



Carbon Monoxide Gas Sensor

(Model: ME2-CO-Φ14x5)

Manual

Version: 1.4

Valid from: 2025-02-17

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Zhengzhou Winsen Electronics Technology CO., LTD

ME2-CO-Φ14x5 Carbon Monoxide Gas Sensor

Profile

ME2-CO-Φ14x5, fuel cell type sensor, detects gas concentration by measuring current based on the electrochemical principle, which utilizes the electrochemical oxidation process of target gas on the working electrode inside the electrolytic cell, the current produced in electrochemical reaction of the target gas are in direct proportion with its concentration while following Faraday law, then concentration of the gas could be detected by measuring value of current.

Features

- * Low consumption
- * High precision
- * High sensitivity
- * Wide linear range
- * Good anti-interference ability
- * Excellent repeatability and stability

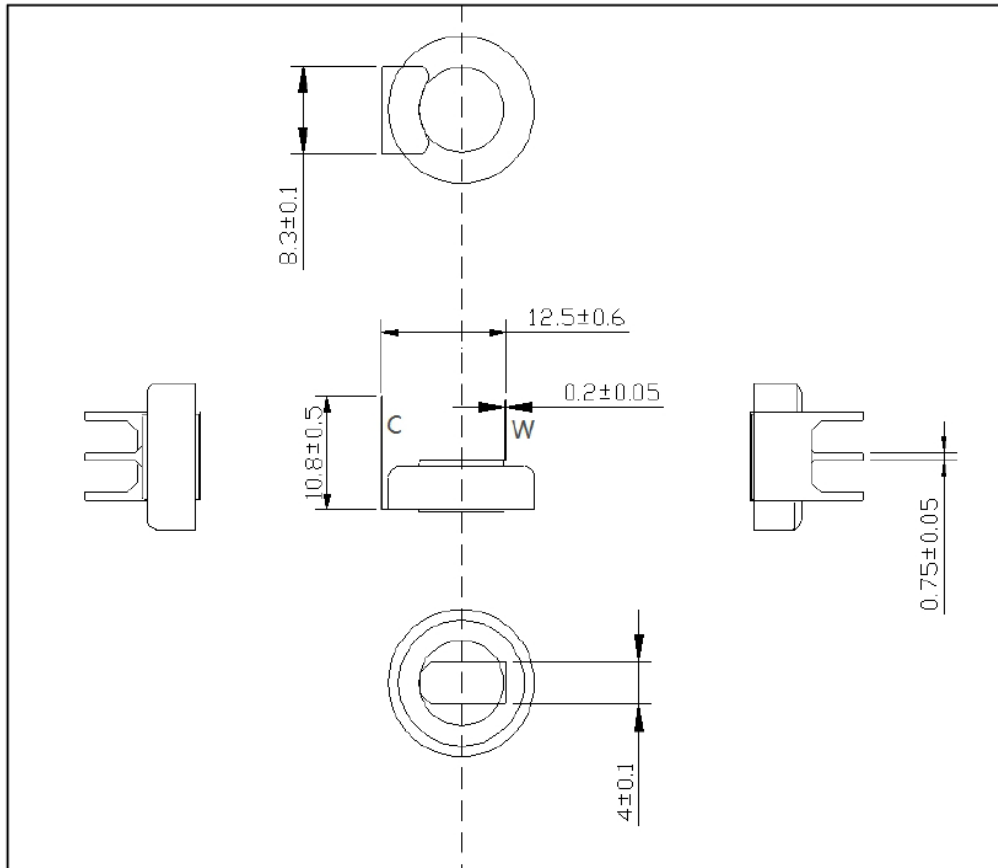
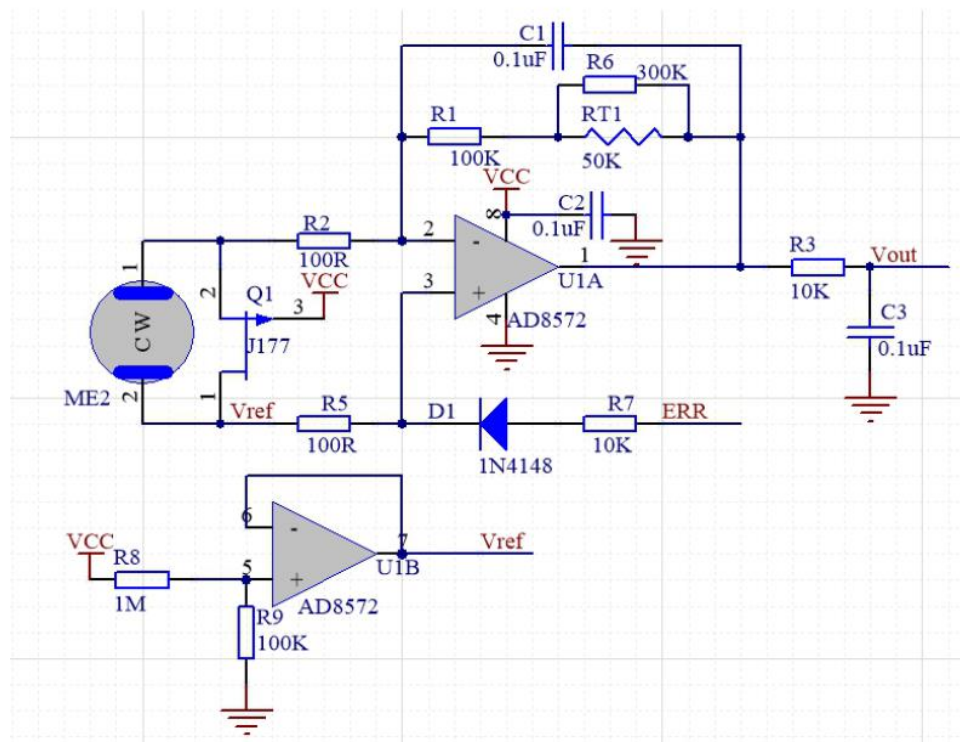


Main Applications

It is widely used in CO concentration detection in commercial, vehicle, small generator field and other fields.

Technical Parameters table1.

Item	Parameter
Detection gas	CO
Measurement Range	0~5000ppm
Max detecting concentration	10000ppm
Sensitivity	(1.2~3.5)nA/ppm
Resolution ratio	1ppm
Response time(T90)	<30S
Load resistance(recommended)	(500/1K/2K) Ω
Repeatability	<3% output value
Output Linearity	linear
Zero drift(-20℃~40℃)	≤10ppm
Temperature Range	-10℃~50℃ (common) -20℃~60℃ (occasionally)
Humidity Range	15%~90%RH
Pressure range	Normal atmosphere±10%
Anticipated using life	10 years (in standard environment*) Standard environment*: clean air, temperature is (20±3) °C, humidity is (50±10) %RH


Fig1. Sensor structure
Basic Circuit (test circuit)

Fig2. Recommended circuit

Characterization

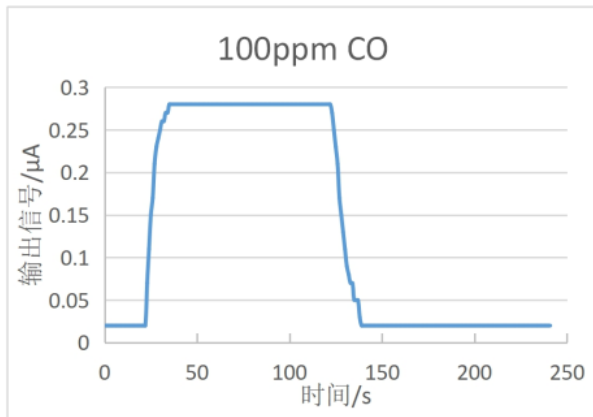


Fig3. Sensitivity, response and recovery

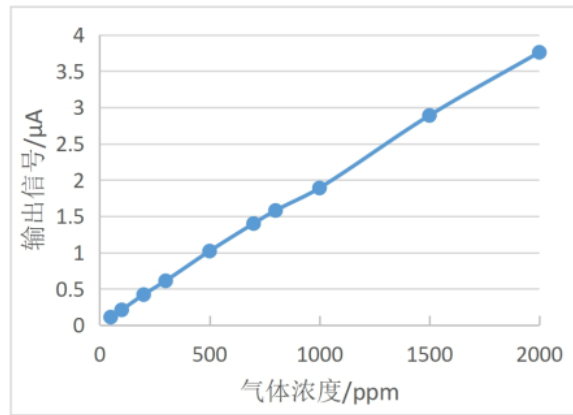


Fig4. Linearity curve

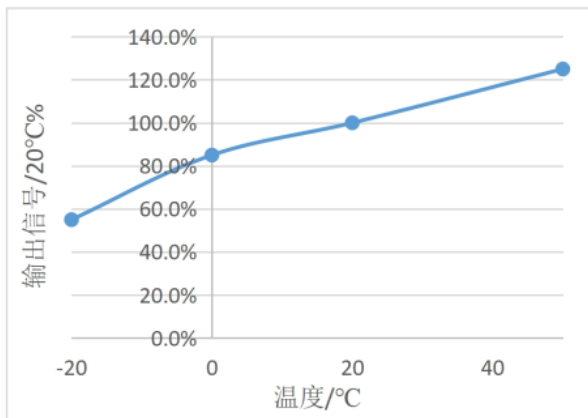


Fig5. Output upon variable temperature

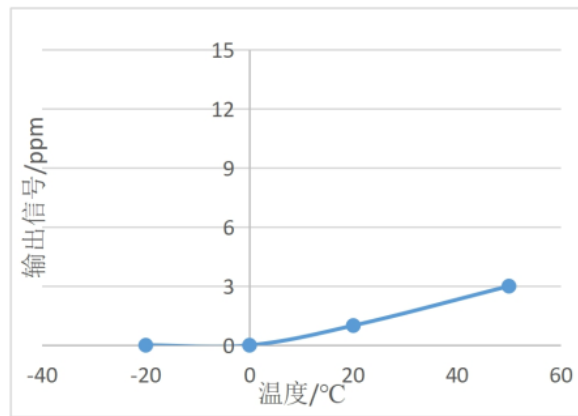


Fig6. zero point upon variable temperature

Cross-sensitivity

ME2-CO-Φ14x5 sensor also responds to other gases besides CO. Below are the response characteristics of interferential gases for reference.

Gas	Concentration	ME2-CO-Φ14x5
H ₂ S	100ppm	0ppm
C ₂ H ₄	100ppm	80ppm
NO	35ppm	6ppm
NO ₂	5ppm	0ppm
SO ₂	20ppm	0.6ppm
NH ₃	50ppm	1ppm
CH ₃ CL	5ppm	0ppm
ETO	10ppm	0ppm
C ₆ H ₆	100ppm	1.5ppm
C ₃ H ₆ O	100ppm	3.5ppm
CH ₃ OH	200ppm	0ppm

Application Notes:

- The lead can be welded during installation. It is not recommended to use wave soldering for welding. Manual welding is recommended. The temperature of the constant temperature soldering iron is less than or equal to 350°C, and the welding time is not greater than 3s. Violation of the above conditions will degrade the sensor performance;
- Before using, power on to aging for more than 48 hours is necessary.
- Don't disassemble the sensor;
- Avoid contacting organic solvent (including Silicone rubber and other adhesive), coatings, medicine, oil and high concentration gases;
- All the electrochemical sensors shall not be encapsulated completely by resin materials, and shall not immerse in non-oxygen environment, otherwise, it will damage the performance of sensor;
- All electrochemical sensors shall not be applied in corrosive gas environment, or the sensor will be damaged;
- Zero calibration should be done in clean air;
- During test and usage, sensors should avoid the gas inflow vertically;
- The inlet hole can't be choked and polluted;
- Excessive impact or vibration should be avoided;
- Do not use the sensor if its housing is damaged or deformed;
- It takes some time for the sensor to return to normal state after it is applied in high concentration gas
- Working electrode and reference electrode of the sensor shall be in short circuit when stored
- Prohibit to use the hot cement or sealant of which the curing temperature is higher than 80°C to make the capsulation for the sensor.
- Prohibit storage and usage for long time in alkaline gases with high concentration.

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