

# MQ-7 CO Carbon Monoxide Gas Sensor



## **Features:**

The MQ-7 is a semiconductor gas sensor designed to detect carbon monoxide (CO) using a cyclical heating method. It alternates between high-temperature cleaning at 5.0 V and low-temperature sensing at 1.5 V, allowing selective CO detection while removing other gases. Its SnO<sub>2</sub>-based sensing material increases conductivity as CO concentration rises. With high sensitivity, low cost, and simple drive requirements, the MQ-7 is ideal for CO monitoring in home, industrial, and portable applications.

Specifications	
<b>Model</b>	MQ-7
<b>Sensor Type</b>	Semiconductor
<b>Encapsulation</b>	Plastic
<b>Detection Gas</b>	Carbon Monoxide (CO)
<b>Concentration Range</b>	10–10000 ppm CO
<b>Loop Voltage (Vc)</b>	<= 10 V DC
<b>Heater Voltage (Vh)</b>	High: 5.0 V +/- 0.2 V, Low: 1.5 V +/- 0.1 V (AC or DC)
<b>Heater Timing</b>	High: 60 +/- 1 sec, Low: 90 +/- 1 sec
<b>Load Resistance (RL)</b>	Adjustable
<b>Heater Resistance (Rh)</b>	31 Ohm +/- 3 Ohm at room temperature
<b>Heater Power Consumption</b>	<= 350 mW
<b>Sensing Resistance (Rs)</b>	2 kOhm–20 kOhm (in 100 ppm CO)
<b>Sensitivity</b>	Rs (in air) / Rs (in 100 ppm CO) >= 5
<b>Concentration Slope (alpha)</b>	<= 0.6 (R300ppm / R100ppm CO)
<b>Standard Operating Temp</b>	20 +/- 2 °C
<b>Standard Humidity</b>	65% +/- 5% RH
<b>Standard Test Voltages</b>	Vc: 5.0 V +/- 0.1 V; Vh High: 5.0 V +/- 0.1 V; Vh Low: 1.5 V +/- 0.1 V
<b>Preheat Time</b>	Over 48 hours
<b>Use Cases</b>	Home CO alarms, industrial CO detectors, portable carbon monoxide testers

## 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 concentration
DO	Digital Output	Digital signal output when CO level exceeds threshold (if comparator is present)

