



MQ-E3-HCL

Electrochemical sensor

Manual

(Model: MQ-E3-HCL)

Taiyuan Tengxing sensor technology Co., Ltd

MQ-E3-HCL gas sensor

MQ-E3-HCL 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

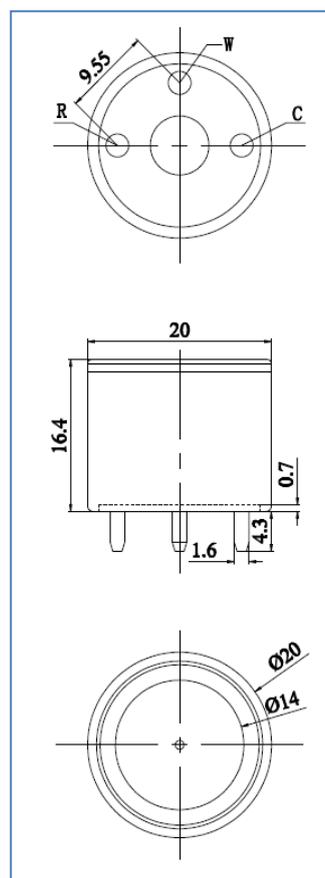
2. Application

Widely used in industrial and environmental protection fields

3. Technical Parameter

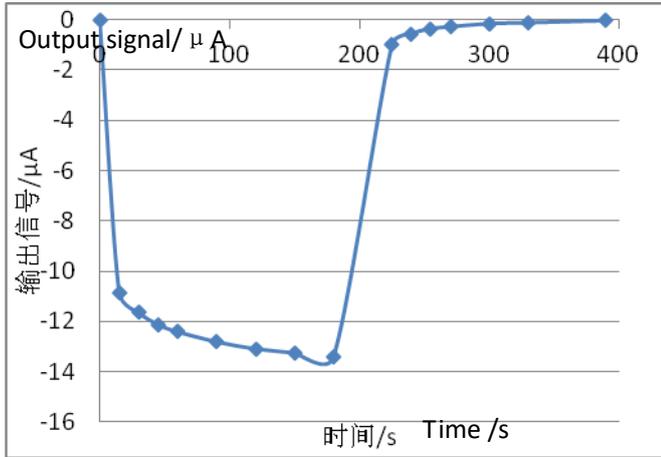
Detection gas	HCL
Measurement Range	0~20ppm
Max detecting concentration	200ppm
Sensitivity	$(0.8 \pm 0.4) \mu\text{A/ppm}$
Resolution ratio	0.1ppm
Response time (T_{90})	$\leq 30\text{S}$
Bias voltage	0mV
Load resistance (recommend)	10 Ω
Repeatability	$< 2\%$ output value
Stability (/ month)	$< 2\%$
Output Linearity	linear
Zero drift (-20°C ~ 40°C)	$\leq 0.2\text{ppm}$
Storage temperature	-20°C ~ 50°C
Storage Humidity	15% ~ 90% RH(no condensation)
Pressure range	Standard atmosphere $\pm 10\%$
Anticipated using life	2 years (in air)

4. External dimension

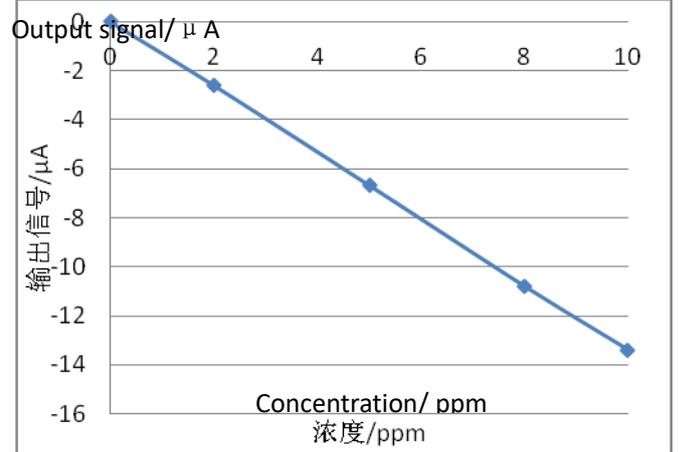


5.Characterization

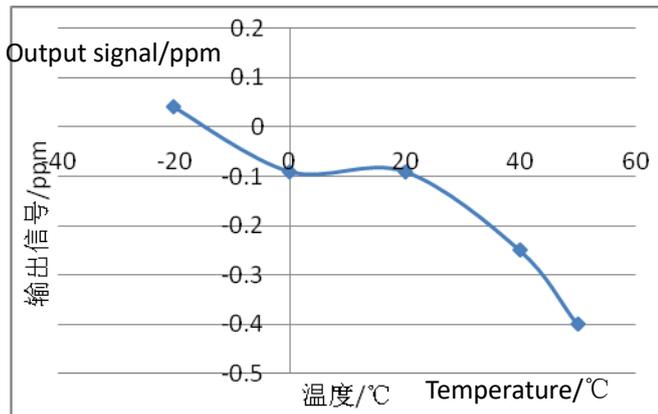
Features of Sensitivity, response and resuming



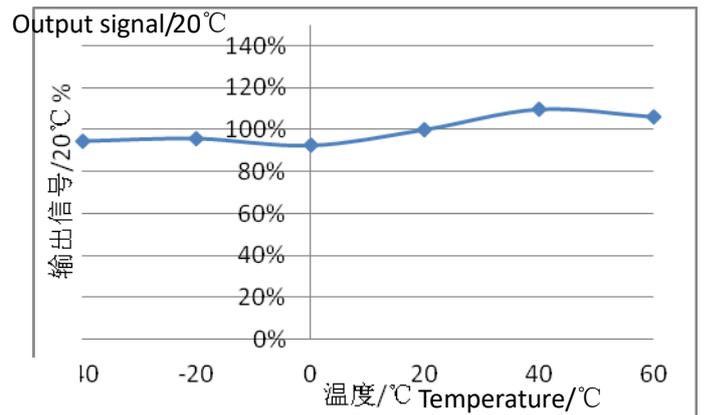
Data graph of concentration linearity features



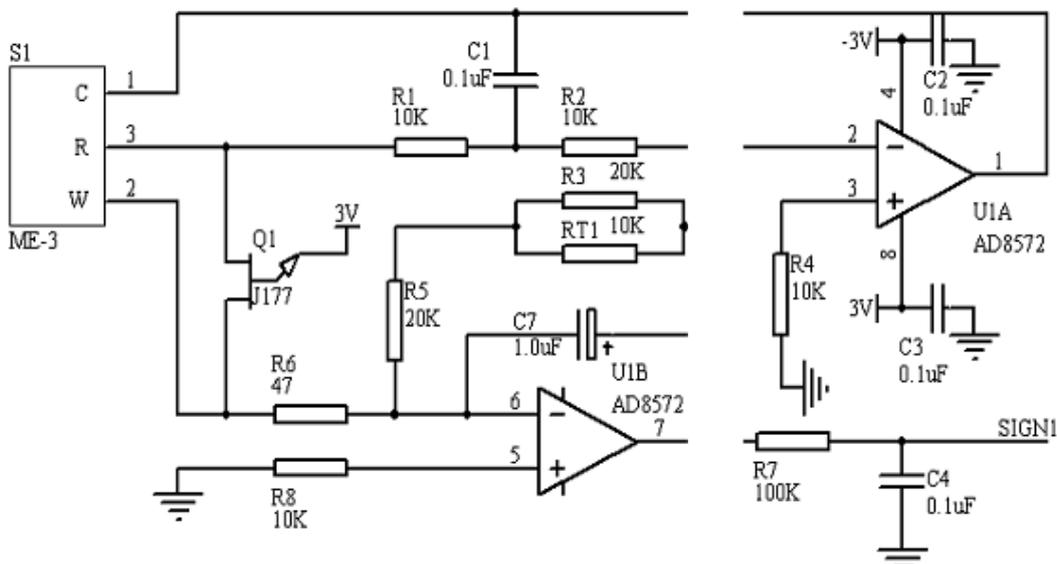
Zero point changing upon Variable Temperature

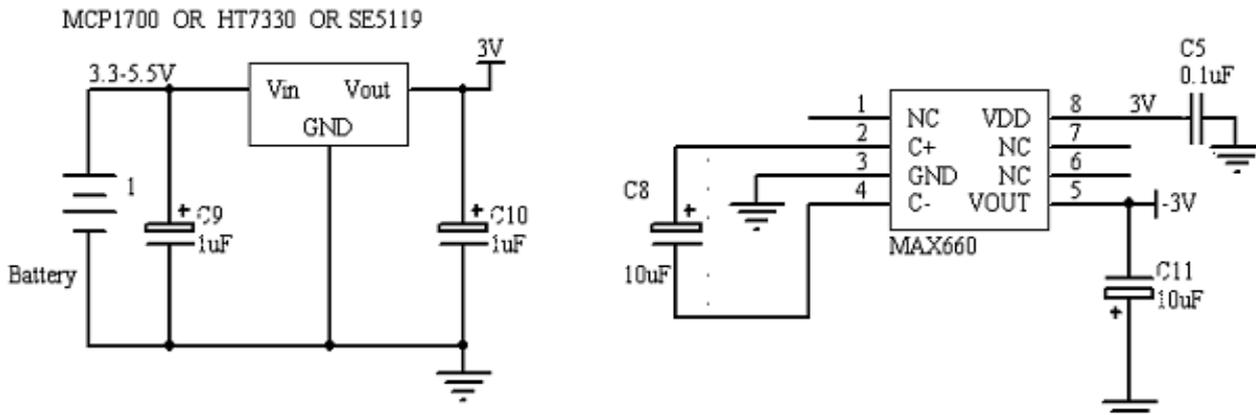


Output upon variable temperature



6.Basic circuit





7. Anti-Interference:

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

Gas	Concentration	MQ-E3-HCL
CO	200ppm	<2ppm
NO2	5ppm	≈-5ppm
CL2	10ppm	<-10ppm
CH4	400ppm	0ppm
NO	35ppm	0ppm
H2	500ppm	<2ppm
HCN	10ppm	<0.2ppm
C2H4	100ppm	<6ppm
H2S	15ppm	29ppm

8.Application Notes:

- 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;
- Please test the sensitivity of gas sensors in clean atmosphere;
- Sensors Shall be avoided to face the gas, which flow directly from front side;
- To avoid to bend and break of pins;

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- Blowhole of the sensor should not be blocked and polluted, which will cause the sensitivity decrease;
 - Excessive impact or vibration should be avoided;
 - Do not use the sensor when the shell is damaged;
 - It takes some time for the sensor to return to normal state After applied in high concentration gas;
 - Do not take apart the sensor, otherwise electrolyte leakage can cause sensor damage;
 - Working electrode and reference electrode of the sensor shall be in short circuit when stored.;
 - To preheat over 48hs before using and soldering forbidden;

Note: To keep continual product development, we reserve right to change design features without prior notice !

