title: Grove - Piezo Vibration Sensor
category: Sensor
bzurl: https://seeedstudio.com/Grove-Piezo-Vibration-Sensor-p-1411.html
oldwikiname: Grove_-_Piezo_Vibration_Sensor
prodimagename: Grove-Piezo_Vibration_Sensor-1.jpg
bzprodimageurl: http://statics3.seeedstudio.com/seeed/img/2016-06/VGKGp4ZlagIN4DMgnVAhUzUz.jpg
surveyurl: https://www.research.net/r/Grove-Piezo_Vibration_Sensor
sku: 101020031

tags: grove_analog, io_3v3, io_5v, plat_duino, plat_pi

Grove-Piezo Vibration Sensor is suitable for measurements of flexibility, vibration, impact and touch. The module is based on PZT film sensor LDT0-028. When the sensor moves back and forth, a certain voltage will be generated by the voltage comparator inside of it. A wide dynamic range (0.001Hz~1000MHz) guarantees an excellent measuring performance. And, you can adjust its sensitivity by adjusting the on-board potentiometer with a screw.

Get One Now

Version

Product Version	Changes	Released Date
Grove - Piezo Vibration Sensor V1.1	Initial	Jul 2014

Features

- Standard grove socket
- Wide dynamic range：0.1Hz~180Hz
- Adjustable sensitivity
- High receptivity for strong impact

!!!Tip
More details about Grove modules please refer to Grove System

Platforms Supported

Applications

- Vibration Sensing in Washing Machine
- Low Power Wakeup Switch
- Low Cost Vibration Sensing
- Car Alarms
- Body Movement
- Security Systems

Getting Started

Play With Arduino

Hardware

The Grove - Piezo Vibration Sensor outputs a logic HIGH when vibration was detected. We can use any of Arduino pins to read the data. Here is an example of Piezo Vibration Sensor controlling LED. When the vibration was detected, this sensor outputs a logic high signal (the sensitivity can be changed by adjusting the potentiometer), an LED lights up.

- Step 1. Prepare the below stuffs:

Seeeduino V4	Grove - Piezo Vibration	Base Shield
		
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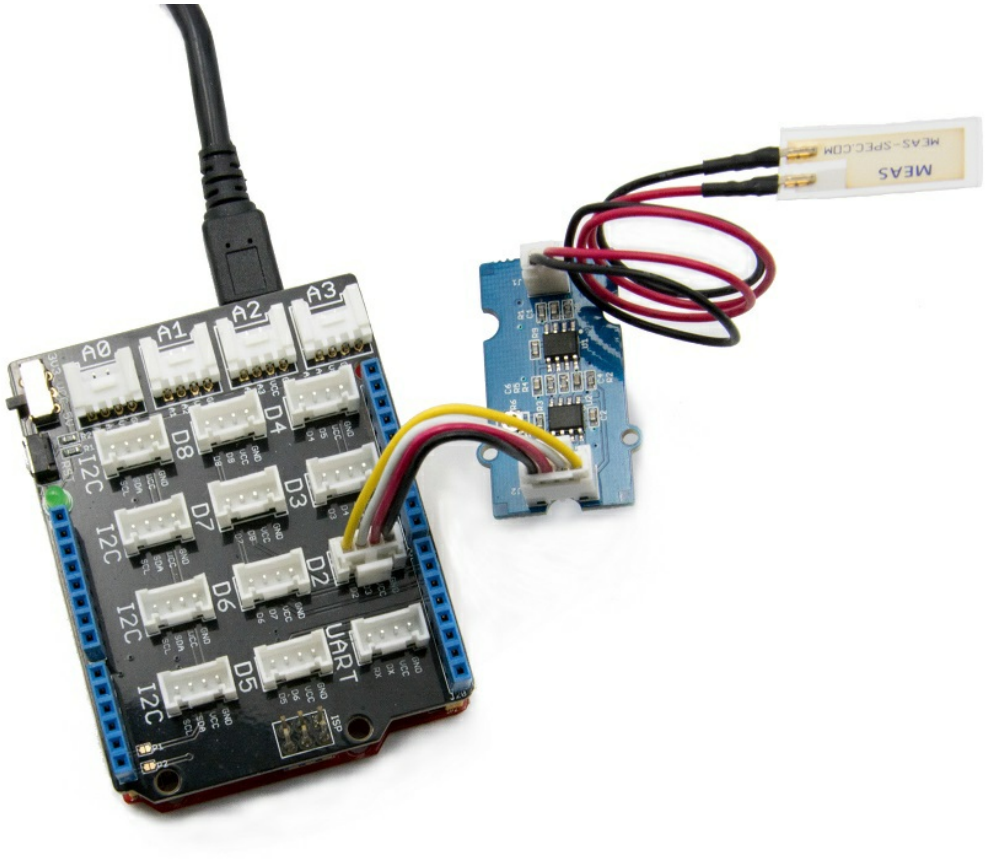
- Step 2. Connect the module to the **D2** of base shield using the 4-pin grove cable, we use **digital pin13 on board LED** as output.
- Step 3. Plug the Basic Shield into Arduino.
- Step 4. Connect Arduino to PC by using a USB cable.



!!!note
It may output low level even though originally output high level when you increase the threshold voltage by clockwise adjusting the potentiometer.

Software

- Step 1. Copy and paste code below to a new Arduino sketch.

```
const int ledPin=13;
void setup() {
    Serial.begin(9600);
    pinMode(ledPin,OUTPUT);
}

void loop() {
    int sensorState = digitalRead(2);
    Serial.println(sensorState);
    delay(1000);
    if(sensorState == HIGH)
    {
        digitalWrite(ledPin,HIGH);
    }
    else
    {
        digitalWrite(ledPin,LOW);
    }
}
```

- Step 2. The LED will be on when vibration is detected.

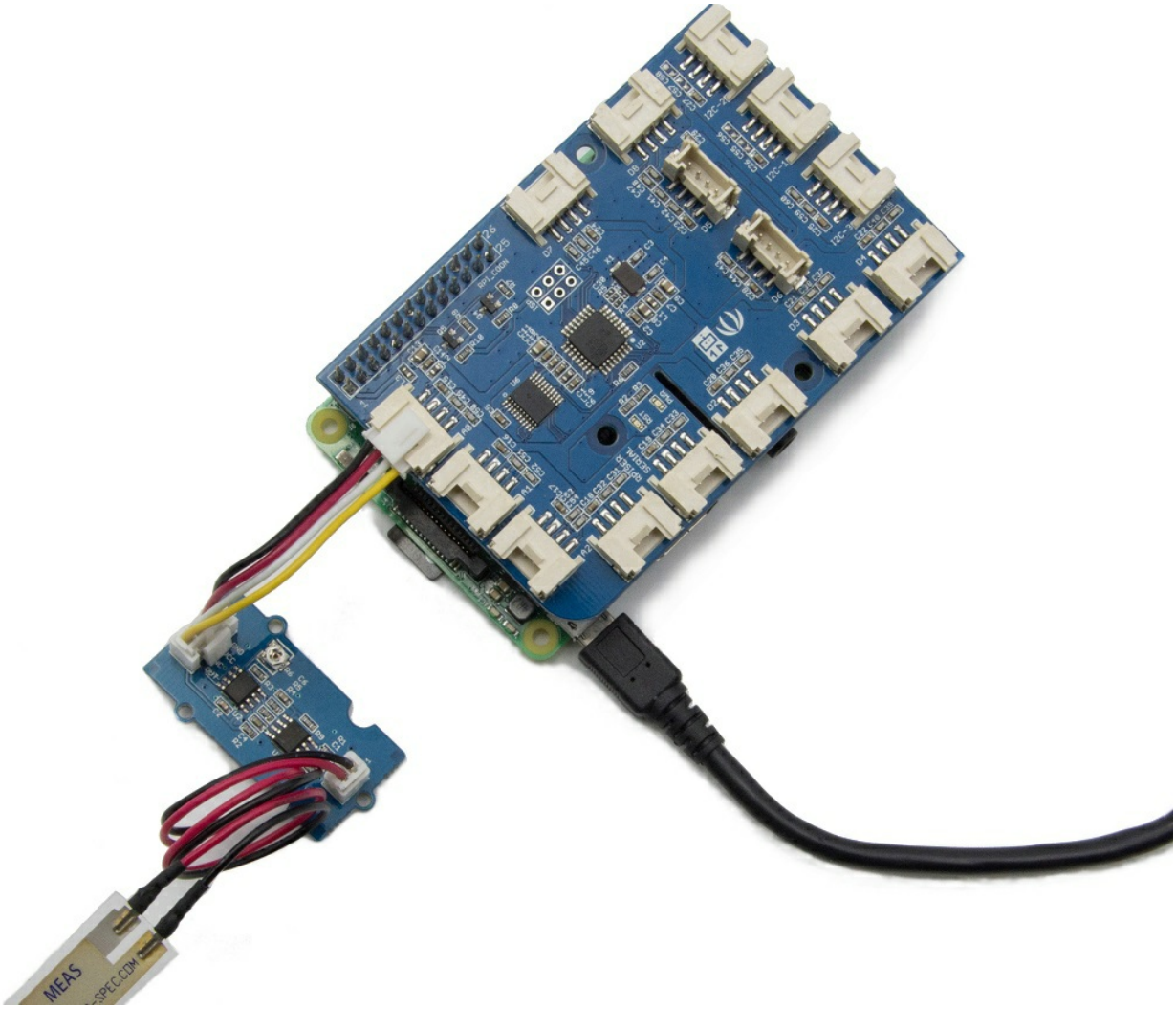
Play With Raspberry Pi

Hardware

- Step 1. Prepare the below stuffs:

Raspberry pi	Grove - Piezo Vibration	GrovePi_Plus
		
Get ONE Now	Get ONE Now	Get ONE Now

- Step 2. Plug the GrovePi_Plus into Raspberry.
- Step 3. Connect Grove-Piezo Vibration to A0 port of GrovePi_Plus.
- Step 4. Connect the Raspberry to PC through USB cable.



Software

- Step 1. Follow Setting Softw are to configure the development environment.
- Step 2. Git clone the Github repository.

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

- Step 3. Excute below commands to detect the vibration.

```
cd ~/GrovePi/Software/Python
python grove_piezo_vibration_sensor.py
```

Here is the grove_piezo_vibration_sensor.py code.

```
import time
import grovepi

# Connect the Grove Piezo Vibration Sensor to analog port A0
# OUT,NC,VCC,GND
piezo = 0

grovepi.pinMode(piezo,"INPUT")

while True:
    try:
        # When vibration is detected, the sensor outputs a logic high signal
        print grovepi.analogRead(piezo)
        time.sleep(.5)

    except IOError:
        print "Error"
```

- Step 4. We will see the vibration display on terminal as below.

```
pi@raspberrypi:~/GrovePi/Software/Python $ python grove_piezo_vibration_sensor.py
1023
1023
1023
1023
18
17
18
17
```

!!!note
We also can use grovepi.digitalRead(2) to read the vibration status with attaching the sensor to D2 port of GrovePi.

FAQs

Please click here to see all Grove-Piezo Vibration Sensor FAQs.

Tech Support

Please do not hesitate to contact **techsupport@seeed.cc** if you require further information.

Resources

- **[PDF]** Download Wiki PDF
- **[Eagle]** Grove - Piezo Vibration Sensor Eagle File
- **[PDF]** Grove - Piezo Vibration Sensor Schematic PDF File
- **[PDF]** Grove - Piezo Vibration Sensor PCB PDF File
- **[Datasheet]** Piezo Vibration Sensor Datasheet