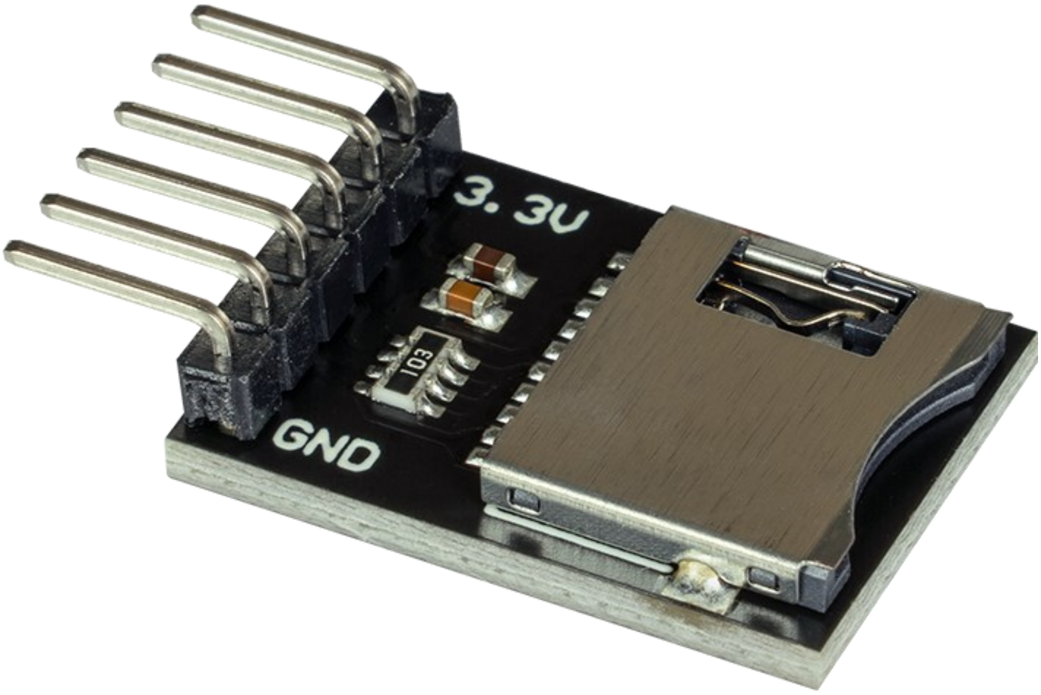
MICRO-SD BREAKOUT BOARD

COM-MSD



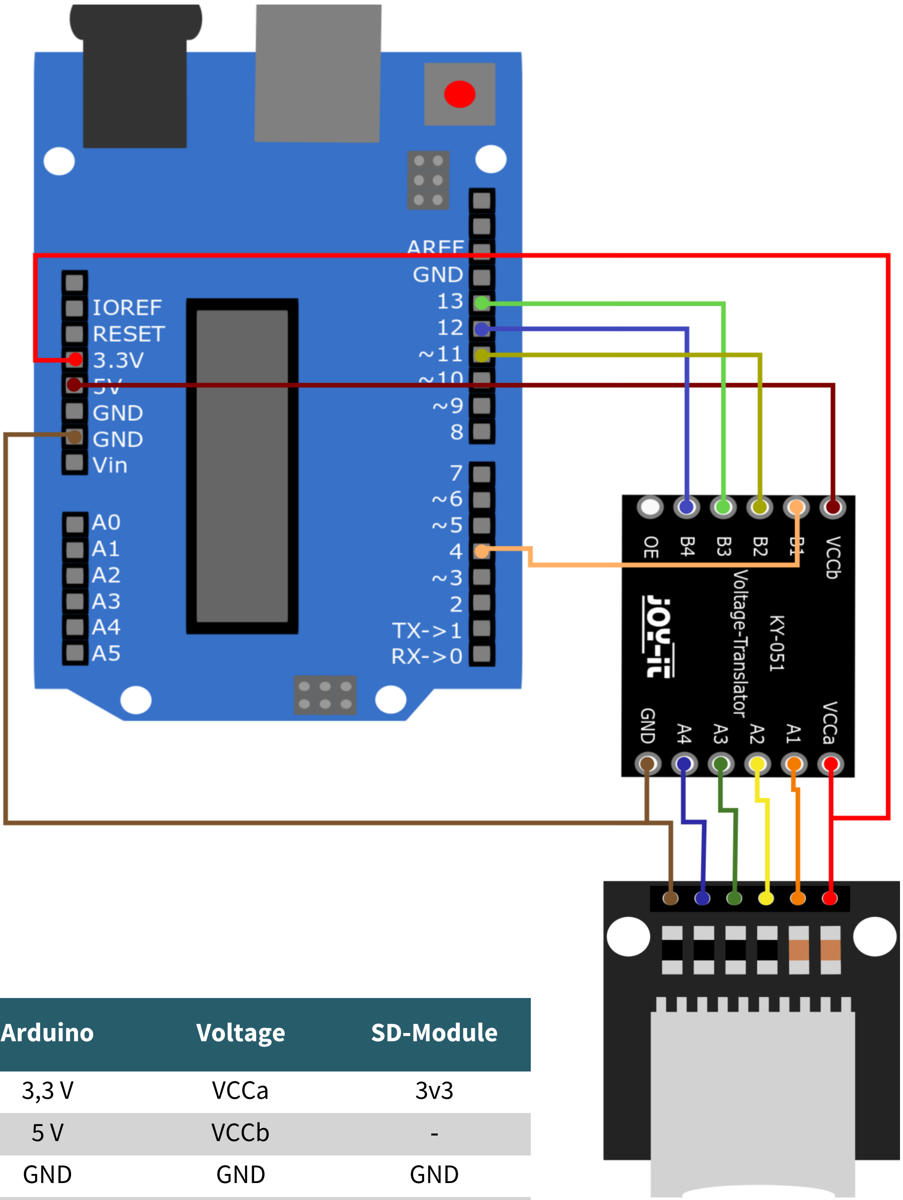
1. GENERAL INFORMATION

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.

2.1 Wiring

Connect your Micro-SD module to your Arduino as shown in the diagram and table below.

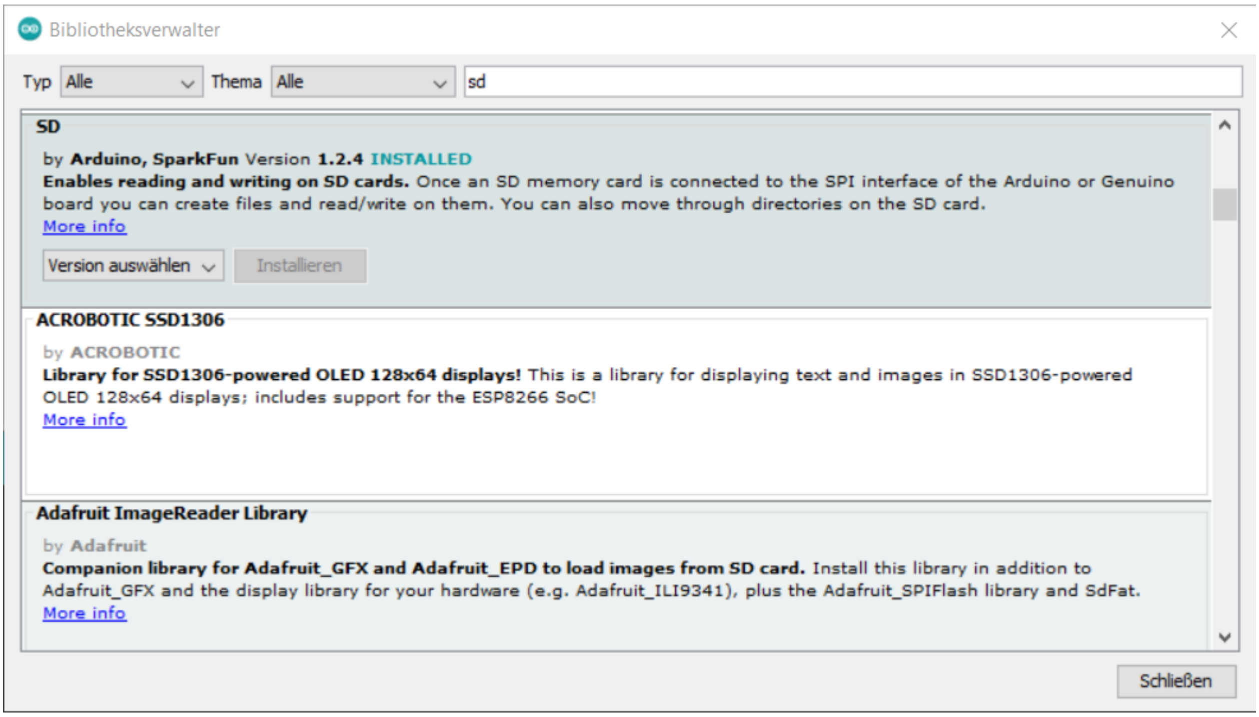
Note that you need a logic level converter because the module works with a 3 V logic level unlike the Arduino.
In this example we use the COM-KY051VT from Joy-IT.



Arduino	Voltage	SD-Module
3,3 V	VCCa	3v3
5 V	VCCb	-
GND	GND	GND
13	B3	-
12	B4	-
11	B2	-
4	B1	-
-	A1	CS
-	A2	MOSI
-	A3	CLK
-	A4	MISO

2.2 Library installation

To install the required library, open the library manager in your Arduino IDE under **Sketch** -> **Include Library** -> **Manage Libraries....**
There enter SD in the search field and install the **SD** library **by Arduino, SparkFun**



SD

by **Arduino, SparkFun** Version **1.2.4** INSTALLED
Enables reading and writing on SD cards. Once an SD memory card is connected to the SPI interface of the Arduino or Genuino board you can create files and read/write on them. You can also move through directories on the SD card.
More info

ACROBOTIC SSD1306

by **ACROBOTIC**
Library for SSD1306-powered OLED 128x64 displays! This is a library for displaying text and images in SSD1306-powered OLED 128x64 displays; includes support for the ESP8266 SoC!
More info

Adafruit ImageReader Library

by **Adafruit**
Companion library for Adafruit_GFX and Adafruit_EPD to load images from SD card. Install this library in addition to Adafruit_GFX and the display library for your hardware (e.g. Adafruit_ILI9341), plus the Adafruit_SPIFlash library and SdFat.
More info

2.3 Code example

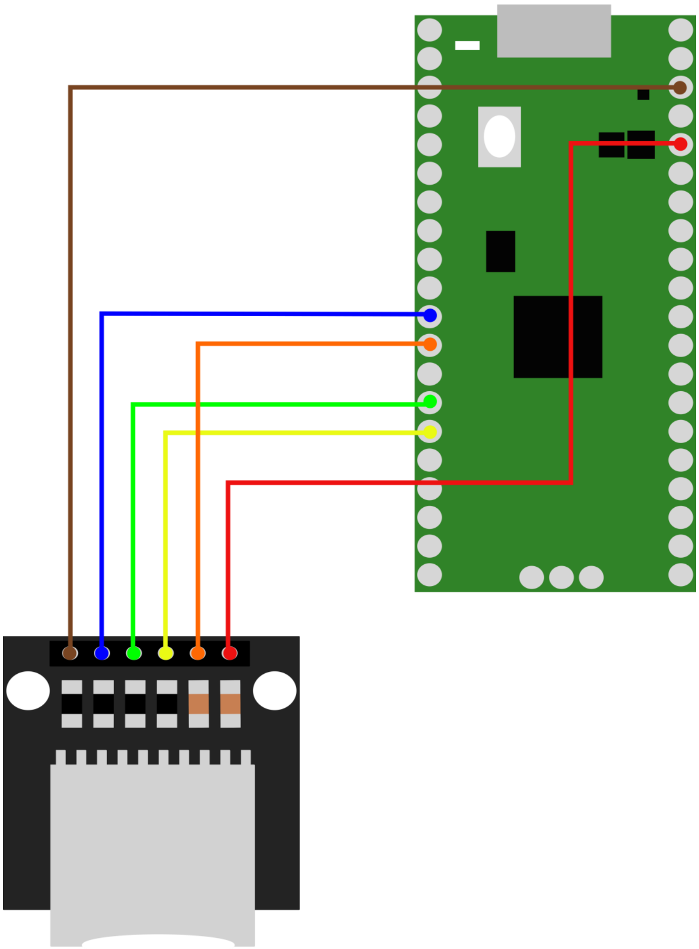
Now you can go to **File** -> **Examples** -> **SD** to open the ReadWrite example and load it onto your Arduino.

Alternatively you can copy the code out here:

```
#include <SPI.h>
#include <SD.h>

File myFile;

void setup() {
  // Open serial communications and wait for port to open:
  Serial.begin(9600);
  while (!Serial) {
    ; // wait for serial port to connect. Needed for native USB port only
  }


  Serial.print("Initializing SD card...");

  if (!SD.begin(4)) {
    Serial.println("initialization failed!");
    while (1);
  }
  Serial.println("initialization done.");

  // open the file. note that only one file can be open at a time,
  // so you have to close this one before opening another.
  myFile = SD.open("test.txt", FILE_WRITE);

  // if the file opened okay, write to it:
  if (myFile) {
    Serial.print("Writing to test.txt...");
    myFile.println("testing 1, 2, 3.");
    // close the file:
    myFile.close();
    Serial.println("done.");
  } else {
    // if the file didn't open, print an error:
    Serial.println("error opening test.txt");
  }

  // re-open the file for reading:
  myFile = SD.open("test.txt");
  if (myFile) {
    Serial.println("test.txt:");

    // read from the file until there's nothing else in it:
    while (myFile.available()) {
      Serial.write(myFile.read());
    }
    // close the file:
    myFile.close();
  } else {
    // if the file didn't open, print an error:
    Serial.println("error opening test.txt");
  }
}

void loop() {
  // nothing happens after setup
}
```

2.1 Wiring

Connect your Micro-SD module to your Raspberry Pi Pico as shown in the diagram and the table below.



Raspberry Pi	SD-Module
3,3 V	3v3
GND	GND
GP9	CS
GP11	MOSI
GP10	CLK
GP8	MISO

2.2 Library installation

To program the Raspberry Pi Pico, we use the Thonny IDE with Micropython in this example.

First of all, you must download the required Micropython library. You can find this here.

Open the sdcard.py in your IDE and save the file on your Raspberry Pi Pico in the lib folder. If necessary you have to create this folder before.

2.3 Code example

Now you can create a new file and insert the following code there to test the module:

```
import machine
import sdcard
import uos

# Assign chip select (CS) pin (and start it high)
cs = machine.Pin(12, machine.Pin.OUT)

# Intialize SPI peripheral (start with 1 MHz)
spi = machine.SPI(1,
                  baudrate=1000000,
                  polarity=0,
                  phase=0,
                  bits=8,
                  firstbit=machine.SPI.MSB,
                  sck=machine.Pin(10),
                  mosi=machine.Pin(11),
                  miso=machine.Pin(8))

# Initialize SD card
sd = sdcard.SDCard(spi, cs)

# Mount filesystem
vfs = uos.VfsFat(sd)
uos.mount(vfs, "/sd")

# Create a file and write something to it
with open("/sd/test01.txt", "w") as file:
    file.write("Hello, SD World!\r\n")
    file.write("This is a test\r\n")

# Open the file we just created and read from it
with open("/sd/test01.txt", "r") as file:
    data = file.read()
    print(data)
```

Now you can run the script on your Raspberry Pi Pico.

4. 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 fulfils 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 email at 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.

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 9360-50 (10-17 o‘clock)

For further information please visit our website:
www.joy-it.net

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