Grove - Gas Sensor (O2)

Release date： 9/20/2015

Version： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_Gas_Sensor(O%E2%82%82)

Bazaar: http://www.seeedstudio.com/depot/Grove-Gas-SensorO2-p-1541.html

Document Revision History

Revision	Date	Author	Description
1.0	Sep 21, 2015	Victor.He	Create file

Contents

Document Revision History 2
1. Introduction 2
2. Features 3
3. Specifications 4
4. Usage 5
5. Resources 8

Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

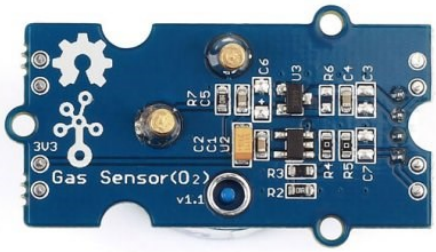
Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

Copyright

The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.

1. Introduction

Grove-Gas Sensor (O_2) is a kind of sensor to test the oxygen concentration in air, which is based on the principle of the electrochemical cell to the original work. You can know clearly the current oxygen concentration when you output voltage values proportional to the concentration of oxygen and refer to the oxygen concentration linear characteristic graph. It's very suitable for detecting oxygen concentration in the environment protection. Grove - Gas Sensor(O_2) is an organic reaction module, it can provide a little current while putting it in the air, we don't need to provide an external power to it, and output voltage will change as time current changes.



2. Features

- High-precision
- High sensitivity
- Wide linearity range
- Strong anti-interference ability
- Extraordinary reliability

3. Specifications

Items	Parameter
Measurement Range	0-25%vol
Detect Life	two years
Sensitivity	0.05～0.15 mA(in air)
Temperature Range	- 20℃ ~ 50℃
Pressure range	QNE±10 %
Response Time	≤15S
Humidity range	0 ~ 99 % RH Non-condensing
Stability	<2%

4. Usage

That requires us to use the analog port of Arduino to take the readings. We have converted the read value to the corresponding concentration of O2. It's more convenient for you to get a value of O2 directly without watching the figure.

Notice: Please power the Gas Sensor(O2) more than 48 hrs before you get data from it.

Here is an example of concentration control Buzzer. When Oxygen concentration gets lower than the minimum safe concentration , the Buzzer will sound.

1. Connect the module to the Analog port 0 of Grove - Basic Shield using the 4-pin grove cable and connect Buzzer to Pin 3.

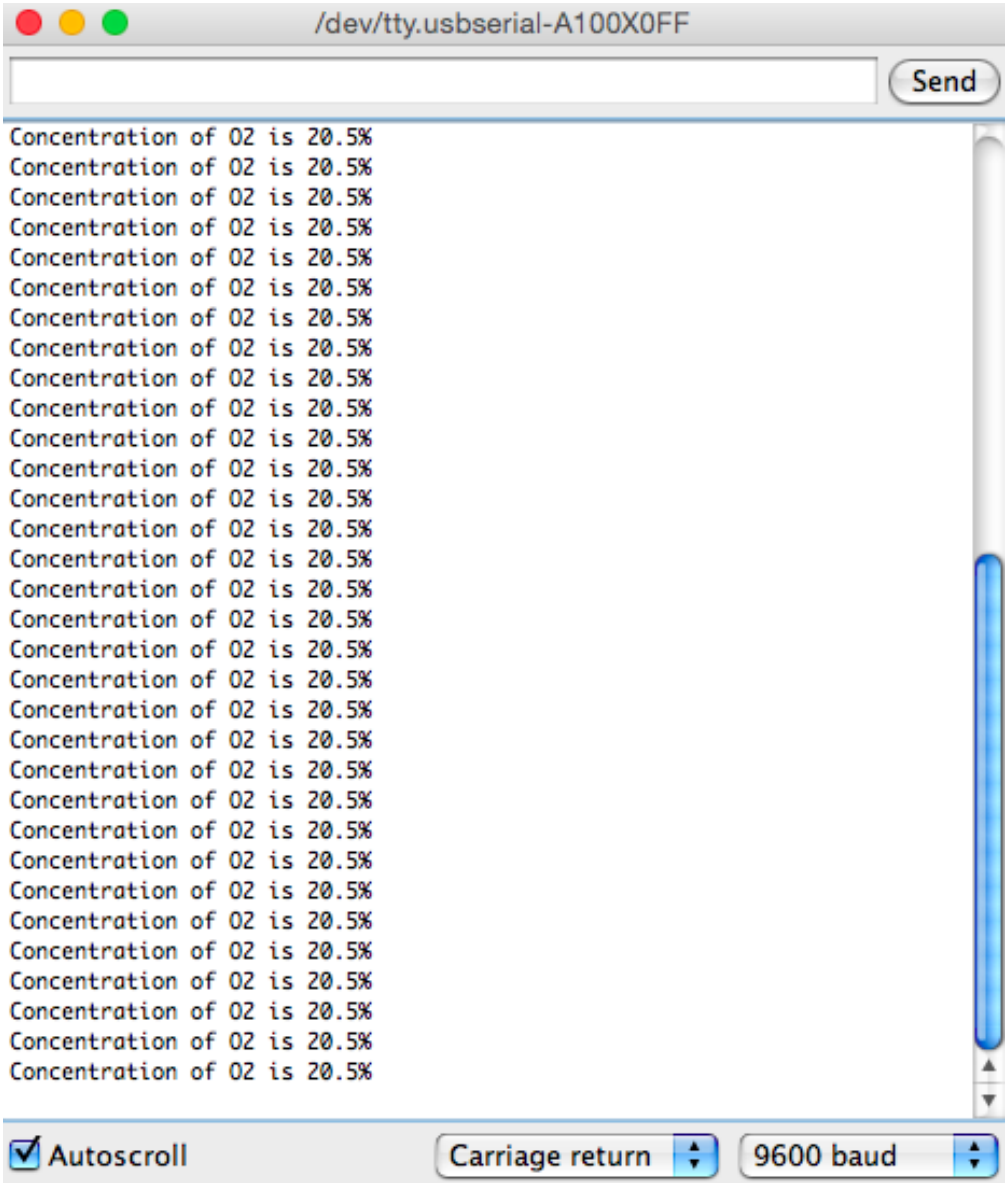
   2. Plug the Grove - Basic Shield into Arduino. And connect Arduino to PC by using a USB cable.

   3. Copy and paste the code below to a new Arduino sketch. Please click here if you do not know how to upload.

```
#include <math.h>
const int buzzerPin=3; //Connect the Buzzer Grove module to Pin3, Digital 3
float WarningValue= 19.5;    //The minimum sate concentration of O2 in air
void setup()
{
      Serial.begin(9600);                        //Start the Serial connection

}
void loop()
{
      //long unsigned a;
      float sensorValue;
      float sensorVoltage;
      float Value_O2;
      sensorValue = analogRead(A0);
      sensorVoltage =(sensorValue/1024)*5.0;
      sensorVoltage = sensorVoltage/201*10000;
      Value_O2 = sensorVoltage/7.43;

      Serial.print("Concentration of O2 is ");
      Serial.print(Value_O2,1);
      Serial.println("%");

      if(Value_O2<=WarningValue)
      {
            digitalWrite(3,HIGH);
```

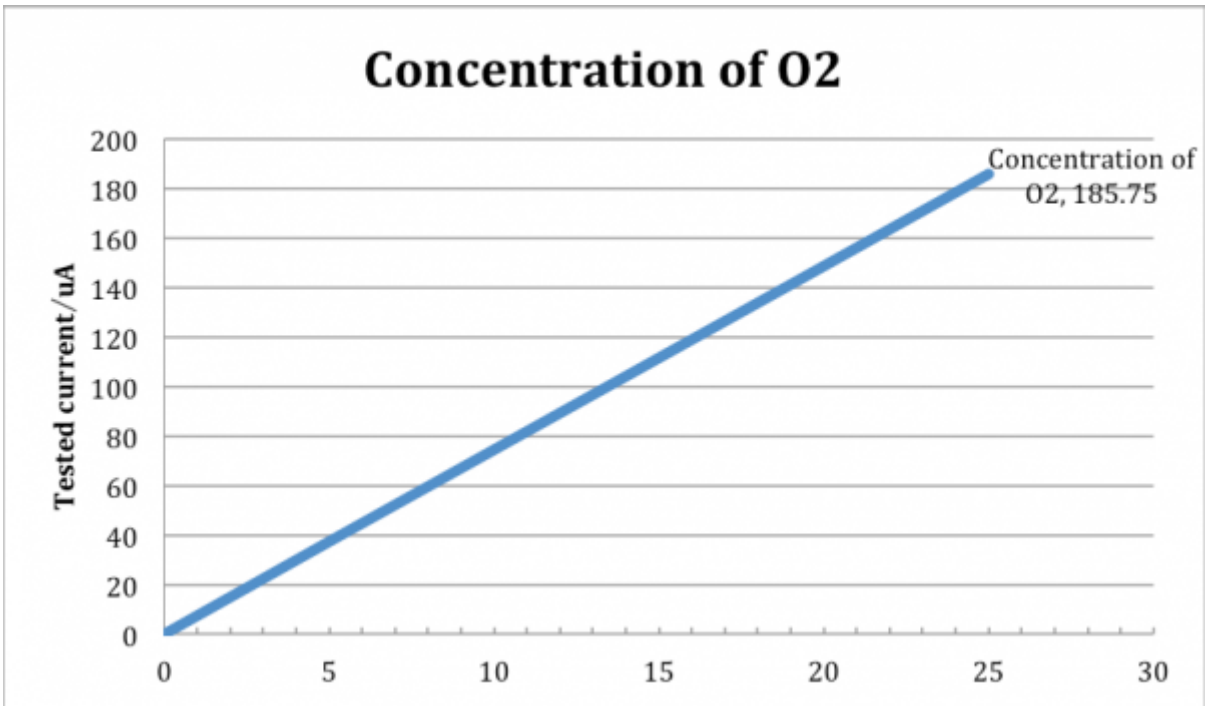
```
    }
    else digitalWrite(3,LOW);
    delay(1000);
}
}
```

4. When the sensor is in air, the buzzer will not sound. You can blow toward the sensor, at this time, if Oxygen concentration is lower than threshold we set, the Buzzer will sound. You can check the output voltage (amplify 201) after opening the Serial Monitor.



We tested it in an office, so the concentration of O2 is about 20.5%.

Notice: We have adjusted the figure in a clear air, and we have updated it in the program, please refer to the program instead of datasheet.


Concentration of O2
Tested current/uA
200
180
160
140
120
100
80
60
40
20
0
0
5
10
15
20
25
30
Concentration of O2, 185.75

5. Resources

Grove - Gas Sensor(O2) Eagle File

Schematic in PDF

File:ME2-O2.pdf -- *Sorry, It's written in Chinese but it's better than none.*

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Multiple Function Sensor Development Tools ***category:***

Click to view products by Seeed Studio ***manufacturer:***

Other Similar products are found below :

MAXWSNENV# STEVAL-MKIT01V1 KT-O2-25%-TB200A-E KT-TVOC-200-TB200A KT-NmHc-200-TB200A SEN0344 PIM520 PIM518 PIM519 PIM502 AS7022-EVALKIT ALTEHTG2SMIP MAX30101WING# OB1203SD-U-EVK MIKROE-4265 A000070 EV_ICG-20660L GX-F12A-P GX-F15A GX-F6A GX-F8AI-P GX-H15AI-P GX-H6A-P GX-HL15B-P 1093 MIKROE-2455 MIKROE-2458 MIKROE-2507 MIKROE-2508 MIKROE-2516 MIKROE-2529 1458 MIKROE-1628 176 189 1893 2106 ATQT4-XPRO GP30-DEMO MODULE GX-F12AI-P GX-F15A-P GX-FL15B-P GX-H12AI-P GX-H15A-P GX-H6AI-P GX-H8A-P GX-F15AI-P GX-FL15A-P AAS-AQS-UNO DFR0018