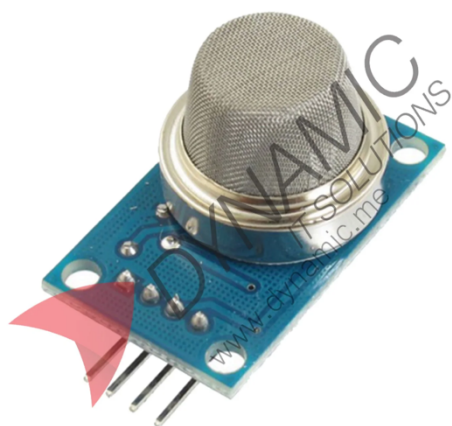


MQ-135 Air Quality & Pollution Sensor



Features:

The MQ-135 is an air quality sensor that detects a wide range of toxic gases including ammonia, hydrogen sulfide, benzene vapors, smoke, and other harmful pollutants. It operates based on the change in conductivity of its sensitive SnO_2 material when exposed to gas. The sensor offers high sensitivity, long lifespan, low cost, and simple driving requirements, making it ideal for indoor and industrial air quality monitoring.

Specifications	
Model	MQ-135
Sensor Type	Semiconductor
Encapsulation	Bakelite with metal cap
Target Gases	Ammonia, sulfide, benzene vapors, smoke, hydrogen
Detection Range	10–1000 ppm (varies by gas type)
Loop Voltage (Vc)	$\leq 24 \text{ V DC}$
Heater Voltage (Vh)	$5.0 \text{ V} \pm 0.1 \text{ V (AC or DC)}$
Load Resistance (RL)	Adjustable
Heater Resistance (Rh)	$29 \Omega \pm 3 \Omega$ at room temperature
Heater Power Consumption	$\leq 950 \text{ mW}$
Sensitivity	$R_s (\text{in air}) / R_s (\text{in } 400 \text{ ppm H}_2) \geq 5$
Output Voltage (Vs)	$2.0 \text{ V} - 4.0 \text{ V in } 400 \text{ ppm H}_2$
Concentration Slope (α)	$\leq 0.6 (R_{400\text{ppm}} / R_{100\text{ppm H}_2})$
Standard Operating Temp	$20 \pm 2 \text{ }^\circ\text{C}$
Standard Humidity	$55\% \pm 5\% \text{ RH}$
Standard Test Voltages	Vc: $5.0 \text{ V} \pm 0.1 \text{ V}$, Vh: $5.0 \text{ V} \pm 0.1 \text{ V}$
Preheat Time	Over 48 hours
Use Cases	Indoor air quality monitors, gas leak alarms, industrial pollution detectors, portable air 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 gas concentration
DO	Digital Output	Digital signal output when gas level exceeds threshold (if comparator is present)

