Infrared CO2 Sensor Module

(Model: MH-Z1311A)

User's Manual

(Version 1.4)

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Zhengzhou Winsen Electronics Technology Co., Ltd

ISO9001 Certificated Company

Statement

Thanks for purchasing our product. In order to let customers use it better and reduce the faults caused by misuse, please read the manual carefully and operate it correctly in accordance with the instructions. If users disobey the terms or remove, disassemble, change the components inside of the sensor, we shall not be responsible for the loss.

The specific such as color, appearance, sizes &etc., please in kind prevail.

We are devoting ourselves to products development and technical innovation, so we reserve the right to improve the products without notice. Please confirm it is the valid version before using this manual. At the same time, users' comments on optimized using way are welcome.

Please keep the manual properly, in order to get help if you have questions during the usage in the future.

Zhengzhou Winsen Electronics Technology CO., LTD.

MH-Z1311A NDIR CO2 Module

Profile

MH-Z1311A carbon dioxide gas sensor (hereinafter referred to as the sensor) is a general-purpose, small-scale sensor that uses the principle of non-dispersive infrared (NDIR) to detect CO2 in the air. It has good selectivity, no oxygen dependence, and long life. , Built-in temperature compensation, digital output, easy to use. The sensor is a high-performance sensor made by closely combining mature infrared absorption gas detection technology with precise optical circuit design and sophisticated circuit design.

Applications

*HVAC refrigeration
*Air cleaner device
*Indoor air quality monitoring
*Smart home
*Ventilation system

Main Features

*The air chamber adopts electroplating treatment, waterproof and anti-corrosion
*High sensitivity, low power consumption
*Excellent stability
*Temperature compensation, excellent linear output
*Provide serial port (UART) output mode
*Long lifespan
*Anti-water vapor interference, anti-poisoning

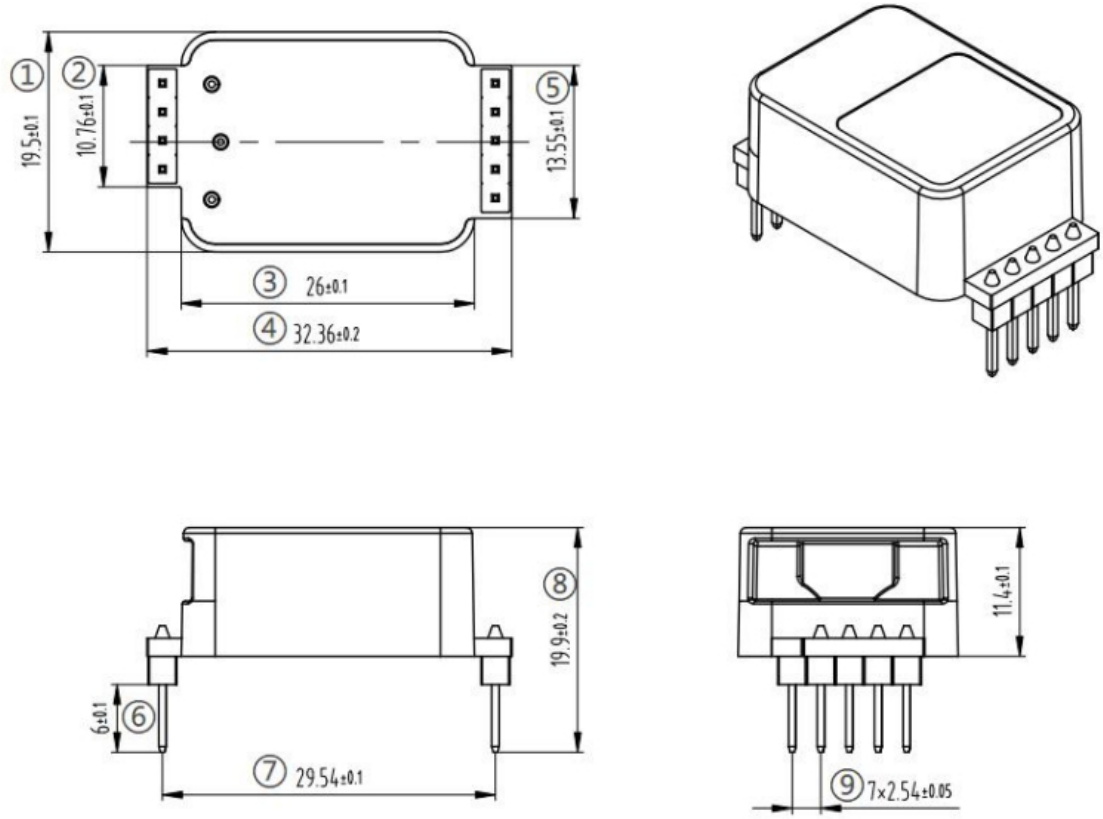
Main parameters

Model No.	MH-Z1311A
Detection Gas	CO2
Working voltage	5.0±0.1V DC
Average current	150uA (@5V power supply)
Peak current	90mA (@5V power supply, 1s measurement interval)
Interface level	3.3 V (Compatible with 5V)
Detection Range	0~10000ppm(optional)
Output signal	Serial Port (UART) (TTL level 3.3V)
Preheat time	10s
Response Time	T_{90} < 60 s
Working temperature	-10 ~ 50 ℃
Working humidity	0 ~ 95% RH (No condensation)
Weight	5 g
Lifespan	> 10 years

Detection range and accuracy

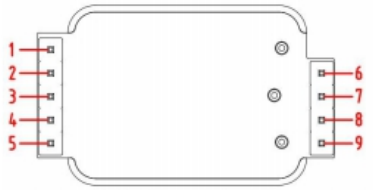
Detection Gas	Formula	Detection Range	Resolution	Accuracy
Carbon Dioxide	CO2	0~2000ppm	1ppm	± (30ppm+3% reading value)(15~35℃) ± (10% reading value)(-10~15℃, 35~50℃)
		0~5000ppm		
		0~10000ppm		

Dimensions



Pins connection type:

Pin	Pin Definition
Pin 1,2,5-7	Reserved
Pin 3	UART（TXD） 0～3.3 V data output
Pin 4	UART（RXD） 0～3.3 V data input
Pin 8	GND
Pin 9	VIN



Notes

● During the process of welding, installation, and use of the sensor, the optical cavity of the sensor should be prevented from being subjected to pressure in any direction.

● If the sensor needs to be placed in a small space, this space should be well ventilated, especially the air intake window should be in a well-ventilated location..

● The sensor should be far away from heat sources, and avoid direct sunlight or other heat radiation.

● The module should be calibrated termly, the suggested period is not longer than 6 months.

● Do not use the sensor for a long time in an environment with high dust density.

● To ensure that the sensor can work normally, the power supply voltage must be kept in the range of DC (5.0±0.1)V, and the power supply current must not be less than 150mA. If it is not within this range, the sensor may malfunction, the sensor output concentration is low or the sensor cannot normal work.

● When manually calibrating the zero point or sending a command to calibrate the zero point, you must work continuously for more than 20 minutes in a stable gas environment (400ppm).

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