

16X2 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

<u>Note</u>

On the back of the display, besides the connections, there is a potentio-

meter 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

<u>Connecting the display</u> 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	16 x 2 LCD
GND	GND
5 V	VCC
SDA A4	SDA
SCL A5	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.

💿 sketch_aug23b Ard	uino 1.6.11		
Datei Bearbeiten Sket	ch Werkzeuge Hilfe		
Sketch aug23t	Überprüfen/Kompilieren Hochladen	Strg+R Strg+U	
<pre>void setup() // put your</pre>	Hochladen mit Programmer Kompilierte Binärdatei exportieren	Strg+Umschalt+U Strg+Alt+S	·
	Sketch-Ordner anzeigen	Strg+K	
}	Bibliothek einbinden		Bibliotheken verwalten
<pre>void loop() {</pre>	Datei hinzufügen		.ZIP-Bibliothek hinzufügen
<pre>}</pre>	n code nere, to fun repeate	diy.	Arduino Bibliotheken Bridge EEPROM Esplora Firmata HID Keyboard Mouse Robot Control Robot IR Remote Robot Motor S01
	A	rduino/Genuino Uno au	SP1 SoftwareSerial SpacebrewYun Temboo Wire
			Recommended Bibliotheken

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 auskommentie-
ren,
//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");
}
```

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.

<u>Connecting the display</u> 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*.

	5 (i 57 j
1 Change User Password	Change password for the current u
2 Network Options	Configure network settings
3 Boot Options	Configure options for start-up
4 Localisation Options	Set up language and regional sett
5 Interfacing Options	Configure connections to peripher
6 Overclock	Configure overclocking for your P
7 Advanced Options	Configure advanced settings
8 Update	Update this tool to the latest ve
9 About raspi-config	Information about this configurat

<Select>

<Finish>

Choose and activate *I2C* here.

Al Overscan A2 Hostname A3 Memory Split A4 SSH A5 SPI A5 SPI A7 Serial A8 Audio A9 1-Wire AA GPIO Server	You may need to configure overscan if b Set the visible name for this Pi on a n t Change the amount of memory made availa Enable/Disable remote command line acce Enable/Disable automatic loading of SPI Enable/Disable automatic loading of I2C Enable/Disable shell and kernel message Force audio out through HDMI or 3.5mm j Enable/Disable one-wire interface Enable/Disable remote access to GPIO pi	lack bars are present on display etwork ble to the GPU ss to your Pi using SSH kernel module (needed for e.g. PiFace) kernel module s on the serial connection ack ns
	<select></select>	<back></back>

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 2x16, so those
# arguments could be omitted in this case.
lcd = LCD(I2CPCF8574Interface(board.I2C(), 0x27), num rows=2,
num cols=16)
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

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



Symbol on Electrial 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: <u>http://support.joy-it.net</u> 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: <u>www.joy-it.net</u>

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