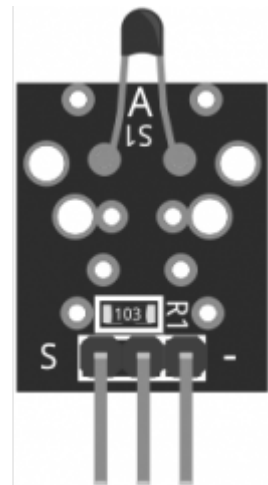# Analog Temperature Sensor module

Analog Temperature Sensor module measures ambient temperature based on resistance of the thermistor.
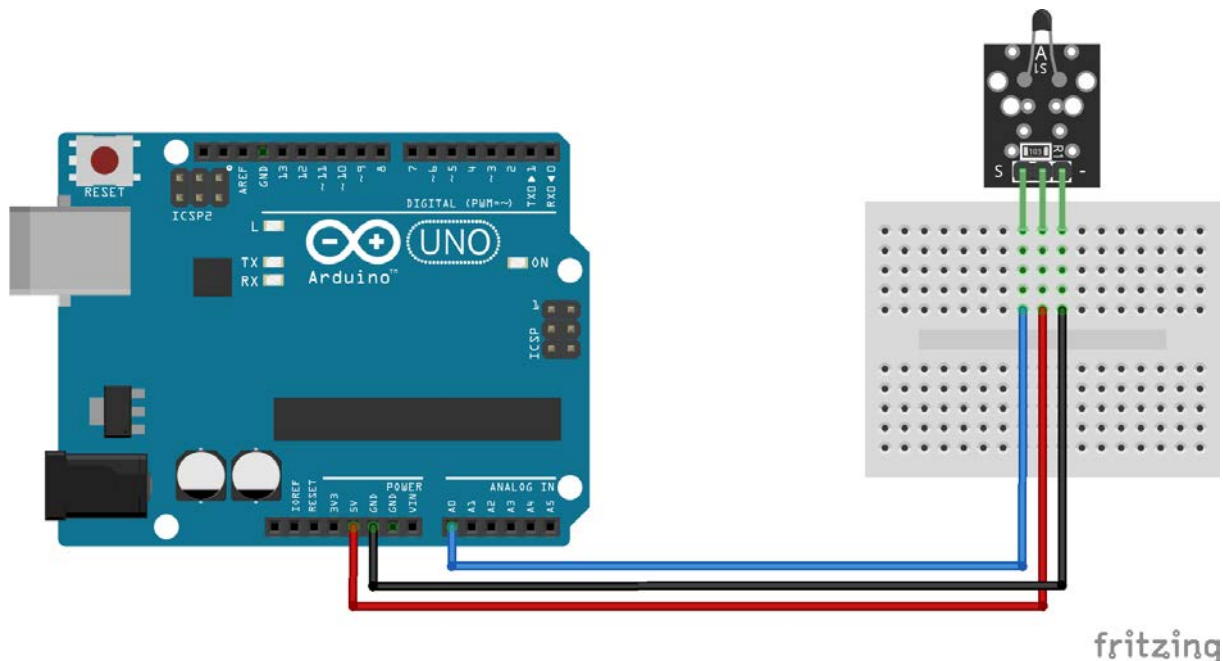
The Sensor module consists of a NTC thermistor and a 10 kΩ resistor. The resistance of the thermistor varies with surrounding temperature. We'll use the Steinhart–Hart equation to derive precise temperature of the thermistor.

Operating Voltage	5V
Temperature	-55°C to 125°C [-67°F to 257°F]
Accuracy	±0.5°C

Pinout and Connection to Arduino

Connect board's power line (middle) and ground (-) to 5V and GND respectively. Connect signal (S) to pin A0 on the Arduino.

Arduino Example Sketch

The following Arduino Sketch will derive the temperature of the thermistor using the Steinhart-Hart equation implemented in the function Thermister.

```
#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))); //read pin A0
        Serial.println("c");
        delay(500);
}
```