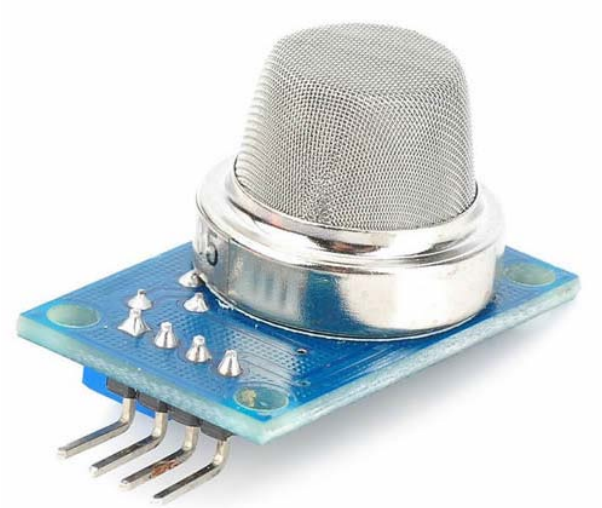
Data Specs

MQ2 Gas Sensor Module

This Analog Smoke/LPG/CO Gas Sensor module utilizes MQ-2 as the gas detecting component and has a protection resistor and an adjustable resistor on board. MQ2 Gas Sensor module is useful for gas leakage detecting in home and industry. It can detect LPG, i-butane, methane, alcohol, Hydrogen and smoke. Based on its fast response time, measurements can be taken as soon as possible. Also the sensitivity can be adjusted by the potentiometer.



SKU: MDU-1027

Brief Specification:

- Power Supply: 5VDC.
- Working Current: ~150mA.
- Detecting: LPG, i-butane, propane, methane, alcohol, Hydrogen, smoke.
- Warm-up time: ~20-seconds for stable output.
- TTL Digital Ouput: 0V (Low) & 5V (High).
- Analog Output A0: 0.1 ~ 0.3 V.
- Connector: 4-pins header with 2.54mm pitch.
- Dimension: (32 x 20 x 22) mm.
- Weight 8.5g.

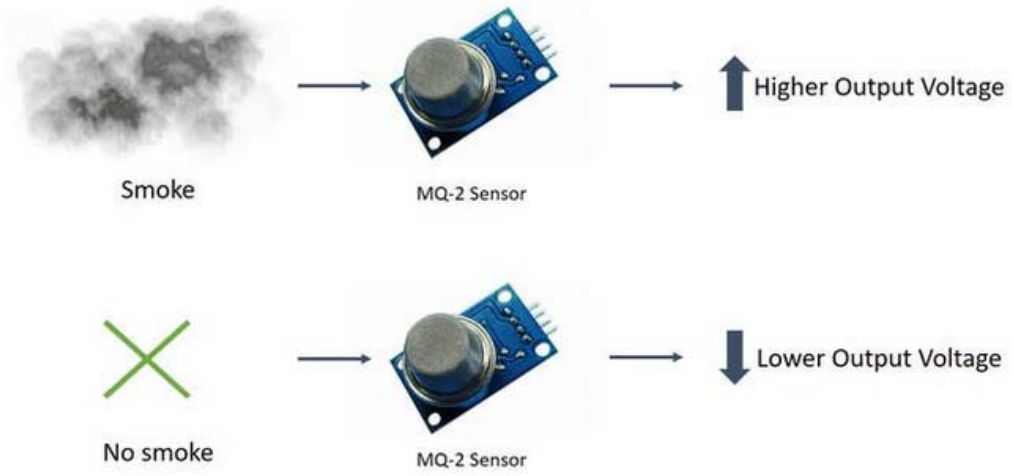
Module Layout and Pin Assignment:

How does it Work?

The voltage that the sensor output changes according to the smoke/gas level that exists in the atmosphere. The sensor outputs a voltage that is proportional to the concentration of smoke/gas.

In other words, the relationship between voltage and gas concentration is the following:

- The greater the gas concentration, the greater the output voltage
- The lower the gas concentration, the lower the output voltage



The output can be an analog signal (A0) that can be read with an analog input of the Arduino or a digital output (D0) that can be read with a digital input of the Arduino.

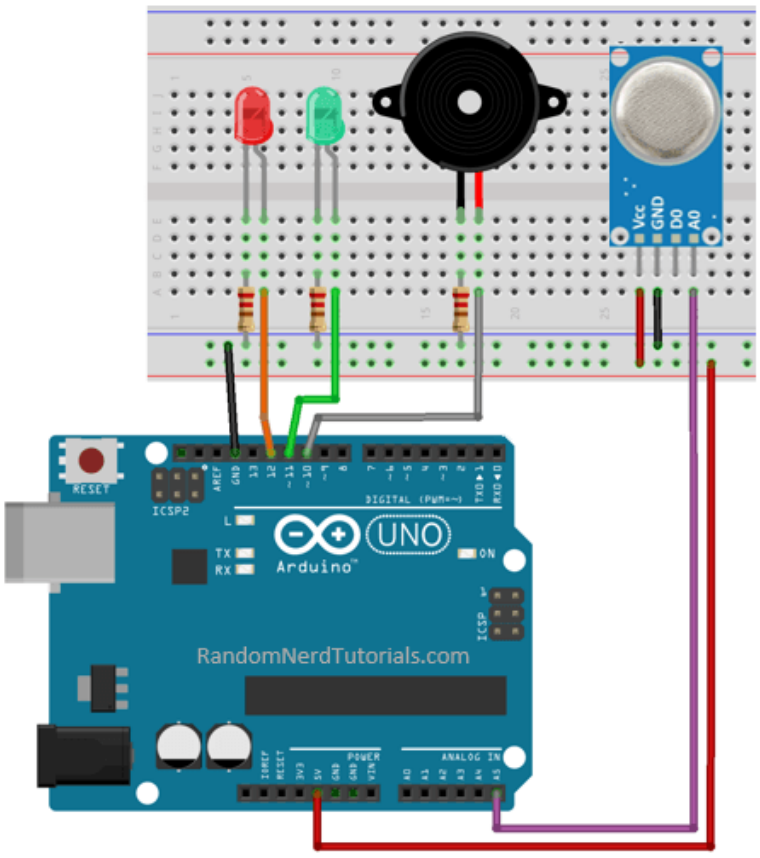
MQ2 Application Example with Arduino:

In this example, you will read the sensor analog output voltage and when the smoke reaches a certain level, it will make sound a buzzer and a red LED will turn on. When the output voltage is below that level, a green LED will be on.

Parts needed:

- 1 x MQ-2 gas sensor
- 1x Arduino Uno R3
- 1x Breadboard
- 1 x Red LED
- 1 x green LED
- 1 x buzzer
- 3 x 220Ω resistor
- Jumper wires

Schematic: Follow these schematics to complete the project:



Code Listing:

Upload the following sketch to your Arduino board (feel free to adjust the variable *"Sensitivity Control"* with a different threshold value):

```
/*=============================================================================
//  Author      : Handson Technology
//  Project     : Arduino Uno
//  Description : MQ2 Gas/Smoke Sensor
//  Source-Code : MQ2.ino
//=============================================================================
*/

int redLed = 12;
int greenLed = 11;
int buzzer = 10;
int smokeA0 = A5;
// Your threshold value
int sensorThres = 400;

void setup() {
  pinMode(redLed, OUTPUT);
  pinMode(greenLed, OUTPUT);
  pinMode(buzzer, OUTPUT);
  pinMode(smokeA0, INPUT);
  Serial.begin(9600);
}

void loop() {
  int analogSensor = analogRead(smokeA0);

  Serial.print("Pin A0: ");
  Serial.println(analogSensor);
  // Checks if it has reached the threshold value
  if (analogSensor > sensorThres)
  {
    digitalWrite(redLed, HIGH);
    digitalWrite(greenLed, LOW);
    tone(buzzer, 1000, 200);
  }
  else
  {
    digitalWrite(redLed, LOW);
    digitalWrite(greenLed, HIGH);
    noTone(buzzer);
  }
  delay(100);
}
```

You can also read the sensor value by open the Serial Monitor from the Arduino IDE.

Note: Please allow 2~5 minutes for the MQ2 to stabilize after power up before taken any real value.