Fuel cell type alcohol electrochemical sensor

Model: MQ-E2-C2H5OH-φ16

Version: V1.2

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Taiyuan Tengxing sensor technology Co., Ltd

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1.**Product Description**:

This model is a fuel cell type alcohol electrochemical sensor. Alcohol and oxygen undergo corresponding redox reactions on the working electrode and the counter electrode and release charges to form current. The magnitude of the generated current is proportional to the alcohol concentration and follows Faraday's law. The alcohol concentration can be determined by testing the magnitude of the current.

2.**Sensor Features**:

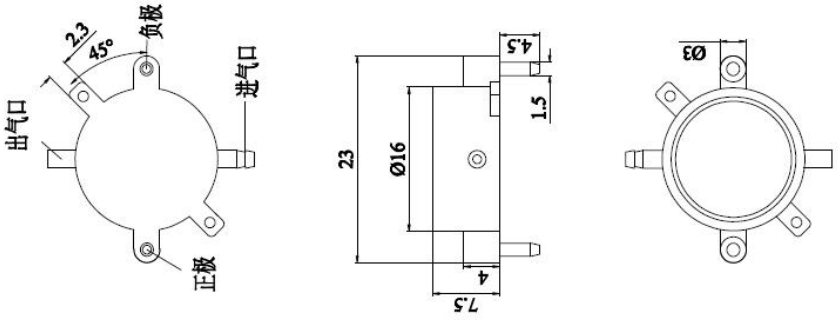
It is widely used in alcohol detection in traffic safety, high-altitude operations and environmental protection.

3.**Main Applications**

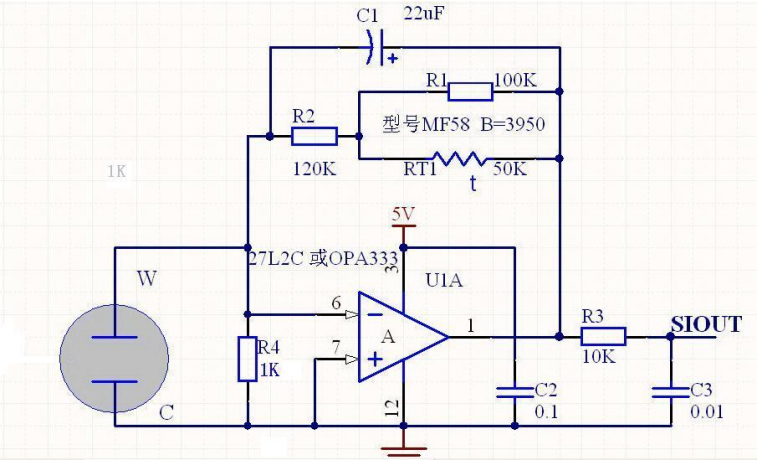
It is widely used in alcohol detection in traffic safety, environmental protection, automotive consumer goods and other occasions.

4.Technical specifications

Product model	MQ-E2-C2H5OH-Φ16
Detection gas	C2H5OH
Range	(0~1)mg/L
Max Range	2.0mg/L
Sensitivity	（6±2）μA/(mg/L)
Response time(T90)	≤20S
Load resistance(recommend)	10Ω
Repeatability	±0.006mg/L
Stability(/month)	＜2%
Output linearity	linear
Zero drift(-20℃~40℃)	-0.01mV~0.01mV
Storage temperature(℃)	0℃~20℃
Temperature range	-20℃~50℃
Humidity range	15%~90% RH No condensation
Pressure range	Standard atmospheric pressure ±10%
Life	2 years(in air)



5.Basic Circuit



6.Sensor Characterization

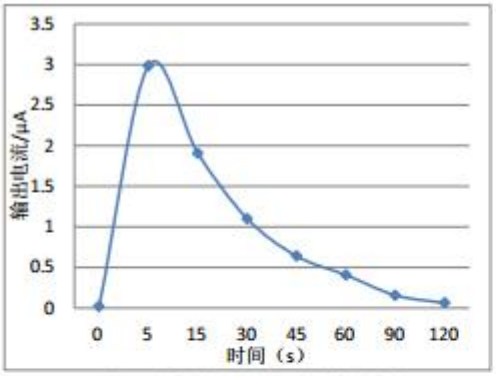


图 3：传感器的灵敏度、响应恢复曲线

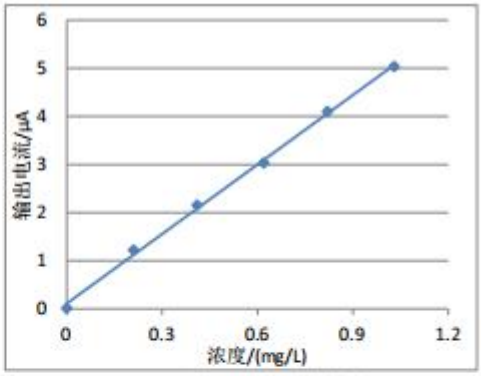


图 4：传感器线性曲线

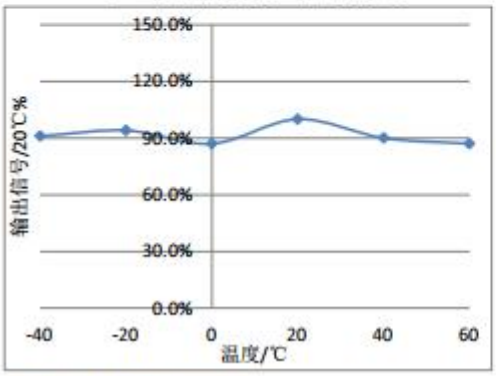


图 5：不同温度下传感器的输出情况

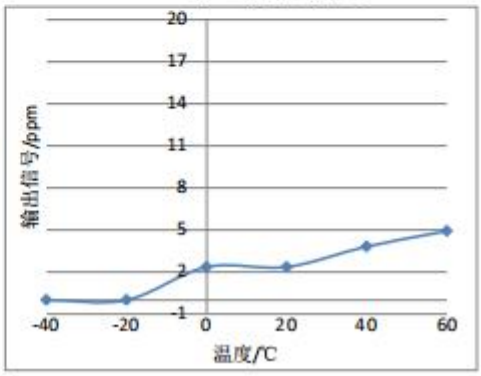
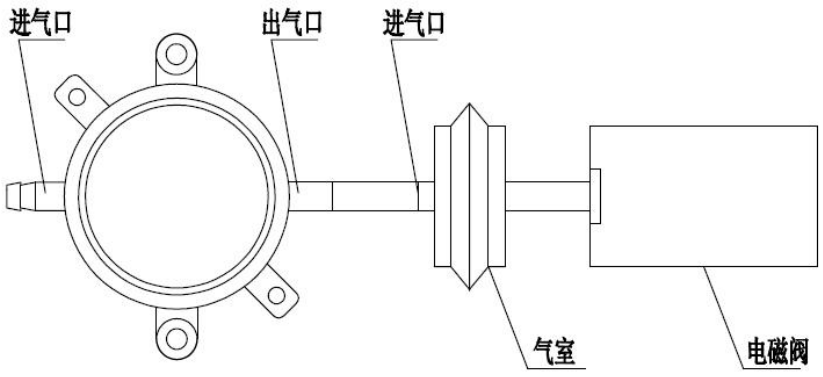


图 6：传感器在不同温度条件下的零点输出

7. Instructions

Quantitative air intake control: When using a sensor, use a plastic tube to connect the sensor outlet to the air chamber inlet. When the solenoid valve is working, the air chamber in front of the solenoid valve will suck in a quantitative volume of gas by controlling the working stroke, and the corresponding sensor will also suck in a certain amount of gas to achieve the purpose of quantitative air intake. The following figure is a connection diagram of the sensor and the electromagnetic pump (composed of the air chamber and the electromagnetic valve)



8.Precautions

Soldering is prohibited during installation;

Aging time before use is not less than 48 hours;

The pins are prohibited from breaking and bending;

Pump air in, accurately and quantitatively inhale air;

The recommended storage temperature is 0-20℃;

Electrolyte leakage will cause damage, please do not disassemble the sensor at will;

The sensor should avoid contact with organic solvents (including silicone rubber and other adhesives), coatings, pharmaceuticals, oils and high-concentration gases;

The sensor should not be immersed in an oxygen-free environment for a long time, otherwise the performance of the sensor will be damaged;

The sensor should not be used in an environment containing corrosive gases, which will damage the sensor;

When measuring the zero point of gas, it must be done in a clean atmosphere;

When testing and applying the sensor, vertical air intake from the front must be avoided;

The air inlet of the sensor must not be blocked or contaminated;

The sensor must not be overly impacted or vibrated;

Do not use if the shell is damaged or deformed;

After long-term use in a high-concentration gas environment, the sensor will recover slowly to its initial state;

When storing the sensor, the working electrode and the counter electrode should be in a short-circuit state;

It is forbidden to encapsulate the sensor with hot melt adhesive or sealant with a curing temperature higher than 80℃;

It is forbidden to store and use the sensor in high-concentration alkaline gas for a long time