MH-Z16

Infrared CO2 Gas Module

User's Manual

(Version: 2.6)

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Zhengzhou Winsen Electronics Technology CO., LTD

Statement

Thanks for purchasing our products. In order to have 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 case you need help during the usage in the future.

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MH-Z16 Infrared CO2 Gas Module

1. Profile

MH-Z16 NDIR Infrared gas module is a common type, small size sensor, using non-dispersive infrared (NDIR) principle to detect the existence of CO_2 in the air, with good selectivity, non-oxygen dependent and long life. Built-in temperature compensation; and it has digital output and PWM wave output. This common type infrared gas sensor is developed by the tight integration of mature infrared absorbing gas detection technology, precision optical circuit design and superior circuit design.

2. Main features

- ●High sensitivity, Low power consumption
- ●Good stability
- ●Temperature compensation, excellent linear output
- ●Output method: UART, PWM
- ●Long lifespan
- ●Anti-water vapor interference, no poisoning

3. Application

●animal husbandry production ● educational instruments ● indoor air quality monitoring equipment

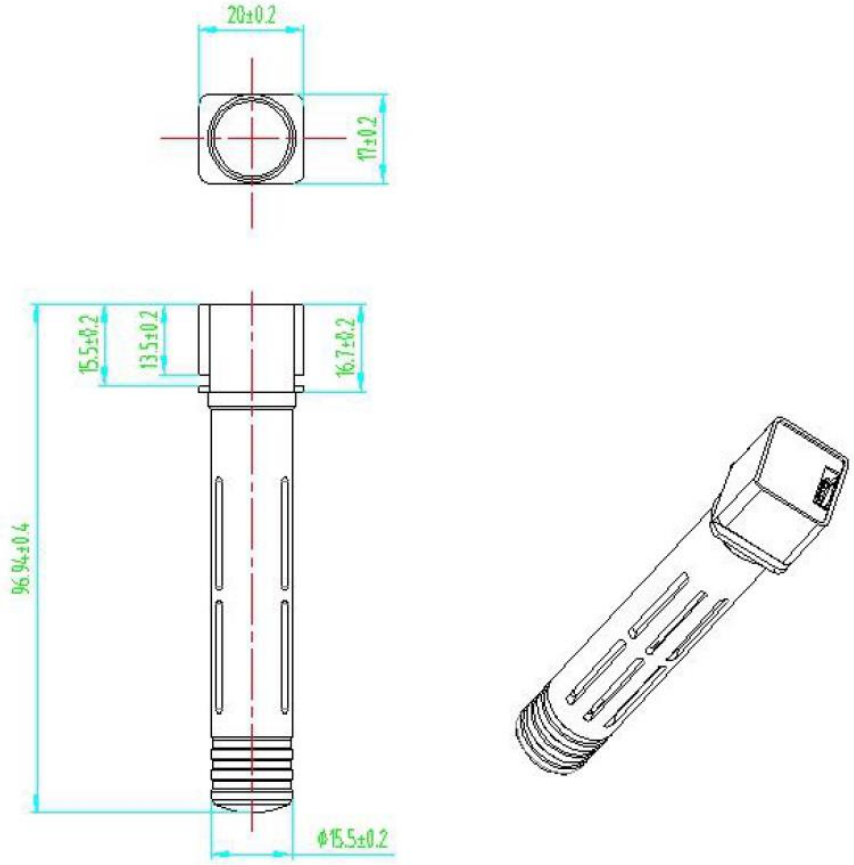
●HVAC equipment ●air purification equipment

4. Main technical parameters

Model No.	MH-Z16
Detection Gas	CO2 gas
Working voltage	DC(5.0±0.1V)
Average current	<85mA (@5V power supply)
Peak current	150mA (@5V power supply)
Interface level	3.3 V (5V compatible)
Measuring range	0~50000ppm range selectable (max 150000ppm can be extended)
Output signal	Serial Port (UART)(TTL 3.3V)
	PWM
Preheat time	10s
Response Time	T_{90} < 30s
Working temperature	-10℃ ~ 50℃
Working humidity	0~95%RH (no condensation)
Storage temperature	-20℃ ~ 60℃
Weight	<21 g
Lifespan	>10 years

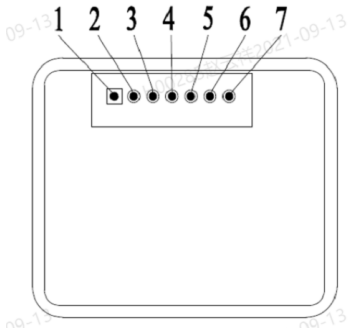
Target Gas	Measuring Range	Solution	Accuracy	Mark
Carbon Dioxide (CO2)	0~2000ppm	1ppm	±（50ppm＋5% reading value）	Temperature compensation
	0~5000ppm			
	0~10000ppm			
	0~5%VOL		<1%vol reading value	
	0~10% VOL			
	0~15% VOL			

5. Structure



6. Pin Definition

PIN No.	Description
PIN 4	Vin (Voltage Input)
PIN 3	GND
PIN 2	NC
PIN 7	PWM
PIN 1	HD (Zero calibration, keep low electrical level for more than 7 seconds)
PIN 5	UART（RXD） TTL electrical level data input
PIN 6	UART（TXD） TTL electrical level data output



7. Cautions

7.1 Please avoid the pressure of its gilded plastic chamber from any direction, during welding, installation, and use.

7.2 When placed in small space, the space should be well ventilated, especially for diffusion window.

7.3 The module should be away from heat source, and avoid direct sunlight or other heat radiation.

7.4 The sensor should be calibrated regularly and the calibration cycle is recommended for no more than 6 months.

7.5 Do not use the sensor in the high dusty environment for long time.

8.6 To ensure the normal work, the power supply must be within DC (5.0±0.1)V rang, the power current must be not less than 150mA. Out of this range, it will result in the failure of the sensor. (The concentration output is low or the sensor cannot operate properly)

7.7 During manual zero calibration, the sensor must work in stable gas environment (400ppm) for over 20 minutes.