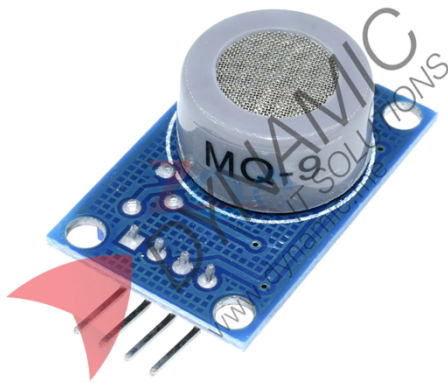


MQ-9 Carbon Monoxide Combustible (CO)



Features:

The MQ-9 is a semiconductor gas sensor capable of detecting both carbon monoxide (CO) and combustible gases like methane and propane. It uses a temperature cycling method, operating at low temperature (1.5 V) to detect CO and high temperature (5.0 V) to detect combustible gases while cleaning other residues. Its SnO₂ material changes conductivity in the presence of gases, and the output can be read with a basic circuit. This sensor offers dual gas detection capability, high sensitivity, and cost-effective design, making it suitable for home and industrial gas monitoring systems.

Specifications	
Model	MQ-9
Sensor Type	Semiconductor
Encapsulation	Bakelite
Detection Gases	Carbon monoxide (CO), methane, propane, LPG
Concentration Range	10–1000 ppm CO, 100–10000 ppm combustible gases
Loop Voltage (Vc)	<= 10 V DC
Heater Voltage (Vh)	High: 5.0 V +/- 0.2 V, Low: 1.5 V +/- 0.1 V (AC or DC)
Heater Timing	High: 60 +/- 1 sec, Low: 90 +/- 1 sec
Load Resistance (RL)	Adjustable
Heater Resistance (Rh)	31 Ohm +/- 3 Ohm at room temperature
Heater Power Consumption	<= 350 mW
Sensing Resistance (Rs)	2 kOhm–20 kOhm (in 100 ppm CO)
Sensitivity	Rs (in air) / Rs (in 100 ppm CO) >= 5
Concentration Slope (alpha)	<= 0.6 (R300ppm / R100ppm CO)
Standard Operating Temp	20 +/- 2 °C
Standard Humidity	65% +/- 5% RH
Standard Test Voltages	Vc: 5.0 V +/- 0.1 V; Vh High: 5.0 V +/- 0.1 V; Vh Low: 1.5 V +/- 0.1 V
Preheat Time	Over 48 hours
Use Cases	Domestic CO and gas alarms, industrial multi-gas detectors, portable CO and combustible gas monitors

Pinouts:

Pin Name	Type	Description
VCC	Power Input	Power supply input (5 V recommended)
GND	Power Ground	Common ground
AO	Analog Output	Analog voltage output proportional to CO or gas concentration
DO	Digital Output	Digital signal output when gas level exceeds threshold (if comparator is present)



Pin1: VCC
Pin2: GND
Pin3: DO
Pin4: AO

