

18B20 Temperature Sensor V2 SKU: DFR0024



From Robot Wiki

Contents

- [1 Introduction](#)
- [2 Specification](#)
- [3 Connection Diagram](#)
- [4 Sample Code](#)

Introduction

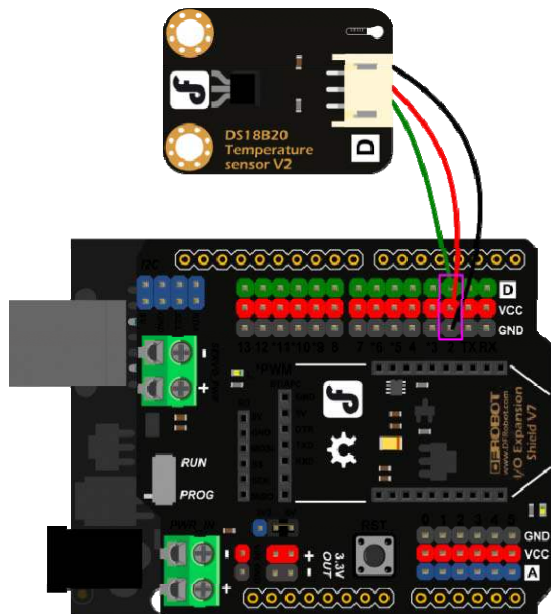
DS18B20 is a digital temperature sensor which is from DALLAS U.S. It can be used to quantify the environmental temperature testing.

The temperature range $-55 \sim +125$ °C, the inherent temperature resolution of 0.5 °C, support multi-point networking mesh. Three DS18B20 can be deployed on three lines, to achieve multi-point temperature measurement. It has a 9-12 bit serial output.

Specification

- Supply Voltage: 3.3V to 5V
- Temperature range : -55 °C \sim $+125$ °C
- Interface: Digital
- Size: 22x32mm

Connection Diagram



Sample Code

```
#include <OneWire.h>

int DS18S20_Pin = 2; //DS18S20 Signal pin on digital 2

//Temperature chip i/o
OneWire ds(DS18S20_Pin); // on digital pin 2

void setup(void) {
  Serial.begin(9600);
}

void loop(void) {
```

```
float temperature = getTemp();
Serial.println(temperature);

delay(100); //just here to slow down the output so it is easier to read
}

float getTemp(){
    //returns the temperature from one DS18S20 in DEG Celsius

    byte data[12];
    byte addr[8];

    if ( !ds.search(addr)) {
        //no more sensors on chain, reset search
        ds.reset_search();
        return -1000;
    }

    if ( OneWire::crc8( addr, 7) != addr[7]) {
        Serial.println("CRC is not valid!");
        return -1000;
    }

    if ( addr[0] != 0x10 && addr[0] != 0x28) {
        Serial.print("Device is not recognized");
        return -1000;
    }

    ds.reset();
    ds.select(addr);
    ds.write(0x44,1); // start conversion, with parasite power on at the end
```

```
byte present = ds.reset();
ds.select(addr);
ds.write(0xBE); // Read Scratchpad

for (int i = 0; i < 9; i++) { // we need 9 bytes
  data[i] = ds.read();
}

ds.reset_search();

byte MSB = data[1];
byte LSB = data[0];

float tempRead = ((MSB << 8) | LSB); //using two's compliment
float TemperatureSum = tempRead / 16;

return TemperatureSum;
```

```
}
```