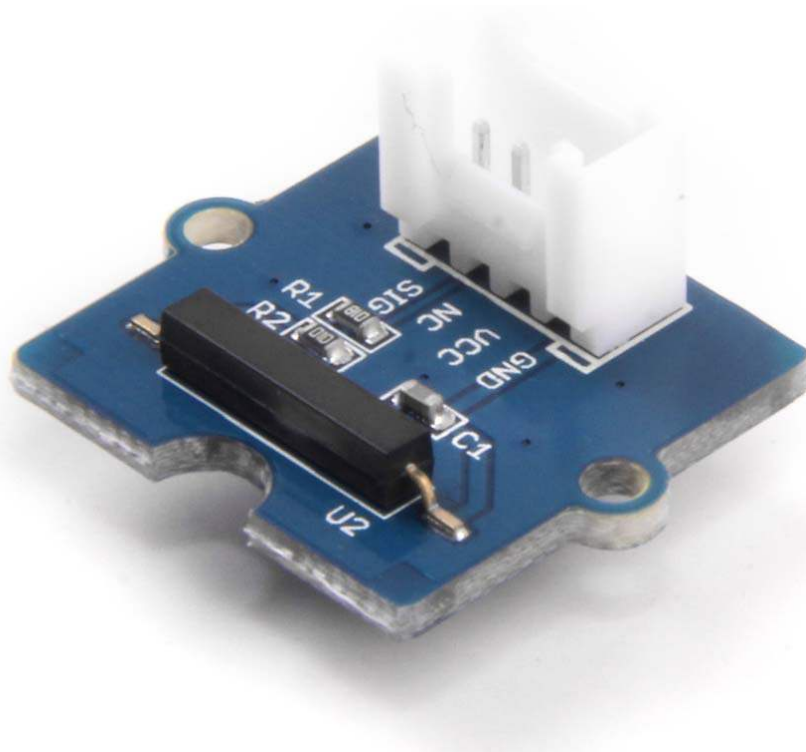




Grove - Magnetic Switch



This is a Grove interface compatible Magnetic switch module. It is based on encapsulated dry reed switch CT10. CT10 is single-pole, single throw (SPST) type, having normally open ruthenium contacts. The sensor is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The magnetic switch is a wonderful tool for designers who would like to turn a circuit on and off based on proximity.

Features

- Grove compatible interface
- 2.0cm x 2.0cm Grove module
- Minimum external parts
- 10W rating
- Rugged encapsulation

Tip

More details about Grove modules please refer to [Grove System](#)

Application Ideas

- Proximity Sensor
- Security Alarm Sensor
- Level Sensor
- Flow Sensor
- Pulse Counter


Specifications

Items	Min	Norm	Max	Unit
Working Voltage	4.75	5.0	5.25	V
Switched Power	10			W
Switched Voltage AC,RMS value(max)	< 140			V
Switched Current DC	< 500			mA
Carry Current DC	< 0.5			A
Contact Resistance	<200			mΩ
Insulation Resistance	>10 ⁶			MΩ
Operating Temperature	-40	-	125	°C
Operate Range	10	-	40	AT

Tip

More details about Grove modules please refer to [Grove System](#)

Platforms Supported

Arduino	Raspberry Pi	BeagleBone	Wio	LinkIt ONE
				

Caution

The platforms mentioned above as supported is/are an indication of the module's software or theoretical 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](#) before the start.

Play With Arduino

Demonstration

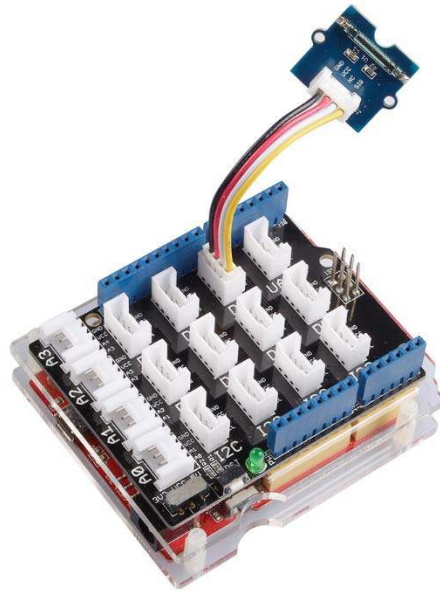
The SIG pin of the module output LOW normally. When a magnet approaches the switch, the magnetic switch close and the SIG pin output HIGH.

Hardware

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

Seeeduino V4.2	Base Shield	Grove - Magnetic Switch
		

- **Step 2.** Connect Grove - Magnetic Switch to port **D2** of Grove-Base Shield.
- **Step 3.** Plug Grove - Base Shield into Seeeduino.
- **Step 4.** Connect Seeeduino to PC via a USB cable.



Note

If we don't have Grove Base Shield, We also can directly connect Grove-Magnetic-Switch to Seeduo as below.

Seeduo	Grove-Magnetic_Switch
5V	Red
GND	Black
NC	White
D2	Yellow

Software

- **Step 1.** Copy the code into Arduino IDE and upload. If you do not know how to upload the code, please check [how to upload code](#).

```

•
  /*****
  *****/
•
• /*macro definitions of magnetic pin and LED pin*/
• #define MAGNETIC_SWITCH 2
• #define LED 13//the on board LED of the Arduino or Seeduo
•
• void setup()

```

```




• {
•   pinsInit();
• }
•
• void loop()
• {
•   if(isNearMagnet())//if the magnetic switch is near the magnet?
•   {
•     turnOnLED();
•   }
•   else
•   {
•     turnOffLED();
•   }
• }
• void pinsInit()
• {
•   pinMode(MAGNETIC_SWITCH, INPUT);
•   pinMode(LED, OUTPUT);
• }
•
• /*If the magnetic switch is near the magnet, it will return true, */
• /*otherwise it will return false */
• boolean isNearMagnet()
• {
•   int sensorValue = digitalRead(MAGNETIC_SWITCH);
•   if(sensorValue == HIGH)//if the sensor value is HIGH?
•   {
•     return true;//yes, return true
•   }
•   else
•   {
•     return false;//no, return false
•   }
• }
• void turnOnLED()
• {
•   digitalWrite(LED, HIGH);
• }
• void turnOffLED()
• {
•   digitalWrite(LED, LOW);
• }

```

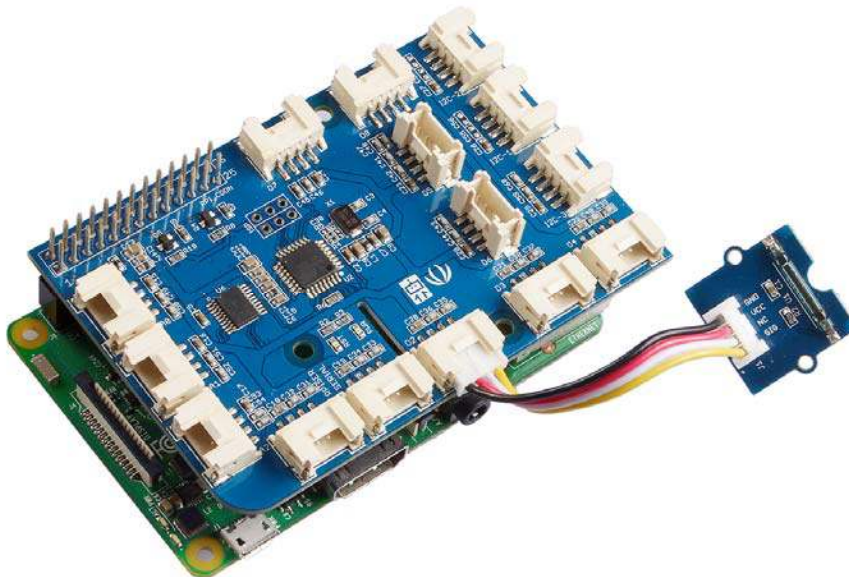
Play With Raspberry Pi

Hardware

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

Raspberry pi	GrovePi_Plus	Grove - Magnetic Switch
		

- **Step 2.** Plug the GrovePi_Plus into Raspberry.
- **Step 3.** Connect Grove-Magnetic-Switch ranger to **D2** port of GrovePi_Plus.
- **Step 4.** Connect the Raspberry to PC through USB cable.



Software

- **Step 1.** Follow [Setting Software](#) to configure the development environment.
- **Step 2.** Navigate to the demos' directory:

```
1cd yourpath/GrovePi/Software/Python/
```

- **Step 3.** To see the code (this demo has the same usage with tilt switch)

```
lnano grovepi_tilt_switch.py # "Ctrl+x" to exit #
```

```
1import time
2import grovepi
3
4# Connect the Grove Tilt Switch to digital port D2
5# SIG,NC,VCC,GND
6tilt_switch = 2
7
8grovepi.pinMode(tilt_switch, "INPUT")
9
10while True:
11    try:
12        print grovepi.digitalRead(tilt_switch)
13        time.sleep(.5)
14
15    except IOError:
16        print "Error"
```

- **Step 4.** Run the demo.

```
lsudo python grovepi_tilt_switch.py
```

- **Step 5.** Result

Put a magnet upon the sensor, the SIG pin will output HIGH.



```
pi@raspberrypi: ~/Desktop/GrovePi/Software/Python
pi@raspberrypi ~/Desktop/GrovePi/Software/Python $ sudo python grove_tilt_switch.py
0
0
0
0
0
0
1
1
1
1
1
1
1
1
1
0
0
0
```

Resources

- **[Eagle]** [Grove-Magnetic Switch v0.9 Schematic](#)
https://raw.githubusercontent.com/SeeedDocument/Grove-Magnetic_Switch/master/res/Magnetic_Switch.zip
- **[Eagle]** [Grove-Magnetic Switch v1.3 Schematic](#)
https://raw.githubusercontent.com/SeeedDocument/Grove-Magnetic_Switch/master/res/Grove-Magnetic_Switch_v1.3_Eagle_File.zip
- **[PDF]** [Grove-Magnetic Switch v1.3 PDF File](#)
https://raw.githubusercontent.com/SeeedDocument/Grove-Magnetic_Switch/master/res/Grove-Magnetic_Switch_v1.3_PDF_File.pdf
- **[Datasheet]** [CT10 Datasheet](#)
https://raw.githubusercontent.com/SeeedDocument/Grove-Magnetic_Switch/master/res/CT10.pdf

Tech Support

Please submit any technical issue into our [forum](#) or drop mail to techsupport@seeed.cc.