Grove - EMG Detector

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Version： 1.0

Wiki: http://www.seeedstudio.com/depot/Grove-EMG-Detector-p-1737.html

Bazaar: http://www.seeedstudio.com/wiki/Grove_-_EMG_Detector

Document Revision History

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

Document Revision History

Contents

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.

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1. Introduction

EMG detector is a bridge connects human body and electrical, the sensor gathers small muscle signal then process with 2th amplify and filter, the output signal can be recognized by Arduino. You can add this signal into your control system. Note: The sensor cannot be used for medical purposes.
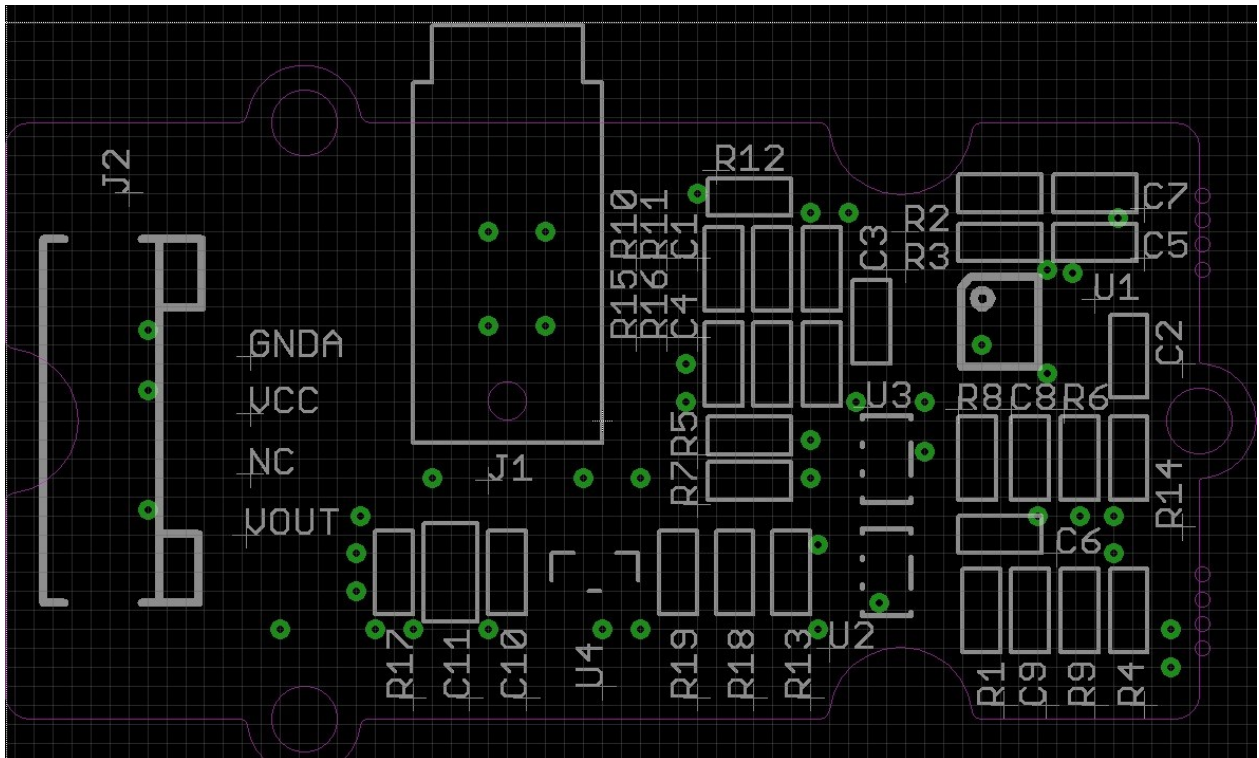
In standby mode, the output voltage is 1.5V. When detect muscle active, the output signal rise up, the maximum voltage is 3.3V. You can use this sensor in 3.3V or 5V system.
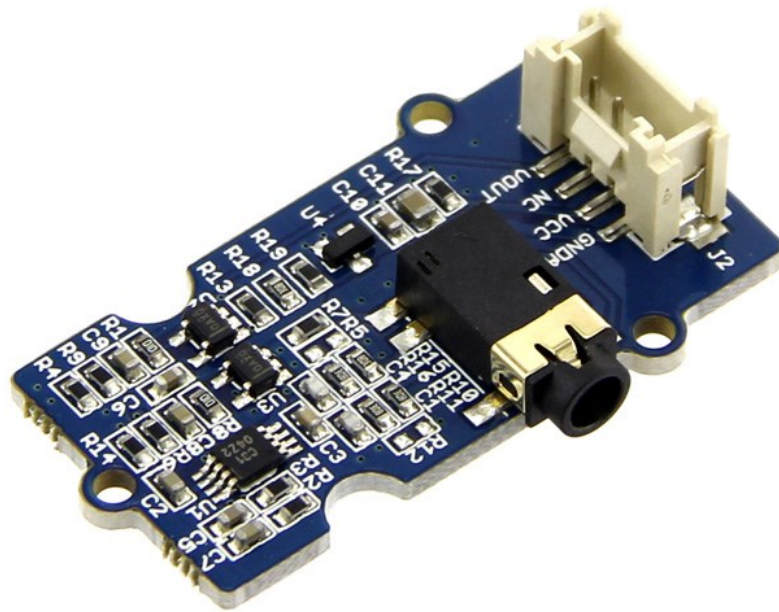
2. Features

- Grove Compatible

- 3.5mm Connector

- 6 Disposable Surface Electrodes

- Power supply voltage: 3.3V-5V

- 1000mm Cable Leads

- No additional power supply

3. Interface function

- J2: grove interface, connect to analog I/O;

- J1: EMG Disposable Surface Electrodes connector.

- U1: INA331IDGKT, difference amplifier.

- U2, U3: OPA333, Zero drift amplifier.

4. Demonstration

This demonstration will show you how to use Grove - LCD RGB Backlight, we need a Seeeduino V3.0, a Grove - LED Bar and Grove - Base Shield.

4.1   Hardware Installation

Plug Grove - Base Shield to Seeeduino, then connect Grove - LED Bar to D8, connect Grove - EMG Sensor to A0.
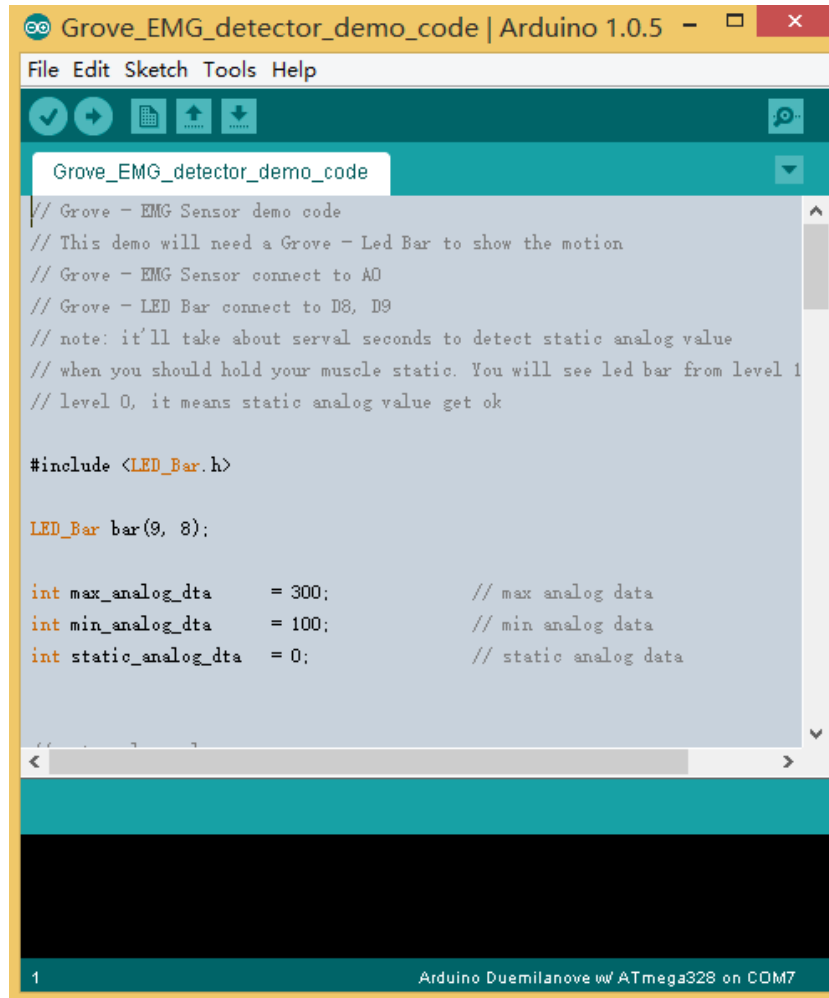
Finally, tack the three electrodes to your muscle, and keep a distance between each electrodes.
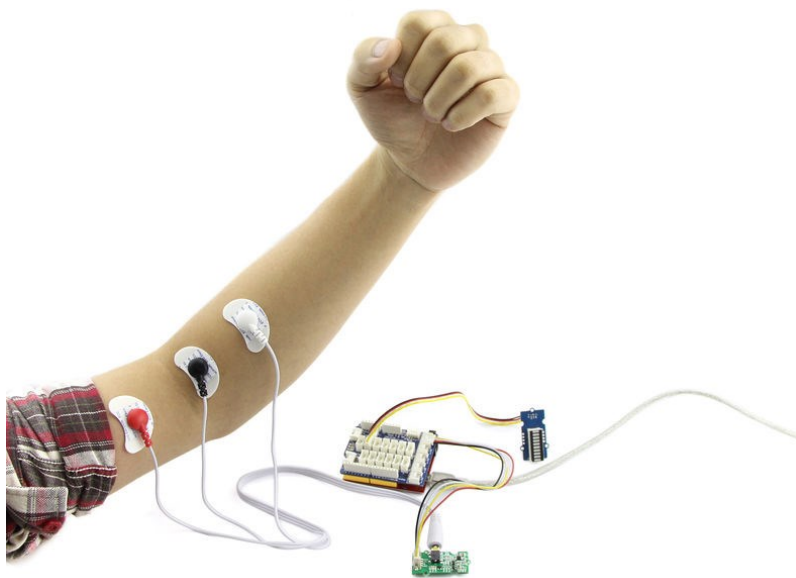
4.2   Download Code and Upload

You can download the demo code in github, click here, then extract it to anywhere.

Then upload the code to Seeeduino, if you have any problem about code uploading, please refer to Getting Start Wiht Seeeduino.

```
// Grove - EMG Sensor demo code
// This demo will need a Grove - Led Bar to show the motion
// Grove - EMG Sensor connect to A0
// Grove - LED Bar connect to D8, D9
// note: it'll take about serval seconds to detect static analog value
// when you should hold your muscle static. You will see led bar from level 1
// level 0, it means static analog value get ok

#include <LED_Bar.h>

LED_Bar bar(9, 8);

int max_analog_dta    = 300;          // max analog data
int min_analog_dta    = 100;          // min analog data
int static_analog_dta = 0;            // static analog data
```
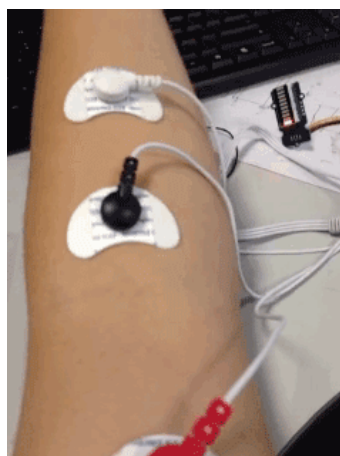
4.3   Move

When finish downloading demo code, it'll take about 5s to initialize, you should keep static when initializing.

You can see that when initializing, the Led Bar will go form level 10 to level 0. When Led Bar All off, you can move now.

When you are moving, you can find that the level of Led Bar will change.

5. Resource

- [Grove-EMG Sensor v1.0 Eagle File](#)
- [Grove-EMG Sensor v1.1 Eagle File](#)
- [Demo Code](#)