

---

# **Adafruit MLX90614 Library Documentation**

***Release 1.0***

**Mikey Sklar**

**Apr 26, 2021**



---

## Contents

---

|          |                                |           |
|----------|--------------------------------|-----------|
| <b>1</b> | <b>Dependencies</b>            | <b>3</b>  |
| <b>2</b> | <b>Installing from PyPI</b>    | <b>5</b>  |
| <b>3</b> | <b>Usage Example</b>           | <b>7</b>  |
| <b>4</b> | <b>Contributing</b>            | <b>9</b>  |
| <b>5</b> | <b>Documentation</b>           | <b>11</b> |
| <b>6</b> | <b>Table of Contents</b>       | <b>13</b> |
| 6.1      | Simple test . . . . .          | 13        |
| 6.2      | adafruit_ml×90614 . . . . .    | 14        |
| 6.2.1    | Implementation Notes . . . . . | 14        |
| <b>7</b> | <b>Indices and tables</b>      | <b>15</b> |
|          | <b>Python Module Index</b>     | <b>17</b> |
|          | <b>Index</b>                   | <b>19</b> |



CircuitPython module for the Melexis MLX90614 Contact-less Infrared Temperature sensor. See [examples/mlx90614\\_simpletest.py](#) for a demo of the usage.



# 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-mlx90614
```

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

```
sudo pip3 install adafruit-circuitpython-mlx90614
```

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-mlx90614
```



## CHAPTER 3

---

### Usage Example

---

See `examples/mlx90614_simpletest.py` for a demo of the usage.



## 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/mlx90614\_simpletest.py

```
1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  # Designed specifically to work with the MLX90614 sensors in the
5  # adafruit shop
6  # ----> https://www.adafruit.com/product/1747
7  # ----> https://www.adafruit.com/product/1748
8  #
9  # These sensors use I2C to communicate, 2 pins are required to
10 # interface Adafruit invests time and resources providing this open
11 # source code,
12 # please support Adafruit and open-source hardware by purchasing
13 # products from Adafruit!
14
15 import board
16 import adafruit_mlx90614
17
18 # The MLX90614 only works at the default I2C bus speed of 100kHz.
19 # A higher speed, such as 400kHz, will not work.
20 i2c = board.I2C()
21 mlx = adafruit_mlx90614.MLX90614(i2c)
22
23 # temperature results in celsius
24 print("Ambent Temp: ", mlx.ambient_temperature)
25 print("Object Temp: ", mlx.object_temperature)
```

## 6.2 adafruit\_mlx90614

CircuitPython module for the MLX90614 IR object temperature sensor.

- Author(s): Mikey Sklar based on code from these projects: Limor Fried - <https://github.com/adafruit/Adafruit-MLX90614-Library> Bill Simpson - [https://github.com/BillSimpson/ada\\_mlx90614](https://github.com/BillSimpson/ada_mlx90614) Mike Causer - <https://github.com/mcauser/micropython-mlx90614>

### 6.2.1 Implementation Notes

#### Hardware:

- Adafruit Melexis Contact-less Infrared Sensor - MLX90614 3V (Product ID: 1747)
- Adafruit Melexis Contact-less Infrared Sensor - MLX90614 5V (Product ID: 1748)
- Sensors: <https://www.adafruit.com/product/1747> <https://www.adafruit.com/product/1748>
- Datasheet: <https://cdn-shop.adafruit.com/datasheets/MLX90614.pdf>

#### Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: <https://circuitpython.org/downloads>

**class** `adafruit_mlx90614.MLX90614` (*i2c\_bus*, *address=90*)

Create an instance of the MLX90614 temperature sensor.

#### Parameters

- **i2c\_bus** (*I2C*) – The I2C bus the MLX90614 is connected to. Do not use an I2C bus speed of 400kHz. The sensor only works at the default bus speed of 100kHz.
- **address** (*int*) – I2C device address. Defaults to 0x5A.

#### Quickstart: Importing and using the MLX90614

Here is an example of using the `MLX90614` class. First you will need to import the libraries to use the sensor

```
import board
import adafruit_mlx90614
```

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

```
i2c = board.I2C()
mlx = adafruit_mlx90614.MLX90614(i2c)
```

Now you have access to the `ambient_temperature` attribute

```
temperature = mlx.ambient_temperature
```

#### **ambient\_temperature**

Ambient Temperature in Celsius.

#### **object\_temperature**

Object Temperature in Celsius.

## CHAPTER 7

---

### Indices and tables

---

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



### a

adafruit\_mlx90614, [13](#)



## A

`adafruit_mlx90614` (*module*), [13](#)

`ambient_temperature`  
(*adafruit\_mlx90614.MLX90614* *attribute*),  
[14](#)

## M

`MLX90614` (*class in adafruit\_mlx90614*), [14](#)

## O

`object_temperature`  
(*adafruit\_mlx90614.MLX90614* *attribute*),  
[14](#)