
Adafruitsgp30 Library Documentation

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A CircuitPython driver for the Sensirion SGP30 gas sensor with eCO2 and TVOC output. This sensor uses I2C!

Installation and Dependencies

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](#).

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-sgp30
```

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

```
sudo pip3 install adafruit-circuitpython-sgp30
```

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-sgp30
```


CHAPTER 2

Usage Notes

See [the guide](#) for wiring and installation instructions.

First, import the library:

```
import busio
import adafruit_sgp30
```

Next, initialize the I2C bus object:

```
import board
i2c_bus = busio.I2C(board.SCL, board.SDA, frequency=100000)
```

Since we have the I2C bus object, we can now use it to instantiate the SGP30 object:

```
sgp30 = adafruit_sgp30.Adafruit_SGP30(i2c_bus)
```

2.1 Reading from the Sensor

To read from the sensor:

```
eCO2, TVOC = sgp30.iaq_measure()
print("eCO2 = %d ppm \t TVOC = %d ppb" % (eCO2, TVOC))
```


CHAPTER 3

Contributing

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

CHAPTER 4

Documentation

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

5.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/sgp30_simpletest.py

```
1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  """ Example for using the SGP30 with CircuitPython and the Adafruit library """
5
6  import time
7  import board
8  import busio
9  import adafruit_sgp30
10
11  i2c = busio.I2C(board.SCL, board.SDA, frequency=100000)
12
13  # Create library object on our I2C port
14  sgp30 = adafruit_sgp30.Adafruit_SGP30(i2c)
15
16  print("SGP30 serial #", [hex(i) for i in sgp30.serial])
17
18  sgp30.iaq_init()
19  sgp30.set_iaq_baseline(0x8973, 0x8AAE)
20
21  elapsed_sec = 0
22
23  while True:
24      print("eCO2 = %d ppm \t TVOC = %d ppb" % (sgp30.eCO2, sgp30.TVOC))
25      time.sleep(1)
26      elapsed_sec += 1
27      if elapsed_sec > 10:
```

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```
28     elapsed_sec = 0
29     print(
30         "**** Baseline values: eCO2 = 0x%x, TVOC = 0x%x"
31         % (sgp30.baseline_eCO2, sgp30.baseline_TVOC)
32     )
```

5.2 adafruit_sgp30

I2C driver for SGP30 Sensirion VoC sensor

- Author(s): ladyada

5.2.1 Implementation Notes

Hardware:

- Adafruit SGP30 Air Quality Sensor Breakout - VOC and eCO2 (Product ID: 3709)

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: <https://github.com/adafruit/circuitpython/releases>
- Adafruit's Bus Device library: https://github.com/adafruit/Adafruit_CircuitPython_BusDevice

class `adafruit_sgp30.Adafruit_SGP30` (*i2c*, *address*=88)

A driver for the SGP30 gas sensor.

Parameters

- **i2c** (*I2C*) – The I2C bus the SGP30 is connected to.
- **address** (*int*) – The I2C address of the device. Defaults to 0x58

Quickstart: Importing and using the SGP30 temperature sensor

Here is one way of importing the `Adafruit_SGP30` class so you can use it with the name `sgp30`. First you will need to import the libraries to use the sensor

```
import busio
import board
import adafruit_sgp30
```

Once this is done you can define your `busio.I2C` object and define your sensor object

```
i2c = busio.I2C(board.SCL, board.SDA, frequency=100000)
sgp30 = adafruit_sgp30.Adafruit_SGP30(i2c)
```

Now you have access to the Carbon Dioxide Equivalent baseline using the `baseline_eCO2` attribute and the Total Volatile Organic Compound baseline using the `baseline_TVOC`

```
eCO2 = sgp30.baseline_eCO2
TVOC = sgp30.baseline_TVOC
```

Ethanol

Ethanol Raw Signal in ticks

H2

H2 Raw Signal in ticks

TVOC

Total Volatile Organic Compound in parts per billion.

baseline_TVOC

Total Volatile Organic Compound baseline value

baseline_eCO2

Carbon Dioxide Equivalent baseline value

eCO2

Carbon Dioxide Equivalent in parts per million

get_iaq_baseline()

Retrieve the IAQ algorithm baseline for eCO2 and TVOC

iaq_init()

Initialize the IAQ algorithm

iaq_measure()

Measure the eCO2 and TVOC

raw_measure()

Measure H2 and Ethanol (Raw Signals)

set_iaq_baseline(eCO2, TVOC)

Set the previously recorded IAQ algorithm baseline for eCO2 and TVOC

set_iaq_humidity(gramsPM3)

Set the humidity in g/m3 for eCO2 and TVOC compensation algorithm

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