

# Keyes DS18B20 Sensor Module

Temperature Sensor

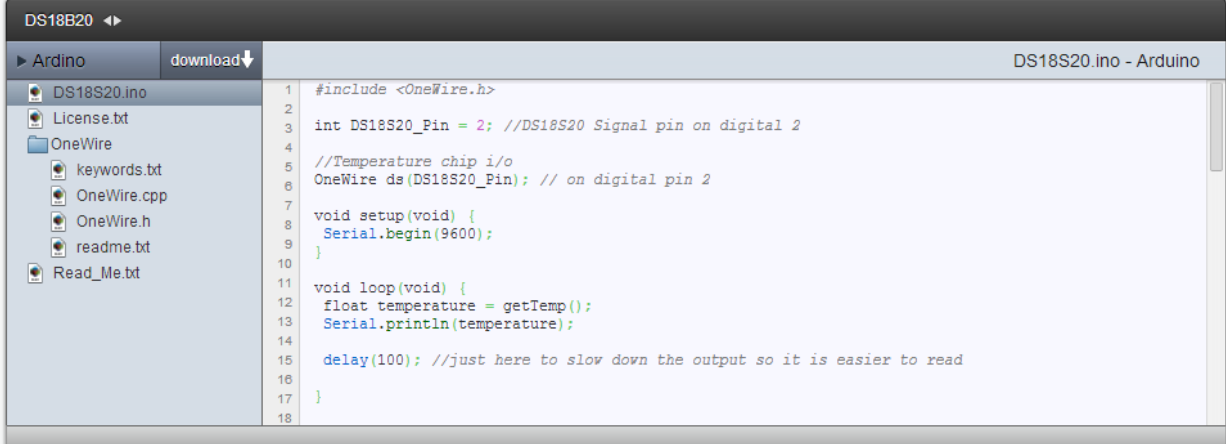
## Code

The DS18B20 sensor module is a temperature sensor, accurate over a wide range of temperatures.

The code for this sensor requires an Arduino library add-on called OneWire.

Onewire can both be found at <http://bildr.org/2011/07/ds18b20-arduino/>

Scroll to here



```
DS18B20.ino - Arduino
1 #include <OneWire.h>
2
3 int DS18S20_Pin = 2; //DS18S20 Signal pin on digital 2
4
5 //Temperature chip i/o
6 OneWire ds(DS18S20_Pin); // on digital pin 2
7
8 void setup(void) {
9     Serial.begin(9600);
10 }
11
12 void loop(void) {
13     float temperature = getTemp();
14     Serial.println(temperature);
15     delay(100); //just here to slow down the output so it is easier to read
16 }
17
18
```

Click download. A zip file will download containing the code and OneWire.

All you need to do is copy this folder into your Arduino library folder. You will probably find your library folder in start/documents/Arduino/libraries

## Code

The code for this sensor can be found at the same site you downloaded Onewire from. You can also just copy/paste it from here.

```
#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;  
  
}
```

## Setup

To hook up your sensor, plug it into a breadboard.

Connect the 5v of your Arduino to the middle prong.

Attach the ground of your Arduino to the leftmost prong on the circuit board (marked with a minus).

Connect the digital 2 port to the right most prong on the circuit board (marked with an S).

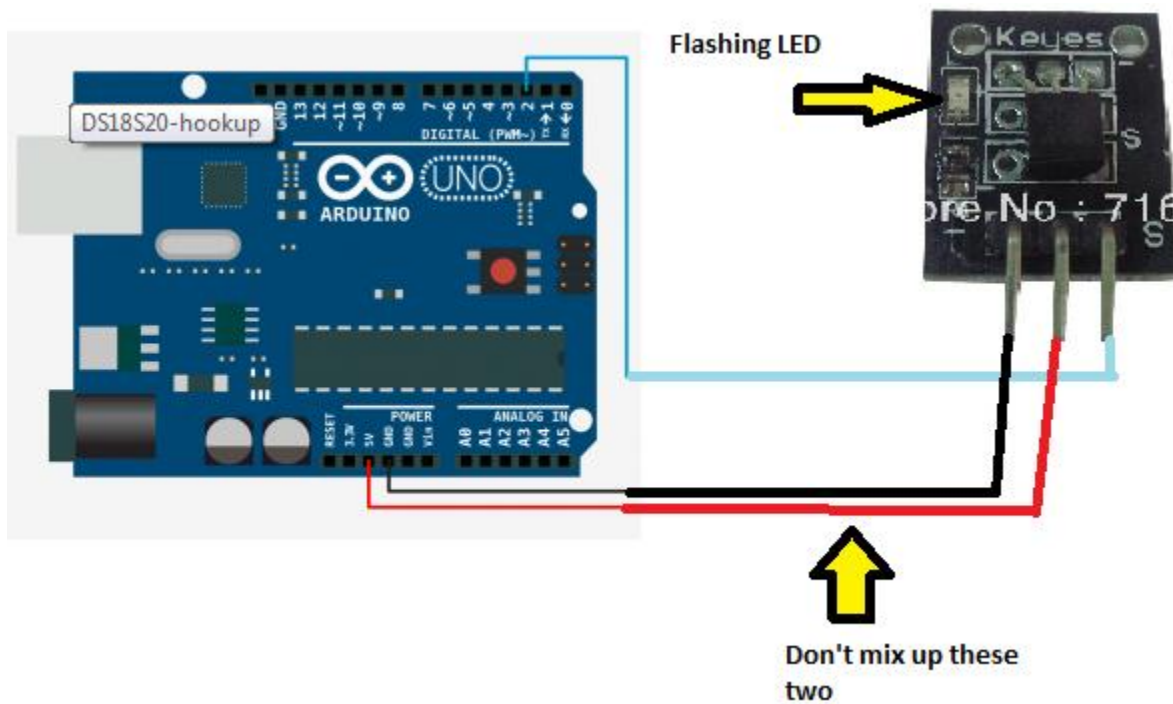
Upload your code and you should be ready to go. Open the serial monitor to read the temperature.

If the board is working, there should be a bright flashing LED on the sensor's board. If the LED is glowing dimly, you have something plugged in wrong. Unplug the board and check your wiring.

**If the sensor begins to heat up/smell, immediately unplug it. Something is hooked up wrong and you will damage/break the sensor if current continues to run through it.**

If your sensor does not have a circuit board attached, these instructions will still work, but you may need to add in a resistor. For more information on this, code, or onewire please visit <http://bildr.org/2011/07/ds18b20-arduino/>

### With Board



Without board

