Gravity Waterproof DS18B20 Temperature Sensor Kit

Overview

This is a waterproofed version of the DS18B20 Arduino Temperature sensor. Handy for when you need to measure something far away, or in wet conditions. While the sensor is good up to 125℃ the cable is jacketed in PVC so we suggest keeping it under 100℃. Because they are digital, you don't get any signal degradation even over long distances! The DS18B20 provides 9 to 12-bit (configurable) temperature readings over a 1-Wire interface, so that only one wire (and ground) needs to be connected from a central microprocessor. Usable with 3.0-5.5V systems.

Because each DS18B20 contains a unique silicon serial number, multiple DS18B20s can exist on the same 1-Wire bus. This allows for placing temperature sensors in many different places. Applications where this feature is useful include HVAC environmental controls, sensing temperatures inside buildings, equipment or machinery, and process monitoring and control.

Order Code

Order Code	Brand	Description
E30001-001	DFRobot	Gravity Waterproof DS18B20 Temperature Sensor Kit

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Specification

- Usable with 3.0V to 5.5V power/data
- ±0.5℃ Accuracy from -10℃ to +85℃
- Usable temperature range: -55 to 125℃ (-67℉ to +257℉)
- 9 to 12 bit selectable resolution
- Uses 1-Wire interface- requires only one digital pin for communication
- Unique 64 bit ID burned into chip
- Multiple sensors can share one pin
- Temperature-limit alarm system
- Query time is less than 750ms
- 3 wires interface:
- Red wire - VCC
- Black wire - GND
- Yellow wire - DATA
- Stainless steel tube 6mm diameter by 35mm long
- Cable diameter: 4mm
- Length: 90cm

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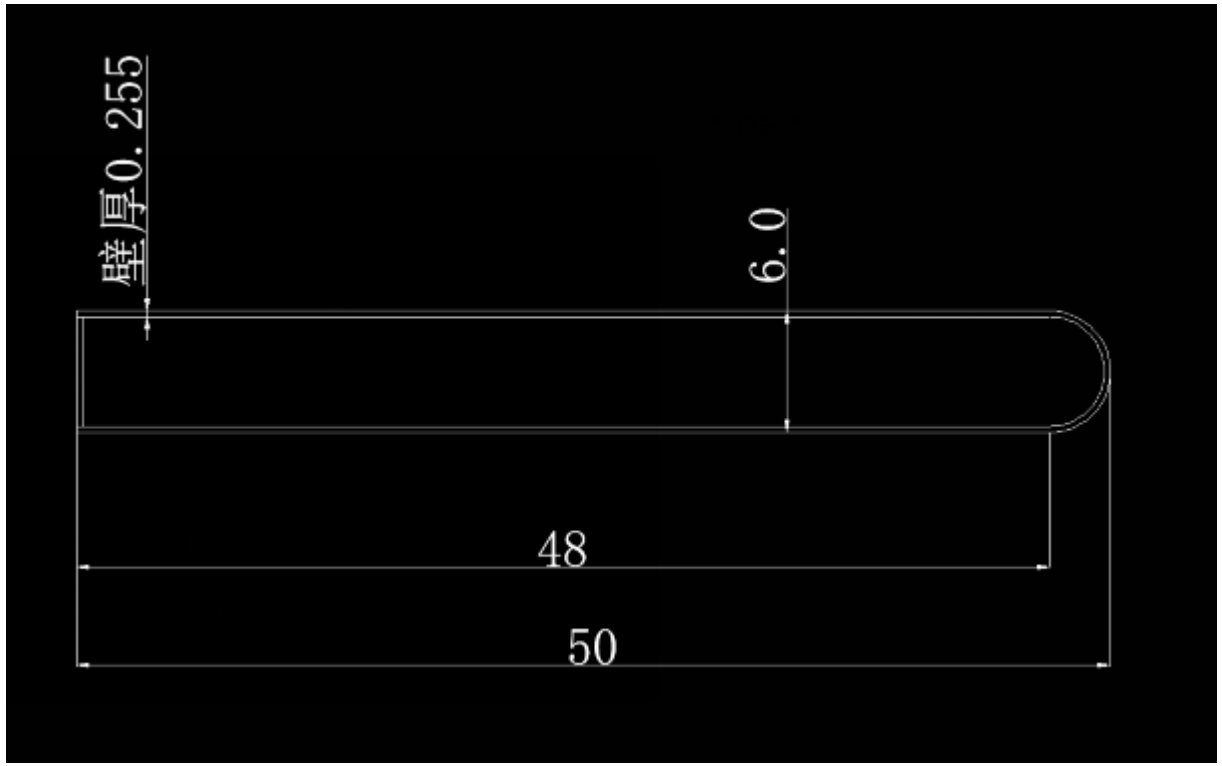
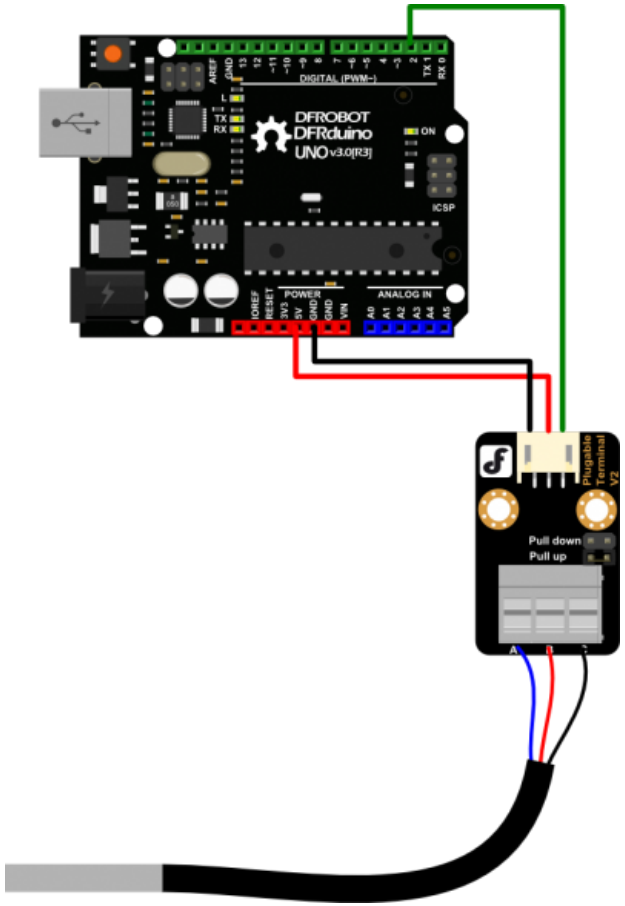
Dimensional Drawing



Sensor Connection

This sensor requires a 4.7K Ohm resistor between the voltage and Signal pin. as seen in the picture below.



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

}
```

Sample Code

```
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;
  }
```

Sample Code

```
  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;

}
```

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Documents and Files

- Software sample code download
- DS18B20 Datasheet

Revision History

Date	Revision	Change description
30/10/2025	1.0	Initial release