
AdafruitBNO08x_RVC Library Documentation
Release 1.0

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Jun 07, 2021

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A simple helper library for using the UART-RVC mode of the BNO08x IMUs

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-bno08x-rtc
```

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

```
sudo pip3 install adafruit-circuitpython-bno08x-rtc
```

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-bno08x-rtc
```


CHAPTER 3

Usage Example

```
import time
import board
import busio
from adafruit_bno08x_rvc import BNO08x_RVC

uart = busio.UART(board.TX, board.RX, baudrate=115200, receiver_buffer_size=2048)
rvc = BNO08x_RVC(uart)
while True:
    roll, pitch, yaw, x_accel, y_accel, z_accel = rvc.heading
    print("Roll: %2.2f Pitch: %2.2f Yaw: %2.2f Degrees" % (roll, pitch, yaw))
    print("Acceleration X: %2.2f Y: %2.2f Z: %2.2f m/s^2" % (x_accel, y_accel, z_
↪accel))
    print("")
    time.sleep(0.1)
```


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/bno08x_rvc_simpletest.py

```
1  # SPDX-FileCopyrightText: 2020 Bryan Siepert, written for Adafruit Industries
2  #
3  # SPDX-License-Identifier: Unlicense
4  import time
5  import board
6  import busio
7
8  uart = busio.UART(board.TX, board.RX, baudrate=115200, receiver_buffer_size=2048)
9
10 # uncomment and comment out the above for use with Raspberry Pi
11 # import serial
12 # uart = serial.Serial("/dev/serial0", 115200)
13
14 # for a USB Serial cable:
15 # import serial
16 # uart = serial.Serial("/dev/ttyUSB0", baudrate=115200)
17
18 from adafruit_bno08x_rvc import BNO08x_RVC # pylint:disable=wrong-import-position
19
20 rvc = BNO08x_RVC(uart)
21
22 while True:
23     yaw, pitch, roll, x_accel, y_accel, z_accel = rvc.heading
24     print("Yaw: %2.2f Pitch: %2.2f Roll: %2.2f Degrees" % (yaw, pitch, roll))
25     print("Acceleration X: %2.2f Y: %2.2f Z: %2.2f m/s^2" % (x_accel, y_accel, z_
26     ↪accel))
27     print("")
```

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```
time.sleep(0.1)
```

6.2 adafruit_bno08x_rvc

A simple helper library for using the UART-RVC mode of the BNO08x IMUs

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6.2.1 Implementation Notes

Hardware:

- Adafruit 9-DOF Orientation IMU Fusion Breakout - BNO085 (BNO080) (Product ID: 4754)

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: <https://circuitpython.org/downloads>

class `adafruit_bno08x_rvc.BNO08x_RVC` (*uart*, *timeout=1.0*)

A simple class for reading heading from the BNO08x IMUs using the UART-RVC mode

Parameters

- **uart** – The UART device the BNO08x_RVC is connected to.
- **timeout** (*float*) – time to wait for readings. Defaults to 1.0

Quickstart: Importing and using the device

Here is an example of using the BNO08X_UART class. First you will need to import the libraries to use the sensor

```
import board
import busio
from adafruit_bno08x_rvc import BNO08x_RVC
```

Once this is done you can define your `busio.UART` object and define your sensor object

```
uart = busio.UART(board.TX, board.RX, baudrate=3000000, receiver_buffer_
↪size=2048)
rvc = BNO08X_UART(uart)
```

Now you have access to the `heading` attribute

```
yaw, pitch, roll, x_accel, y_accel, z_accel = rvc.heading
```

heading

The current heading made up of

- Yaw
- Pitch
- Roll
- X-Axis Acceleration
- Y-Axis Acceleration

- Z-Axis Acceleration

CHAPTER 7

Indices and tables

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