

## DS18B20 Digital temperature sensor + extras

PRODUCT ID: 374

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DESCRIPTION

TECHNICAL DETAILS

## DESCRIPTION

These 1-wire digital temperature sensors are fairly precise ( $\pm 0.5^{\circ}\text{C}$  over much of the range) and can give up to 12 bits of precision from the onboard digital-to-analog converter. They work great with any microcontroller using a single digital pin, and you can even connect multiple ones to the same pin, each one has a unique 64-bit ID burned in at the factory to differentiate them. Usable with 3.0-5.0V systems.

The only downside is they use the Dallas 1-Wire protocol, which is somewhat complex, and requires a bunch of code to parse out the communication. There's a great Arduino library for 1-Wire, but some microcontrollers do not have support for 1-Wire so be sure to check!

We toss in a 4.7k resistor, which is required as a pullup from the DATA to VCC line when using the sensor. We don't have a detailed tutorial up yet but you can get started by using the [Dallas Temperature Control Arduino library](#) which requires also the [OneWire Library](#).

## TECHNICAL DETAILS

Technical specs:

- Usable temperature range:  $-55$  to  $125^{\circ}\text{C}$  ( $-67^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$ )
- 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
- $\pm 0.5^{\circ}\text{C}$  Accuracy from  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Temperature-limit alarm system

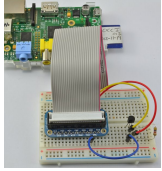
- Query time is less than 750ms
- Usable with 3.0V to 5.5V power/data

Downloads:

[DS18B20 Datasheet](#)



## LEARN



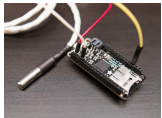
[Adafruit's Raspberry Pi Lesson 11. DS18B20 Temperature Sensing](#)

Measure temperature with your Raspberry Pi using the DS18B20



[Large Pi-based Thermometer and Clock](#)

Build a large LED Thermometer / Clock using a Raspberry Pi



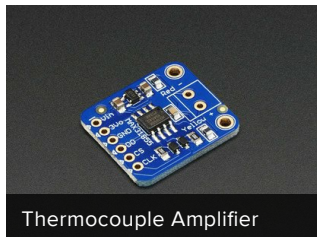
[Using DS18B20 Temperature Sensor with CircuitPython](#)

How to connect and use a DS18B20 one-wire temperature sensor with CircuitPython!

## MAY WE ALSO SUGGEST...



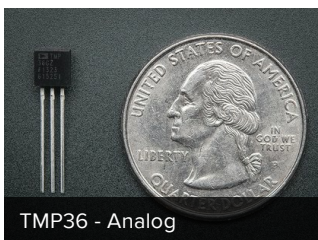
10K Precision Epoxy



Thermocouple Amplifier



Thermocouple Type-K Glass



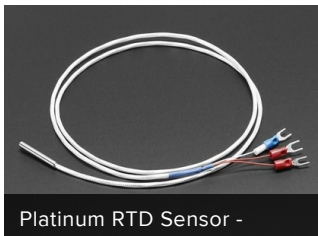
TMP36 - Analog



Sensor pack 900



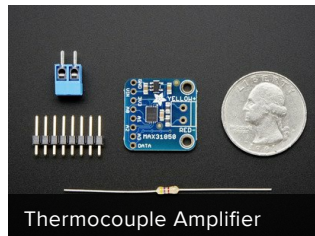
High Temp Waterproof



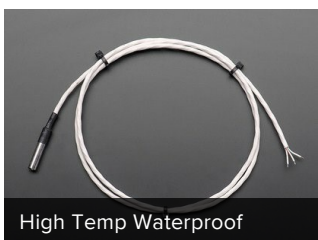
Platinum RTD Sensor -



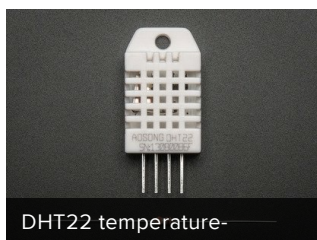
Analog Output K-Type



Thermocouple Amplifier



High Temp Waterproof



DHT22 temperature-



Adafruit PT100 RTD

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