



MQ-E3-H₂ **Electrochemical Sensor**

Manual **(Model: MQ-E3-H₂)**

Version: V1.3
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MQ-E3-H₂ gas sensor

MQ-E3-H₂ electrochemical sensor detect 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 get by measuring value of current.

1.Features

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

2 Application

Widely used in industrial and environmental fields

3. Technical Parameter

4. External dimension

Item	Parameter
Detection gas	H ₂
Measurement Range	0~1000ppm
Max detecting concentration	2000ppm
Sensitivity	(10.8±5.2) nA/ppm
Resolution ratio	2ppm
Response time (T ₉₀)	≤90S
Bias voltage	0mV
Load resistance (recommend)	10 Ω
Repeatability	<2 % output value
Stability (/ month)	<2 %
Output Linearity	linear
Zero drift (-20℃~40℃)	≤20ppm
Storage temperature	-20℃~50℃
Storage Humidity	15 % ~ 90 % RH (non condensation)
Pressure range (kPa)	normal atmosphere ± 10%
Anticipated using life	2 years(in air)

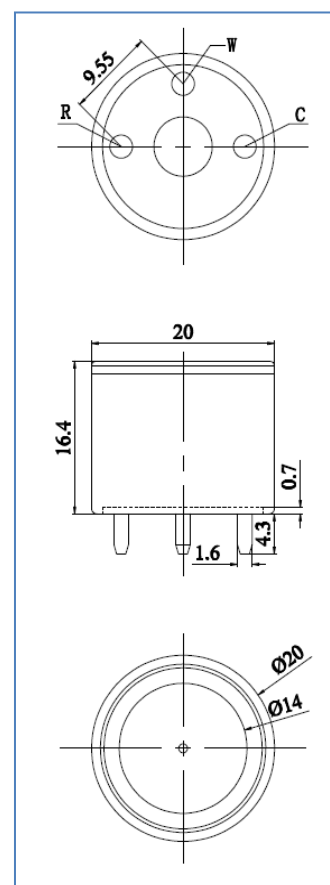
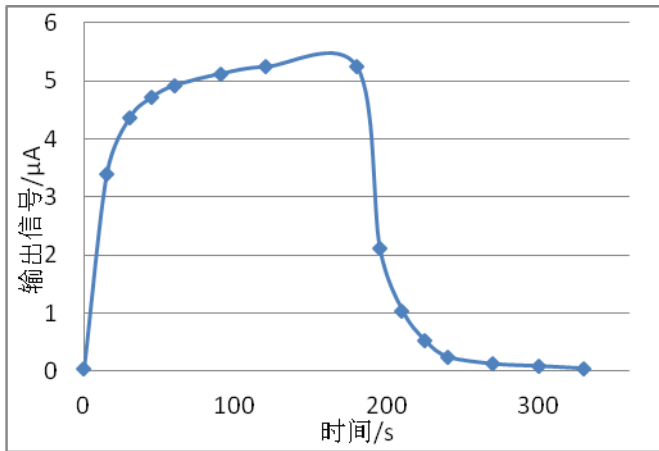


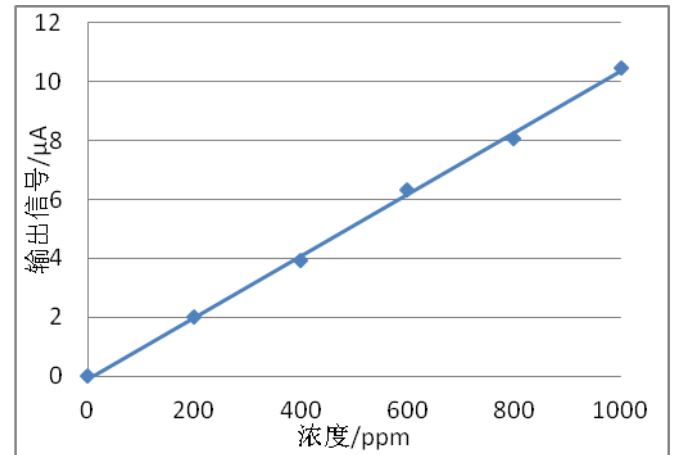
Fig1. Sensor structure

5.Characterization

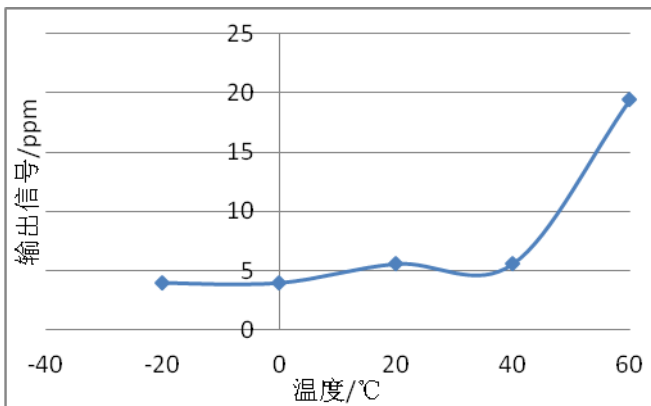
Features of Sensitivity, response and output signal



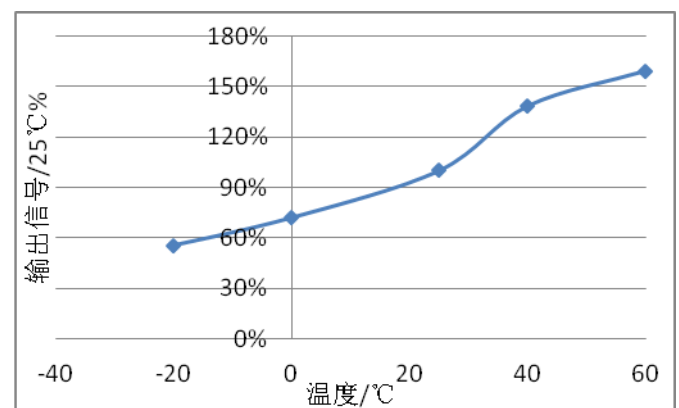
Data graph of concentration linearity features



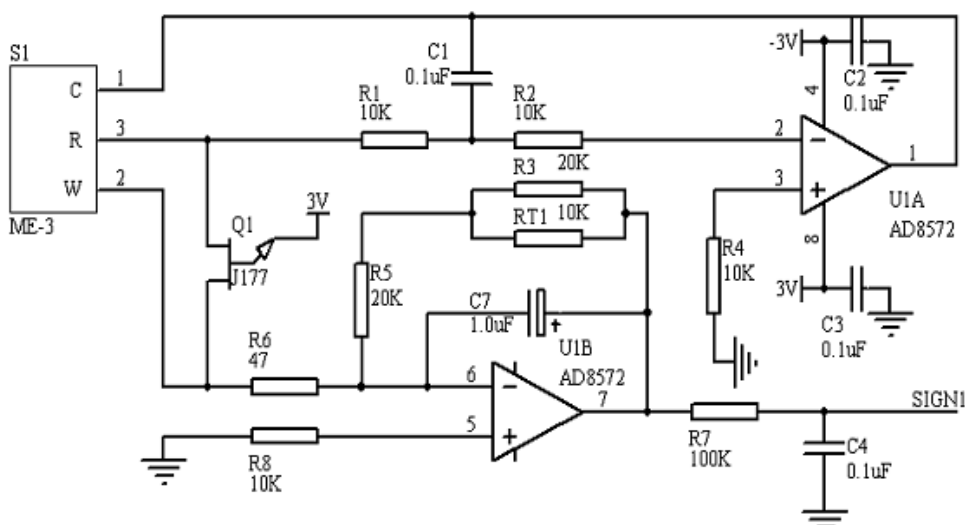
V0 Change upon Variable Temperature

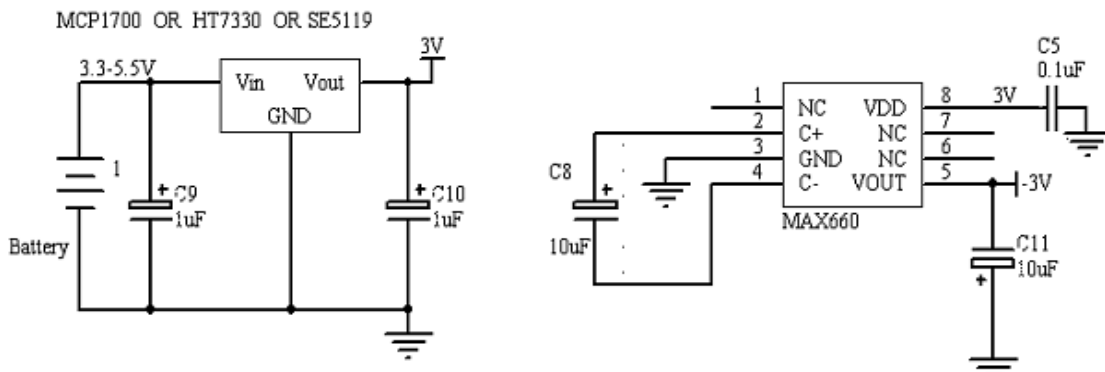


Sensitivity upon variable temperature



6.Basic circuit





7.Anti-Interference:

MQ-E3-H₂ sensor also responds to other gases besides target gas. Below are the response characteristics of interferential gases

Gas	Concentration	MQ-E3-H ₂
H ₂ S	15ppm	4ppm
SO ₂	5ppm	0ppm
CO	200ppm	30ppm
NO	35ppm	10ppm
NO ₂	5ppm	0.5ppm
CL ₂	10ppm	0ppm
HCL	5ppm	0ppm
C ₂ H ₄	100ppm	85ppm

8.Application Notes:

- Soldering for pins is forbidden
- To preheat over 24hrs before using
- To avoid to bend and break of pins
- Do not take apart the sensor, otherwise electrolyte leakage can cause sensor damage;
- Sensor shall Avoid organic solvent, coatings, medicine, oil and high concentration gases;
- All ME Sensors shall not be encapsulated completely by resin materials, and shall not immerse in oxygen-free environment, otherwise, it will damage the function of sensor;
- All ME sensors shall not be applied in corrosive gas environment, or the sensor will be damaged;
- If users want to test the zero point, it should be done in clean atmosphere;
- Sensors Shall be avoided to face the gas, which flow directly from front side;

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- Blowhole of the sensor should not be blocked and polluted, which will cause the sensitivity decrease;
 - Waterproof and breathable film above the sensor is strictly forbidden to uncover and damage
 - Excessive impact or vibration should be avoided;
 - Do not use the sensor if the shell is damaged;
 - It takes some time for the sensor to return to normal state After applied in high concentration gas;
 - Working electrode and reference electrode of the sensor shall be in short circuit when stored;
 - Do not use hot melt adhesive or sealant with curing temperature higher than 80°C to encapsulate the sensor;
 - Do not store and use in high concentration alkaline gas for a long time.
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