



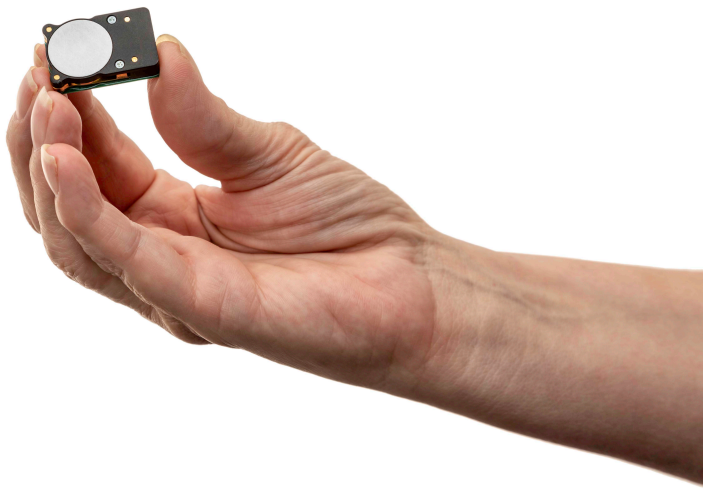
CozIR[®]-LP²

CO₂ Sensor

📈 Measurement range: 0-2000ppm; 0-5000ppm; 0-1%

🔋 Battery applications ⚡ Very low power

📏 Miniature ⌚ Long lifetime



Overview

CozIR®-LP2 Interface is a very low power CO2 sensor - the lowest power and longest life NDIR CO2 sensor available today.

It's world-leading low power consumption makes it ideal for battery powered systems, including portable, wearable and self-powered applications.

Designed for measuring low levels of CO2, this miniature, lightweight sensor offers easy integration into gas monitoring and detection systems.

CozIR®-LP2 is built on our unique patented LED technology platform and optical designs. It's this solid-state technology that enables best-in-class power consumption, lifetime and durability.

Applications

CozIR®-LP2 is designed for low concentration CO2 environments, with measurement ranges from 0-2000ppm, 0-5000ppm and 0-1%.

The sensor is suitable for battery applications, where low power consumption is required. This includes IoT applications, such as 'smart homes' and 'smart cities'.

Examples of markets where CozIR®-LP2 CO2 sensors are being successfully used:

- Indoor air quality (IAQ)
- Building control
- Food packaging
- Automotive
- Safety
- HVAC
- Horticulture & agriculture
- Instrumentation
- Aerospace

Benefits

- Ideal for very low power and battery applications
- Up to 50X lower power than typical NDIR CO2 sensors
- Low maintenance
- Fits neatly inside compact instruments
- Suitable for wireless, portable, wearable and self-powered systems
- ideal for integration into IAQ units which are battery-powered and wirelessly enabled
- Supports energy-efficient 'smart homes'

Features

- Very low power/energy consumption - 3mW
- Measures up to 1% CO2 concentration
- >15 years lifetime
- Miniature format
- Solid-state - no moving parts, no heated filaments
- Vibration and shock resistant
- Non-heating
- Self-calibrating¹
- Digital (UART) and I²C Output
- RoHS compliant
- Manufactured in the UK
- Meets performance requirements for Title 24 compliance



General performance

Start-up time²	1.2 secs
Operating conditions- Temperature	0°C to 50°C (standard)
Operating conditions- Humidity³	0 to 95% RH, non-condensing
Recommended storage	-30°C to +70°C

CO2 measurement

Sensing method	Patented Solid-state Non-Dispersive InfraRed (NDIR) absorption solid-state LED and detector gold-plated optics
Sample method	Diffusion
Measurement range	0-2000ppm 0-5000ppm 0-1%
Accuracy⁴	± (45ppm+3% of reading)
Calibration	Autocalibration ⁵
Pressure dependence⁶	0.15% of reading per mbar in normal atmospheric conditions
Operating pressure range⁷	500mbar – 10 bar
Response time (to a step change in gas level)⁸	30 secs - 3 mins

Electrical

Power input⁹	3.25 to 5.5V. (3.3V recommended) Peak Current 33mA Average Current <1mA
Power consumption⁹	3mW
Connector	2 x 6-way 1.27mm header
Communication	UART, I ² C

Dimensions/weight

Length	31mm
Width	19.5mm
Height¹⁰	8mm
Weight	5g

Warranty

Sensor warranty¹¹	1 year
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1 Autocalibration is enabled by default on the CozIR®-LP2 CO2 sensor. For correct operation, the sensor must experience a CO2 concentration close to fresh air during a 24 hour period. For further details, please request our application note on Autocalibration.

2 Time to a valid reading is determined by digital filter setting. Typically 4-8 seconds.

3 For extended operation in high temperature and humidity environments, contact GSS

4 All measurements are at NTP unless stated otherwise.

5 For correct operation, the sensor must experience CO2 concentrations close to fresh air during an 8 day period. For further details, please [contact us](#) to request our application note on Autocalibration.

6 Calibrated for 1013mbar. External pressure calibration required but our sensors have been tested up to 40 bar.

7 GSS can supply advanced pressure correction advice when operating outside normal atmospheric conditions.

8 Response time to a step change in gas level is dependent on application/filter/flow rate/diffusion.

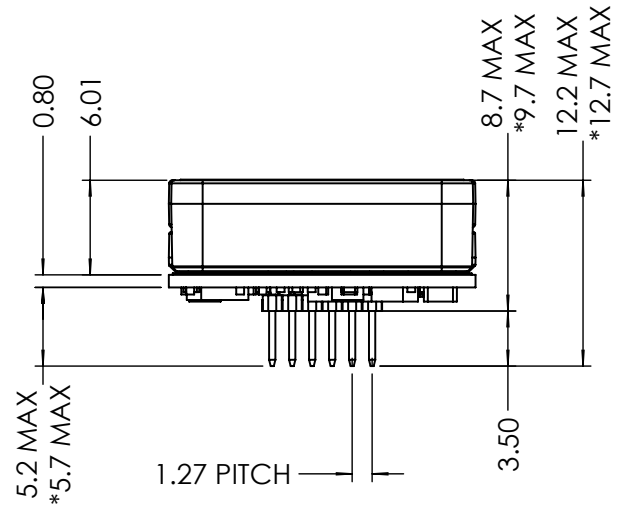
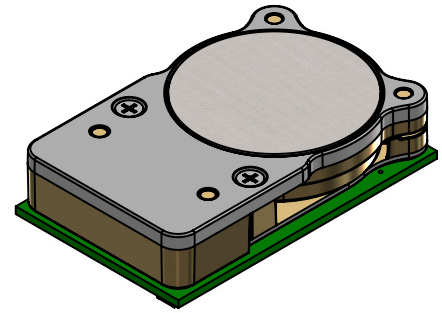
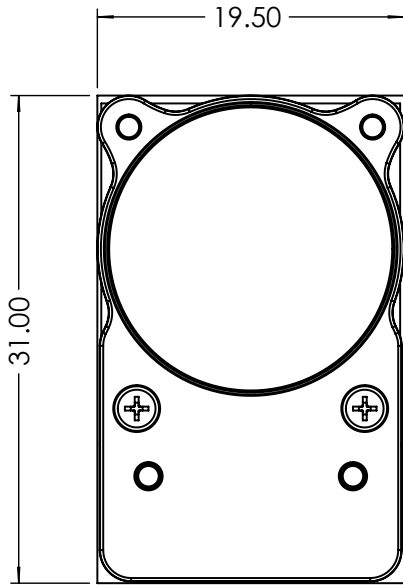
9 Power measurements for standard CO2 sensor with 2 readings per second.

10 Excludes height of connector pins.

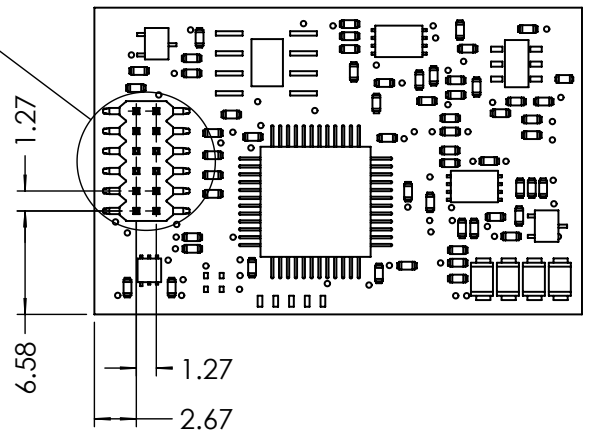
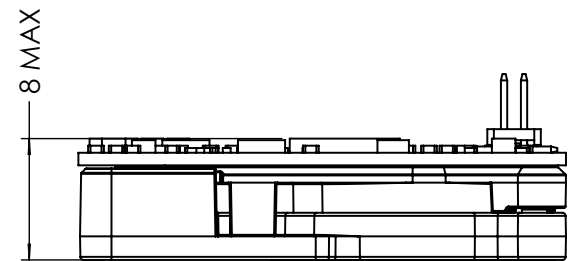
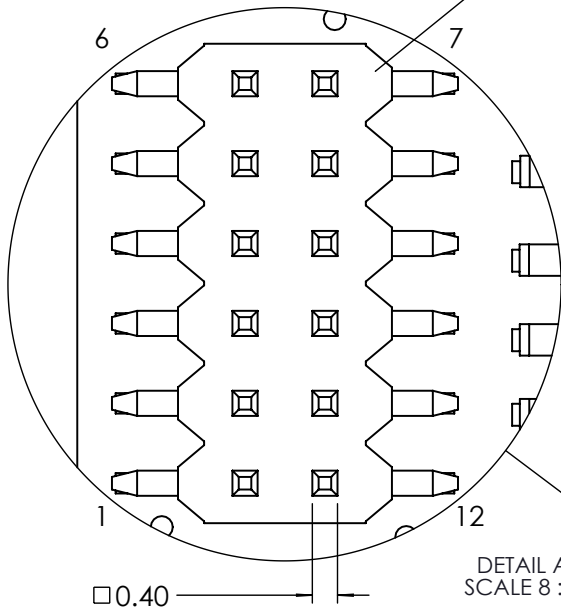
11 Gas Sensing Solutions Ltd (GSS Ltd) offers a limited one (1) year manufacturer's warranty on its products commencing from the date of original purchase. The warranty is limited to defects in materials and workmanship and does not cover damage or abnormal wear and tear resulting from abuse, misuse, or accidental damage. The warranty excludes operational damage due to exposure to blasts or other threats such as excessive abrasion or flames. Unauthorized repairs or alterations void the product warranty. GSS Ltd cannot and does not assume liability for defective products not manufactured or supplied by it even though such be used in conjunction with products manufactured by GSS Ltd.

Technical drawings

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GCT BD095-12A-K0-0350-0050-0550 CONNECTOR



FUNCTION	PIN #	PIN #	FUNCTION
READY	6	7	GPIO FUNCTIONS TBD
NC	5	8	
Tx OUT	4	9	
Rx IN	3	10	I2C - SCL
V+	2	11	I2C - SDA
GND	1	12	

(* REPRESENTS PROTOTYPE SENOR ASSEMBLY DIMENSIONS.)

Put it to the test

Our evaluation kit contains everything you need to test the sensor for your project requirements. The USB cable allows you to easily connect the CoziR®-LP2 sensor to your PC, for real-time CO2 readings (UART Connection Only).

- CO2 sensor (including adapter if specified)
- USB connecting cable
- Evaluation guide on USB stick

Please visit our website to [request a quote](#) for an evaluation kit.

Technical support

The GSS team are specialists in CO2 sensor design, manufacture and customisation. We can advise how best to integrate our award-winning sensors into your product or process. Whether it's a fixed unit, portable instrument, wearable device, or energy harvester, our engineering team have the experience to help bring your project to life.

For more information about GSS and our technology, please visit our [About](#) page.

Custom sensors

If you need the sensor to be altered to your specific requirements, our engineering team can develop a custom solution for you. Please [contact us](#) to discuss your project requirements with our engineering department.

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