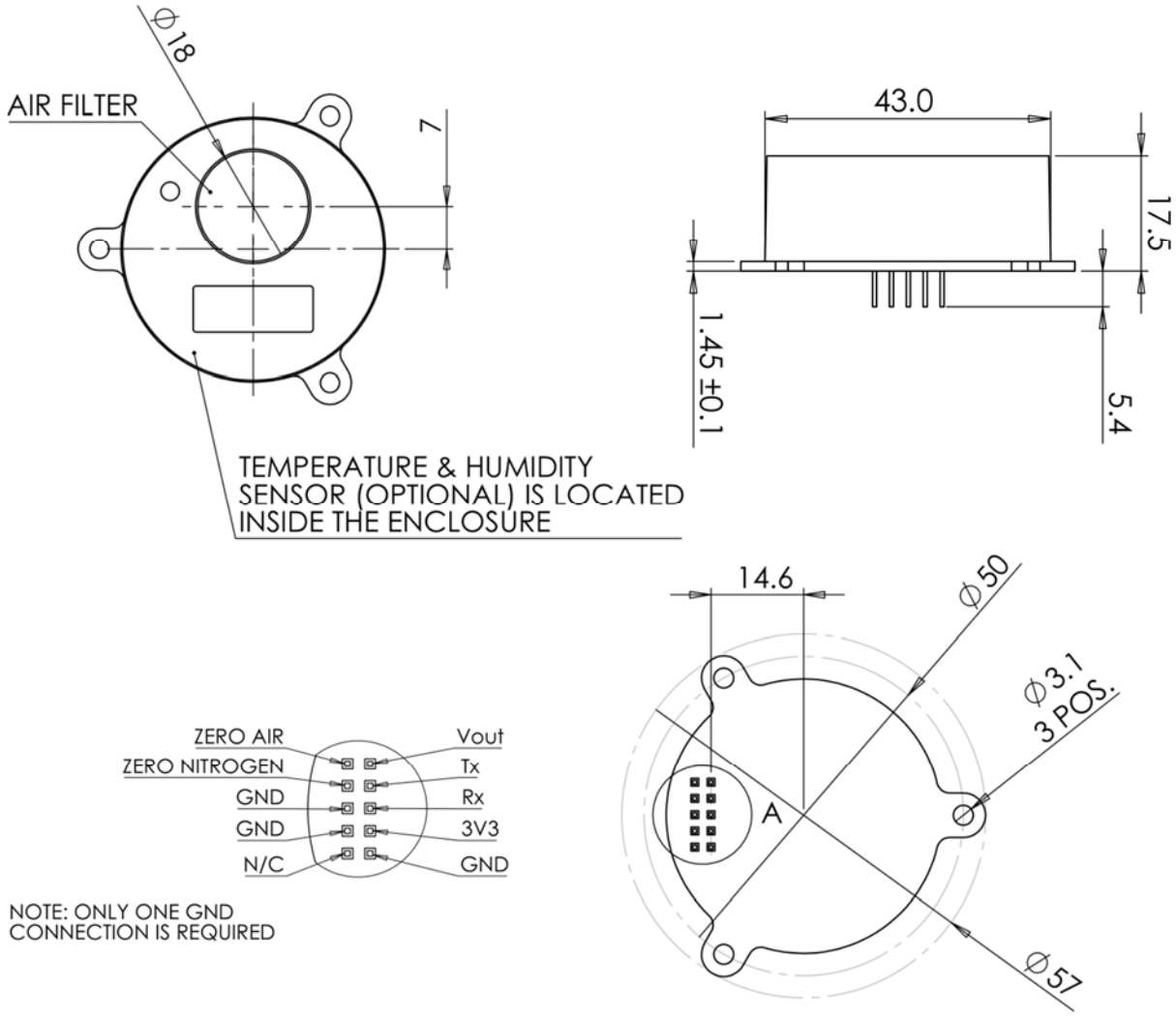
Electrical / Mechanical	
Power Input	3.25 to 5.5V. (3.3V recommended). Peak Current 33mA[4]. Average Current <1.5mA[4].
Power Consumption	3.5 mW[4]

Dimensions and Wiring Connections

2x5 0.1" header. view from underside (connector side)

All measurements in millimeters (mm)



Function	Pin #	Pin #	Function
Fresh Air Zero	**10**	**9**	Analog Output
Nitrogen Zero	**8**	**7**	Sensor Tx (Out)
GND	**6**	**5**	Sensor Rx (In)
GND	**4**	**3**	+3.3V
N/C	**2**	**1**	GND

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.

Analog voltage output enabled on CO2-only models.

Temperature & Humidity Measurement[5] Optional Temperature and Humidity sensor (only available as digital output)	
Sensing Method	Humidity: Capacitive Temperature: Bandgap
Measurement Range	-25 to +55 °C 0 to 95% RH
Resolution	0.08 °C 0.08% RH
Absolute Accuracy[5]	+/- 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.
Repeatability	+/- 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.
Note 6: Autocalibration is enabled by default on COZIR-A (after Nov 2012). For correct operation, the sensor must experience fresh air once every week. For details see the application note “COZIR Autocalibration”.