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Joy-it CCS811V1 Air Quality Sensor Instruction Manual

AIR QUALITY SENSOR
SEN-CCS811V1
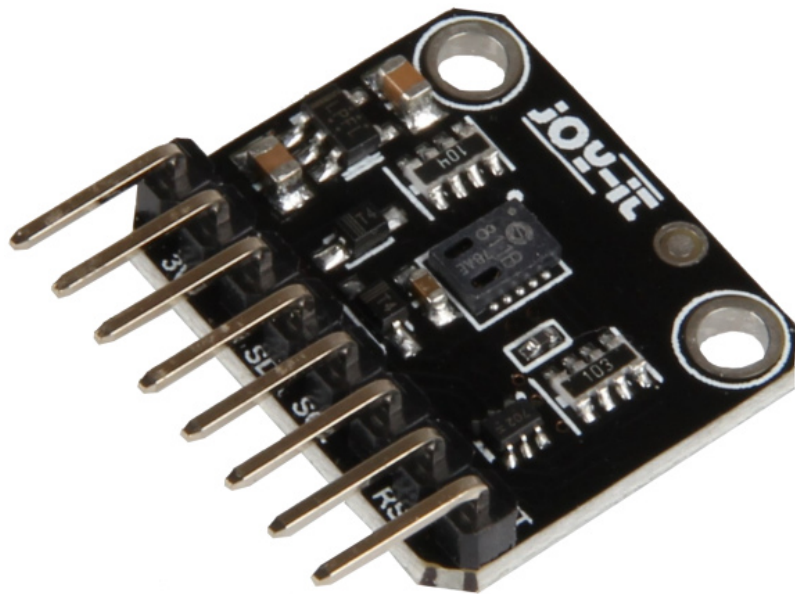
Contents

GENERAL INFORMATION

Dear customer,

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

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

INSTRUCTIONS FOR USE

When using this module, please note that you must perform a so-called Burn-In. This means that for the first 48 hours you will take measurements with the sensor in the mode of your choice.

This is because the resistances and sensitivity changes within these first 48 hours, which makes the measurement results inaccurate within this time.

There is also the so-called Run-In. This means that within the first 20 minutes after the sensor has been idle for a long time or after changing modes, the sensor must stabilize before it can generate accurate data.

The so-called modes, which this sensor has, designate the time intervals in which measurements are performed. The CCS811 has these modes:

Mode 0	Idle (no measurements are performed)
Mode 1	IAQ measurement every second
Mode 2	IAQ measurement every 10 seconds
Mode 3	IAQ measurement every 60 seconds
Mode 4	IAQ measurement every 10 ms (eCO2 and TVOC are not calculated)

In modes 1, 2 and 3, eCO2 and TVOC are calculated each time. Mode 1 reacts fastest to a change, but has a higher operating current. Mode 3 reacts more slowly, but has the lowest operating current on average.

If you change the mode to a slower measuring rate, you should switch to mode 0 (idle) for at least 10 minutes. This happens, for example, when you switch from Mode 1 to Mode 3. If you switch to a higher measuring rate, you do not need to pay any further attention.

Mode 4 is used with an external system. The system receives the raw data of the sensor to work with it. This allows the measurement rate of one measurement every 250 ms.
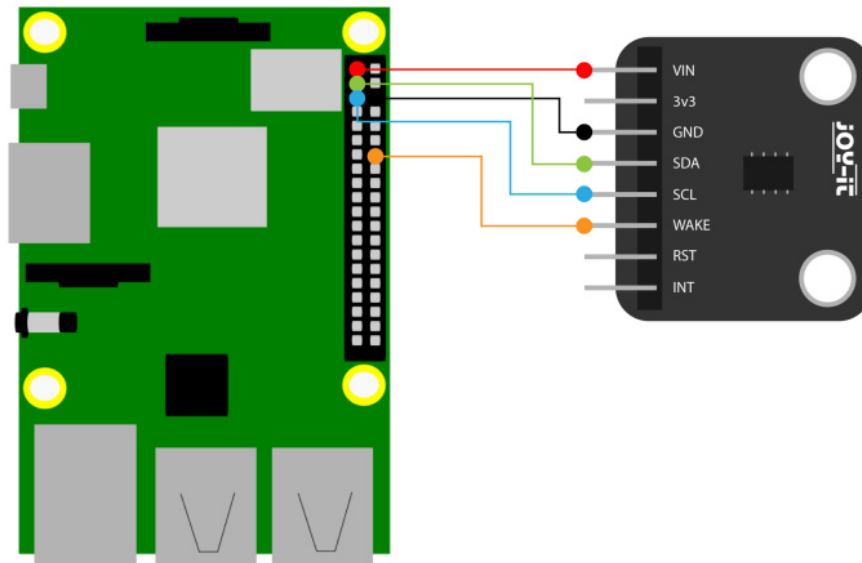
Note: Mode timings are subject to typical 2% tolerance due to accuracy of internal clock.

USAGE WITH THE RASPBERRY PI

i 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.

1. **Connection**

Raspberry Pi	CCS811V1
3v3 (Pin 1)	VCC
GND (Pin 6)	GND
SCL (Pin 5)	SCL
SDA (Pin 3)	SDA
GND	Wake

2. **Installation**

In order to be able to execute the code example, some dependencies must first be installed. To do this, enter the following command in your terminal

sudo apt install python3-pip git

Now you need to set up the virtual environment required for this project.

To do this, enter the following commands:

mkdir project-name && cd project-name

python -m venv –system-site-packages env

source env/bin/activate

git clone **https://github.com/adafruit/Adafruit_CircuitPython_CCS811.git**

Now install the necessary library with the following command:

pip3 install adafruit-circuitpython-ccs811

To execute the code example, you must first activate the I2C interface. To do this, enter the following command:

Download the code example with this command:

sudo raspi-config

Go to Interface Options → and enable I2C.

You can now enter the following commands to start the code example. In the code example, the eCO2 and TVOC are output every second and the Sensor is in mode 1 by default.

python3 ccs811_simpletest.py

cd Adafruit_CircuitPython_CCS811/examples/
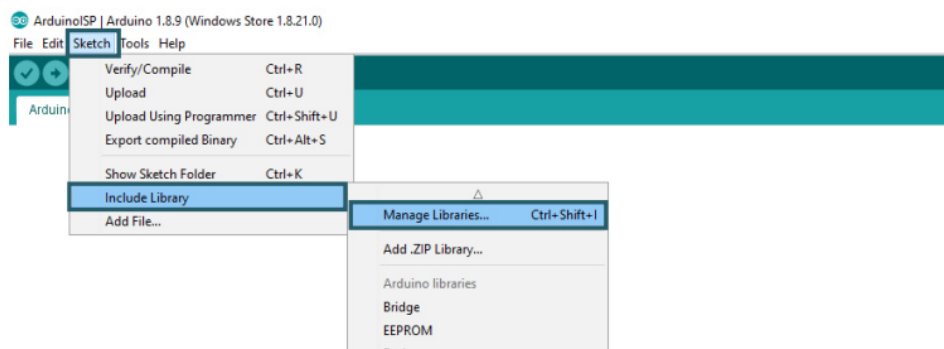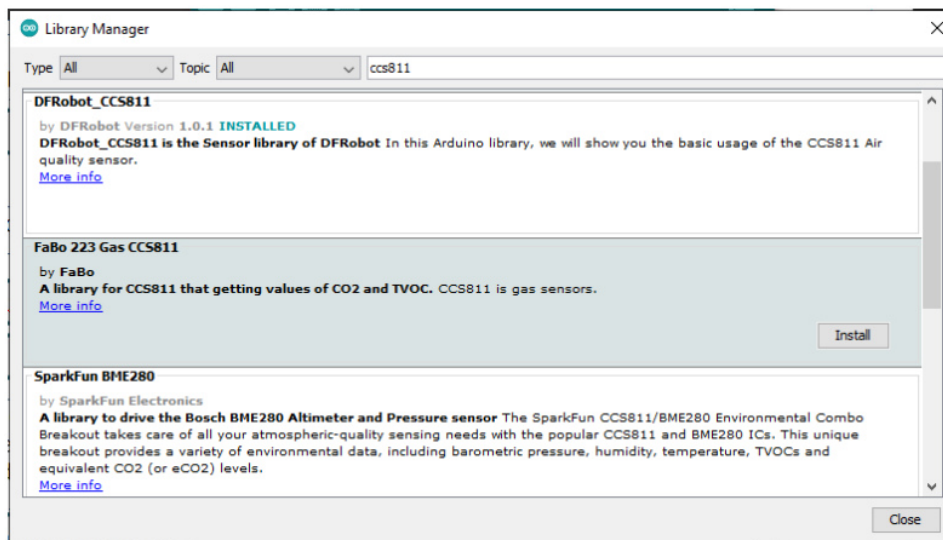
USAGE WITH THE ARDUINO

1. **Connection**
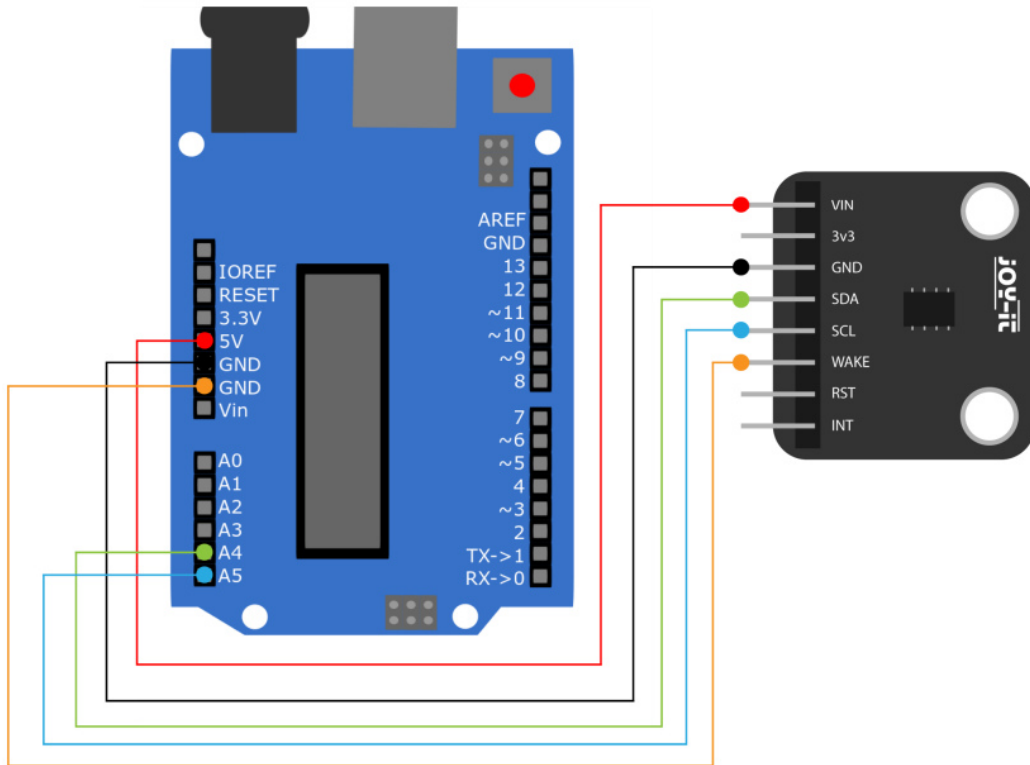
Arduino	CCS811V1
5V	VCC
GND	GND
SCL (A5)	SCL
SDA (A4)	SDA
GND	Wake

2. **Installation**

   You have to install the following library to use the sensor.

   Click on Sketch → Include Library → Manage Libraries…

3. **Code example**

Now copy the following code example into your IDE and click on Upload.

Also open the serial monitor and set the baudrate to 115200 so you can see the output.

```
/*!
 * @file readData.ino
 * @brief Read the concentration of carbon dioxide and TVOC
 * @n Experiment phenomenon: read data every 0.5s, and print it out on seri-
al port.
 * @copyright    Copyright (c) 2010 DFRobot Co.Ltd (http://www.dfrobot.com)
 * @license      The MIT License (MIT)
 * @author [LuoYufeng](yufeng.Luo@dfrobot.com)
 * @maintainer  [fary](feng.yang@dfrobot.com)
 * @version   V0.1
 * @date   2019-07-19
 * @url https://github.com/DFRobot/DFRobot_CCS811
 */
#include "DFRobot_CCS811.h"

/*
 * IIC address default 0x5A, the address becomes 0x5B if the ADDR_SEL is
soldered.
 */
//DFRobot_CCS811 CCS811(&Wire, /*IIC_ADDRESS=*/0x5A);
DFRobot_CCS811 CCS811;

void setup(void)
{
    Serial.begin(115200);
    /*Wait for the chip to be initialized completely, and then exit*/
    while(CCS811.begin() != 0){
```

```
Serial.println("failed to init chip, please check the chip connection");
        delay(1000);
    }
}
void loop() {
    if(CCS811.checkDataReady() == true){
        Serial.print("CO2: ");
        Serial.print(CCS811.getCO2PPM());
        Serial.print("ppm, TVOC: ");
        Serial.print(CCS811.getTVOCPPB());
        Serial.println("ppb");

    } else {
        Serial.println("Data is not ready!");
    }
    /*!
     * @brief Set baseline
     * @param get from getBaseline.ino
     */
    CCS811.writeBaseLine(0x447B);
    //delay cannot be less than measurement cycle
    delay(1000);
}
```

OTHER 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 25cm 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 e-mail 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.
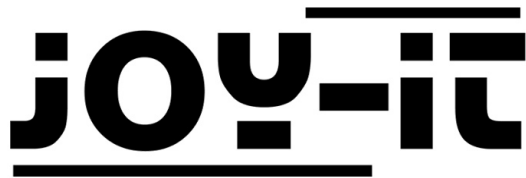
SUPPORT

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.
E-Mail: service@joy-it.net
Ticket system: https://support.joy-it.net
Telephone: +49 (0)2845 9360-50 (Mo – Do: 09:00 – 17:00 o'clock CET, Fr: 09:00 – 14:30 o'clock CET)
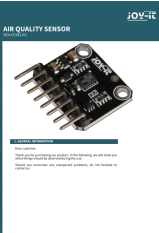**For further information please visit our website: www.joy-it.net**

JOY-IT

Documents / Resources

[Joy-it CCS811V1 Air Quality Sensor](#) [pdf] Instruction Manual
CCS811V1 Air Quality Sensor, CCS811V1, Air Quality Sensor, Quality Sensor, Sensor

References

- **[ITnet | Servizi di Colocation e Cloud](#)**
- **[DFRobot Open-Source Hardware Electronics and Kits](#)**
- **[For Makers and Professionals | Joy-IT](#)**
- **[GitHub - adafruit/Adafruit_CircuitPython_CCS811: circuit python driver for CCS811 air quality sensor](#)**
- **[GitHub - DFRobot/DFRobot_CCS811](#)**
- **[Joy-IT Helpdesk](#)**
- **[For Makers and Professionals | Joy-IT](#)**
- **[User Manual](#)**