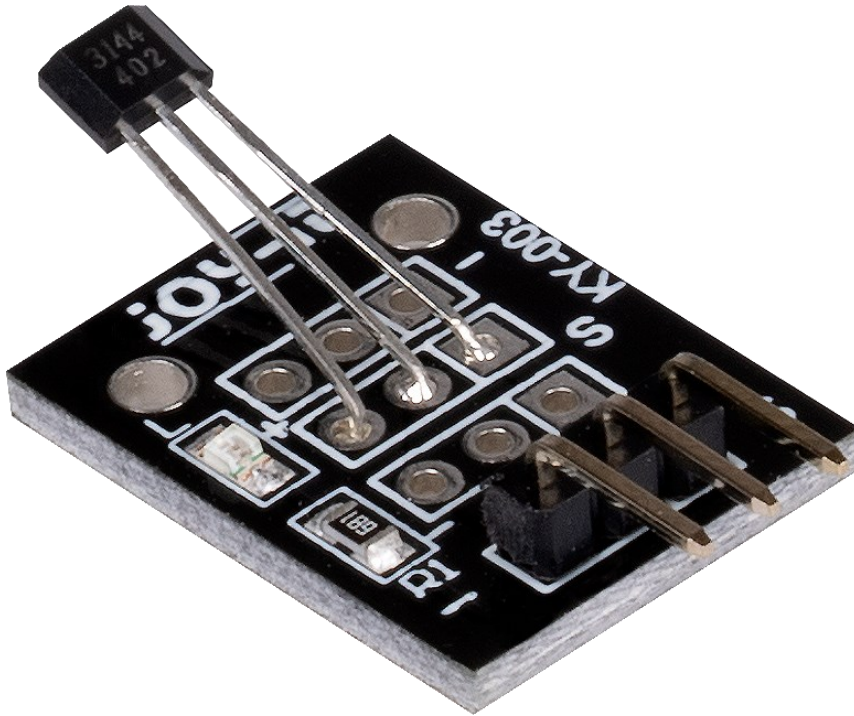# HALL MAGNETIC FIELD SENSOR


1. GENERAL INFORMATION

Dear customer,

thank you very much for choosing our product.

In the 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.

Connect your sensor to your Arduino as shown in the diagram and table below. For optimal results, use a pull-up resistor (approx. 10 kΩ) between the sensor's signal line and the 5 V line.
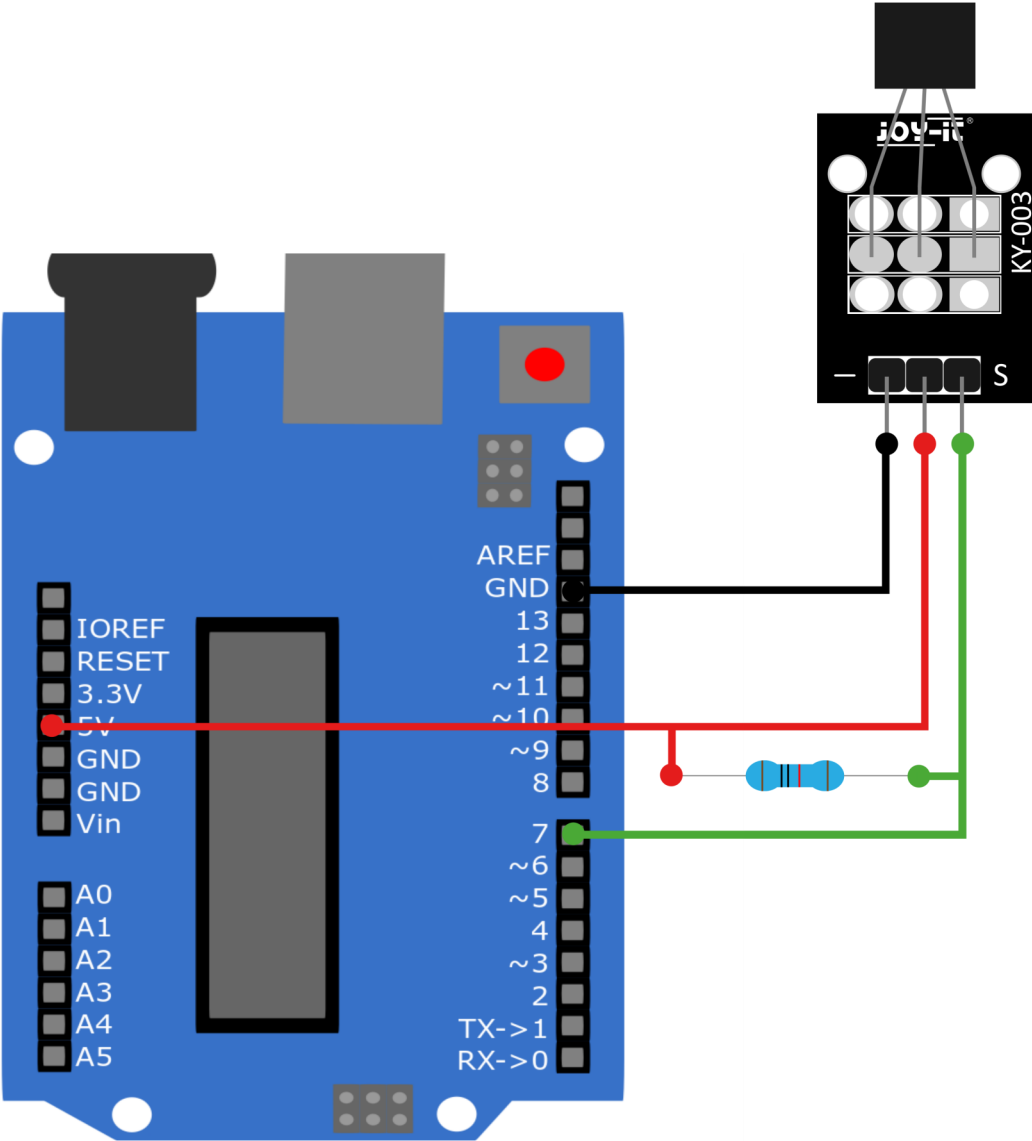
Arduino	Sensor
GND	GND -
5 V	VCC +
Pin 7	Signal

Code example

In the following code example, the serial monitor will indicate every second whether a magnetic field has been detected. Copy the sample code and upload it to your Arduino. Make sure that you have selected the correct board and port in your Arduino IDE.

```cpp
// Declaration and initialisation of the input pin

int Digital_Input= 7; // Digital-Pin

void setup ()
{
  pinMode (Digital_Input, INPUT);

  Serial.begin (9600); // Serial output with 9600 bps
}

// The programme reads the current values of the input pin
// and outputs them on the serial output.
void loop ()
{
  int Digital;

  //read current value
  Digital = digitalRead (Digital_Input);
  Serial.print ("Magnetic field");
  if(Digital==1)
  {
      Serial.println (" not detected");
  }
  else
  {
      Serial.println (" detected");
  }
  Serial.println ("------------------------------------------");
  delay (1000);
}
```
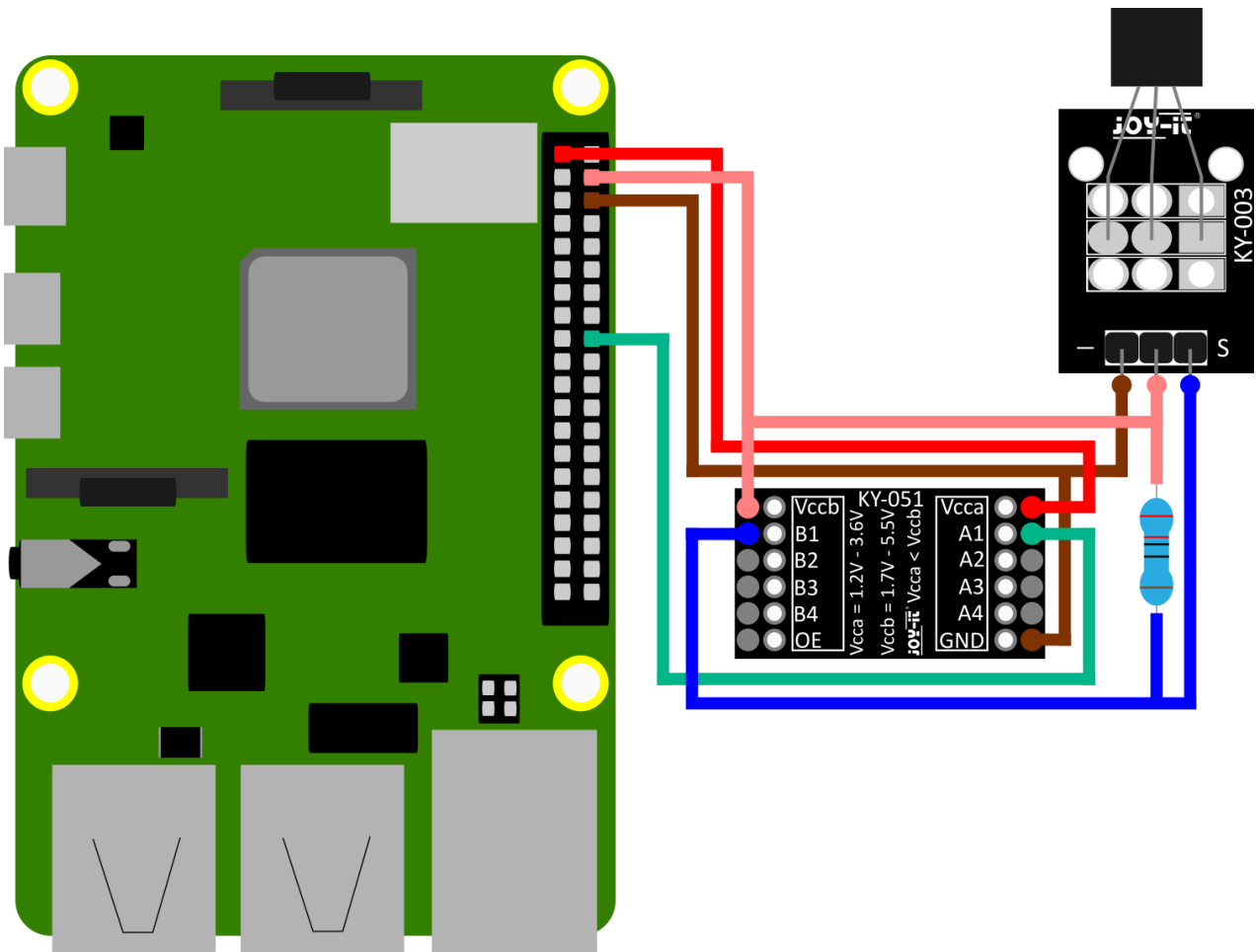
Connect your sensor to a voltage translator and your Raspberry Pi as shown in the diagram and the table. We recommend the KY-051 Voltage Translator from Joy-iT. For best results, use a pullup resistor (approx. 10 kΩ) between the signal line of the sensor and the 5V line.

Raspberry Pi	Sensor	Voltage Translator
-	Signal	B1
5V (Pin 4)	+V	
GND (Pin 6)	GND	GND
3,3V (Pin 1)	-	Vcca
5V (Pin 4)	-	Vccb
GPIO 24 (Pin 18)	-	A1

Code example

Create a new file with the following command:

```
sudo nano SEN-KY003HMS.py
```

Copy the following code example to your Raspberry Pi. Save the file by pressing CTRL+O, confirm with enter and exit the file by pressing CTRL+X.

```python
import time
import RPi.GPIO as GPIO

GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

delayTime = 1      #time between measurements
Digital_PIN = 24   #Digital-Pin (BCM)
GPIO.setup(Digital_PIN, GPIO.IN)
while True:
 # Ausgabe
 if GPIO.input(Digital_PIN) == False:
        print ("Magnetic field detected!!")
 else:
        print ("No magnetic field detected")
 print ("-------------------------------------")

 time.sleep(delayTime)
```

Now start the programme with the following command:

```
sudo python3 SEN-KY003HMS.py
```

The programme will show you in the console whether or not a magnetic field is detected.

Connect your sensor to a Voltage Translator and your Micro:Bit as shown in the diagram and the table. We recommend the KY-051 Voltage Translator by Joy-IT. For best results you should use a pullup resistor (approx. 10 kΩ) between the signal line of the sensor and the 5V line.
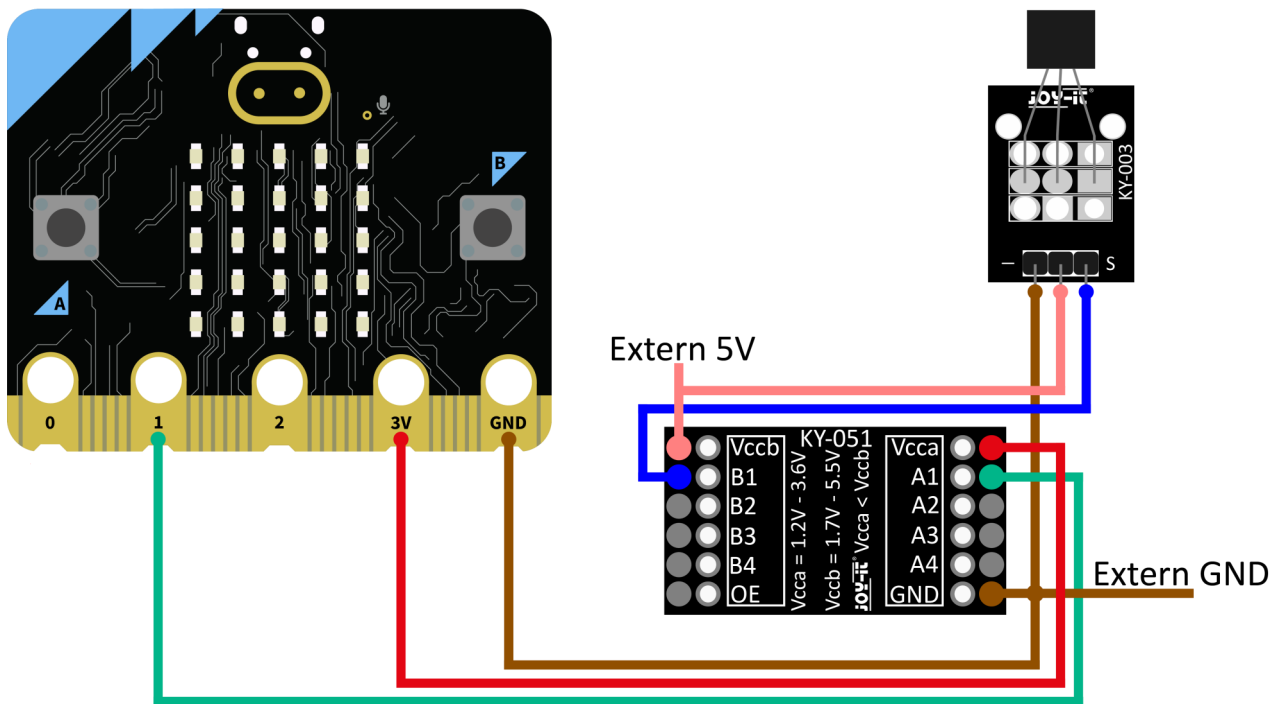
KY-003	Voltage translator
GND	Extern GND
+	[Extern 5 V]
Signal (S)	B1
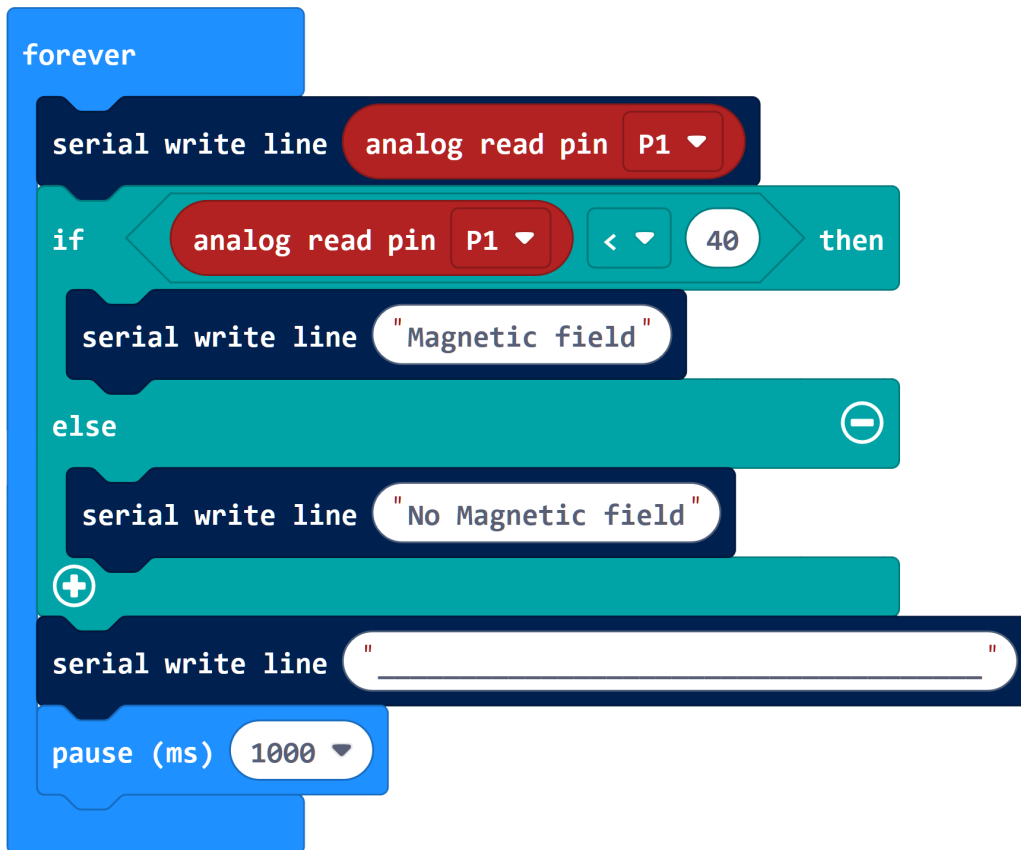
Micro:Bit	Extern
GND	Extern GND

Voltage translator	Extern
Vccb	Extern 5 V
GND	Extern GND

Micro:Bit	Voltage Translator
Pin 1	A1
3 V	Vcca

Codeexample

In the following code example, every second the serial monitor indicates whether a magnetic field has been detected. You can either rebuild the code example in your MakeCode sketch, or download the .hex-file and import it as a MakeCode project.

```
forever
    serial write line    analog read pin    P1 ▼
    if        analog read pin    P1 ▼      < ▼    40      then
        serial write line    "Magnetic field"
    else                                              ⊖
        serial write line    "No Magnetic field"
    ⊕
    serial write line    "_____"
    pause (ms)    1000 ▼
```

Connect your sensor to a Voltage Translator and your Raspberry Pi Pico as shown in the diagram and table. Here we recommend the KY-051 Voltage Translator by Joy-IT. For best results you should use a pullup resistor (approx. 10 kΩ) between the signal line of the sensor and the 5V line.
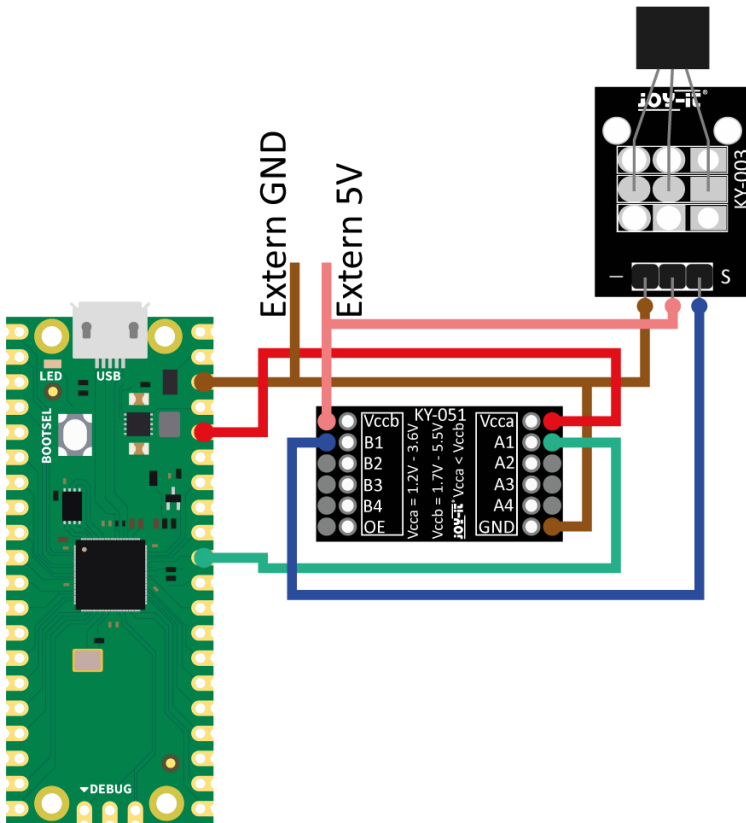
KY-003	Voltage translator
GND	Extern GND
+	[Extern 5 V]
Signal (S)	B1

Raspberry Pi Pico	Extern
GND	Extern GND

Voltage translator	Extern
Vccb	Extern 5 V
GND	Extern GND

Raspberry Pi Pico	Voltage Translator
GPIO26	A1
3 V	Vcca

Code example

In the following code example, every 0.5 seconds the console will indicate whether a magnetic field has been detected. Copy the sample code and download it to your Raspberry Pi. Alternatively you can download the sample code here.

```python
# Load libraries
from machine import Pin, Timer
from time import sleep


# Initialization of GPIO as input
sensor = Pin(26, Pin.IN, Pin.PULL_DOWN)


# Continuous loop for continuous serial output
while True:
    if sensor.value() == 0:
        print("No magnetic field")
    else:
        print("Magnetic field")

    print("--------------------------------------------------------")
    sleep(0.5)
```

6. 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:

 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.

7. 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