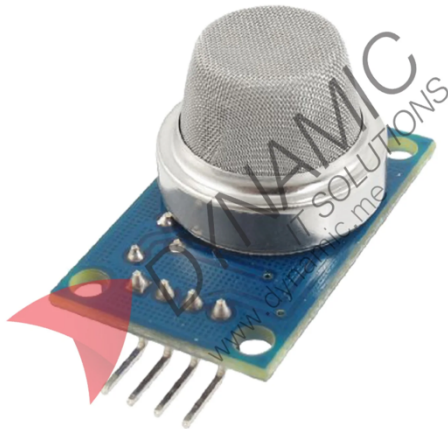


MQ-4 Gas Methane Sensor



Features:

The MQ-4 is a semiconductor gas sensor designed primarily for methane (natural gas) detection but also responds to other combustible gases like propane and butane. It operates by changing conductivity in the presence of gas, which is easily converted to an output voltage with a basic circuit. The sensor offers high sensitivity to methane, long operational life, and low cost. Its simple drive requirements make it well-suited for use in both fixed and portable gas detection systems, particularly for natural gas leak detection in residential and industrial environments.

Specifications	
Model	MQ-4
Sensor Type	Semiconductor
Encapsulation	Black Bakelite
Detection Gas	Methane (CH ₄), natural gas, propane, butane
Concentration Range	300–10000 ppm
Loop Voltage (Vc)	<= 24 V DC
Heater Voltage (Vh)	5.0 V +/- 0.2 V (AC or DC)
Load Resistance (RL)	Adjustable
Heater Resistance (Rh)	31 Ohm +/- 3 Ohm at room temperature
Heater Power Consumption	<= 900 mW
Sensing Resistance (Rs)	2 kOhm–20 kOhm (in 5000 ppm CH ₄)
Sensitivity	$R_s \text{ (in air)} / R_s \text{ (in 5000 ppm CH}_4\text{)} \geq 5$
Concentration Slope (alpha)	<= 0.6 (R5000ppm / R3000ppm CH ₄)
Standard Operating Temp	20 +/- 2 °C
Standard Humidity	65% +/- 5% RH
Standard Test Voltages	Vc: 5.0 V +/- 0.1 V, Vh: 5.0 V +/- 0.1 V
Preheat Time	Over 48 hours
Use Cases	Home gas leak alarms, industrial methane monitors, portable combustible gas detectors

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

