Introduction

Fermion: MEMS Methane CH4 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 methane gas concentration and is suitable for combustible gas leakage monitoring devices, gas leak detectors, fire/safety detection systems and other applications.

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.

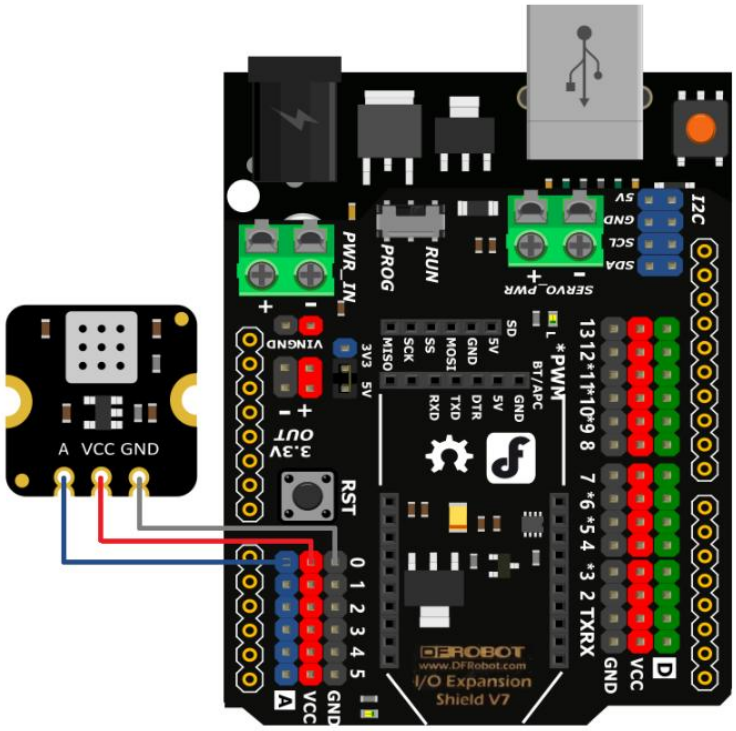

Figure: Wiring Diagram of Fermion: MEMS CH4 Gas Sensor and Arduino UNO

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

Environmental monitoring: detect the presence of methane emissions or leaks from natural or anthropogenic sources.

Indoor air quality: measure the concentration of methane in the indoor air and control the ventilation or alarm systems accordingly.

Industrial safety: detect any leaks or spills of methane and warn the workers or the managers to take preventive measures.

Fire detection: identify any abnormal increase of methane in the air and trigger the fire alarm or sprinkler system.

Health applications: measure the amount of methane in the breath, methane can be produced by some bacteria in the human gut or some metabolic disorders

Specification

Gas detected: CH4, C3H8, etc

Detection range: 1-10000ppm (C3H8)

Operating voltage: 5V

Operating current: < 20mA

Output signal: Analog voltage

Sensitivity: R0(in air)/Rs(in 5000ppm CH4) ≥ 2

Operating temperature: -10-50℃

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

Lifespan: ≥5 years (in air)

Dimension: 13×13 x 2.5mm/0.0.51×0.51x0.1"

Documents

Product wiki

Schematics & Dimension

Characteristic Parameter

Component Packaging

Shipping List

Fermion: MEMS CH4 Sensor (breakout) × 1

2.54mm pitch header pin × 1