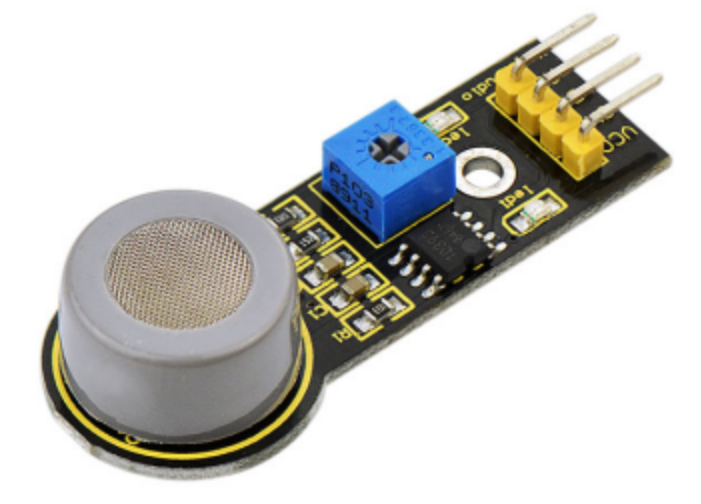

keyestudio WiKi

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Dec 30, 2025

KEYESTUDIO KS0045 SENSOR

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1. INTRODUCTION

The gas sensitive material used in MQ-7 gas sensor is SnO₂, which is of lower electrical conductivity in clean air.

It detects carbon monoxide with low temperature (heated by 1.5V) through high-low temperature cycles.

The electrical conductivity of the sensor increases with the increase of the carbon monoxide concentration in the air. The change of electrical conductivity can be converted to the output signal corresponding to that of the gas concentration by using a simple circuit.

The sensitivity of MQ-7 gas sensor to carbon monoxide is quite high, so it can be used to detect various gas containing carbon monoxide. It is a low-cost sensor suitable for a variety of applications.

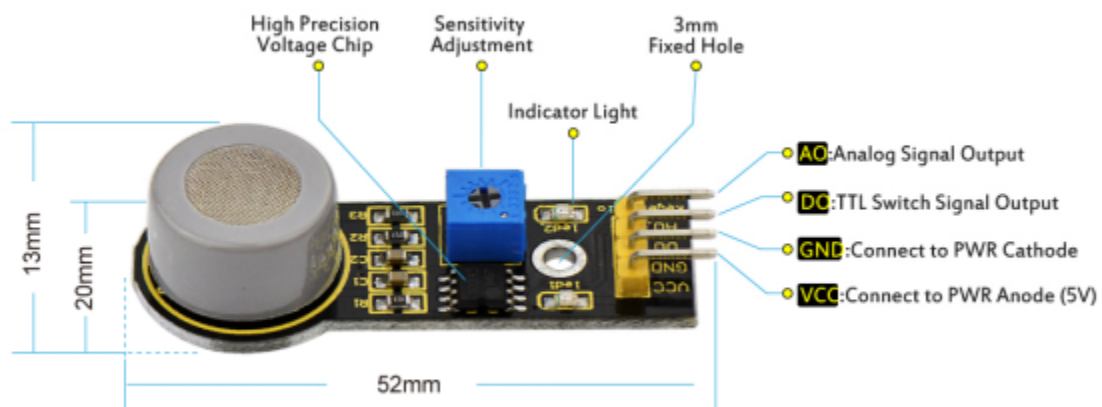
2. SPECIFICATION

- Target Gas: carbon monoxide
- Detectable Concentration: 300-10000ppm CO
- I Loop voltage V_c : 10V DC
- Heating Voltage V_H : $5.0V \pm 0.2V$ ACorDC(hight); $1.5V \pm 0.1V$ ACorDC(low)
- Load Resistance R_L : adjustable
- Heating Resistance R_H : 31 ± 3 (Room temperature)
- Heating Power P_H : 350mW
- Surface Resistance of Sensitive Material R : 2K-20K(in100ppmCO)
- Sensitivity S : $R_s(\text{in air})/R_s(100\text{ppmCO})5$
- Concentration Slope: $0.6(R_{300\text{ppm}}/R_{100\text{ppm CO}})$
- Temperature, Humidity: $20^\circ\text{C} \pm 2^\circ\text{C}$; $65\% \pm 5\%RH$
- Standard Test Circuit: $V_c: 5.0V \pm 0.1V$; $V_H(\text{high}): 5.0V \pm 0.1V$; $V_H(\text{low}): 1.5V \pm 0.1V$

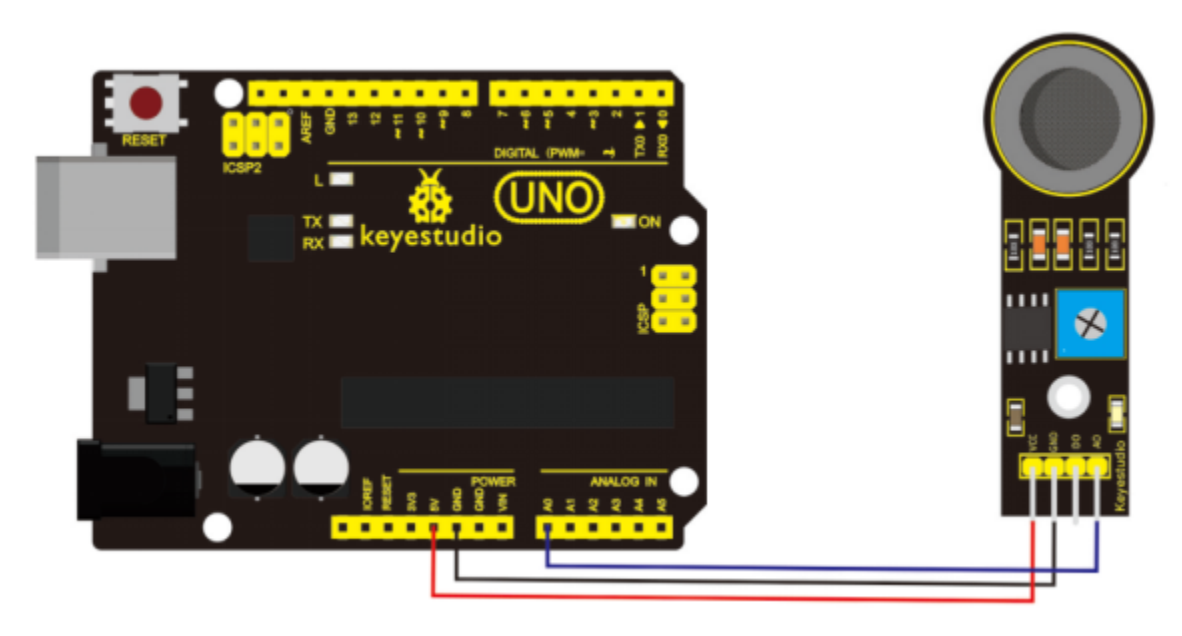
3. FEATURES

- good sensitivity to carbon monoxide.
- long service life, low cost
- simple drive circuit

4. PINOUTS



5. CONNECTION DIAGRAM



4. SAMPLE CODE

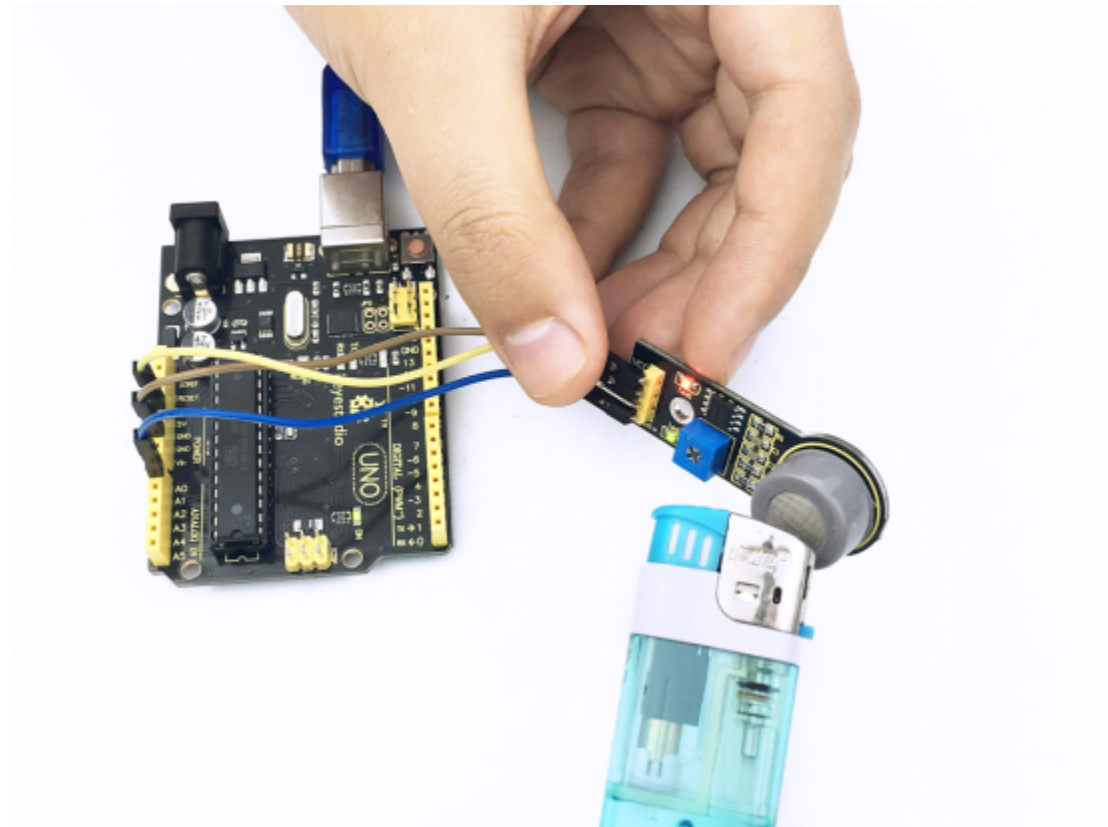
Download code: [Code](#)

```
void setup()
{
    Serial.begin(9600); //Set serial baud rate to 9600 bps
}

void loop()
{
    int val;
    val=analogRead(0); //Read Gas value from analog 0
    Serial.println(val,DEC); //Print the value to serial port
    delay(100);
}
```


5. TEST PHENOMENON

When the sensor detects the carbon monoxide gas, its built-in led will light up as below figure shown.



6. APPLICATION

- household gas leak alarm
- Industrial-level carbon monoxide gas alarm
- Portable gas detector