

# JOY-IT

## Joy-IT® RGB Shield



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Dear customer,  
 thank you for purchasing our product.  
 Please find our instructions below.

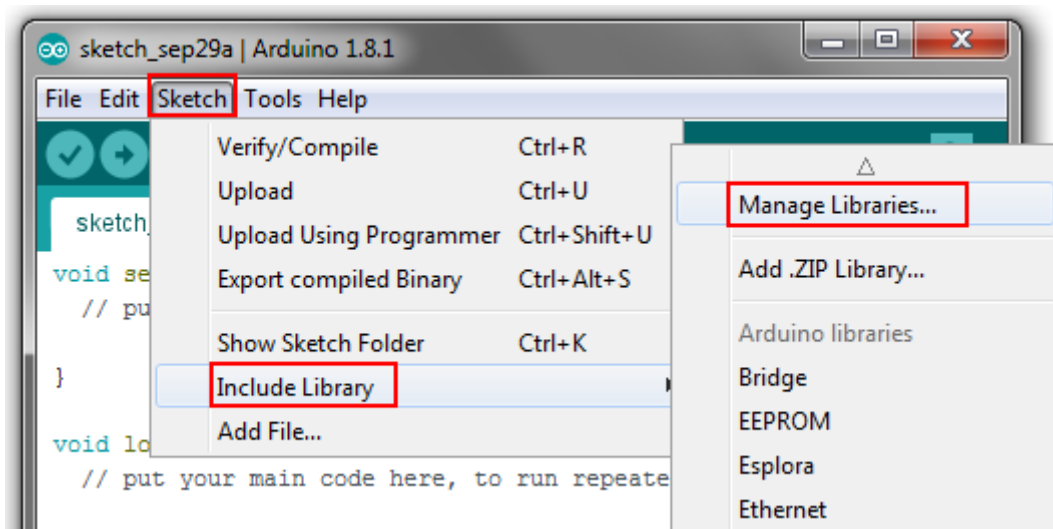
## 1. Connecting to an Arduino

Plug the matrix on top of the Arduino so that all pins are plugged into the Arduino.  
 An additional connection is not necessary.

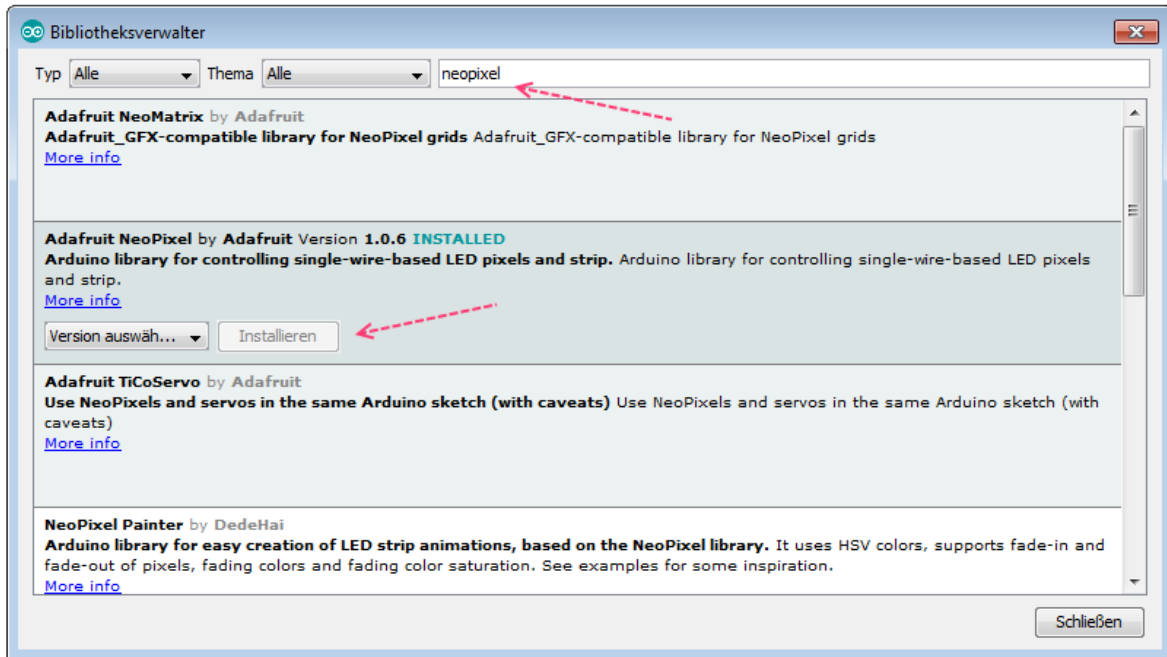
## 2. Installation der Bibliotheken

You can find a code-example in step 3 which you can transfer to your Arduino.  
 It already contains different lightning-styles.  
 Colors are specified in RGB with numbers from 0 to 255 (e.g. (255, 0, 0) for red).  
 Already existing color modes are **colorWipe**, **theaterChase**, **rainbow**, **rainbowCycle**,  
**theaterChaseRainbow**.  
 You can vary these inside of the **void loop()** function.

Before you transfer any code to your Arduino, you need to install the additional **Adafruit NeoPixel** library first. Therefore, please open up the Arduinos Library Manager. (Sketch -> Include Library -> Manage Libraries)



In the now opened library manager, search for the keyword **Neopixel** and install the **Adafruit Neopixel** library.



### 3. Code-Example

```
#include <Adafruit_NeoPixel.h>
#ifdef __AVR__
#include <avr/power.h>
#endif
#define PIN 13
//Basic Setup (Number of LEDs etc.)
Adafruit_NeoPixel strip = Adafruit_NeoPixel(40, PIN, NEO_GRB + NEO_KHZ800);

void setup()
{
  strip.begin();
  strip.show(); // Initialise all LEDs
}

void loop() {
  // Example Colorflow:
  farbDurchlauf(strip.Color(255, 0, 0), 50); // Red
  farbDurchlauf(strip.Color(0, 255, 0), 50); // Green
  farbDurchlauf(strip.Color(0, 0, 255), 50); // Blue
  // Theater-Lightning:
  theaterBeleuchtung(strip.Color(127, 127, 127), 50); // White
  theaterBeleuchtung(strip.Color(127, 0, 0), 50); // Red
  theaterBeleuchtung(strip.Color(0, 0, 127), 50); // Blue
  regenbogen(20);
  regenbogenVerlauf(20);
  theaterRegenbogen(50);
}

// Fill LEDs with color
void farbDurchlauf(uint32_t c, uint8_t wait) {
  for(uint16_t i=0; i<strip.numPixels(); i++) {
    strip.setPixelColor(i, c);
    strip.show();
    delay(wait);
  }
}
```

```
// Rainbow
void regenbogen(uint8_t wait) {
    uint16_t i, j;
    for(j=0; j<256; j++) {
        for(i=0; i<strip.numPixels(); i++) {
            strip.setPixelColor(i, Wheel((i+j) & 255));
        }
        strip.show();
        delay(wait);
    }
}

// different rainbow
void regenbogenVerlauf(uint8_t wait) {
    uint16_t i, j;
    for(j=0; j<256*5; j++) {
        for(i=0; i< strip.numPixels(); i++) {
            strip.setPixelColor(i, Wheel(((i * 256 / strip.numPixels()) + j) &
255));
        }
        strip.show();
        delay(wait);
    }
}

// Theater-Lightning
void theaterBeleuchtung(uint32_t c, uint8_t wait) {
    for (int j=0; j<10; j++) {
        //10 repeats
        for (int q=0; q < 3; q++) {
            for (int i=0; i < strip.numPixels(); i=i+3) {
                strip.setPixelColor(i+q, c); //Activate every 3. LED
            }
            strip.show();
            delay(wait);
            for (int i=0; i < strip.numPixels(); i=i+3) {
                strip.setPixelColor(i+q, 0); //deactivate every 3. LED
            }
        }
    }
}
```

```
// Theater-Lightning with Rainbow-Effect
void theaterRegenbogen(uint8_t wait) {
  for (int j=0; j < 256; j++) {
    // Alle 256 Farben durchlaufen
    for (int q=0; q < 3; q++) {
      for (int i=0; i < strip.numPixels(); i=i+3) {
        strip.setPixelColor(i+q, Wheel( (i+j) % 255));
      }
      strip.show();
      delay(wait);
      for (int i=0; i < strip.numPixels(); i=i+3) {
        strip.setPixelColor(i+q, 0);
      }
    }
  }
}

uint32_t Wheel(byte WheelPos) {
  WheelPos = 255 - WheelPos;
  if(WheelPos < 85) {
    return strip.Color(255 - WheelPos * 3, 0, WheelPos * 3);
  }
  if(WheelPos < 170) {
    WheelPos -= 85;
    return strip.Color(0, WheelPos * 3, 255 - WheelPos * 3);
  }
  WheelPos -= 170;
  return strip.Color(WheelPos * 3, 255 - WheelPos * 3, 0);
}
```

## 4. Support

We also support you after your purchase.

If there are any questions left or if you encounter any problems, please feel free to contact us by mail, phone or by our ticket-supportsystem on our website.

Mail: [service@joy-it.net](mailto:service@joy-it.net)

Ticket-System: <http://support.joy-it.net>

Phone: +49 (0)2845 98469 – 66 (11- 18 Uhr)

For more informations, please visit our website:

[www.joy-it.net](http://www.joy-it.net)