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# **Adafruitsht31 Library Documentation**

***Release 1.0***

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CircuitPython module for the SHT31-D temperature and humidity sensor.



# CHAPTER 1

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## Dependencies

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This driver depends on:

- [Adafruit CircuitPython](#)
- [Bus Device](#)

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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### Usage Example

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You must import the library to use it:

```
import adafruit_sht31d
```

This driver takes an instantiated and active I2C object (from the `busio` or the `bitbangio` library) as an argument to its constructor. The way to create an I2C object depends on the board you are using. For boards with labeled SCL and SDA pins, you can:

```
from busio import I2C
from board import SCL, SDA

i2c = I2C(SCL, SDA)
```

Once you have created the I2C interface object, you can use it to instantiate the sensor object:

```
sensor = adafruit_sht31d.SHT31D(i2c)
```

And then you can start measuring the temperature and humidity:

```
print(sensor.temperature)
print(sensor.relative_humidity)
```



## CHAPTER 3

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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 4

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### Building locally

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To build this library locally you'll need to install the `circuitpython-build-tools` package.

```
python3 -m venv .env
source .env/bin/activate
pip install circuitpython-build-tools
```

Once installed, make sure you are in the virtual environment:

```
source .env/bin/activate
```

Then run the build:

```
circuitpython-build-bundles --filename_prefix adafruit-circuitpython-sht31d --library_
↪location .
```

### 4.1 Sphinx documentation

Sphinx is used to build the documentation based on rST files and comments in the code. First, install dependencies (feel free to reuse the virtual environment from above):

```
python3 -m venv .env
source .env/bin/activate
pip install Sphinx sphinx-rtd-theme
```

Now, once you have the virtual environment activated:

```
cd docs
sphinx-build -E -W -b html . _build/html
```

This will output the documentation to `docs/_build/html`. Open the `index.html` in your browser to view them. It will also (due to `-W`) error out on any warning like Travis will. This is a good way to locally verify it will pass.



## 5.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/sht31d\_simpletest.py

```
1 import time
2 import board
3 import busio
4 import adafruit_sht31d
5
6 # Create library object using our Bus I2C port
7 i2c = busio.I2C(board.SCL, board.SDA)
8 sensor = adafruit_sht31d.SHT31D(i2c)
9
10 loopcount = 0
11 while True:
12     print("\nTemperature: %0.1f C" % sensor.temperature)
13     print("Humidity: %0.1f %" % sensor.relative_humidity)
14     loopcount += 1
15     time.sleep(2)
16     # every 10 passes turn on the heater for 1 second
17     if loopcount == 10:
18         loopcount = 0
19         sensor.heater = True
20         print("Sensor Heater status =", sensor.heater)
21         time.sleep(1)
22         sensor.heater = False
23         print("Sensor Heater status =", sensor.heater)
```

## 5.2 adafruit\_sht31d

This is a CircuitPython driver for the SHT31-D temperature and humidity sensor.

- Author(s): Jerry Needell

### 5.2.1 Implementation Notes

#### Hardware:

- Adafruit [Sensiron SHT31-D Temperature & Humidity Sensor Breakout](#) (Product ID: 2857)

#### Software and Dependencies:

- Adafruit CircuitPython firmware for the ESP8622 and M0-based boards: <https://github.com/adafruit/circuitpython/releases>
- Adafruit's Bus Device library: [https://github.com/adafruit/Adafruit\\_CircuitPython\\_BusDevice](https://github.com/adafruit/Adafruit_CircuitPython_BusDevice)

**class** `adafruit_sht31d.SHT31D` (*i2c\_bus*, *address=68*)

A driver for the SHT31-D temperature and humidity sensor.

#### Parameters

- **i2c\_bus** – The `busio.I2C` object to use. This is the only required parameter.
- **address** (*int*) – (optional) The I2C address of the device.

#### **heater**

Control the sensor internal heater.

#### **relative\_humidity**

The measured relative humidity in percent.

#### **reset** ()

Execute a Soft RESET of the sensor.

#### **status**

The Sensor status.

#### **temperature**

The measured relative humidity in percent.



## CHAPTER 6

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### Indices and tables

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