
AdafruitTinyLoRa Library Documentation

Release 1.0

adafruit

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CircuitPython Library for communicating with [The Things Network](<https://www.thethingsnetwork.org/>) using a Hope RF RFM95/96/97/98(W) LoRa Transceiver Module.

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](#).

1.1 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-tinylora
```

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

```
sudo pip3 install adafruit-circuitpython-tinylora
```

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-tinylora
```


CHAPTER 2

Usage Notes

See the guide for wiring, installation, and detailed usage instructions.

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-tinylora --
↳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/tinylora_simpletest.py

```
1 import time
2 import busio
3 import digitalio
4 import board
5 from adafruit_tinylora import TTN, TinyLoRa
6
7 spi = busio.SPI(board.SCK, MISO=board.MISO, MOSI=board.MOSI)
8
9 # RFM9x Breakout Pinouts
10 cs = digitalio.DigitalInOut(board.D5)
11 irq = digitalio.DigitalInOut(board.D6)
12
13 # Feather M0 RFM9x Pinouts
14 # irq = digitalio.DigitalInOut(board.RFM9X_D0)
15 # cs = digitalio.DigitalInOut(board.RFM9X_CS)
16
17 # TTN Device Address, 4 Bytes, MSB
18 devaddr = bytearray([0x00, 0x00, 0x00, 0x00])
19
20 # TTN Network Key, 16 Bytes, MSB
21 nwkey = bytearray([0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
22                    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00])
23
24 # TTN Application Key, 16 Bytes, MSB
25 app = bytearray([0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
26                  0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00])
27
```

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```
28 ttn_config = TTN(devaddr, nwkey, app, country='US')
29
30 lora = TinyLoRa(spi, cs, irq, ttn_config)
31
32 while True:
33     data = bytearray(b"\x43\x57\x54\x46")
34     lora.send_data(data, len(data), lora.frame_counter)
35     lora.frame_counter += 1
36     time.sleep(1)
```

5.2 TinyLoRa API

CHAPTER 6

Indices and tables

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

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adafruit_tinylora, [12](#)

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adafruit_tinylora (module), [12](#)