

Combustible Gas Sensor – Analog Out

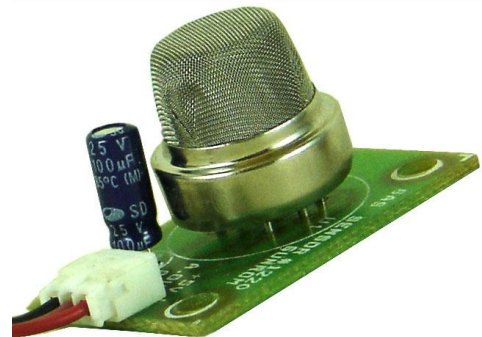
Used in gas leakage detecting equipments for detecting of LPG, iso-butane, propane, LNG combustible gases. The sensor does not get trigger with the noise of alcohol, cooking fumes and cigarette smoke.

Applications

- Gas leak detection system
- Fire/Safety detection system
- Gas leak alarm / Gas detector

Features

- Simple analog output
- High sensitivity to LPG, iso-butane, propane
- Small sensitivity to alcohol, smoke
- Fast response
- Wide detection range
- Stable performance and long life



Specification

Parameter	Value	Unit
Target Gas	iso-butane, Propane, LPG	
Detection Range	100 to 10000 PPM	PPM (part per millions)
Output Voltage Range	0 to 5	VDC
Working Voltage	5	VDC
Current Consumption	≤180	mA
Warmup Time	10	Minutes
Calibrated Gas	1000ppm iso-butane	
Response Time	≤10s	Seconds
Resume Time	≤30s	Seconds
Standard Working Condition	Temperature:-10 to 65 deg C. Humidity: ≤95%RH	
Storage Condition	Temperature: -20-70 deg C Hum: ≤ 70%RH	



Pin outs

#	Pin	Details
1	GND	Power Supply Ground
2	A.OUT	Analog Voltage Out
3	+5V	Supply voltage DC +5V regulated

Warm up Time

The sensor needs 10 minutes of warm up time after first power is applied. After 10 minutes you can take its readings. During warm up time the output analog voltage would go up from 4.5V to 0.5V in variation down gradually. During this warm up time the sensor reading should be ignored.

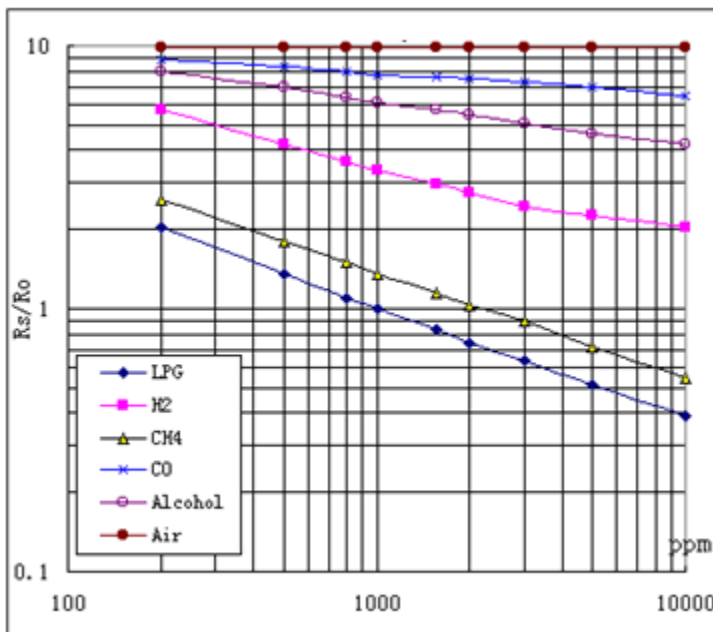
Using the Sensor

The sensor needs 5V to operate, Give regulated +5V DC supply, The sensor will take around 180mA supply. The sensor will heat a little bit since it has internal heater that heats the sensing element.

Testing the sensor

Measure the output voltage through multi-meter between A.OUT and Ground pins or Use a microcontroller to measure the voltage output. Take the sensor near combustible gas place like cooking gas stove with flame off or near bottle of after shave liquid or cigarette light with flame off. You will notice sudden jump in analog voltage output since the gas concentration will increase.

Sensitivity



Typical Sensitivity Characteristics of sensor for several gases in their

Temp: 20 deg C

Humidity: 65%

Oxygen concentration: 21%

RL = 10K Ohm

Ro = Sensor resistance at 1000 ppm of LPG in clean air

Rs = Sensor resistance at various concentrations of gases

Deriving Gas concentration from Output Voltage

Here is a the equation which convert analog output to PPM gas concentration

$$\text{PPM} = \text{Analog Voltage in mV} \times 2$$

Example: Gas sensor voltage is giving output as 2500mV(2.5V) So the gas concentration in PPM = $2500 \times 2 = 5000$ PPM

Here is the table for your reference

PPM:	200	300	500	1000	2000	3000	5000	9000	10000
Voltage(mV)	100	150	250	500	1000	1500	2500	4500	5000