
Adafruit BME280 Library Documentation

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

Installation and Dependencies

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

Usage Example

```
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

Contributing

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

CHAPTER 4

Building Locally

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-venv16070 --
↳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 BME280 - Temperature, Humidity & Barometric Pressure 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 % returns None if humidity measurement is disabled

iir_filter

Controls the time constant of the IIR filter Allowed values are the constants `IIR_FILTER_*`

measurement_time_max

Maximum time in milliseconds required to complete a measurement in normal mode

measurement_time_typical

Typical time in milliseconds required to complete a measurement in normal mode

mode

Operation mode Allowed values are the constants `MODE_*`

overscan_humidity

Humidity Oversampling Allowed values are the constants `OVERSCAN_*`

overscan_pressure

Pressure Oversampling Allowed values are the constants `OVERSCAN_*`

overscan_temperature

Temperature Oversampling Allowed values are the constants `OVERSCAN_*`

pressure

The compensated pressure in hectoPascals. returns None if pressure measurement is disabled

sea_level_pressure = None

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

standby_period

Control the inactive period when in Normal mode Allowed standby periods are the constants `STANDBY_TC_*`

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

Indices and tables

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- `modindex`
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