



1.3" OLED DISPLAY

OLED display with SPI & I2C interface

1. GENERAL INFORMATION

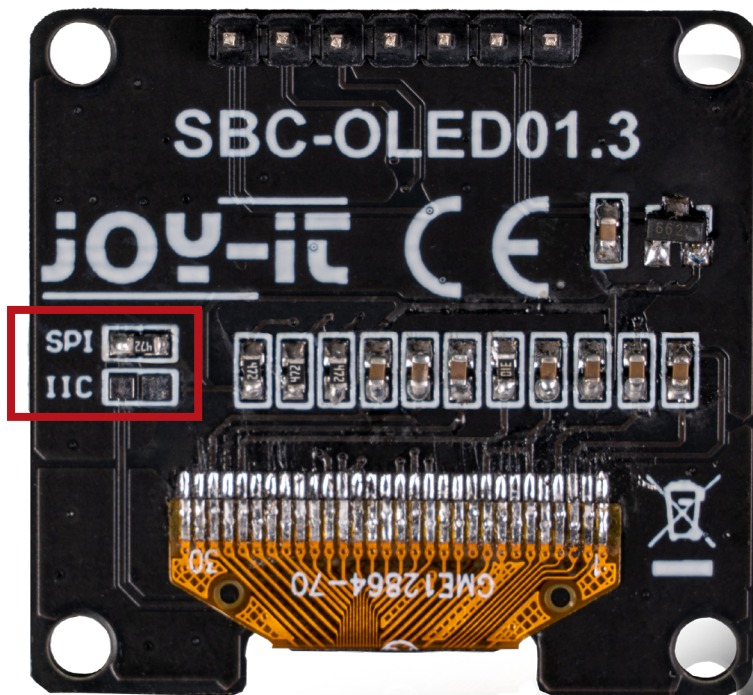
Dear customer,
thank you for choosing our product. In the following, we will show you what you should pay attention to during commissioning and use.

Should you encounter any unexpected problems during use, please feel free to contact us.

2. BASICS & INTERFACES

The graphical 1.3" OLED display has a resolution of 128x64 pixels and communicates via the SPI interface. Optionally, the display can also be soldered to the I2C interface on the back.

The interface of the module can be selected by re-soldering the marked resistors:

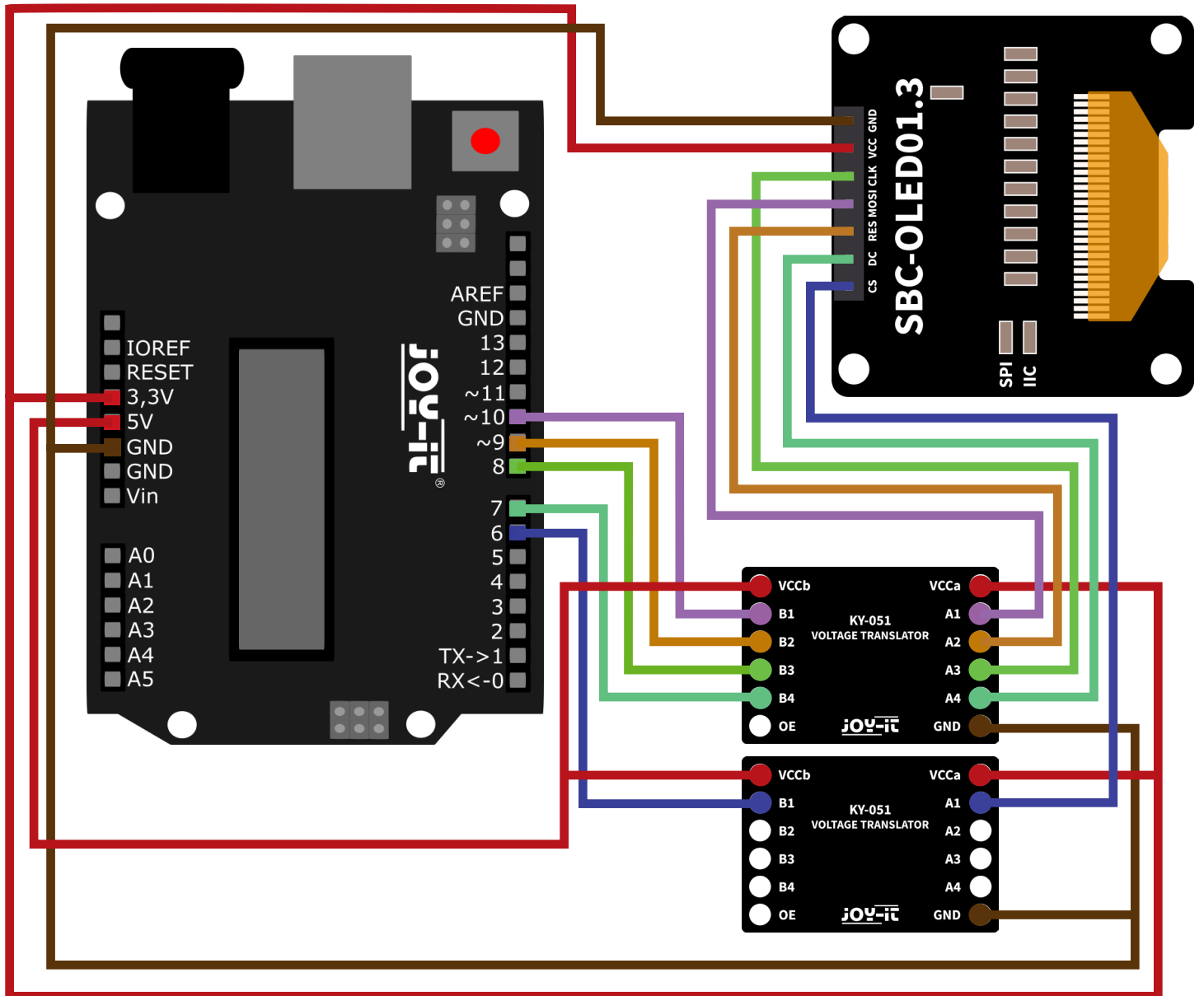


3. APPLICATION EXAMPLE ARDUINO

ATTENTION. The display uses a logic level of 3.3 V. For this reason, a voltage converter must be used for use with a device that has a logic level voltage of 5 V (e.g. Arduino Uno). In our example we use the [COM-KY051VT](#).

USE VIA THE SPI PROTOCOL:

First, connect the module to your Arduino as follows:



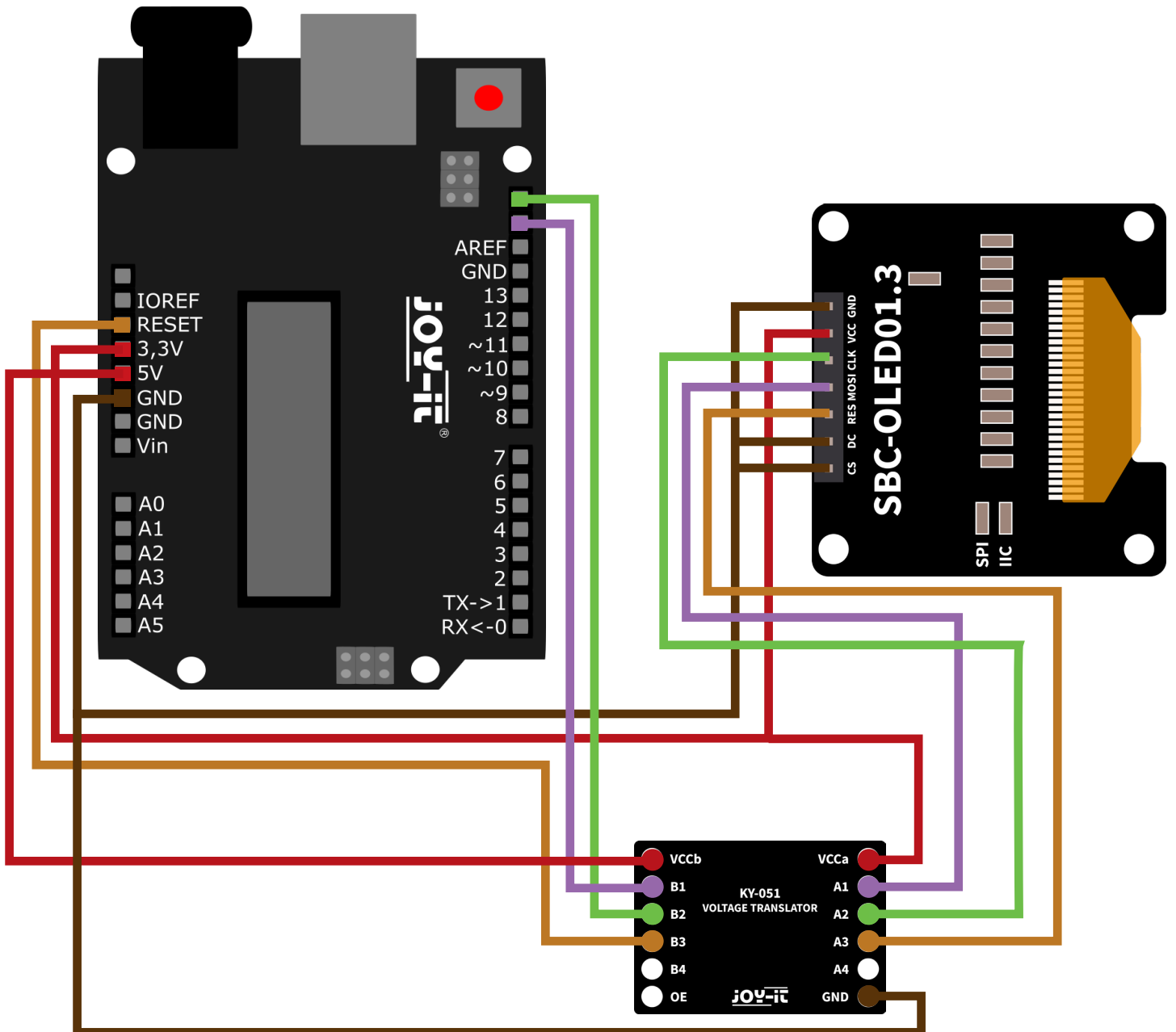
ARDUINO	1.3" OLED DISPLAY	KY-051 #1	KY-051 #2
GND	GND	GND	GND
3,3 V	VCC	VCCa	VCCa
5 V	-	VCCb	VCCb
D6	-	-	B1
-	CS	-	A1
D7	-	B4	-
-	DC	A4	-
D8	-	B3	-
-	CLK	A3	-
D9	-	B2	-
-	RES	A2	-
D10	-	B1	-
-	MOSI	A1	-

ATTENTION. The display uses a logic level of 3.3 V. For this reason, a voltage converter must be used for use with a device that has a logic level voltage of 5 V (e.g. Arduino Uno). In our example we use the [COM-KY051VT](#).

USE VIA THE I2C PROTOCOL:

First, connect the module to your Arduino as follows:

ATTENTION! Please note that the display is delivered in SPI configuration. For the use via the I2C protocol additional soldering work is necessary before. For further information please refer to chapter [Basic & Interfaces](#).



ARDUINO	1.3" OLED DISPLAY	KY-051
GND	GND	GND
3,3 V	VCC	VCCa
5 V	-	VCCb
RES	.	B3
-	RES	A3
SCL (D19)	-	B2
-	CLK	A2
SDA (D18)	-	B1
-	MOSI	A1
GND	DC	-
GND	CS	-

For the use of the example, the library [Adafruit_SH110x](#) from the company Adafruit is additionally required.

To install them, first, open the library manager in your Arduino IDE under **Sketch** → **Include Library** → **Manage Libraries**.

Enter **SH1106** in the search field here and install the library with the title **Adafruit SH110X**. This library also requires the **Adafruit GFX** library and **Adafruit BusIO** library. If you are not automatically prompted to install the other libraries during the installation of the first library, please install them manually.

Now you can download and use the code samples:

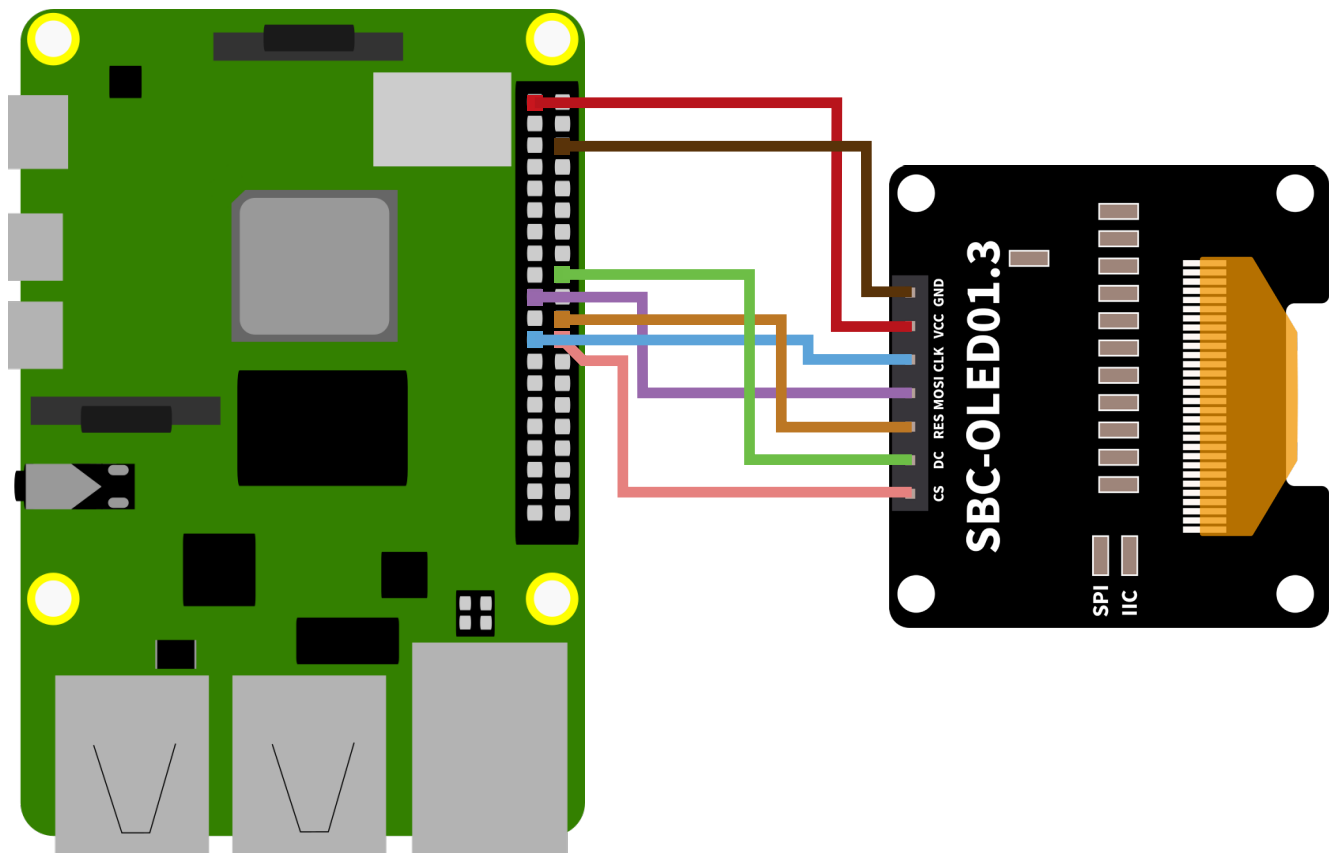
[Download code example SPI](#)

[Download code example I2C](#)

4. APPLICATION EXAMPLE RASPBERRY PI

USE VIA THE SPI PROTOCOL:

First connect the module to your Raspberry Pi as follows:

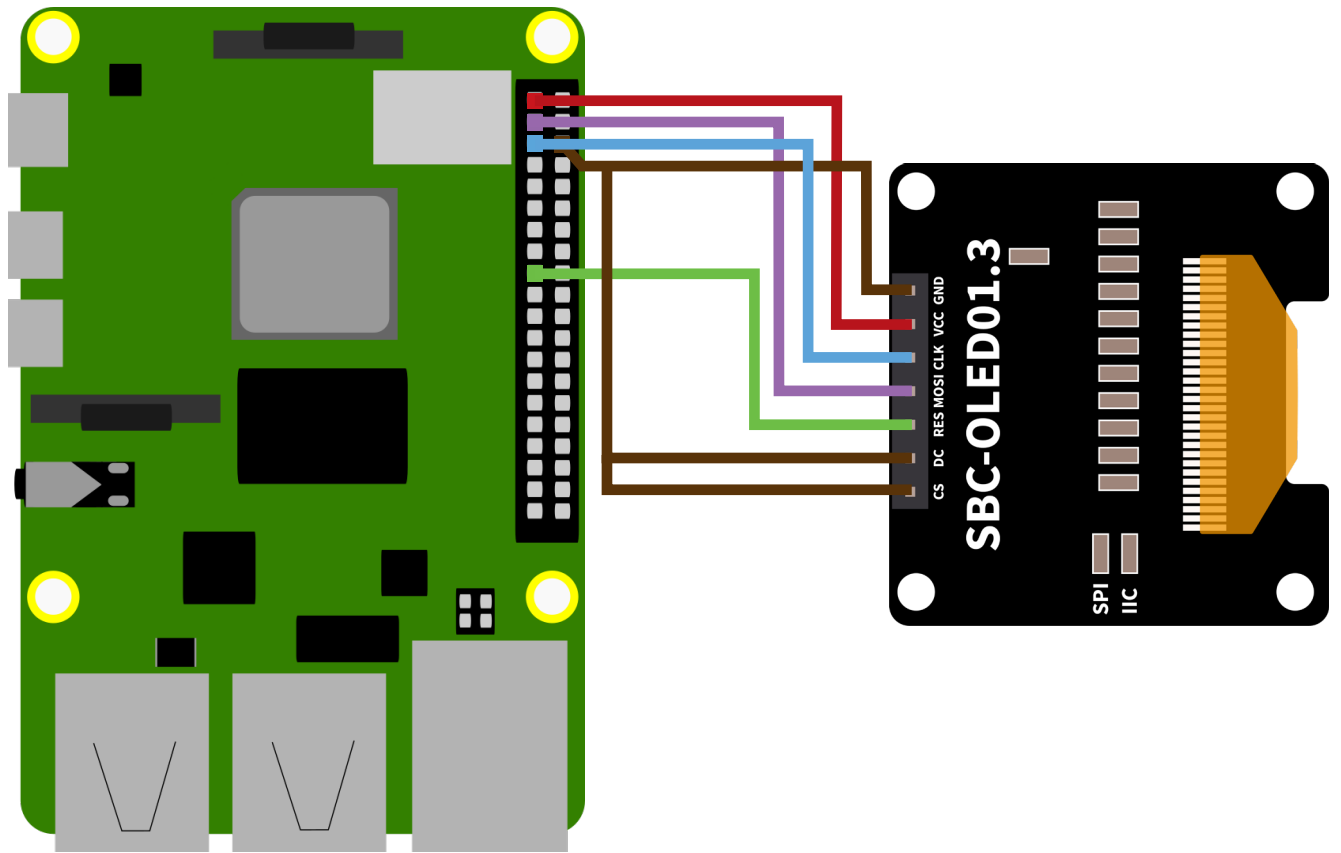


RASPBERRY PI	1.3" OLED DISPLAY
GND	GND
3,3 V	VCC
SCLK (GPIO 11)	CLK
MOSI (GPIO 10)	MOSI
GPIO 25	RES
GPIO 24	DC
CE0 (GPIO 8)	CS

USE VIA THE I2C PROTOCOL:

First connect the module to your Raspberry Pi as follows:

ATTENTION! Please note that the display is delivered in the SPI configuration. For the use via the I2C protocol additional soldering work is necessary before. For further information please refer to chapter [Basic & Interfaces](#).



RASPBERRY PI	1.3" OLED DISPLAY
GND	GND
3,3 V	VCC
SCL	CLK
SDA	MOSI
3,3 V	RES
GND	DC
GND	CS

To use the display, first enable the SPI and I2C interface on your Raspberry Pi. To do this, open a terminal and enter the following command:

```
sudo raspi-config
```

Navigate here to the menu **3 Interfacr** and activate here **I4 SPI** and **I5 I2C**.

Now you can install the libraries required for the display using the following commands:

```
sudo apt install python3-pip
sudo -H pip3 install --upgrade luma.oled
sudo usermod -a -G i2c,spi,gpio pi
sudo apt install python3-dev python3-pip libfreetype6-dev
sudo apt install libjpeg-dev build-essential
sudo apt install libSDL-dev libportmidi-dev libSDL-ttf2.0-dev
sudo apt install libSDL-mixer1.2-dev libSDL-image1.2-dev
sudo apt install git
sudo apt-get install libopenjp2-7
```

Now download the sample files and install them using the following commands:

```
git clone https://github.com/rm-hull/luma.examples.git
cd luma.examples
sudo -H pip install -e .
cd examples
```

Now you can start the examples, depending on your chosen interface. For the SPI interface you can start the examples with the following command:

```
sudo python3 starfield.py --display sh1106 --interface spi
```

For the I2C interface you can start the examples with the following command:

```
sudo python3 starfield.py --display sh1106 --interface i2c
```

5. INFORMATION & TAKE-BACK OBLIGATIONS

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



Symbol on electrical and electronic equipment:

This crossed-out trash can means that electrical and electronic equipment does not belong in household trash. You must hand in the waste equipment at a collection point. Before dropping off, you must separate used batteries and accumulators that are not enclosed by the waste equipment from it.

Return options:

As an end user, when you purchase a new device, you may return your old device (which performs essentially the same function as the new device you purchased from us) for disposal at no charge. Small appliances with no external dimensions larger than 25 cm can be returned in normal household quantities, regardless 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. To do this, please contact us by e-mail at service@joy-it.net or by phone.

Packaging information:

Please pack your old device safe for transport, if you do not have suitable packaging material or do not want to use your own contact us, we will then send you suitable packaging.

6. SUPPORT

We are also there for you after the purchase. If you have any questions or problems arise, we are also available by e-mail, telephone and ticket support system.

E-Mail: service@joy-it.net

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

Phone: +49 (0)2845 9360 – 50 (9:30 - 17:15 Uhr)

For more information visit our website:

www.joy-it.net