

# CDM4161 - Pre-calibrated module for carbon dioxide

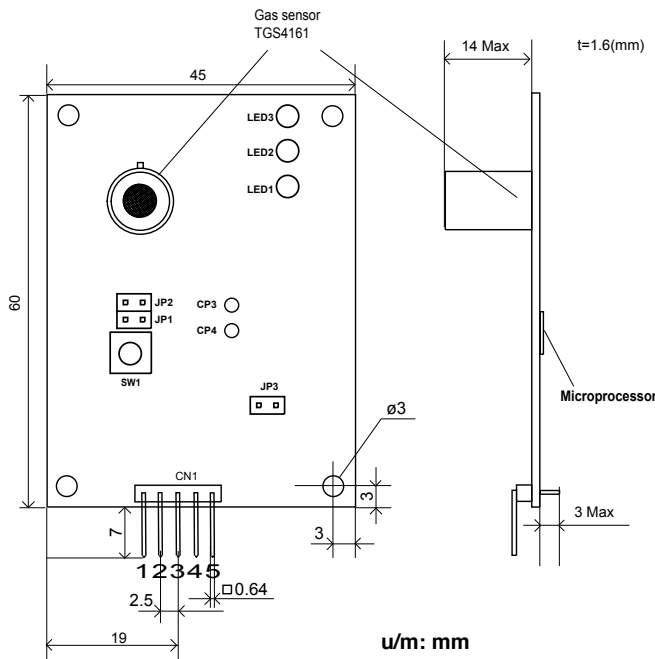
## Features:

- \* High selectivity to CO<sub>2</sub>
- \* Maintenance free
- \* Low power consumption
- \* Long life
- \* Compact size
- \* Pre-calibrated
- \* Low cost

CDM4161 is a new unit which uses TGS4161, Figaro's low-power consumption solid electrolyte CO<sub>2</sub> sensor. Due to Figaro's proprietary idea for signal processing with a microcomputer, no maintenance is required for this module. By application of DC voltage to the module, an analog output voltage proportional to CO<sub>2</sub> concentration can be obtained. The module can generate a control signal based on a user-selectable threshold concentration. When compared with traditional CO<sub>2</sub> sensor modules using IR sensors, Figaro's CO<sub>2</sub> module is much more cost effective, making this module the ideal choice for indoor air quality control systems.

## Applications:

- \* Indoor air quality control
- \* CO<sub>2</sub> monitors



CDM4161 dimensions

Pin No.	Name	Description
1	VIN	Power supply input
2	VCONC	CO <sub>2</sub> concentration output
3	CTRL	Control signal output
4	TRBL	Trouble signal output
5	GND	Common ground

CDM4161 pin designations of CN1

NOTE: CN1 should be MB5P-90S, mfg. by JST.

Recommended receptacle for connector: 05JQ-BT, mfg. by JST.

**Specifications:**

Product name	Carbon dioxide (CO <sub>2</sub> ) sensor module	
Model No.	CDM4161-L00	CDM4161-M00
Detection range	400 to 4,500ppm	400 to 9,000ppm
Sensor (principle)	TGS4161 (solid state electrolyte)	
Accuracy (*1)	approx. ±20%	
Power supply	DC5.0±0.2V regulated	
Power consumption	300mW (typical)	
Inrush current	100mA (max)	
Operational temperature & humidity range	-10°~+50°C, 5~95%RH (avoid condensation)	
Storage temperature & humidity range	-20°~+60°C, 5~90%RH (pack in a moisture proof bag)	
Warm up time	2 hours	
CO <sub>2</sub> concentration signal (*2)	Continuous analog output proportional to CO <sub>2</sub> concentration	
	$V_{conc} = \text{CO}_2 \text{ concentration} / 1,000$ (DC 4.5V full scale)	$V_{conc} = \text{CO}_2 \text{ concentration} / 2,000$ (DC 4.5V full scale)
Control signal	ON: HIGH output (when CO <sub>2</sub> conc. exceeds threshold) OFF: LOW output	
	800/ 1,000/ 1,500/ 2,000 (ppm)	1,000/ 2,000/ 5,000/ 8,000 (ppm)
Trouble signal	ON: LOW output (sensor trouble) OFF: FLOAT NC	
LED display	Green LED: Lights while power is on (blinks during warm up)	
	Yellow LED: Blinks during trouble	
	Red LED: Lights when CO <sub>2</sub> concentration exceeds the threshold	
Reset switch	Establishes the ambient CO <sub>2</sub> concentration as 400ppm when pushed	
Dimensions	45 x 60 x 17mm (45 x 67 x 17mm incl. CN1)	
Weight	approx. 14g	

**Note 1:** Assumes benchmark is set accurately at 400ppm of CO<sub>2</sub>. This value does not contain long term drift.

**Note 2:** In this module, the CO<sub>2</sub> concentration is calculated by measuring the relative change of sensor output at the measuring point from sensor output in clean air (assumed to be 400ppm of CO<sub>2</sub>).

**IMPORTANT:** This product is not designed and authorized for use as a critical component in life support applications wherein a failure or malfunction of the products may result in injury or threat to life. Figaro Engineering Inc. reserves the right to make changes without notice to this product to improve reliability, functioning or design.