



DFROBOT
DRIVE THE FUTURE

Gravity: PWM Infrared Carbon Dioxide Sensor (400-5000 ppm)

SKU: SEN0219



INTRODUCTION

The concentration of carbon dioxide (0.03% usually) is related to daily life. Recently, there's a study showing that the atmospheric CO₂ content has reached 0.0385% (385 ppm) which is the highest value since 2.1 million years. The raise of atmospheric CO₂ content to some extent results in global climate change. How to accurately measure carbon dioxide gas concentration is becoming a universal research topic.

DFRobot released its latest high-precision infrared Arduino [CO₂ sensor](#). The effectively measuring

range is from 400 to 5000ppm. This sensor is based on non-dispersive infrared ([NDIR](#)) technology and has good selectivity and oxygen-free dependency. Besides, its service life could up to 5 years!

In addition, this Gravity: Infrared CO2 Sensor For Arduino (400~5000 ppm) is a high-performance sensor that combines technology of mature infrared absorption gas detection with precision optical circuit design as well as sophisticated circuit design. It has characteristics such as high sensitivity, high resolution, low power consumption, fast response, anti-water vapor interference, no poisoning, high stability, and long life.

This Gravity: Infrared CO2 Sensor is able to directly compatible with the DFRobot [Arduino IO expansion board](#) thanks to its external DFRobot [Gravity](#) interface. This character simplify the use of the sensor as it is plug and play and no need additional wiring.

This CO2 Sensor could be widely used in HVAC, indoor air quality monitoring, industrial process, and security protection monitoring, agriculture, and animal husbandry production process monitoring.

In addition, we also have a 0~50000 ppm wide-range infrared sensor with Gravity UART interface, Compatible with Arduino, Raspberry Pi, and other microcontrollers: [Gravity: UART Infrared CO2 Sensor \(0~50000ppm\)](#).

Infrared CO2 Sensor For Arduino Tutorial:

[ESP32 Arduino: Using an infrared CO2 sensor](#)

[ESP32 Arduino: Temperature, humidity and CO2 concentration web server](#)

FEATURES

- Waterproof and anti-corrosion
- High sensitivity
- Low power consumption
- Excellent stability
- Temperature compensation
- Excellent linear output
- High cycle life
- Anti-water vapor interference
- No poisoning

SPECIFICATION

- Detection Gas: Carbon Dioxide (CO₂)
- Power Supply: 5.0±0.1V DC
- Average Current: 40mA@5V
- Peak Current: < 125@5V
- Output Signal: PWM
- Preheat: 1min
- Response Time: T₉₀ < 120s
- Working Temperature: -10°C ~ 50°C
- Working Humidity: 0 ~ 95%RH (non-condensing)
- Detection Range: 400 ~ 5000 ppm
- Resolution: 1ppm
- Accuracy: ±(50ppm+5% rdg)
- Dimension: 69×37mm/2.72×1.46"

DOCUMENTS

- [Product Wiki](#)

SHIPPING LIST

- Gravity: PWM Infrared Carbon Dioxide Sensor (400-5000 ppm) x1
- Digital Sensor Cable for Arduino x1