

ANALOG- DIGITAL CONVERTER

COM-KY053ADC



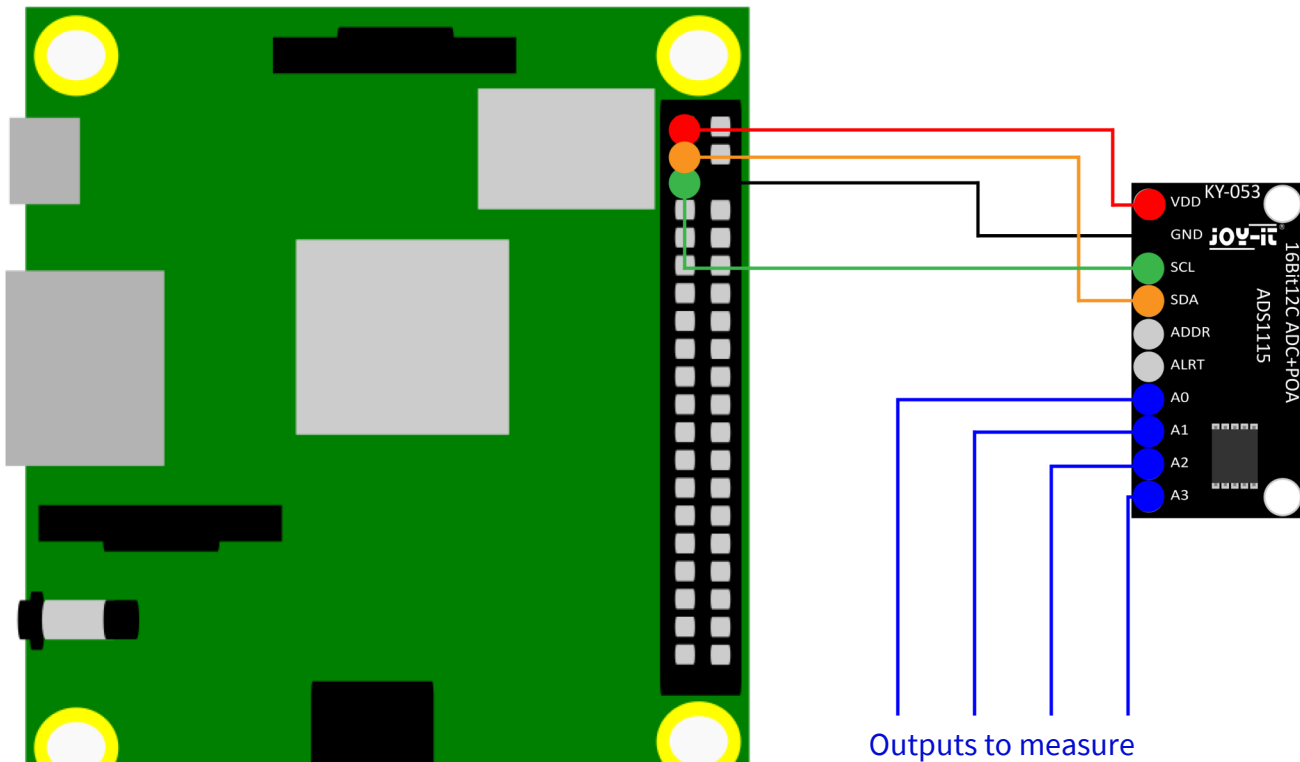
1. GENERAL INFORMATION

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. USAGE WITH RASPBERRY PI

1. Connection



Raspberry Pi	ADC
3,3 V	VDD
GND	GND
SCL	SCL
SDA	SDA
-	ADDR
-	ALRT
To outputs which should be measured	A0
	A1
	A2
	A3

Here, the analog-digital converter is connected to 3.3 V. So the converter can only measure 3.3 V on the analog inputs without suffering permanent damage.

The voltage on the analog inputs must not exceed the supply voltage.

If you want to operate the analog-to-digital converter with 5 V, you need a voltage shifter for the data lines, because the Raspberry Pi can be damaged at a logic level of 5 V.

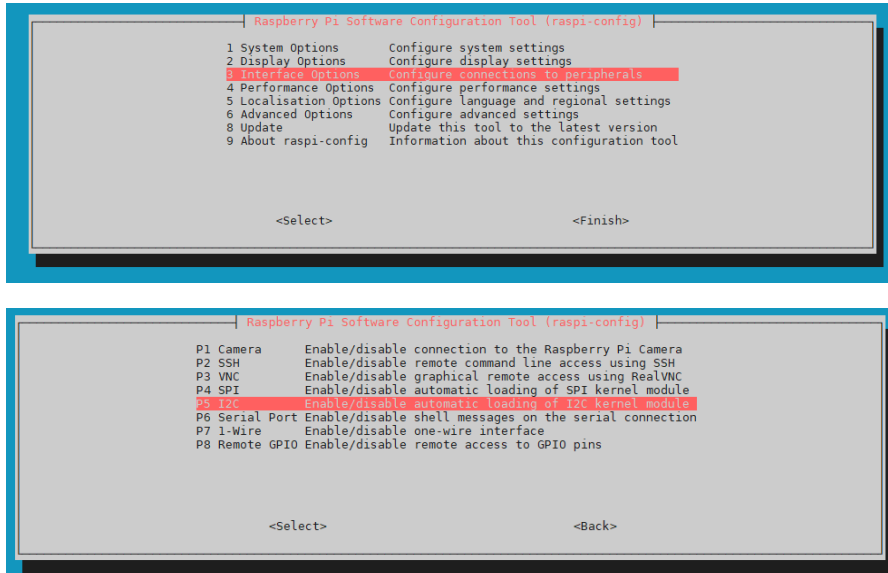


2. Installation

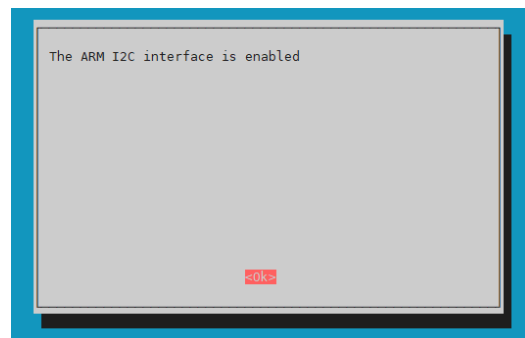
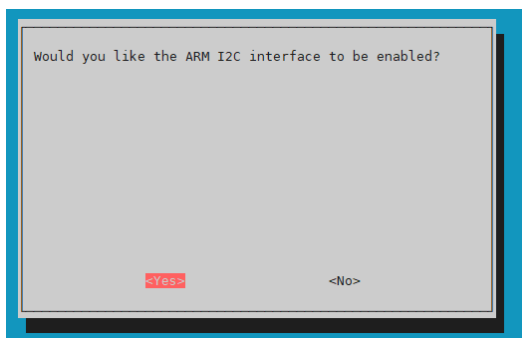
First, you need to enable I2C on your Raspberry Pi. To open the configuration, enter the following command:

```
sudo raspi-config
```

Select **3 Interface Options** → **P5 I2C** .



There you will be asked the question **Would you like the ARM I2C Interface to be enabled?**. Confirm with **Yes**.



You have now successfully enabled I2C. The analog-digital converter can now be reached under the I2C address **0x48**. For our code example we use the [Adafruit Python ADS1x15](#) library, which was published under the [MIT-License](#). With the following commands you download and install this library.

```
git clone https://github.com/adafruit/Adafruit_Python_ADS1x15.git
cd Adafruit_Python_ADS1x15/
sudo python3 setup.py install
cd ..
```

3. Code example

You can download the code example [here](#) or use the following command to download it directly onto the Raspberry Pi.

```
wget https://joy-it.net/files/files/Produkte/COM-KY053ADC/COM-KY053ADC-Python.zip
```

You can unzip the file with the following command. Please note that the directory may differ.

```
unzip /home/pi/COM-KY053ADC-Python.zip && rm /home/pi/COM-KY053ADC-Python.zip
```

In this code example, the digital value is displayed with the corresponding voltage of the individual inputs. By default, the maximum digital value is 4.096 V.

You can change the maximum voltage in the code example by using the **GAIN** variable. The lower the maximum voltage is, the more accurate the voltage of the analog inputs can be measured.

You can execute the code example with the following command.

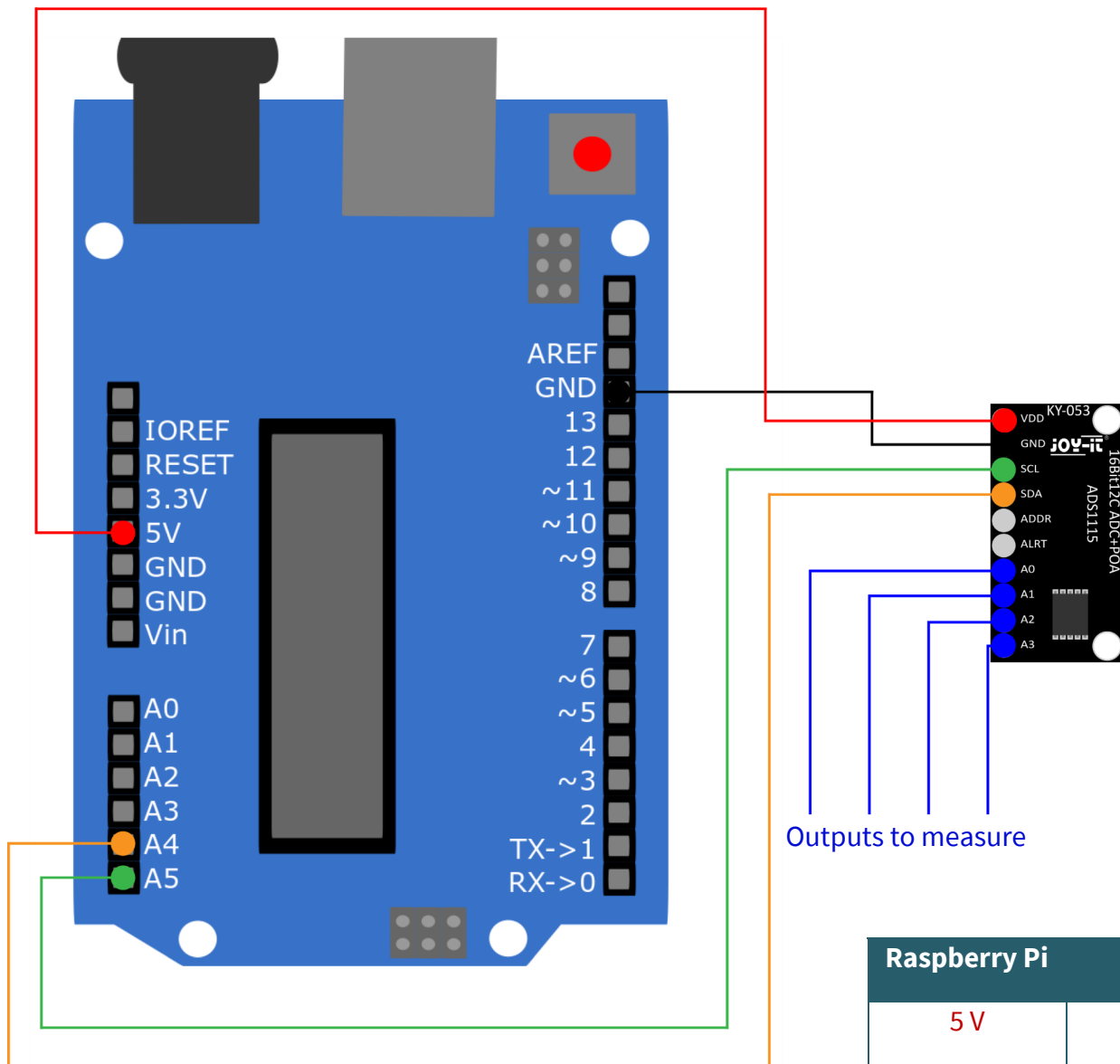
```
python3 ~/COM-KY053ADC-Python/KY-53.py
```

The measurement of an input to which no voltage is applied, is invalid and therefore not representative.



3. USAGE WITH ARDUINO

1. Connection



Here, the analog-digital converter is connected to 5 V. So the converter can only measure 5 V on the analog inputs without suffering permanent damage.

The voltage on the analog inputs must not exceed the supply voltage.

Raspberry Pi	ADC
5 V	VDD
GND	GND
A5 (SCL)	SCL
A4 (SDA)	SDA
-	ADDR
-	ALRT
To outputs which should be measured	A0
	A1
	A2
	A3



2. Installation

For our code example we use the library [Adafruit ADS1X15](#), which was published under the [BSD-License](#). You can install this library by going to **Sketch** → **Include library** → **Manage libraries...** and search there for Adafruit ADS1X15. Now, you just have to click on the **Install** button.

3. Code example

You can download the code example of this library edited by us [here](#). Click on **Upload**, to download the code example to your Arduino. To view the output of the code example, open the **serial monitor** with a baud rate of **9600**.

In this code example, the digital value is displayed with the corresponding voltage of the individual inputs. By default, the maximum digital value is 6.144 V.

You can change the maximum voltage in the code example by using the `ads.setGain();` variable. The lower the maximum voltage is, the more accurate the voltage of the analog inputs can be measured.

The measurement of an input, to which no voltage is applied, is invalid and therefore not representative.



4. ADDITIONAL INFORMATION

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

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 98469-66 (10-17 o'clock)

For further information please visit our website:

www.joy-it.net