

TECHNICAL DATA SemiGAS 04 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	AC OR DC
P _L	Load resistance	20K Ω	
R _H	Heater resistance	33 Ω ± 5%	Room Tem
P _H	Heating consumption	less than 750mw	

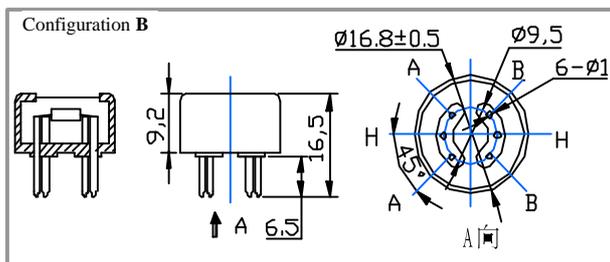
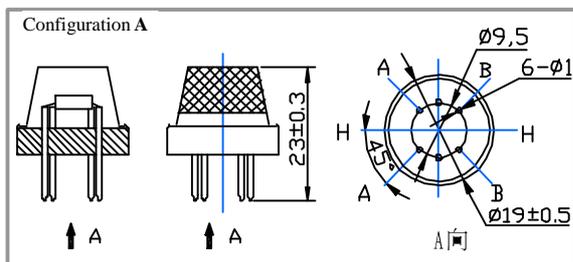
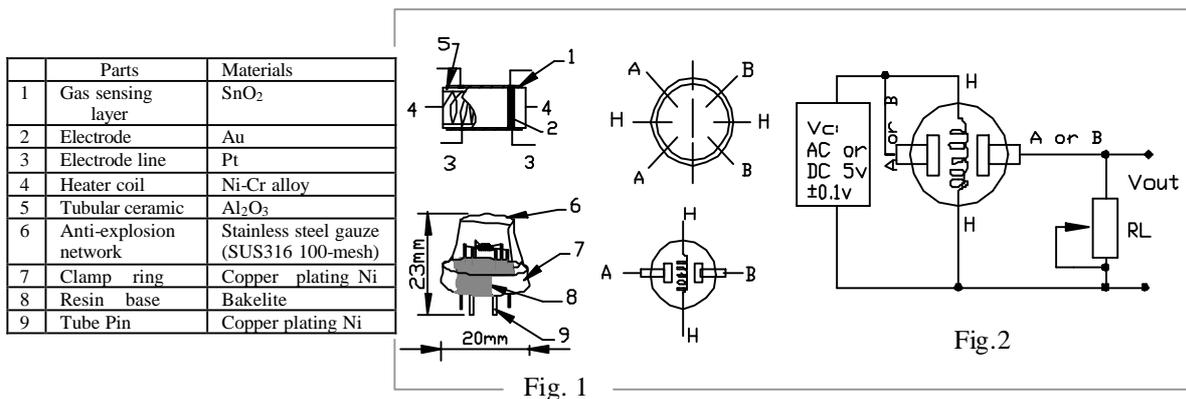
B. Environment condition

Symbol	Parameter name	Technical condition	Remarks
T _{ao}	Using Tem	-10 C -50 C	
T _{as}	Storage Tem	-20 C -70 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	Remark 2
R _s	Sensing Resistance	10K Ω - 60K Ω (1000ppm CH ₄)	Detecting concentration scope: 200-10000ppm CH ₄ , natural gas
α (1000ppm/ 5000ppm CH ₄)	Concentration slope rate	≤ 0.6	
Standard detecting condition	Temp: 20 C ± 2 C 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



Structure and configuration of SemiGAS 04 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 SemiGAS 04 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

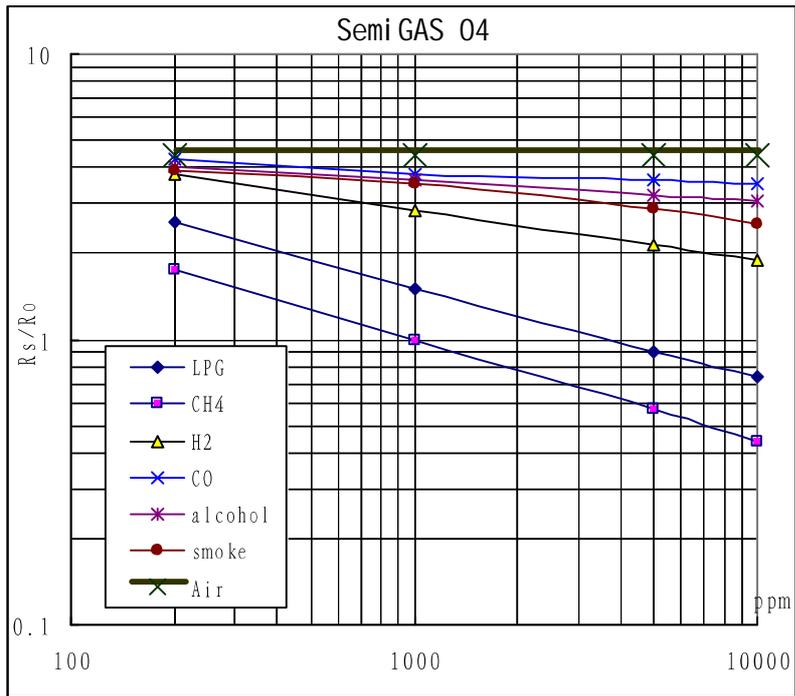


Fig.2 sensitivity characteristics of the SemiGAS 04

Fig.3 shows the typical sensitivity characteristics of the SemiGAS 04 for several gases. in their: Temp: 20°C, Humidity: 65%, O_2 concentration 21%, $R_L=20k\Omega$. R_o : sensor resistance at 1000ppm of CH_4 in the clean air. R_s : sensor resistance at various concentrations of gases.

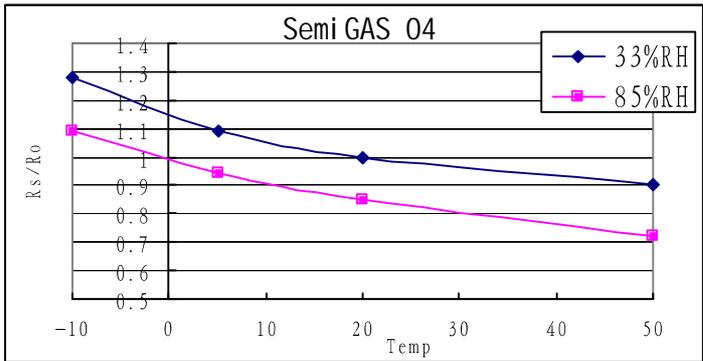


Fig.4 is shows the typical dependence of the SemiGAS 04 on temperature and humidity. R_o : sensor resistance at 1000ppm of CH_4 in air at 33%RH and 20 degree. R_s : sensor resistance at 1000ppm of CH_4 in air at different temperatures and humidities.

SENSITIVITY ADJUSTMENT

Resistance value of SemiGAS 04 is different 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 $20K\Omega$ ($10K\Omega$ to $47K\Omega$).

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