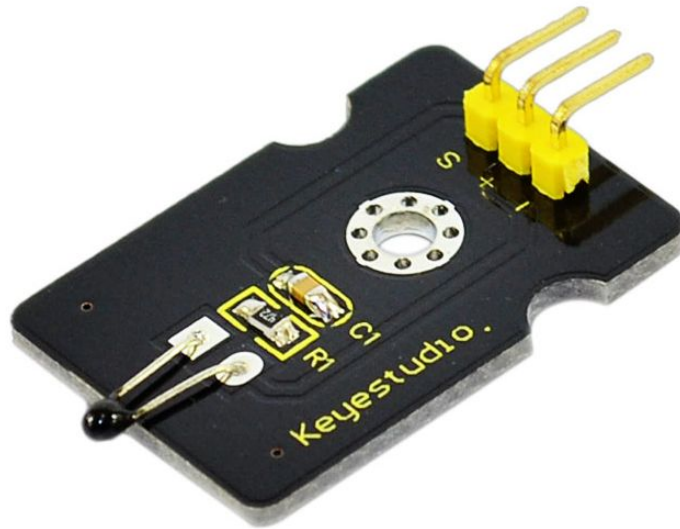


# keyestudio

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## Analog temperature sensor



### Introduction

This module is based on the working principle of a thermistor (resistance varies with temperature change in the environment). It can sense temperature change in its surrounding and send the data to the analog IO in the Arduino board. All we need to do is to convert the sensor output data to degrees Celsius temperature by simple programming and display it. It's both convenient and effective, and it's widely applied in gardening, home alarm system and other devices.

### Specification

Interface type: analog

Working voltage: 5V

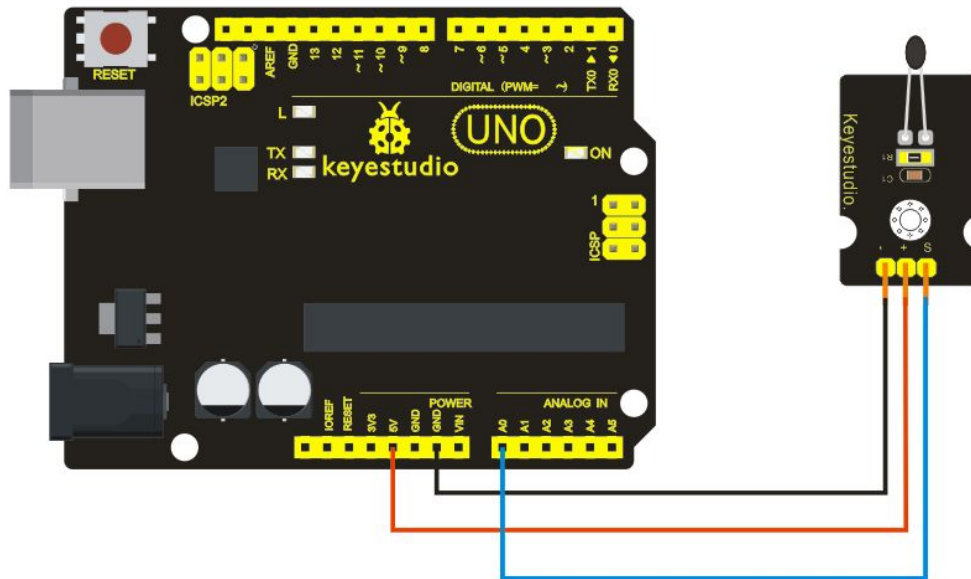
Temperature range:  $-55^{\circ}\text{C} \sim 315^{\circ}\text{C}$

Size: 30\*20mm

Weight: 3g

### Connection Diagram

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## Sample Code

```
void setup()
{Serial.begin(9600);
}
// the loop routine runs over and over again forever:
void loop()
{int sensorValue = analogRead(A0);
Serial.println(sensorValue);
  delay(1); }
```

We can see that the analog value is changing according to the temperature change in the environment. But it's not very obvious. Let's solve this by using the following equation. The value read from the serial port is similar to normal temperature, eg. The temperature right now is 30C.

```
#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; // Convert Kelvin to Celcius
return Temp;
}
void setup()
{Serial.begin(9600);
} void loop() { Serial.print(Thermister(analogRead(0))); // display Fahrenheit Serial.println("c");
delay(500);
}
```