# Adafruitsgp30 Library Documentation

***Release 1.0***

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**Jul 09, 2020**

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

# CHAPTER 1

# 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.

CHAPTER 5

# Table of Contents

## 5.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/sgp30_simpletest.py

```
""" Example for using the SGP30 with CircuitPython and the Adafruit library"""

import time
import board
import busio
import adafruit_sgp30

i2c = busio.I2C(board.SCL, board.SDA, frequency=100000)

# Create library object on our I2C port
sgp30 = adafruit_sgp30.Adafruit_SGP30(i2c)

print("SGP30 serial #", [hex(i) for i in sgp30.serial])

sgp30.iaq_init()
sgp30.set_iaq_baseline(0x8973, 0x8AAE)

elapsed_sec = 0

while True:
    print("eCO2 = %d ppm \t TVOC = %d ppb" % (sgp30.eCO2, sgp30.TVOC))
    time.sleep(1)
    elapsed_sec += 1
    if elapsed_sec > 10:
        elapsed_sec = 0
        print(
            "**** Baseline values: eCO2 = 0x%x, TVOC = 0x%x"
```

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```
            % (sgp30.baseline_eCO2, sgp30.baseline_TVOC)
        )
```

## 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 ESP8622 and M0-based 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.

**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**()

Retreive the IAQ algorithm baseline for eCO2 and TVOC

**iaq_init**()

Initialize the IAQ algorithm

**iaq_measure**()

Measure the eCO2 and TVOC

**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

CHAPTER 6

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