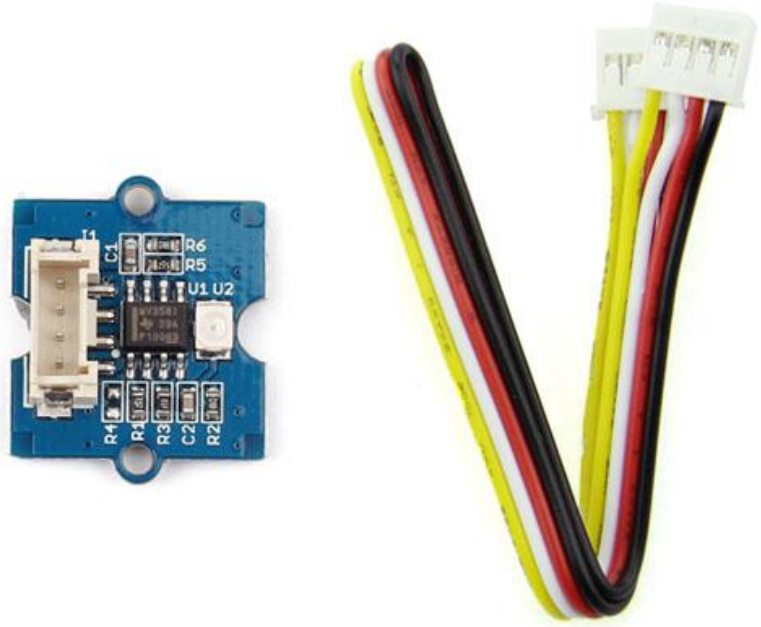
Grove - UV Sensor



The Grove – UV Sensor is used for detecting the intensity of incident ultraviolet(UV) radiation. This form of electromagnetic radiation has shorter wavelengths than visible radiation. The Grove - UV Sensor is based on the sensor GUVA-S12D which has a wide spectral range of 200nm-400nm. The module outputs electrical

signal which varies with the UV intensity, which gives your suggestion if it is a good idea to beach today.

Get One Now

[https://www.seeedstudio.com/Grove-UV-Sensor-p-1540.html]

Features

- High stability
- Good sensitivity
- Low power consumption
- Schottky type photodiode sensor
- Wide response range
- Grove Interface

Tip
More details about Grove modules please refer to Grove System [https://wiki.seeedstudio.com/Grove_System/]

Specifications

Item	Min	Typical	Max	Unit
Operating Voltage	3.0	5.0	5.1	VDC
Current		0.31		mA
Output Voltage				mV
Response wavelength	240	~	370	nm
Working Temperature	-30	~	85	℃

Platforms Supported

Arduino	Raspberry Pi		
			

Caution

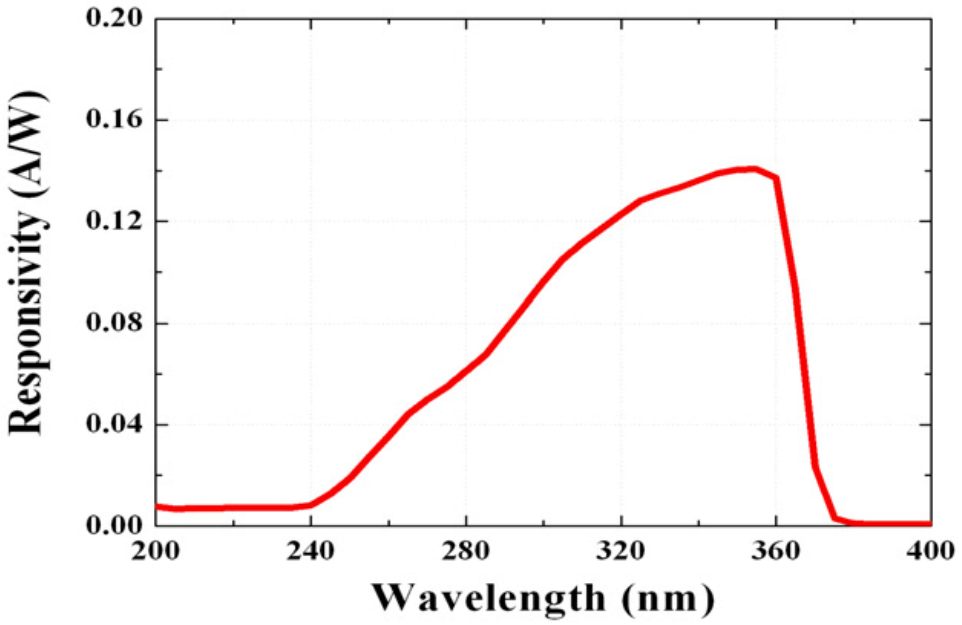
The platforms mentioned above as supported is/are an indication of the module's software or theoritical compatibility. We only provide software

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.

Application Ideas

- UV sensors are used in many different applications, include pharmaceuticals, automobiles, and robotics.
- UV sensors are also used in the printing industry for solvent handling and dyeing processes.
- In addition, UV sensors are used in the chemical industry for the production, storage, and transportation of chemicals as well.

The theory of UV sensor is: In sunlight, the UV index and Photocurrent are a linear relationship.



About our Grove - UV Sensor, we have converted Photocurrent to corresponding voltage value collected by Arduino/Seeeduino. The output voltage and the UV index is linear:

illumination intensity = 307 * Vsig

Vsig is the value of voltage measured from the SIG pin of the Grove interface, unit V. illumination intensity unit: mW/m^2 for the combination strength of UV light with wavelength range: 240nm~370nm

Note
To calculate the UV index value, please refer to US EPA [http://www2.epa.gov/sunwise/uv-index]. It is hard to say that the measurement from this sensor can be converted to the EPA standard UV index, but can be estimated roughly.

UV Index = illumination intensity / 200

Getting Started

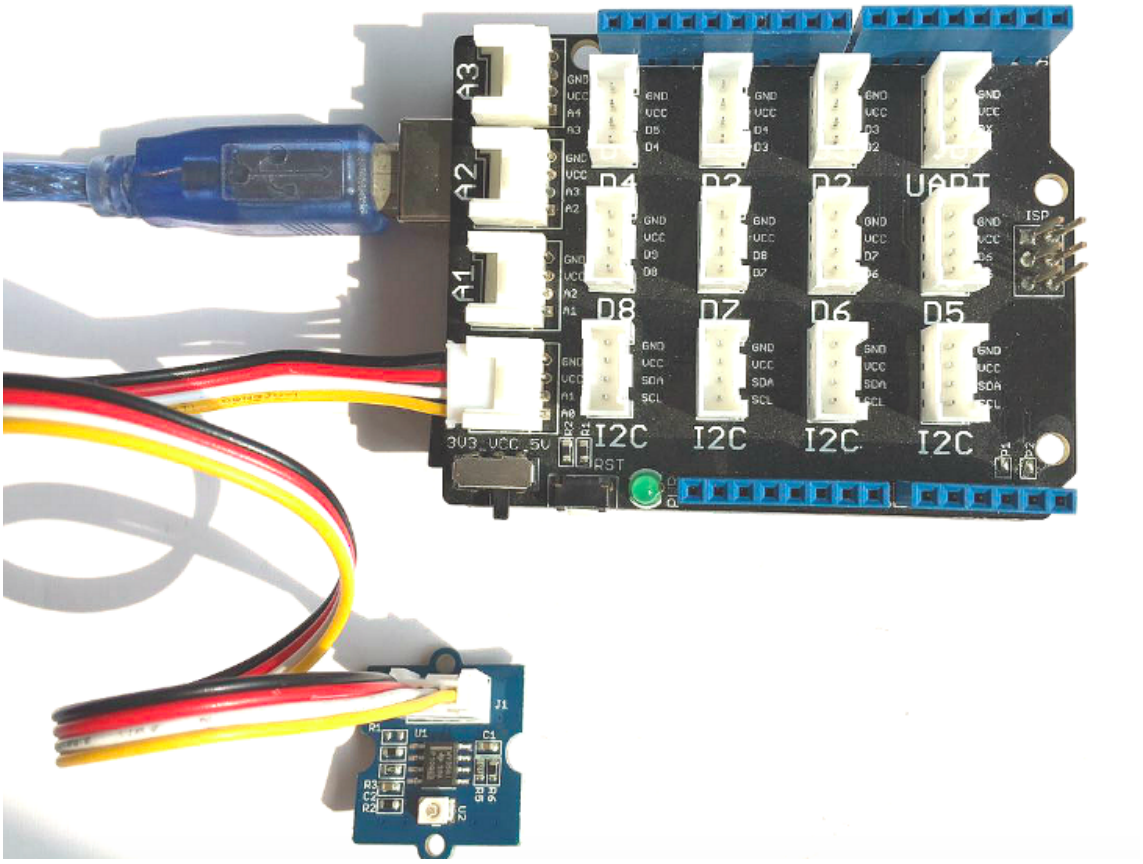
Note
This chapter is based on Win10 and Arduino IDE 1.6.9

We will show you how this Grove - UV Sensor works through a simple demo. First of all, you need to prepare the below stuffs:

Seeeduino V4	Grove - UV Sensor
	
Get ONE Now [https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html]	Get ONE Now [https://www.seeedstudio.com/Grov UV-Sensor-p-1540.html]

Connection

Thanks to the benefits of Grove series modules, you don't need to make soldering or bread board, what you need to do is to connect the modules to the right port of Base Shield. For this demo, we only need one Grove module. - Connect Grove UV Sensor to A0 port of Grove - Base Shield. - Plug the Grove - Base Shield into Arduino/Seeeduino and connect them to PC by using a USB cable. - The demo code is shown below.



Upload the sketch to Arduino and open the serial port to monitor the data

```
// modified by Victor
// to calculate UV index directly
void setup(){

    Serial.begin(9600);
}

void loop()
{
    int sensorValue;
    long  sum=0;
    for(int i=0;i<1024;i++)// accumulate readings for 10
    {
        sensorValue=analogRead(A0);
        sum=sensorValue+sum;
```

```
        delay(2);
    }
    long meanVal = sum/1024;  // get mean value
    Serial.print("The current UV index is:");
    Serial.print((meanVal*1000/4.3-83)/21);// get a deta
    Serial.print("\n");
    delay(20);

}
```

Resources

- Grove - UV Sensor v1.1 PCB and schematics(current version) in Eagle format [https://files.seeedstudio.com/wiki/Grove-UV_Sensor/res/Grove%20-%20UV%20Sensor%20v1.1.zip]
- Grove - UV Sensor v1.1 PCB(current version) in PDF format [https://files.seeedstudio.com/wiki/Grove-UV_Sensor/res/Grove%20-%20UV%20Sensor%20v1.1%20brd.pdf]
- Grove - UV Sensor v1.1 schematics(current version) in PDF format [https://files.seeedstudio.com/wiki/Grove-UV_Sensor/res/Grove%20-%20UV%20Sensor%20v1.1sch.pdf]
- Grove - UV Sensor v1.1 Sensor Datasheets(current version) [https://files.seeedstudio.com/wiki/Grove-UV_Sensor/res/Grove-UV_Sensor_v1.1_Datasheets.zip]
- US EPA Suggestions About UV Radiation [https://www.epa.gov/sunsafety/uv-index-scale-1]
- Grove - UV Sensor v1.0 schematics and datasheets(older version) [https://files.seeedstudio.com/wiki/Grove-UV_Sensor/res/Grove-UV_Sensor_v1.0_Datasheets.zip]

Tech Support

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

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