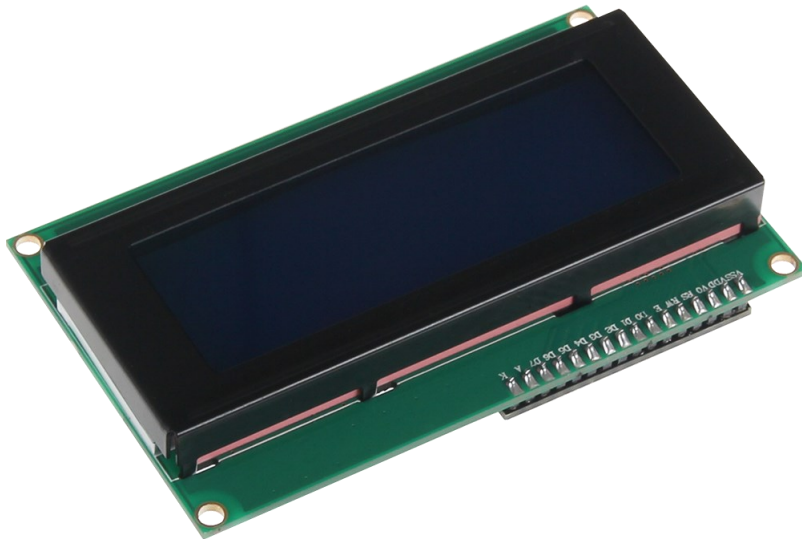


20X4 LCD MODULE

I2C serial



1. GENERAL INFORMATION

Dear customer,

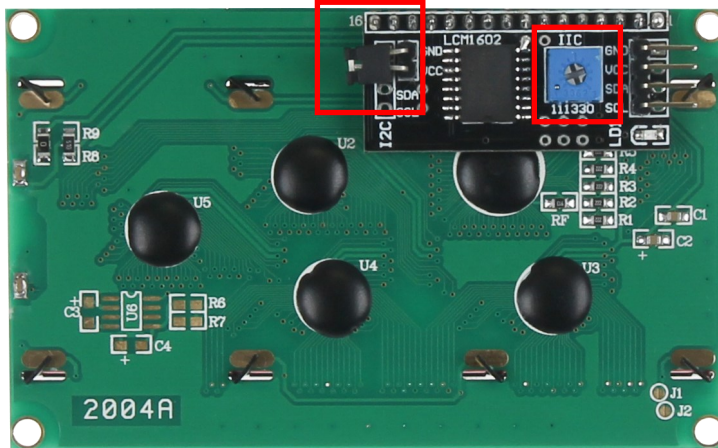
Thank you for purchasing our product. In the following, we will show you which things should be noted during the use.

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

Note

On the back of the display, besides the connections, there is a potentiometer and a jumper.

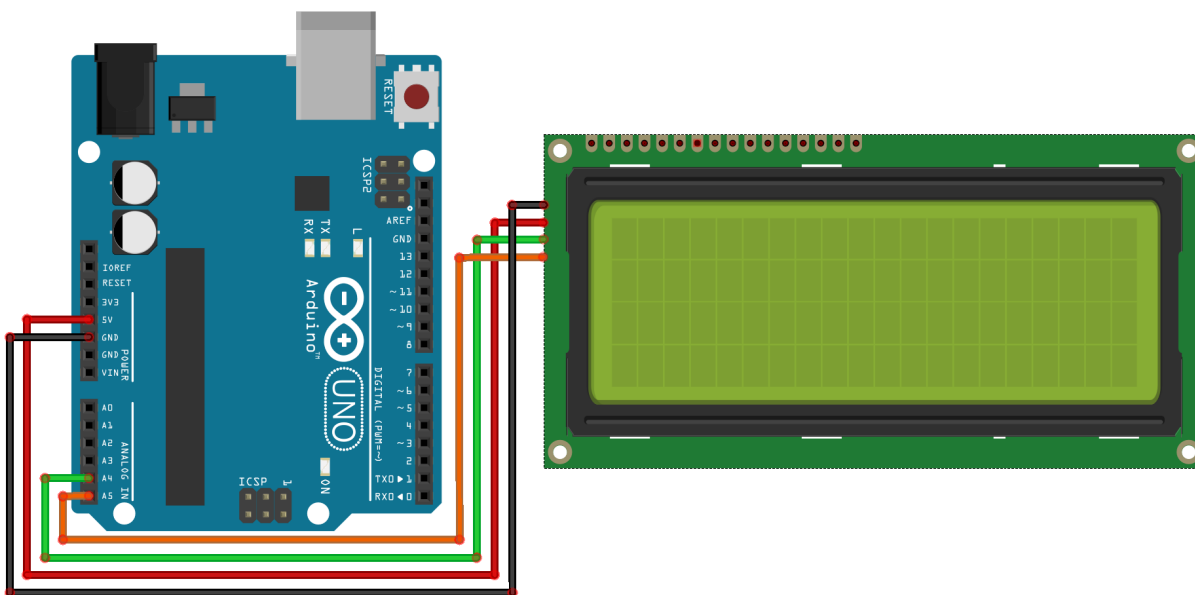
The potentiometer is used to adjust the contrast of the display and by removing the jumper, you can permanently turn off the display's backlight.



2. USE WITH AN ARDUINO

Connecting the display

Connect the display to the pins of your Arduino like shown in the picture or rather in the chart.



This picture was made in [Fritzing](#).

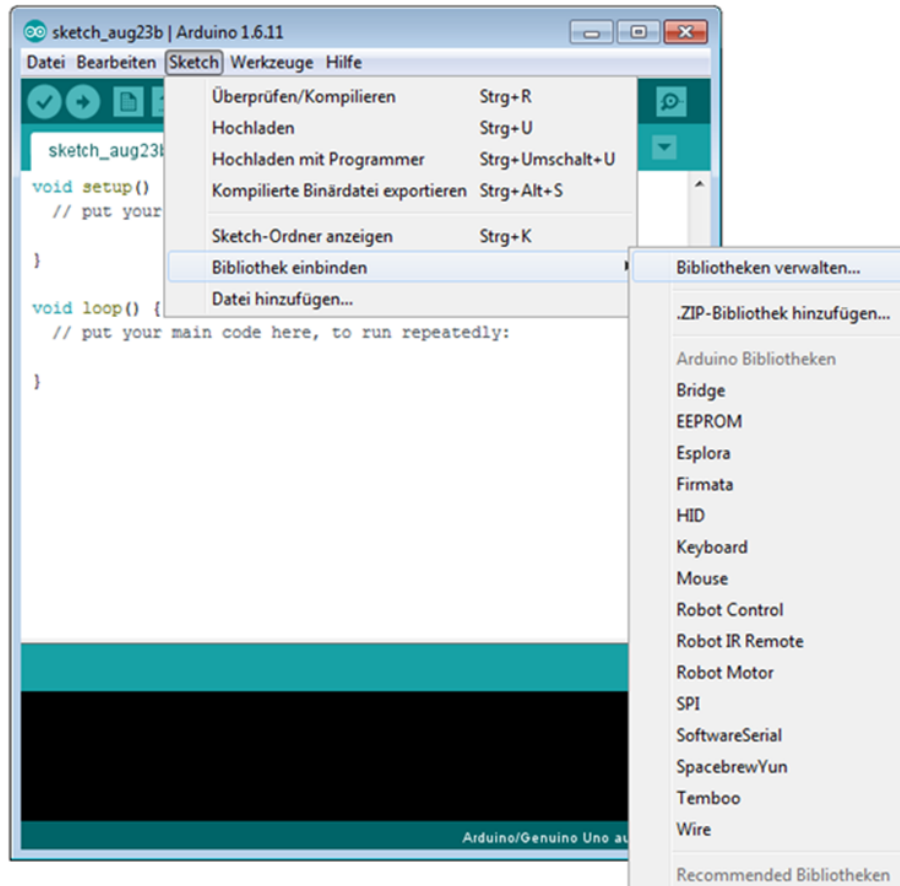
Arduino® Uno	20 x 4 LCD
GND	GND
5 V	VCC
SDA	SDA
SCL	SCL

Installation of the library

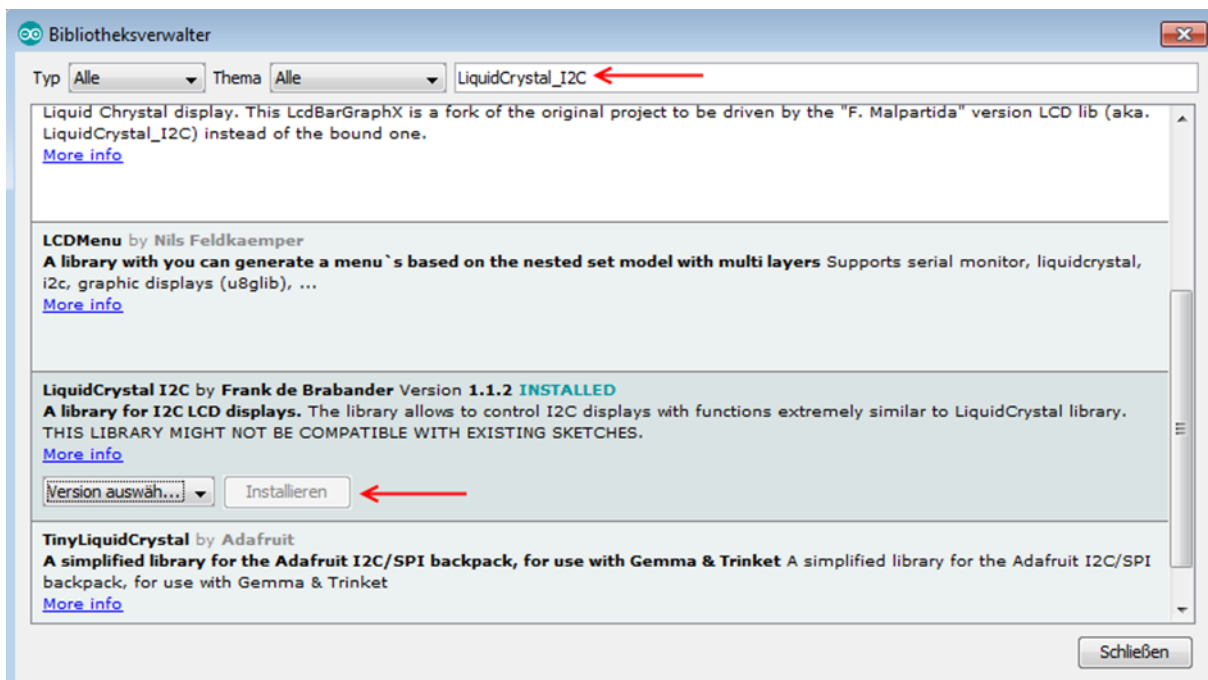
Before you can transfer the code example to your Arduino, you must install first the additional library **LiquidCrystal_I2C**.

This library allows you an easy and fast usage of the display.

Therefore, open the library manager on your Arduino software.



Search now in the library manager for the **LiquidCrystal_I2C** library and install it.



As soon as the library is installed, the installation of the display is finished. You can now transfer the code example which is described in the next step and test the display

Code example

In the following, you can use the code example to test the usage with your display. Copy this example completely on your Arduino.

Because of the different hardware addresses of the display, you must use in the code the right address.

Should your display do not the desired action within the first try, change the address in the prepared lines.

```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>

//-----Hardware Adressierung-----
//Bei falscher Funktion bitte obere Zeile auskommentieren,
//und untere Zeile freigeben
LiquidCrystal_I2C lcd(0x27,16,2);
//LiquidCrystal_I2C lcd(0x3F,16,2);

void setup()
{
  lcd.init();
}

void loop()
{
  lcd.backlight();

  //Nachricht ausgeben
  lcd.setCursor(0,0);
  lcd.print("joy-IT");
  lcd.setCursor(0,1);
  lcd.print("I2C Serial LCD");
}
```

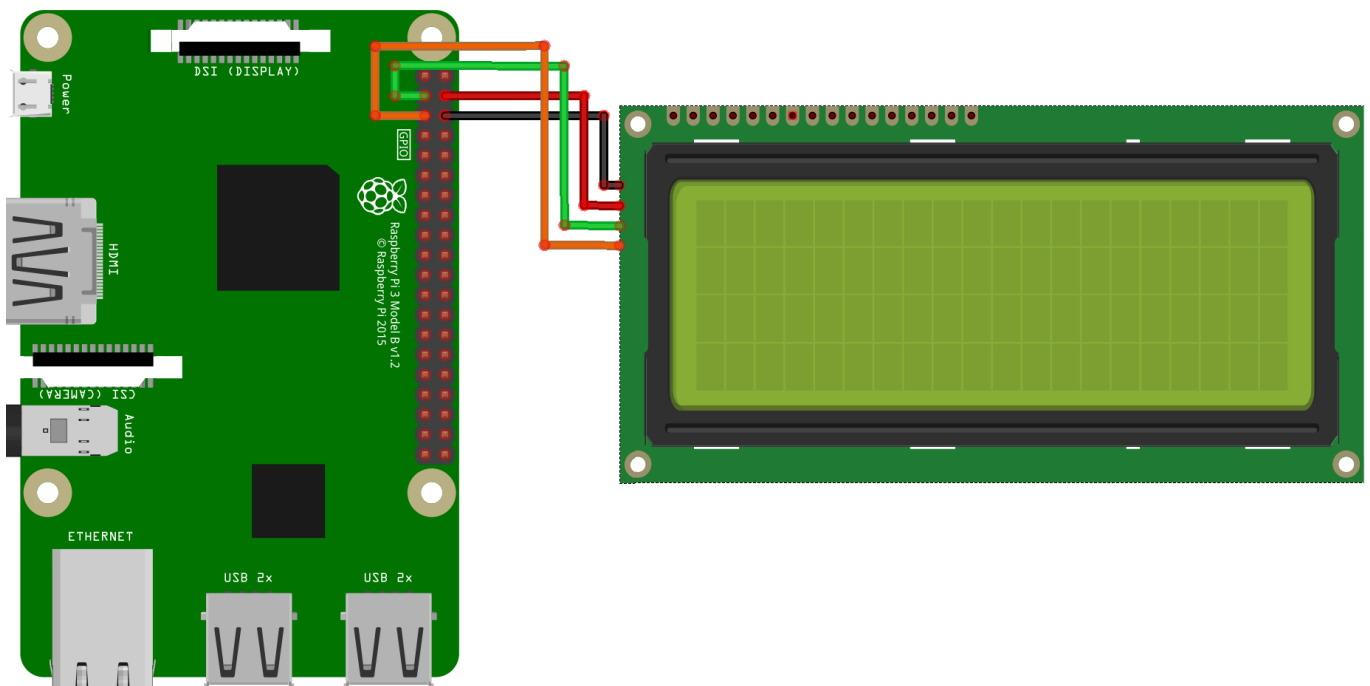
3. USAGE OF THE RASPBERRY PI



These instructions were written under Raspberry Pi OS Bookworm for the Raspberry Pi 4 and 5. It has not been checked with newer operating systems or hardware.

Connecting the display

Connect the display to the pins of your Raspberry Pi like shown in the picture or rather in the chart.



This picture was made in [Fritzing](#).

Raspberry Pi	16 x 2 LCD
Pin 6 (Ground)	GND
Pin 4 (5 V)	VCC
Pin 3 (BCM 2 / SDA)	SDA
Pin 5 (BCM 3 / SCL)	SCL

Installation of the libraries

As soon as the installation is finished and the system is restarted, open the terminal and perform the following commands:

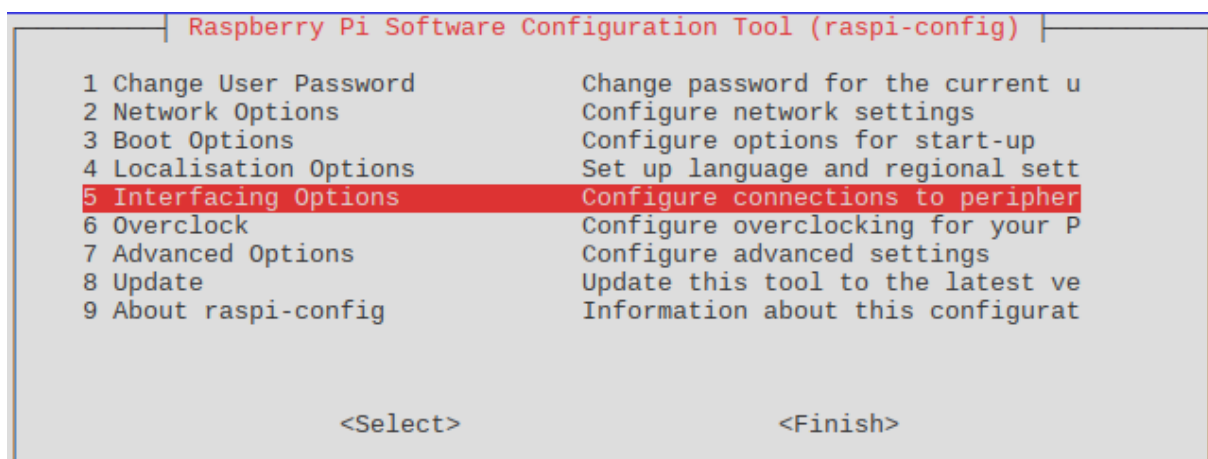
```
sudo apt-get install git
sudo apt-get install python3-pip
```

If the I2C function is not activated on your Raspberry Pi, you must catch up on this in the settings.

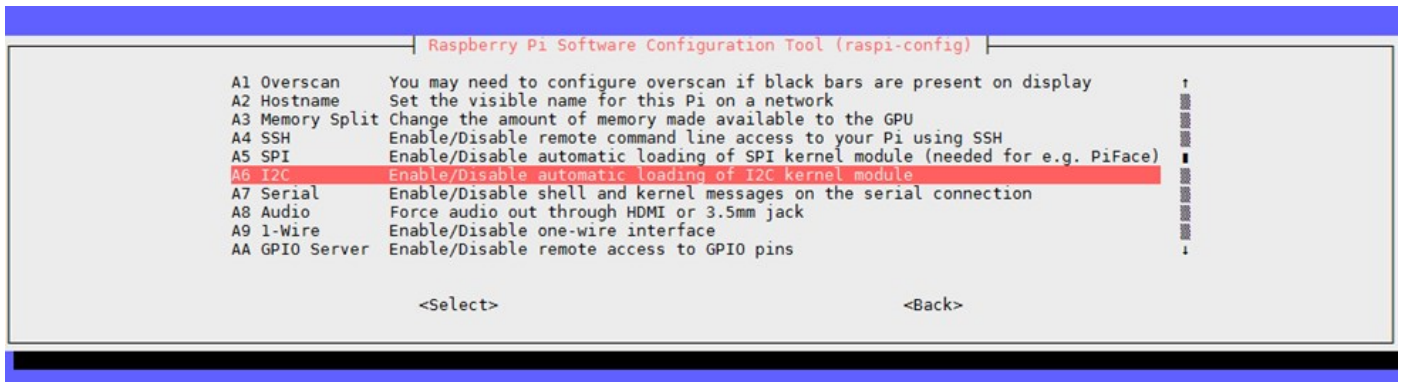
Therefore, open the settings with the following command:

```
sudo raspi-config
```

In the window just opened choose the option ***Interfacing Options***.



Choose and activate **I2C** here.



The next step is to set up the virtual environment. To do this, enter the following commands:

```
mkdir dein_projekt
cd dein_projekt
python -m venv --system-site-packages env
source env/bin/activate
```

You can now install the required libraries in the virtual environment. To do this, enter the following commands:

```
pip3 install adafruit-circuitpython-lis3dh
git clone https://github.com/dhalbert/CircuitPython_LCD
```

Then navigate to the directory you just downloaded and create a sample file to test the display with the following commands:

```
cd CircuitPython_LCD
nano test.py
```

Now copy the following code example into this field:

```
import board

from lcd.lcd import LCD
from lcd.i2c_pcf8574_interface import I2CPCF8574Interface

from lcd.lcd import CursorMode

# Talk to the LCD at I2C address 0x27.
# The number of rows and columns defaults to 4x20, so those
# arguments could be omitted in this case.
lcd = LCD(I2CPCF8574Interface(board.I2C(), 0x27), num_rows=4,
num_cols=20)

lcd.print("abc ")

lcd.clear()

# Start at the first line, fifth column (numbering from zero).
lcd.set_cursor_pos(0, 4)
lcd.print("joy-IT")
lcd.set_cursor_pos(1, 2)
lcd.print("I2C Serial LCD")

# Make the cursor visible as a line.
lcd.set_cursor_mode(CursorMode.LINE)
```

Save the file with **CTRL+O** and close the editor with **CTRL+X** and **Enter**.
Now start the sample code with the following command:

```
python3 test.py
```


4. OTHER 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 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 any questions remained open or problems may arise after your purchase, we are available by e-mail, telephone and ticket support system to answer these.

E-Mail: service@joy-it.net

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

Telephone: +49 (0)2845 9360 – 50 (Mon - Thur: 09:00 - 17:00 o'clock,
Fri: 09:00 - 14:30 o'clock)

For further information visit our website:

www.joy-it.net