



DS18B20 Digital temperature sensor + extras

Product ID: 374



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°C (-67°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°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](#)

