
AdafruitL0398 Library Documentation

Release 1.0

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CircuitPython displayio drivers for IL0398 driven e-paper displays

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-10398
```

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

```
sudo pip3 install adafruit-circuitpython-10398
```

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-10398
```


CHAPTER 3

Usage Example

```
"""Simple test script for 4.2" 400x300 black and white displays.

Supported products:
  * WaveShare 4.2" Black and White
  * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper.htm
  * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-
↪module.htm
"""

import time
import board
import displayio
import adafruit_il0398

displayio.release_displays()

# This pinout works on a Feather M4 and may need to be altered for other boards.
spi = board.SPI() # Uses SCK and MOSI
epd_cs = board.D9
epd_dc = board.D10
epd_reset = board.D5
epd_busy = board.D6

display_bus = displayio.FourWire(spi, command=epd_dc, chip_select=epd_cs, reset=epd_
↪reset,
                                baudrate=1000000)

time.sleep(1)

display = adafruit_il0398.IL0398(display_bus, width=400, height=300, seconds_per_
↪frame=20,
                                busy_pin=epd_busy)

g = displayio.Group()
```

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```
f = open("/display-ruler.bmp", "rb")

pic = displayio.OnDiskBitmap(f)
# CircuitPython 6 & 7 compatible
t = displayio.TileGrid(
    pic, pixel_shader=getattr(pic, "pixel_shader", displayio.ColorConverter())
)
# CircuitPython 7 compatible only
# t = displayio.TileGrid(pic, pixel_shader=pic.pixel_shader)

g.append(t)

display.show(g)

display.refresh()

time.sleep(120)
```

CHAPTER 4

Documentation

API documentation for this library can be found on [Read the Docs](#).

CHAPTER 5

Contributing

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

CHAPTER 6

Documentation

For information on building library documentation, please check out [this guide](#).

7.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/il0398_simpletest.py

```
1 # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2 # SPDX-License-Identifier: MIT
3
4 """Simple test script for 4.2" 400x300 black and white displays.
5
6 Supported products:
7 * WaveShare 4.2" Black and White
8 * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper.htm
9 * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-
10 →module.htm
11 """
12
13 import time
14 import board
15 import displayio
16 import adafruit_il0398
17
18 displayio.release_displays()
19
20 # This pinout works on a Feather M4 and may need to be altered for other boards.
21 spi = board.SPI() # Uses SCK and MOSI
22 epd_cs = board.D9
23 epd_dc = board.D10
24 epd_reset = board.D5
25 epd_busy = board.D6
26
27 display_bus = displayio.FourWire(
```

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```

27     spi, command=epd_dc, chip_select=epd_cs, reset=epd_reset, baudrate=1000000
28 )
29 time.sleep(1)
30
31 display = adafruit_il0398.IL0398(
32     display_bus, width=400, height=300, seconds_per_frame=20, busy_pin=epd_busy
33 )
34
35 g = displayio.Group()
36
37 with open("/display-ruler.bmp", "rb") as f:
38     pic = displayio.OnDiskBitmap(f)
39     # CircuitPython 6 & 7 compatible
40     t = displayio.TileGrid(
41         pic, pixel_shader=getattr(pic, "pixel_shader", displayio.ColorConverter())
42     )
43     # CircuitPython 7 compatible only
44     # t = displayio.TileGrid(pic, pixel_shader=pic.pixel_shader)
45     g.append(t)
46
47     display.show(g)
48
49     display.refresh()
50
51     time.sleep(120)

```

7.2 Simple test

Ensure your device works with this simple test.

Listing 2: examples/il0398_simpletest.py

```

1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  """Simple test script for 4.2" 400x300 tri-color displays.
5
6  Supported products:
7  * WaveShare 4.2" Color
8  * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-b.
9  ↪htm
10 * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-c.
11 ↪htm
12 * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-
13 ↪module-c.htm
14 * https://www.waveshare.com/product/modules/oleds-lcds/e-paper/4.2inch-e-paper-
15 ↪module-b.htm
16 """
17
18 import time
19 import board
20 import displayio
21 import adafruit_il0398

```

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```

19 displayio.release_displays()
20
21 # This pinout works on a Feather M4 and may need to be altered for other boards.
22 spi = board.SPI() # Uses SCK and MOSI
23 epd_cs = board.D9
24 epd_dc = board.D10
25 epd_reset = board.D5
26 epd_busy = board.D6
27
28 display_bus = displayio.FourWire(
29     spi, command=epd_dc, chip_select=epd_cs, reset=epd_reset, baudrate=1000000
30 )
31 time.sleep(1)
32
33 display = adafruit_il0398.IL0398(
34     display_bus,
35     width=400,
36     height=300,
37     seconds_per_frame=20,
38     highlight_color=0xFF0000,
39     busy_pin=epd_busy,
40 )
41
42 g = displayio.Group()
43
44 with open("/display-ruler.bmp", "rb") as f:
45     pic = displayio.OnDiskBitmap(f)
46     # CircuitPython 6 & 7 compatible
47     t = displayio.TileGrid(
48         pic, pixel_shader=getattr(pic, "pixel_shader", displayio.ColorConverter())
49     )
50     # CircuitPython 7 compatible only
51     # t = displayio.TileGrid(pic, pixel_shader=pic.pixel_shader)
52     g.append(t)
53
54     display.show(g)
55
56     display.refresh()
57
58     time.sleep(120)

```

7.3 adafruit_il0398

CircuitPython displayio drivers for IL0398 driven e-paper displays

- Author(s): Scott Shawcroft

7.3.1 Implementation Notes

Hardware:

Software and Dependencies:

- Adafruit CircuitPython (5+) firmware for the supported boards: <https://github.com/adafruit/circuitpython/releases>

```
class adafruit_il0398.IL0398 (bus, **kwargs)  
    IL0398 driver
```

CHAPTER 8

Indices and tables

- `genindex`
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