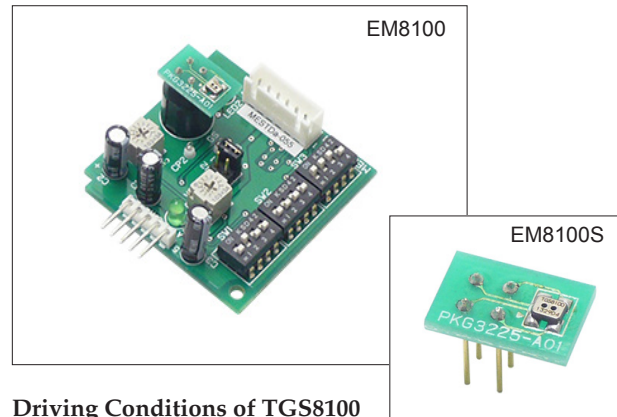
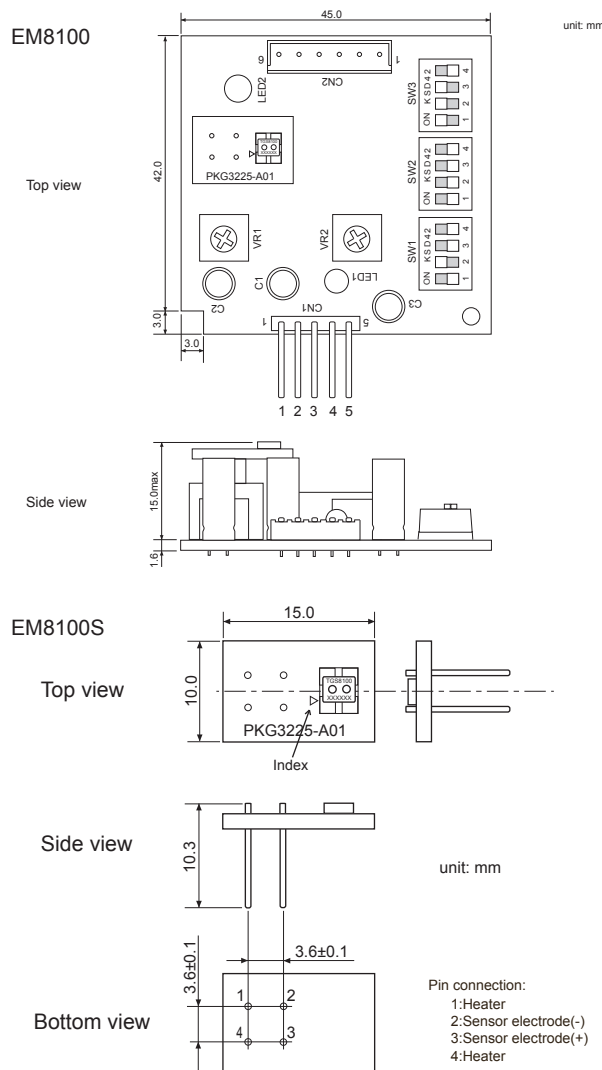


EM8100 - Evaluation Module for TGS8100

To facilitate evaluation of the characteristics of the TGS8100 air quality sensor, Figaro has prepared the EM8100 evaluation module. Testing is simplified by using the continuous output signal generated by this module. While the driving mode of TGS8100 involves intermittent detection (using a 1-second cycle), periodic sensor response is converted into a continuous voltage signal by the software contained in the module's microprocessor.

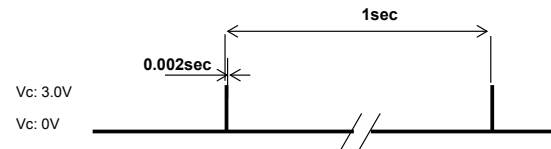
The EM8100 includes a replaceable sub-board (EM8100S) on which a TGS8100 sensor is mounted. This sub-board can be ordered separately.

Dimensions



Driving Conditions of TGS8100

VH: 1.8V (Continuous energizing)



Pin Connections

No.	Name	Description	Specification
1	VIN	Power supply input	4.9~5.1V DC ²
2	VOU	Sensor output	0~3.0V DC
3	NC	Not connected	-
4	NC	Not connected	-
5	GND	Ground	-

Calculating sensor resistance (Rs) from measured Vout

The Vout can be obtained by measuring the voltage between CN1 #2pin and #5pin (see Pin Connections above). The Vout value updates once per second. Sensor resistance (Rs) is calculated using the measured value of Vout (VRL) with the following formula:

$$R_s \text{ (k}\Omega\text{)} = \frac{(3.0 - V_{out})}{V_{out}} \times 10$$

$$(R_L = 10\text{k}\Omega)^2$$

Notes)

1. *Impedance of the equipment connected to the CN1*
The input impedance of the equipment connected to CN1 must be more than 1MΩ in order to make precise data acquisition.
2. *Application of excessive voltage*
Please note that there is no voltage regulation in this module. If higher than specified voltage is applied to the module, the sensor may be damaged.
3. *Influence by static electricity*
TGS8100 is an ESD-sensitive device. Figaro recommends using ESD protection equipment for handling the sensor.
4. *VR1, VR2, SW1, SW2 and SW3*
Please do not adjust VR1 or VR2 and do not change the switches. These items have been adjusted so that standard driving conditions are applied to the sensor. If they are changed, the sensor may be damaged.
5. RL value
RL value is not variable since a fixed resistor is mounted.
6. Mounting direction of EM8100S
Please mount EM8100S on the mother board in the correct direction by referring to the dimensions of EM8100. Please note that if EM8100S is mounted in the wrong direction, the sensor may be damaged since there is no fool proof structure.
7. LEDs
The green LED lights when the correct VIN is applied. Continuous lighting of the red LED indicates application of continuous heater voltage.
8. CN2
CN2 is a connector for writing a program to the micro-processor. It is not for consumer use.

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