Grove - Differential Amplifier

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Version ： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_Differential_Amplifier_v1.2

Bazaar: http://www.seeedstudio.com/depot/Grove-Differential-Amplifier-p-1284.html

Document Revision History

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

Document Revision History

Contents

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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

This Grove is designed for precise differential-input amplification. Input the differential signals of your sensor to this module through the male pins, then your Arduino will get a precisely amplified output from the Grove interface. The gain scale factor is selectable. You can get a 35 times or 1085 times of amplification via a switch on the board. [SKU:COM10221P]

2. Features

- High amplifying precision

- Selectable scale factor

- Can be conveniently read by Arduino

3. Application ideas

- Data acquisition
- Battery operated systems
- Pressure and temperature bridge amplifiers
- General purpose instrumentation

4. Specifications

| Item		Min	Typical	Max	Unit
Operating Voltage		2.7	5.0	5.5	VDC
Input Voltage		0.1	\	(Vcc-0.8)/Gain	mV
Output Voltage		0	\	Vcc-0.80	mV
Gain	Select 35	/	35	/	/
	Select 1085	/	1085	/	

5. Usage

5.1   Sensor Choosing

The amplifier can turn signals in mA scale up to A scale. Before using it, make sure the output range of your sensor is in mA scale. For example, Weight Sensor is one of them.
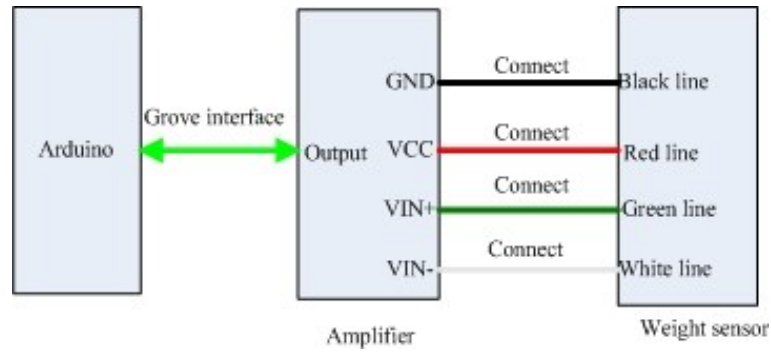
5.2   Connector Reforming

To pair the weight sensor up with the male pins on the amplifier, female connectors need to be soldered on its wires.
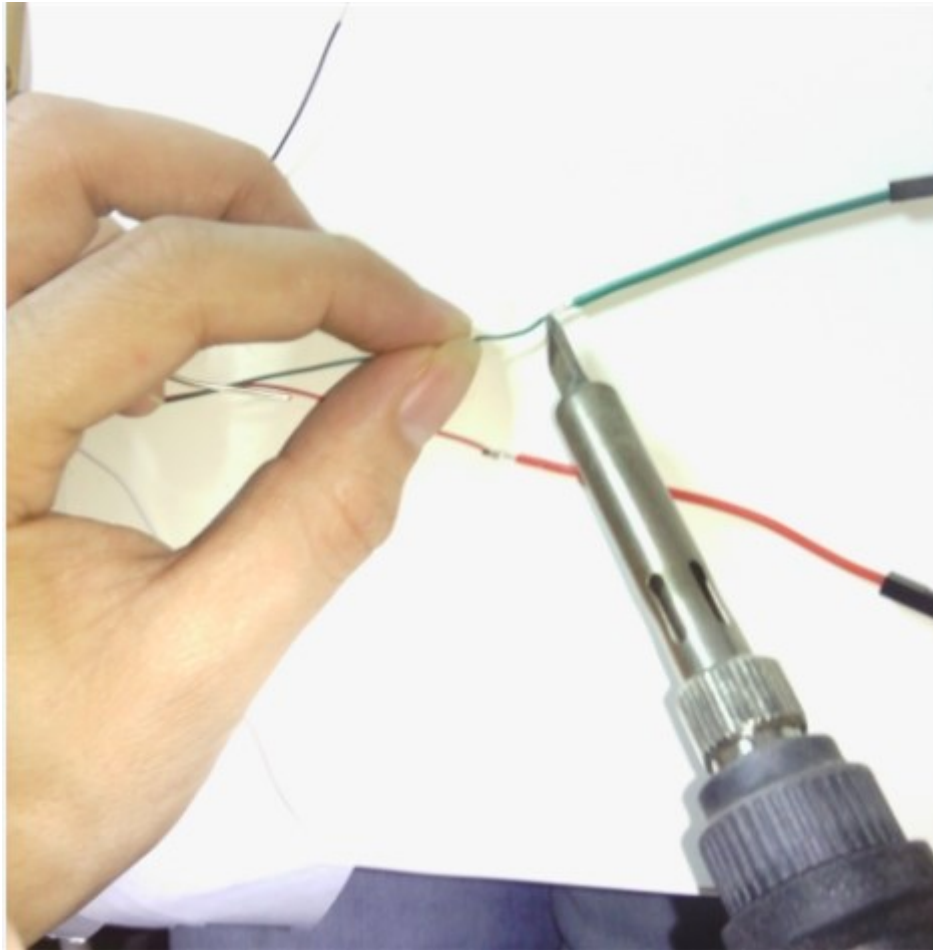
5.3   Hardware Hookup

Connect the weight sensor to the amplifier as the picture depicts below.

5.4 Measurement

Copy and paste the demo code below to Arduino IDE and upload it.

```
void setup()
{
    Serial.begin(9600);
    Serial.println("start");
}

void loop()
{
    int i;
    int value;
    float V,Vo;
    float Sum=0;
    for(i=0;i<10;i++)
    {
        value=analogRead(4);
        V=value*5.00/1023;
        Sum+=V;
        delay(10);
    }
    Vo=Sum/10;
    Serial.print("Output score:");
    Serial.println(Vo);
    delay(1000);
}
```

You can view the amplified signals via serial monitor. For the value of the input signal, you need to use the multimeter to measure the voltage difference between VIN+ and VIN-.

6. Resource

[v1.2 Eagle File](#)

[v1.2 Schematic](#)

[INA132 Datasheet](#)

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