

TECHNICAL DATA

MQ-4 GAS SENSOR

FEATURES

- * High sensitivity to CH₄ , Natural gas.
- * Small sensitivity to alcohol, smoke.
- * Fast response . * Stable and long life * Simple drive circuit

APPLICATION

They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of CH₄,Natural gas.LNG, avoid the noise of alcohol and cooking fumes and cigarette smoke.

SPECIFICATIONS

A. Standard work condition

Symbol	Parameter name	Technical condition	Remarks
V _c	Circuit voltage	5V±0.1	AC OR DC
V _H	Heating voltage	5V±0.1	ACOR DC
P _L	Load resistance	20K	
R _H	Heater resistance	33 ± 5%	Room Tem
P _H	Heating consumption	less than 750mw	

B. Environment condition

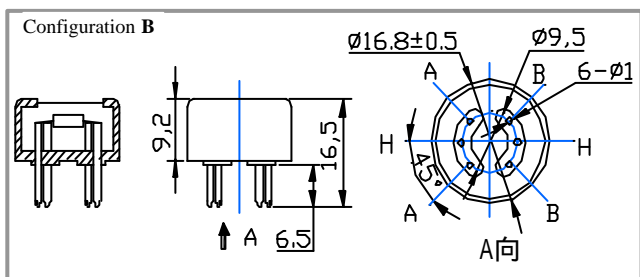
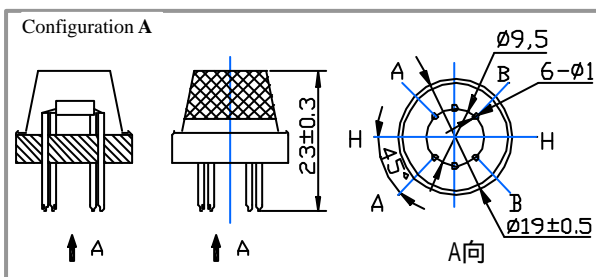
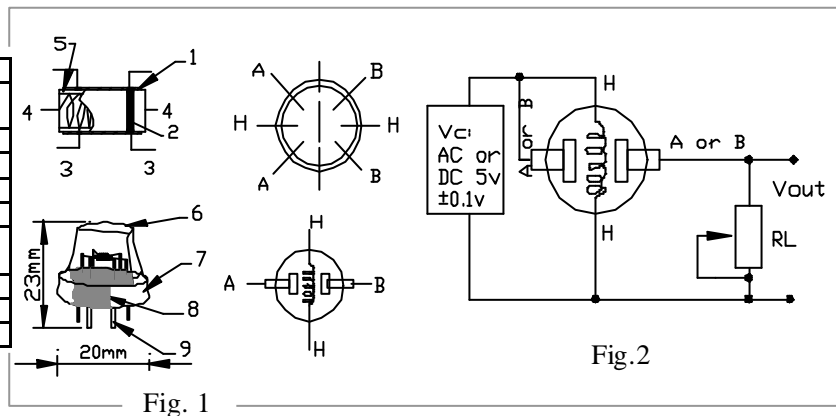
Symbol	Parameter name	Technical condition	Remarks
T _{ao}	Using Tem	-10 -50	
T _{as}	Storage Tem	-20 -70	
R _H	Related humidity	less than 95%Rh	
O ₂	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	minimum value is over 2%

C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Ramark 2
R _s	Sensing Resistance	10K - 60K (1000ppm CH ₄)	Detecting concentration scope : 200-10000ppm CH ₄ , natural gas
(1000ppm/ 5000ppm CH ₄)	Concentration slope rate	0.6	
Standard detecting condition	Temp: 20 ± 2 Humidity: 65%± 5%	V _c :5V±0.1 V _H : 5V±0.1	
Preheat time	Over 24 hour		

D. Strucyure 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 ₂ O 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-4 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-4 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

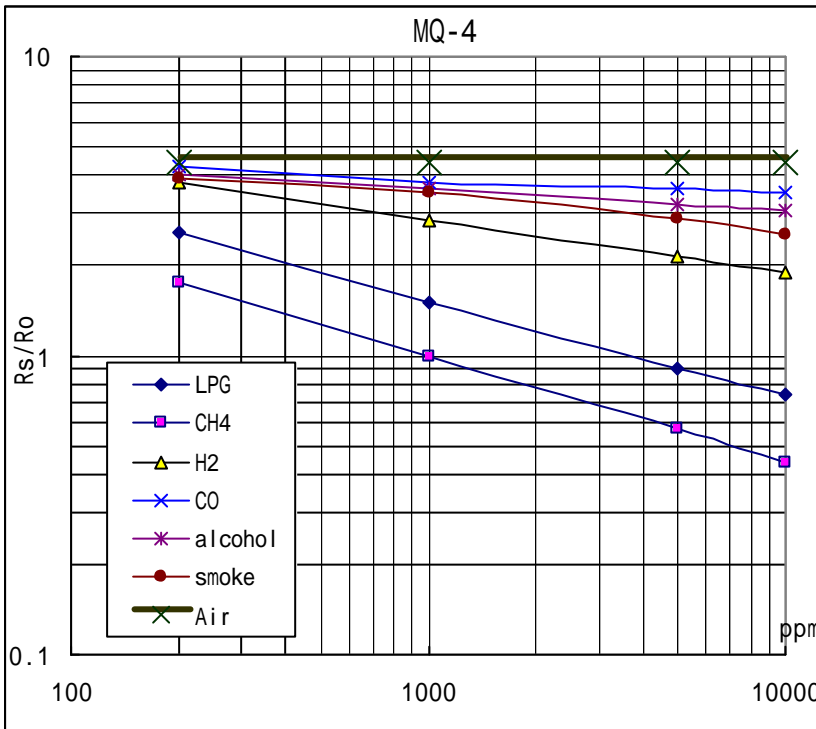


Fig.2 sensitivity characteristics of the MQ-4

Fig.3 is shows the typical sensitivity characteristics of the MQ-4 for several gases. in their: Temp: 20 °C, Humidity: 65%, O_2 concentration 21%, $R_L=20k$
 R_o : sensor resistance at 1000ppm of CH_4 in the clean air.
 R_s : sensor resistance at various concentrations of gases.

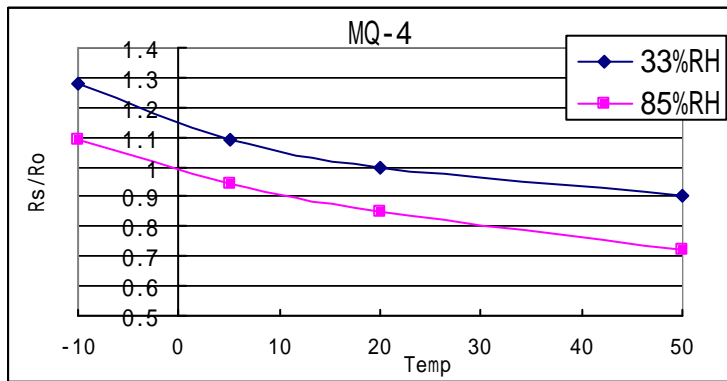


Fig.4 is shows the typical dependence of the MQ-4 on temperature and humidity. R_o : sensor resistance at 1000ppm of CH_4 in air at 33%RH and 20 degree.
 R_s : sensor resistance at 1000ppm of CH_4 in air at different temperatures and humidities.

SENSITIVITY ADJUSTMENT

Resistance value of MQ-4 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 5000ppm of CH_4 concentration in air and use value of Load resistance (R_L) about 20K (10K to 47K).

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