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Gravity: Analog Infrared CO2 Sensor For Arduino (0~5000 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 the carbon dioxide gas concentration is becoming a universal research topic.

DFRobot released its latest high-precision analog infrared arduino [CO2 sensor](#). The effectively measuring range is from 0 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! It integrates temperature compensation and support DAC output. Most importantly, the product is easy to use; it is compatible with all types of microcontrollers such as [Arduino](#) with ADC function.

In addition, this Gravity: Analog Infrared CO2 Sensor For Arduino (0~5000 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.

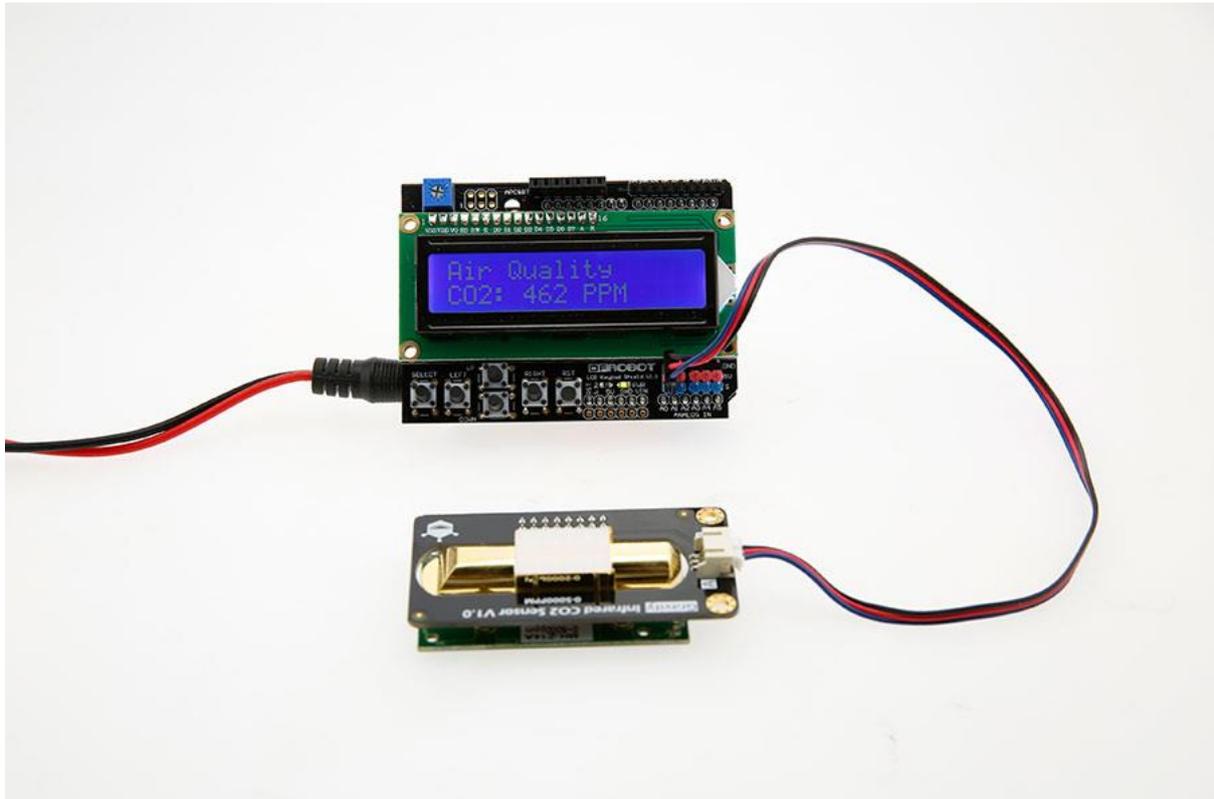


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This Gravity: Analog Infrared CO2 Sensor is able to directly compatible with the DFRobot [Arduino IO expansion board](#) thanks to its external DFRobot [Gravity](#) interface. This character simplify the use of the sensor as it is plug and play and 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.

DFRobot provides detailed tutorials and code, please check the [product wiki](#).



[DFRobot LCD Keypad Shield](#) with Infrared Co2 Sensor

This is a 0~5000ppm CO2 sensor with analog output. It supports Arduino and other microcontrollers with ADC function. 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 \(0~50000ppm\)](#).

Gravity CO2 Sensor Selection Guide

Gravity CO2 Sensor Selection Guide			
			
Product Name	Gravity : Analog Electrochemistry CO2 Sensor	Gravity : Analog IR CO2 Sensor	Gravity : UART IR CO2 Sensor
SKU	SEN0159	SEN0219	SEN0220
Operation Voltage	3.7~5V	4.5~5.5V	4.5~5.5V
Output	Gravity: Analog (Analog2.7~4.1V) + 3P Header Digital Output(Alarm):0~VCC Level	Gravity: Analog (Analog Output 0.4~2V)	Gravity: UART (0~3.3V Level)
Measurement Principle	Electrochemistry (Solid electrolyte battery principle)	NDIR(non-dispersive infrared)	NDIR(non-dispersive infrared)
Measurement Range	0~10000 ppm	0~5000 ppm	0~50000 ppm
Accuracy	±100ppm@400ppm	±(100ppm + 6% readings)	±(100ppm + 6% readings)
Response Time	<20s	<90s	<30s
Average Power	<1W	<430mW@5V	<430mW@5V
Operation Temperature	-20°C~50°C	0°C~50°C	0°C~50°C
Operation Humidity	0~95% RH (No condensation)	0~95% RH (No condensation)	0~95% RH (No condensation)
Lifespan	>1 years	>5 years	>5 years



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Dimension (PCB)	32*42 mm	37*69 mm	21*27.1 mm
Features	<ol style="list-style-type: none">1.Large Range2.Adjustable Alarm Threshold3.Fast Response4.Analog Output	<ol style="list-style-type: none">1.High Accuracy2.Long Lifespan3.Auto Temperature Compensation4.Water Vapor Interference Resistance5.Analog Output	<ol style="list-style-type: none">1.High Accuracy2.Large Range3.Long Lifespan4.Auto Temperature Compensation5.Water Vapor Interference Resistance6.3.3V UART Output

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

- Gas Detection: Carbon Dioxide
- Operating Voltage: 4.5 ~ 5.5V DC
- Average Current: <60mA @ 5V
- Peak Current: 150mA @ 5V
- Output Signal: Analog output (0.4 ~ 2V)
- Measuring Range: 0 ~ 5000ppm
- Accuracy: ± (50ppm + 3% reading)
- Preheating Time: 3min
- Response Time: 120s
- Operating Temperature: 0 ~ 50 °C



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- Operating Humidity: 0 ~ 95% RH (no condensation)
- Service Life: >5 years
- Size: 37mm * 69mm
- weight: 34g