# GNSS Module for Flipper Zero

User Manual

Model: NHEZ-0107

Rev. A

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# Revision history

| Date | Version | Description |
| --- | --- | --- |
| January 05, 2024 | Rev. A | Initial release. |
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# Introduction

GNSS Module for Flipper Zero is a Plug-and-Play Multi-GNSS (Global Navigation Satellite System) module designed specially for Flipper Zero, supports GPS, BeiDou (BDS), GLONASS and QZSS systems, allows multi-system combined or single-system independent positioning. It also supports AGNSS function, built-in low-noise amplifier and sound surface filter, and provides a good positioning experience of fast, accurate, high-performance.

The module comes with a high-performance active GNSS antenna intended to cover GPS L1 C/A, BDS B1 and GLONASS L1 bands. The design also has a tiny bright green LED for indicating the 1PPS output on fix, a pre-soldered CR1220 coin cell holder to keep the RTC running and allow warm starts, and 126 2.54mm-spaced holes for attaching your custom circuits.
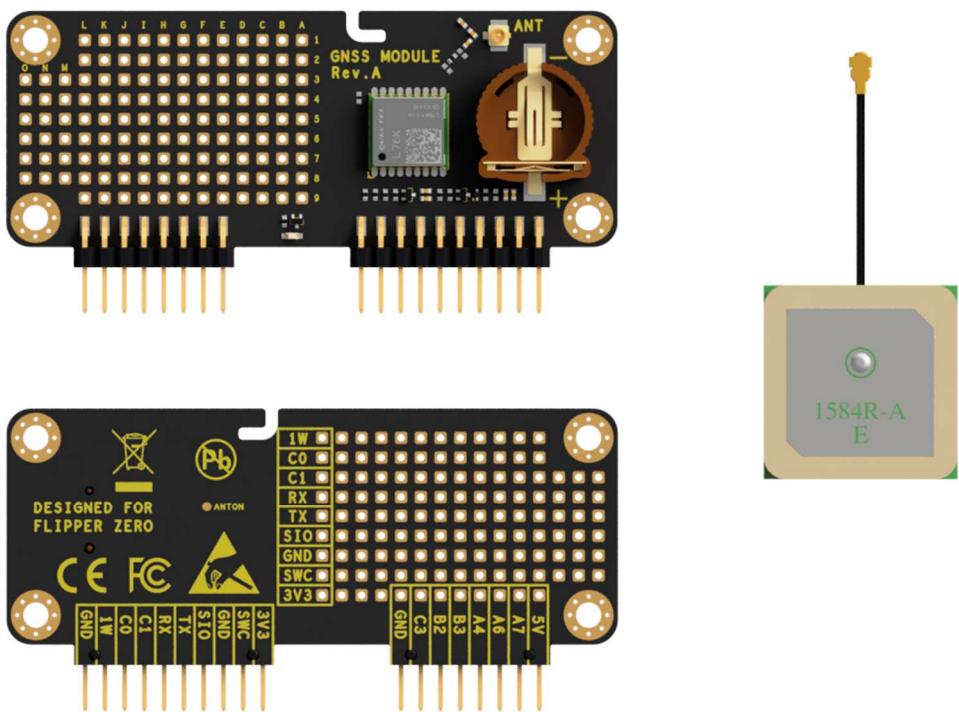
# Key features

- Plug-and-Play module designed specially for Flipper Zero
- Support Multi-GNSS systems: GPS, BeiDou (BDS), GLONASS and QZSS
- Built-in Low-Noise Amplifier (LNA) for improved reception sensitivity
- Built-in SAW Filter for enhanced noise reduction performance
- Support AGNSS
- UART communication baud rate: 4800~115200bps (9600bps by default)
- Support NMEA 0183 standard protocol and CASIC proprietary protocol
- U.FL connector for external active GNSS antenna
- Shipped with a high-performance active GNSS antenna (support GPS L1 C/A, BDS B1 and GLONASS L1 bands)
- Green LED for indicating the 1PPS output on fix
- Pre-soldered CR1220 coin cell holder
- 126 2.54mm-spaced holes for attaching your custom circuits

# What's included

- 1x GNSS Module for Flipper Zero
- 1x High-performance active GNSS antenna
- Quick start guide

# Hardware diagram

| | | |
|---|---|---|
| 5V | 1 | |
| PA7 | 2 | |
| PA6 | 3 | |
| PA4 | 4 | |
| PB3 | 5 | |
| PB2 | 6 | |
| PC3 | 7 | |
| GND | 8 | |

1PPS LED

126 Holes
2.54mm Spaced
Prototyping

| | | |
|---|---|---|
| 3V3 | 9 | |
| SWCLK | 10 | |
| GND | 11 | |
| SWDIO | 12 | |
| UART1.TX | GNSS.RX | 13 |
| UART1.RX | GNSS.TX | 14 |
| PC1 | STANDBY | 15 |
| PC0 | RESET | 16 |
| PB14 | 17 | |
| GND | 18 | |

GNSS MODULE
Rev.A

L76K MODULE

U.FL Receptacle

CR1220 Holder
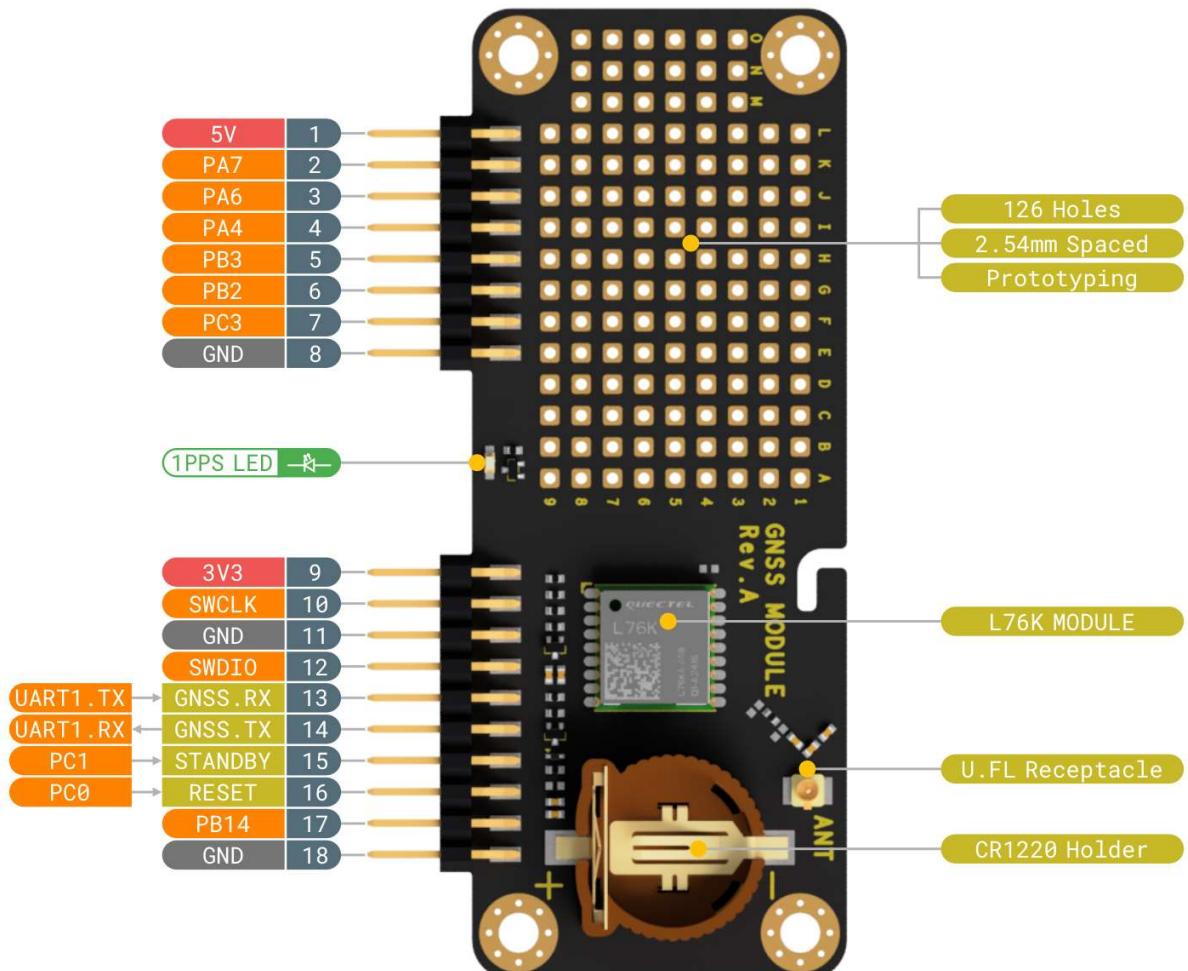
# Quick start guide

This section describes how to set up the GNSS module on your Flipper Zero.

## 1. Attaching the GNSS antenna

Connect the GNSS antenna to the U.FL receptacle on the module and attach the antenna on the back of the module. The following figure illustrates how to attach the antenna.
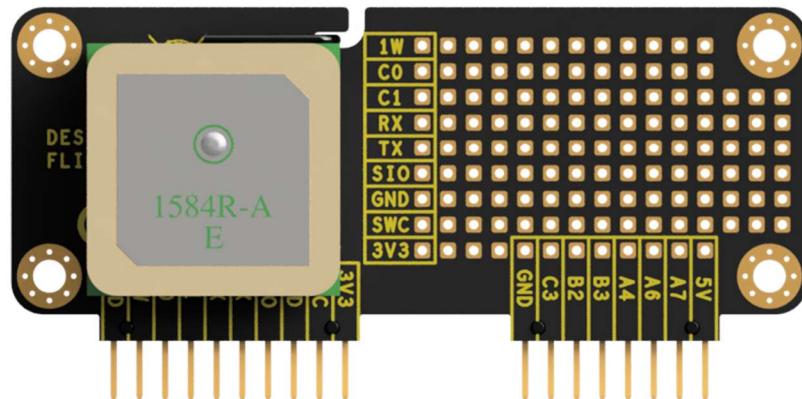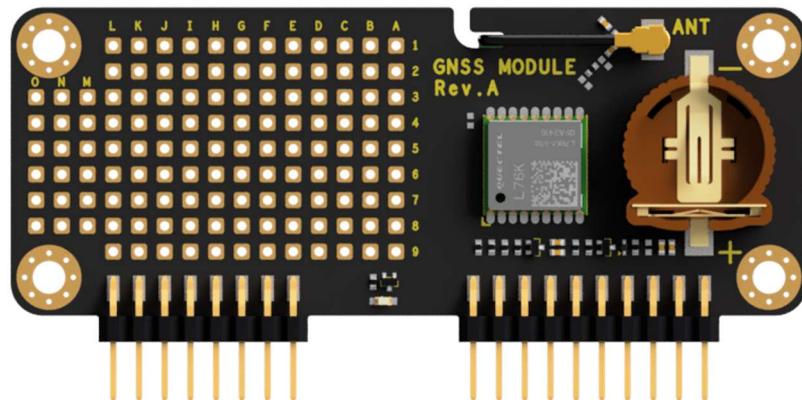




## 2. Connecting the GNSS Module

Simply connect the header at the edge of the GNSS module to its counterpart on the Flipper Zero as shown in the picture below.
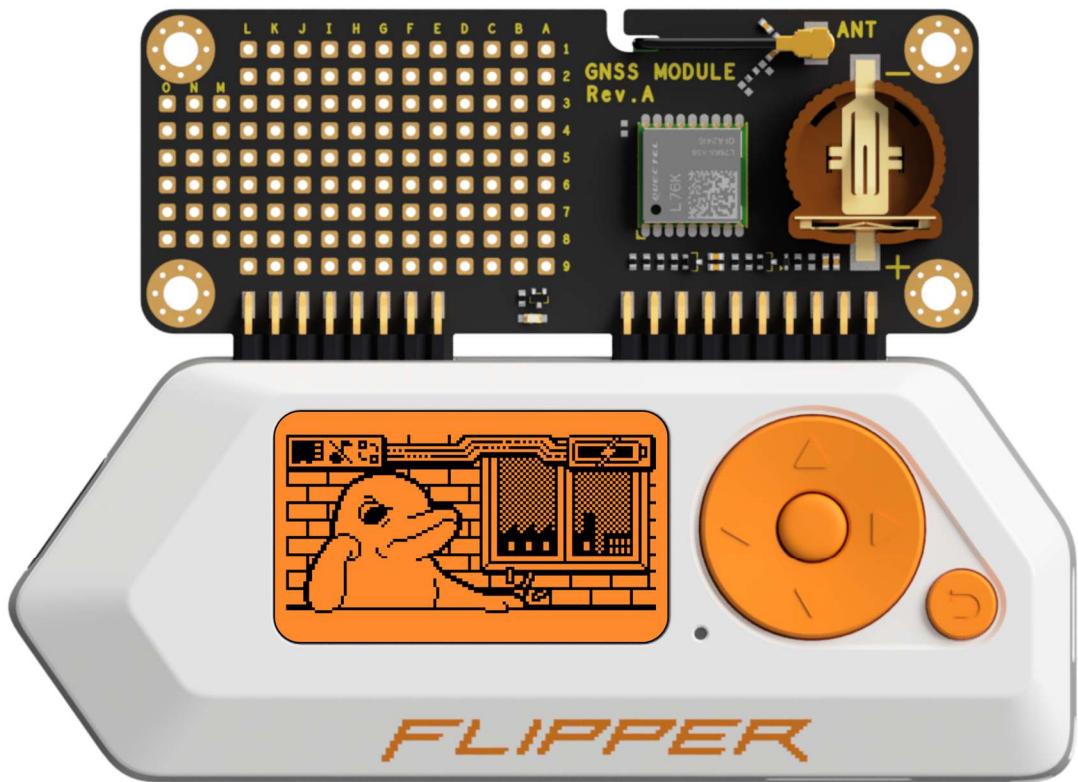
# 3. Installing application on Flipper Zero

     a.    Follow the instructions on https://docs.flipper.net/basics/first-start to setup your Flipper Zero.

     b.    Visit https://lab.flipper.net/ in the Chrome browser and connect your Flipper Zero. We recommend updating the firmware of your Flipper Zero to the latest version right away.
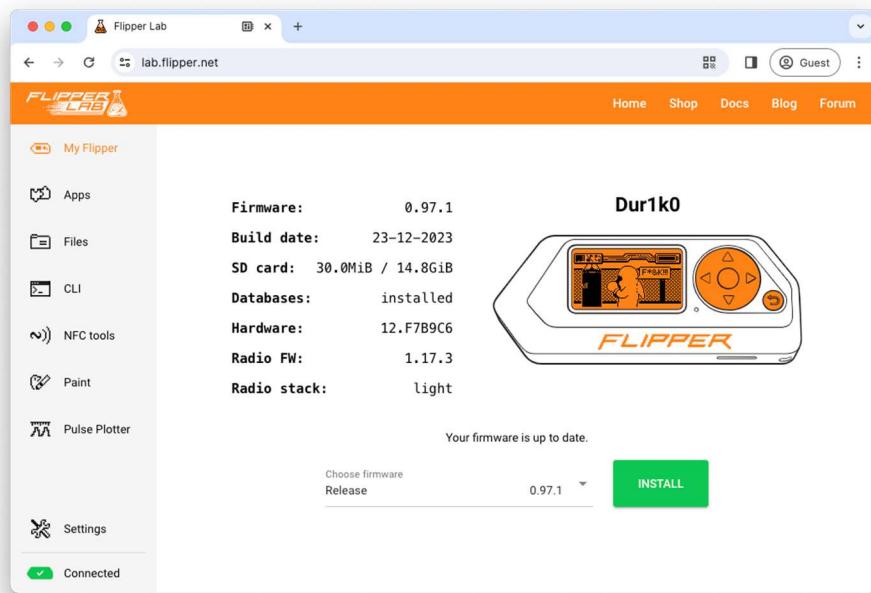
c.   In the **Apps** tab, search **[NMEA] GPS** and install the **[NMEA] GPS** application.
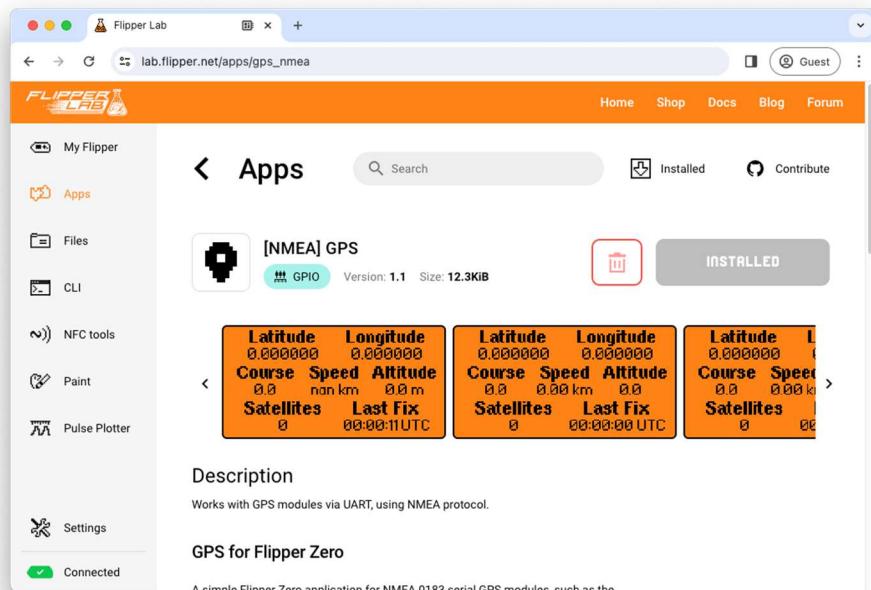


# 4. Viewing the GNSS output

a.   After installing the app, you can access it on your Flipper Zero by going to **Main Menu** -> **Apps** -> **App's category** -> **GPIO** -> **[NMEA GPS]**.
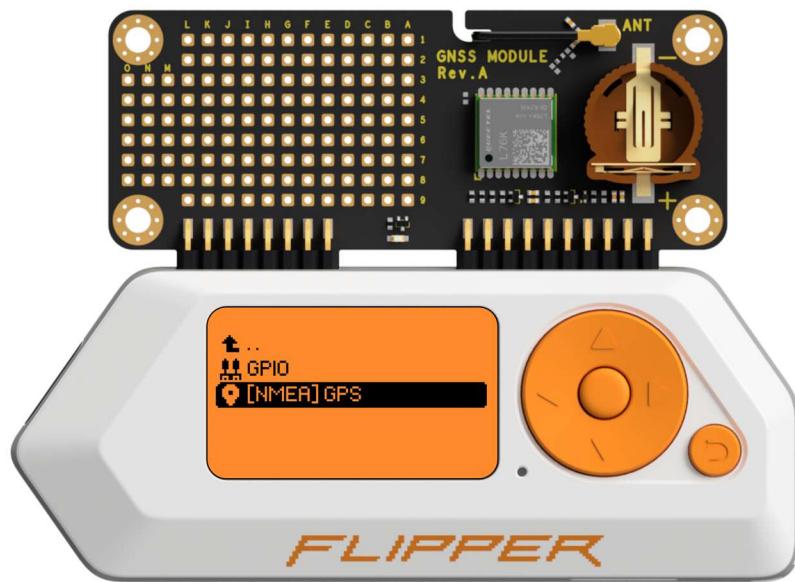
b.    Go outdoor and you will see your location information in the **[NMEA GPS]** app a few minutes later. The Green LED blinks at about 1Hz when a fix is found.
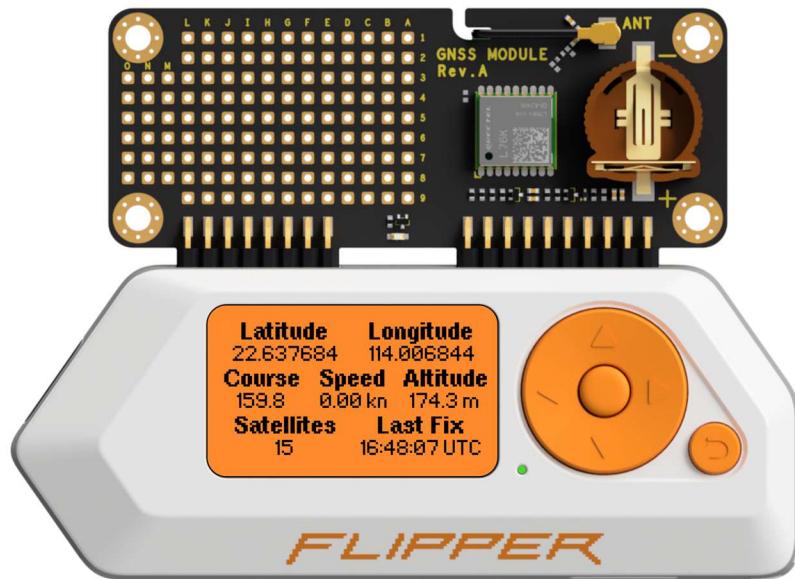


# 5. Congratulations!

You have now learned how to use the GNSS Module for Flipper Zero. There is still much more to explore, so keep playing.

## Certification

## FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following
two conditions:
This device may not cause harmful interference, and
This device must accept any interference received, including interference that may cause undesired operation.
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

## End-Product Label

It is suggested using following content adding to package or user manual or label to obey the regulation. Any rules of end-product label shall refer to each regulation for final reference.