

Firmware Configurable Indoor Air Quality (IAQ) Sensor with Embedded Artificial Intelligence (AI)

Manufacturers	Renesas Technology Corp
Package/Case	
Product Type	Sensors, Transducers
RoHS	
Lifecycle	



Images are for reference only

Please submit RFQ for ZMOD4410AI1R or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The ZMOD4410 Gas Sensor Module is designed for detecting total volatile organic compounds (TVOC) and monitoring indoor air quality (IAQ). It is a 12-pin LGA assembly (3.0 x 3.0 x 0.7 mm) that consists of a gas sense element and a CMOS signal conditioning IC. The module's sense element consists of a heater element on a Si-based MEMS structure and a metal oxide (MOx) chemiresistor. The signal conditioner controls the sensor temperature and measures the MOx conductivity, which is a function of the gas concentration.

The measurement results can be read via an I2C interface with the user's microprocessor, which processes the data to determine the TVOC concentration, IAQ rating and estimated carbon dioxide (eCO₂) level. This flexibility makes the sensors in the ZMOD4410 platform capable of providing a variety of measurement options by varying the method of operation or changing the firmware used to interpret the resistance measurements. Downloadable firmware libraries and source code provided by IDT enables detection of TVOC and odors and supports smart devices measuring IAQ that require low-power operation. The ZMOD4410 is ideal for applications such as thermostats, air purifiers, building controls, smart fans, HVAC equipment, and smart devices.

Features

JEDEC JESD47 qualified for 10+ years of life

Firmware configurability output based on AI machine learning algorithmic:

Absolute measurement of total organic compounds (TVOCs) concentrations and indoor air quality (IAQ)

Estimated carbon dioxide level (eCO₂)

Relative control signal to trigger an external action based on IAQ and odor change

Algorithm to discriminate sulfur-based odors

Built-in nonvolatile memory (NVM) for module-specific data (configuration and calibration)

Ultra-low average power consumption down to 160μW supporting battery applications

Siloxane resistant

Supply voltage: 1.7V to 3.6V

RoHS compliant

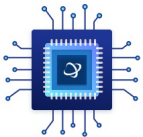
Water and dustproof version available (IP67 certified)

12-LGA package with assembly sizes:

3.0mm x 3.0mm x 0.7mm (standard version)

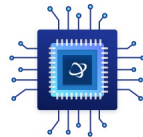
3.0mm x 3.0mm x 0.9mm (for IP67 version)

Related Products



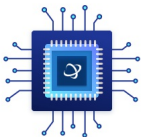
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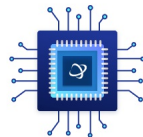
[ZMOD4410AI3V](#)

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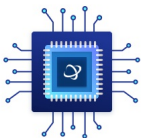
[ZMOD4410AI1V](#)

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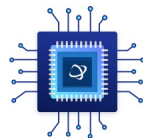
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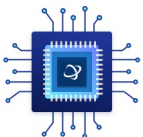
[ZMOD4410AI4V](#)

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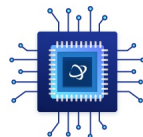
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