EM26AQS - **Evaluation Module for Air Quality Sensors**

Features:

* Accommodates three models of TGS26 series air quality sensors (TGS2600, TGS2602, TGS2603)
* Facilitates evaluation of sensor responses to indoor air pollution
* Two types of power supply connectors (USB Type-C or 5-Pin connector)
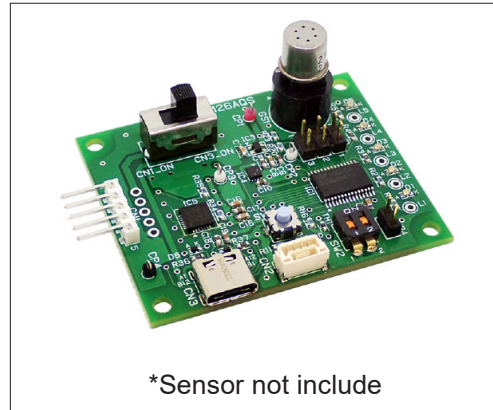
Description:

The EM26AQS is a multifunctional evaluation module that simplifies the evaluation of TGS 26 series semiconductor type air quality sensors.   To use these sensors for air quality monitoring or control equipment, such as electronic air purifiers, signal processing of the sensor output using the dynamic benchmark renewal algorithm is required. This evaluation module includes the signal processing software required for such applications.


*Sensor not include

This module converts sensor output voltage into a five-level voltage output using the signal processing software to provide the Indoor Air Quality Level (V_{AQL}) output. The LED equipped on the module changes color to indicate the Indoor Air Quality Level (V_{AQL}).

*1 For detailed product specifications of TGS 26 series air quality sensors, please refer to the Product Information for each model.
*2 The main function of this module is to convert output voltage of the sensor to indoor air quality level output and to provide LED indications without temperature compensation.

Schematic Diagram:
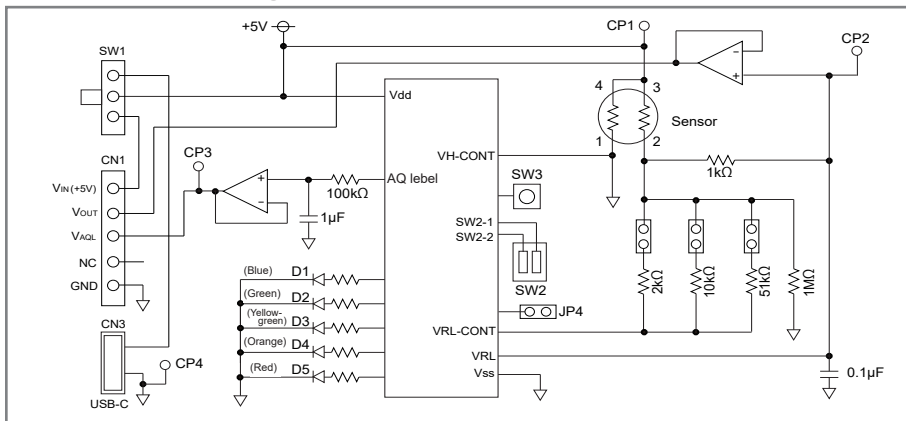
Pin Connections(CN1):

Pin No.	Name	Description
1	V_C	Circut voltage
2	V_{OUT}	Sensor output
3	V_{AQL}	Indoor air quality level output
4	NC	No connection
5	GND	Ground

* Power supply connector USB Type-C or CN1 can be selected by the switch SW1.
* Sensor resistance (Rs) in kΩ is calculated from sensor output V_{OUT} using the following formula:
$$Rs = (Vc / V_{OUT} -1) \times RL$$

Dip switch (SW2) Settings:

Sensor Model	SW2-1	SW2-2
TGS2600	OFF	OFF
TGS2602	OFF	ON
TGS2603	ON	OFF

* Default factory settings for switches SW2-1 and SW2-2 are both set to OFF. Please change SW2 settings as necessary for the sensor model to test.

Specifications:

Item	Specification
Model No.	EM26AQS
Product Name	Evaluation Module for Air Quality Sensors
Compatible sensor	TGS2600, TGS2602, TGS2603
Input voltage	5.0 ± 0.2VDC
Sensor output voltage	5V max.
Air quality level output	1 - 5V
Dimensions	approx. 45 x 55 x 17 (mm) excluding sensor

* TGS 26 series gas sensor is not included in this module. Please insert a gas sensor into the sensor socket properly as shown in the drawing on the right.
* When inserting the sensor into the sensor socket, please make sure that the position of the protrusion is correct. (Please refer to the drawing on the lower right.) Improper sensor output may occur if the sensor is inserted incorrectly.
* Suggested female connectors for mating with the 5-pin connector (JST MB5P-90S):
    JST XHP-5P or JST 05JQ-BT
* Please make sure that the 5-pin connector is inserted in the correct direction.
* Note that the USB Type-C connector is for power supply purposes only.

Structure and Dimensions:

Air Quality Level Output:

Level	V_{AQL} Output voltage	Color of LED	Air pollution levels
1	approx. 1V	Blue	Clean
2	approx. 2V	Green	Mildly polluted
3	approx. 3V	Yellow-green	Moderately polluted
4	approx. 4V	Orange	Heavily polluted
5	approx. 5V	Red	Extremely polluted

* Air pollution levels are subjective feelings and may vary between individuals.

How to insert sensor into module:

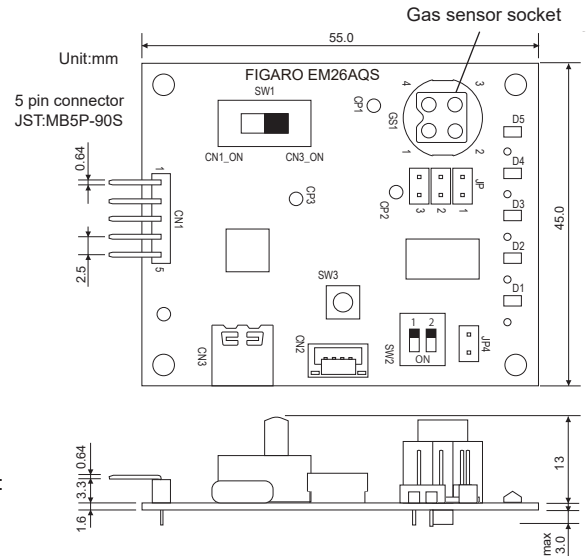Ensure that the sensor is inserted so that the protrusion on the sensor base is facing the 5-Pin connector.

Basic operation:

1) Set the dip switch (SW2) to match the sensor model being tested. Select the power supply connector, either USB-Type C or 5-Pin connector (CN1), by setting the position of switch SW1 accordingly. Then turn on the power supply to the evaluation module.

2) Once powered on, the blue LED will blink for approximately two minutes during the warm-up period. Then, the blue LED will illuminate, indicating that the module is in normal operation mode.

3) In normal operation, a specific color LED will illuminate, and pin No. 3 of connector CN1 will produce a V_{AQL} voltage output that varies according to the indoor air quality level.

NOTE:
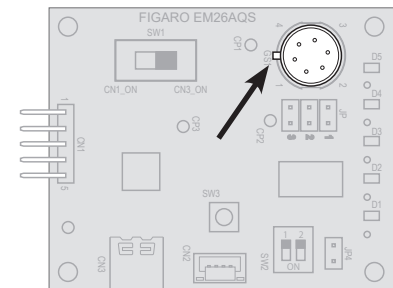This module is designed for the evaluation of TGS26-series air quality sensors only and not for other purposes or applications.