

# CDM4160 - Pre-calibrated module for carbon dioxide

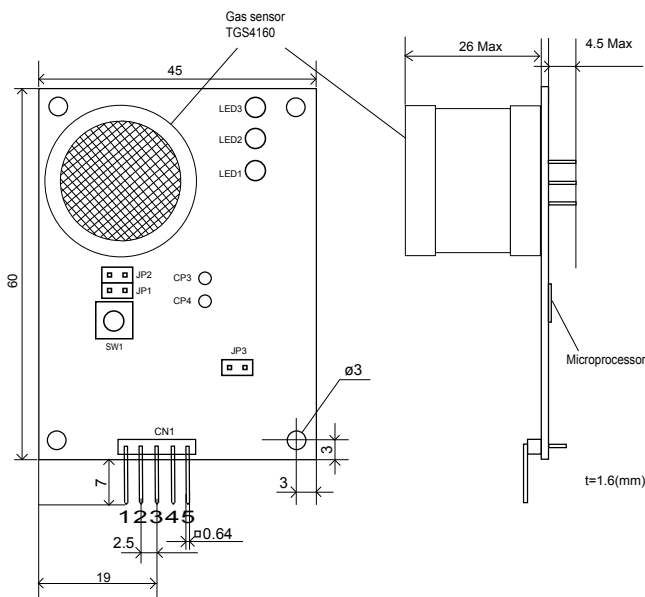
### Features:

- \* High selectivity to CO<sub>2</sub>
- \* Long life
- \* Maintenance free
- \* Pre-calibrated
- \* Low cost
- \* Wide detection range
- \* Excellent durability

CDM4160 is a new unit which uses TGS4160, Figaro's durable 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. The features mentioned above make this module ideal for air quality control applications in homes, offices and factories as well as in the field of agriculture.

### Applications:

- \* Indoor air quality control in offices, homes, and factories
- \* CO<sub>2</sub> monitors
- \* Agricultural applications



CDM4160 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

CDM4160 pin designations of CN1

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

## Specifications:

Product name	Carbon dioxide (CO <sub>2</sub> ) sensor module		
Model No.	CDM4160-L00	CDM4160-M00	CDM4160-H00
Detection range	400 to 4,500ppm	400 to 9,000ppm	400 to 45,000ppm
Sensor (principle)	TGS4160 (Solid state electrolyte)		
Accuracy (*1)	Approx. ±20%		
Power supply	DC5.0±0.2V regulated		
Power consumption	1.3W (typical)		
Inrush current	600mA (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 <sub>conc</sub> = CO <sub>2</sub> concentration/1,000 (DC 4.5V full scale)	V <sub>conc</sub> = CO <sub>2</sub> concentration/2,000 (DC 4.5V full scale)	V <sub>conc</sub> = CO <sub>2</sub> concentration/10,000 (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)	5,000/ 10,000/ 20,000/ 40,000 (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		
Dimension	45 x 60 x 31mm (45 x 67 x 31mm incl. CN1)		
Weight	approx. 22g		

**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.