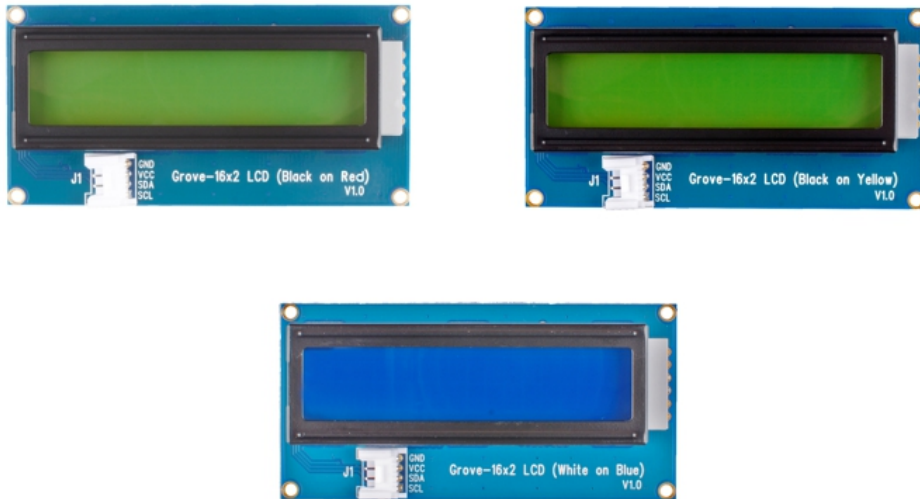


Grove - 16x2 LCD



Grove - 16 x 2 LCD is a perfect I2C LCD display for Arduino and Raspberry Pi with high contrast and easy deployment. 16x2 means two lines and each line has 16 columns, 32 characters in total. With the help of Grove I2C connector, only 2 signal pins and 2 power pins are needed. You don't even need to care about how to connect these pins. Just plug it into the I2C interface on Seeduino or Arduino/Raspberry Pi+baseshield via the Grove cable. There won't be complicated wiring, soldering, worrying about burning the LCD caused by the wrong current limiting resistor.

Versions

Version	Order
The Grove - 16 x 2 LCD (Black on Yellow)	Buy Now [https://www.seeedstudio.com/Grove-16-x-2-LCD-%28Black-on-Yellow%29-p-3198.html]
The Grove - 16 x 2 LCD (Black on Red)	Buy Now [https://www.seeedstudio.com/Grove-16-x-2-LCD-%28Black-on-Red%29-p-3197.html]
The Grove - 16 x 2 LCD (White on Blue)	Buy Now [https://www.seeedstudio.com/Grove-16-x-2-LCD-%28White-on-Blue%29-p-3196.html]



Note

The [Grove - LCD RGB Backlight](https://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/) [https://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/] has been well received since its inception. Based on customer feedback, now, we bring more cost-effective monochrome backlight derivative for you.

Except for RGB backlights, these three products are almost identical to the the Grove - LCD RGB Backlight, they are all 16 characters wide, 2 rows with high brightness backlight.

Pre-reading

An introduction of **What is a Grove - 16 x 2 LCD** and **How does it work** is strongly recommended reading ahead if you are not familiar with it. Please visit our [blog](https://www.seeedstudio.com/blog/2020/01/20/how-to-use-) [https://www.seeedstudio.com/blog/2020/01/20/how-to-use-

[16x2-lcd-with-arduino-grove-lcd-rgb-backlight/](#)] for detailed information.

Features

- Display construction: 16 Characters * 2 Lines
- Display mode: STN
- On board MCU
- I2C-bus interface
- Support English and Japanese fonts

Specification

Item	Value
Operating Voltage	3.3V / 5V
Operating temperature	0 to 50°C
Storage temperature	-10 to 60°C
Driving method	1/16 duty, 1/5 bias
Interface	I ² C
I ² C Address	0X3E

Typical Applications

- Temperature display
- Time display
- Any project that requires a simple display

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

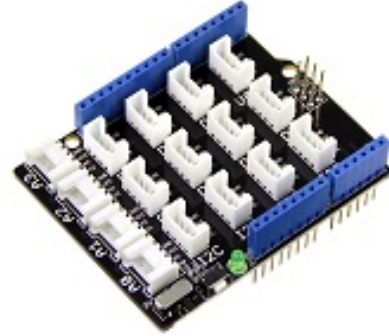
Play With Arduino

Materials required

Seeeduino V4.2



Base Shield



[Get One Now](#)

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

[Get One Now](#)

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



Note

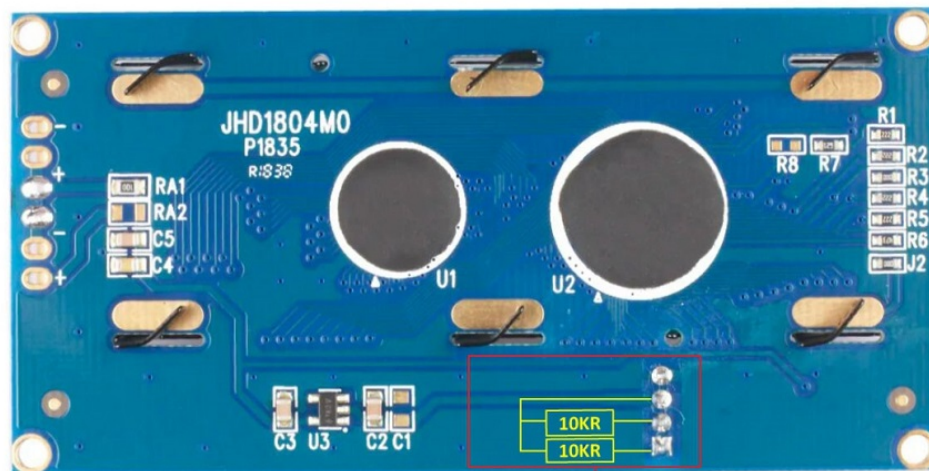
- Please plug the USB cable gently, otherwise you may damage the port. Please use the USB cable with 4 wires inside, the 2 wires cable can't transfer data. If you are not sure about the wire you have, you can click [here](https://www.seeedstudio.com/Micro-USB-Cable-48cm-p-1475.html) [<https://www.seeedstudio.com/Micro-USB-Cable-48cm-p-1475.html>] to buy.
- 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.

Hardware Overview

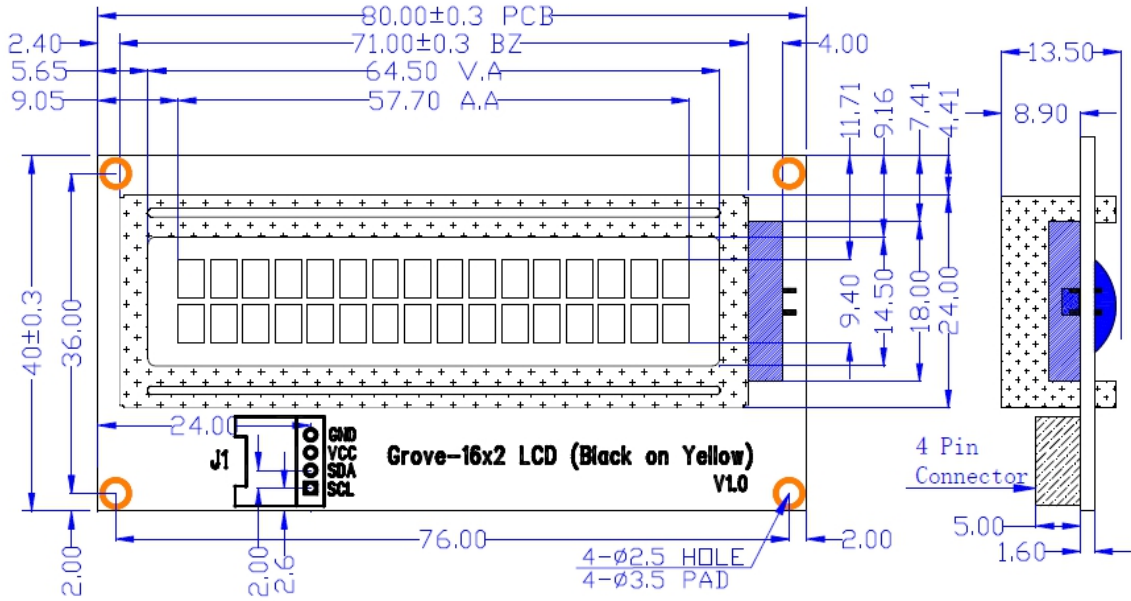
I2C Pull-Up Resistor

The first version of Grove - 16 x 2 LCD series does not have a built-in pull-up resistor, nor does it provide a pad to solder the optional pull-up resistor. We have redesigned the module, and the new version has built-in pull-up resistors.

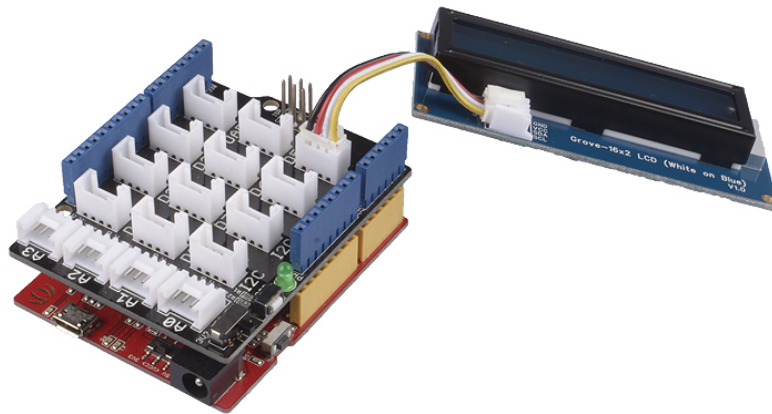
If you have an older version on your hand, you can solder a 10k Ω DIP resistor yourself on the back pad of the Grove connector. Please follow the picture below, solder a 10k Ω DIP resistor between **VCC** and **SCL** pins and a 10k Ω DIP resistor between **VCC** and **SDA** pins.



Outline



Hardware Connection



Seeeduino	Grove Cable	Grove - 16 x 2 LCD
GND	Black	GND
5V or 3.3V	Red	VCC
SDA	White	SDA
SCL	Yellow	SCL

- **Step 1.** Connect the Grove - 16 x 2 LCD to port **I²C** of Grove-Base Shield.
- **Step 2.** Plug Grove - Base Shield into Seeeduino and connect Seeeduino to PC via a USB cable.

Software



Note

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.** Download the [Grove-LCD RGB Backlight](https://github.com/Seeed-Studio/Grove_LCD_RGB_Backlight/archive/master.zip) [https://github.com/Seeed-Studio/Grove_LCD_RGB_Backlight/archive/master.zip] Library from Github.



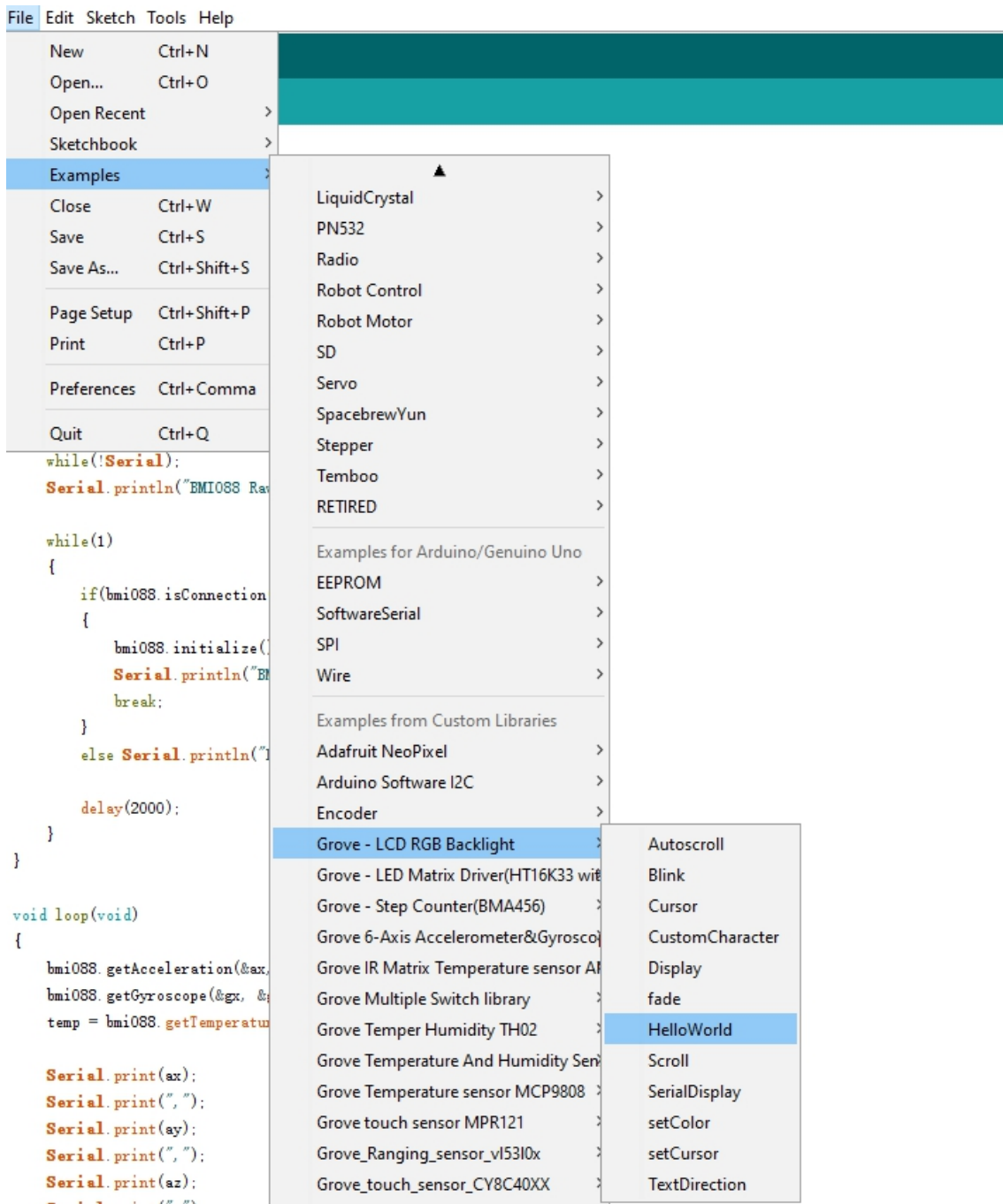
Tips

The Grove - 16 x 2 LCD shares the same library with the [Grove-LCD RGB Backlight](https://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/) [https://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/]. Their

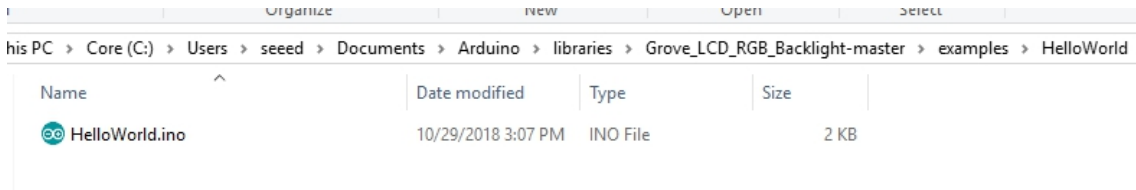
usage is almost the same, except that the Grove - 16 x 2 LCD does not support the RGB color API, such as **setRGB()**.


- **Step 2.** Refer to [How to install library](https://wiki.seeedstudio.com/How_to_install_Arduino_Library) [https://wiki.seeedstudio.com/How_to_install_Arduino_Library] to install library for Arduino.
- **Step 3.** Restart the Arduino IDE. Open the example, you can open it in the following three ways:

1). Open it directly in the Arduino IDE via the path: **File** → **Examples** → **Grove - LCD RGB Backlight** → **HelloWorld**.



2). Open it in your computer by click the **HelloWorld.ino** which you can find in the folder **XXXX\Arduino\libraries\Grove_LCD_RGB_Backlight-master\examples\HelloWorld**, **XXXX** is the location you installed the Arduino IDE.



3). Or, you can just click the icon  in upper right corner of the code block to copy the following code into a new sketch in the Arduino IDE.

```
1  #include <Wire.h>
2  #include "rgb_lcd.h"
3
4  rgb_lcd lcd;
5
6  /*
7   const int colorR = 255;
8   const int colorG = 0;
9   const int colorB = 0;
10 */
11
12 void setup()
13 {
14     // set up the LCD's number of columns and rows:
15     lcd.begin(16, 2);
16
17     //lcd.setRGB(colorR, colorG, colorB);
18
19     // Print a message to the LCD.
20     lcd.print("hello, world!");
21
22     delay(1000);
23 }
24
25 void loop()
26 {
27     // set the cursor to column 0, line 1
28     // (note: line 1 is the second row, since counting b
29     lcd.setCursor(0, 1);
30     // print the number of seconds since reset:
```

```
31     lcd.print(millis()/1000);  
32  
33     delay(100);  
34 }
```

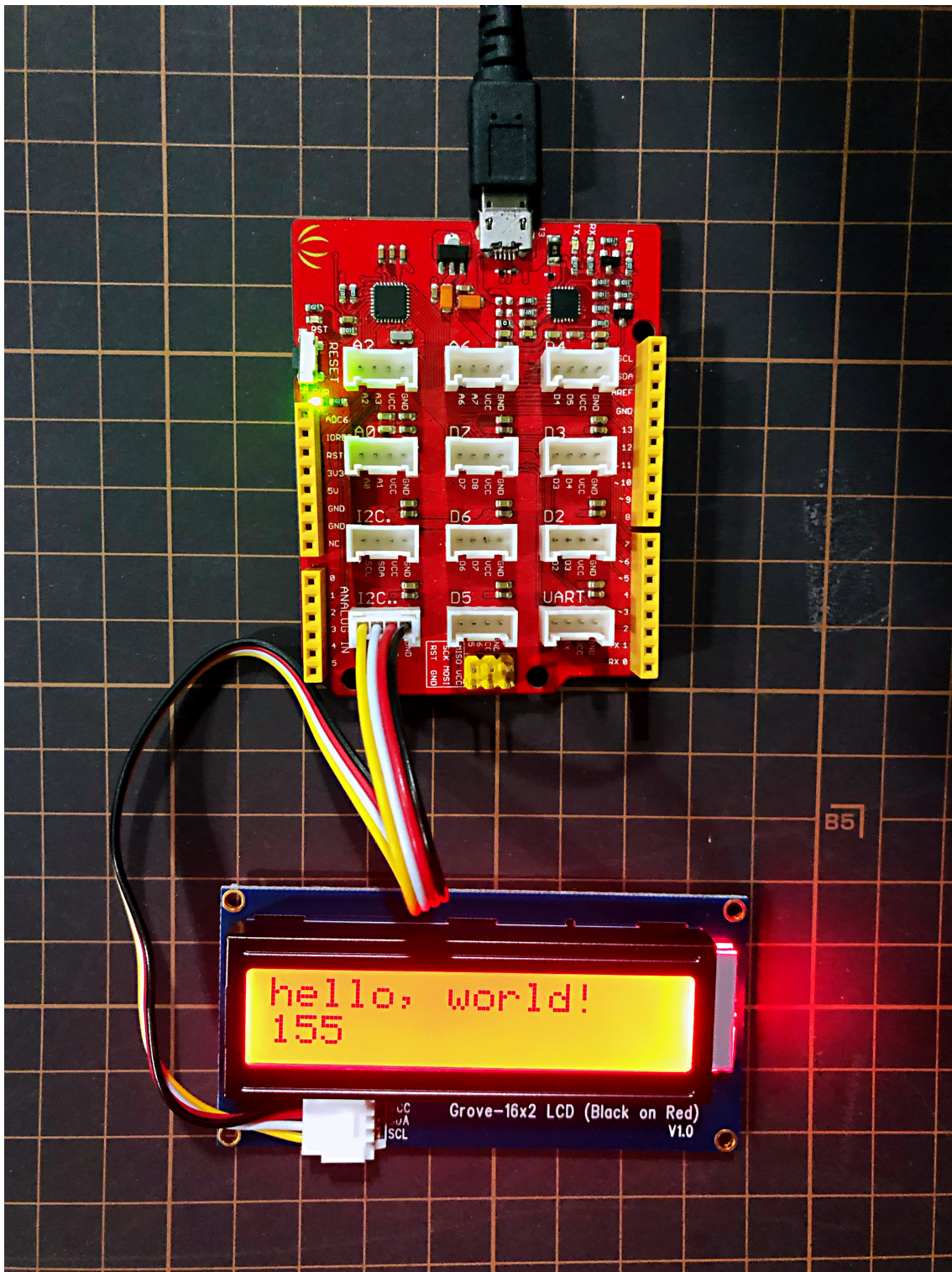
**Note**

- The library file may be updated. This code may not be applicable to the updated library file, so we recommend that you use the first two methods.
- Since the **Grove - 16 x 2 LCD** series are all monochrome backlight, you need to comment out the RGB color related code. In the demo code above, i.e., line 6 and line 17.

- **Step 4.** Upload the demo. 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/].

**Success**

If every thing goes well, you will see the LCD shows the classic sentence:
hello world.


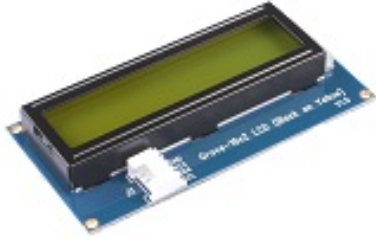
**Note**

If there's no Base Shield with you, Seeeduino VX Series with I2C interface do work as well.

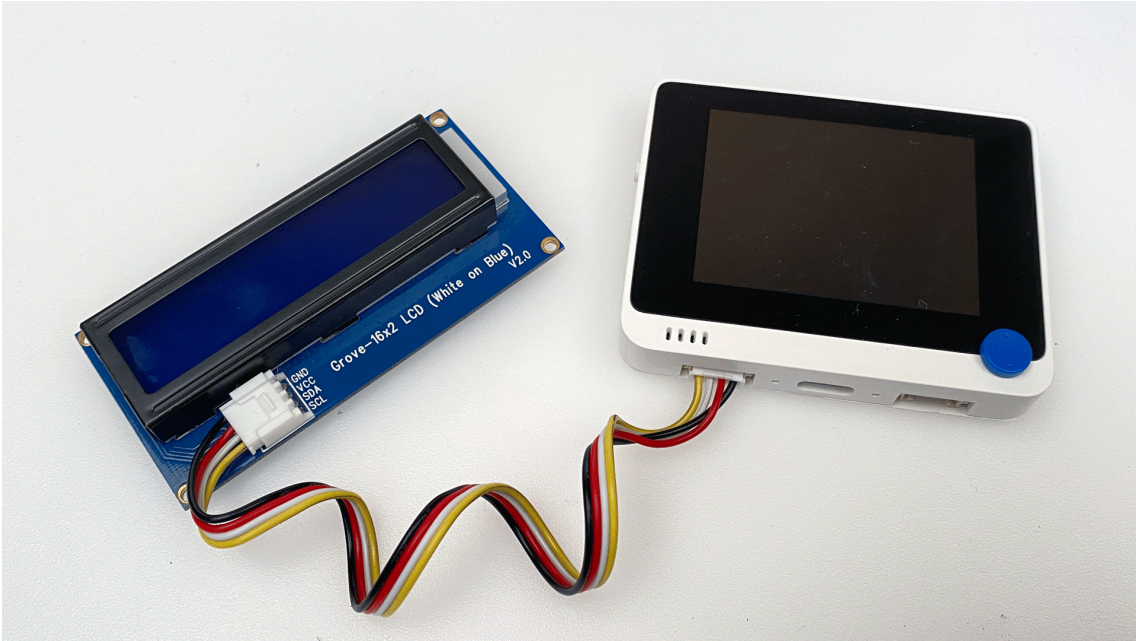
Play With Wio Terminal (ArduPy)

Hardware

- **Step 1.** Prepare the below stuffs:

Wio Terminal	Grove - 16 x 2 LCD
 A white, square-shaped Wio Terminal microcontroller board with a black screen and a blue button.	 A blue PCB Grove module with a black 16x2 LCD screen and a white I2C connector.
<p>Get One Now [https://www.seeedstudio.com/Wio-Terminal-p-4509.html]</p>	<p>Get One Now [https://www.seeedstudio.com/Grove-16-x-2-LCD-%28Black-on-Yellow%29-p-3198.html]</p>

- **Step 2.** Connect Grove - 16 x 2 LCD to **I2C** port of Wio Terminal.
- **Step 3.** Connect the Wio Terminal to PC through USB Type-C cable.



Software

- **Step 1.** Follow [ArduPy Getting Started](https://wiki.seeedstudio.com/ArduPy/) [https://wiki.seeedstudio.com/ArduPy/] to configure the ArduPy development environment on Wio Terminal.
- **Step 2.** Make sure that the ArduPy firmware contains the Grove - 16 x 2 LCD ArduPy library using the following commands. For more information, please follow [here](https://wiki.seeedstudio.com/ArduPy/#using-aip-to-include-other-ardupy-librariesfrom-arduino-libraries-example) [https://wiki.seeedstudio.com/ArduPy/#using-aip-to-include-other-ardupy-librariesfrom-arduino-libraries-example].

```
1 aip install Seeed-Studio/seed-ardupy-lcd1602
2 aip build
3 aip flash
```

- **Step 3.** Copy the following code and save it as `ArduPy-LCD1602.py` :

```
1 from arduino import grove_lcd1602
```

```
2 import time
3
4 lcd = grove_lcd1602()
5
6 def main():
7     lcd.print("hello, world!")
8     lcd.is_blink_cursor = True
9     i = 0
10    while True:
11        lcd.set_cursor(1, 2) #column 1, row 2
12        lcd.print(i)
13        time.sleep(1)
14        i = i + 1
15
16 if __name__ == "__main__":
17     main()
```



Note

For more API reference, please refer to [here](https://github.com/Seeed-Studio/seeed-ardupy-lcd1602) [https://github.com/Seeed-Studio/seeed-ardupy-lcd1602].

- **Step 4.** Save the `ArduPy-LCD1602.py` in a location that you know. Run the following command and **replace** `<YourPythonFilePath>` with your `ArduPy-LCD1602.py` location.

```
1 aip shell -n -c "runfile <YourPythonFilePath>"
2 # Example:
3 # aip shell -n -c "runfile /Users/ansonhe/Desktop/ArduPy-
```

- **Step 5.** We will see the results on the Grove - 16 x 2 LCD.



Resources

- **[PDF]** [JDH_1804_Datasheet](#)

[https://files.seeedstudio.com/wiki/Grove-16x2_LCD_Series/res/JDH_1804_Datasheet.pdf]

Project

This is the introduction Video of this product, simple demos, you can have a try.

All-new Grove Sensor Modu...



Grove IR Universal Remote Project: Have multiple remotes? Have an Arduino? Operate multiple devices with a single press of a Keyes IR remote.



Range tests made easy with the RE-Mote and LCD: Reduce the number of equipment and preparations required for field testing (2.4GHz and 868MHz), pack everything you need in your hand.



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]