

Hydrogen cyanide gas sensor

(Model : MQ-E3-HCN)

# Manual

Version 1.3

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Taiyuan Tengxing sensor technology Co., Ltd

## MQ-E3-HCN Hydrogen Cyanide Sensor

### Product Description

MQ-E3-HCN 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.



### ▪ Features

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

### ▪ Main Application

Widely used in industrial and environmental fields.

### ▪ Technical Parameter

Table 1

Detection gas	HCN
Measurement Range	0~100ppm
Max detecting concentration	150ppm
Sensitivity	$(0.1 \pm 0.02) \mu\text{A/ppm}$
Resolution ratio	0.2ppm
Response time ( $T_{90}$ )	<120S
Bias voltage	300mV
Load resistance	10 $\Omega$ (recommended)
Repeatability	<2% output value
Stability ( / month )	<2%
Output Linearity	linear
Zero drift (-20℃~40℃)	4ppm
Storage temperature	-20℃~50℃
Storage Humidity	15%~90% RH
Pressure range	Standard atmosphere $\pm 10\%$
Anticipated using life	2 years

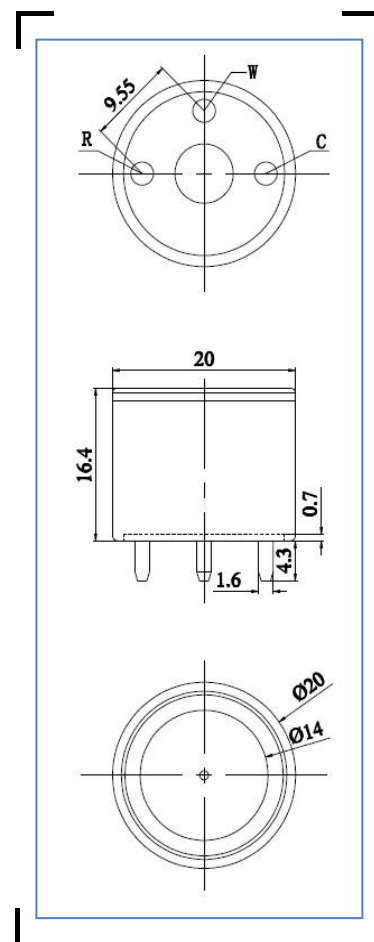


Table 1: Sensor structure

- **Basic Circuit**

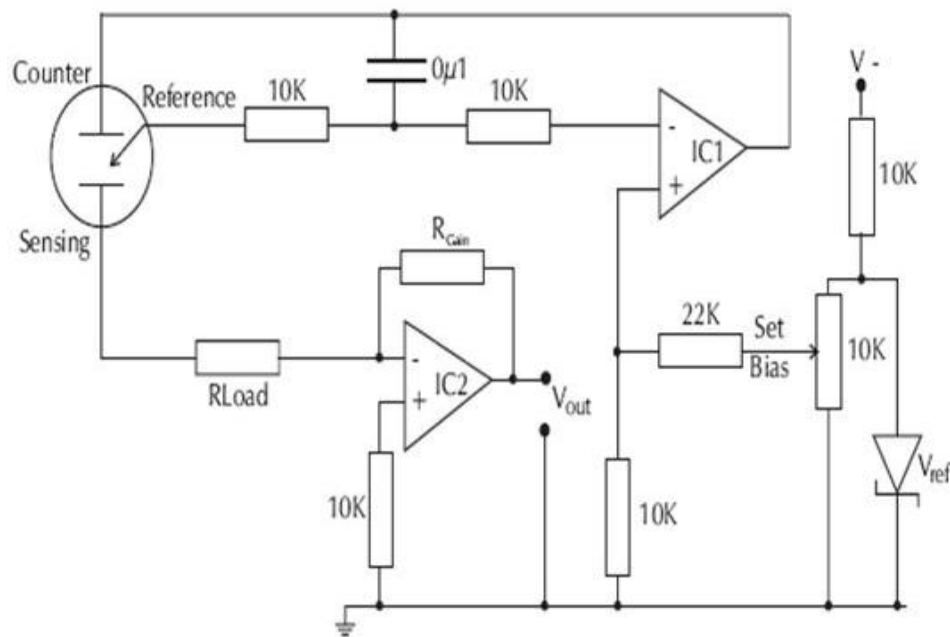


Table 2: MQ-E3-HCN Test circuit

### Description of sensor characters

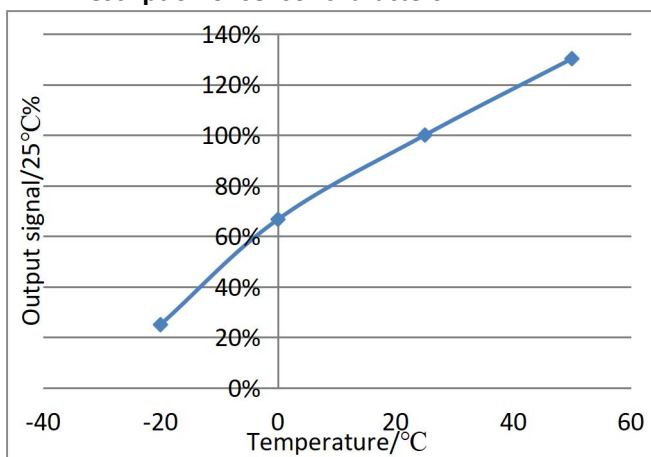


Table1: Output of sensor at different temperature  
temperature

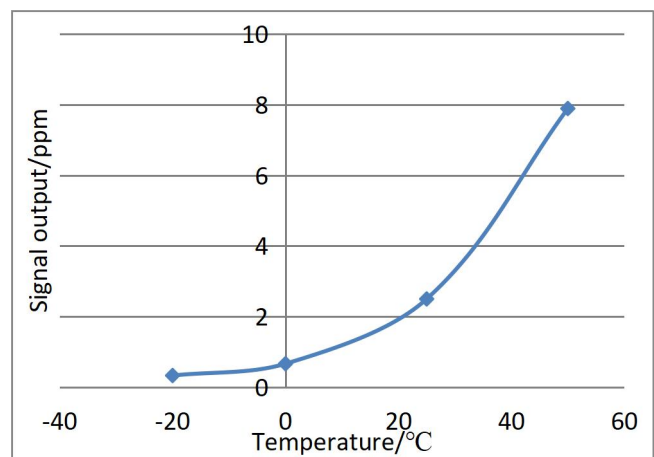


Table2: Zero output of sensor at different

- **Anti-Interference**

MQ-E3-HCN sensor also responds to other gases besides target gas.

Below are the response characteristics of interferential gases.

Gas	Concentration	MQ-E3-HCN
HCN	1ppm	1 ppm
C2H4	100ppm	30ppm
SO2	5ppm	<8ppm
H2S	20ppm	100ppm
CO	300ppm	20ppm

## Cautions

- Soldering is disabled during installation;
- The pin of the tube must not be broken or bent;
- The aging time before use is not less than 48 hours;
- Do not disassemble the sensor at will. Disassembling the sensor will cause electrolyte leakage and cause harmful consequences;
- The sensor avoids contact with organic solvents (including silicone rubber and other adhesives) coatings, pharmaceuticals, fuel oils and high concentrations of gases;
- All electrochemical sensors cannot be completely encapsulated with resin materials, nor can they be immersed in an oxygen-free environment for a long time, otherwise the performance of the sensor will be damaged;
- All electrochemical sensors should not be used in environments containing corrosive gases for a long time, corrosive gases will damage the sensor;
- The gas zero measurement must be carried out in a clean atmosphere.
- When testing and applying the sensor, avoid vertical air intake from the front;
- The air inlet of the sensor must not be blocked or contaminated;
- The waterproof and breathable membrane above the sensor is strictly prohibited to be opened or damaged;
- The sensor must not be subjected to excessive shock or vibration;
- Do not use if sensor's housing is damaged or deformed;
- Slow recovery to initial state after prolonged use in high-concentration gas environments;
- When the sensor is stored, the working electrode and the counter electrode should be disconnected.
- Do not use hot melt adhesive or sealant with curing temperature higher than 80℃ to encapsulate the sensor;
- Prohibit long-term storage and use in high-concentration alkaline gas;

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