Description

Sensitive material of GWM-Q2 gas sensor is SnO_2, which with lower conductivity in clean air. When the target combustible gas exist, The sensor's conductivity is more higher along with the gas concentration rising. Please use simple electrocircuit, Convert change of conductivity to correspond output signal of gas concentration.

GWM-Q2 gas sensor has high sensitity to LPG, Propane and Hydrogen, also could be used to Methane and other combustible steam, it is with low cost and suitable for different application.

Application:

Domestic gas leakage detector
Industrial Combustible gas detector
Portable gas detector

Character:

Good sensitivity to Combustible gas in wide range
High sensitivity to LPG, Propane and Hydrogen
Long life and low cost
Simple drive circuit

Technical Data

Sensor Type	Standard Encapsulation	Detection Gas	Concentration
Semiconductor	Bakelite (Black Bakelite)	Combustible gas and smoke	300-10000ppm (Combustible gas)

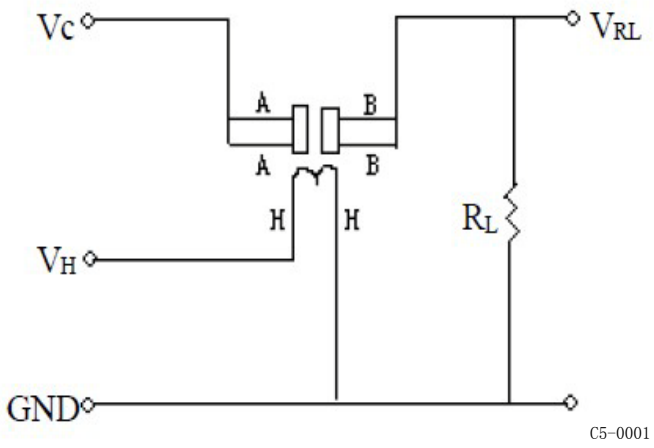
Ordering Information

Packaging	Each Bulk	MOQ	Package
Bulk	1000pcs	1000pcs	φ19

Standard Circuit Condition

Loop Voltage	Heater Voltage	Load Resistance	Preheat time
≤24V	5．0 ± 0.2 V	Adjustable	Over 48 hours

Test circuit



Circuit Description

The above is basic test circuit of the sensor. The sensor need to be put 2 voltage, Heater voltage(V_H)and test voltage(V_C). V_H used to supply certified working temperature to the sensor, while V_C used to detect voltage (V_{RL}) on load resistance (R_L) whom is in series with sensor. The sensor has light polarity, Vc need DC power. V_C and V_H could use same power circuit with precondition to assure performance of sensor. In order to make the sensor with better performance, suitable R_L value is needed:

Electrical Specification

Standard Circuit Condition return circuit DC Voltage：Vc≤24V heating voltage（AC or DC）5.0V±0.2V load resistance R_L adjustable

Parameter	Symbol	Test Conditions	Typ	Units
Heater Resistance	R_H	DC Vc≤24V AC or DC V_H =5.0±0.2V R_L: adjustable	31 ± 3	Ω
Heater consumption	P_H		≤900	mW
Sensing Resistance	Rs	in 2000ppm C3H8	2 ~ 20	KΩ
Sensitivity	S	Rs(in air)/Rs(1000ppm isobutane)	≥5	
Slope	α	(R5000ppm/R3000ppm C3H8)	≤0.6	
Tem.	To		20 ± 2	℃
Humidity	R_H		65 ± 5	%

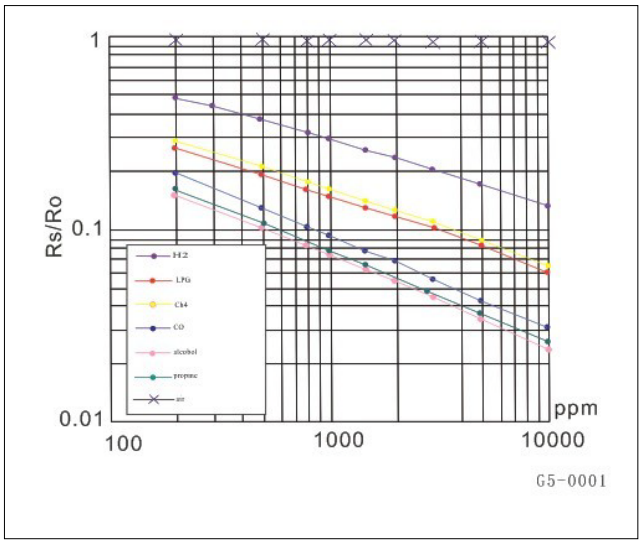
Power of Sensitivity body(Ps):

$Ps=Vc^2 \times Rs/(Rs+R_L)^2$

Resistance of sensor(Rs):

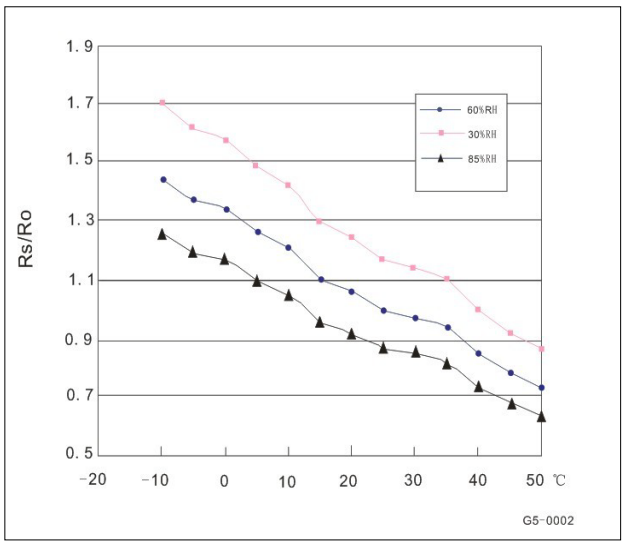
$Rs=(Vc/V_{RL}-1)\times R_L$

Sensitivity Characteristic

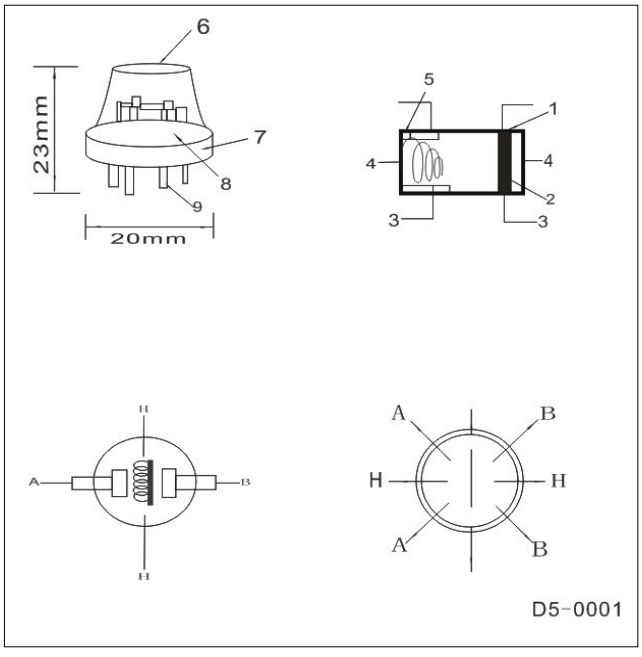


Ordinate means resistance ratio of the sensor (Rs/Ro), abscissa is concentration of gases. Rs means resistance in different gases, Ro means resistance of sensor in 1000ppm Hyrogen.All test are under standard test conditions.

Temperature VS Humidity



Ordinate means resistance ratio of the sensor (Rs/Ro), Rs means resistance of sensor in 1000ppm Butane under different tem. and humidity. Ro means resistance of the sensor in environment of 1000ppm Methane, 20℃/65% R_H



	Parts	Materials
1	Gas sening layer	SnO_2
2	Electrode	Au
3	Electrode line	Pt
4	Heater coll	(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 GW2-QM gas sensor is shown as D5-0001, 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 GW2-QM Have 6 pin, 4 of them are used to fetch signals, and other 2 are used for providing heating current.

Follwing conditions must be Prohibited

1 Exposed to organic silicon steam

1.1 Organic silicon steam cause sensors invalid, sensors must be avoid exposing to silicon bond, fixature, silicon latex, putty or plastic contain silicon environment

1.2 High Corrosive gas

If the sensors exposed to high concentration corrosive gas (such as H_2Sz, SO_X , Cl_2 , HCl etc), it will not only result in corrosion of sensors structure, also it cause sincere sensitivity attenuation.

1.3 Alkali,Alkali metals salt, halogen pollution

The sensors performance will be changed badly if sensors be sprayed polluted by alkali metals salt especially brine, or be exposed to halogen such as fluorin.

1.4 Touch water

Sensitivity of the sensors will be reduced when spattered or dipped in water.

1.5 Freezing

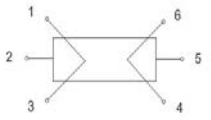
Do avoid icing on sensor'surface, otherwise sensor would lose sensitivity.

1.6 Applied voltage higher

Applied voltage on sensor should not be higher than stipulated value, otherwise it cause down-line or heater damaged, and bring on sensors' sensitivity characteristic changed badly

1.7 Voltage on wrong pins

For 6 pins sensor, if apply voltage on 1、3 pins or 4、6 pins, it will make lead broken, and without signal when apply on 2、4 pins



Following conditions must be avoided

2.1 Water Condensation

Indoor conditions, slight water condensation will effect sensors performance lightly. However, if water condensation on sensors surface and keep a certain period, sensor' sensitivity will be decreased.

2.2 Used in high gas concentration

No matter the sensor is electrified or not, if long time placed in high gas concentration, if will affect sensors characteristic.

2.3 Long time storage

The sensors resistance produce reversible drift if it's stored for long time without electrify, this drift is related with storage conditions. Sensors should be stored in airproof without silicon gel bag with clean air. For the sensors with long time storage but no electrify, they need long aging time for stbility before using.

2.4 Long time exposed to adverse environment

No matter the sensors electrified or not, if exposed to adverse environment for long time, such as high humidity, high temperature, or high pollution etc, it will effect the sensors performance badly.

2.5 Vibration

Continual vibration will result in sensors down-lead response then repture. In transportation or assembling line, pneumatic screwdriver/ultrasonic welding machine can lead this vibration.

2.6 Concussion

If sensors meet strong concussion, it may lead its lead wire disconnected.

2.7 Usage

For sensor, handmade welding is optimal way. If use wave crest welding should meet the following conditions:

2.7.1 Soldering flux: Rosin soldering flux contains least chlorine

2.7.2 Speed: 1-2 Meter/ Minute

2.7.3 Warm-up temperature：100±20℃

2.7.4 Welding temperature：250±10℃

2.7.5 1 time pass wave crest welding machine If disobey the above using terms, sensors sensitivity will be reduced.