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**AdafruitDisplayIO** *SD1306 Library Documentation*  
**Release 1.0**

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DisplayIO driver for SSD1306 monochrome displays. DisplayIO drivers enable terminal output

For the framebuffer based driver see [Adafruit CircuitPython SSD1306](#).



# CHAPTER 1

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## Dependencies

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This driver depends on:

- [Adafruit CircuitPython Version 5+](#)

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the [Adafruit library and driver bundle](#).





## CHAPTER 2

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### Installing from PyPI

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**Note:** This library is not available on PyPI yet. Install documentation is included as a standard element. Stay tuned for PyPI availability!

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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-displayio-ssd1306
```

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

```
sudo pip3 install adafruit-circuitpython-displayio-ssd1306
```

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-displayio-ssd1306
```



## CHAPTER 3

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### Usage Example

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```
import board
import displayio
import adafruit_displayio_ssd1306
import busio

displayio.release_displays()

# This pinout works on a Metro and may need to be altered for other boards.
spi = busio.SPI(board.SCL, board.SDA)
tft_cs = board.D9
tft_dc = board.D8
tft_reset = board.D7

display_bus = displayio.FourWire(spi, command=tft_dc, chip_select=tft_cs, reset=tft_
↪reset, baudrate=1000000)
display = adafruit_displayio_ssd1306.SSD1306(display_bus, width=128, height=64)
```



## CHAPTER 4

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### Contributing

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



## CHAPTER 5

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### Documentation

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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/displayio\_ssd1306\_simpletest.py

```
1  """
2  This test will initialize the display using displayio and draw a solid white
3  background, a smaller black rectangle, and some white text.
4  """
5
6  import board
7  import displayio
8  import terminalio
9  from adafruit_display_text import label
10 import adafruit_displayio_ssd1306
11
12 displayio.release_displays()
13
14 oled_reset = board.D9
15
16 # Use for I2C
17 i2c = board.I2C()
18 display_bus = displayio.I2CDisplay(i2c, device_address=0x3C, reset=oled_reset)
19
20 # Use for SPI
21 # spi = board.SPI()
22 # oled_cs = board.D5
23 # oled_dc = board.D6
24 # display_bus = displayio.FourWire(spi, command=oled_dc, chip_select=oled_cs,
25 #                                 reset=oled_reset, baudrate=1000000)
26 #
27 WIDTH = 128
```

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```
28 HEIGHT = 32 # Change to 64 if needed
29 BORDER = 5
30
31 display = adafruit_displayio_ssd1306.SSD1306(display_bus, width=WIDTH, height=HEIGHT)
32
33 # Make the display context
34 splash = displayio.Group(max_size=10)
35 display.show(splash)
36
37 color_bitmap = displayio.Bitmap(WIDTH, HEIGHT, 1)
38 color_palette = displayio.Palette(1)
39 color_palette[0] = 0xFFFFFFFF # White
40
41 bg_sprite = displayio.TileGrid(color_bitmap, pixel_shader=color_palette, x=0, y=0)
42 splash.append(bg_sprite)
43
44 # Draw a smaller inner rectangle
45 inner_bitmap = displayio.Bitmap(WIDTH - BORDER * 2, HEIGHT - BORDER * 2, 1)
46 inner_palette = displayio.Palette(1)
47 inner_palette[0] = 0x000000 # Black
48 inner_sprite = displayio.TileGrid(
49     inner_bitmap, pixel_shader=inner_palette, x=BORDER, y=BORDER
50 )
51 splash.append(inner_sprite)
52
53 # Draw a label
54 text = "Hello World!"
55 text_area = label.Label(
56     terminalio.FONT, text=text, color=0xFFFFFFFF, x=28, y=HEIGHT // 2 - 1
57 )
58 splash.append(text_area)
59
60 while True:
61     pass
```

## 6.2 adafruit\_displayio\_ssd1306

DisplayIO driver for SSD1306 monochrome displays

- Author(s): Scott Shawcroft

### 6.2.1 Implementation Notes

#### Hardware:

- Monochrome 1.3" 128x64 OLED graphic display
- Monochrome 128x32 I2C OLED graphic display
- Monochrome 0.96" 128x64 OLED graphic display
- Monochrome 128x32 SPI OLED graphic display
- Adafruit FeatherWing OLED - 128x32 OLED

#### Software and Dependencies:

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

```
class adafruit_displayio_ssd1306.SSD1306(bus, **kwargs)  
    SSD1306 driver
```



# CHAPTER 7

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## Indices and tables

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