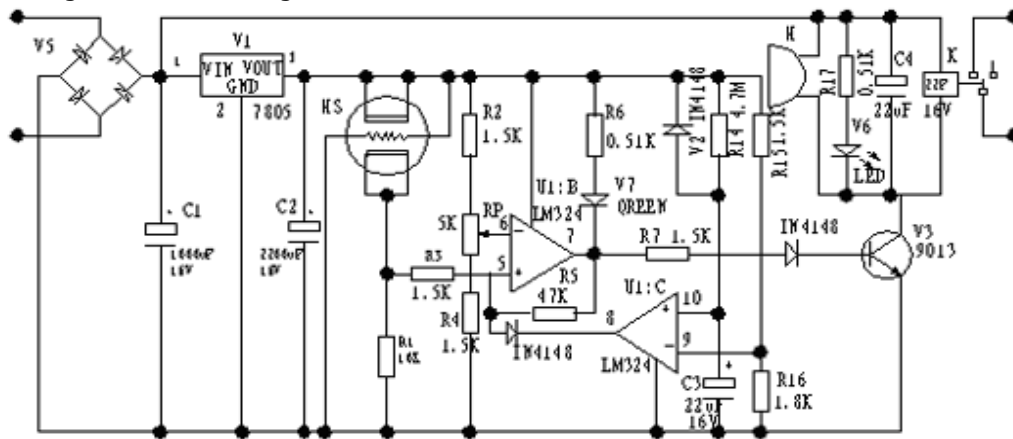


## A simple entire circuit solution guide for gas leak alarm

Detecting Gas	Sensor Type	Calibrating Concentration
Combustible gas/Smoke	MQ-2	1000ppm±30%
Natural Gas/Methane	MQ-4	5000ppm±30%
Coal Gas/Methane/LPG	MQ-5	2000/5000/2000ppm±30%
LPG	MQ-6	3000ppm±30%
CO	MQ-7	200ppm±30%
Coal Gas	MQ-8	800ppm±30%

How to use HANWEI MQ semiconductor type gas sensor, here we support you a simple, complete design guide for gas leak alarm, It is a speedy way for you to produce your gas leak alarm conveniently.

Following is the circuit diagram.



### Electricity circuit debugging :

Refers to the above circuit, Check all the assemblage, connecting the power supply, the "green" LED should light, When testing, the E1, E2 should be 9V, 5V separately. The pin8 of U1 should be at low voltage (about 0.3V), There is a delay lasting about 5 minutes caused by the delay circuit with IC, U1:C shall prevent the false alarm at first connecting power supply, Introducing R14 of different resistance value or C3 (capacitance) of various capacitance can adjust the delay time. After about 5 minutes, the delay ends, then the pin8 of U1:C should be at a high voltage (about 3.8V). When detecting in clean air, the both sides voltage ( $V_o$ ) of R1 should be 0.2~1 V, otherwise should make the  $V_o$  fall into the above range through change R1 resistance value; Connecting the  $V_o$  to 1000 to +5V (E2), adjust the resistance (RP) slightly, the "RED" LED should light accordingly. The Pin 7 of U1:B will become 3.8V from the 0.3V of static state., at the mean time driving the buzzer to sound. If the component assemblage is correct, we can debug the above circuit, Take out the resistance between the E2 and  $V_o$ , the debugging end.

### Testing through Calibration gas

Preheating the gas leak alarm for 10 minutes, Making the calibrating gas concentration according to volume proportion, put the gas leak alarm in the calibrated gas. after 10 seconds, the gas sensor sensing the gas adequately, then adjust the RP slightly to make buzzer sound exactly and RED LED light, the calibration will be completed after repeated it several times.

### Installation

If the detected gas is LPG, Butane and propane which is heavier than normal air, Install the gas leak alarm about 1.00 meter above the ground, adversely, For the Natural gas, Methane, coal gas, CO and H<sub>2</sub>, which is lighter than the normal air, Install gas leak alarm about 1 meter below the roof, Both of them are should be with good air circulation.

- MQ-2: suitable for combustible gas, alcohol, smoke etc
- MQ-3: suitable for alcohol
- MQ-4: suitable for CH<sub>4</sub>, CNG, Natural gas
- MQ-5: suitable for town gas, LPG, natural gas
- MQ-6: suitable for LPG, iso-butane, propane
- MQ-7: suitable for carbon-monoxide
- MQ-8: suitable for Hydrogen (H<sub>2</sub>)
- MQ-9: suitable for CO and LPG, Natural gas etc
- MQ131: suitable for Ozone
- MQ135: suitable for air polluted gas
- MQ136: suitable for H<sub>2</sub>S
- MQ137: suitable for NH<sub>3</sub>
- MQ138: suitable for organic solvents like alcohol, benzene, NH<sub>3</sub> etc
- MQ214: suitable for methane, 6V, 20mA
- MQ216: suitable for LPG, iso-butane, propane, 6V, 20mA
- MQ214A: suitable for methane, 12V, 10mA
- MQ216A: suitable for LPG, iso-butane, propane, 12V, 10mA
- MQ303: suitable for alcohol, heater voltage: 3V
- MQ303A: suitable for alcohol, heater voltage: 0.9V
- MQ306: suitable for LPG, heater voltage: 3V
- MQ306A: suitable for LPG, heater voltage: 0.9V
- MQ307: suitable for CO, heater voltage: 3V
- MQ307A: suitable for CO, heater voltage: 0.9V
- MQ309: suitable for CO and combustible gas, heater voltage: 3V
- MQ309A: suitable for CO and combustible gas, heater voltage: 0.9V