
Adafruit Thermal Printer Library Documentation

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Contents

1	Dependencies	3
2	Installing from PyPI	5
3	Usage Example	7
4	Contributing	9
5	Documentation	11
6	Table of Contents	13
6.1	Simple test	13
6.2	<code>adafruit_thermal_printer.thermal_printer</code> - Thermal Printer Driver	15
6.2.1	Implementation Notes	16
6.3	<code>adafruit_thermal_printer.thermal_printer_264.ThermalPrinter</code>	17
6.4	<code>adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter</code>	17
7	Indices and tables	19
	Python Module Index	21
	Index	23

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

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-thermal_printer
```

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

```
sudo pip3 install adafruit-circuitpython-thermal_printer
```

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-thermal_printer
```


CHAPTER 3

Usage Example

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

```
1  # SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3
4  # Simple demo of printer functionality.
5  # Author: Tony DiCola
6  import board
7  import busio
8
9  import adafruit_thermal_printer
10
11  # Pick which version thermal printer class to use depending on the version of
12  # your printer. Hold the button on the printer as it's powered on and it will
13  # print a test page that displays the firmware version, like 2.64, 2.68, etc.
14  # Use this version in the get_printer_class function below.
15  ThermalPrinter = adafruit_thermal_printer.get_printer_class(2.69)
16
17  # Define RX and TX pins for the board's serial port connected to the printer.
18  # Only the TX pin needs to be configured, and note to take care NOT to connect
19  # the RX pin if your board doesn't support 5V inputs. If RX is left unconnected
20  # the only loss in functionality is checking if the printer has paper--all other
21  # functions of the printer will work.
22  RX = board.RX
23  TX = board.TX
24
25  # Create a serial connection for the printer. You must use the same baud rate
26  # as your printer is configured (print a test page by holding the button
27  # during power-up and it will show the baud rate). Most printers use 19200.
```

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```

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

```

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```

85 printer.double_height = True
86 printer.print("Double height!")
87 printer.double_height = False
88
89 # Print a double width line.
90 printer.double_width = True
91 printer.print("Double width!")
92 printer.double_width = False
93
94 # Print a strike-through line.
95 printer.strike = True
96 printer.print("Strike-through hello!")
97 printer.strike = False
98
99 # Print medium size text.
100 printer.size = adafruit_thermal_printer.SIZE_MEDIUM
101 printer.print("Medium size text!")
102
103 # Print large size text.
104 printer.size = adafruit_thermal_printer.SIZE_LARGE
105 printer.print("Large size text!")
106
107 # Back to normal / small size text.
108 printer.size = adafruit_thermal_printer.SIZE_SMALL
109
110 # Print center justified text.
111 printer.justify = adafruit_thermal_printer.JUSTIFY_CENTER
112 printer.print("Center justified!")
113
114 # Print right justified text.
115 printer.justify = adafruit_thermal_printer.JUSTIFY_RIGHT
116 printer.print("Right justified!")
117
118 # Back to left justified / normal text.
119 printer.justify = adafruit_thermal_printer.JUSTIFY_LEFT
120
121 # Print a UPC barcode.
122 printer.print("UPCA barcode:")
123 printer.print_barcode("123456789012", printer.UPC_A)
124
125 # Feed a few lines to see everything.
126 printer.feed(2)

```

6.2 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

6.2.1 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 from 2.68 and below 2.168

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`.

up_down_mode

Turns on/off upside-down printing mode

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.

6.3 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_2168` = Printers with firmware version 2.168+.
- `thermal_printer` = The latest printers with firmware version 2.68 up to 2.168
- `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.

6.4 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_2168` = Printers with firmware version 2.168+.

- `thermal_printer` = The latest printers with firmware version 2.68 up to 2.168
- `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.

CHAPTER 7

Indices and tables

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

a

`adafruit_thermal_printer.thermal_printer,`
 [15](#)
`adafruit_thermal_printer.thermal_printer_264,`
 [17](#)
`adafruit_thermal_printer.thermal_printer_legacy,`
 [17](#)

A

adafruit_thermal_printer.thermal_printer.print() (adafruit_thermal_printer.thermal_printer.ThermalPrinter
(module), 15 method), 16
adafruit_thermal_printer.thermal_printer.print_barcode() (adafruit_thermal_printer.thermal_printer.ThermalPrinter
(module), 17 method), 16
adafruit_thermal_printer.thermal_printer_legacy.print_barcode() (adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter
(module), 17 method), 18

F

feed() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
feed() (adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter method), 18
feed_rows() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
flush() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16

H

has_paper() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
has_paper() (adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter method), 18

I

inverse (adafruit_thermal_printer.thermal_printer.ThermalPrinter attribute), 16

J

justify (adafruit_thermal_printer.thermal_printer.ThermalPrinter attribute), 16

O

offline() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
online() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16

P

print() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
print_barcode() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
print_barcode() (adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter method), 18

R

reset() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
reset() (adafruit_thermal_printer.thermal_printer_legacy.ThermalPrinter method), 18

S

send_command() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
set_defaults() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 16
size (adafruit_thermal_printer.thermal_printer.ThermalPrinter attribute), 17

T

tab() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 17
test_page() (adafruit_thermal_printer.thermal_printer.ThermalPrinter method), 17

ThermalPrinter (class in
adafruit_thermal_printer.thermal_printer),
16
ThermalPrinter (class in
adafruit_thermal_printer.thermal_printer_264),
17

ThermalPrinter (class in
adafruit_thermal_printer.thermal_printer_legacy),
18

U

underline (adafruit_thermal_printer.thermal_printer.ThermalPrinter attribute), 17

`up_down_mode` (*adafruit_thermal_printer.thermal_printer.ThermalPrinter*
attribute), [17](#)

W

`warm_up()` (*adafruit_thermal_printer.thermal_printer.ThermalPrinter*
method), [17](#)