Grove - Slide Potentiometer

Release date： 9/20/2015

Version： 1.0

Wiki: http://www.seeedstudio.com/depot/Grove-Slide-Potentiometer-p-1196.html

Bazaar: http://www.seeedstudio.com/wiki/Sliding_Potentiometer

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
   3.1 Standalone 4
   3.2 With Arduino 5
      3.2.1 As a Voltage Divider 5
      3.2.2 As an HID Device 6
   3.3 With Raspberry Pi 7
4. Related Projects 9
   4.1 Arduino BoomBox 9
   4.2 Arduino BeatBox 10
5. Share Your Awesome Projects with Us 11
6. Resources 12
7. Availability 13

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

The **Grove - Slide Potentiometer** module incorporates a linear variable resistor with a maximum resistance of 10KΩ. When you move the slider from one side to the other, its output voltage will range from 0 V to the Vcc you apply. It connects to the other Grove modules through a standard 4-Pin Grove Cable. Three of the pins are connected to OUT (Pin 1), Vcc (Pin 3) and GND (Pin 4), while the fourth pin (Pin 2) is connected to an on-board green indicator LED. The LED is used to visually represent the resistance change on the potentiometer.

2. Features

- 30 mm long slide length
- Linear resistance taper
- Grove compatible

3. Specifications

Item	Min	Typical	Max
Voltage (DC)	3.3V	5.0V	30V
Current	-	-	30mA
Dimension	24mm x60mm		
Net Weight	8.6g		
Rotational life	>15,000 cycles		
Total resistance	10KΩ		
Stroke length	30mm		
Total resistance tolerance	+/- 20%		

3.1 Standalone

Follow these steps to build a sample Grove circuit using this module but without using any microcontroller board:

1. Connect the slide potentiometer module to the input side of your circuit (to the left of the power module). On the output side of the circuit, you may use a range of User Interface modules (Grove - Red LED, Grove - LED String Light, Grove - Mini Fan, Grove - Buzzer, Grove - Recorder etc.)
2. Power up the circuit when complete.
3. The slide potentiometer module can now be used to trigger an output. For example:

- When used in conjunction with a Grove - Red LED output module, observe that the brightness of the LED increases as you move the slider from GND to Vcc. At Vcc, the resistance of the potentiometer is minimum and the LED burns the brightest. The same behavior can be seen when the slide potentiometer is used with the Grove - LED String Light module - the more voltage you apply by taking the slider towards the Vcc mark, the brighter the LED lights would become.
- Similarly, you can use the slide potentiometer to vary the speed of your Mini Fan or the frequency with which your Grove - Buzzer module sounds
- The slide potentiometer can also be used as an ON/OFF switch for any circuit. Take the slider to the Vcc position to switch it ON and move it down to GND to switch OFF a circuit.

In terms of choosing a power module, you can use either the Grove - USB Power module or the Grove - DC

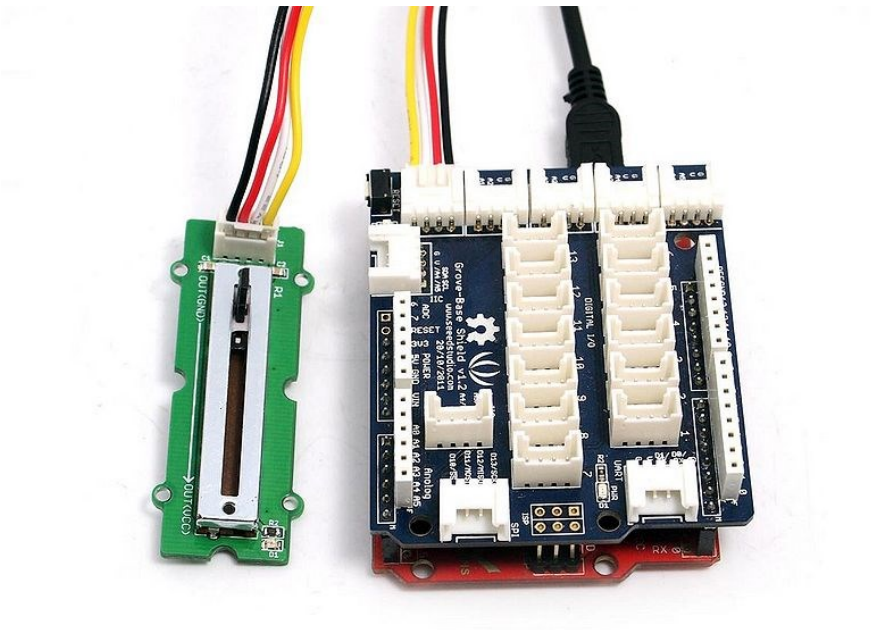
Jack Power module for building standalone Grove circuits.

3.2 With Arduino

3.2.1 As a Voltage Divider

Follow these simple steps to make the slide potentiometer module function as a voltage divider:

1. When using the module in conjunction with an Arduino or a Seeeduino, use the Grove - Base Shield and connect the Grove - Slide Potentiometer module to the shield using a designated Grove Interface (e.g., Analog Port 0 as shown below):



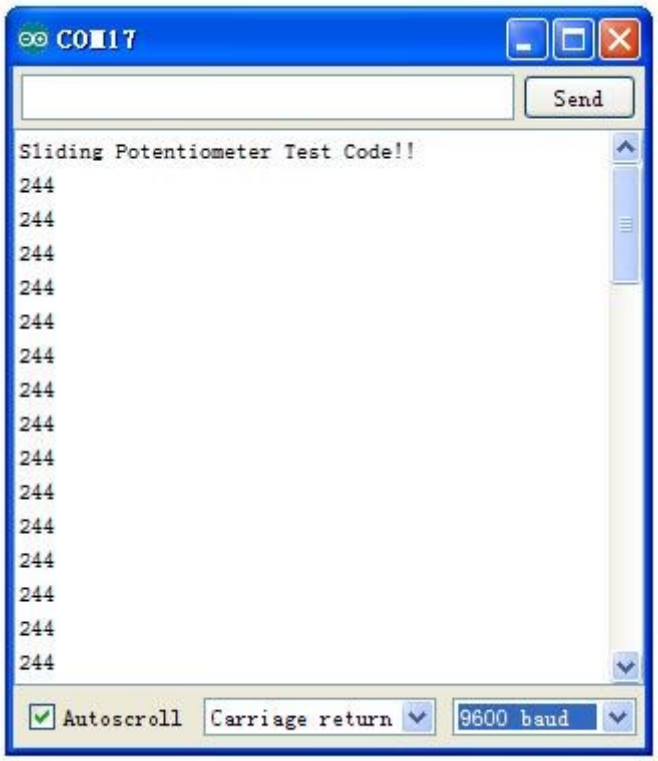
2. Connect the board to PC using USB cable

3. Upload the following sample sketch:

```
int adcPin = A0; // select the input pin for the potentiometer
int ledPin = A1; // select the pin for the LED
int adcIn = 0;  // variable to store the value coming from the sensor
void setup()
{
    Serial.begin(9600); // init serial to 9600b/s
    pinMode(ledPin, OUTPUT); // set ledPin to OUTPUT
    Serial.println("Sliding Potentiometer Test Code!!");
}
void loop()
{
    // read the value from the sensor:
```

```
    adcIn = analogRead(adcPin);
    if(adcIn >= 500) digitalWrite(ledPin,HIGH);  // if adc in > 500, led
light
    else digitalWrite(ledPin, LOW);
    Serial.println(adcIn);
    delay(100);
```

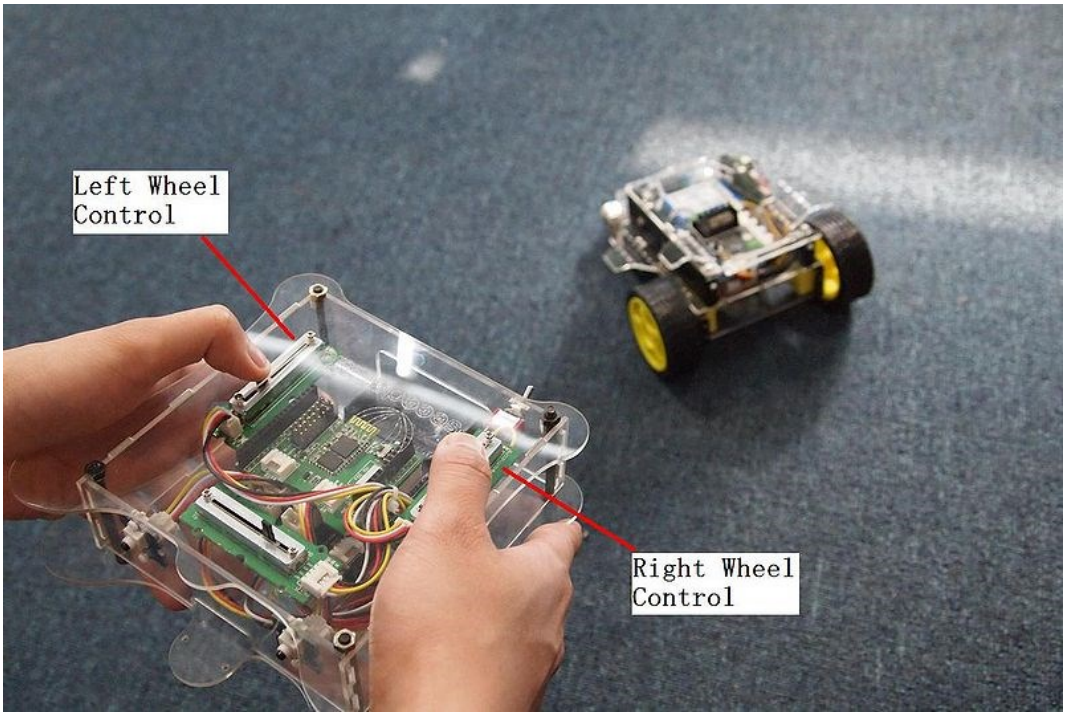
4. Open the serial monitor. You should see some data from ADC.



5. Move the lever back and forth. The serial data will change correspondingly. When the output resistance exceeds a certain preset value, the on-board indicator LED will also light up.

3.2.2 As an HID Device

Slide Potentiometer can be an effective Human Interface Device (HID) and can be used, for example, in the radio controller of a Radio Controlled toy car. The picture below shows two Slide Potentiometers on the control panel - one to control the speed of the left wheel, and the other to control the speed of the right wheel of the toy car respectively. Now you can change the speeds of both motors and see the behavior. You will see that if you make the right wheel spin faster than the left wheel, the car will turn rightwards, and if you make the left wheel spin faster than the right wheel, the car will turn leftwards.



3.3 With Raspberry Pi

1. You should have got a raspberry pi and a grovepi or grovepi+.
2. You should have completed configuring the development environment, otherwise follow here.
3. Connection. Plug the sensor to grovepi socket D4 by using a grove cable.
4. Navigate to the demos' directory:

```
cd yourpath/GrovePi/Software/Python/
```

To see the code

```
nano grove_slide_potentiometer.py      # "Ctrl+x" to exit #
```

```
import time
import grovepi

# Connect the Grove Slide Potentiometer to analog port A0
# OUT,LED,VCC,GND
slide = 0   # pin 1 (yellow wire)

# The device has an onboard LED accessible as pin 2 on port A0
# OUT,LED,VCC,GND
led = 1     # pin 2 (white wire)

grovepi.pinMode(slide,"INPUT")
```

```
grovepi.pinMode(led,"OUTPUT")
time.sleep(1)

while True:
    try:
        # Read sensor value from potentiometer
        sensor_value = grovepi.analogRead(slide)

        # Illuminate onboard LED
        if sensor_value > 500:
            grovepi.digitalWrite(led,1)
        else:
            grovepi.digitalWrite(led,0)

        print "sensor_value =", sensor_value

    except IOError:
        print "Error"}
```

5. Run the demo.

```
sudo python grove_slide_potentiometer.py
```

4. Related Projects

The best way to learn something, is to create a project with it.

Recipe Community is a place which gathers a lot of amazing projects with step-by-step tutorials. Makers in the community have made a lot of awesome projects with the Grove - Slide Potentiometer, check this out!

4.1 Arduino BoomBox



Take an ordinary shoebox and convert it into an Arduino Boombox! DIY your own MP3 player with Arduino Uno and our **Grove components**. The Grove - Slide Potentiometer is used for the volume control in this project.

I want to make it.

4.2 Arduino BeatBox



I've got to say that, our maker **ArduinoBasics** in the Recipe community, this guys must be born with a musical turn of mind, after the **Arduino BoomBox**, once again he made this Arduino BeatBox with some basic **Grove components**, which really impressed us.

I want make one!

Find out even more awesome projects on Recipe.

5. Share Your Awesome Projects with Us

Born with the spirit of making and sharing, that is what we believe makes a maker.

And only because of this, the open source community can be as prosperous as it is today.

It does not matter what you are and what you have made, hacker, maker, artist and engineers,

as long as you start sharing your works with others, you are being part of the open source community and you are making your contributions.

Now share you awesome projects with us on Recipe, and win a chance to become the **Core User of Seeed**.

Core Users, are those who show high interests and significant contributions in Seeed products.

We cooperate with our Core Users in the development of our new product, which in another word, the Core Users will have the chance to experience any new products of Seeed before its official launch, and in return we expect valuable feedback from them to help us improving the product performance and user experience.

Also, join the Core User Group, engage with other Core Users of Seeed and make friends with like-minded people, could be a wonder experience for you.

And **most importantly**, in most of cases, if our Core Users have any good ideas about making something new, something creative, as long as they provide us a proposal of it, we'll offer hardware pieces, PCBA/CNC/3D Printing services, as well as technical support, to help them achieve their projects.

Get more information about Core User please email to: **recipe@seeed.cc**

6. Resources

Sliding Potentiometer Eagle File

Sliding Potentiometer in PDF

Sliding Potentiometer datasheet

7. Availability

This Grove module is available as part of the following Grove Kit Series:

Grove Mixer Pack V2

Grove - Mixer Pack

Alternatively, it can be bought stand-alone here at the Seeed Studio Bazaar.