
adafruit*thermal_printer Library Documentation*
Release 1.0

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CircuitPython module for control of various small serial thermal printers.

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

Usage Example

See `examples/thermal_printer_simpletest.py` for a demo of basic printer usage.

CHAPTER 3

Contributing

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

CHAPTER 4

Building locally

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_thermal_printer -
↳-library_location .
```

4.1 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/thermal_printer_simpletest.py

```
1  # Simple demo of printer functionality.
2  # Author: Tony DiCola
3  import board
4  import busio
5
6  import adafruit_thermal_printer
7
8  # Pick which version thermal printer class to use depending on the version of
9  # your printer. Hold the button on the printer as it's powered on and it will
10 # print a test page that displays the firmware version, like 2.64, 2.68, etc.
11 # Use this version in the get_printer_class function below.
12 ThermalPrinter = adafruit_thermal_printer.get_printer_class(2.69)
13
14 # Define RX and TX pins for the board's serial port connected to the printer.
15 # Only the TX pin needs to be configured, and note to take care NOT to connect
16 # the RX pin if your board doesn't support 5V inputs. If RX is left unconnected
17 # the only loss in functionality is checking if the printer has paper--all other
18 # functions of the printer will work.
19 RX = board.RX
20 TX = board.TX
21
22 # Create a serial connection for the printer. You must use the same baud rate
23 # as your printer is configured (print a test page by holding the button
24 # during power-up and it will show the baud rate). Most printers use 19200.
25 uart = busio.UART(TX, RX, baudrate=19200)
26
27 # For a computer, use the pyserial library for uart access.
```

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```

28 # import serial
29 # uart = serial.Serial("/dev/serial0", baudrate=19200, timeout=3000)
30
31 # Create the printer instance.
32 printer = ThermalPrinter(uart, auto_warm_up=False)
33
34 # Initialize the printer. Note this will take a few seconds for the printer
35 # to warm up and be ready to accept commands (hence calling it explicitly vs.
36 # automatically in the initializer with the default auto_warm_up=True).
37 printer.warm_up()
38
39 # Check if the printer has paper. This only works if the RX line is connected
40 # on your board (but BE CAREFUL as mentioned above this RX line is 5V!)
41 if printer.has_paper():
42     print('Printer has paper!')
43 else:
44     print('Printer might be out of paper, or RX is disconnected!')
45
46 # Print a test page:
47 printer.test_page()
48
49 # Move the paper forward two lines:
50 printer.feed(2)
51
52 # Print a line of text:
53 printer.print('Hello world!')
54
55 # Print a bold line of text:
56 printer.bold = True
57 printer.print('Bold hello world!')
58 printer.bold = False
59
60 # Print a normal/thin underline line of text:
61 printer.underline = adafruit_thermal_printer.UNDERLINE_THIN
62 printer.print('Thin underline!')
63
64 # Print a thick underline line of text:
65 printer.underline = adafruit_thermal_printer.UNDERLINE_THICK
66 printer.print('Thick underline!')
67
68 # Disable underlines.
69 printer.underline = None
70
71 # Print an inverted line.
72 printer.inverse = True
73 printer.print('Inverse hello world!')
74 printer.inverse = False
75
76 # Print an upside down line.
77 printer.upside_down = True
78 printer.print('Upside down hello!')
79 printer.upside_down = False
80
81 # Print a double height line.
82 printer.double_height = True
83 printer.print('Double height!')
84 printer.double_height = False

```

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```

85
86 # Print a double width line.
87 printer.double_width = True
88 printer.print('Double width!')
89 printer.double_width = False
90
91 # Print a strike-through line.
92 printer.strike = True
93 printer.print('Strike-through hello!')
94 printer.strike = False
95
96 # Print medium size text.
97 printer.size = adafruit_thermal_printer.SIZE_MEDIUM
98 printer.print('Medium size text!')
99
100 # Print large size text.
101 printer.size = adafruit_thermal_printer.SIZE_LARGE
102 printer.print('Large size text!')
103
104 # Back to normal / small size text.
105 printer.size = adafruit_thermal_printer.SIZE_SMALL
106
107 # Print center justified text.
108 printer.justify = adafruit_thermal_printer.JUSTIFY_CENTER
109 printer.print('Center justified!')
110
111 # Print right justified text.
112 printer.justify = adafruit_thermal_printer.JUSTIFY_RIGHT
113 printer.print('Right justified!')
114
115 # Back to left justified / normal text.
116 printer.justify = adafruit_thermal_printer.JUSTIFY_LEFT
117
118 # Print a UPC barcode.
119 printer.print('UPCA barcode:')
120 printer.print_barcode('123456789012', printer.UPC_A)
121
122 # Feed a few lines to see everything.
123 printer.feed(2)

```

5.2 adafruit_thermal_printer.thermal_printer - Thermal Printer Driver

Thermal printer control module built to work with small serial thermal receipt printers. Note that these printers have many different firmware versions and care must be taken to select the appropriate module inside this package for your firmware printer:

- thermal_printer = The latest printers with firmware version 2.68+
- thermal_printer_264 = Printers with firmware version 2.64 up to 2.68.
- thermal_printer_legacy = Printers with firmware version before 2.64.
- Author(s): Tony DiCola

5.2.1 Implementation Notes

Hardware:

- Mini Thermal Receipt Printer (Product ID: 597)

Software and Dependencies:

- Adafruit CircuitPython firmware for the ESP8622 and M0-based boards: <https://github.com/adafruit/circuitpython/releases>

```
class adafruit_thermal_printer.thermal_printer.ThermalPrinter(uart, *,
                                                                byte_delay_s=0.00057346,
                                                                dot_feed_s=0.0021,
                                                                dot_print_s=0.03,
                                                                auto_warm_up=True)
```

Thermal printer for printers with firmware version 2.68 or higher.

feed (*lines*)

Advance paper by specified number of blank lines.

feed_rows (*rows*)

Advance paper by specified number of pixel rows.

flush ()

Flush data pending in the printer.

has_paper ()

Return a boolean indicating if the printer has paper. You MUST have the serial RX line hooked up for this to work. NOTE: be VERY CAREFUL to ensure your board can handle a 5V serial input before hooking up the RX line!

inverse

Set the inverse printing mode boolean to enable or disable inverse printing.

justify

Set the justification of text, must be a value of JUSTIFY_LEFT, JUSTIFY_CENTER, or JUSTIFY_RIGHT.

offline ()

Put the printer into an offline state. No other commands can be sent until an online call is made.

online ()

Put the printer into an online state after previously put offline.

print (*text*, *end*='\n')

Print a line of text. Optionally specify the end keyword to override the new line printed after the text (set to None to disable the new line entirely).

print_barcode (*text*, *barcode_type*)

Print a barcode with the specified text/number (the meaning varies based on the type of barcode) and type. Type is a value from the datasheet or class-level variables like UPC_A, etc. for convenience. Note the type value changes depending on the firmware version so use class-level values where possible!

reset ()

Reset the printer.

send_command (*command*)

Send a command string to the printer.

set_defaults ()

Set default printing and text options. This is useful to reset back to a good state after printing different size, weight, etc. text.

size

Set the size of text, must be a value of SIZE_SMALL, SIZE_MEDIUM, or SIZE_LARGE.

tab()

Print a tab (i.e. move to next 4 character block). Note this is only supported on more recent firmware printers!

test_page()

Print a test page.

underline

Set the underline state of the text, must be None (off), UNDERLINE_THIN, or UNDERLINE_THICK.

warm_up(heat_time=120)

Initialize the printer. Can specify an optional heat_time keyword to override the default heating timing of 1.2 ms. See the datasheet for details on the heating time value (duration in 10uS increments). Note that calling this function will take about half a second for the printer to initialize and warm up.

5.3 adafruit_thermal_printer.thermal_printer_264. ThermalPrinter

Thermal printer control module built to work with small serial thermal receipt printers. Note that these printers have many different firmware versions and care must be taken to select the appropriate module inside this package for your firmware printer:

- thermal_printer = The latest printers with firmware version 2.68+
- thermal_printer_264 = Printers with firmware version 2.64 up to 2.68.
- thermal_printer_legacy = Printers with firmware version before 2.64.
- Author(s): Tony DiCola

```
class adafruit_thermal_printer.thermal_printer_264.ThermalPrinter(uart,
                                                                    byte_delay_s=0.00057346,
                                                                    dot_feed_s=0.0021,
                                                                    dot_print_s=0.03)
```

Thermal printer for printers with firmware version 2.64 up to (but NOT including) 2.68.

5.4 adafruit_thermal_printer.thermal_printer_legacy. ThermalPrinter

Thermal printer control module built to work with small serial thermal receipt printers. Note that these printers have many different firmware versions and care must be taken to select the appropriate module inside this package for your firmware printer:

- thermal_printer = The latest printers with firmware version 2.68+
- thermal_printer_264 = Printers with firmware version 2.64 up to 2.68.
- thermal_printer_legacy = Printers with firmware version before 2.64.
- Author(s): Tony DiCola

```
class adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter(uart,  
                                                                    byte_delay_s=0.00057346,  
                                                                    dot_feed_s=0.0021,  
                                                                    dot_print_s=0.03)
```

Thermal printer for printers with firmware version before 2.64.

feed (*lines*)

Advance paper by specified number of blank lines.

has_paper ()

Return a boolean indicating if the printer has paper. You MUST have the serial RX line hooked up for this to work.

Note: be VERY CAREFUL to ensure your board can handle a 5V serial input before hooking up the RX line!

print_barcode (*text, barcode_type*)

Print a barcode with the specified text/number (the meaning varies based on the type of barcode) and type. Type is a value from the datasheet or class-level variables like UPC_A, etc. for convenience. Note the type value changes depending on the firmware version so use class-level values where possible!

reset ()

Reset the printer.

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