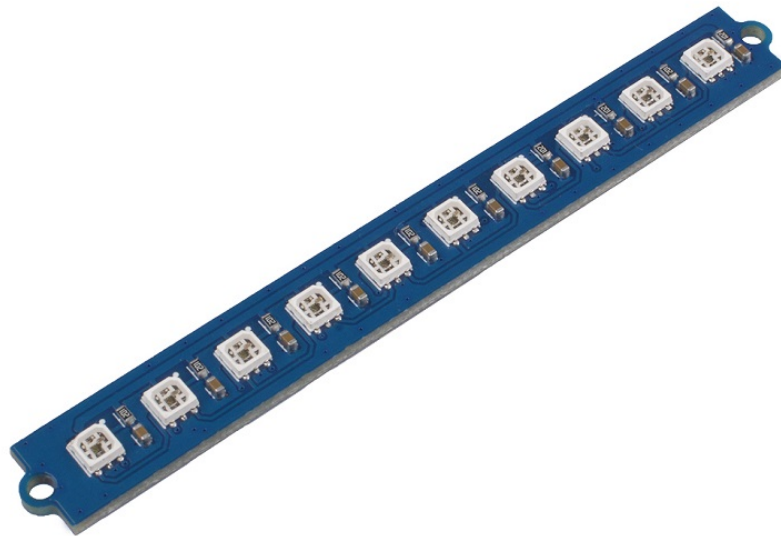


## Grove - RGB LED Stick (10 - WS2813 Mini)



We integrated 10 full-color RGB LEDs on this stick, with only one signal pin you can control all 10 LEDs easily. All the LEDs are WS2813 Mini, which is an intelligent control and high cost-effective LED. What's more, the WS2813 support signal break-point

continuous transmission, which means you can continue to use other leds with one led be broken.

You can use this little stick create hundreds of thousands light effect, we hope it will bring you more fun.



[<https://www.seeedstudio.com/Grove-RGB-LED-Stick-10-WS2813-Min-p-3226.html>]

## Version

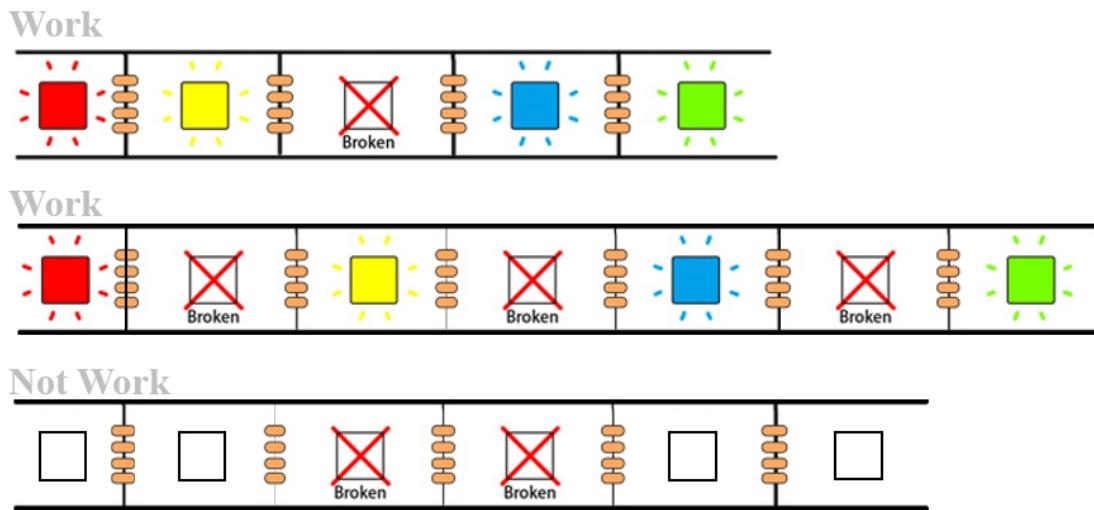
Product Version	Changes	Released Date
Grove - RGB LED Stick (10 WS2813 Mini)	Initial	Nov 2018

## Features

- WS2813B IC, 3535 LED
- Intelligent Reverse-connection protection.
- The gray levels of each pixel are of 256, which achieves “ $256*256*256=16777216$ ” full-color display.
- The refresh frequency reaches to 2KHz.
- Serial cascade interface, data receiving and decoding depend on just one signal line.

- Dual-signal wires version, signal break-point continuous transmission.

## Signal break-point continuous transmission



As long as not two or more adjacent LEDs are broken, the remaining LEDs will be able to work normally.

## Specification

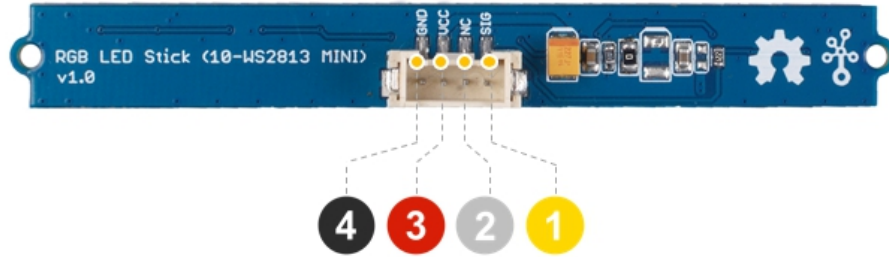
Item	Value
Operating Voltage	3.3V / 5V
Operating Temperature	-25°C ~ +85°C
Storage Temperature	-40°C ~ +105°C
RGB Channel Constant Current	16mA
Interface	Digital
Size	L: 80mm W: 10mm H: 10mm
Weight	3.7g
Package Size	L: 150mm W: 100mm H: 25mm
Gross Weight	13g

## Typical Applications

- Christmas decoration
- Illumination
- Toys



## 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: control signal input

## 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

# Play With Arduino

## Hardware

### 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

**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

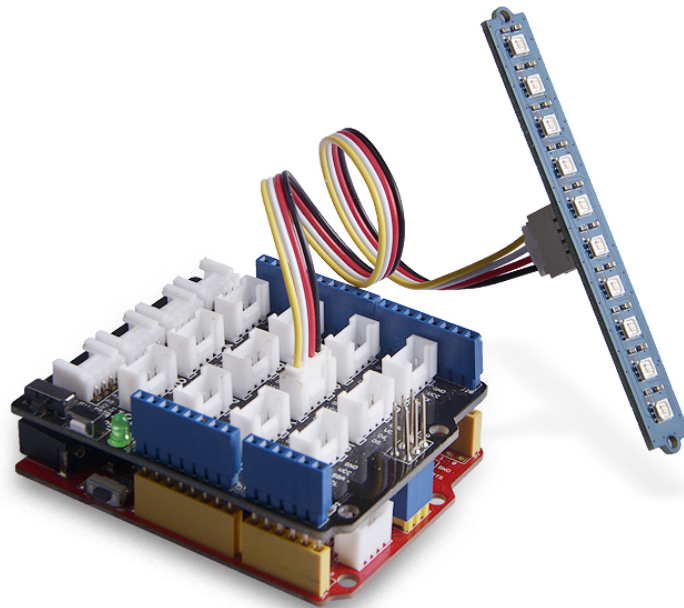
**2** Each Grove module comes with a Grove cable when you buy. In case you lose the Grove cable, you can click [here](https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html) [<https://www.seeedstudio.com/Grove-Universal-4-Pin-Buckled-20cm-Cable-%285-PCs-pack%29-p-936.html>]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



### Important

1. If you use Arduino UNO as the motherboard, it is recommended that you 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 - RGB LED Stick (10 WS2813 Mini) to port **D6** 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 this module to Seeeduino as below.

Seeeduino	Grove Cable	Grove - RGB LED Stick (10 WS2813 Mini)
GND	Black	GND
5V or 3.3V	Red	VCC
No connection	White	NC
D6	Yellow	SIG

## Software

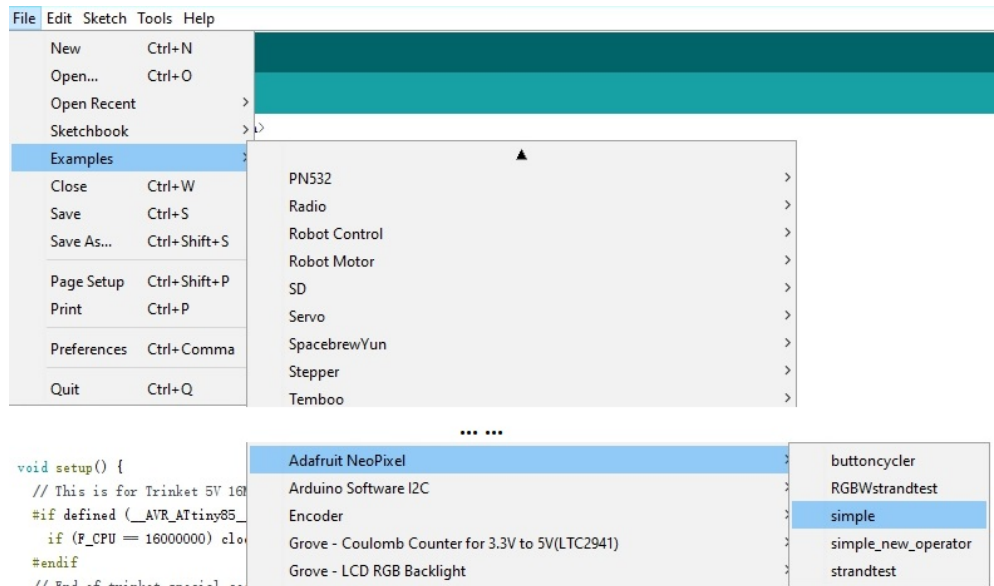


### Attention

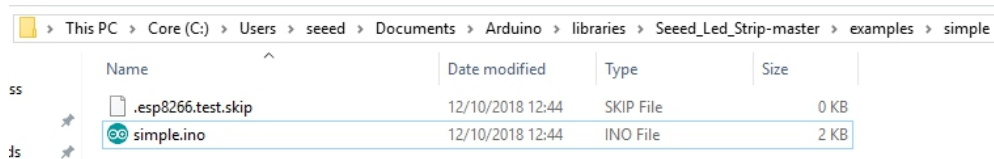
If this is the first time you work with Arduino, we strongly recommend you to see [Getting Started with Arduino](https://wiki.seeedstudio.com/Getting_Started_with_Arduino/) [https://wiki.seeedstudio.com/Getting\_Started\_with\_Arduino/] before the start.


- **Step 1.** Download the [Led\\_Strip](https://github.com/Seeed-Studio/Seeed_Led_Strip) [https://github.com/Seeed-Studio/Seeed\_Led\_Strip] Library from Github.
- **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:
  - a. Open it directly in the Arduino IDE via the path: **File** → **Examples** → **Adafruit\_Neopixel** → **simple**.





- b. Open it in your computer by click the **simple.ino** which you can find in the folder **XXXX\Arduino\libraries\Seed\_Led\_Strip-master\examples\simple**, **XXXX** is the location you installed the Arduino IDE.



- c. 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 // NeoPixel Ring simple sketch (c) 2013 Shae Erisson
2 // released under the GPLv3 license to match the rest of
3
4 #include "Adafruit_NeoPixel.h"
5 #ifdef __AVR__
6   #include <avr/power.h>
7 #endif
8
9 // Which pin on the Arduino is connected to the NeoPixel.
10 // On a Trinket or Gemma we suggest changing this to 1

```

```
11 #define PIN          6
12
13 // How many NeoPixels are attached to the Arduino?
14 #define NUMPIXELS    10
15
16 // When we setup the NeoPixel library, we tell it how many
17 // Note that for older NeoPixel strips you might need to
18 // example for more information on possible values.
19 Adafruit_NeoPixel pixels = Adafruit_NeoPixel(NUMPIXELS, PIN,
20
21 int delayval = 500; // delay for half a second
22
23 void setup() {
24     // This is for Trinket 5V 16MHz, you can remove these
25     #if defined (__AVR_ATtiny85__)
26         if (F_CPU == 16000000) clock_prescale_set(clock_div_1)
27     #endif
28     // End of trinket special code
29     pixels.setBrightness(255);
30     pixels.begin(); // This initializes the NeoPixel library
31 }
32
33 void loop() {
34
35     // For a set of NeoPixels the first NeoPixel is 0, second is 1,
36
37     for(int i=0;i<NUMPIXELS;i++){
38
39         // pixels.Color takes RGB values, from 0,0,0 up to 255,255,255
40         pixels.setPixelColor(i, pixels.Color(0,150,0)); // M
41
42         pixels.show(); // This sends the updated pixel color
43
44         delay(delayval); // Delay for a period of time (in milliseconds)
45
46     }
47 }
```



### Attention

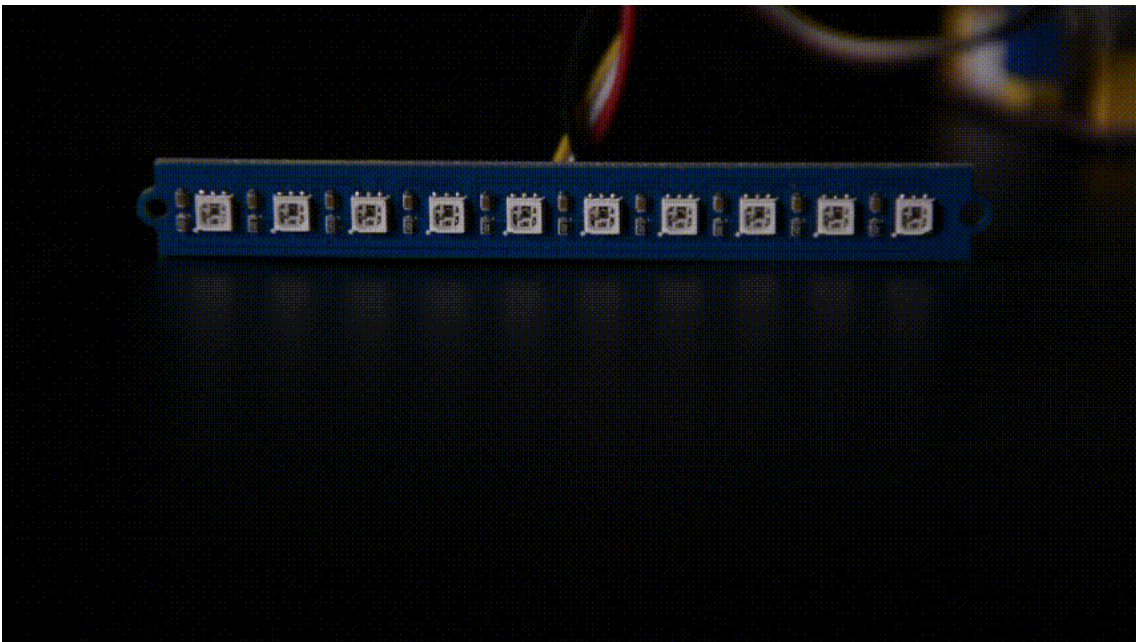
The library file may be updated. This code may not be applicable to the updated library file, so we recommend that you use the first two methods.

- **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, now you can see the LED strip shining:



Schematic Online Viewer



## Resources

- **[Zip]** [Grove - RGB LED Stick \(10 WS2813 Mini\) Eagle Files](https://files.seeedstudio.com/wiki/Grove-RGB_LED_Stick-10-WS2813_Mini/res/Grove%20-%20RGB%20LED%20Stick%20(10-WS2813%20Mini).zip) [https://files.seeedstudio.com/wiki/Grove-RGB\_LED\_Stick-10-WS2813\_Mini/res/Grove%20-%20RGB%20LED%20Stick%20(10-WS2813%20Mini).zip]
- **[Zip]** [Led\\_Strip Library](https://github.com/Seeed-Studio/Seeed_Led_Strip/archive/master.zip) [https://github.com/Seeed-Studio/Seeed\_Led\_Strip/archive/master.zip]

- **[PDF] Datasheet WS2813-Mini**

[[https://files.seeedstudio.com/wiki/Grove-RGB\\_LED\\_Stick-10-WS2813\\_Mini/res/WS2813-Mini.pdf](https://files.seeedstudio.com/wiki/Grove-RGB_LED_Stick-10-WS2813_Mini/res/WS2813-Mini.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](https://www.seeedstudio.com/act-4.html?utm_source=wiki&utm_medium=wikibanner&utm_campaign=newproducts)]