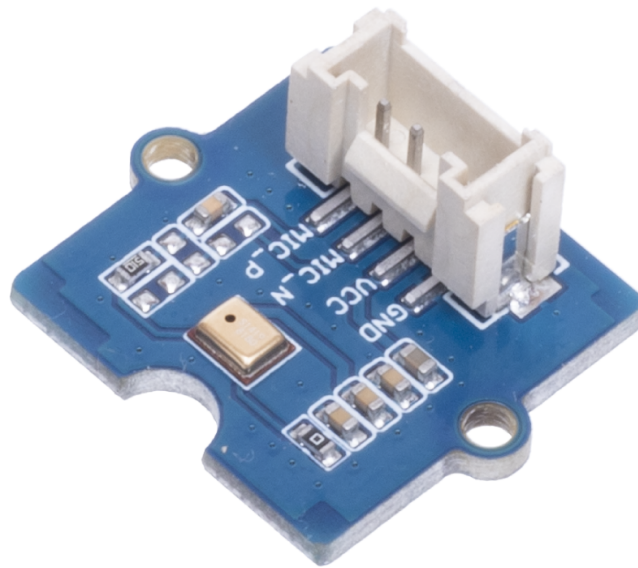


Grove - Analog Microphone



The Grove - Analog Microphone is based on high-performance **SiSonic MEMS** technology, offering an extremely-low-noise, low-current, reliable, and small microphone to the open-source hardware industry, and it has improved performance under severe conditions.

Grove - Analog Microphone is an ideal choice of sound sensors where excellent audio performance is required. It can provide up to

20dB of gain and it also features low current, max RF protection, which makes it a perfect microphone for Arduino and Raspberry Pi. Our featured product [ReSpeaker Core v2.0](https://www.seeedstudio.com/ReSpeaker-Core-v2-0.html) [https://www.seeedstudio.com/ReSpeaker-Core-v2-0.html] also adopts MEMS technology and the same microphone as Grove - Analog Microphone does. If you are going to get a fancy microphone, here is the choice.

Get One Now 

[https://www.seeedstudio.com/Grove-Analog-Microphone-p-4593.html]

Features

- High-performance SiSonic MEMS technology
- Extremely-low-noise, low-current, and reliable
- Compact and elegant design



Warning

This sound sensor is used to detect whether there's sound surround or not, please don't use the module to collect sound signal. For example, you can use it to make a sound control lamp, but not as a recording device.

Applications

- Sound sensor
- Collecting of sound signal
- Voice recognition
- Recording

Specifications


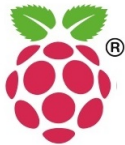
Item	Value
Dimensions	20mm x 20mm
Operating Voltage	3.3V
Operating Current	5mA
Operating Temperature Range	-40 °C to 100 °C

**Tip**

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

[https://wiki.seeedstudio.com/Grove_System/]

Platforms Supported

Arduino	Raspberry Pi		
			

**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](https://wiki.seeedstudio.com/Getting_Started_with_Arduino/) [https://wiki.seeedstudio.com/Getting_Started_with_Arduino/] before the start.

Play With Arduino

Hardware

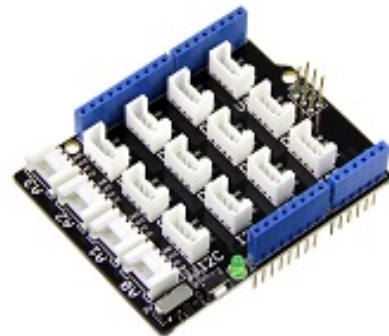
Seeeduino V4.2



[Get One Now](https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html)

[https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html]

Base Shield



[Get One Now](https://www.seeedstudio.com/Base-Shield-V2-p-1378.html)

[https://www.seeedstudio.com/Base-Shield-V2-p-1378.html]



- **Step 1.** Connect Grove-Sound Sensor to port **A0** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduino and connect Seeeduino to PC via a USB cable.

**Note**

If we don't have Grove Base Shield, We also can directly connect Grove-Sound Sensor to Seeeduino as below.

Seeeduino	Grove-Sound Sensor
5V	Red
GND	Black
A1	White
A0	Yellow

Software

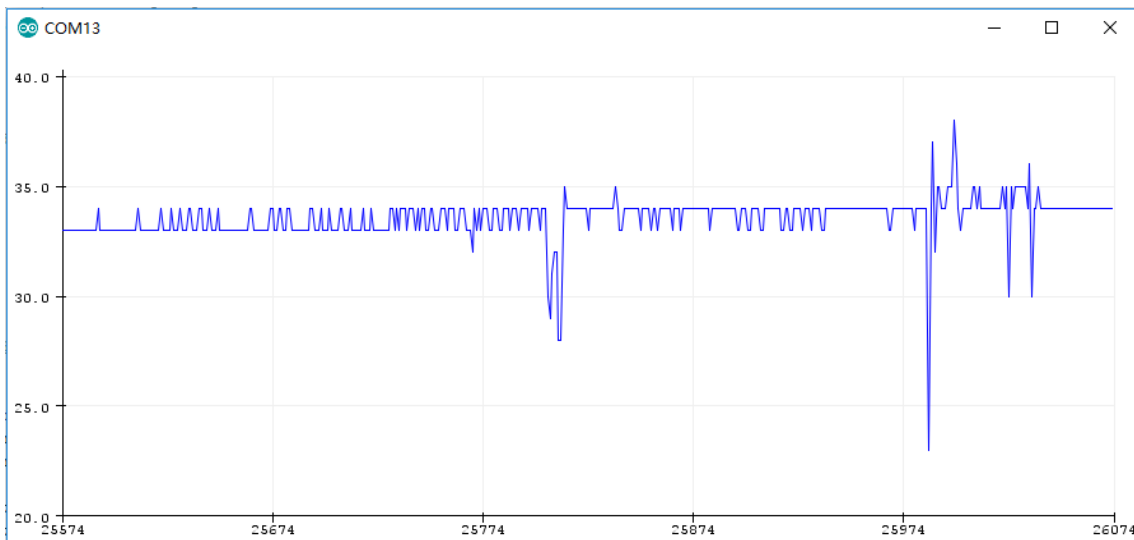
- **Step 1.** Please copy below code to Arduino IDE and upload to arduino. If you do not know how to upload the code, please check [how to upload code](https://wiki.seeedstudio.com/Upload_Code/) [https://wiki.seeedstudio.com/Upload_Code/].

```

1  /*
2   Analog input, analog output, serial output
3
4   Reads an analog input pin, maps the result to a range :
5   the result to set the pulse width modulation (PWM) of
6   Also prints the results to the Serial Monitor.
7  */
8
9  // These constants won't change. They're used to give names
10 const int analogInPin = A0; // Analog input pin that the
11 const int analogOutPin = 9; // Analog output pin that the
12
13 int sensorValue = 0; // value read from the pot
14 int outputValue = 0; // value output to the PWM (analog out)
15
16 void setup() {
17   Serial.begin(9600); // initialize serial communication
18 }
```


```
19
20 void loop() {
21   sensorValue = analogRead(analogInPin); // read the sensor value
22   outputValue = map(sensorValue, 0, 1023, 0, 255);
23   analogWrite(analogOutPin, outputValue);
24
25   Serial.println(outputValue); // print the results to the serial monitor
26
27   // wait 2 milliseconds before the next loop for the analog
28   // converter to settle after the last reading:
29   delay(2);
30 }
```

- **Step 2.** Click on **Serial > Plotter** to get the changing curve of the sensor. Please make a noise to view the change of the value.



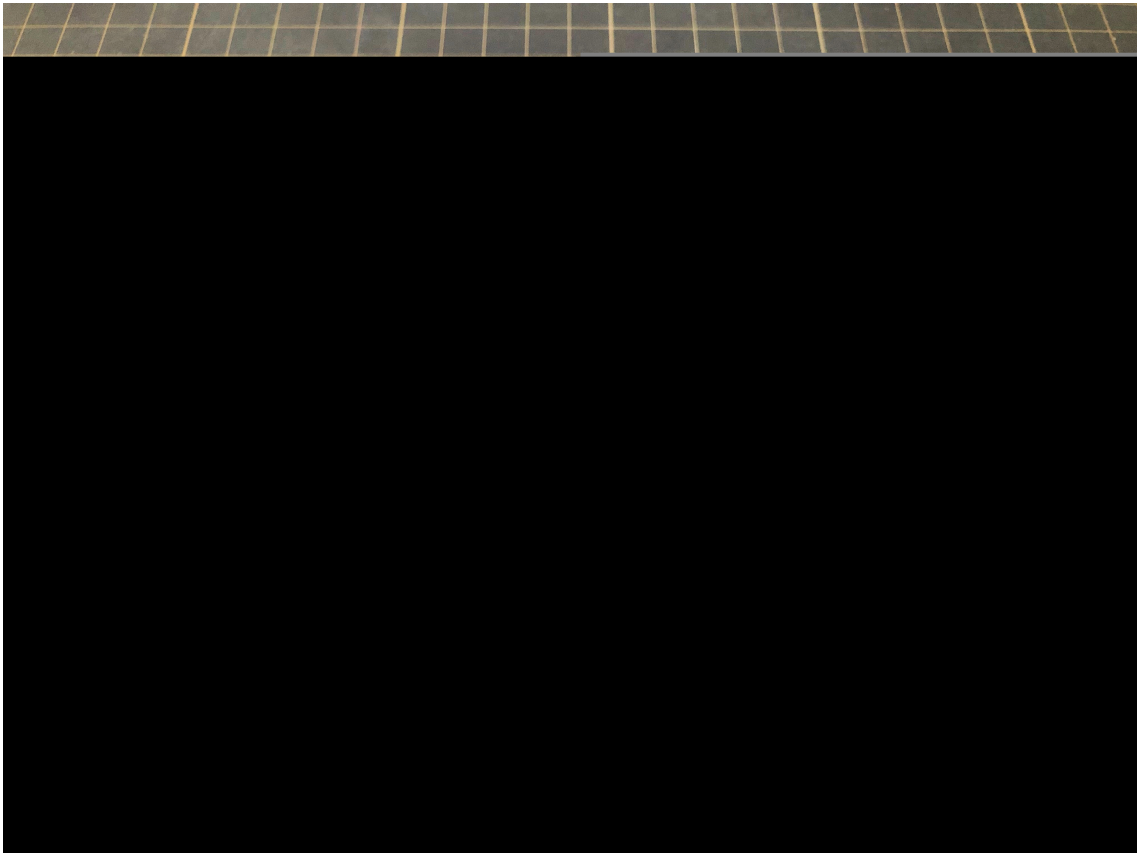
Play With Wio Terminal

Hardware

Wio Terminal	Grove-Analog Microphone
	
<p>Get One Now [https://www.seeedstudio.com/Wio-Terminal-p-4509.html]</p>	<p>Get One Now [https://www.seeedstudio.com/Grove-Analog-Microphone-p-4593.html]</p>



Hardware Connection



Step 1 Plug Grove-Analog Microphone to Wio Terminal via Grove cable and also connect Wio Terminal to PC through a USB cable.

Step 2 Copy the demo code into your Arduino IDE and upload.

Software

```
1  #include "seed_line_chart.h" //include the library
2
3  TFT_eSPI tft;
4  #define LINE_DIS 0X00
5  #define STRING_DIS 0X01
6  #define max_size 30 //maximum size of data
7  doubles data; //Initilising a doubles type to store data
8  int brightness;
9  TFT_eSprite spr = TFT_eSprite(&tft); // Sprite
10
11 const int MIC = A0; //the microphone amplifier output is
12 int adc;
13 int dB, PdB; //the variable that will hold the value read
14 uint8_t mode = LINE_DIS;
15 void setup()
16 {
17     Serial.begin(9600); //sets the baud rate at 9600 so I can
18     pinMode(A0, INPUT);
19     pinMode(WIO_KEY_C, INPUT_PULLUP);
20     pinMode(WIO_BUZZER, OUTPUT);
21     tft.begin();
22     spr.createSprite(TFT_HEIGHT, TFT_WIDTH);
23     spr.setRotation(3);
24     tft.setRotation(3);
25 }
26
27 void loop() {
28
29     if (digitalRead(WIO_KEY_C) == LOW) {
30         mode ++;
31         if(mode > STRING_DIS ) mode = LINE_DIS;
32         while(!digitalRead(WIO_KEY_C));
```

```

33     }
34     display(mode);
35 }
36
37 void display(uint8_t mode)
38 {
39     adc = analogRead(MIC); //Read the ADC value from amp
40     //Serial.println (adc); //Print ADC for initial calcu
41     dB = (adc + 83.2073) / 7.003; //Convert ADC value to
42
43     if(dB > 50)
44     {
45         analogWrite(WIO_BUZZER, 128);
46
47     }else{
48         analogWrite(WIO_BUZZER, 0);
49     }
50
51     spr.fillSprite(TFT_WHITE);
52
53     if (data.size() == max_size)
54     {
55         data.pop(); //this is used to remove the first r
56     }
57     data.push(dB); //read variables and store in data
58
59     //Settings for the line graph title
60     auto header = text(0, 0)
61         .value("MIC DB Readings")
62         .align(center)
63         .valign(vcenter)
64         .width(tft.width())
65         .thickness(2);
66
67     header.height(header.font_height() * 2);
68     header.draw(); //Header height is the twice the heigh
69     if (LINE_DIS == mode){
70         //Settings for the line graph
71         auto content = line_chart(20, header.height()); //(x
72         content
73         .height(tft.height() - header.height() * 1.5) //

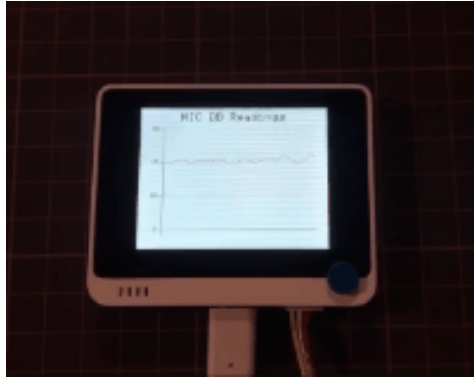
```

```
74     .width(tft.width() - content.x() * 2)    ///  
75     .based_on(0.0)                          ///  
76     .show_circle(false)                    ///  
77     .value(data)                           ///  
78     .color(TFT_RED)                        ///  
79     .draw();  
80 } else if (STRING_DIS == mode){  
81     for(int8_t line_index = 0; line_index < 5 ; line_  
82     {  
83         spr.drawLine(0, 50 + line_index, tft.width()  
84     }  
85     auto header = text(0, 0)  
86                 .thickness(1);  
87     spr.setFreeFont(&FreeSansBoldOblique24pt7b);  
88     if(dB > 50){  
89         spr.setTextColor(TFT_RED);  
90     }else{  
91         spr.setTextColor(TFT_BLUE);  
92     }  
93     spr.drawFloat(dB,2,70,110);  
94     spr.drawString(" dB",80 + 100,110,1);  
95 }  
96 spr.pushSprite(0, 0);  
97 delay(100);  
98 }
```



Success

The image will display on the screen of Wio Terminal if everything goes well.



Schematic Online Viewer



Resources

- **[ZIP]** [Grove-Analog_Microphone_v1.0_SCH&PCB.zip](https://files.seeedstudio.com/wiki/Grove-Analog-Microphone/res/202002902_Grove-Analog-Microphone_v1.0_SCH&PCB.zip)
[https://files.seeedstudio.com/wiki/Grove-Analog-Microphone/res/202002902_Grove-Analog-Microphone_v1.0_SCH&PCB.zip]
- **[PDF]** [SMD Mic OMNI-22DB_Specification.pdf](https://files.seeedstudio.com/wiki/Grove-Analog-Microphone/res/SMD_Mic_OMNI-22DB_Specification.pdf)
[https://files.seeedstudio.com/wiki/Grove-Analog-Microphone/res/SMD_Mic_OMNI-22DB_Specification.pdf]

Tech Support

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



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