

HS-129 Smoke sensor specification

1. Characteristics:

- 1.1 Long period work stability.
- 1.2 Widely detecting scope.

2. Application

- 2.1 Gas leakage detecting equipment
- 2.2 Isobutane、propane、alcohol、Hydrogen detecting.

3. Property

3.1. Standard work condition

Symbol	Description	Technical condition	remarks
Vc	circuit voltage	5V	AC OR DC
VH	Heating voltage	5V	ACOR DC
PL	load resistance	can adjust	Ps
RH	heater resistance	$33 \Omega \pm 5\%$	At 25 °C
PH	heating consumption	less than 800mw	

3.2. Environment condition

Symbol	Description	technical condition	remarks
Tao	Using Tem	-20°C-50°C	
Tas	Storage Tem	-20°C-70°C	
RH	Related humidity	less than 95%Rh	
O2	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	minimum value is over 2%

3.3. Sensitivity characteristic

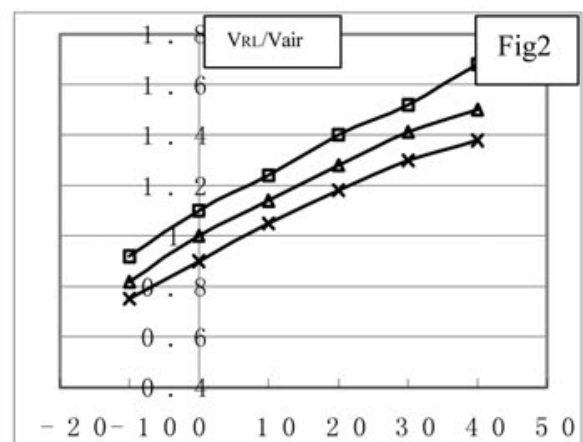
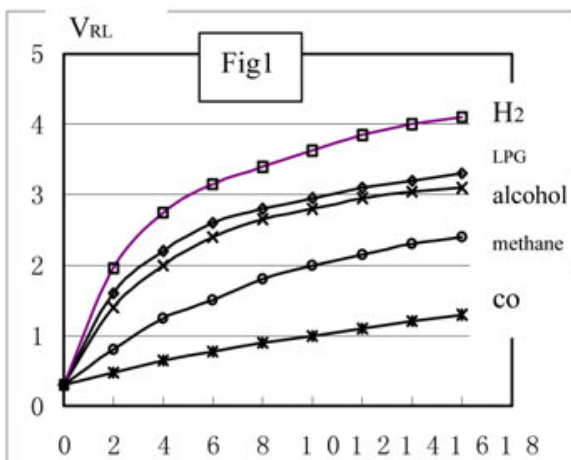
Symbol	Description	technical parameter	remark 1	ramark 2
Rs	sensing body resistance	1K Ω -10K Ω (1000ppm isobutane)	suitable for 3000ppm LPG and propane	detecting concentration scope : 300ppm-5000ppm liquified petroleum gas and propane 300ppm-5000ppm isobutane 5000ppm-20000ppm methane
α (3000/1000) isobutane	concentration slope rate	≤ 0.6		
Standard Detecting Condition	Temp: 20°C \pm 2°C Vc:5V \pm 0.1 Humidity: 65% \pm 5% Vh: 5V \pm 0.1			
Preheat time	over 24 hour			

3.4. Machinery characteristic

Project	condition	Property
Vibration	Frequency 100cpm	Should be conformed to given sensitivity characteristic
	Vertical vibrating amplitude	
	time 1 hour	
Punch	acceleration 100G	
	punch times 5	

4. Sensitivity characteristic curve of HS-129 sensor.

drawing 1 is relation curve of VRL and gas concentration.



At the: Temp: 20°C、Humidity: 65%、O2 concentration 21%, RL=5k Ω

Drawing 2 is relation curve between surface resistance and environment humidity.

5. Component structure and circuit symbols.

Series	Parts	materials
1	Gas sensing layer	SnO ₂
2	Measurement electrode	Au
3	Measurement electrode ignited line	Pt
4	Heater	N1-Cr alloy
5	Ceramic tube	Al ₂ O ₃
6	Anti-explosion network	100 dual layer stainless steel (SUS316)
7	Clamp ring	Ni plating
8	Basic seat	Bakelite
9	Pin	Ni plating

6. Electric parameter measurement circuit

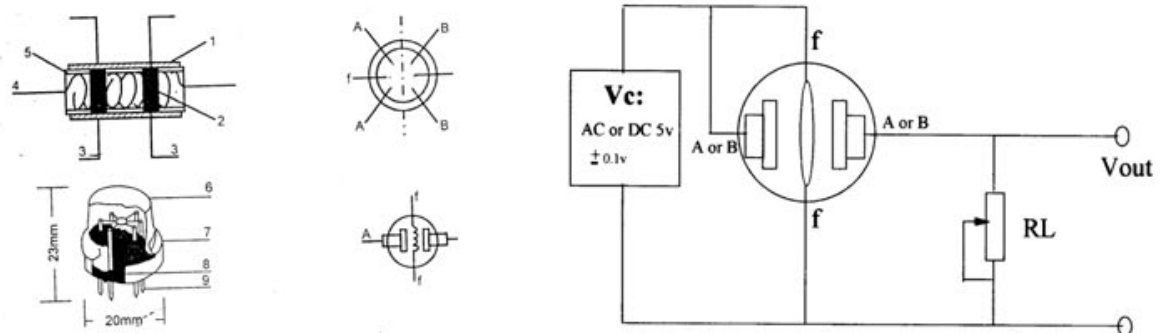


Fig:2

Drawing 4. The mentioned are block diagram of standard test of HS129. As environment temperature and humidity have certain effect to sensitivity. So, must consider environment factor when accurately measuring.

Drawing 5 is reference circuit (temperature compensation included)

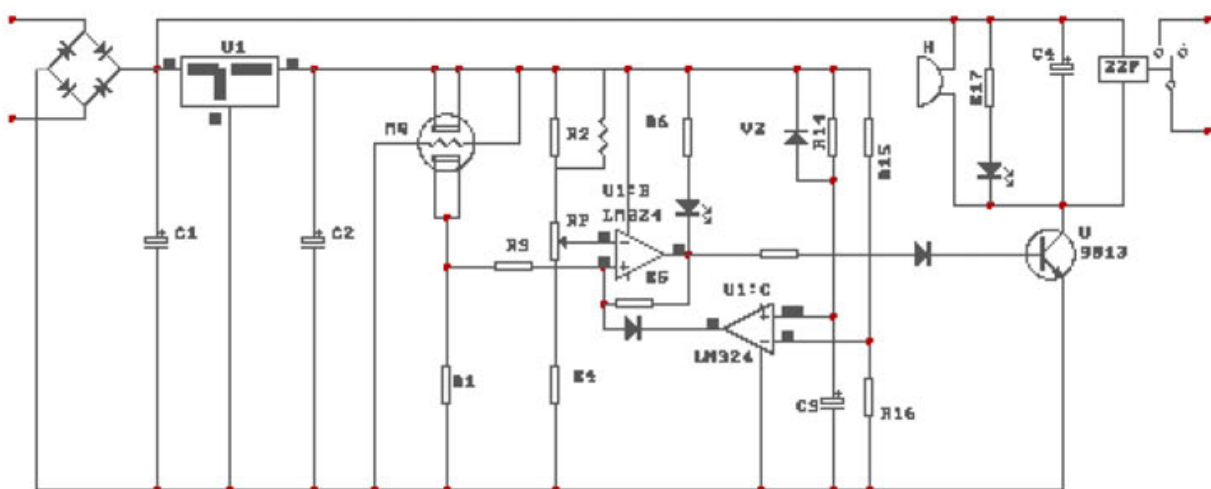


Fig. 5

7. Sensitivity adjustment

Resistance value changing of HS-129 will be caused by different pieces and gas concentration. So, when using the component, sensitivity adjustment is necessary.

We suggest that use 300-3000ppm LPG gas, or 300ppm-1000ppm C_4H_{10} as sensitivity adjustment gas concentration.

Adjustment steps:

- a. Input gas to application circuits.
- b. After storage please pre-heating sensor over 24 hours in order to guarantee sensor can reach stability completely.
- c. In the detecting gas concentration, adjust load resistance RL until suitable output signal coming out.