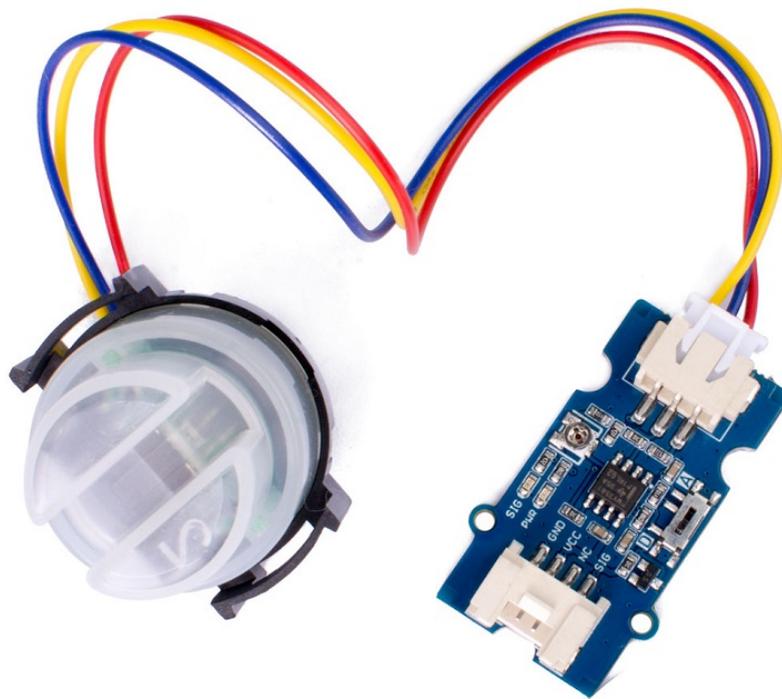


Grove - Turbidity Sensor Meter for Arduino V1.0



The Grove turbidity sensor can measure the turbidity of the water (the number of suspended particles).

The optical sensor of this module can measure the density of turbid water and the concentration of extraneous matter using the

refraction of wavelength between photo transistor and diode. By using an optical transistor and optical diodes, an optical sensor measures the amount of light coming from the source of the light to the light receiver, in order to calculate turbidity of water.

The output mode can be selected by adjusting the switch on the board. Supports analog and digital output. The sensitivity can be adjusted by the on-board knob.

Get One Now 

[<https://www.seeedstudio.com/Grove-Turbidity-Sensor-p-4399.html>]

Features

- Low power consumption
- Small size: 2.0cm x 4.0cm Grove module
- Only 3 pins needed, save I/O resources
- Easy to use: Grove connector, plug and play
- Output mode optional, support analog output and digital output



Tip

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

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

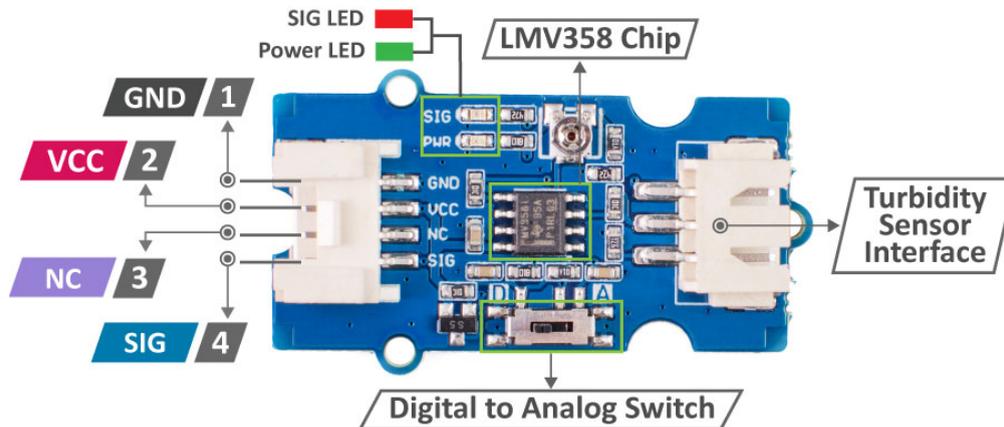
Specification

Parameter	Value/Range
Operating Voltage	3.3V/5V DC
Output Interface	Analog Digital
Connector	1 Grove 1 Power interface
Size	20*40mm

Typical applications

- Measure the water pollution degree of washing machines such as dishwashers to determine the optimal washing time and rinsing times.
- Industrial site control.
- Environmental wastewater treatment.

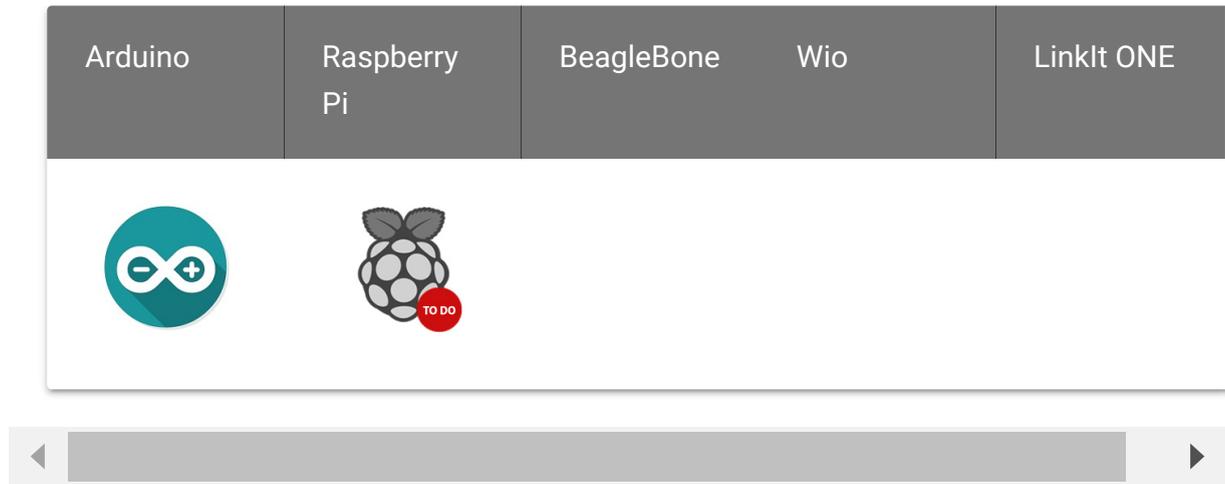
Hardware Overview



- 1** : Connected to the system GND
- 2** : Power supply from Grove 5V/3.3V
- 3** : Not connected in this module
- 4** : Output signal from this module

- **Digital to Analog Switch**
- "D" is the digital output, the threshold of high and low level can be adjusted by on-board knob.
- "A" is the analog output, the output value will decrease with the increase of liquid turbidity.

Platforms Supported

**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

Play With Arduino

**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.

Materials required

Seeeduino V4.2



Grove - Turbidity Sensor



[Get One Now](#)

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

[Get One Now](#)

[<https://www.seeedstudio.com/Grove-Turbidity-Sensor-p-4399.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.

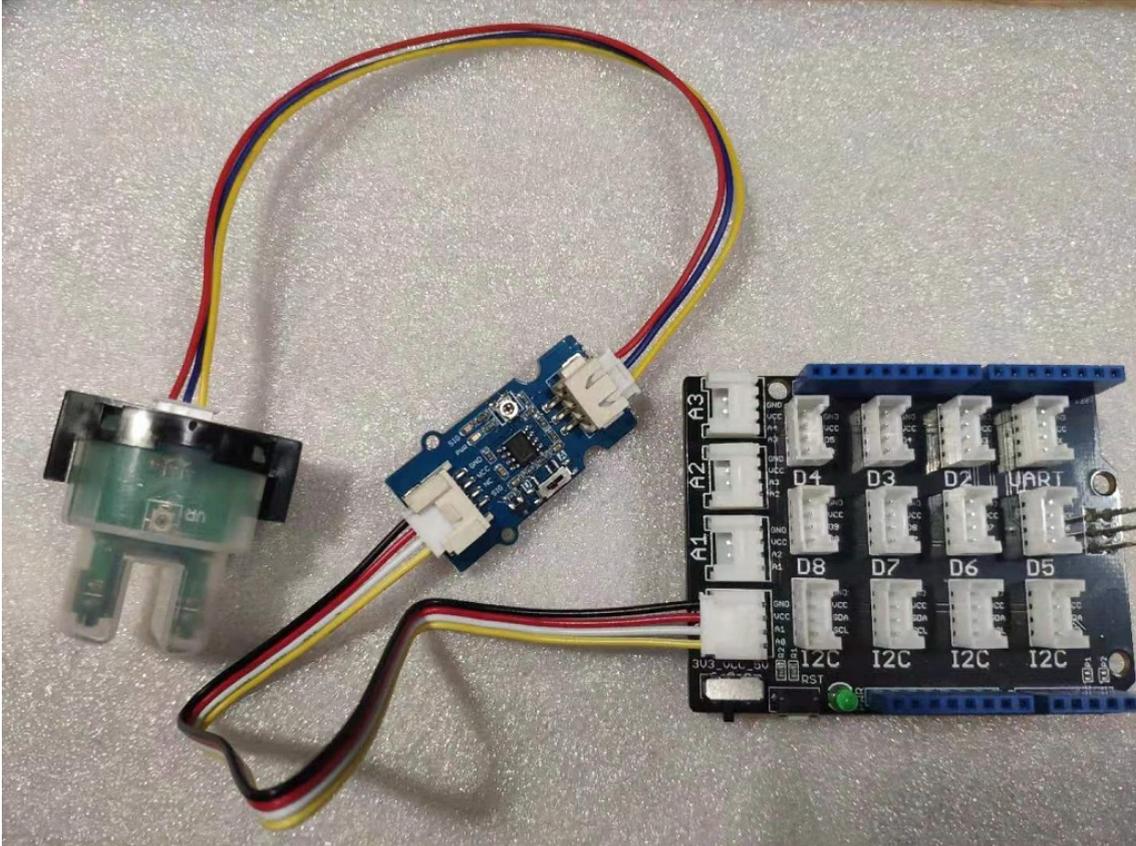
2 Each Grove module comes with a Grove cable when you buy. In case you lose the Grove cable, you can click [here](https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html) [<https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html>]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

Analog Output

HARDWARE CONNECTION

- **Step 1.** The switch on the sensor selects **A**.

- **Step 1.** Connect Grove - Turbidity Sensor to port **A0** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeduino.
- **Step 3.** Connect Seeduino to PC via a USB cable.

**Note**

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

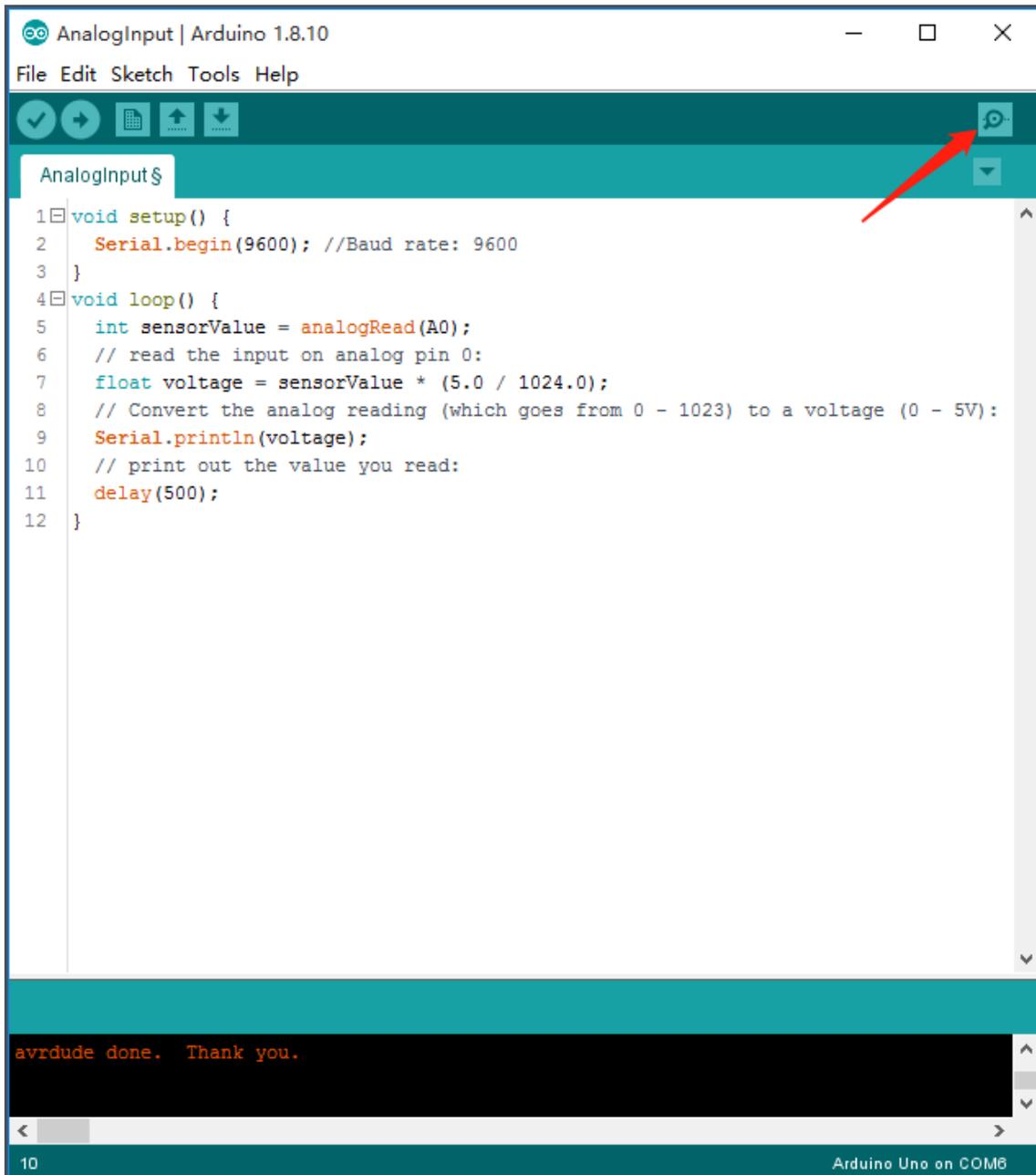
Seeeduino	Grove - Turbidity Sensor
5V	Red
GND	Black
Not Conencted	White
A0	Yellow

SOFTWARE

- **Step 1.** Copy the code below into Arduino IDE and upload. 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  void setup() {  
2  
3    Serial.begin(9600); //Baud rate: 9600  
4  }  
5  
6  void loop() {  
7    int sensorValue = analogRead(A0); // read the input on  
8    float voltage = sensorValue * (5.0 / 1024.0); // Conve  
9    Serial.println(voltage); // print out the value you re  
10   delay(500);  
11  }
```

- **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**.

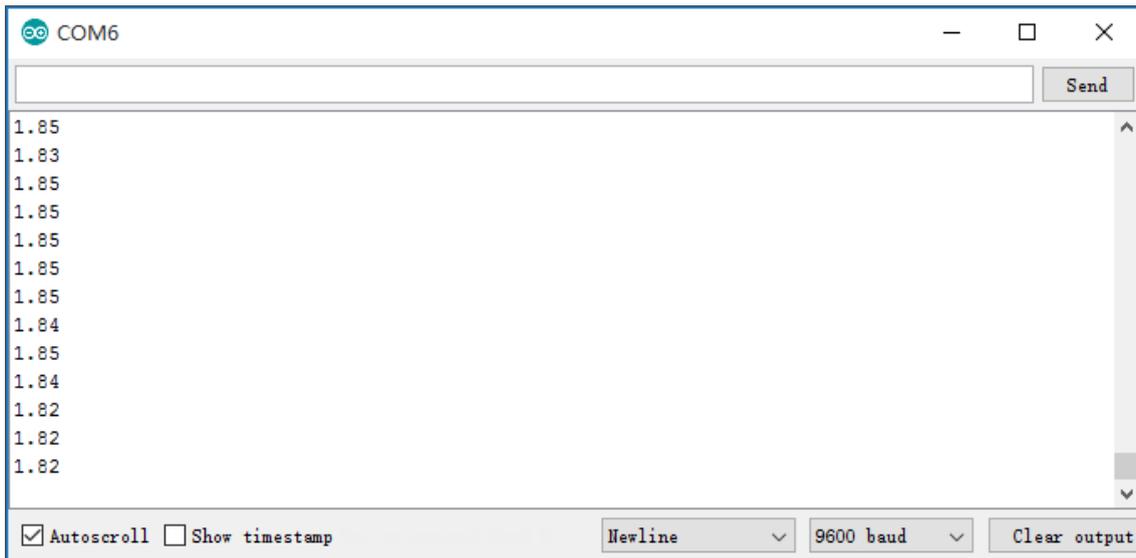


The screenshot shows the Arduino IDE interface. The title bar reads "AnalogInput | Arduino 1.8.10". The menu bar includes "File", "Edit", "Sketch", "Tools", and "Help". The toolbar contains icons for check, run, upload, and download. A red arrow points to the upload button. The main editor displays the following code:

```
1 void setup() {
2   Serial.begin(9600); //Baud rate: 9600
3 }
4 void loop() {
5   int sensorValue = analogRead(A0);
6   // read the input on analog pin 0:
7   float voltage = sensorValue * (5.0 / 1024.0);
8   // Convert the analog reading (which goes from 0 - 1023) to a voltage (0 - 5V):
9   Serial.println(voltage);
10  // print out the value you read:
11  delay(500);
12 }
```

The serial monitor at the bottom shows the output: "avrdude done. Thank you." The status bar at the bottom indicates "10" and "Arduino Uno on COM6".

- **Step 3.** Now you can use this sensor, and the output will be like this:



```
COM6
1.85
1.83
1.85
1.85
1.85
1.85
1.85
1.84
1.85
1.84
1.82
1.82
1.82
```

Digital Output

HARDWARE CONNECTION

- **Step 1.** The switch on the sensor selects **D**.
- **Step 1.** Connect Grove - Turbidity Sensor to port **D2** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduino.
- **Step 3.** Connect Seeeduino to PC via a USB cable.



Note

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

Seeeduino	Grove - Turbidity Sensor
5V	Red
GND	Black
Not Conencted	White
D2	Yellow

SOFTWARE

- **Step 1.** Copy the code below into Arduino IDE and upload. 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  int ledPin = 3;
2  int sensor_in = 2;           // Turbidity sensor on
3
4  void setup(){
5    Serial.begin(9600);
6    pinMode(ledPin, OUTPUT);   // Set ledPin as output pin
7    pinMode(sensor_in, INPUT); //Set Turbidity sensor pin
8  }
9
10 void loop(){
11   int sensorValue = digitalRead(sensor_in);
12   Serial.println(sensorValue);
13   if(sensorValue==HIGH){     //Read sensor signal
14     digitalWrite(ledPin, HIGH); // if sensor is LOW
15   }else{
16     digitalWrite(ledPin, LOW);  // if sensor is HIGH
17   }
18   delay(500);
19 }
```

- **Step 2.** We use digital output and raise or lower the trigger by adjusting the potentiometer to make the LED turn on and off.

Schematic Online Viewer



Resources

- **[ZIP]** [Schematic Diagram](#)
[<https://files.seeedstudio.com/wiki/Grove-Turbidity->

Sensor/res/Grove-Turbidity-Sensor-v1.0.zip]

- **[PDF] LMV358 Datasheet**
[<https://files.seeedstudio.com/wiki/Grove-Turbidity-Sensor/res/LMV358-Datasheet.pdf>]
- **[PDF] MPX5700AP Datasheet**
[<https://files.seeedstudio.com/wiki/Grove-Turbidity-Sensor/res/Turbidity-Sensor-Datasheet.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=newproducts]