
AdafruitINA260 Library Documentation

Release 1.0

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Contents

1	Dependencies	3
1.1	Installing from PyPI	3
2	Usage Example	5
3	Contributing	7
4	Building locally	9
4.1	Zip release files	9
4.2	Sphinx documentation	9
5	Table of Contents	11
5.1	Simple test	11
5.2	adafruit_ina260	11
5.2.1	Implementation Notes	11
6	Indices and tables	15
	Python Module Index	17
	Index	19

CircuitPython driver for the TI INA260 current and power sensor

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.

1.1 Installing from PyPI

Note: This library is not available on PyPI yet. Install documentation is included as a standard element. Stay tuned for PyPI availability! If the library is not planned for PyPI, remove the entire ‘Installing from PyPI’ section. 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-ina260
```

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

```
sudo pip3 install adafruit-circuitpython-ina260
```

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-ina260
```


CHAPTER 2

Usage Example

```
import time
import board
import adafruit_ina260

i2c = board.I2C()
ina260 = adafruit_ina260.INA260(i2c)
while True:
    print("Current: %.2f Voltage: %.2f Power: %.2f"
          %(ina260.current, ina260.voltage, ina260.power))
    time.sleep(1)
```


CHAPTER 3

Contributing

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

4.1 Zip release files

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-ina260 --library_
↪location .
```

4.2 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/ina260_simpletest.py

```
1 import time
2 import board
3 import adafruit_ina260
4
5 i2c = board.I2C()
6 ina260 = adafruit_ina260.INA260(i2c)
7 while True:
8     print("Current: %.2f mA Voltage: %.2f V Power: %.2f mW"
9           %(ina260.current, ina260.voltage, ina260.power))
10    time.sleep(1)
```

5.2 adafruit_ina260

CircuitPython driver for the TI INA260 current and power sensor

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5.2.1 Implementation Notes

Hardware:

- [INA260 Breakout](#)

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
- Adafruit’s Register library: https://github.com/adafruit/Adafruit_CircuitPython_Register

class adafruit_ina260.**AveragingCount**
Options for averaging_count

AveragingCount	Number of measurements to average
AveragingCount.COUNT_1	1 (Default)
AveragingCount.COUNT_4	4
AveragingCount.COUNT_16	16
AveragingCount.COUNT_64	64
AveragingCount.COUNT_128	128
AveragingCount.COUNT_256	256
AveragingCount.COUNT_512	512
AveragingCount.COUNT_1024	1024

class adafruit_ina260.**ConversionTime**
Options for current_conversion_time or voltage_conversion_time

ConversionTime	Time
ConversionTime.TIME_140_us	140 us
ConversionTime.TIME_204_us	204 us
ConversionTime.TIME_332_us	332 us
ConversionTime.TIME_558_us	588 us
ConversionTime.TIME_1_1_ms	1.1 ms (Default)
ConversionTime.TIME_2_116_ms	2.116 ms
ConversionTime.TIME_4_156_ms	4.156 ms
ConversionTime.TIME_8_244_ms	8.244 ms

class adafruit_ina260.**INA260** (*i2c_bus*, *address=64*)
Driver for the INA260 power and current sensor.

Parameters

- **i2c_bus** (*I2C*) – The I2C bus the INA260 is connected to.
- **address** – The I2C device address for the sensor. Default is 0x40.

averaging_count

The window size of the rolling average used in continuous mode

current

The current (between V+ and V-) in mA

current_conversion_time

The conversion time taken for the current measurement

mode

The mode that the INA260 is operating in. Must be one of Mode.CONTINUOUS, Mode.TRIGGERED, or Mode.SHUTDOWN

power

The power being delivered to the load in mW

voltage

The bus voltage in V

voltage_conversion_time

The conversion time taken for the bus voltage measurement

class adafruit_ina260.**Mode**

Modes available to be set

Mode	Description
Mode. CONTINUOUS	Default: The sensor will continuously measure the bus voltage and shunt voltage across the shunt resistor to calculate power and current
Mode. TRIGGERED	The sensor will immediately begin measuring and calculating current, bus voltage, and power. Re-set this mode to initiate another measurement
Mode. SHUTDOWN	Shutdown the sensor, reducing the quiescent current and turning off current into the device inputs. Set another mode to re-enable

CHAPTER 6

Indices and tables

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

a

`adafruit_ina260`, [11](#)

A

adafruit_ina260 (*module*), 11
averaging_count (*adafruit_ina260.INA260 attribute*), 12
AveragingCount (*class in adafruit_ina260*), 12

C

ConversionTime (*class in adafruit_ina260*), 12
current (*adafruit_ina260.INA260 attribute*), 12
current_conversion_time
 (*adafruit_ina260.INA260 attribute*), 12

I

INA260 (*class in adafruit_ina260*), 12

M

mode (*adafruit_ina260.INA260 attribute*), 12
Mode (*class in adafruit_ina260*), 13

P

power (*adafruit_ina260.INA260 attribute*), 12

V

voltage (*adafruit_ina260.INA260 attribute*), 12
voltage_conversion_time
 (*adafruit_ina260.INA260 attribute*), 13