Grove - Thumb Joystick

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Version :   1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_Thumb_Joystick

Bazaar: http://www.seeedstudio.com/depot/Grove-Thumb-Joystick-p-935.html

Document Revision History

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

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

Grove - Thumb Joystick is a Grove compatible module which is very similar to the 'analog' joystick on PS2 (PlayStation 2) controllers. The X and Y axes are two ~10k potentiometers which control 2D movement by generating analog signals. The joystick also has a push button that could be used for special applications. When the module is in working mode, it will output two analog values, representing two directions. Compared to a normal joystick, its output values are restricted to a smaller range (i.e. 200~800), only when being pressed that the X value will be set to 1023 and the MCU can detect the action of pressing.
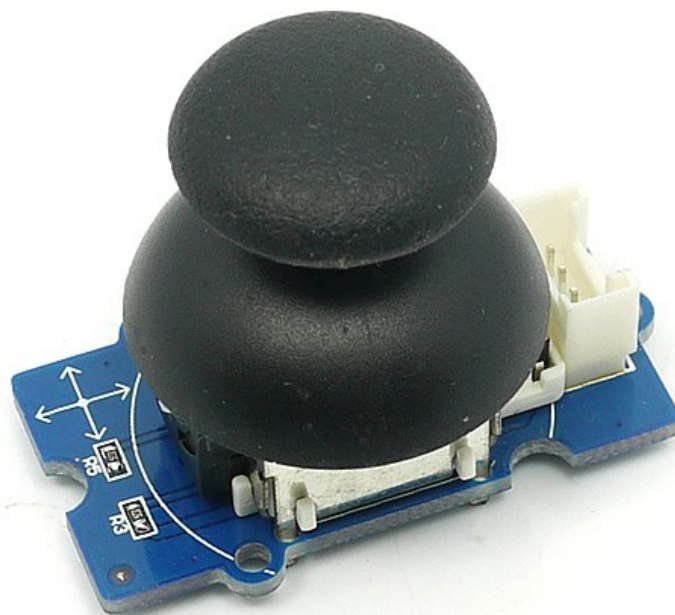
2. Features

- Grove Interface
- 5V/3.3V Compatible
- Analog Output

3. Application ideas

- Game Controller

- Robot remote

4. Specifications

Item	Min	Typical	Max	Unit
Working Voltage	4.75	5.0	5.25	V
Output Analog Value （X coordinate）	206	516	798	\
Output Analog Value （Y coordinate）	203	507	797	\

5. Usage

5.1 With Arduino

The Grove - Thumb Joystick is an analog device that outputs analog signal ranging from 0 to 1023. That requires us to use the analog port of Arduino to take the readings.

1. Connect the module to the A0/A1 of Grove - Basic Shield using the 4-pin grove cable.

2. Plug the Grove - Basic Shield into Arduino.

3. Connect Arduino to PC by using a USB cable.
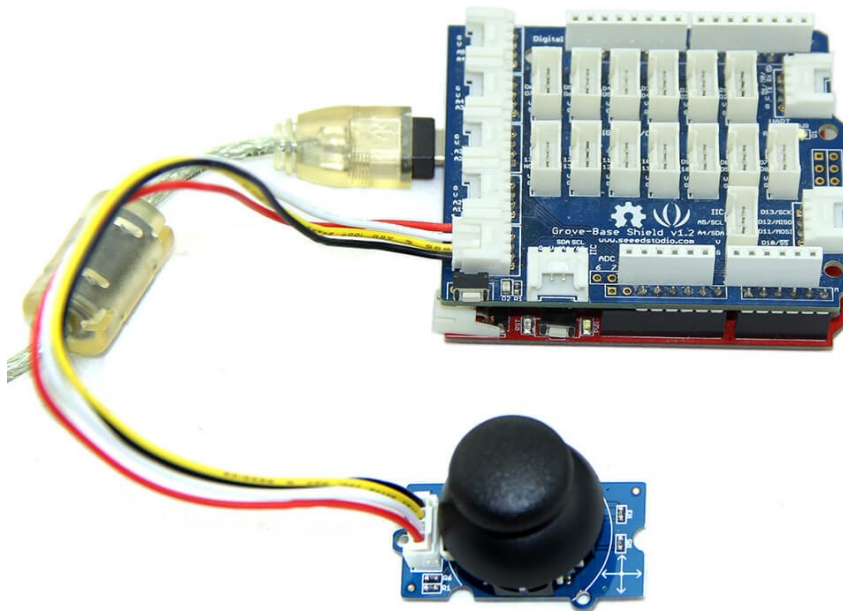
4. Copy and paste code below to a new Arduino sketch. Please click here if you do not know how to upload.

```
/*
Thumb Joystick demo v1.0
by:http://www.seeedstudio.com
connect the module to A0&A1 for using;
*/

void setup() {
    Serial.begin(9600);
}

void loop() {
```
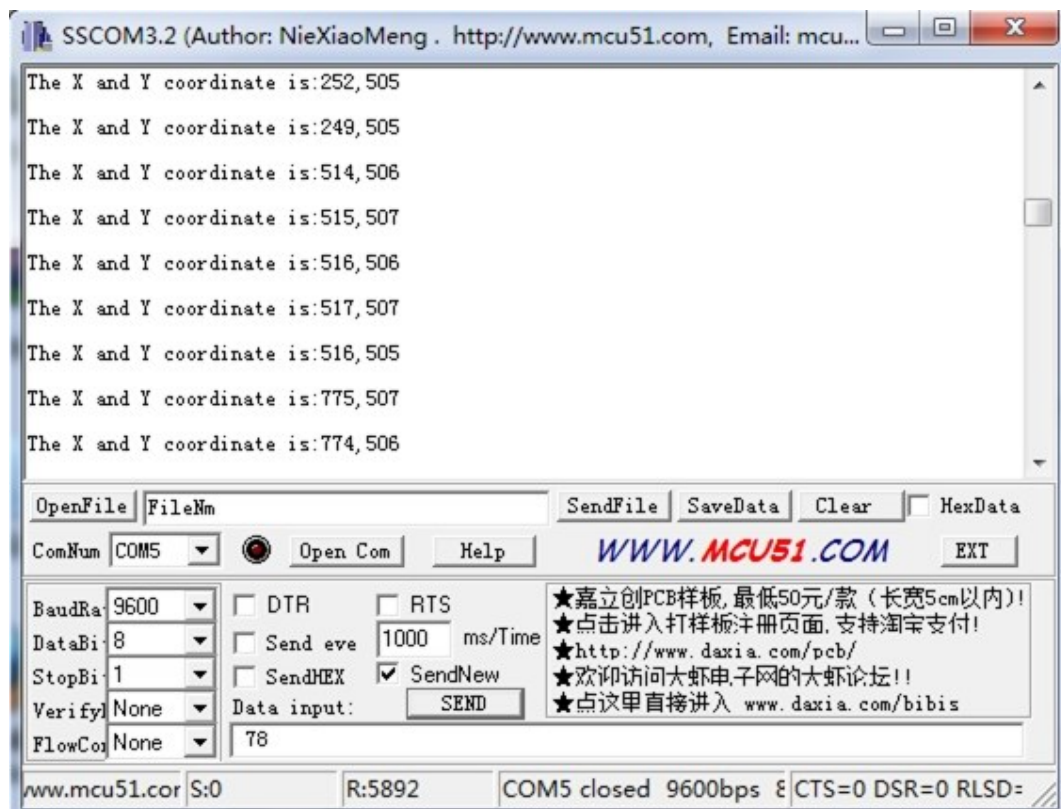
```
int sensorValue1 = analogRead(A0);
int sensorValue2 = analogRead(A1);
Serial.print("The X and Y coordinate is:");
Serial.print(sensorValue1, DEC);
Serial.print(",");
Serial.println(sensorValue2, DEC);
Serial.println(" ");
delay(200);
```

5. You can check the values of the output analog signals by opening the Serial Monitor.

The output value from the analog port of Arduino can be converted to the corresponding resistance using the formula:R=(float)(1023-sensorValue)*10/sensorValue.

5.2   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

```python
import time
import grovepi

# Connect the Grove Thumb Joystick to analog port A0

# GrovePi Port A0 uses Arduino pins 0 and 1
# GrovePi Port A1 uses Arduino pins 1 and 2
# Don't plug anything into port A1 that uses pin 1
# Most Grove sensors only use 3 of their 4 pins, which is why the GrovePi
shares Arduino pins between adjacent ports
# If the sensor has a pin definition SIG,NC,VCC,GND, the second (white)
pin is not connected to anything

# If you wish to connect two joysticks, use ports A0 and A2 (skip A1)

# Uses two pins - one for the X axis and one for the Y axis
# This configuration means you are using port A0
xPin = 0
yPin = 1
grovepi.pinMode(xPin,"INPUT")
grovepi.pinMode(yPin,"INPUT")

# The Grove Thumb Joystick is an analog device that outputs analog signal
ranging from 0 to 1023
# The X and Y axes are two ~10k potentiometers and a momentary push
button which shorts the x axis

# My joystick produces slightly different results to the specifications
found on the url above
# I've listed both here:

# Specifications
#     Min  Typ  Max  Click
#  X  206  516  798  1023
#  Y  203  507  797


# My Joystick
#     Min  Typ  Max  Click
#  X  253  513  766  1020-1023
#  Y  250  505  769
while True:
```

```python
    try:
        # Get X/Y coordinates
        x = grovepi.analogRead(xPin)
        y = grovepi.analogRead(yPin)

        # Calculate X/Y resistance
        Rx = (float)(1023 - x) * 10 / x
        Ry = (float)(1023 - y) * 10 / y

        # Was a click detected on the X axis?
        click = 1 if x >= 1020 else 0

        print "x =", x, " y =", y, " Rx =", Rx, " Ry =", Ry, " click =",
click
        time.sleep(.5)

    except IOError:
        print "Error"}
```

5. Run the demo.

```
sudo python grove_thumb_joystick.py
```

6. Resources

Grove-Thumb Joystick Eagle File

Analog Joystick Datasheet

7. Support

Ask questions on Seeed Forum.

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Как с нами связаться

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