



4-in-1 Industrial Gas Detection Module

User's Manual V1.2

(Model: ZCE04B)

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Zhengzhou Winsen Electronics Technology Co., Ltd

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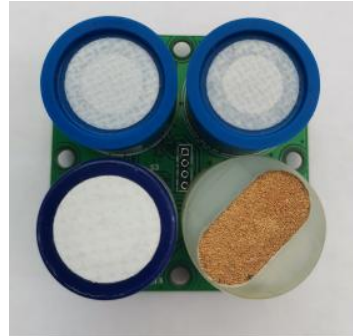
Zhengzhou Winsen Electronics Technology CO., LTD

4-in-1 Industrial Gas Detection Module ZCE04B

The 4-in-1 detection module ZCE04B is mainly aimed at various places where ambient gas detection is required. The product contains four gas sensors (expandable for CO, H₂S, O₂ and CH₄ gases) and a signal processing circuit board. The module has good selectivity and stability. The module can output the current concentration values of the four gases in real time through the digital serial port output. It can be used in handheld devices or fixed devices to detect the current concentration of ambient gas. This module is a general-purpose miniaturized product that closely combines mature sensor detection technology and sophisticated circuit design.

Features

Temperature compensation, high integration, small size,
 Good stability and fast response
 Real-time serial port output concentration, easy to use



Main Application

It can be used in the environment of factory gas leakage, underground operation, tunnel detection, coal mine detection and so on. It can be worn by human body or hand-held into the detection place, or it can be used in fixed place to detect the current environmental gas concentration and remind personnel to be safe.

Technical Parameter Table 1

Model no	ZCE04B			
Detection Gas	CO	H ₂ S	O ₂	CH ₄
Range	0-1000ppm	0-100ppm	0-30%vol	0-100%LEL
Resolution	1ppm	1ppm	0.1%vol	1%LEL
Working voltage	3.5-5V			
Working current	<100mA			
Response time	<30s			
Output way	UART (2.8V level)			
Working conditions	-20~50°C, 15~90%RH			
Storage temperature	0~20°C (recommended)			
Expected lifespan	2 years(in clean air)			
Sensor weight	<50g			

Description of the sensor position on the module

(The sensor position is shown in the top view of the module in Figure 1)

Target gas	CO	H2S	O2	CH4
Position	S1	S2	S3	S4
Alarm Level 1	75~150ppm	10~15ppm	≅ 18.5%VOL	20%~50%LEL
Alarm Level 2	≅ 150ppm	≅ 15ppm	≅ 23.0%VOL	≅ 50%LEL

Table 2

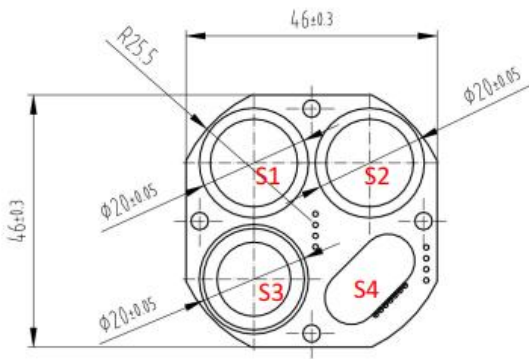


Figure 1: top view

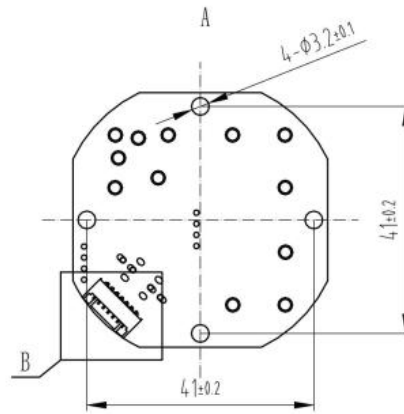


Figure 2: Bottom view

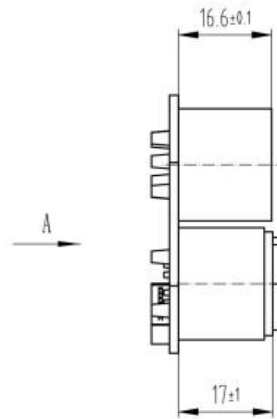
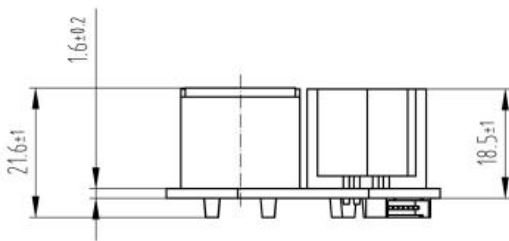
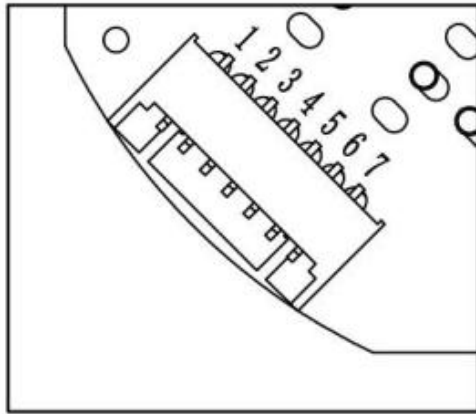


Figure 3&4 :side view

Pins definition-Table 3



Pin No.	Function
Pin1	/
Pin2	TX
Pin3	RX
Pin4	VCC
Pin5	GND
Pin6	reserved
Pin7	reserved

Indicator lamp	Quantity	Function	Flashing characteristics	Note
Green light	1	Power on indicator light	Flashes after power on, indicating that the module is powered on normally, flashing once per second	Flashing continuously after power on
Red light	1	Alarm indicator light	If any gas concentration reaches the first level alarm state but does not reach the second level alarm state, flashing once per second indicates Alarm Level-1	Within 3 minutes after powering on, the module is in a preheating state, without alarm or flashing
			If any gas concentration reaches the second level alarm state, and flashing for every 2 seconds means to reach Alarm Level-2	

Table 4

Cautions

1. The module is connected by terminal blocks, and it is forbidden to weld on the module at will.
2. The sensor attached to the module is strictly prohibited to be replaced without authorization.
3. When the module is used for the first time or has not been used for a long time, it must be aged for 24 hours to ensure the accuracy of the sensor.
4. Do not apply this module to systems involving personal safety.
5. The module has been calibrated before leaving the factory. After that, it should be periodically calibrated according to the usage and the exposure of the equipment to harmful gases or pollutants.
6. When the module reading exceeds the measurement range, it indicates that the target gas

concentration may have reached explosive and severely dangerous concentrations.

7. Avoid exposing combustible gas sensors to lead compounds, silicone resins, and chlorinated hydrocarbons. Although some organic vapors (such as leaded gasoline, halogenated hydrocarbons) may poison the sensor and temporarily stop its normal operation, resulting in a decrease in sensitivity, in most cases, calibration can restore its function.

8. Long-term exposure of the module to a certain concentration of combustible gas or toxic and harmful air may increase the load on the sensor and may seriously affect its performance. If the module has alarmed due to ultra-high concentration gas, it should be recalibrated, or the sensor must be returned to the factory if necessary. 9. In some environments, severe electromagnetic interference may cause data deviation or even fluctuation.

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