



# Ammonia Gas Sensor

(Model: MQ-E4-NH<sub>3</sub>)

# Manual

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Taiyuan Tengxing sensor technology Co., Ltd

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## MQ-E4-NH<sub>3</sub> Ammonia Gas Sensor

### Profile

MQ-E4-NH<sub>3</sub> ammonia gas sensor is constant potential electrolysis type. Oxidation-reduction reaction with ammonia gas take place inside of the sensor. The process releases electric charge and generates current. The current is in direct proportion to the concentration of ammonia gas. So the concentration of the target gas could be got by measuring the value of current.

### Features

Low power consumption, high precision, high sensitivity, wide linear range, good anti-interference ability, excellent repeatability and stability.

### Main applications

For ammonia gas detection in industrial occasions and environmental protection field.

### Technical Parameters Stable1.

Detection Gas	Ammonia Gas(NH <sub>3</sub> )
Detection Range	0~50ppm
Max range	200ppm
Sensitivity	(0.12±0.03) μA/ppm
Resolution	0.1ppm
Response Time(T <sub>90</sub> )	≤90S
Bias Voltage	0mV
Load Resistance	10Ω(recommended)
Repeatability	<10% Output value
Stability(/month)	<10%
Output Linearity	Linear
Zero drift(-20℃~40℃)	-3~10ppm
Temperature range	-20℃~50℃
Humidity range	15%~90% RH (No condensation)
Pressure range	standard atmospheric pressure±10%
Lifespan	2 years (2ppmNH <sub>3</sub> )

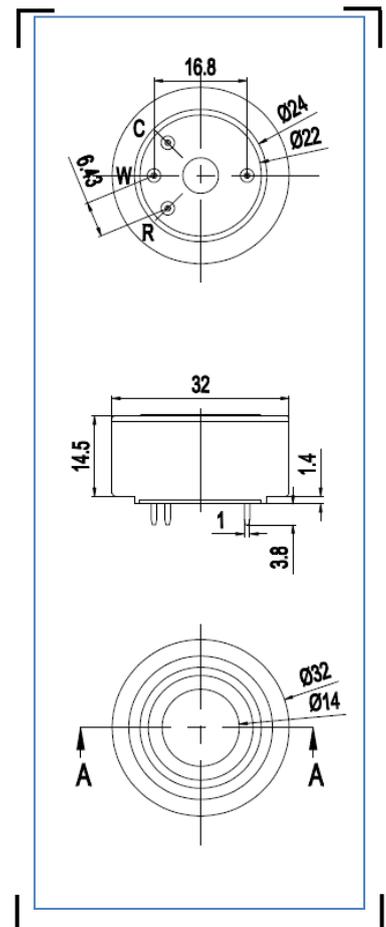


Fig1.Sensor Structure

## Basic Circuit

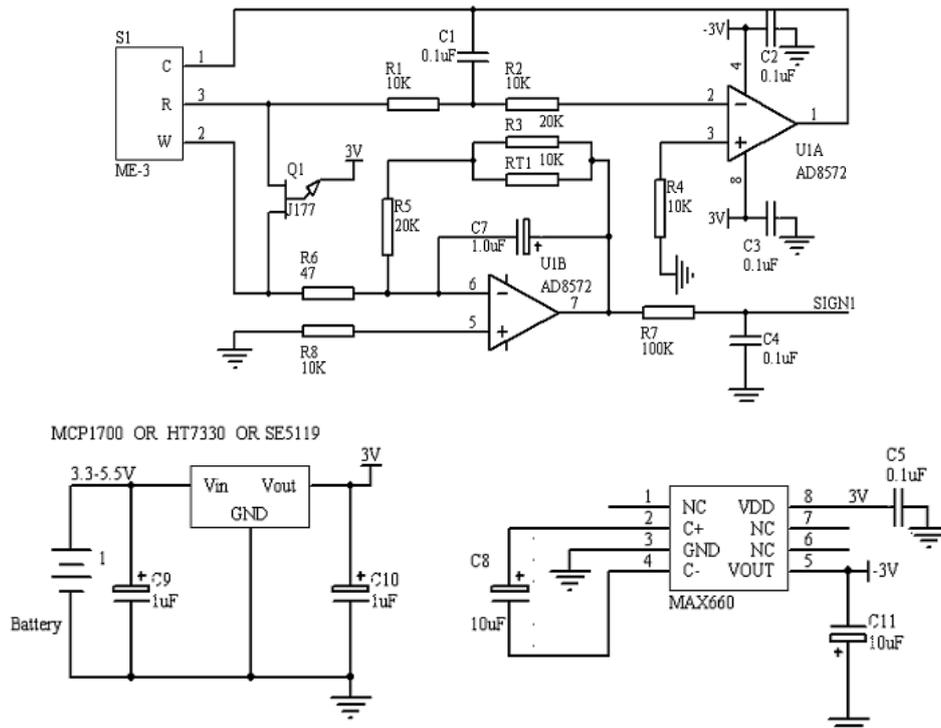


Fig2: MQ-E4-NH3 test circuit

### Description of sensor characters

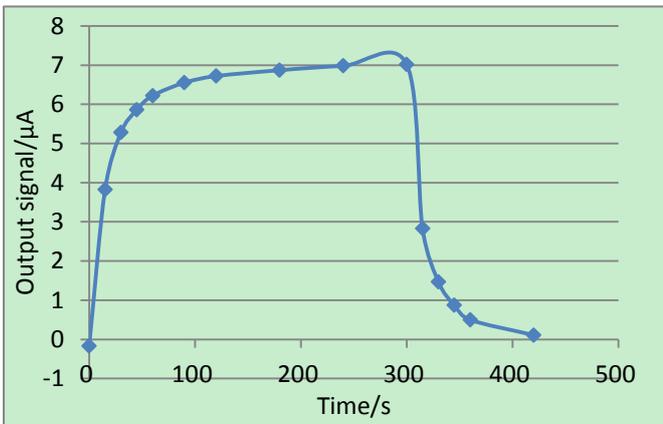


Fig3. Responce and Resume

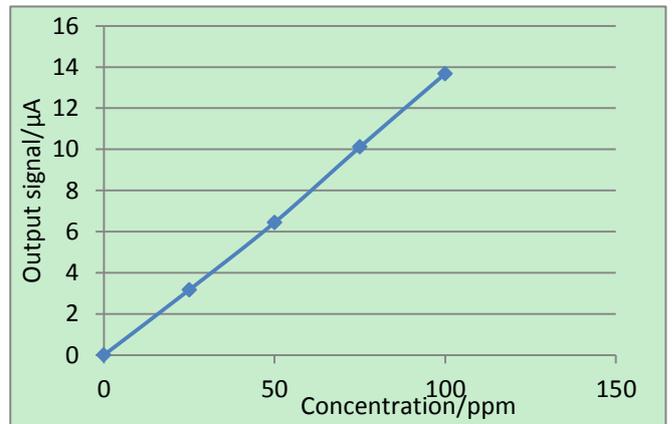


Fig4. Linearity

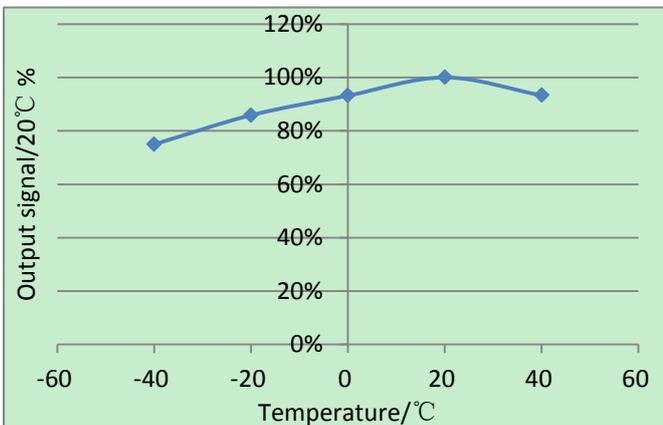


Fig5. Output of sensor at different temperature

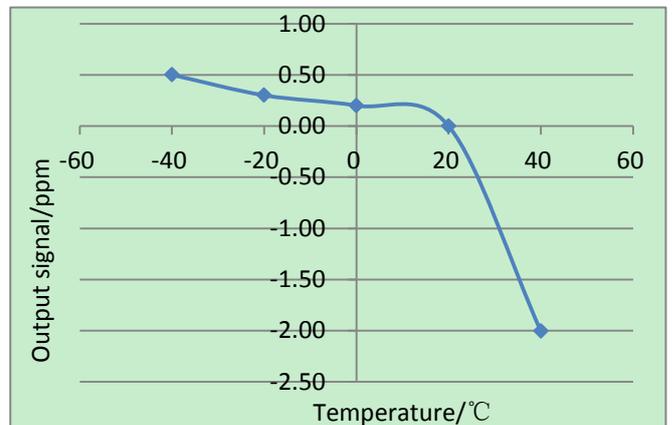


Fig6. Zero output of sensor at different temperature

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## Cross Interference

MQ-E4-NH<sub>3</sub> sensor also can respond to other gases besides target gas NH<sub>3</sub>. Following data are the response characteristics of the sensor to interferential gases at certain concentration for your reference.

Interferential Gas	Concentration	MQ-E4-NH <sub>3</sub>
CO	200	<-6
H <sub>2</sub> S	50	<25
Cl <sub>2</sub>	10	<-7
C <sub>2</sub> H <sub>4</sub>	100	0.00
H <sub>2</sub>	10000	<14
Alcohol	1000	<20
SO <sub>2</sub>	20	<9
PH <sub>3</sub>	20	<18
Methanal	10	<38
Benzene	100	<0.7
Methanol	200	<4

## Cautions!

- Tin soldering is prohibited.
  - Before using, power on to aging for more than 48 hours is necessary.
  - Pins can't be broke off or bent.
  - 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 pure 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.
  - The laminating film above the sensor surface can't be uncovered and damage.
  - Excessive impact or vibration should be avoided
  - It takes some time for the sensor to return to normal state after it is applied in high
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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°C to make the capsulation for the sensor.
  - Prohibit storage and usage for long time in alkaline gases with high concentration.
  - Do not use the sensor when the shell is damaged
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