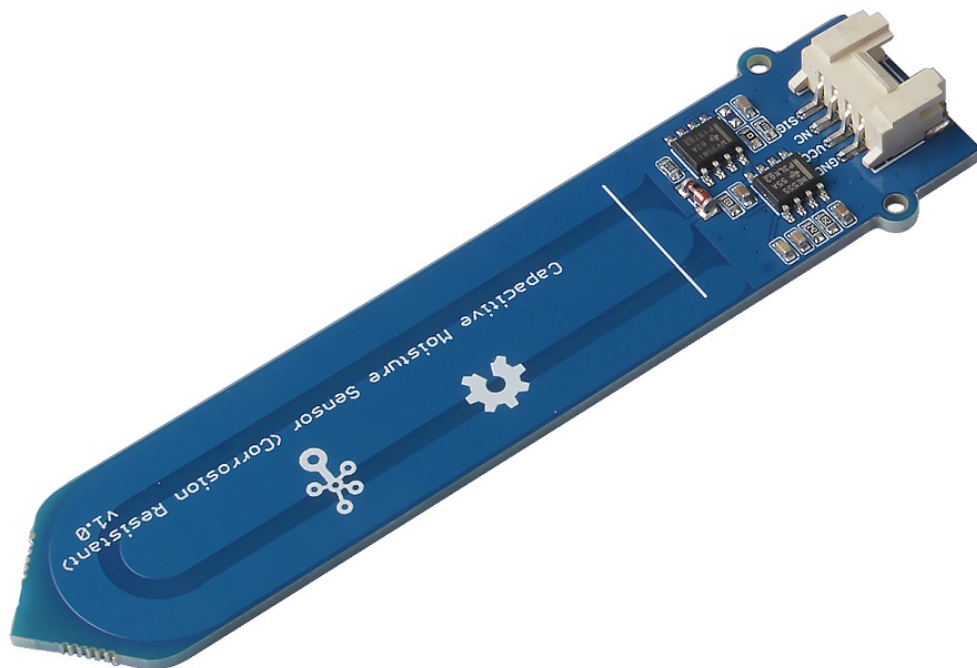


Grove - Capacitive Moisture Sensor (Corrosion-Resistant)



The Grove - Capacitive Moisture Sensor (Corrosion Resistant) is a soil moisture sensor based on capacitance changes. Compared with resistive sensors, capacitive sensors do not require direct exposure of the metal electrodes, which can significantly reduce the erosion of the electrodes. Hence, we call it **Corrosion Resistant**.

It is important to note that this sensor can only qualitatively test the humidity of the soil and cannot measure quantitatively. Which means when the humidity of the soil rises, the value of the output decreases; conversely, when the humidity decreases, the output value becomes higher.



[<https://www.seeedstudio.com/Grove-Capacitive-Moisture-Sensor-Corrosion-Resistant-p-2850.html>]

Version

Product Version	Changes	Released Date
Grove - Capacitive Moisture Sensor (Corrosion Resistant)	Initial	Sep 2018

Feature

- Capacitive Style
- Corrosion Resistant
- Built-in Amplifier

Specification

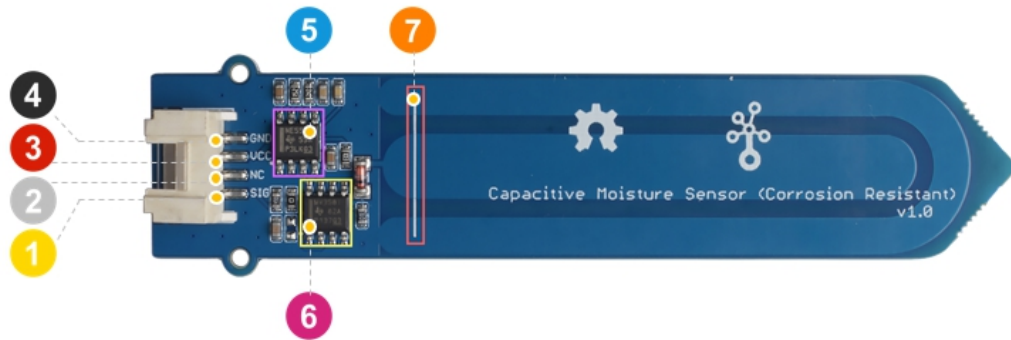
Item	Value
Operating Voltage	3.3V / 5V
Output Interface	Analog
Length	92.1mm
Width	23.5mm
Height	6.5mm
size	L: 40mm W: 20mm H: 13mm
Weight	10.6g
Package size	L: 150mm W: 100mm H: 15mm
Gross Weight	19g

Typical Applications

- Soil moisture detection
- Automatic watering of plants

Hardware Overview

Pin Out



- 4 GND: connect this module to the system GND
- 3 VCC: you can use 5V or 3.3V for this module
- 2 NC: not connected
- 1 SIG: analog output
- 5 NE555DR IC
- 6 LMV358ID IC Operational Amplifier
- 7 Highest position line



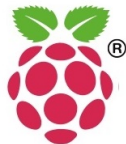
Attention

The part of the sensor inserted into the soil cannot exceed the highest position line.

Platforms Supported

Arduino

Raspberry
Pi



Caution

The platforms mentioned above as supported is/are an indication of the module's hardware 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. To do means not be supported now, may or may not be supported in the future.

Getting Started

Play With Arduino

Hardware

Materials required

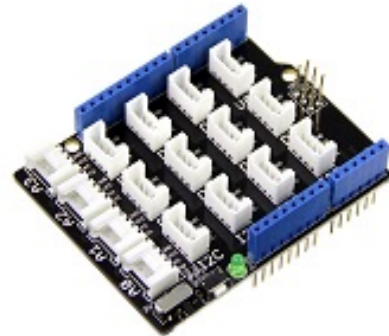
Seeeduino V4.2



[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>]



Note

1 Please plug the USB cable gently, otherwise you may damage the port. Please use the USB cable with 4 wires inside, the 2 wires cable can't transfer data. If you are not sure about the wire you have, you can click

[here](https://www.seeedstudio.com/Micro-USB-Cable-48cm-p-1475.html) [https://www.seeedstudio.com/Micro-USB-Cable-48cm-p-1475.html] to buy

2 Each Grove module comes with a Grove cable when you buy. In case you lose the Grove cable, you can click [here](https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html) [https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html] to buy.



Important

1. If the you uses Arduino UNO as the motherboard, it is recommended that use the DC power supply. Otherwise, the maximum ripple of VCC may exceed 100mV. If you use Seeeduino V4.2 as the motherboard, you do not need to connect DC power.
2. Hot swap is not supported.

- **Step 1.** Connect the Grove - Capacitive Moisture Sensor to port **A0** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduino.
- **Step 3.** Insert the Grove - Capacitive Moisture Sensor into the soil to be tested.



Attention

The part of the sensor inserted into the soil cannot exceed this white line.



- **Step 4.** Connect Seeduino to PC via a USB cable.



**Note**

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

Seeeduino	Grove Cable	Grove - Capacitive Moisture Sensor
GND	Black	GND
5V or 3.3V	Red	VCC
Not connection	White	NC
A0	Yellow	SIG

Software

**Attention**

If this is the first time you work with Arduino, we strongly 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.

Step 1. Copy the code below, and download it to your 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   AnalogReadSerial
3
4   Reads an analog input on pin 0, prints the result to the
5   Graphical representation is available using Serial Plotter
6   Attach the center pin of a potentiometer to pin A0, an

```




```
7
8   This example code is in the public domain.
9
10  https://arduino.cc/en/Tutorial/AnalogReadSerial
11  */
12
13  // the setup routine runs once when you press reset:
14  void setup() {
15    // initialize serial communication at 9600 bits per second:
16    Serial.begin(9600);
17  }
18
19  // the loop routine runs over and over again forever:
20  void loop() {
21    // read the input on analog pin 0:
22    int sensorValue = analogRead(A0);
23    // print out the value you read:
24    Serial.println(sensorValue);
25    delay(100);      // delay in between reads for stability
26  }
```

- **Step 2.** Open the **Serial Monitor** of Arduino IDE by click **Tool->Serial Monitor**. Or tap the **Ctrl + Shift + M** key at the same time. Set the baud rate to **9600**.



Success

If every thing goes well, when you open the Serial Monitor it may show as below:

```
1  678
2  663
3  631
4  615
5  615
6  624
7  616
```



```
8 618
9 620
10 616
11 614
12 614
13 610
14 614
15 614
16 616
17 615
18 612
19 605
```

**Attention**

Due to individual differences in components, different module measurements in the same environment may vary.

Play with Raspberry Pi

If you want to use this module with Raspberry Pi, you may need to use any of the following hat:

- [4-Channel 16-Bit ADC for Raspberry Pi\(ADS1115\)](https://www.seeedstudio.com/4-Channel-16-Bit-ADC-for-Raspberry-Pi-ADS1115.html)
[<https://www.seeedstudio.com/4-Channel-16-Bit-ADC-for-Raspberry-Pi-ADS1115.html>]
- [8-Channel 12-Bit ADC for Raspberry Pi \(STM32F030\)](https://www.seeedstudio.com/8-Channel-12-Bit-ADC-for-Raspberry-Pi(STM32F030).html)
[[https://www.seeedstudio.com/8-Channel-12-Bit-ADC-for-Raspberry-Pi\(STM32F030\).html](https://www.seeedstudio.com/8-Channel-12-Bit-ADC-for-Raspberry-Pi(STM32F030).html)]
- [Grove Base Hat for Raspberry Pi](https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-p-3186.html)
[<https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-p-3186.html>]

- [Grove Base Hat for Raspberry Pi Zero](https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-Zero-p-3187.html)
[<https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-Zero-p-3187.html>]

And you can find the demo in the wiki of those hats.

Schematic Online Viewer



Resources

- **[Zip] Grove - Capacitive Moisture Sensor (Corrosion Resistant) Eagle Files** [[https://files.seeedstudio.com/wiki/Grove-Capacitive_Moisture_Sensor_Corrosion_Resistant/res/Grove-Capacitive%20Moisture%20Sensor%20\(Corrosion%20Resistant\).zip](https://files.seeedstudio.com/wiki/Grove-Capacitive_Moisture_Sensor_Corrosion_Resistant/res/Grove-Capacitive%20Moisture%20Sensor%20(Corrosion%20Resistant).zip)]
- **[PDF] NE555DR Datasheet** [https://files.seeedstudio.com/wiki/Grove-Capacitive_Moisture_Sensor_Corrosion_Resistant/res/NE555DR.pdf]
- **[PDF] PDF Format Wiki** [https://files.seeedstudio.com/wiki/Grove-Capacitive_Moisture_Sensor_Corrosion_Resistant/res/soil_sensor.pdf]

Tech Support

Please do not hesitate to submit the 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=newproducts]

