CMM5042 - Embedded Module for CO

Features:

* * Linear output characteristics
* * Wide driving voltage range
* * Built-in temperature compensation circuit
* * Input port for the self diagnostic control

Applications:

* * Residential and commercial CO detectors
* * Ventilation control
* * CO monitor for gas boilers, kerosene space heaters, etc.

The **CMM5042*** is an embedded type module equipped with the carbon monoxide gas sensor TGS5042, and enables users to easily build a high quality CO detector by simply assembling it, eliminating electronic circuit design work required for properly utilizing the sensor such as temperature compensation and anti-polarization circuit, and calibration process in a detector production line.

TGS5042 has excellent durability, long-term stability and has been widely used in the field of CO detectors for home and commercial use. The analog output voltage of this module is linear in relation to the gas concentration, which allows easy measurement of CO concentration.

In addition, this module has an input port for the self-diagnostic control to check malfunctioning state of the gas sensor by an external microcontroller.
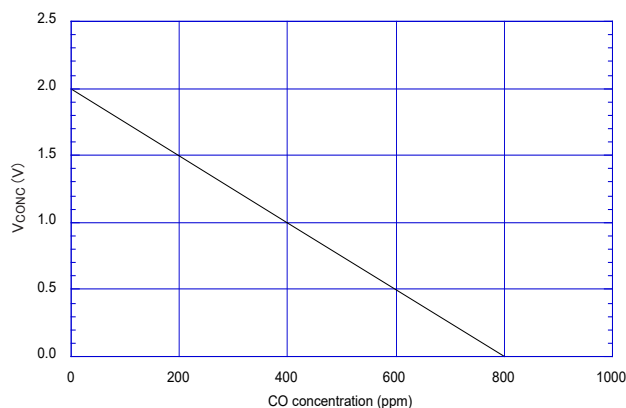
For the specifications and sensitivity characteristics of the gas sensor itself, please refer to the TGS5042 product information, the technical information and the application notes.

* CMM (Carbon Monoxide sensor Module)
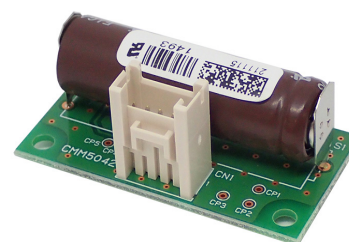
The sensor markings are printed on either a label or the sensor body.

Sensitivity Characteristics

Pin Connections

Pin No.	Name	Description
1	GND	Common ground
2	Test	Self-diagnosis control input *1
3	Vconc	Concentration output voltge
4	-	(not connected)
5	Vin	Input voltage

(Connector model BH05B-XMSK)
Recommended receptacle for connector: XMP-05V
(made by JST)

*1 For the function of the TEST pin, please refer to the Example of Self Diagnosis on the reverse side.

Specifications

Item		Specification
Model number		CMM5042
Gas sensor		TGS5042 (electrochemical)
Detection range		0 ~ 800ppm CO
Current consumption		≤ 5mA
Input voltage	V_{IN}	2.5 ~ 5.3V DC
Output signal	V_{CONC}	0 ~ 2V DC
	Normal operation	V_{CONC} = 2-[CO conc(ppm)/400]
	V_{CONC} in 0ppm CO	2.0±0.1V
	V_{CONC} in 400ppm CO	1.0±0.2V
Warm up time		≤ 30 sec.
Operating temperature*[1,2]		-5˚C ~ +55˚C
Operating humidity		5 ~ 95%RH
Response time (T90)		within 60 seconds
Storage conditions*[1,2]		-5˚C ~ +55˚C/5 ~ 95%RH
Dimensions		56 x 29 x 22mm
Weight		approx. 19g

Dimensions

Unit: mm

*[1] If the water in the reservoir should freeze very rapidly (typically occurs only under artificially created conditions), irreversible change of sensor characteristics would occur. To avoid this risk, the sensor is recommended to be positioned with its cap (working electrode) facing up.

*[2] Please contact Figaro for more information if the required temperature range would exceed the specified limits.
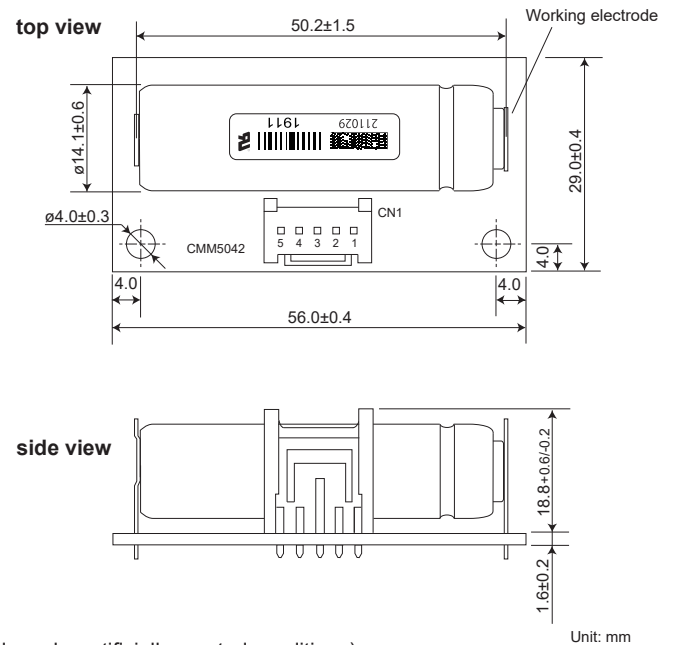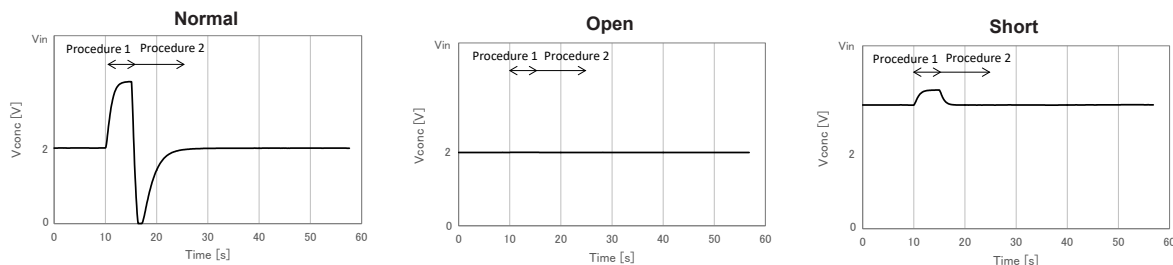

Example of Self Diagnosis

- Procedures
   1) Connect the Test pin (Pin No.2) to GND for 5 seconds.
   2) Then, disconnect the Test pin (Pin No.2) from GND to leave it open.

- Criteria for Diagnosis
   Normal: The maximum voltage of Vconc during procedure 1) should be over 2.0V, and the smallest voltage of Vconc during procedure 2) should be lower than 1.5V.

- Notes
   1: Do not perform the self diagnosis under the existence of CO gas.
      The self-diagnosis should be done in clean air.
   2: Open or short circuit condition of the sensor can be detected by this self diagnosis procedures.
   3: Proper detection values for self diagnosis should be determined depending on the design of the application product.
   4: The time for connecting the Test pin to GND should not exceed 10 seconds.

All sensor characteristics shown in this brochure represent typical characteristics. Actual characteristics vary from sensor to sensor. The only characteristics warranted are those in the Specification table above.

Before purchasing this product, please read the Warranty Statements shown in our webpage by scanning this QR code.

https://www.figaro.co.jp/en/pdf/Limited_Warranty_en.pdf

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