Grove - HCHO Sensor

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中文 (http://www.seeedstudio.com/wiki/Grove_-
_HCHO_Sensor_/_%E7%94%B2%E9%86%9B%E4%BC%A0%E6%84%9F%E5%99%A8)

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Introduction

The Grove - HCHO Sensor is a semiconductor VOC gas sensor. Its design is based on WSP2110 whose conductivity changes with the concentration of VOC gas in air. Through the circuit, the conductivity can be converted to output signal that corresponding to the gas concentration. This sensor has a very high sensitivity and stability, it can detect the gas whose concentration is up to 1ppm. It's suitable for detecting formaldehyde, benzene, toluene and other volatile components. This product can be used to detect harmful gas in the home environment. Therefore, it's a good assistant for you to improve indoor environment quality of life.

Model:SEN01500P (http://www.seeedstudio.com/depot/grove-hcho-sensor-p-1593.html)
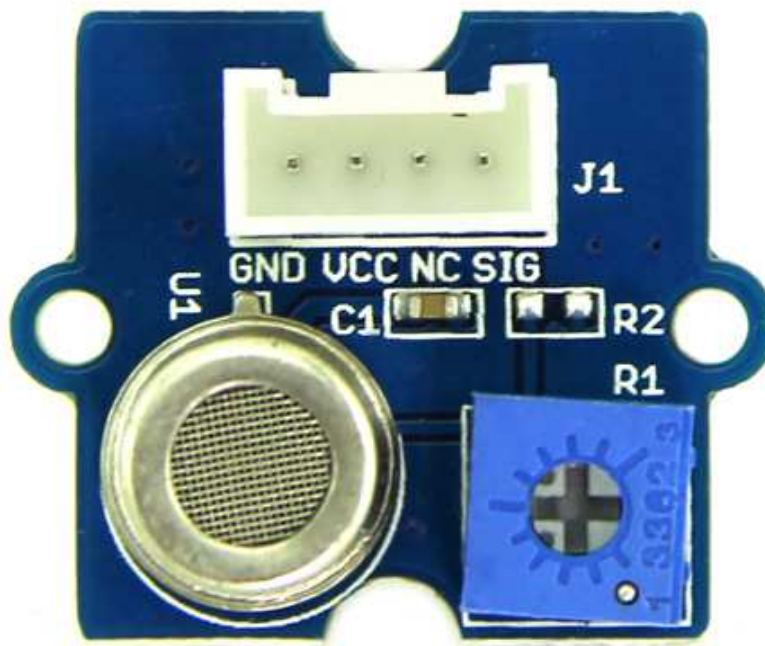
Specification

Operating Voltage: 5.0V ± 0.3V
Target Gases: HCHO, Benzene,Toluene,Alcohol
Concentration Range: 1~50 ppm
Sensor Resistance Value(Rs): 10KΩ-100KΩ(in 10ppm HCHO)
Sensitivity: Rs(in air)/Rs(10ppm HCHO)≥5

Demonstration

The Grove - HCHO Sensor can be used to detect VOCs, such as HCHO,toluene, benzene, alcohol. Here we take alcohol for an example to demonstrate how to use this sensor.
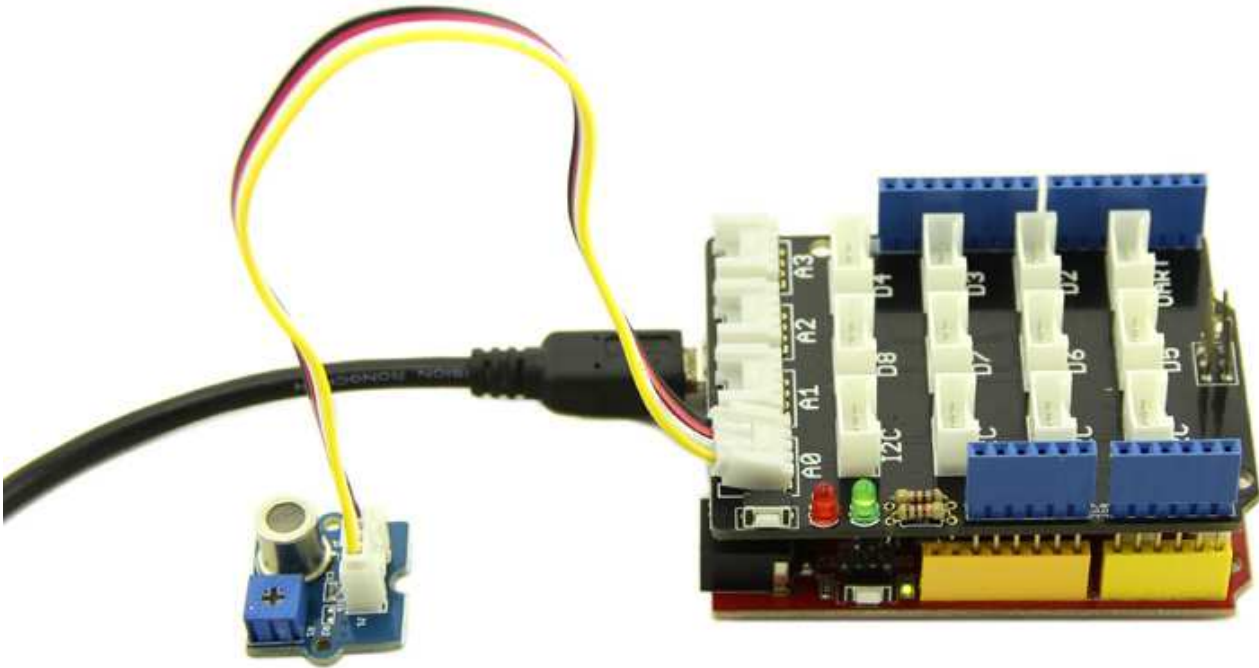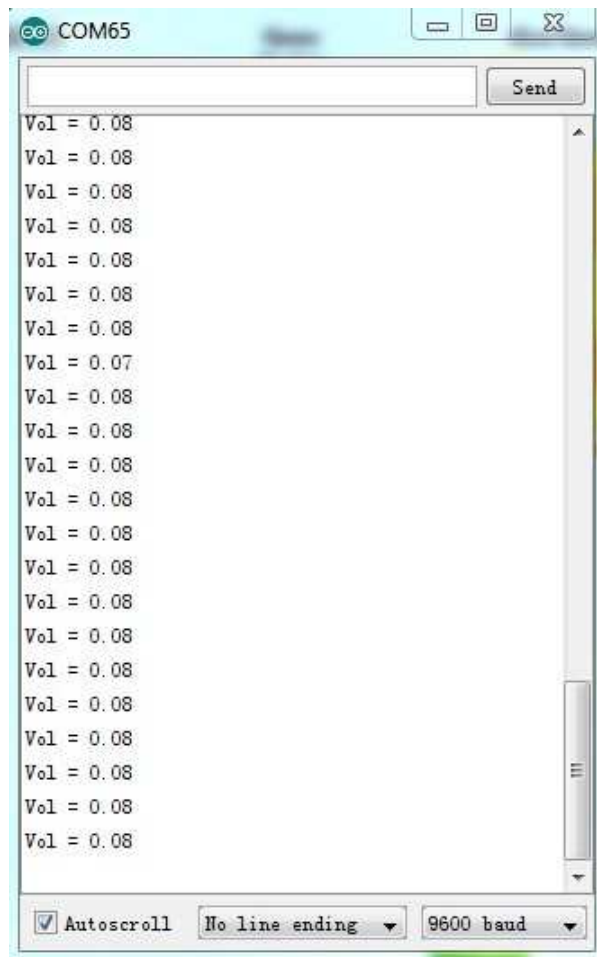


```
// demo of Grove - HCHO Sensor

void setup()
{
    Serial.begin(9600);
}

void loop()
{
    int sensorValue=analogRead(A0);
    float Vol=sensorValue*4.95/1023;
    Serial.print("Vol = ");
    Serial.println(Vol);
    delay(500);
}
```
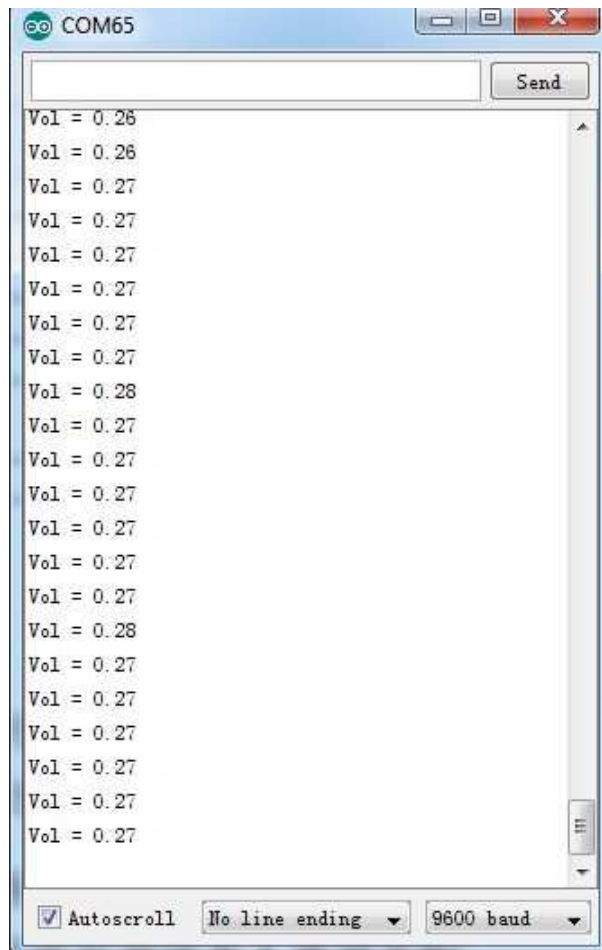
After uploading the code, open the serial monitor to get the voltage(Vol) under normal condition.

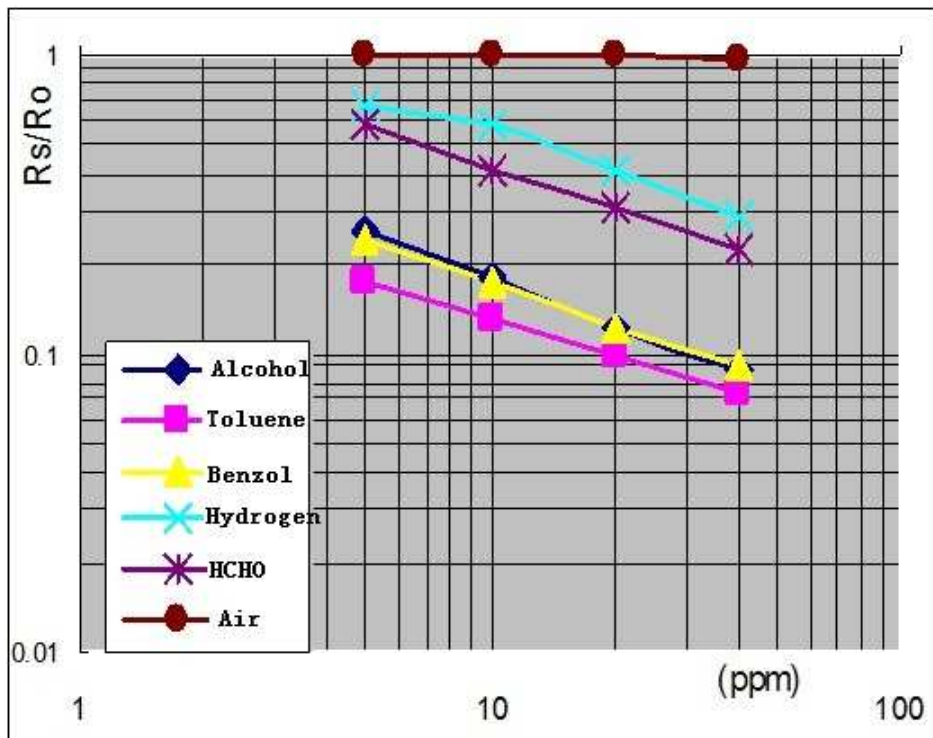Now list out the formula describing the relationship of Vol and R0:

R0=(Vc/Vol-1)×R1 (Vc=4.95V) ①

Then put a bottle of alcohol near the sensor, and read again the sensor value:

And we get the Rs:

$$Rs = (Vc/Vol-1) \times R1 \ (Vc=4.95V) \ ②$$

Now calculate Rs/R0. Here we get 0.285. Then refer to the sensitivity characteristic diagram below and find the alcohol concentration is about 5 ppm.

Resources

Grove - HCHO Sensor Eagle File (http://www.seeedstudio.com/wiki/images/f/ff/Grove_-_HCHO_Sensor_Eagle_File.zip)

Support

If you have questions or other better design ideas, you can go to our forum (http://www.seeedstudio.com/forum) or wish (http://wish.seeedstudio.com) to discuss.

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