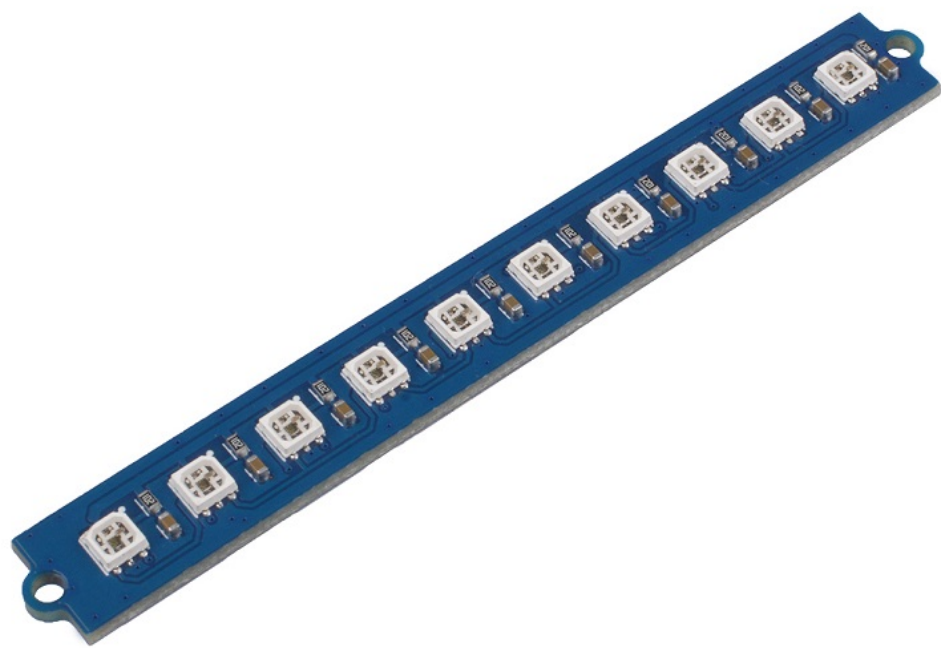# Grove - RGB LED Stick (10 WS2813 Mini) SKU:104020131

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 thausands light effect, we hope it will bring you more fun.

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.
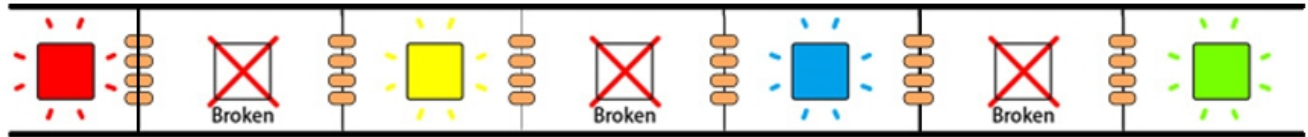
- The refresh frequency reaches to 2KHz.
- Serial cascade interface, data receiving and decoding depend on just one signal line.
- Dual-signal wires version, signal break-point continuous transmission.
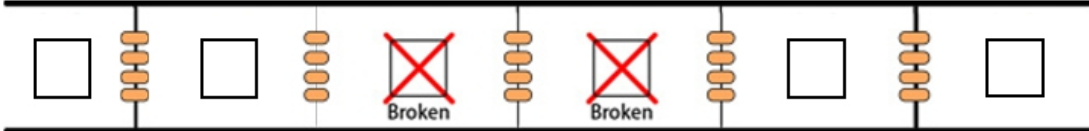
Signal break-point continuous transmission
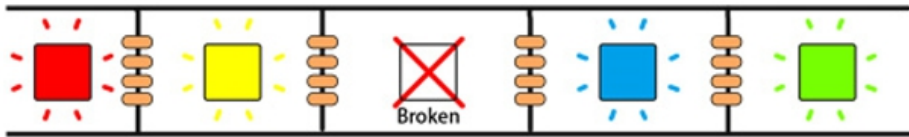
As long as not two or more adjacent LEDs are broken, the remaining LEDs will be able to work normally.

Specification

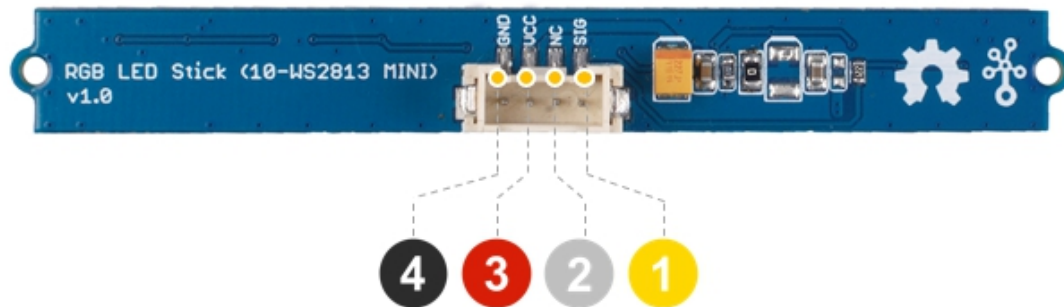| Item	Value
Operating Voltage	3.3V / 5V
Operating Temperature	-25℃ ~ +85℃
Storage Temperature	-40℃ ~ +105℃
RGB Channel Constant Current	16mA
Interface	Digital
Size	L: 80mm W: 10mm H: 10mm
Weight	3.7g
Package Size	L: 150mm W: 100mm H: 25mm
Gross Weight	13g

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	BeagleBone	Wio	LinkIt ONE

!!!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.
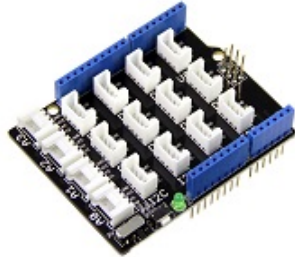
Getting Started

Play With Arduino

Hardware

Materials required

Seeeduino V4.2	Base Shield	Grove - RGB LED Stick (10 WS2813 Mini)

Seeeduino V4.2	Base Shield	Grove - RGB LED Stick (10 WS2813 Mini)

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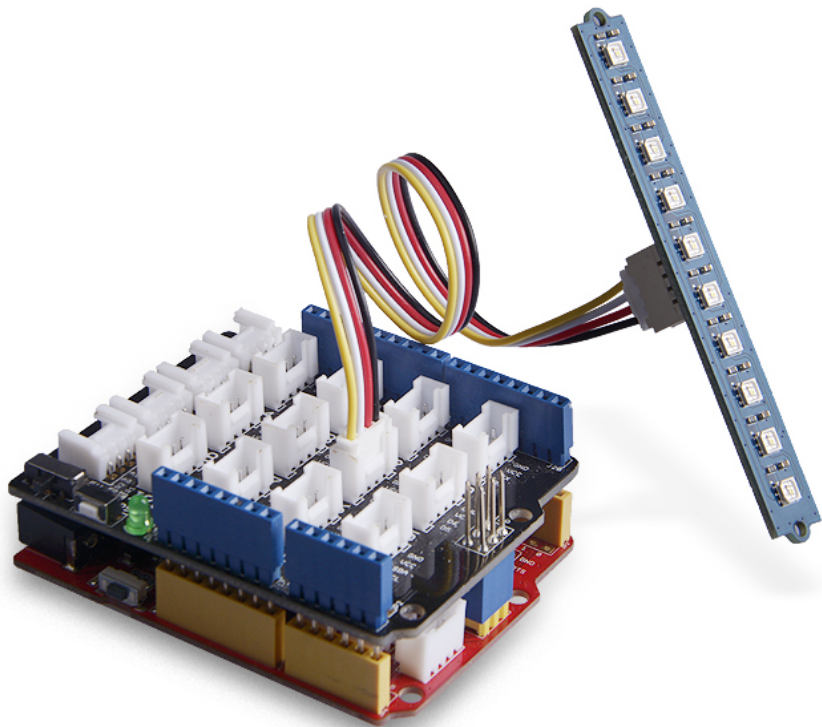
!!!Note If we don't have Grove Base Shield, We also can directly connect this module to Seeeduino as below.

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 before the start.

- **Step 1.** Download the Led_Strip Library from Github.

- **Step 2.** Refer to How to install 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 --> Adafruit_Neopixel --> simple**.
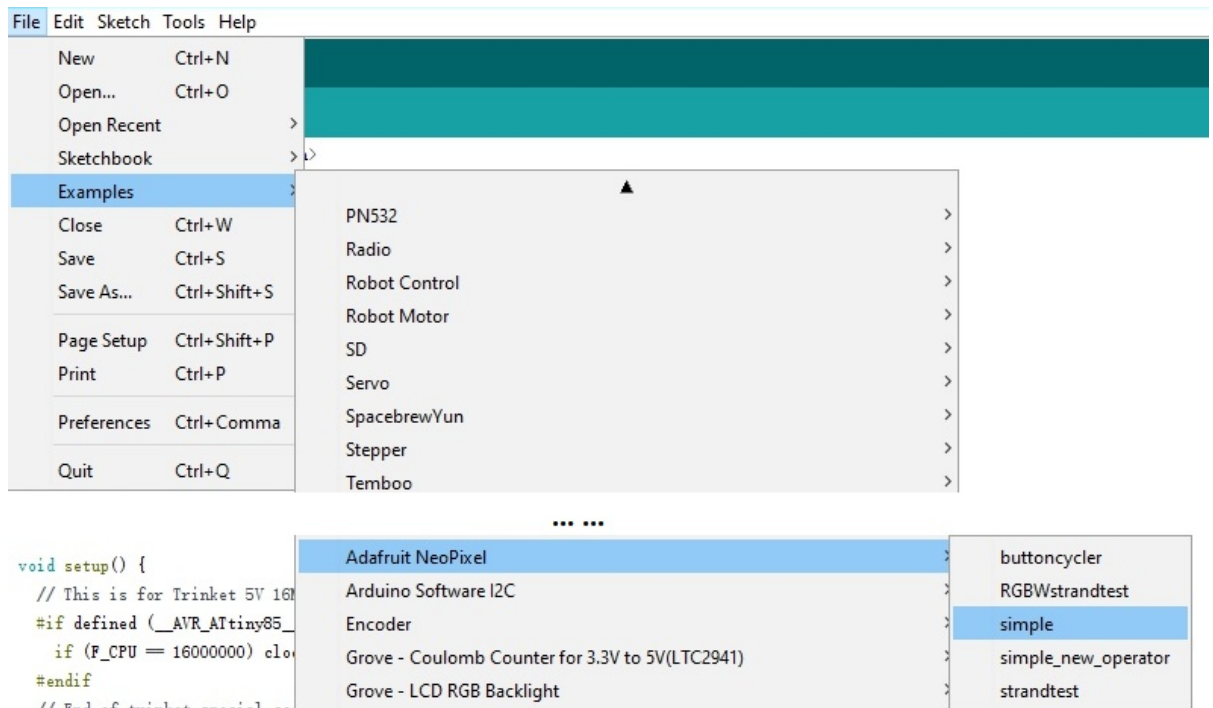
2. Open it in your computer by click the **simple.ino** which you can find in the folder **XXXX\Arduino\libraries\Seeed_Led_Strip-master\examples\simple**, **XXXX** is the location you installed the Arduino IDE.
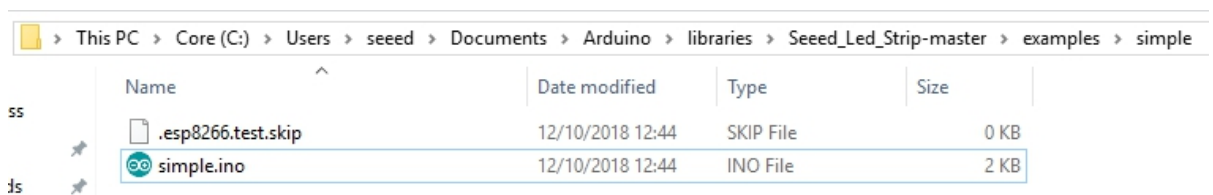
3. Or, you can just click the icon ▭ in upper right corner of the code block to copy the following code into a new sketch in the Arduino IDE.

```
// NeoPixel Ring simple sketch (c) 2013 Shae Erisson
// released under the GPLv3 license to match the rest of the AdaFruit NeoPixel
library

#include "Adafruit_NeoPixel.h"
#ifdef __AVR__
  #include <avr/power.h>
#endif

// Which pin on the Arduino is connected to the NeoPixels?
// On a Trinket or Gemma we suggest changing this to 1
#define PIN            6

// How many NeoPixels are attached to the Arduino?
#define NUMPIXELS      10

// When we setup the NeoPixel library, we tell it how many pixels, and which pin
to use to send signals.
// Note that for older NeoPixel strips you might need to change the third
parameter--see the strandtest
```

```cpp
  // example for more information on possible values.
  Adafruit_NeoPixel pixels = Adafruit_NeoPixel(NUMPIXELS, PIN, NEO_GRB +
  NEO_KHZ800);

  int delayval = 500; // delay for half a second

  void setup() {
    // This is for Trinket 5V 16MHz, you can remove these three lines if you are not
  using a Trinket
  #if defined (__AVR_ATtiny85__)
    if (F_CPU == 16000000) clock_prescale_set(clock_div_1);
  #endif
    // End of trinket special code
    pixels.setBrightness(255);
    pixels.begin(); // This initializes the NeoPixel library.
  }

  void loop() {

    // For a set of NeoPixels the first NeoPixel is 0, second is 1, all the way up
  to the count of pixels minus one.

    for(int i=0;i<NUMPIXELS;i++){

      // pixels.Color takes RGB values, from 0,0,0 up to 255,255,255
      pixels.setPixelColor(i, pixels.Color(0,150,0)); // Moderately bright green
  color.

      pixels.show(); // This sends the updated pixel color to the hardware.

      delay(delayval); // Delay for a period of time (in milliseconds).

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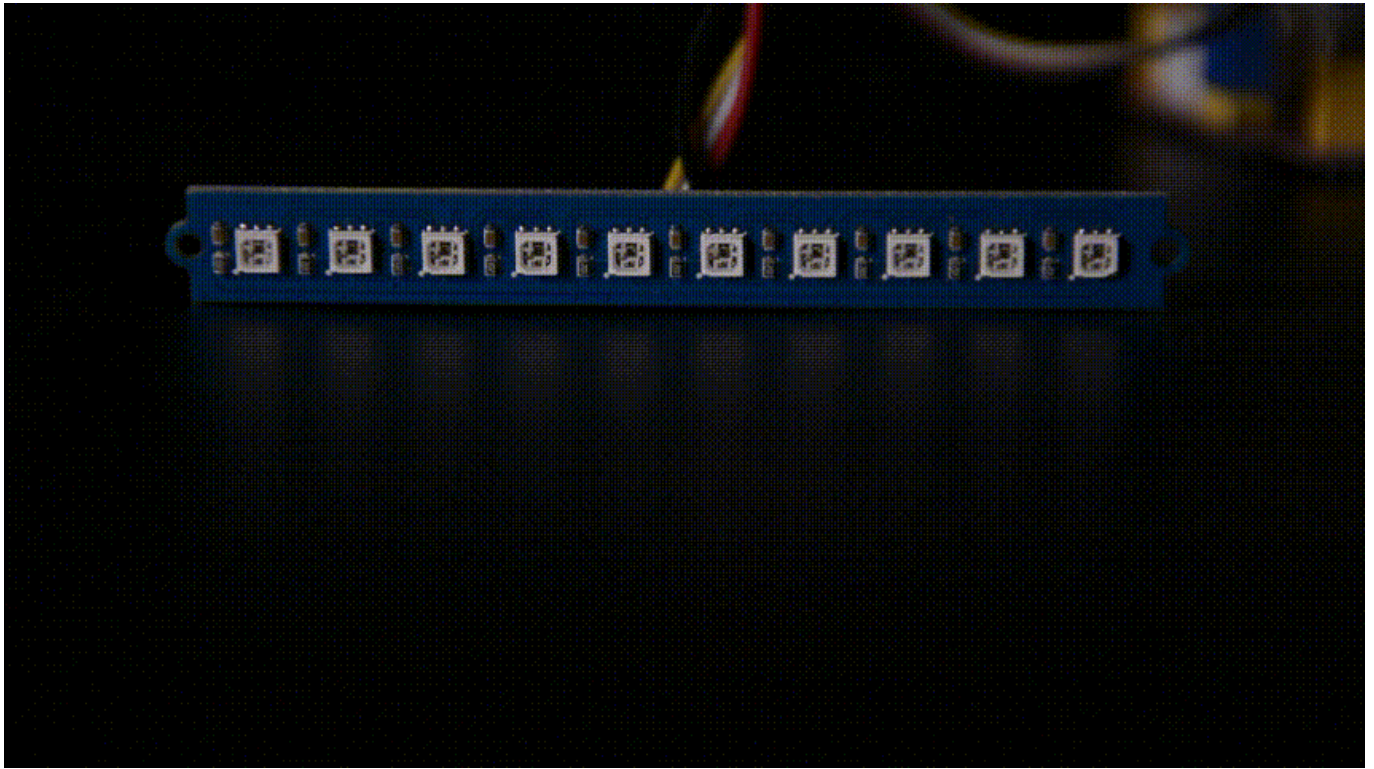
!!!Attention The library file may be updated. This code may not be applicable to the updated library file, so we recommend that you use the first two methods.

- **Step 4.** Upload the demo. If you do not know how to upload the code, please check How to upload code.

!!!Success If every thing goes well, now you can see the LED strip shining:

Resources

- **[Zip]** Grove - RGB LED Stick (10 WS2813 Mini) Eagle Files

- **[Zip]** Led_Strip Library

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

Tech Support

Please do not hesitate to submit the issue into our forum