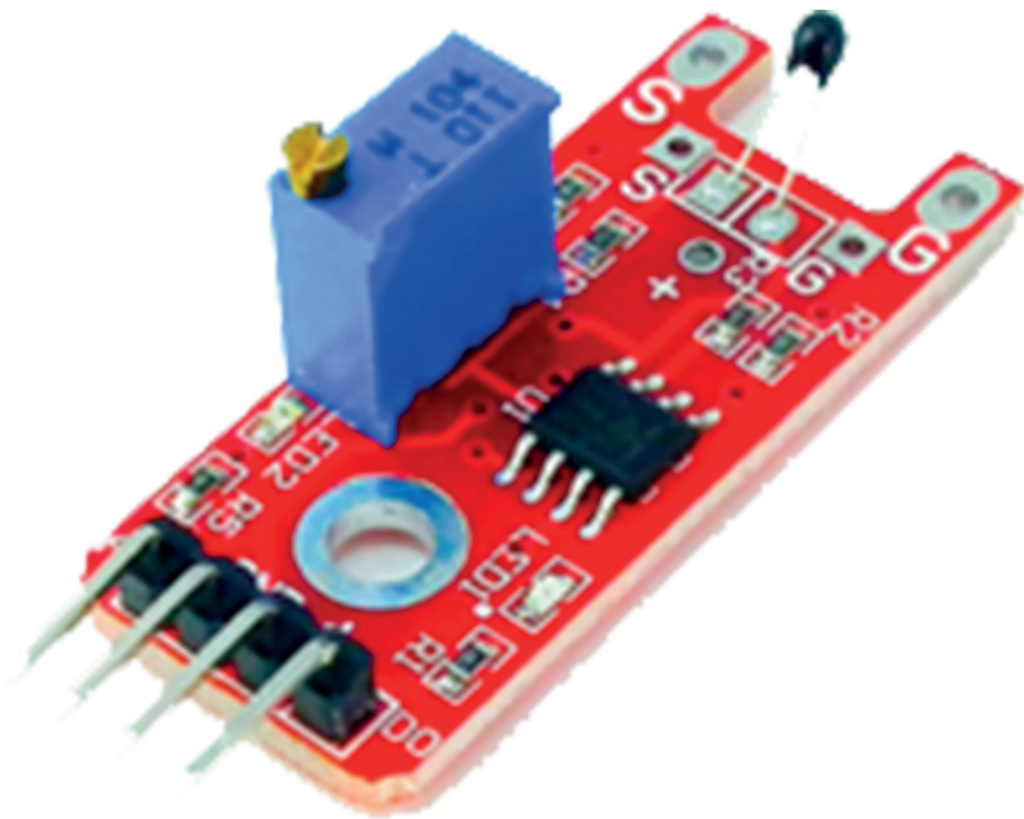


Thermistor Sensor Modul Datenblatt



Contents:

- 1. Technical data**
- 2. Pinout**
- 3. Functionality of the sensor**
- 5. Code example Arduino**
- 6. Code example Raspberry Pi**

1. Technical data

Temperature measurement range: -55°C / $+125^{\circ}\text{C}$ This module includes a NTC Thermistor - its resistance falls with higher temperature.

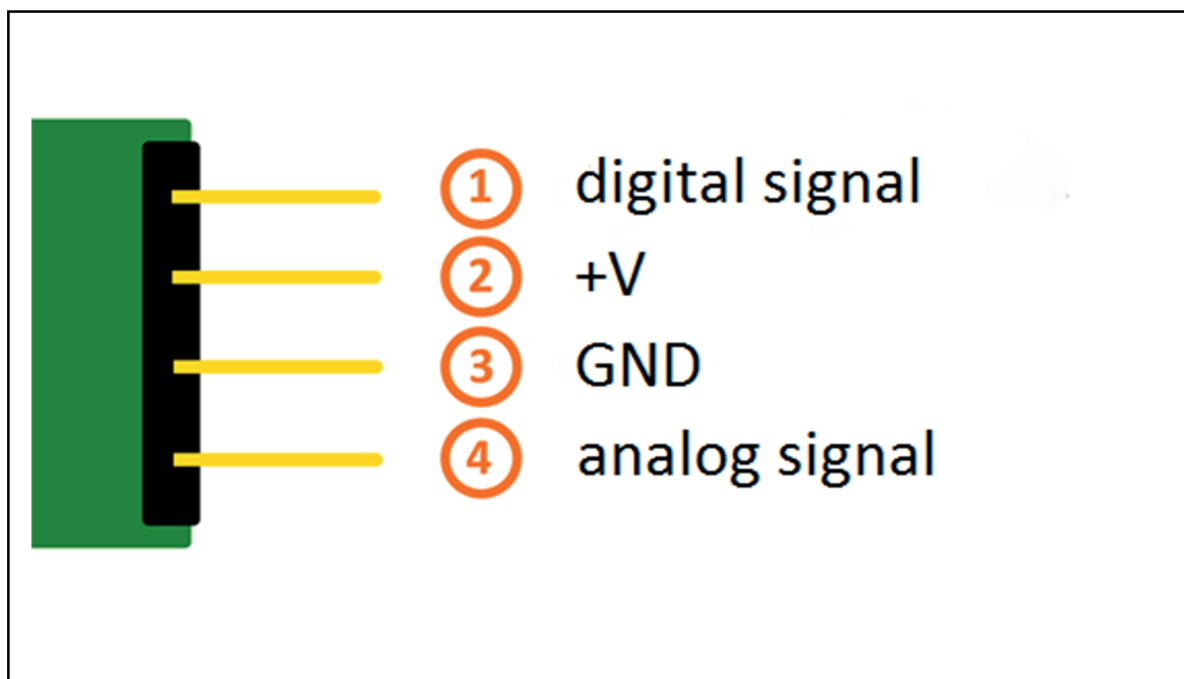
Digital Out: While measuring a temperature which is higher than the limit value, it will be shown here - you can set the limit value via potentiometer

Analog Out: Direct measurement of the sensor unit

LED1: Shows that the sensor is receiving power

LED2: Shows that a magnetic field was detected

2. Pinout



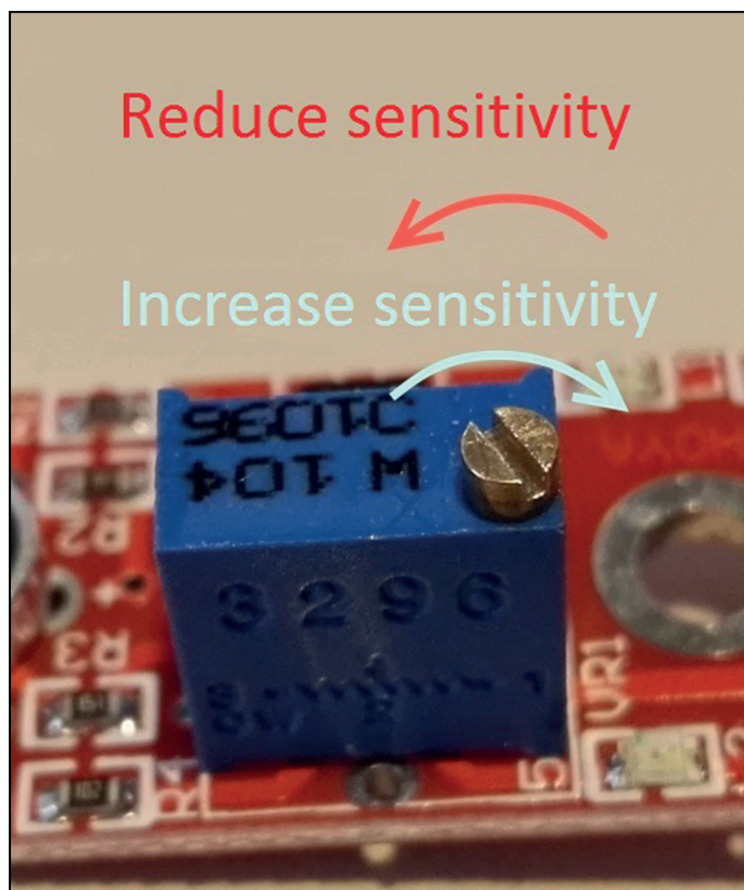
3. Functionality of the sensor

The sensor has 3 main components on its circuit board. First, the sensor unit at the front of the module which measures the area physically and sends an analog signal to the second unit, the amplifier. The amplifier amplifies the signal, according to the resistant value of the potentiometer, and sends the signal to the analog output of the module.

The third component is a comparator which switches the digital out and the LED if the signal falls under a specific value.

You can control the sensitivity by adjusting the potentiometer.

Please notice: The signal will be inverted; that means that if you measure a high value, it is shown as a low voltage value at the analog output.



This sensor doesn't show absolute values (like exact temperature in °C or magneticfield strenght in mT). It is a relative measurement: you define an extreme value to a given normal environment situation and a signal will be send if the measurement exceeds the extreme value.

5. Code example Arduino

The program reads the current voltage value which will be measured at the output pin and shows it via serial interface.

Additionally, the status of the digital pin will be shown at the terminal which means if the extreme value was exceeded or not.

```
1 // Declaration and initialization of the input pins
2 int Analog_Eingang = A0; // X-axis-signal
3 int Digital_Eingang = 3; // Button
4
5 void setup ()
6 {
7   pinMode (Analog_Eingang, INPUT);
8   pinMode (Digital_Eingang, INPUT);
9
10  Serial.begin (9600); // serial output with 9600 bps
11 }
12
13 // The program reads the current values at the input pins
14 // and outputs them at the serial output
15 void loop ()
16 {
17   float Analog;
18   int Digital;
19
20   // Current values will be read and converted to voltage
21   Analog = analogRead (Analog_Eingang) * (5.0 / 1023.0);
22   Digital = digitalRead (Digital_Eingang);
23
24   //... and outputted here
25   Serial.print ("Analog voltage value:"); Serial.print (Analog, 4); Serial.print ("V, ");
26   Serial.print ("Extreme value:");
27
28   if(Digital==1)
29   {
30     Serial.println (" reached");
31   }
32   else
33   {
34     Serial.println (" not yet reached");
35   }
36   Serial.println ("-----");
37   delay (200);
38 }
```

Connections Arduino:

digital signal= [Pin 3]

+V = [Pin 5V]

GND= [Pin GND]

analog Signal = [Pin 0]