

---

# **AdafruitPCF8591 Library Documentation**

*Release 1.0*

**Bryan Siepert**

**Jun 07, 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	API Documentation . . . . .	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>



ADC+DAC Combo



# CHAPTER 1

---

## Dependencies

---

This driver depends on:

- [Adafruit CircuitPython](#)
- [Bus Device](#)
- [Register](#)

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-pcf8591
```

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

```
sudo pip3 install adafruit-circuitpython-pcf8591
```

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-pcf8591
```



---

## Usage Example

---

```
import time
import board

import adafruit_pcf8591.pcf8591 as PCF
from adafruit_pcf8591.analog_in import AnalogIn
from adafruit_pcf8591.analog_out import AnalogOut

##### AnalogOut & AnalogIn Example #####
#
# This example shows how to use the included AnalogIn and AnalogOut
# classes to set the internal DAC to output a voltage and then measure
# it with the first ADC channel.
#
# Wiring:
# Connect the DAC output to the first ADC channel, in addition to the
# normal power and I2C connections
#
#####
i2c = board.I2C()
pcf = PCF.PCF8591(i2c)

pcf_in_0 = AnalogIn(pcf, PCF.A0)
pcf_out = AnalogOut(pcf, PCF.OUT)

while True:

    print("Setting out to ", 65535)
    pcf_out.value = 65535
    raw_value = pcf_in_0.value
    scaled_value = (raw_value / 65535) * pcf_in_0.reference_voltage

    print("Pin 0: %0.2fV" % (scaled_value))
    print("")
    time.sleep(1)
```



## 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/pcf8591\_simpletest.py

```
1  # SPDX-FileCopyrightText: Copyright (c) 2020 Bryan Siepert for Adafruit Industries
2  # SPDX-License-Identifier: MIT
3  import time
4  import board
5
6  import adafruit_pcf8591.pcf8591 as PCF
7  from adafruit_pcf8591.analog_in import AnalogIn
8  from adafruit_pcf8591.analog_out import AnalogOut
9
10 ##### AnalogOut & AnalogIn Example #####
11 #
12 # This example shows how to use the included AnalogIn and AnalogOut
13 # classes to set the internal DAC to output a voltage and then measure
14 # it with the first ADC channel.
15 #
16 # Wiring:
17 # Connect the DAC output to the first ADC channel, in addition to the
18 # normal power and I2C connections
19 #
20 #####
21 i2c = board.I2C()
22 pcf = PCF.PCF8591(i2c)
23
24 pcf_in_0 = AnalogIn(pcf, PCF.A0)
25 pcf_out = AnalogOut(pcf, PCF.OUT)
26
27 while True:
```

(continues on next page)

(continued from previous page)

```
28
29     print("Setting out to ", 65535)
30     pcf_out.value = 65535
31     raw_value = pcf_in_0.value
32     scaled_value = (raw_value / 65535) * pcf_in_0.reference_voltage
33
34     print("Pin 0: %0.2fV" % (scaled_value))
35     print("")
36     time.sleep(1)
37
38     print("Setting out to ", 32767)
39     pcf_out.value = 32767
40     raw_value = pcf_in_0.value
41     scaled_value = (raw_value / 65535) * pcf_in_0.reference_voltage
42
43     print("Pin 0: %0.2fV" % (scaled_value))
44     print("")
45     time.sleep(1)
46
47     print("Setting out to ", 0)
48     pcf_out.value = 0
49     raw_value = pcf_in_0.value
50     scaled_value = (raw_value / 65535) * pcf_in_0.reference_voltage
51
52     print("Pin 0: %0.2fV" % (scaled_value))
53     print("")
54     time.sleep(1)
```

## 6.2 API Documentation

## CHAPTER 7

---

### Indices and tables

---

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



**a**

adafruit\_pcf8591, 14



## A

adafruit\_pcf8591 (*module*), 14