



Grove - Gas Sensor (O2)

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Version : 1.0

Wiki: [http://www.seeedstudio.com/wiki/Grove - Gas Sensor\(O%E2%82%82\)](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

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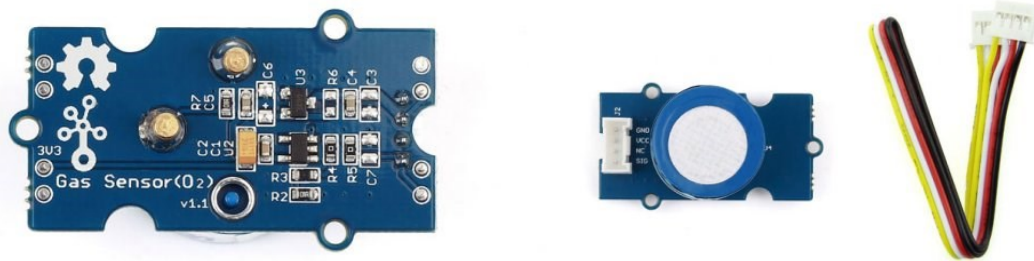
Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

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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°C ~ 50°C
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>

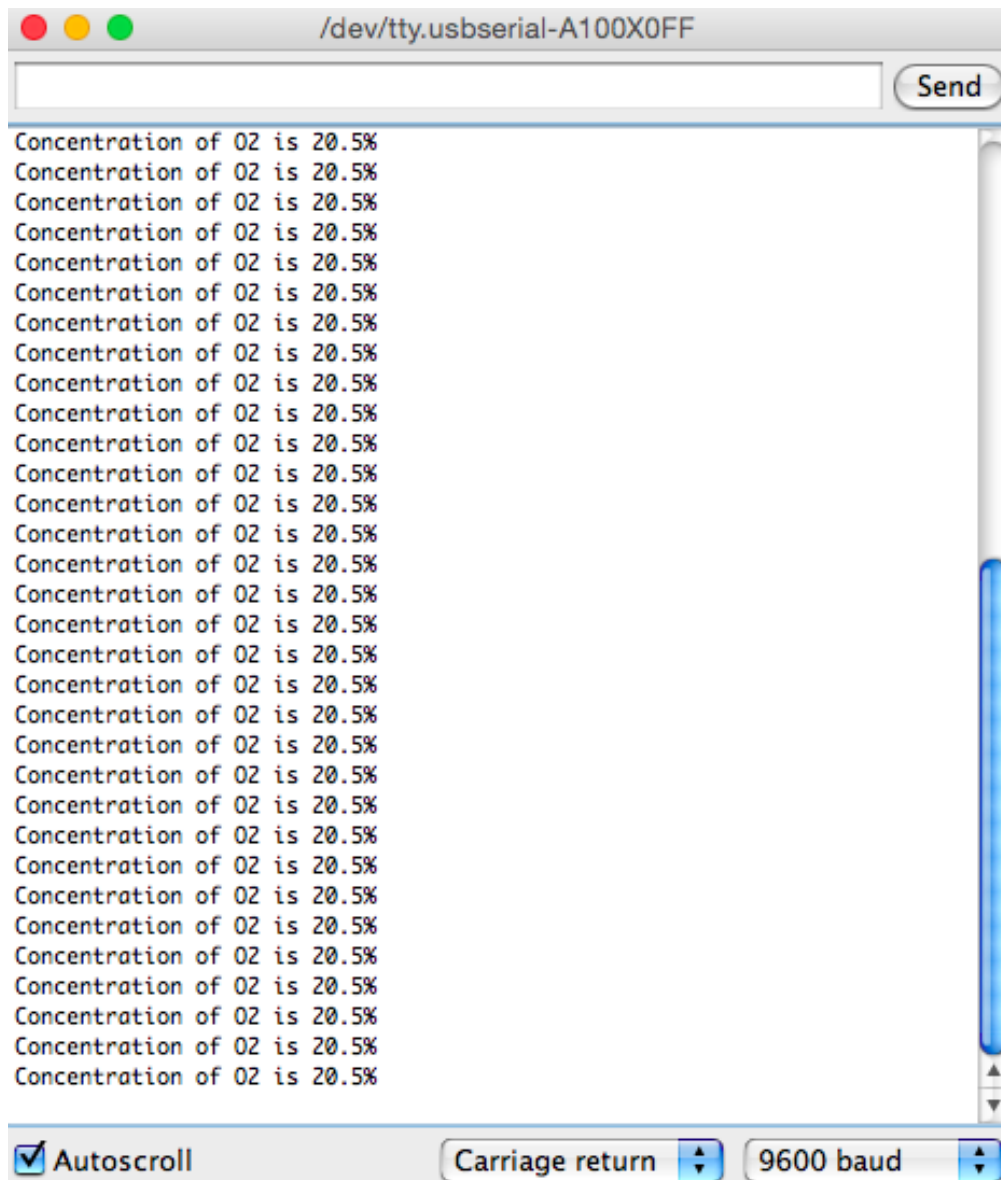
const int buzzerPin=3; //Connect the Buzzer Grove module to Pin3, Digital 3
float WarningValue= 19.5; //The minimum safe concentration of O2 in air
void setup()
{
    Serial.begin(9600);           //Start the Serial connection
}
void loop()
{
    //long unsigned a;
    float sensorValue;
    float sensorVoltage;
    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);
    }
}
```

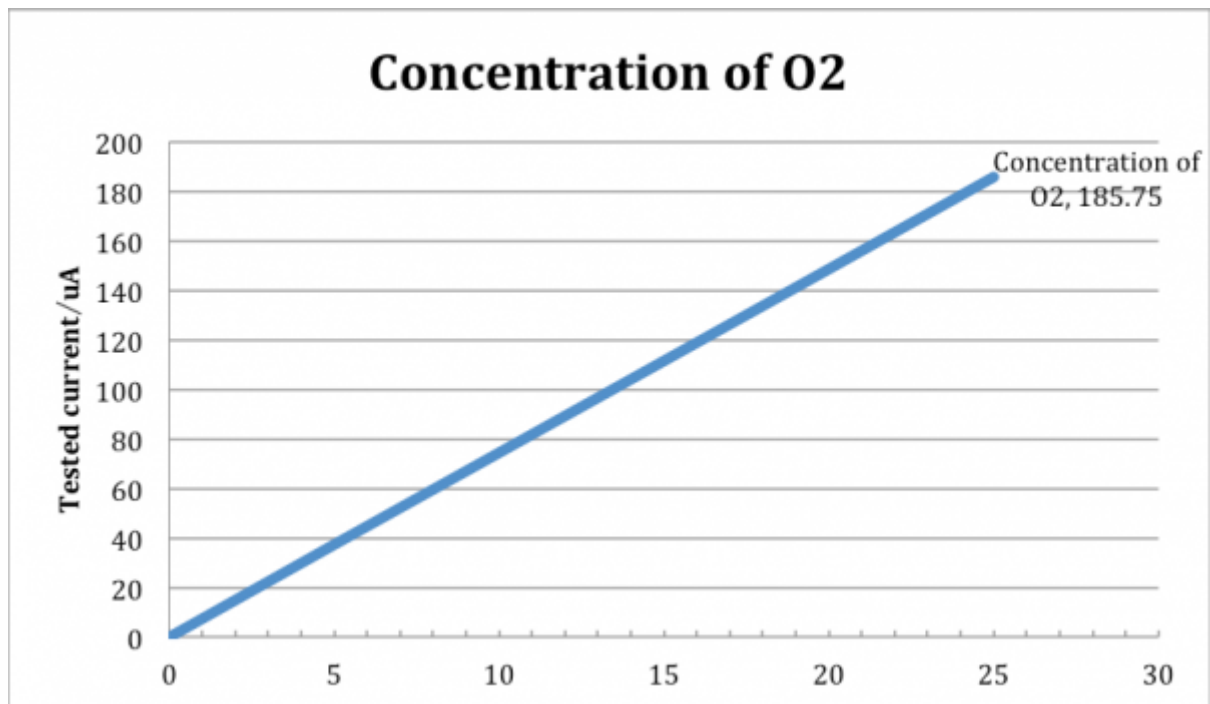
```
}  
else digitalWrite(3,LOW);  
delay(1000);  
}  
}
```

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.



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.*



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