Hydrogen Gas Sensor

(Model No.: MEv-GH01)

Manual

Version: 1.0

Valid from: 2023-07-04

Zhengzhou Winsen Electronic Technology

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

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 CO concentration detection in commercial, vehicle, small generator field and other fields.

Parameters: **Table1.**

Item	Parameter
Detection gas	H_2
Measurement range	0～2000ppm
Max detecting concentration	5000ppm
Sensitivity	(0.5～1.5)nA/ppm
Resolution	1ppm
Response time(T_{90})	＜30S
Load resistance(recommended)	（500/1K/2K）Ω
Repeatability	＜5％output value
Output linearity	linear
Temperature range	-10℃～50℃(common) -40℃～70℃(occasionally)
Humidity range	15％～90％RH
Pressure range	Normal atmosphere ±10％
Anticipated using life	10 years

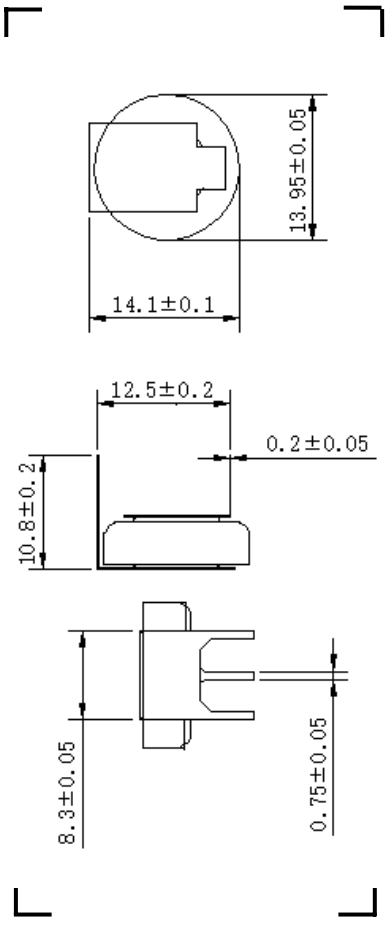

Fig1. Sensor structure

Basic Circuit

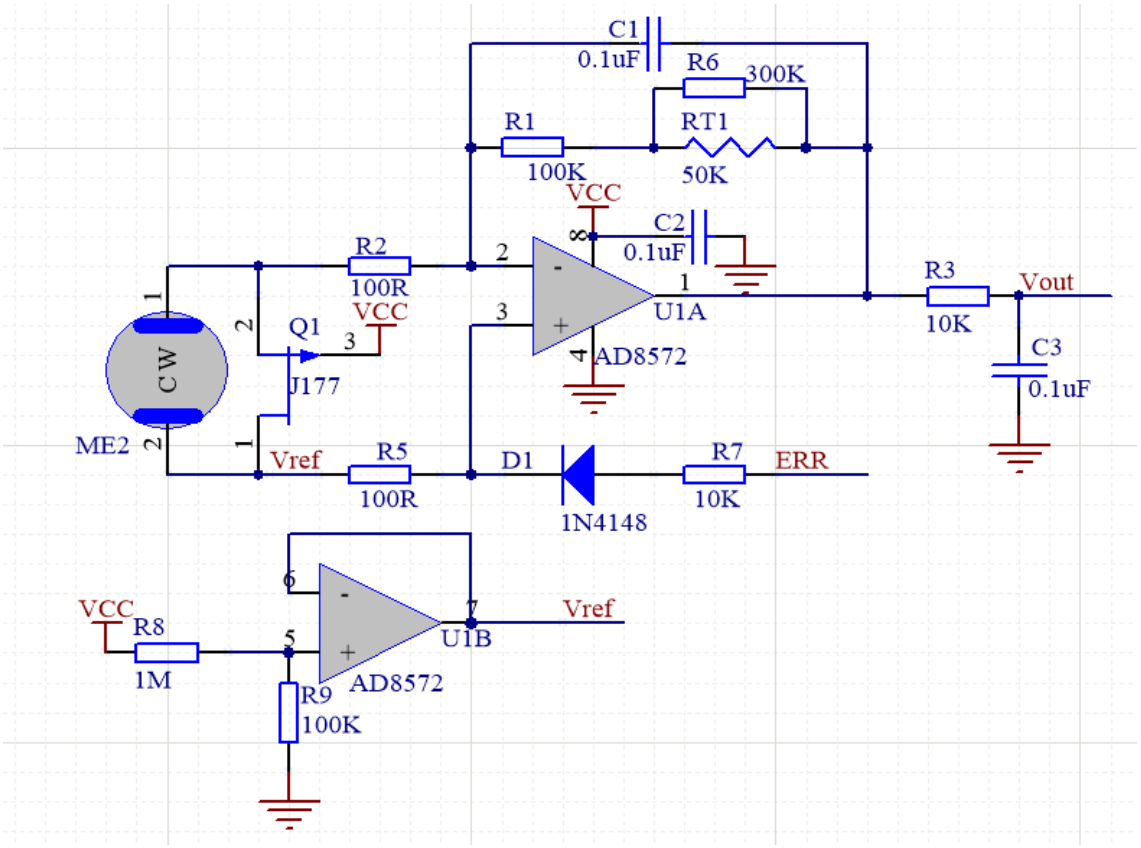

Fig.2 MEv-GH01 test circuit

Characterization

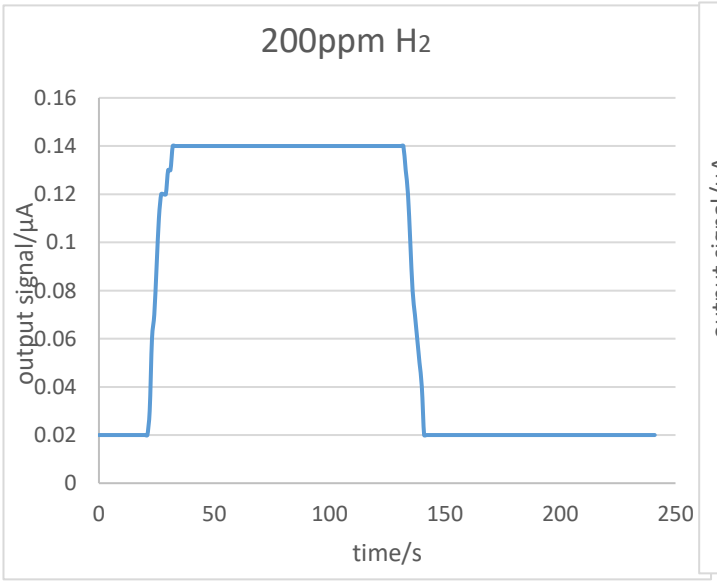

Fig3. Features of Sensitivity, response and recovery

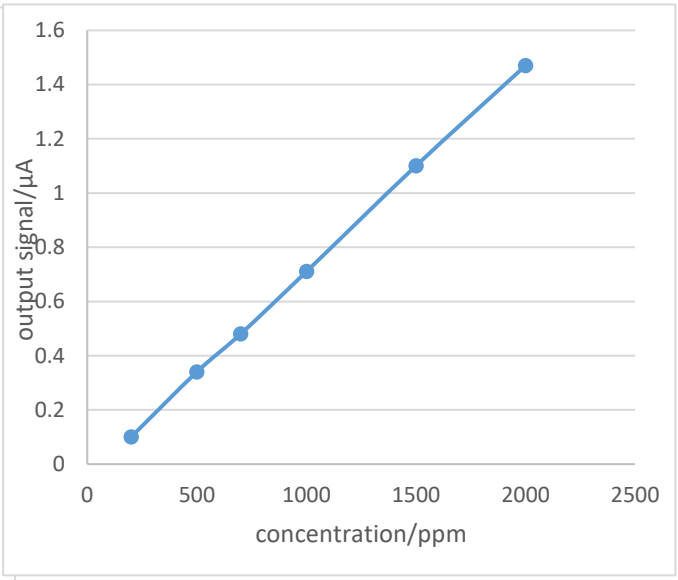

Fig4. Data graph of concentration linearity features

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, and the solder can NOT contact the sensor;
- 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℃ to make the capsulation for the sensor.

- Prohibit storage and usage for long time in alkaline gases with high concentration.

Zhengzhou Winsen Electronics Technology Co., Ltd
Add: No.299, Jinsuo Road, National Hi-Tech Zone, Zhengzhou 450001 China
Tel: +86-371-67169097/67169670
Fax: +86-371-60932988
E-mail: sales@winsensor.com
Website: www.winsen-sensor.com