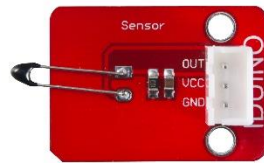
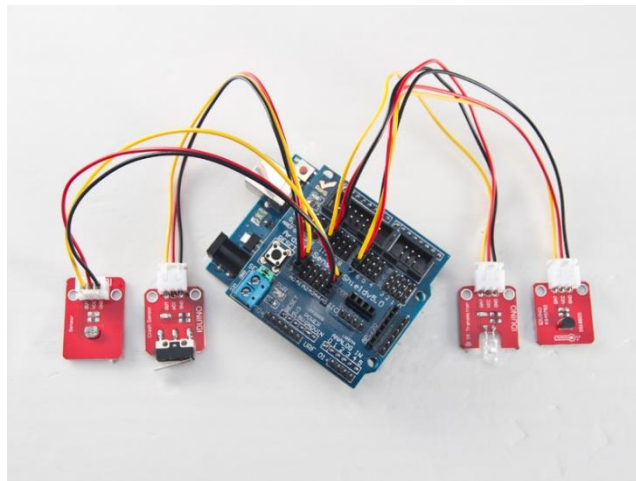


Easy Analog Temperature Sensor(SE026)



1. Introduction

A thermistor is a type of resistor whose resistance is dependent on temperature, more so than in standard resistors. The word is a portmanteau of thermal and resistor. Thermistors are widely used as inrush current limiter, temperature sensors (NTC type typically), self-resetting overcurrent protectors, and self-regulating heating elements. It's similar with the Analog Temperature Sensor (ST1147), the difference is that this module has one indicator light, which would be on when this module's voltage signal is changed. And, this module has integrated 3-pin terminal, which can be simply and tidily connected with Arduino sensor expansion board, like the following picture:



The Module's feature as below:

Feature	Value
Model No.	NTC-MF52 3950
Temperature Range	-55°C~+125°C
Accuracy	+/- 0.5°C
Pull-up resistor	10KΩ

2.Pinout

Pin	Description
OUT	Signal pin

GND	Gnd
VCC	Vcc(reference voltage:5V DC)

Temperature convert Formula

Here we use Steinhart–Hart equation to calculate the corresponding temperature. The equation is

$$\frac{1}{T} = A + B \ln(R) + C[\ln(R)]^3,$$

where:

T is the temperature (in Kelvins)

R is the resistance at T (in ohms)

A , B , and C are the Steinhart–Hart coefficients which vary depending on the type and model of thermistor and the temperature range of interest. (The most general form of the applied equation contains a $[\ln(R)]^2$ term, but this is frequently neglected because it is typically much smaller than the other coefficients).

Note: For this module, the recommended coefficients of A, B, C are

A equals 0.001129148;

B equals 0.000234125;

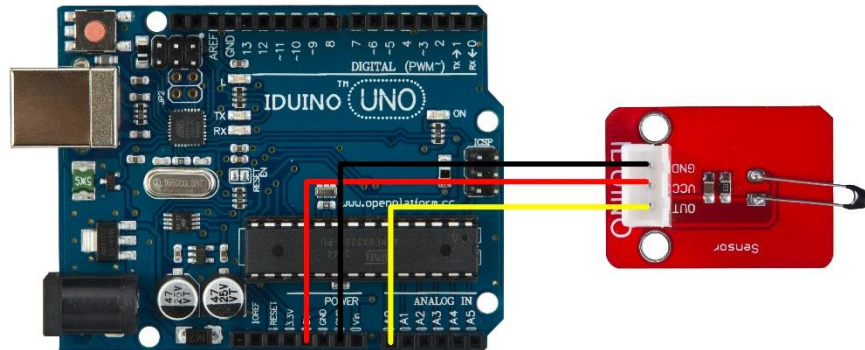
C equals 0.0000000876741;

More, the same item products has a little bit different A, B, C coefficients, which depends your environmental temperature. If the recommended coefficients are not accurate enough, you'd better amend the A, B, C coefficients by Thermistor Calculator tool.

3 Example

This is a simple code for the NTC thermistor module, Wire as below:

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Example code :

*****Code begin*****

```
#include <math.h>
double Thermister(int RawADC) {
double Temp;
Temp = log(((10240000/RawADC) - 10000));
Temp = 1 / (0.001129148 + (0.000234125 + (0.0000000876741 * Temp * Temp ))*
Temp );
Temp = Temp - 273.15;
return Temp;
}
void setup() {
Serial.begin(9600);
}
void loop()
{ Serial.print(Thermister(analogRead(0)));
  Serial.println("c");
  delay(1000); }
```

*****Code End*****