FCM2630-H0A - R-32 Refrigerant Gas Sensor Module

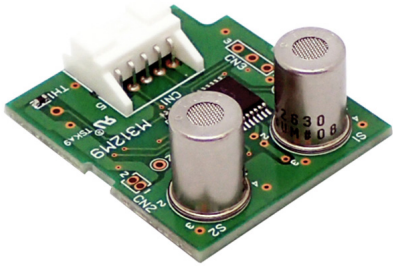
Features:

* Small size and low cost
* Long life
* Factory calibrated
* Temperature compensation circuit
* Proprietary semiconductor-type gas sensor
* Open collector Output
* Meets IEC TS 63542, and JRA4068 requirements

Applications:

* Refrigerant gas leak detection in air conditioning/refrigeration systems

FCM2630-H0A[*1] is an embedded type module using the proprietary semiconductor gas sensor which has high sensitivity to A2L refrigerant gas R-32. This module enables users to easily build a reliable gas leakage detection system by eliminating electronic circuit design for temperature compensation and the calibration process.
The module is provided with open collector. By utilizing dual gas sensors, a longer life[*2] is achieved than our single sensor modules.
The refrigerant gas sensor has a built-in filter to reduce the influence of alcohol and other interference gases, resulting in high selectivity to R-32.



FCM2630-H0A is capable of satisfying the IEC TS 63542 Edition 1.0 and JRA4068:2023 (Performance 3).

*1 FCM Series is the model name of refrigerant gas sensor modules supplied by Figaro Engineering Inc.
*2 The design lifetime of 10 years is achieved with two gas sensors on the module, since this gas sensor module falls under the sensor with multiple detectors in accordance with the JRA4068:2023 standard, Performance 3.

Pin Connections

Pin No.	Name	Description
1	GND	Common ground
2	NC	No connection
3	V_{OUT2}	Total running time output
4	V_{OUT1}	Monitoring/alarm/malfunction output
5	Vc	Circuit voltage

Specifications

Model No.	FCM2630-H0A
Target gases	R-32
Circuit voltage Vc	5 V DC ± 5%
Output signals	Open collector
The alarm set point declared by the manufacturer	4.2% LFL (6048ppm) of R-32
Warm-up time	60 seconds after power ON
Design life	15 years
Operating conditions (NOTE 1)	-35 ˚C to +60 ˚C, 20 to 95% RH (No condensation)
Current consumption	approx. 75 mA (Max. 120 mA)
Power consumption	approx. 0.3 W
Dimensions	30.0 × 34.0 × 18.0 mm
Weight	approx. 7 g

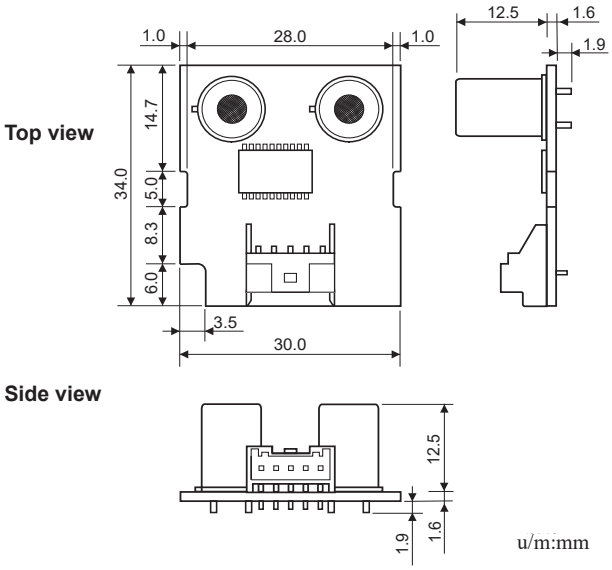
NOTE 1:

The upper limit of the absolute humidity is 50 g/m^3.

NOTE 2:

If the internal temperature near the gas sensor module becomes higher than the external ambient temperature by 10 ˚C or more due to heat generated by electronic components in a device into which this gas sensor module is incorporated, the set alarm threshold may drift. Please consult with Figaro if there is difficulty in designing a device so as to keep the temperature rise inside the device within 10 ˚C.

Structure and Dimensions



Connector model: S05B-PASK-2 (made by JST)
Recommended receptacle for connector :
PAP-05V-S (made by JST)

Output

State output (V_{OUT1})

[Open collector]

The output is switched on a 375 ms cycle to indicate each operation state.

State	Output
Initial	H: 75 ms. / L: 300 ms.
Monitoring	H: 75 ms. / L: 300 ms.
Alarm	H: 225 ms. / L: 150 ms.
Malfunction	H: 300 ms. / L: 75 ms.

Lifespan output (V_{OUT2})

[Open collector]

The output is switched on a 375 ms cycle for the Sensor 1, and on a 750ms cycle for the Sensor 2 to indicate the operating time of each sensor.

Total running time	Output	
	Sensor 1	Sensor 2
0–1 month	H: 374 ms. / L: 1 ms.	H: 749 ms. / L: 1 ms.
1–2 months	H: 373 ms. / L: 2 ms.	H: 748 ms. / L: 2 ms.
<snip>	<snip>	<snip>
238–239 months	H: 136 ms. / L: 239 ms.	H: 511 ms. / L: 239 ms.
Over 239 months	H: 135 ms. / L: 240 ms.	H: 510 ms. / L: 240 ms.
Error	H: 75 ms. / L: 300 ms	H: 450 ms. / L: 300 ms

* The Lifespan output of the Sensor 1 and the Sensor 2 will be ouput alternately on a 6 sec. cycle.

For information on warranty, please refer to Standard Terms and Conditions of Sale of Figaro USA Inc. 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.

FIGARO USA, INC.
5400 Newport Drive, Suite 19,
Rolling Meadows, IL 60008
Phone: (847)-832-1701
URL: **www.figarosensor.com**

REV: 09/25