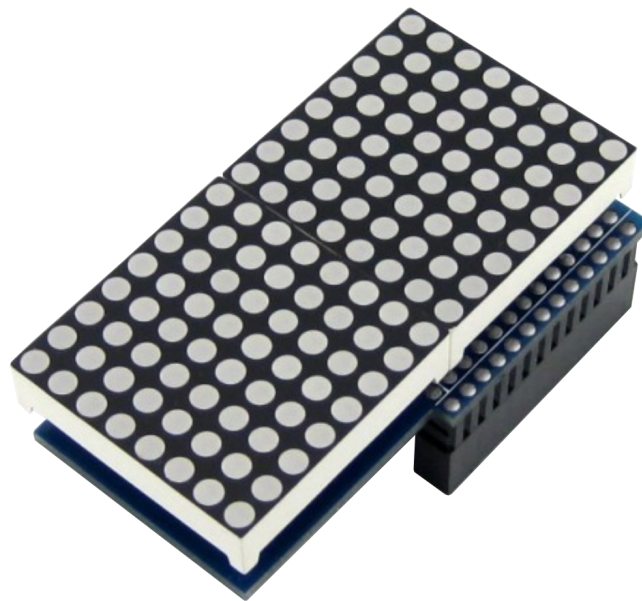


RB-LEDMatrix

Expansion board with 2 LED matrices for Raspberry PI



1. GENERAL INFORMATION

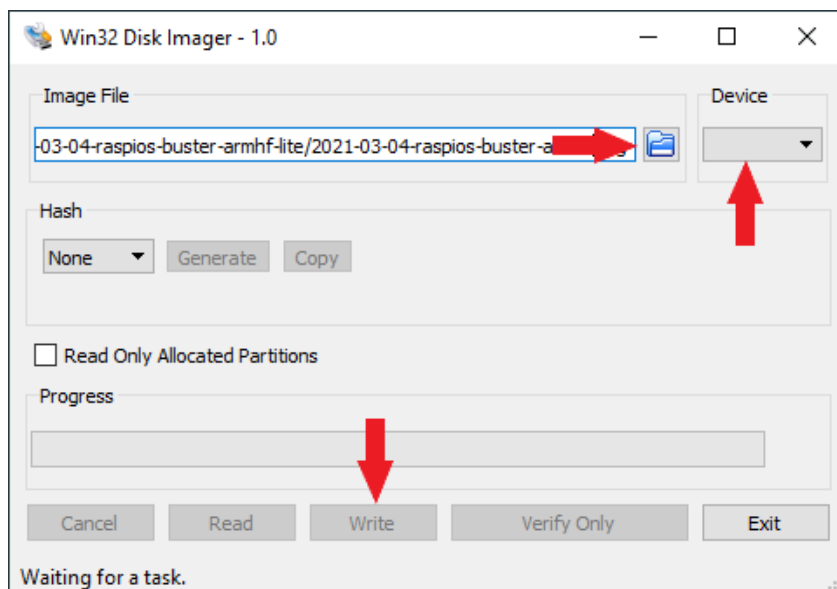
Dear customer,
thank you very much for choosing our product.
In following, we will introduce you to what to observe while starting up
and using this product.
Should you encounter any unexpected problems during use, please do
not hesitate to contact us.

2. USE WITH THE RASPBERRY PI

2.1 Installing the software

If you are already using a current Raspberry Pi OS on your Raspberry Pi, you can skip this step and continue immediately with step 2.2.

Install on your SD card using the „[Win32 Disk Imager](#)“ - program the current Raspbian Image, which you can download under the following [link](#).



2.2 Connecting the module

Place the module on pins 1 to 26 of your Raspberry Pi as shown in the following picture. Note that the module is placed with the overhang facing the Raspberry Pi.



3. CODE EXAMPLE FOR RASPBERRY PI

3.1 Preparation of the module

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

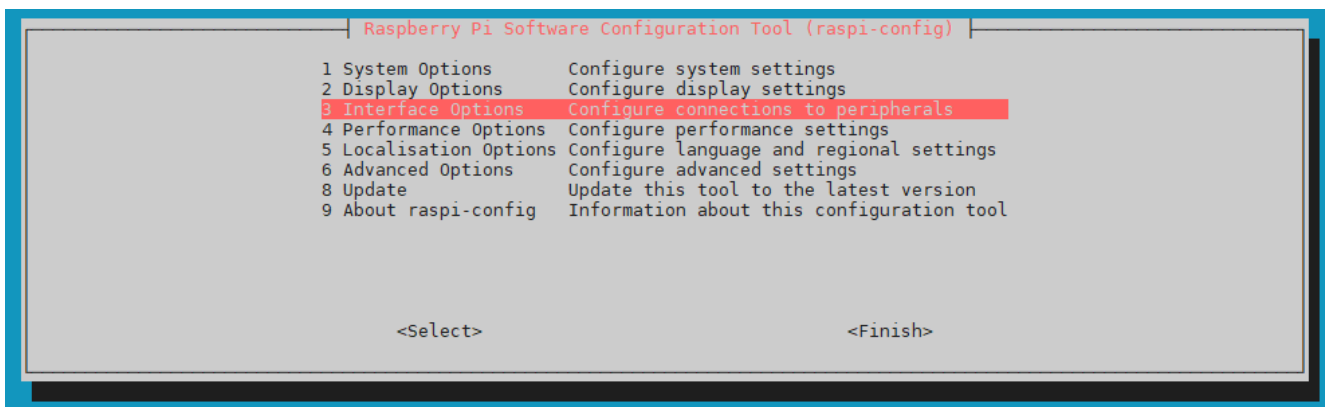
```
sudo apt-get update
```

```
sudo apt-get upgrade
```

After executing the previous two commands, we now activate the SPI by typing

```
sudo raspi-config
```

into the console. Then the following should appear.

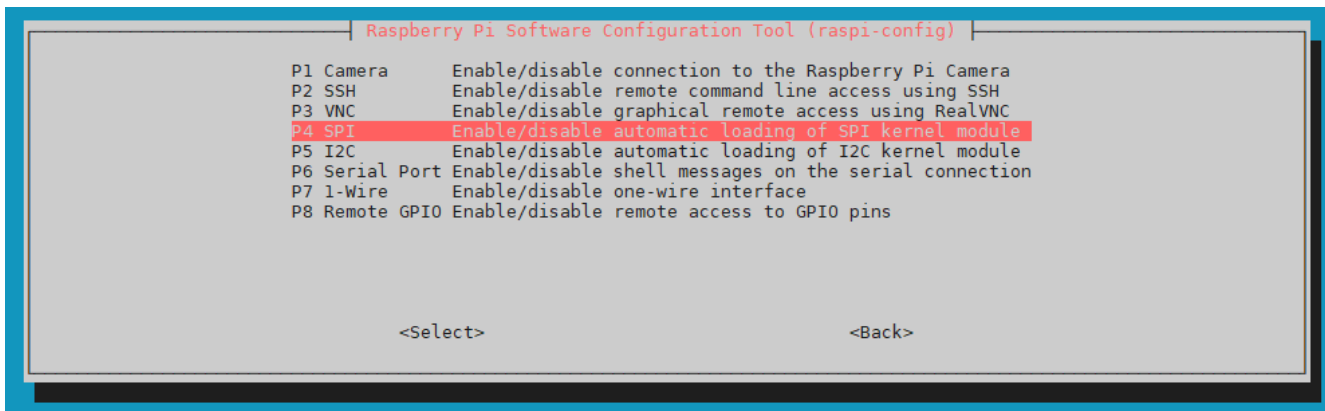


```
Raspberry Pi Software Configuration Tool (raspi-config)
1 System Options      Configure system settings
2 Display Options    Configure display settings
3 Interface Options   Configure connections to peripherals
4 Performance Options Configure performance settings
5 Localisation Options Configure language and regional settings
6 Advanced Options   Configure advanced settings
8 Update             Update this tool to the latest version
9 About raspi-config Information about this configuration tool

<Select>                                <Finish>
```

We select **3 Interfacing Options** with the arrow keys and confirm with **Enter**.

After that you will see the following:



```
Raspberry Pi Software Configuration Tool (raspi-config)
P1 Camera           Enable/disable connection to the Raspberry Pi Camera
P2 SSH              Enable/disable remote command line access using SSH
P3 VNC              Enable/disable graphical remote access using RealVNC
P4 SPI              Enable/disable automatic loading of SPI kernel module
P5 I2C              Enable/disable automatic loading of I2C kernel module
P6 Serial Port      Enable/disable shell messages on the serial connection
P7 1-Wire           Enable/disable one-wire interface
P8 Remote GPIO      Enable/disable remote access to GPIO pins

<Select>                                <Back>
```

We select **P4 SPI** with the arrow keys and confirm with **Enter**.

Then we confirm with **Enter 2 more times** and leave the menu by using the **right arrow button 2 times** and confirm with **Enter**.

3.2 Installing the library and preparing the code example

We use the library [Luma.LED Matrix](#) from [rm-hull](#) for the LED matrix. This library has been released under the [MIT license](#).

Run the following commands to prepare your system for the library.

```
sudo apt-get update
```

```
sudo apt-get install git-all
```

```
sudo apt install build-essential python3-dev python3-pip libfreetype6-dev  
libjpeg-dev libopenjp2-7 libtiff5
```

```
sudo apt-get install python3-pip
```

```
sudo -H python3 -m pip install --upgrade --ignore-installed pip setuptools
```

Now install the library using the following commands.

```
sudo git clone https://github.com/rm-hull/luma.led_matrix.git
```

```
cd luma.led_matrix/
```

```
sudo python3 setup.py install
```

You can now run a sample script with the following command.

```
python3 examples/matrix_demo.py -n 2 --block-orientation 90
```

You can view the other setting options as shown below.

```
python3 examples/matrix_demo.py -h
```

4. ADDITIONAL INFORMATION

Our Information and Take-back Obligations according to the Electrical and Electronic Equipment Act (ElektroG)

Symbol on Electrical and Electronic Products:

This crossed-out bin means that electrical and electronic products do not belong into the household waste. You must hand over your old appliance to a registration place.

Before you can hand over the old appliance, you must remove used batteries and replacement batteries which are not enclosed by the device.



Return Options:

As the end user, you can hand over your old appliance (which has essentially the same functions as the new one bought with us) free of charge for disposal with the purchase of a new device. Small devices, which do not have outer dimensions bigger than 25 cm can be handed in for disposal independently of the purchase of a new product in normal household quantities.

1. Possibility of return at our company location during our opening hours

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

2. Possibility of return nearby

We will send you a parcel stamp with which you can send us your old appliance free of charge. For this possibility, please contact us via e-mail at service@joy-it.net or via telephone.

Information about Package:

Please package your old appliance safe for transport. Should you not have suitable packaging material or you do not want to use your own material, you can contact us and we will send you an appropriate package.

5. 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.

Email: 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