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# **AdafruitDS18X20 Library Documentation**

***Release 1.0***

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CircuitPython driver for Dallas 1-Wire temperature sensor.



# CHAPTER 1

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## Dependencies

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This driver depends on:

- [Adafruit CircuitPython](#)
- [Adafruit OneWire](#)

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the [Adafruit library and driver bundle](#).





## CHAPTER 2

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### Installing from PyPI

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On supported GNU/Linux systems like the Raspberry Pi, you can install the driver locally [from PyPI](#). To install for current user:

```
pip3 install adafruit-circuitpython-ds18x20
```

To install system-wide (this may be required in some cases):

```
sudo pip3 install adafruit-circuitpython-ds18x20
```

To install in a virtual environment in your current project:

```
mkdir project-name && cd project-name
python3 -m venv .env
source .env/bin/activate
pip3 install adafruit-circuitpython-ds18x20
```



## CHAPTER 3

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### Usage Example

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```
import board
from adafruit_owewire.bus import OneWireBus
from adafruit_ds18x20 import DS18X20
ow_bus = OneWireBus(board.D2)
ds18 = DS18X20(ow_bus, ow_bus.scan()[0])
ds18.temperature
```



## CHAPTER 4

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### Contributing

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Contributions are welcome! Please read our [Code of Conduct](#) before contributing to help this project stay welcoming.



## CHAPTER 5

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### Documentation

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For information on building library documentation, please check out [this guide](#).





## 6.1 Simple test

Ensure your device works with these simple tests.

Listing 1: examples/ds18x20\_simpletest.py

```
1  # Simple demo of printing the temperature from the first found DS18x20 sensor every_
   ↪second.
2  # Author: Tony DiCola
3
4  # A 4.7Kohm pullup between DATA and POWER is REQUIRED!
5
6  import time
7  import board
8  from adafruit_onewire.bus import OneWireBus
9  from adafruit_ds18x20 import DS18X20
10
11
12  # Initialize one-wire bus on board pin D5.
13  ow_bus = OneWireBus(board.D5)
14
15  # Scan for sensors and grab the first one found.
16  ds18 = DS18X20(ow_bus, ow_bus.scan()[0])
17
18  # Main loop to print the temperature every second.
19  while True:
20      print('Temperature: {0:0.3f}C'.format(ds18.temperature))
21      time.sleep(1.0)
```

Listing 2: examples/ds18x20\_asyncntest.py

```
1  # Simple demo of printing the temperature from the first found DS18x20 sensor every_
   ↪second.
2  # Using the asynchronous functions start_temperature_read() and
3  # read_temperature() to allow the main loop to keep processing while
4  # the conversion is in progress.
5  # Author: Louis Bertrand, based on original by Tony DiCola
6
7  # A 4.7Kohm pullup between DATA and POWER is REQUIRED!
8
9  import time
10 import board
11 from adafruit_onewire.bus import OneWireBus
12 from adafruit_ds18x20 import DS18X20
13
14
15 # Initialize one-wire bus on board pin D1.
16 ow_bus = OneWireBus(board.D1)
17
18 # Scan for sensors and grab the first one found.
19 ds18 = DS18X20(ow_bus, ow_bus.scan()[0])
20 ds18.resolution = 12
21
22 # Main loop to print the temperature every second.
23 while True:
24     conversion_delay = ds18.start_temperature_read()
25     conversion_ready_at = time.monotonic() + conversion_delay
26     print("waiting", end="")
27     while time.monotonic() < conversion_ready_at:
28         print(".", end="")
29         time.sleep(0.1)
30     print('\nTemperature: {0:0.3f}C\n'.format(ds18.read_temperature()))
31     time.sleep(1.0)
```

## 6.2 adafruit\_ds18x20

Driver for Dallas 1-Wire temperature sensor.

- Author(s): Carter Nelson

**class** adafruit\_ds18x20.DS18X20 (bus, address)

Class which provides interface to DS18X20 temperature sensor.

**read\_temperature()**

Read the temperature. No polling of the conversion busy bit (assumes that the conversion has completed).

**resolution**

The programmable resolution. 9, 10, 11, or 12 bits.

**start\_temperature\_read()**

Start asynchronous conversion, returns immediately. Returns maximum conversion delay [seconds] based on resolution.

**temperature**

The temperature in degrees Celsius.

## CHAPTER 7

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### Indices and tables

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- `modindex`
- `search`



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