

# FCM6812 - Pre-calibrated module for combustible gas

## Features:

- \* **Linear analog output proportional to gas concentration**
- \* **Maintenance free**
- \* **Compact size**
- \* **Meets RoHS requirements**
- \* **Meets IEC60079-15:2001 requirements**

The **FCM6812** combustible gas sensor module is a new unit which utilizes **TGS6812**, Figaro's catalytic pellistor type gas sensor which features durability, stability, and quick gas response. This module provides analog output voltage proportional to hydrogen gas concentration. FCM6812 is resin coated for waterproofing and electrical insulation purposes, and also is also capable of detecting sensor wire breakage. The unit has a wide range of operating temperature from -10° to +60°C.

Because the TGS6812 sensor can detect methane and LP gas as well as hydrogen, this module is suitable for gas leak detection in stationary fuel cells which use hydrogen generated from combustible gases.

## Caution:

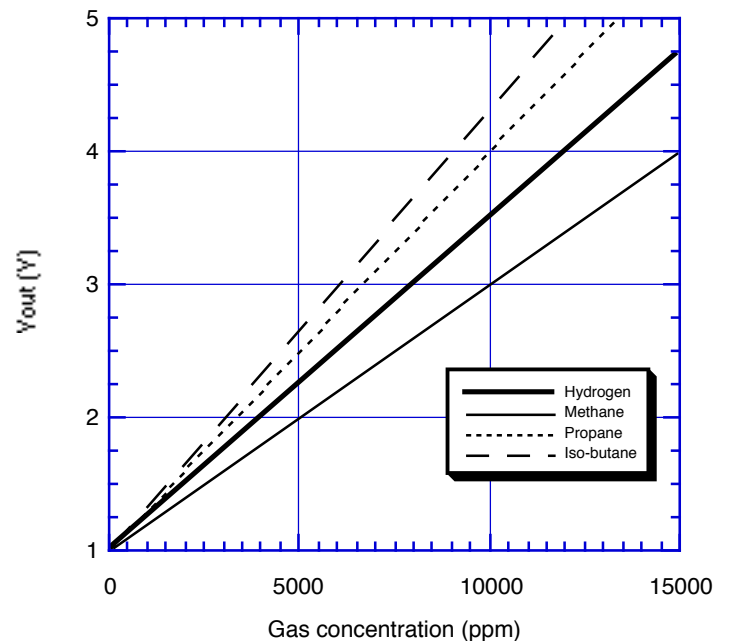
The TGS6812 gas sensor offers a practical explosion-proof structure due to double 100 stainless mesh covering its opening which meets IEC60079-15:2001 requirements. However, this construction is not able to satisfy the requirements of an intrinsically safe structure. In the case where an intrinsically safe device is required, simple measures such as the addition of a sintered metal explosion-proof housing should be added in order to meet these requirements.

## Sensitivity Characteristics

The figure to the right represents typical sensitivity characteristics, all data having been gathered at standard test conditions (*see reverse side of this sheet*). The Y-axis is indicated as output voltage.

## Applications:

- \* **Gas leak detection in fuel cell systems**



## Specifications

Product name	Combustible gas sensor module	
Model No.	FCM6812-P00	
Gas sensor	TGS6812 (catalytic type)	
Detection range	0 to 14,000ppm of H <sub>2</sub> (also can detect methane, iso-butane, and propane)	
Output signal	0~4.5V DC (up to max V <sub>IN</sub> )	
	Normal operation	V <sub>out</sub> = [H <sub>2</sub> conc(ppm)/4000] + 1.0
	V <sub>out</sub> in air	1.0±0.2V(*)
	V <sub>out</sub> in 8000ppm H <sub>2</sub>	3.0±0.2V(*)
	Trouble	V <sub>out</sub> = 0~0.1V (recommended threshold for trouble detection = 0.2V)
Response time (T90) to 4000ppm H <sub>2</sub>	≤30 seconds	
Warm up time (V <sub>conc</sub> <2.0V)	≤30 seconds	
Operating conditions	-10°~+60°C, 5~95%RH (avoid condensation)	
Storage conditions	-10°~+60°C, 5~95%RH	
Input voltage	5.0±0.2V DC	
Power consumption	approx 1.0W	
Weight	approx. 15g	
Dimensions	50 x 30 x 24.4mm	
Position dependency	Since the module has position dependency, it should be mounted so the two lug-holes are in a horizontal position	
Standard test conditions	Ambient conditions	20±2°C, 65±5%RH
	Circuit conditions	5.0±0.2V DC
	Conditioning period prior to test	≥10 min.

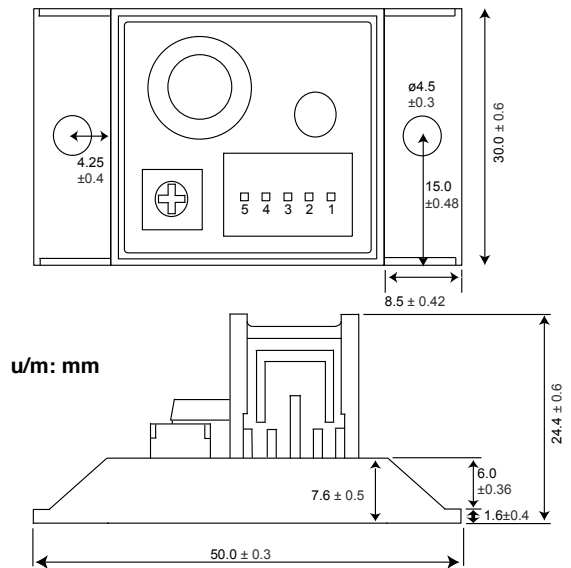
(\*) represents sensor output under standard test conditions

Pin No	Name	Description
1	GND	Common ground
2	-	Not connected
3	-	Not connected
4	V <sub>conc</sub>	Concentration output voltage
5	V <sub>in</sub>	Input voltage

### FCM6812 pin connections

(Connector model BH05B-XMSK)

Recommended receptacle for connector: XMP-05V



FCM6812 dimensions