
Adafruit WAVEFORM Library Documentation

Release 1.0

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This library generates simple waveforms that can be used to generate different type of audio signals.

CHAPTER 1

Dependencies

This driver depends on:

- [Adafruit CircuitPython](#)

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-waveform
```

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

```
sudo pip3 install adafruit-circuitpython-waveform
```

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-waveform
```


CHAPTER 3

Usage Example

This example generates one wavelength of a 440hz sine wave when played at 16 kilosamples per second:

```
from adafruit_waveform import sine
wave = sine.sine_wave(16000, 440)
```


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 tests

Ensure your device works with these simple tests.

Listing 1: examples/waveform_sine_simpletest.py

```
1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  """
5  'sine_demo.py'.
6
7  =====
8  toggles the builtin LED using a sine wave
9  """
10 import time
11 import board
12 import digitalio
13 from adafruit_waveform import sine
14
15 LED = digitalio.DigitalInOut(board.D13)
16 LED.switch_to_output()
17
18 SINE_SAMPLE = sine.sine_wave(150, 50)
19
20 while True:
21     for i in range(len(SINE_SAMPLE)):
22         LED.value = i
23         print(LED.value)
24         time.sleep(0.50)
```

Listing 2: examples/waveform_square_simpletest.py

```

1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  """
5  'square_demo.py'.
6
7  =====
8  toggles the builtin LED using a square wave
9  """
10 import time
11 import digitalio
12 import board
13 from adafruit_waveform import square
14
15 LED = digitalio.DigitalInOut(board.D13)
16 LED.switch_to_output()
17 SAMPLE_SQUARE = square.square_wave(2)
18
19 while True:
20     for i in range(len(SAMPLE_SQUARE)):
21         LED.value = i
22         print(LED.value)
23         time.sleep(0.5)

```

6.2 adafruit_waveform.sine

This library generates sine waveforms that can be used to generate sine audio signals.

- Author(s): Scott Shawcroft

`adafruit_waveform.sine.sine_wave(sample_frequency, pitch)`

Generate a single sine wave cycle at the given sampling frequency and pitch.

6.3 adafruit_waveform.square

This library generates square waveforms that can be used to generate square audio signals.

- Author(s): Scott Shawcroft, Brent Ru

`adafruit_waveform.square.square_wave(sample_length=2)`

Generate a single square wave of sample_length size

CHAPTER 7

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