
AdafruitVEML6070 Library Documentation

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CircuitPython driver for the [VEML6070 UV Index Sensor Breakout](#)

CHAPTER 1

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](#).

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-veml6070
```

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

```
sudo pip3 install adafruit-circuitpython-veml6070
```

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-veml6070
```


CHAPTER 3

Usage Example

```
import time
import board
from adafruit_veml6070 import VEML6070

with board.I2C() as i2c:
    uv = VEML6070(i2c)
    # Alternative constructors with parameters
    #uv = VEML6070(i2c, 'VEML6070_1_T')
    #uv = VEML6070(i2c, 'VEML6070_HALF_T', True)

    # take 10 readings
    for j in range(10):
        uv_raw = uv.uv_raw
        risk_level = uv.get_index(uv_raw)
        print('Reading: {0} | Risk Level: {1}'.format(uv_raw, risk_level))
        time.sleep(1)
```


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/veml6070_simpletest.py

```
1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  # VEML6070 Driver Example Code
5
6  import time
7  import board
8  import adafruit_veml6070
9
10 with board.I2C() as i2c:
11     uv = adafruit_veml6070.VEML6070(i2c)
12     # Alternative constructors with parameters
13     # uv = adafruit_veml6070.VEML6070(i2c, 'VEML6070_1_T')
14     # uv = adafruit_veml6070.VEML6070(i2c, 'VEML6070_HALF_T', True)
15
16     # take 10 readings
17     for j in range(10):
18         uv_raw = uv.uv_raw
19         risk_level = uv.get_index(uv_raw)
20         print("Reading: {0} | Risk Level: {1}".format(uv_raw, risk_level))
21         time.sleep(1)
```

6.2 adafruit_veml6070

CircuitPython library to support VEML6070 UV Index sensor.

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6.2.1 Implementation Notes

Hardware:

- Adafruit [VEML6070 UV Index Sensor Breakout](#) (Product ID: 2899)

Software and Dependencies:

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

Notes:

1. Datasheet: <https://cdn-learn.adafruit.com/assets/assets/000/032/482/original/veml6070.pdf>

class `adafruit_veml6070.VEML6070` (*i2c_bus*, *_veml6070_it*='VEML6070_1_T', *ack*=False)
Driver base for the VEML6070 UV Light Sensor

Parameters

- **i2c_bus** (*I2C*) – The I2C bus the device is connected to
- **_veml6070_it** (*str*) – The integration time you'd like to set initially. Available options: `VEML6070_HALF_T`, `VEML6070_1_T`, `VEML6070_2_T`, and `VEML6070_4_T`. The higher the '*x*' value, the more accurate the reading is (at the cost of less samples per reading). Defaults to `VEML6070_1_T` if parameter not passed. To change setting after initialization, `VEML6070.set_integration_time(new_it)`.
- **ack** (*bool*) – The initial setting of ACKnowledge on alert. Defaults to `False` if parameter not passed. To change setting after initialization, use `VEML6070.set_ack(new_ack)`.

Quickstart: Importing and using the device VEML6070

Here is an example of using the `VEML6070` class. First you will need to import the libraries to use the sensor

```
import board
import adafruit_veml6070
```

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

```
i2c = board.I2C() # uses board.SCL and board.SDA
uv = adafruit_veml6070.VEML6070(i2c)
```

Now you have access to the `uv_raw` attribute and the calculate the risk level

```
uv_raw = uv.uv_raw
risk_level = uv.get_index(uv_raw)
```

ack

Turns on or off the ACKnowledge function of the sensor. The ACK function will send a signal to the host when the value of the sensed UV light changes beyond the programmed threshold.

ack_threshold

The ACKnowledge Threshold, which alerts the host controller to value changes greater than the threshold. Available settings are: 0 = 102 steps; 1 = 145 steps. 0 is the default setting.

get_index(_raw)

Calculates the UV Risk Level based on the captured UV reading. Requires the `_raw` argument (from `veml6070.uv_raw()`). Risk level is available for Integration Times (IT) 1, 2, & 4. The result is automatically scaled to the current IT setting.

LEVEL*	UV Index
LOW	0-2
MODERATE	3-5
HIGH	6-7
VERY HIGH	8-10
EXTREME	>=11

- Not to be considered as accurate condition reporting. Calculation is based on VEML6070 Application Notes: <http://www.vishay.com/docs/84310/designingveml6070.pdf>

integration_time

The Integration Time of the sensor, which is the refresh interval of the sensor. The higher the refresh interval, the more accurate the reading is (at the cost of less sampling). The available settings are: `VEML6070_HALF_T`, `VEML6070_1_T`, `VEML6070_2_T`, `VEML6070_4_T`.

sleep()

Puts the VEML6070 into sleep ('shutdown') mode. Datasheet claims a current draw of 1uA while in shutdown.

uv_raw

Reads and returns the value of the UV intensity.

wake()

Wakes the VEML6070 from sleep. `VEML6070.uv_raw` will also wake from sleep.

CHAPTER 7

Indices and tables

- `genindex`
- `modindex`
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