

Introduction

Fermion: MEMS Nitrogen Dioxide NO₂ Gas Detection Sensor employs state-of-the-art micro-electromechanical system (MEMS) technology, endowing the sensor with compact dimensions (13x13x2.5mm), low power consumption (< 20mA), minimal heat generation, short preheating time, and swift response recovery. The sensor can qualitatively measure the concentration of nitrogen dioxide gas, and is suitable for nitrogen dioxide detector, automobile exhaust detection, and other application scenarios.

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](#).

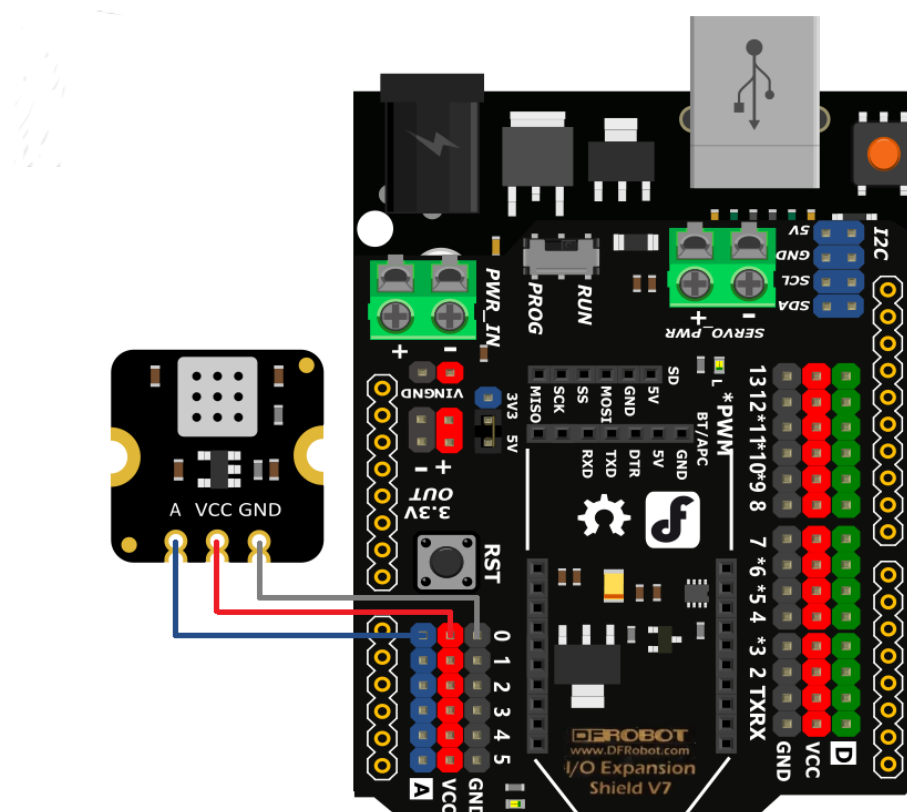


Figure: Wiring Diagram of Fermion: MEMS NO₂ Sensor and Arduino UNO

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, SOX, 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.

Features

Compact size, measuring only 13*13*2.5mm

Low power consumption, operating current < 20mA

High sensitivity and rapid response recovery

Advanced MEMS technology

Applications

Air quality monitoring: measures the level of NO₂ and other pollutants in the ambient air.

Automotive emission control: monitors the NO₂ emission from vehicles and adjusts the fuel injection and combustion parameters to reduce the emission.

Industrial safety: detects the leakage or exposure of NO₂ and other toxic gases in industrial processes or workplaces.

Specification

Gas detected: NO₂

Detection range: 0.1-10ppm

Operating voltage: 3.3-5V

Operating current: < 20mA

Output signal: Analog voltage

Sensitivity: $R_0(\text{in air})/R_s(\text{in 5ppm NO}_2) \leq 0.5$

Operating temperature: -10-50°C

Operating humidity: 15-90%RH (non-condensing)

Lifespan: ≥ 5 years (in air)

Dimension: 13×13 x 2.5mm/0.051×0.51x0.1"

Documents

[Product wiki](#)

[Schematics & Dimension](#)

[Characteristic Parameter](#)

[Component Packaging](#)

Shipping List

Fermion: MEMS Nitrogen Dioxide NO₂ Gas Detection Sensor × 1

2.54mm pitch header pin × 1