

Alcohol Sensor Module - MQ3



Category: Alcohol Sensor Module - MQ3

Overview:

This module is made using Alcohol Gas Sensor MQ3. It is a low cost semiconductor sensor which can detect the presence of alcohol gases at concentrations from 0.05 mg/L to 10 mg/L. The sensitive material used for this sensor is SnO₂, whose conductivity is lower in clean air. Its conductivity increases as the concentration of alcohol gases increases. It

has high sensitivity to alcohol and has a good resistance to disturbances due to smoke, vapor and gasoline. This module provides both digital and analog outputs. MQ3 alcohol sensor module can be easily interfaced with Microcontrollers, Arduino Boards and Raspberry Pi etc.

Detailed Description:

TECHINAL SPECATION :

- Power requirements: 5 VDC @ ~165 mA (heater on) / ~60 mA (heater off)
- Current Consumption: 150mA
- DO output: TTL digital 0 and 1 (0.1 and 5V)
- AO output: 0.1- 0.3 V (relative to pollution), the maximum concentration of a voltage of about 4V
- Detecting Concentration: 0.05-10mg/L Alcohol
- Interface: 1 TTL compatible input (HSW), 1 TTL compatible output (ALR)
- Heater consumption: less than 750mW
- Operating temperature: 14 to 122 °F (-10 to 50°C)
- Load resistance: 200kΩ
- Sensitivity S: $R_s(\text{in air})/R_s(0.4\text{mg/L Alcohol}) \geq 5$
- Sensing Resistance R_s : 2KΩ-20KΩ(in 0.4mg/l alcohol)
- Dimensions: 32 x 22 x 16 mm

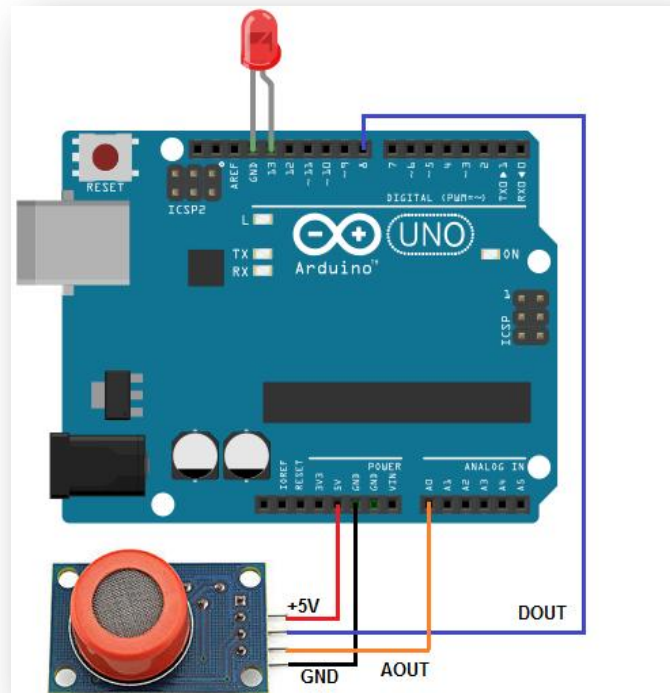
APPLICATION:

- Vehicle Alcohol Detector
- Portable Alcohol Detector

Pin Description

For MQ-3 Sensor Module

Pin Name	Description
VCC	This pin powers the module, typically the operating voltage is +5V
GND	Used to connect the module to system ground
Digital Out (DO)	You can also use this sensor to get digital output from this pin, by setting a threshold value using the potentiometer
Analog Out (AO)	This pin outputs 0-5V analog voltage based on the intensity of the gas



Datasheet :

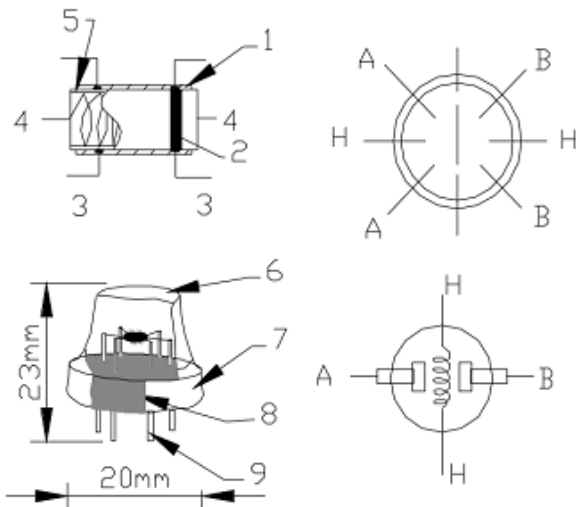
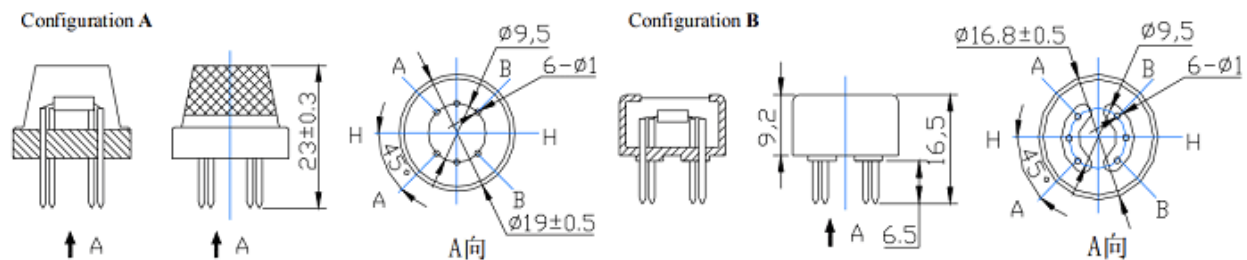
- MQ-3 ALCOHOL SENSOR MODULE Datasheet

<https://cdn.sparkfun.com/datasheets/Sensors/Biometric/MQ-3%20ver1.3%20-%20Manual.pdf>

Instructions/Manuals/Technical details: User Manual:

<http://www.waveshare.com/w/upload/f/fb/MQ-3-Gas-Sensor-UserManual.pdf>

2D Model of MQ-3 Sensor (Configuration A and B)



	Parts	Materials
1	Gas sensing layer	SnO ₂
2	Electrode	Au
3	Electrode line	Pt
4	Heater coil	Ni-Cr alloy
5	Tubular ceramic	Al ₂ O ₃
6	Anti-explosion network	Stainless steel gauze (SUS316 100-mesh)
7	Clamp ring	Copper plating Ni
8	Resin base	Bakelite
9	Tube Pin	Copper plating Ni

Key Features:

- 5V operation
- Simple to use
- LEDs for output and power
- Output sensitivity adjustable
- Analog output 0V to 5V
- Digital output 0V or 5V
- Low Cost
- Fast Response
- Stable and Long Life
- Good Sensitivity to Alcohol Gas
- Both Digital and Analog Outputs
- On-board LED Indicator

<https://store.fut-electronics.com/products/alcohol-sensor-module-mq3analog-digital>