
Adafruit
CIRCUITPYTHON*TS L2561 Library Documentation*
Release 1.0

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CircuitPython driver for TSL2561 Light Sensor.

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

Usage Example

```
>>> import board
>>> import busio
>>> i2c = busio.I2C(board.SCL, board.SDA)
>>> import adafruit_tsl2561
>>> tsl = adafruit_tsl2561.TSL2561(i2c)
>>> tsl.lux
3294.37
```


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
pip 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-tls2561 --
↳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
pip 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/tsl2561_simpletest.py

```
1 import board
2 import busio
3 import adafruit_tsl2561
4
5 # Create the I2C bus
6 i2c = busio.I2C(board.SCL, board.SDA)
7
8 # Create the TSL2561 instance, passing in the I2C bus
9 tsl = adafruit_tsl2561.TSL2561(i2c)
10
11 # Print chip info
12 print("Chip ID = {}".format(tsl.chip_id))
13 print("Enabled = {}".format(tsl.enabled))
14 print("Gain = {}".format(tsl.gain))
15 print("Integration time = {}".format(tsl.integration_time))
16
17 print("Configuring TSL2561...")
18
19 # Enable the light sensor
20 tsl.enabled = True
21
22 # Set gain 0=1x, 1=16x
23 tsl.gain = 0
24
25 # Set integration time (0=13.7ms, 1=101ms, 2=402ms, or 3=manual)
26 tsl.integration_time = 1
27
```

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```

28 print("Getting readings...")
29
30 # Get raw (luminosity) readings individually
31 broadband = tsl.broadband
32 infrared = tsl.infrared
33
34 # Get raw (luminosity) readings using tuple unpacking
35 #broadband, infrared = tsl.luminosity
36
37 # Get computed lux value
38 lux = tsl.lux
39
40 # Print results
41 print("Enabled = {}".format(tsl.enabled))
42 print("Gain = {}".format(tsl.gain))
43 print("Integration time = {}".format(tsl.integration_time))
44 print("Broadband = {}".format(broadband))
45 print("Infrared = {}".format(infrared))
46 print("Lux = {}".format(lux))
47
48 # Disble the light sensor (to save power)
49 tsl.enabled = False

```

5.2 adafruit_tsl2561

CircuitPython driver for TSL2561 Light Sensor.

- Author(s): Carter Nelson

5.2.1 Implementation Notes

Hardware:

- Adafruit TSL2561 Digital Luminosity/Lux/Light Sensor Breakout (Product ID: 439)
- Adafruit STEMMA - TSL2561 Digital Lux / Light Sensor (Product ID: 3611)
- Adafruit Flora Lux Sensor - TSL2561 Light Sensor (Product ID: 1246)

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_tsl2561.TSL2561 (i2c, address=57)

Class which provides interface to TSL2561 light sensor.

broadband

The broadband channel value.

chip_id

A tuple containing the part number and the revision number.

enabled

The state of the sensor.

gain

The gain. 0:1x, 1:16x.

infrared

The infrared channel value.

integration_time

The integration time. 0:13.7ms, 1:101ms, 2:402ms, or 3>manual

luminosity

The overall luminosity as a tuple containing the broadband channel and the infrared channel value.

lux

The computed lux value.

CHAPTER 6

Indices and tables

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- `modindex`
- `search`

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