LINKERKIT TEMPERATURE SENSOR

Water protected One-Wire temperature sensor

TABLE OF CONTENTS

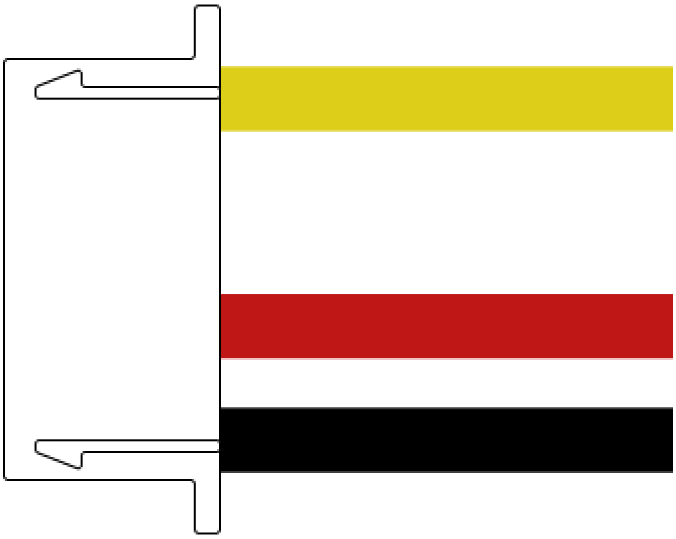
1. GENERAL INFORMATION

Dear Customer,
Thank you for choosing our product. In the following, we will show you what to consider during commissioning and use.

Should you encounter any unexpected problems during use, please feel free to contact us.

2. ANSCHLUSSBELEGUNG

The LK-Temp2 temperature sensor is connected directly to digital port no. 4 of the LinkerKit module, as shown in the illustration. Alternatively, the sensor can also be connected directly to your Raspberry Pi or Arduino. The pin assignment can be seen in the following figure:



DATA
Raspberry Pi: GPIO BCM4 - Arduino: Pin D4

VCC
Raspberry Pi: 3 V - Arduino: 5 V

GND

3. USAGE WITH THE RASPBERRY PI

For use with the Raspberry Pi, it is first necessary to enable the One-Wire interface on the corresponding GPIO pin. For this, open a terminal window and edit your **config.txt** file with the following command:

```
sudo nano /boot/firmware/config.txt
```

Add the following line to the end of the file:

```
dtoverlay=w1-gpio,gpiopin=4
```

Now save the file with the key combination **CTRL+O**, confirm with with **Enter** and then close the editor with the combination **CTRL+X**. Now restart your Raspberry Pi with the following command:

```
sudo reboot
```

Now that you have connected the sensor to your Raspberry Pi, you can create the corresponding program file. Start a new terminal window on your Raspberry Pi and enter the following command:

```
sudo nano LK-Temp2.py
```

Now insert the following program code here:

```
# coding=utf-8
# Required modules are imported and set up
import glob
import time
from time import sleep
import RPi.GPIO as GPIO
# At this point, the pause between the individual
measurements can be set
sleeptime = 1
# The One-Wire input pin is declared and the integrated
PullUp resistor is activated
GPIO.setmode(GPIO.BCM)
GPIO.setup(4, GPIO.IN, pull_up_down=GPIO.PUD_UP)
# After activation of the Pull-UP resistor, it waits until
the communication with the DS18B20 sensor is established
print ('Waiting for initialization...')
base_dir = '/sys/bus/w1/devices/'
while True:
    try:
        device_folder = glob.glob(base_dir + '28*')[0]
        break
    except IndexError:
        sleep(0.5)
        continue
device_file = device_folder + '/w1_slave'
# Function is defined with which the current measured value
can be read out from the sensor
```

```
def TemperatureMeasurement():
    f = open(device_file, 'r')
    lines = f.readlines()
    f.close()
    return lines
# For initialization, the sensor is read out "blind" once
TemperatureMeasurement()
# The temperature evaluation: On the Raspberry Pi, detected
one-Wire slaves are stored in the folder
# /sys/bus/w1/devices/ is assigned to its own subfolder.
This folder contains the file w1-slave
# in which the data sent via the One-Wire bus is stored.
# In this function, these data are analyzed and the
temperature is read out and displayed
def TemperatureEvaluation():
    lines = TemperatureMeasurement()
    while lines[0].strip()[-3:] != 'YES':
        time.sleep(0.2)
        lines = TemperatureMeasurement()
    equals_pos = lines[1].find('t=')
    if equals_pos != -1:
        temp_string = lines[1][equals_pos+2:]
        temp_c = float(temp_string) / 1000.0
        return temp_c
# Main program loop
# The measured temperature is output to the console -
between the individual measurements
# is a pause, the length of which can be set with the
variable "sleeptime"
try:
    while True:
        print ('---------------------------------------')
        print ("Temperature:", TemperatureEvaluation(), "C")
        time.sleep(sleeptime)
except KeyboardInterrupt:
    GPIO.cleanup()
```

Now save the file with the key combination **CTRL+O**, confirm with **Enter** and then exit the editor with the combination **CTRL+X**.

Alternatively, you can download the program file **here** and copy it manually to your Raspberry Pi.

Now you can execute the file with the following command:

```
sudo python3 LK-Temp2.py
```

4. USAGE WITH THE ARDUINO

To use the sensor with your Arduino, the library installation is required first. For this we recommend you the OneWire and DallasTemperature libraries that we have customized.

You can download the libraries **here**.

First unzip the downloaded ZIP archive. Copy both folders into the Arduino library directory. directory. This is located in the following location: **C:\Users\[YOUR USERNAME]\Dokumente\Arduino\libraries**

After you have connected the sensor to your Arduino, you can transfer the corresponding program file. Copy the following program example into your Arduino IDE and transfer it to your Arduino:

```
// Required libraries are imported
#include <DallasTemperature.h>
#include <OneWire.h>

// The input pin to which the sensor module is connected is
declared here
#define LKTemp2 4

// Libraries are configured
OneWire oneWire(LKTemp2);
DallasTemperature sensors(&oneWire);

void setup() {
    // Initialization Serial output
    Serial.begin(9600);
    Serial.println("LK-Temp2 temperature measurement");
    // Sensor is initialized
    sensors.begin();
}

// Main program loop
void loop()
{
    // Temperature measurement is started...
    sensors.requestTemperatures();
    // ... and measured temperature is printed
    Serial.print("Temperature: ");
    Serial.print(sensors.getTempCByIndex(0));
    Serial.println(" C");
    delay(1000); // 1s pause until next measurement
}
```

Alternatively you can download the program file **here**.

After you have transferred the file to your Arduino, the temperature measurement is started automatically and the results are output via the serial monitor of your Arduino IDE.

5. INFORMATION & TAKE-BACK OBLIGATIONS

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

Symbol on electrical and electronic equipment:
This crossed-out trash can means that electrical and electronic equipment does **not** belong in the household trash. You must hand in the old equipment at a collection point. Before handing in, you must separate used batteries and accumulators that are not enclosed in the old device from the old device.

Return options:
As an end user, when you purchase a new appliance, you can return your old appliance (which performs essentially the same function as the new one purchased from us) for disposal free of charge. Small appliances with no external dimensions larger than 25 cm can be returned in normal household quantities, regardless of the purchase of a new appliance.

Possibility return to our company location during opening hours:
SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn

Possibility return in your area:
We will send you a parcel stamp with which you can return the device to us free of charge. To do this, please contact us by e-mail at Service@joy-it.net or by phone.

Packaging information:
Please pack your old device securely for transport. 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.

6. SUPPORT

We are also there for you after the purchase. If any questions remain or problems arise, we are also available to assist you via e-mail, telephone and ticket support system.

E-Mail: service@joy-it.net
Ticket-System: http://support.joy-it.net
Phone: +49 (0)2845 98469 – 66 (10 - 17 Uhr)

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

Published: 2025.06.02