

Introduction

This ultra-compact MEMS sensor provides reliable qualitative smoke detection (10-1000ppm) with rapid response time - ideal for IoT safety systems and industrial monitoring applications.

Space-Saving 13mm Design

At just 13×13×2.5mm, this sensor fits into tight spaces where conventional detectors can't - perfect for embedded systems and compact IoT devices.

Ultra-Low Power Operation

Consumes < 20mA current (3.3-5V) - 60% less power than traditional smoke detectors, enabling battery-powered monitoring solutions.

Fast Response Recovery

Advanced MEMS technology delivers detection within seconds - 3x faster response than conventional smoke sensors for critical early warnings.

Multi-Gas Compatibility

Pairs with 10 other MEMS sensors (CO, VOC, H₂, etc.) to create comprehensive air quality monitoring systems with shared power/interface.

The MEMS series currently encompasses 11 different types of gas sensors ([HCHO](#), [CO](#), [CH₄](#), [VOC](#), [NH₃](#), [H₂S](#), [EtOH](#), [Smoke](#), [Odor](#), [H₂](#), [NO₂](#)), which can be combined as per specific requirements.

Please note: This sensor is capable of only qualitative measurements. For quantitative measurements, kindly consider purchasing the [Gravity: Factory Calibrated Electrochemical Gas Sensor Series](#).

Precautions for use

Kindly remove the protective film before usage.

To prevent exposure to volatile silicon compounds vapors (such as silicone adhesive, hair gel, silicone rubber, or other locations where volatile silicon compounds are present).

Avoid exposure to high concentrations of corrosive gases (such as H₂S, SO₂, Cl₂, HCl, etc.).

Prevent contamination from alkalis, alkali metal salts, and halogens.

Refrain from prolonged exposure to extreme environments (such as high temperatures, high humidity, high pollution).

Avoid contact with water, condensation, and freezing.

Minimize excessive vibration, impact, and dropping.

Please refrain from employing this module in systems that involve personal safety concerns.

For extended periods of non-usage, it is advisable to preheat the module for at least 24 hours.

Applications

IoT smoke alarm systems

Industrial equipment overheating detection

Kitchen safety monitoring

Laboratory safety equipment

Smart home ventilation control

Specification

Detection Range: 10-1000ppm (qualitative)

Target Gases: Ethanol, smoke particulates

Output: Analog voltage (0-5V)

Sensitivity: $R_0/R_s \geq 3$ @200ppm EtOH

Power: 3.3-5V DC, < 20mA

Response Time: < 15 seconds

Operating Temp: -10°C to 50°C

Humidity Range: 15-90% RH

Lifespan: 5+ years continuous use

Dimensions: 13×13×2.5mm

Documents

[Product wiki](#)

[Schematics & Dimension](#)

[Characteristic Parameter](#)

[Component Packaging](#)

Shipping List

Fermion: MEMS Smoke Sensor (breakout) × 1

2.54mm pitch header pin × 1