

LED CO₂ NDIR Sensor Evaluation Kit 072-0139 Issue 1

Evaluation Kit comprises:

- 1 single Channel NDIR CO₂ sensor and support PCB
- 1 Evaluation board

The single channel sensor is a complete gas sensor for CO₂ requiring only the addition of a display/computer connection and a regulated 5VDC power supply.

Operation

The unit can be powered from a PP3 9V battery, or from an external power supply. The sensor will drift if the supply voltage drops too low, therefore it is recommended that an external power supply (between 9V and 15V) is used.

Switch on the unit. The LED will light and the LCD display will light. During the first 10 seconds, the unit will self zero. This will zero the unit to the ambient conditions during switch on.

- The CO₂ Evaluation PCB will update the display and serial output approximately once per second.
- The unit should be zeroed by pressing button S4 on the Demo board.
- If required, the LCD brightness can be varied by adjusting the brightness control.

Power supply

9V PP3 battery or 9V-15V DC external supply

Power consumption

Sensor and support PCB	20mA (typical) @ 5V. Peak current 200mA
Evaluation Board	45mA @ 9V

LCD display of gas concentration

Serial Output

9600 baud, 8 bit, no parity, 1 stop bit, No hardware flow control (only RX TX and GND)

The output has the following format:

V 12345 T 12345 O 12345 Z 12345 <CR.<LF>

In which

V is a measure of the sensor temperature

T is a measure of the ambient temperature

O is a measure of the optical signal strength

Z is the CO₂ gas concentration in ppm/10

For general measurements, only the CO₂ gas concentration measure need be used.

The other outputs are available for fine calibration for specific applications.

This output can be viewed on a general communication application (eg Hyperterminal).

Temperature Range 0 to 45C

Measurement Range 0-5%

Dimensions

Sensor support PCB	40mm x 25mm
Sensor	20mm diameter, 16mm height

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Molex connector on sensor support PCB

Pin	Use	Comments
1	+5V	Must be regulated
2	+5V	Must be regulated
3	Zero	Pull high to zero gas reading
4	N/C	Factory calibration use only
5	Serial Transmit	NB inverted
6	Serial Receive	NB inverted
7	N/C	Factory calibration use only
8	N/C	Factory calibration use only
9	N/C	Factory calibration use only
10	GND	0V