Grove - Switch(P)

This Grove – Switch is a mini SPDT slide, great for "ON/OFF" situations. It is a reliable switch of great build quality that we adopt it on many of our boards. You should stock some for your Grove prototyping system.

What does "P" mean? "P" stands for "panel mount" in this product.

Get One Now 🛒 [https://www.seeedstudio.com/Grove-Switch(P)-p-1252.html]

Version

Product Version	Changes	Released Date
Grove-Switch(P) V1.0	Initial	Jul 2012

Features

- Grove Interface

- Easy to use

- Basic Grove element

> 🔥 **Tip**
> More details about Grove modules please refer to Grove System
> [https://wiki.seeedstudio.com/Grove_System/]

Specification

Parameter	Value/Range
Operating voltage	3.$\frac{3}{5}$V
Electrical Life	10,000 cycles
Operation Force	200 ± 50gf
Operation Temperature	-20℃ to +80℃
Size	20mmX20mm

Platforms Supported

Arduino	Raspberry Pi		
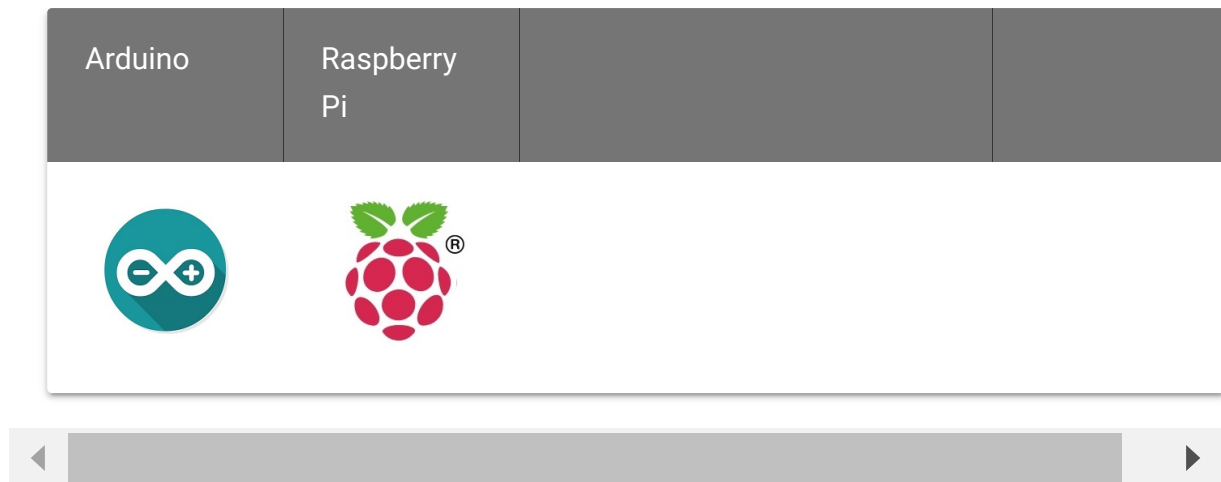
> ⚠ **Caution**
> The platforms mentioned above as supported is/are an indication of the module's software or theoritical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Getting Started

> ✏️ **Note**
>
> If this is the first time you work with Arduino, we firmly recommend you to see Getting Started with Arduino [https://wiki.seeedstudio.com/Getting_Started_with_Arduino/] before the start.

Play With Arduino

Hardware
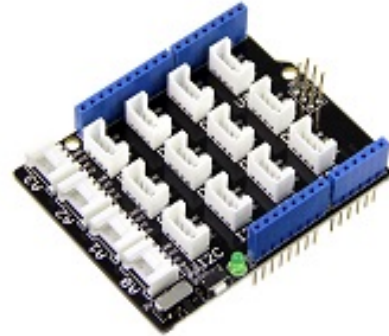
- **Step 1.** Prepare the below stuffs:

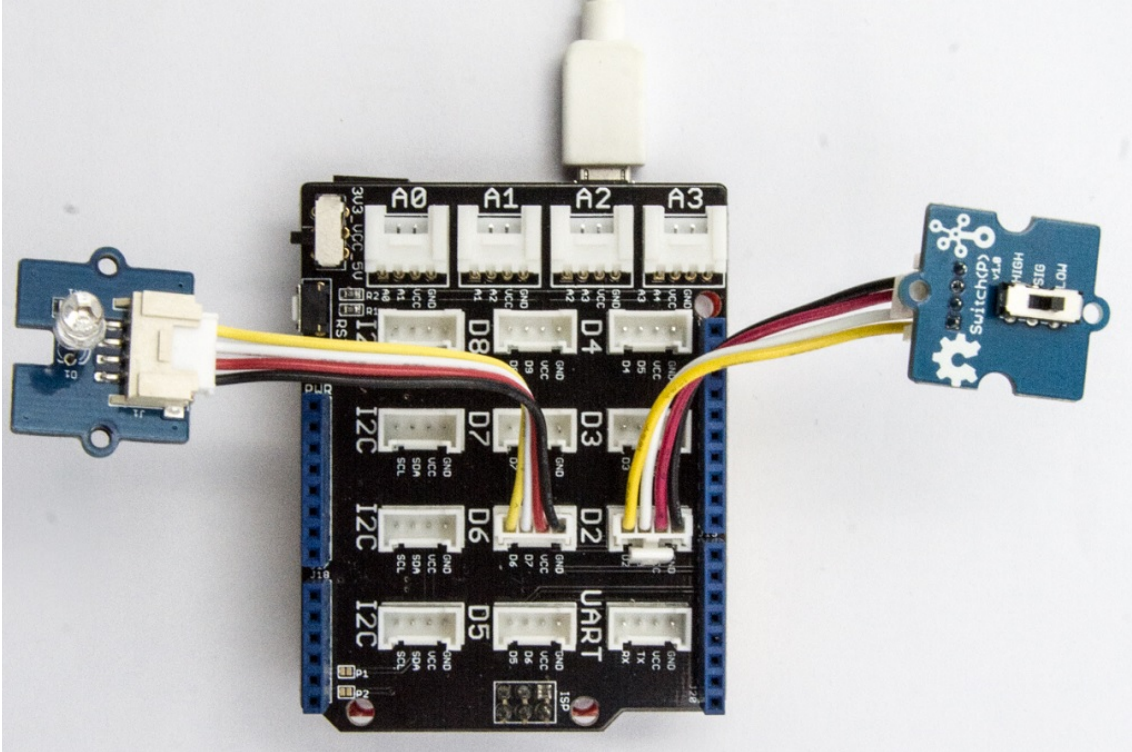| Seeeduino V4.2	Base Shield
Get One Now [https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html]	Get One Now [https://www.seeedstudio.com/Base Shield-V2-p-1378.html]

- **Step 2.** Connect Grove-Switch(P) to **D2** port of Grove-Base Shield.

- **Step 3.** Connect Grove-LED to **D6** port of Grove-Base Shield.

- **Step 4.** Plug Grove - Base Shield into Seeeduino.

- **Step 5.** Connect Seeeduino to PC via a USB cable.

> ✏️ **Note**
>
> If we don't have Grove Base Shield, We also can directly connect Grove-Switch(P) and Grove - Purple LED (3mm) to Seeeduino as below.

Seeeduino	Grove-Switch(P)	Seeeduino	Grove - Purple LED (3mm)
5V	Red	5V	Red
GND	Black	GND	Black
NC	White	NC	White
D2	Yellow	D6	Yellow

Software

- **Step 1.** Please copy below code to Arduio IDE and upload to arduino. If you do not know how to upload the code, please check how to upload code [https://wiki.seeedstudio.com/Upload_Code/].

```
1   const int switchPin = 2;      // the number of the pushbu
2   const int ledPin =  6;        // the number of the LED pin
3
4   int switchState = 0;          // variable for reading the
5
6   void setup() {
7       // initialize the LED pin as an output:
8       pinMode(ledPin, OUTPUT);
9       // initialize the switch pin as an input:
10      pinMode(switchPin, INPUT);
11      Serial.begin(9600);
12  }
13
14  void loop(){
15      // read the state of the switch value:
16      switchState = digitalRead(switchPin);
17
```

```
18      if (switchState == HIGH) {
19          //turn LED on:
20          digitalWrite(ledPin, HIGH);
21          Serial.println("switch high!");
22      }
23      else {
24          //turn LED off:
25          digitalWrite(ledPin, LOW);
26          Serial.println("switch low");
27      }
28  }
```
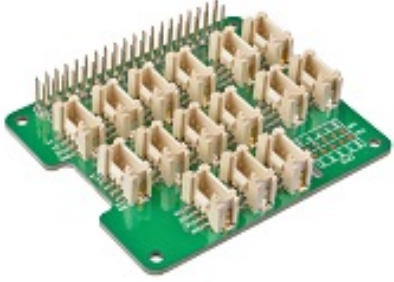
- **Step 2.** When we switch to high and the LED will be on. We also can see the Serial output as below.

```
1 switch high!
2 switch high!
3 switch high!
```

# Play With Raspberry Pi (With Grove Base Hat for Raspberry Pi)

**Hardware**

- **Step 1**. Things used in this project:

| Raspberry pi | Grove Base Hat for RasPi |
|---|---|
|  |  |
| Get ONE Now [https://www.seeedstudio.com/Raspberry-Pi-3-Model-B-p-2625.html] | Get ONE Now [https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-p-3186.html] |

- **Step 2**. Plug the Grove Base Hat into Raspberry.

- **Step 3**. Connect the Switch to port 12 of the Base Hat.

- **Step 4**. Connect the Raspberry Pi to PC through USB cable.
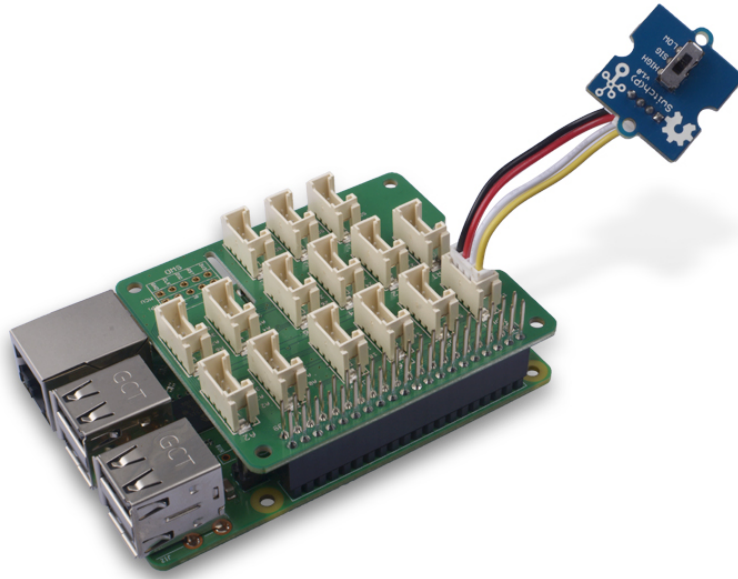
> ✎ **Note**
> For step 3 you are able to connect the switch to **any GPIO Port** but make sure you change the command with the corresponding port number.

## Software

> ⚠ **Attention**
> If you are using **Raspberry Pi with Raspberrypi OS >= Bullseye**, you have to use this command line **only with Python3**.

- **Step 1**. Follow Setting Software [https://wiki.seeedstudio.com/Grove_Base_Hat_for_Raspberry_Pi/#installation] to configure the development environment.

- **Step 2**. Download the source file by cloning the grove.py library.

```
1  cd ~
2  git clone https://github.com/Seeed-Studio/grove.py
```

- **Step 3**. Excute below commands to run the code.

```
1  cd grove.py/grove
2  python3 grove_switch.py 12
```

Following is the grove_switch.py code.

```python
1   import time
2   from grove.gpio import GPIO
3
4
5   class GroveTiltSwitch(GPIO):
6       def __init__(self, pin):
7           super(GroveTiltSwitch, self).__init__(pin, GPIO.
8
9       @property
10      def state(self):
11          return super(GroveTiltSwitch, self).read()
12
13
14  Grove = GroveTiltSwitch
15
16
17  def main():
18      import sys
19
20      if len(sys.argv) < 2:
21          print('Usage: {} pin'.format(sys.argv[0]))
22          sys.exit(1)
23
24      swicth = GroveTiltSwitch(int(sys.argv[1]))
25
26
27      while True:
```

```python
28              if swicth.state is 1:
29                  print("on")
30              else:
31                  print("off")
32              time.sleep(1)
33
34
35  if __name__ == '__main__':
36      main()
```

> ✓ **Success**
>
> If everything goes well, you will be able to see the following result

```
1  pi@raspberrypi:~/grove.py/grove $ python3 grove_switch.py
2  off
3  off
4  on
5  off
6  on
7  on
8  off
9  ^CTraceback (most recent call last):
10    File "grove_switch.py", line 70, in <module>
11      main()
12    File "grove_switch.py", line 66, in main
13      time.sleep(1)
14  KeyboardInterrupt
```

You can quit this program by simply press `Ctrl` + `C`.

Play With Raspberry Pi (with GrovePi_Plus)

Hardware

- **Step 1.** Prepare the below stuffs:

Raspberry pi	GrovePi_Plus
Get One Now [https://www.seeedstudio.com/Raspberry-Pi-3-Model-B-p-2625.html]	Get One Now [https://www.seeedstudio.com/Grove-p-2241.html]

- **Step 2.** Plug the GrovePi_Plus into Raspberry.

- **Step 3.** Connect Grove-Switch(P) to **D3** port of GrovePi_Plus.

- **Step 4.** Connect the Raspberry to PC through USB cable.
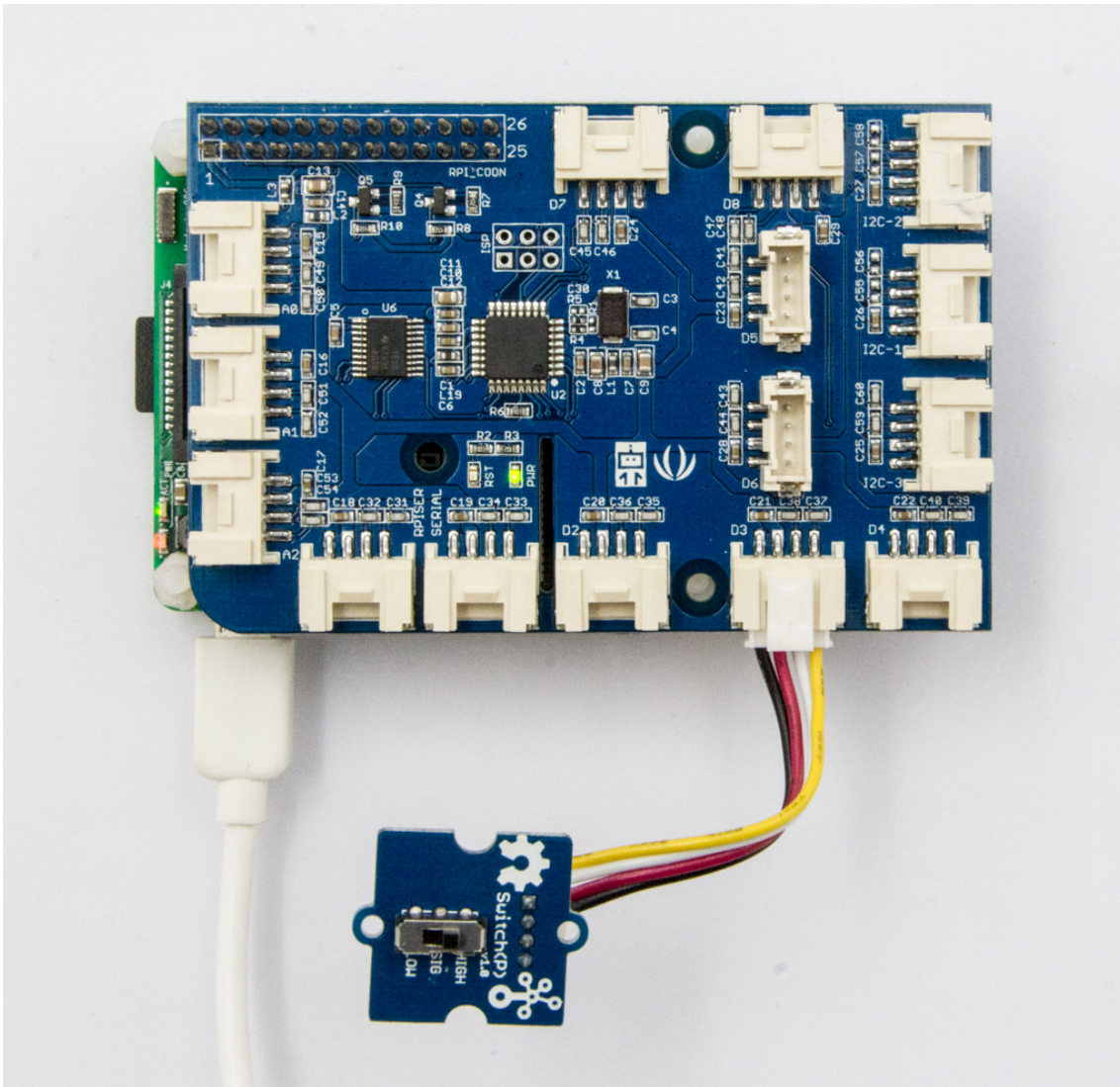
Software

> ⚠ **Attention**
> If you are using **Raspberry Pi with Raspberrypi OS >= Bullseye**, you have to use this command line **only with Python3**.

- **Step 1.** Follow Setting Software [https://www.dexterindustries.com/GrovePi/get-started-with-the-grovepi/setting-software/] to configure the development environment.

- **Step 2.** Git clone the Github repository.

```
1  cd ~
2  git clone https://github.com/DexterInd/GrovePi.git
```

- **Step 3.** Excute below commands to monitor the switch status.

```
1  cd ~/GrovePi/Software/Python
2  python3 grove_switch.py
```

Here is the grove_switch.py code.

```python
1  import time
2  import grovepi
3
4  # Connect the Grove Switch to digital port D3
5  # SIG,NC,VCC,GND
6  switch = 3
7
8  grovepi.pinMode(switch,"INPUT")
9
10  while True:
11      try:
12          print(grovepi.digitalRead(switch))
13          time.sleep(.5)
14
15      except IOError:
16          print ("Error")
```

- **Step 4.** We will see the switch status as below.

```
1  pi@raspberrypi:~/GrovePi/Software/Python $ python3 grove_
2  1
3  1
4  0
5  0
6  0
```

Schematic Online Viewer

Resources

- **[Eagle&PDF]** Grove-Switch(P) Schematic
  [https://files.seeedstudio.com/wiki/Grove-Switch-P/res/Grove-Switch-P-Eagle_File_v1.0.zip]

Projects

Using a Switch to Open and Close a Relay: You will learn the value of a switch, with its High and Low function. In addition you will learn how to use a relay as an actuator.

(https://www.hackster.io/sodaqmoja/using-a-switch-to-open-and-close-a-relay-3329ec)
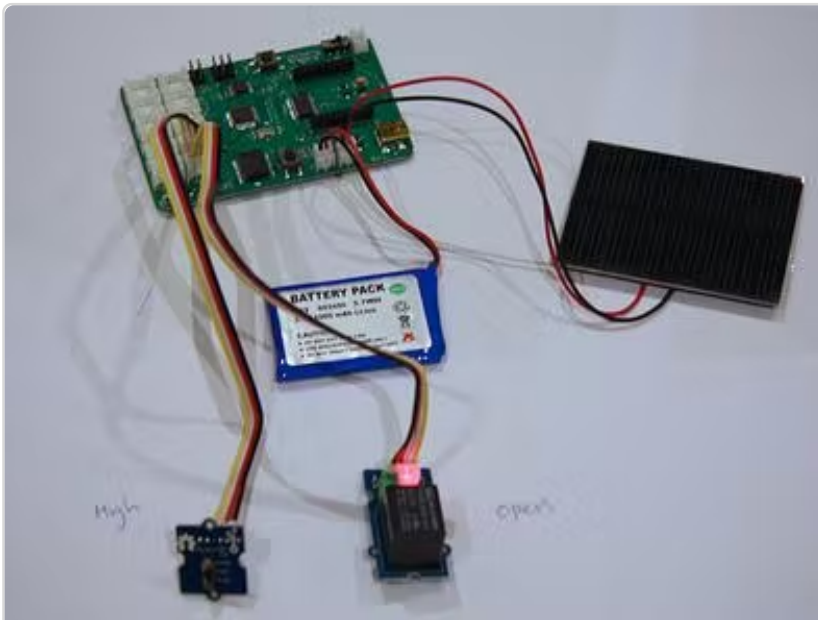
Tech Support

Please submit any technical issue into our forum [https://forum.seeedstudio.com/].

[https://www.seeedstudio.com/act-4.html?
utm_source=wiki&utm_medium=wikibanner&utm_campaign=newpr
oducts]