

---

# **Adafruit's CCS811 Library Documentation**

*Release 1.0*

**Dean Miller, Scott Shawcroft**

**Mar 20, 2020**



---

## Contents

---

<b>1</b>	<b>Dependencies</b>	<b>3</b>
<b>2</b>	<b>Installing from PyPI</b>	<b>5</b>
<b>3</b>	<b>Usage Notes</b>	<b>7</b>
3.1	Reading Sensor . . . . .	7
<b>4</b>	<b>Contributing</b>	<b>9</b>
<b>5</b>	<b>Documentation</b>	<b>11</b>
<b>6</b>	<b>Table of Contents</b>	<b>13</b>
6.1	Simple test . . . . .	13
6.2	CCS811 - Adafruit CCS811 Air Quality Sensor Breakout - VOC and eCO2 . . . . .	13
<b>7</b>	<b>Indices and tables</b>	<b>15</b>
	<b>Python Module Index</b>	<b>17</b>
	<b>Index</b>	<b>19</b>



CircuitPython driver for the [CCS811](#) air quality sensor.



# CHAPTER 1

---

## Dependencies

---

This driver depends on:

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

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the [Adafruit library and driver bundle](#).





## CHAPTER 2

---

### 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-ccs811
```

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

```
sudo pip3 install adafruit-circuitpython-ccs811
```

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-ccs811
```



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

Of course, you must import the library to use it:

```
import busio
import adafruit_ccs811
```

Next, initialize the I2C bus object.

```
from board import *
i2c_bus = busio.I2C(SCL, SDA)
```

Once you have created the I2C interface object, you can use it to instantiate the CCS811 object

```
ccs = adafruit_ccs811.CCS811(i2c_bus)
```

## 3.1 Reading Sensor

To read the gas sensor simply read the attributes:

```
print("CO2: ", ccs.eco2, " TVOC:", ccs.tvoc)
```



## CHAPTER 4

---

### Contributing

---

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



## CHAPTER 5

---

### Documentation

---

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





## 6.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/ccs811\_simpletest.py

```
1 import time
2 import board
3 import busio
4 import adafruit_ccs811
5
6 i2c = busio.I2C(board.SCL, board.SDA)
7 ccs811 = adafruit_ccs811.CCS811(i2c)
8
9 # Wait for the sensor to be ready
10 while not ccs811.data_ready:
11     pass
12
13 while True:
14     print("CO2: {} PPM, TVOC: {} PPB".format(ccs811.eco2, ccs811.tvoc))
15     time.sleep(0.5)
```

## 6.2 CCS811 - Adafruit CCS811 Air Quality Sensor Breakout - VOC and eCO2

This library supports the use of the CCS811 air quality sensor in CircuitPython.

Author(s): Dean Miller for Adafruit Industries

**Notes:**

#. Datasheet

**class** `adafruit_ccs811.CCS811` (*i2c\_bus*, *address=90*)  
CCS811 gas sensor driver.

**Parameters**

- **i2c** (*I2C*) – The I2C bus.
- **addr** (*int*) – The I2C address of the CCS811.

**data\_ready**

True when new data has been read.

**eco2**

Equivalent Carbon Dioxide in parts per million. Clipped to 400 to 8192ppm.

**error**

True when an error has occurred.

**error\_code**

Error code

**reset** ()

Initiate a software reset.

**set\_environmental\_data** (*humidity*, *temperature*)

Set the temperature and humidity used when computing eCO2 and TVOC values.

**Parameters**

- **humidity** (*int*) – The current relative humidity in percent.
- **temperature** (*float*) – The current temperature in Celsius.

**set\_interrupt\_thresholds** (*low\_med*, *med\_high*, *hysteresis*)

Set the thresholds used for triggering the interrupt based on eCO2. The interrupt is triggered when the value crossed a boundary value by the minimum hysteresis value.

**Parameters**

- **low\_med** (*int*) – Boundary between low and medium ranges
- **med\_high** (*int*) – Boundary between medium and high ranges
- **hysteresis** (*int*) – Minimum difference between reads

**temp\_offset = 0.0**

Temperature offset.

**temperature**

Deprecated since version 1.1.5: Hardware support removed by vendor

Temperature based on optional thermistor in Celsius.

**tvoc**

Total Volatile Organic Compound in parts per billion.

## CHAPTER 7

---

### Indices and tables

---

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



**a**

[adafruit\\_ccs811](#), 13



## A

`adafruit_ccs811` (*module*), 13

## C

`CCS811` (*class in `adafruit_ccs811`*), 13

## D

`data_ready` (*`adafruit_ccs811.CCS811` attribute*), 14

## E

`eco2` (*`adafruit_ccs811.CCS811` attribute*), 14

`error` (*`adafruit_ccs811.CCS811` attribute*), 14

`error_code` (*`adafruit_ccs811.CCS811` attribute*), 14

## R

`reset()` (*`adafruit_ccs811.CCS811` method*), 14

## S

`set_environmental_data()`  
(*`adafruit_ccs811.CCS811` method*), 14

`set_interrupt_thresholds()`  
(*`adafruit_ccs811.CCS811` method*), 14

## T

`temp_offset` (*`adafruit_ccs811.CCS811` attribute*), 14

`temperature` (*`adafruit_ccs811.CCS811` attribute*), 14

`tvoc` (*`adafruit_ccs811.CCS811` attribute*), 14