



Hydrogen Gas Sensor

(Model No.: MEv-GH01)

Manual

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Zhengzhou Winsen Electronic Technology

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MEv-GH01 Hydrogen Gas Sensor

Product description:

MEv-GH01, 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.



Characteristics:

Low consumption, high precision, high sensitivity, wide linear range, good anti-interference ability, excellent repeatability and stability.

Applications:

It is widely used in H₂ concentration detection in commercial, vehicle, small generator field and other fields.

Parameters:

Table1.

Item	Parameter
Detection gas	H ₂
Measurement range	0~2000ppm
Sensitivity	(0.2~0.8)nA/ppm
Resolution	1ppm
Response time(T90)	<50S
Load resistance(recommended)	(500/1K/2K) Ω
Repeatability	<5 % output value
Output linearity	linear
Temperature range	-10°C~50°C(common) -40°C~70°C(occasionally)
Humidity range	15 %~90 % RH
Pressure range	Normal atmosphere ±10 %
Anticipated using life	10 years (Standard Environment within*)

Note: Standard Environment within*: Within clean air, temperature (20±3)°C, humidity (50±10)%RH.

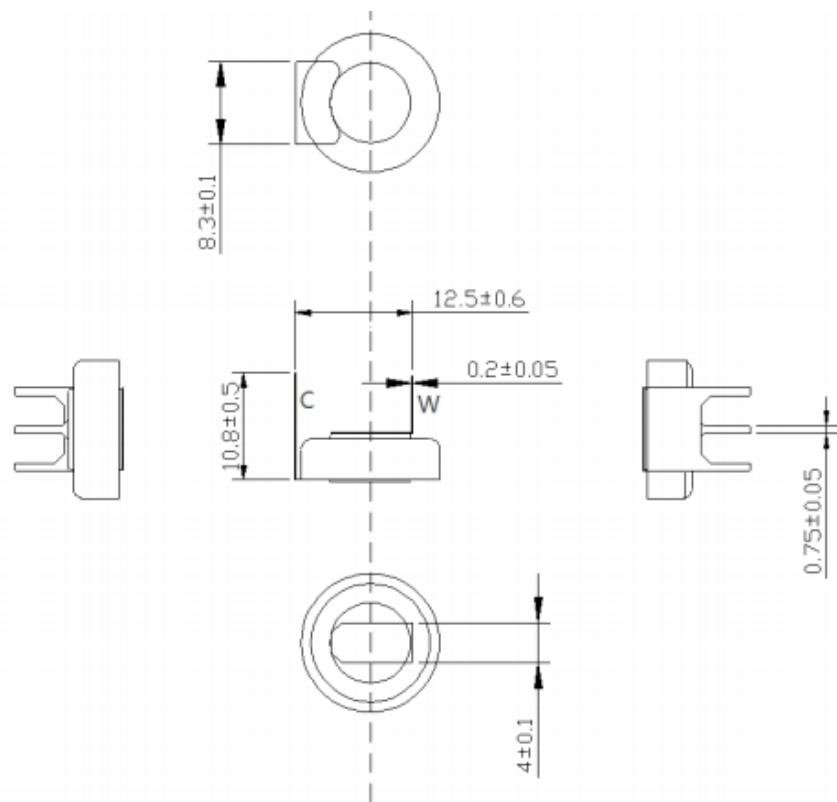


Figure 1: Product structure diagram

Basic Circuit

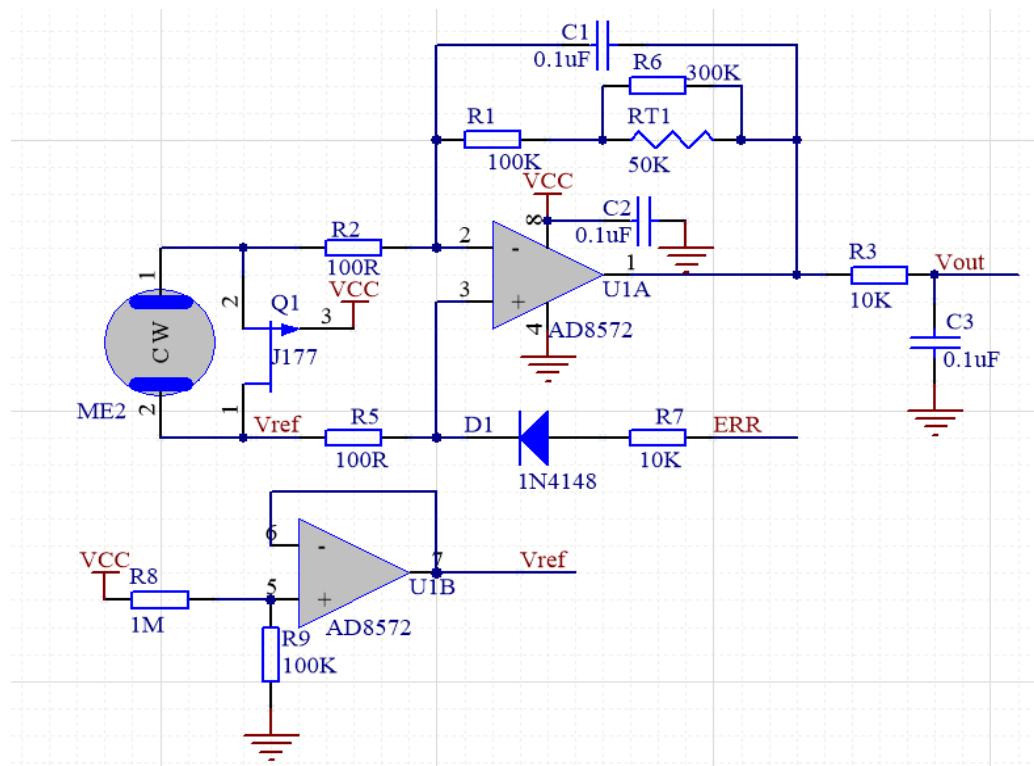


Figure 2 MEv-GH01 test circuit

Characterization

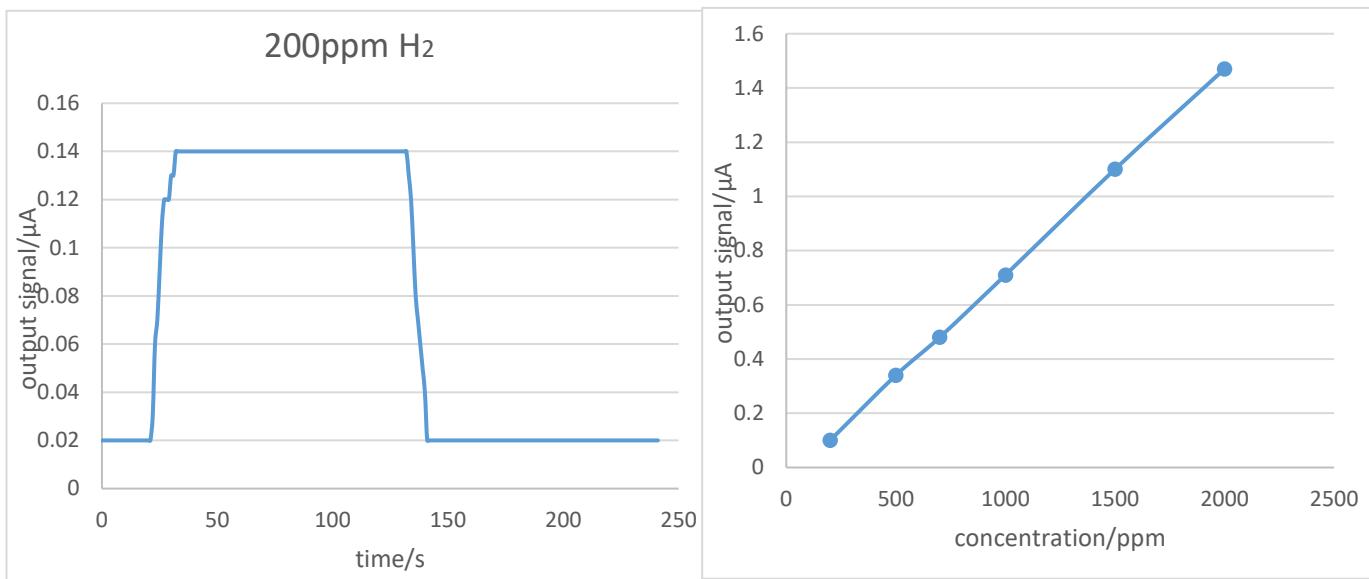


Fig3. Features of Sensitivity, response and recovery

Fig4. Data graph of concentration linearity features

Interferential gases for reference

MEv-GH01 sensor can respond to gases other than the target gas. For reference, the response characteristics of the sensor to several common interfering gases are listed in the table below. The data in the table are typical responses for gases at a given concentration.

Table2. Cross-Interference Characteristics

Gas	Concentration	MEv-GH01
H2S	15ppm	4ppm
SO2	5ppm	0ppm
CO	200ppm	30ppm
NO	35ppm	10ppm
NO2	5ppm	0.5ppm
CL2	10ppm	0ppm
HCL	5ppm	0ppm
SO2	5ppm	0ppm
C2H4	100ppm	85ppm

Application Notes

- The lead can be welded during installation; wave soldering is NOT recommended. Manual soldering is recommended. The temperature of constant temperature soldering iron should LESS THAN OR EQUAL to 350°C, and the soldering time should NOT longer than 3s. Violation of the above will result the degradation of sensor performance.
- Before using, power on to aging for more than 48 hours is necessary.
- Don't disassemble the sensor to avoid the damage caused by electrolyte leakage.
- 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 function of sensor
- All electrochemical sensors shall not be applied in corrosive gas environment, or the sensor will be damaged
- Zero calibration should be finished in clean air.
- During test and usage, sensors should avoid the gas inflow vertically
- The side for inflow can't be choked and polluted.
- Excessive impact or vibration should be avoided
- Do not use the case if it 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 encapsulation for the sensor.
- Prohibit storage and usage for long time in alkaline gases with high concentration.

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