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# Adafruit BME280 Library Documentation

*Release 1.0*

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**Jan 16, 2019**



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## Contents

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|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>Installation and Dependencies</b>   | <b>3</b>  |
| 1.1      | Installing from PyPI . . . . .   | 3         |
| <b>2</b> | <b>Usage Example</b>   | <b>5</b>  |
| <b>3</b> | <b>Contributing</b>  | <b>7</b>  |
| <b>4</b> | <b>Building Locally</b>  | <b>9</b>  |
| 4.1      | Sphinx Documentation . . . . .   | 9         |
| <b>5</b> | <b>Table of Contents</b>   | <b>11</b> |
| 5.1      | Simple test . . . . .  | 11        |
| 5.2      | adafruit_bme280 - Adafruit BME680 - Temperature, Humidity, Pressure & Gas Sensor . . . . . | 12        |
| <b>6</b> | <b>Indices and tables</b>  | <b>13</b> |
|          | <b>Python Module Index</b>   | <b>15</b> |



I2C and SPI driver for the Bosch BME280 Temperature, Humidity, and Barometric Pressure sensor



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## Installation and Dependencies

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This driver depends on:

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

Please ensure that the driver and all dependencies are available on the CircuitPython filesystem. This can be most easily achieved by downloading and installing the latest [Adafruit library and driver bundle](#) on your device.

### 1.1 Installing from PyPI

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-bme280
```

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

```
sudo pip3 install adafruit-circuitpython-bme280
```

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-bme280
```





## CHAPTER 2

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### Usage Example

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```
import board
import digitalio
import busio
import time
import adafruit_bme280

# Create library object using our Bus I2C port
i2c = busio.I2C(board.SCL, board.SDA)
bme280 = adafruit_bme280.Adafruit_BME280_I2C(i2c)

# OR create library object using our Bus SPI port
#spi = busio.SPI(board.SCK, board.MOSI, board.MISO)
#bme_cs = digitalio.DigitalInOut(board.D10)
#bme280 = adafruit_bme280.Adafruit_BME280_SPI(spi, bme_cs)

# change this to match the location's pressure (hPa) at sea level
bme280.sea_level_pressure = 1013.25

while True:
    print("\nTemperature: %0.1f C" % bme280.temperature)
    print("Humidity: %0.1f %" % bme280.humidity)
    print("Pressure: %0.1f hPa" % bme280.pressure)
    print("Altitude = %0.2f meters" % bme280.altitude)
    time.sleep(2)
```



## 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
pip3 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-veml6070 --
↳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
pip3 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/bme280\_simpletest.py

```
1 import time
2
3 import board
4 import busio
5 import adafruit_bme280
6
7 # Create library object using our Bus I2C port
8 i2c = busio.I2C(board.SCL, board.SDA)
9 bme280 = adafruit_bme280.Adafruit_BME280_I2C(i2c)
10
11 # OR create library object using our Bus SPI port
12 #spi = busio.SPI(board.SCK, board.MOSI, board.MISO)
13 #bme_cs = digitalio.DigitalInOut(board.D10)
14 #bme280 = adafruit_bme280.Adafruit_BME280_SPI(spi, bme_cs)
15
16 # change this to match the location's pressure (hPa) at sea level
17 bme280.sea_level_pressure = 1013.25
18
19 while True:
20     print("\nTemperature: %0.1f C" % bme280.temperature)
21     print("Humidity: %0.1f %" % bme280.humidity)
22     print("Pressure: %0.1f hPa" % bme280.pressure)
23     print("Altitude = %0.2f meters" % bme280.altitude)
24     time.sleep(2)
```

## 5.2 adafruit\_bme280 - Adafruit BME680 - Temperature, Humidity, Pressure & Gas Sensor

CircuitPython driver from BME280 Temperature, Humidity and Barometric Pressure sensor

- Author(s): ladyada

**class** adafruit\_bme280.**Adafruit\_BME280**

Driver from BME280 Temperature, Humidity and Barometric Pressure sensor

**altitude**

The altitude based on current `pressure` versus the sea level pressure (`sea_level_pressure`) - which you must enter ahead of time)

**humidity**

The relative humidity in RH %

**pressure**

The compensated pressure in hectoPascals.

**sea\_level\_pressure = None**

Pressure in hectoPascals at sea level. Used to calibrate `altitude`.

**temperature**

The compensated temperature in degrees celsius.

**class** adafruit\_bme280.**Adafruit\_BME280\_I2C** (*i2c, address=<sphinx.ext.autodoc.importer.\_MockObject object>*)

Driver for BME280 connected over I2C

**class** adafruit\_bme280.**Adafruit\_BME280\_SPI** (*spi, cs, baudrate=100000*)

Driver for BME280 connected over SPI



## CHAPTER 6

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### Indices and tables

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- `genindex`
- `modindex`
- `search`



### a

adafruit\_bme280, [11](#)



## A

Adafruit\_BME280 (class in adafruit\_bme280), [12](#)  
adafruit\_bme280 (module), [11](#)  
Adafruit\_BME280\_I2C (class in adafruit\_bme280), [12](#)  
Adafruit\_BME280\_SPI (class in adafruit\_bme280), [12](#)  
altitude (adafruit\_bme280.Adafruit\_BME280 attribute),  
[12](#)

## H

humidity (adafruit\_bme280.Adafruit\_BME280 attribute),  
[12](#)

## P

pressure (adafruit\_bme280.Adafruit\_BME280 attribute),  
[12](#)

## S

sea\_level\_pressure (adafruit\_bme280.Adafruit\_BME280  
attribute), [12](#)

## T

temperature (adafruit\_bme280.Adafruit\_BME280 at-  
tribute), [12](#)