

1. DESCRIPTION:

This sensor module has an MQ-8 as the sensor component and has a protection resistor and an adjustable resistor on-board. The MQ-8 gas sensor is highly sensitive to hydrogen and less sensitive to alcohol, and cooking fume. It could be used in gas leakage detection appliances in domestic and industry. The resistance of the sensor component changes as the concentration of the target gas changes.

2. Reference Source:

/* Testing MQ-8 GAS sensor with serial monitor
Suitable for detecting of Hydrogen, Alcohol and Cooking fume.*/

```
const int gasPin = A0; //GAS sensor output pin to Arduino analog A0 pin
```

```
void setup()  
{  
  Serial.begin(9600); //Initialize serial port - 9600 bps  
}
```

```
void loop()  
{  
  Serial.println(analogRead(gasPin));  
  delay(1000); // Print value every 1 sec.  
}
```

TECHNICAL DATA

MQ-8 GAS SENSOR

FEATURES

- * High sensitivity to Hydrogen (H_2)
- * Small sensitivity to alcohol, LPG, cooking fumes
- * Stable and long life

APPLICATION

They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of Hydrogen (H_2), avoid the noise of alcohol and cooking fumes, LPG, CO.

SPECIFICATIONS

A. Standard work condition

Symbol	Parameter name	Technical condition	Remarks
V_c	Circuit voltage	$5V \pm 0.1$	AC OR DC
V_H	Heating voltage	$5V \pm 0.1$	AC OR DC
P_L	Load resistance	$10K \Omega$	
R_H	Heater resistance	$31 \pm 5\%$	Room Tem
P_H	Heating consumption	less than 800mW	

B. Environment condition

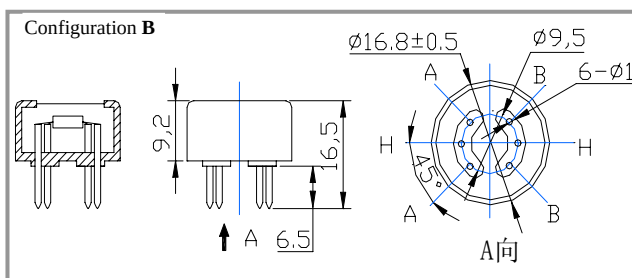
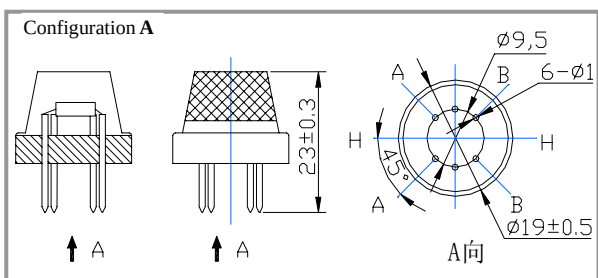
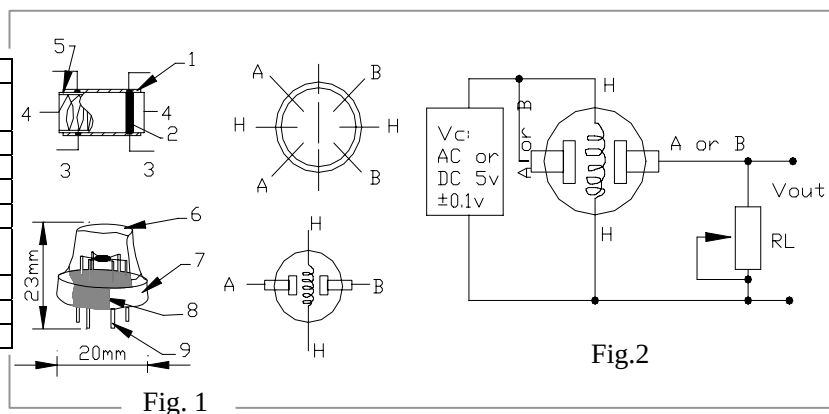
Symbol	Parameter name	Technical condition	Remarks
T_{ao}	Using Tem	$-10^\circ C - 50^\circ C$	
T_{as}	Storage Tem	$-20^\circ C - 70^\circ C$	
R_H	Related humidity	less than 95%Rh	
O_2	Oxygen concentration	21%(standard condition) Oxygen concentration can affect sensitivity	minimum value is over 2%

C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Ramark 2
Rs	Sensing Resistance	10K Ω - 60K Ω (1000ppm H ₂)	Detecting concentration scope: 100-10000ppm Hydrogen (H ₂)
α (1000ppm/ 500ppmH ₂)	Concentration slope rate	≤0.6	
Standard detecting condition	Temp: 20℃ ± 2℃ Humidity: 65%±5%	Vc: 5V±0.1 Vh: 5V±0.1	
Preheat time	Over 24 hour		

D. Structure and configuration, basic measuring circuit

Parts	Materials
1 Gas sensing layer	SnO_2
2 Electrode	Au
3 Electrode line	Pt
4 Heater coil	Ni-Cr alloy
5 Tubular ceramic	Al_2O_3
6 Anti-explosion network	Stainless steel gauze (SUS316 100-mesh)
7 Clamp ring	Copper plating Ni
8 Resin base	Bakelite
9 Tube Pin	Copper plating Ni



Structure and configuration of MQ-8 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro Al_2O_3 ceramic tube, Tin Dioxide (SnO_2) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive components. The enveloped MQ-8 have 6 pin ,4 of them are used to fetch signals, and other 2 are used for providing heating current.

Electric parameter measurement circuit is shown as Fig.2

E. Sensitivity characteristic curve

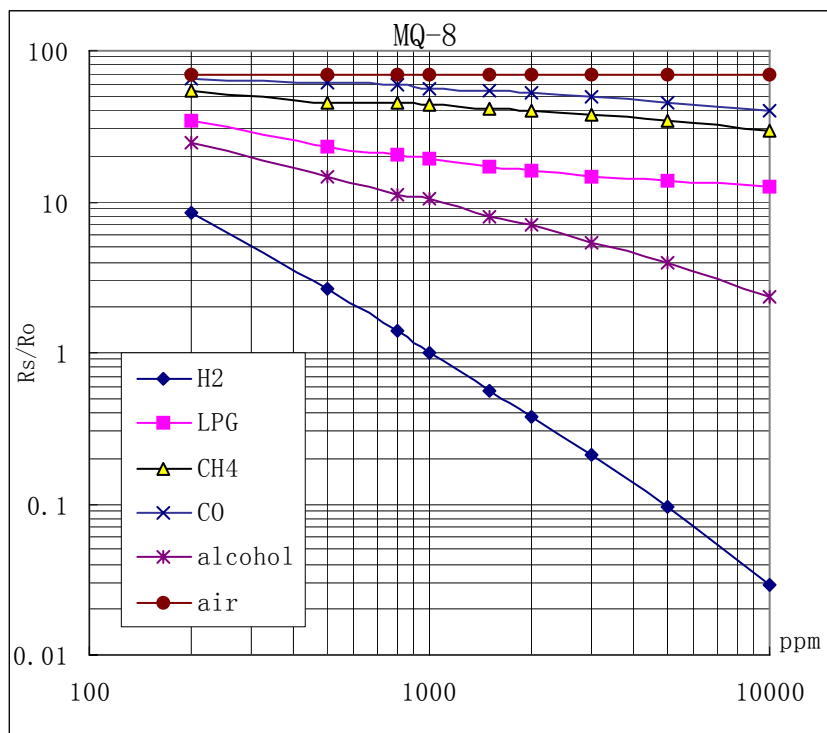


Fig.3 is shows the typical sensitivity characteristics of the MQ-8 for several gases.

in their: Temp: 20°C、
Humidity: 65%、
O₂ concentration 21%
RL=10k Ω

Ro: sensor resistance at 1000ppm H₂ in the clean air.

Rs: sensor resistance at various concentrations of gases.

Fig.2 sensitivity characteristics of the MQ-8

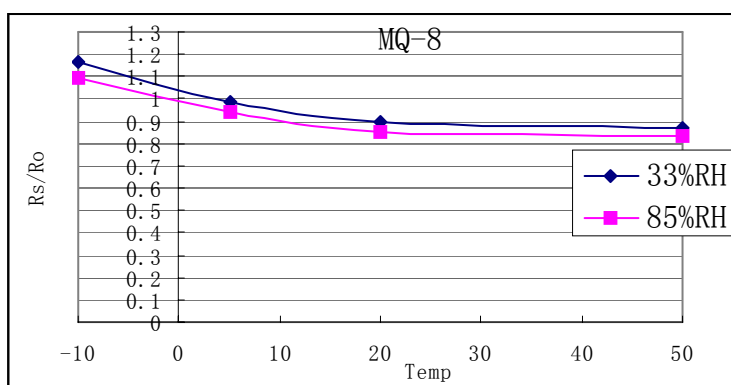


Fig.4 is shows the typical dependence of the MQ-8 on temperature and humidity.

Ro: sensor resistance at 1000ppm of H₂ in air at 33%RH and 20 degree.

Rs: sensor resistance at 1000ppm of H₂ in air at different temperatures and humidities.

SENSITIVITY ADJUSTMENT

Resistance value of MQ-8 is difference to various kinds and various concentration gases. So, When using this components, sensitivity adjustment is very necessary. we recommend that you calibrate the detector for 1000ppm H₂ concentration in air and use value of Load resistance (R_L) about 10 K Ω (5K Ω to 33 K Ω).

When accurately measuring, the proper alarm point for the gas detector should be determined after considering the temperature and humidity influence.