

# RB-RGBLED01

RGB-LED Module for Raspberry PI



## 1. GENERAL INFORMATION

Dear customer, thank you very much for choosing our product. In following, we will introduce you to what to observe while starting up and using this product.

Should you encounter any unexpected problems during use, please do not hesitate to contact us.

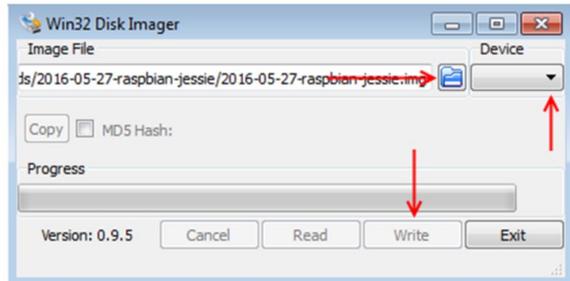
## 2. USAGE WITH A RASPBERRY PI

### 2.1 Installation of the Software

If you already use the most current Raspbian System on your Raspberry Pi, you can simply skip this step and proceed with Step 1.2.

Please use the program „[Win32 Disk Imager](#)“ to install the current Raspbian image on your SD card. You will find the download of it, if you follow this [link](#).

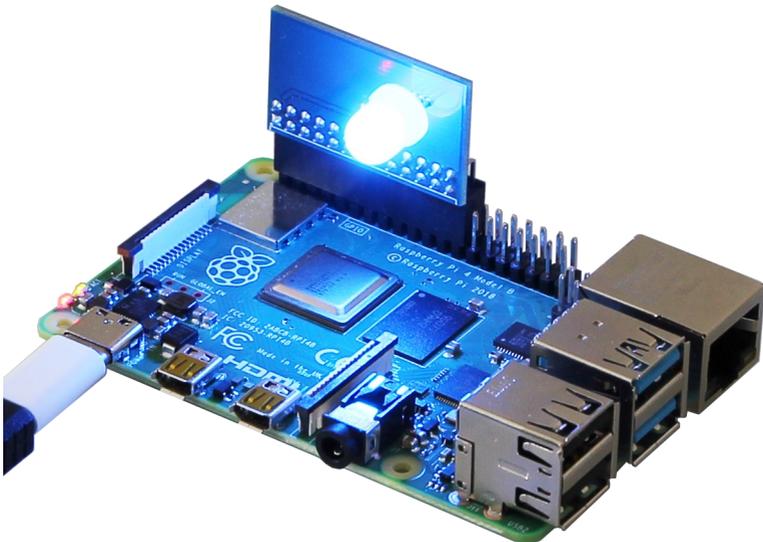
Choose your device by browsing through your files and save the file with Write.



### 2.2 Connecting the module

Attach the module onto the pins 1 to 26 of your Raspberry Pi, like shown in the picture below.

Make sure, that the RGB-LED of the module is showing towards the inside.



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### 2.3 Preparing the module

Once you have started the system, open the terminal console and execute the following commands:

```
sudo apt-get update
```

We install the required packages and confirm them with the **Y** key:

```
sudo apt-get install gcc make build-essential python-dev git scons swig
```

For use, the audio output must be deactivated. For this purpose we process the files responsible for this. We open it with the command:

```
sudo nano /etc/modprobe.d/snd-blacklist.conf
```

Add the following line:

```
blacklist snd_bcm2835
```

Save and exit the file with the key combination:

**CTRL + O , ENTER , CTRL + X**

Now open the configuration file with :

```
sudo nano /boot/config.txt
```

Scroll down the file to the lines:

```
# Enable audio (loads snd_bcm2835)  
dtparam=audio=on
```

Now comment out the bottom line with a hashtag # so that it looks like this :

```
#dtparam=audio=on
```

Save and exit the file with the key combination:

**CTRL + O , ENTER , CTRL + X**

The Raspberry PI must be restarted with the following command:

```
sudo reboot
```

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### 2.4 Installing the library

Now that you have prepared the module, we need py-spidev if it is not already preinstalled, then we use a Python library with the following commands :

```
git clone https://github.com/doceme/py-spidev.git
```

```
cd py-spidev
```

```
make
```

```
sudo make install
```

Then we return with the cd command to download the library we need for the program (and which was released under the AGPL 3.0 license). To do this we proceed as follows:

```
git clone https://github.com/joosteto/ws2812-spi.git
```

### 1.5 Example code

In the following we use an already existing example code from the library. This code is a good basis and can be used very well for our single RGB LED. Therefore we will change the code.

After the last command we can jump directly to the folder we just downloaded

```
cd ws2812-spi/
```

and then use the commaand

```
sudo nano ownloop.py
```

to create the file which we are about to write into.

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We will now copy the following code into our newly created file.

```
import spidev
import ws2812
import time
import getopt

stepTime = 1 #Only full Numbers like 1,3,15 or 389
for example
nLED=1 #The ammount of LED's that are being
used #The Brightnesslevel of the used LED's

#Cleaning up after ending the program
def clean_up(spi):
    ws2812.write2812(spi, [0,0,0])

#Cleaning up the LED's on start if the program was interrupted in the previous
run
def clear_on_start(spi):
    ws2812.write2812(spi, [0,0,0])
    print("cleaning")
    time.sleep(stepTime)

#Simple definition for our Color's
def RED(spi):
    print("RED")
    d=[[255,0,0]]*nLED
    ws2812.write2812(spi, d)
    time.sleep(stepTime)
    d=[[0,0,0]]*nLED

def GREEN(spi):
    print("GREEN")
    d=[[0,255,0]]*nLED
    ws2812.write2812(spi, d)
    time.sleep(stepTime)
    d=[[0,0,0]]*nLED
```

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```
def BLUE(spi):
    print("BLUE")
    d=[[0,0,255]]*nLED
    ws2812.write2812(spi, d)
    time.sleep(stepTime)
    d=[[0,0,0]]*nLED

if __name__=="__main__":
    spi = spidev.SpiDev()
    spi.open(0,0)

try:

    while True:

        clear_on_start(spi)
        RED(spi)
        GREEN(spi)
        BLUE(spi)

except KeyboardInterrupt:
    clean_up(spi)
```

Now save and exit the file with the key combination:

**CTRL + O , ENTER , CTRL + X**

The sample code is now finished and is executed with the following command:

```
sudo python3 loop.py
```

The execution is stopped with the key combination:

**CTRL + C**

### 3. ADDITIONAL INFORMATION

Our information and take-back obligations according to the Electrical and Electronic Equipment Act (ElektroG)



**Symbol on electrical and electronic equipment:**

This crossed-out dustbin means that electrical and electronic appliances do not belong in the household waste. You must return the old appliances to a collection point.

Before handing over waste batteries and accumulators that are not enclosed by waste equipment must be separated from it.

#### **Return options:**

As an end user, you can return your old device (which essentially fulfills the same function as the new device purchased from us) free of charge for disposal when you purchase a new device.

Small appliances with no external dimensions greater than 25 cm can be disposed of in normal household quantities independently of the purchase of a new appliance.

#### **Possibility of return at our company location during opening hours:**

Simac Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn, Germany

#### **Possibility of return in your area:**

We will send you a parcel stamp with which you can return the device to us free of charge. Please contact us by e-mail at [Service@joy-it.net](mailto:Service@joy-it.net) or by telephone.

#### **Information on packaging:**

If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

## 4. SUPPORT

If there are still any issues pending or problems arising after your purchase, we will support you by e-mail, telephone and with our ticket support system.

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

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

Telephone: +49 (0)2845 98469-66 (10-17 o'clock)

For further information please visit our website:

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