SingularXYZ

P2 Series GNSS Receiver
User Manual

V1.1

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If you have any questions that can't be solved in this manual, please contact your local SingularXYZ distribution partner. Alternatively, request technical support from SingularXYZ Intelligent Technology Ltd.

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Your feedback on this manual will help us improve it with future revisions.

CONTENTS

CONTENTS 1
1.1 About P2 2
1.2 Specification 2
1.3 Packing List 3
2.1 Environmental Requirements 5
2.2 Front Panel 5
2.3 Right Panel 6
2.4 Lowering House 6
3.1 Function Panel 7
3.2 Surveying 8
3.2.1 Device connection 8
3.2.2 Phone Internet 9
3.3.3 Device Internet 10
3.3.4 Singular Nav Function Introduction 12
3.3.5 Point Survey 12
3.3 Connection to third-party GIS software 13
3.3.1 Third-party support 13
3.4 Promotion Function 14
3.4.1 Personal Tracking 14
3.5 Firmware update 14
3.6 How to contact us 17

Chapter 1 OverView

1.1 About P2

Embedded with high precision GNSS module, P2 GNSS receiver can automatically track constellations including GPS, GLONASS, BDS, Galileo, QZSS and SBAS, combined with its anti-jamming and anti-spoofing algorithm, it can deliver centimeter-level RTK accuracy and sub-meter standalone accuracy via ultra-small size— it weights even lighter than a smart phone.it is suitable for personnel tracking, vehicle trajectory tracking, inspection and investigation industries.

1.2 Specification

Key Features：

- Portable/Wearable
- Pocketsize：122.5*62*22 mm (L*W*H)
- Lighter than smartphones: 146 grams
- Precision positioning：centimeter-level RTK accuracy and sub-meter standalone accuracy
- IP65 rated waterproof & dustproof
- Integrated 4G/Bluetooth module, support Ntrip Client mode
- Up to 15 hours operation

1.3 Packing List

Thanks for choosing SingularXYZ P2 GNSS receiver, please check your package for items listed below.

Table 1: Packing list of P1 GNSS receiver

No.	Name	Quantity	Figure
1	P2 GNSS receiver	1	
2	Type-C Cable	1	
3	Storage Bag	1	
4	Ejection Pin	1	
5	Connector	1	
6	Centering Pole & Bag*	1	

1. Item with * is Optional.

2. You can connect P2 on an optional centering pole for more precise height accuracy by using a connector.

Figure 1.1 P1 Connected on Centering Pole

Chapter 2 Introduction

This section focuses on the various parts of P2 and notes on their use.

2.1 Environmental Requirements

P2 GNSS receiver is so rugged and designed compactly, but to keep the receiver with a reliable performance and have a lengthy life span, we strongly advise you to use P1 under circumstances below:

- Operating Temperature： -40 ℃----- 85 ℃ (-40 ℉ --- 185 ℉）
- Storage Temperature： -40 ℃--- 85 ℃ (-40 ℉ --- 185 ℉）
- Humidity： 100% non-condensing.
- Avoid violent impact（designed to survive a 1.5m drop onto concrete）.
- Avoid Soaking in fluid.
- With a clear view of sky.

2.2 Front Panel

P2 GNSS Receiver front panel contains one power button and one OLED display.

- Power Button: long press to turn on/off the receiver， short press to check receiver Status
- OLED Display: You can check receiver status like power, communication, coordinate, satellite, mode, RMS, etc.
- Breathing LED Light: Frequently Shrinking while alarming.

2.3 Right Panel

The right housing of the receiver contains a SIM card slot, a Type C port for charging and data transfer.

2.4 Lowering House

A centering pole attachment port on the lowering House of the receiver.

Chapter 3 Menu

3.1 Function Panel

This part is aimed to introduce the detailed function of P2 main screen.

- **Rover Mode**

In this screen basic information about device contained.

 : Number of Satellites.

 : Horizontal RMS

 : Positioning Status

 : Connecting Status

 : Net Status

 : Battery Status

- **WIFI Mode**

SSID: SN number of the device, marking the WIFI name.

IP: Address of the device

In this mode, WIFI of device will be activated, you can connect to the device WIFI and input IP in your browser to enter the configure Page.

- **NTRIP INFO**

Port: port of the device

IP: Ip of the device

Mounting Point: An entry for file system

Link Status: status of NTRIP

- **DEVICE INFO**

HW Version: GNSS Board Firmware version

SW Version: Firmware version

3.2 Surveying

P2 now supports connecting to SingularPad and SingularNav.

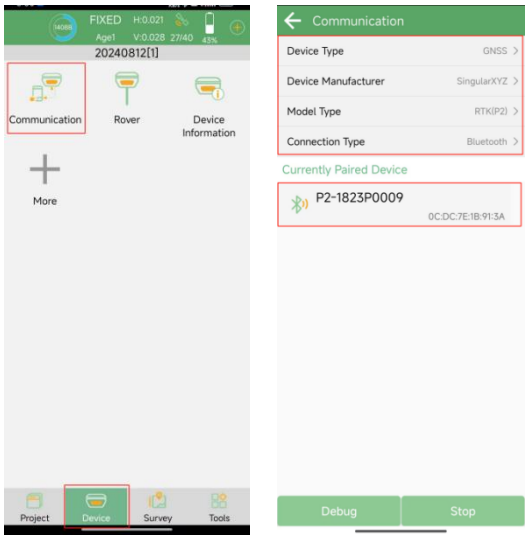
3.2.1 Device connection

The most frequently used work mode of P2 is RTK based on CORS. We recommend using SingularPad software.

Connecting to the Internet with your controller or cell phone, then follow the workflow below:

Step1: **Main interface** -> **Device** -> **Communication.**

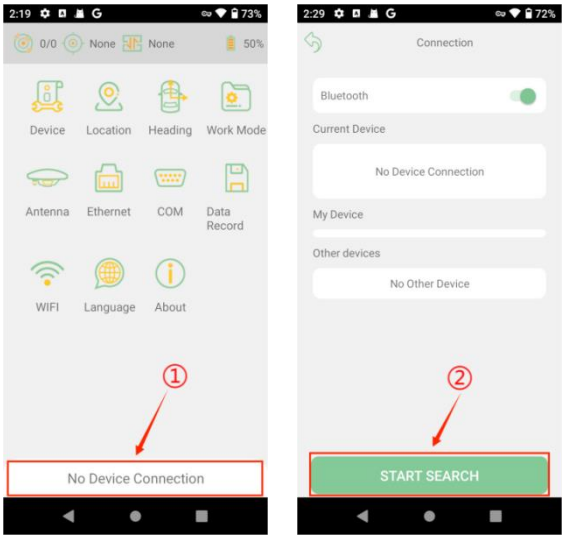
Step2: Click the **<Bluetooth logo>** to connect to P2. The Bluetooth device name is its **SN numbe**r on the back of P2, find it on Bluetooth Device list, select and connect.



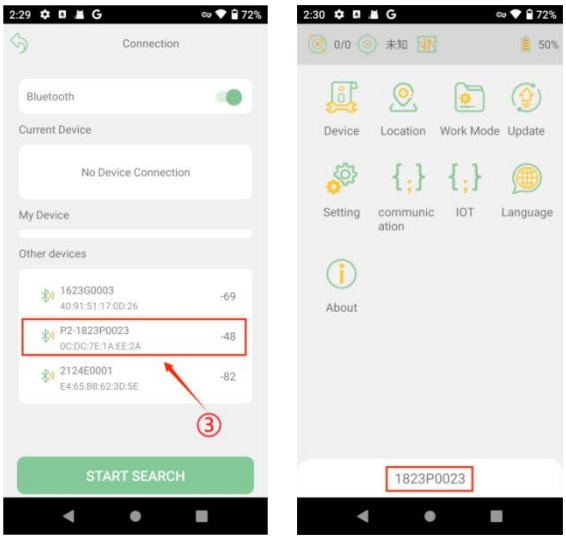
The second method is using SingularNav

Step1: Click **<No Device Connection>**

Step2: Click **<START SEARCH>**



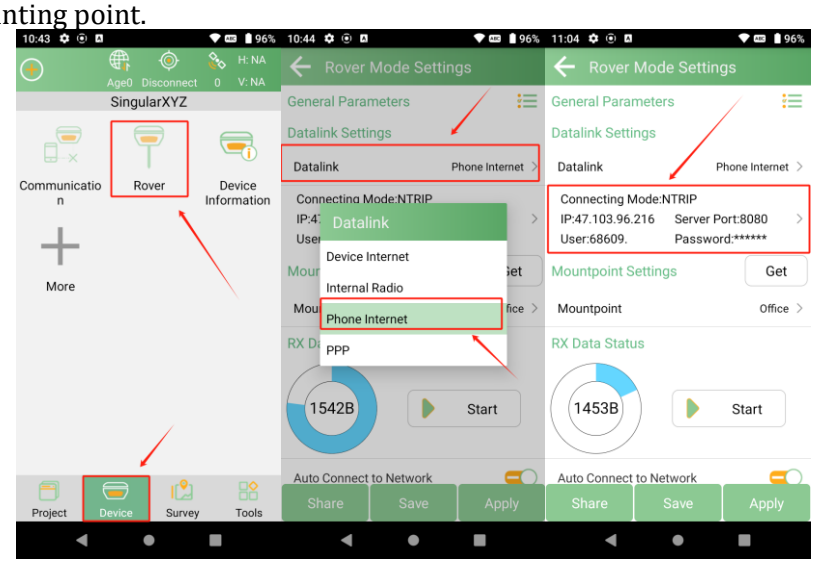
Step3: Select target device. When the device **SN number** appears at the bottom of the page, the connection is successful.

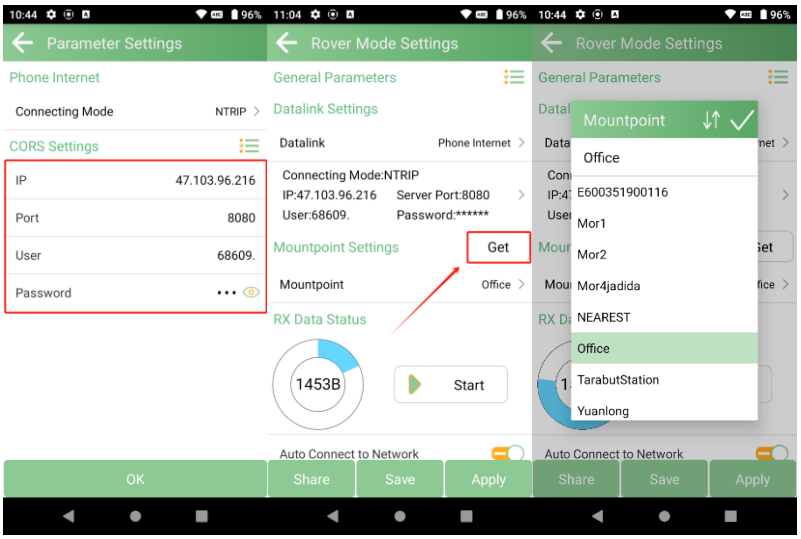


3.2.2 Phone Internet

The P2 GNSS receiver can receive correction data from continuously operating reference station via phone internet in SingularPad.

- Go to **<Main interface>** -> **<Device>** -> **<Rover>**.
- Click the **<Datalink>**，choose **<Phone Internet>**（getting internet from phone which P2 is connected）.
- Click **<Connection Type>** to set parameters,
- Back to **<Rover Mode Settings>** -> Click **"Get"** button to obtain mounting point -> select a suitable mounting point.

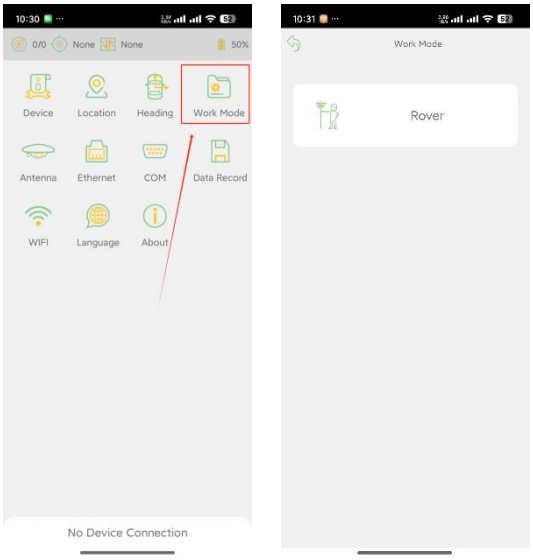




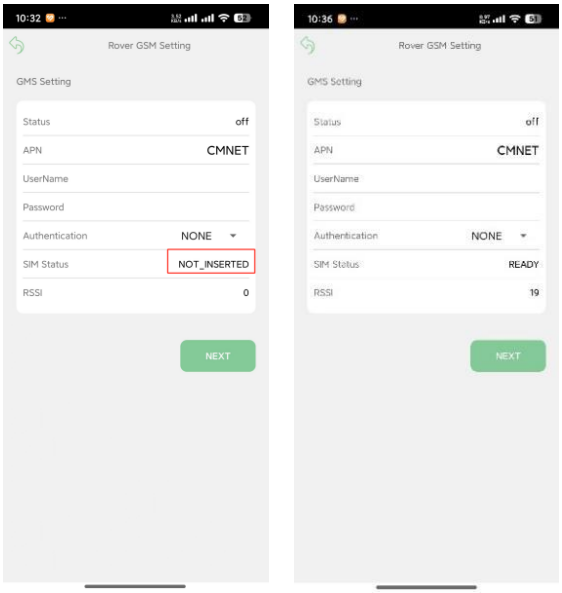
3.3.3 Device Internet

The P2 series receiver can use Sim card to get Network and work in Ntrip Mode, which can get **higher accuracy** to survey or position.

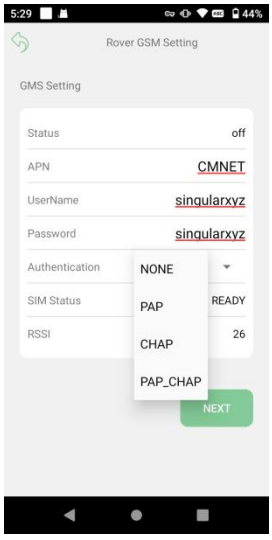
- First need use <**Singular Nav**> to connect device.
- Click <**Work Mode**> to configure Sim card and configure Device Network in Rover mode.



If you don’t insert Sim card or the Sim card is error, there will be informed <**NOT_INSERTED**>, like the left picture below, if the Sim card is correct, will inform like picture right.



Enable Sim card and configure Ntrip Service. Such as IP, Port, Username, Password. The Authentication field needs to be filled in according to the operator.



3.3.4 Singular Nav Function Introduction

Users will then enter administrator usage mode.

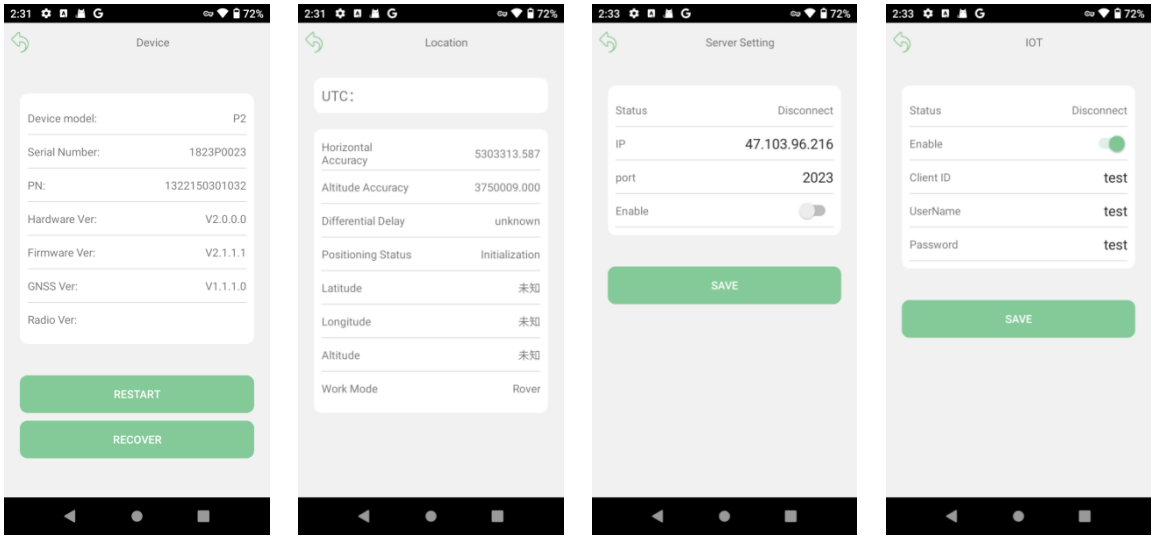
- **<Singular Nav>** Function introduction

Device: Users can view the device's basic information on this page

Location: Users can view the device's location information on this page

Communication: Users can enter the IP and port on this page

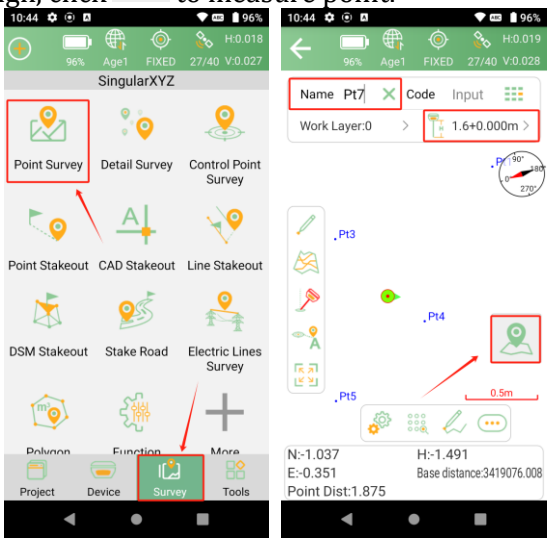
IOT: Users can enter the Client ID, Username and Password on this page



3.3.5 Point Survey

After the device get Fixed status, you can use SingularPad to Point survey.
Enter the **Survey->Point Survey.**

After you set Name and Pole Heigh, click to measure point.



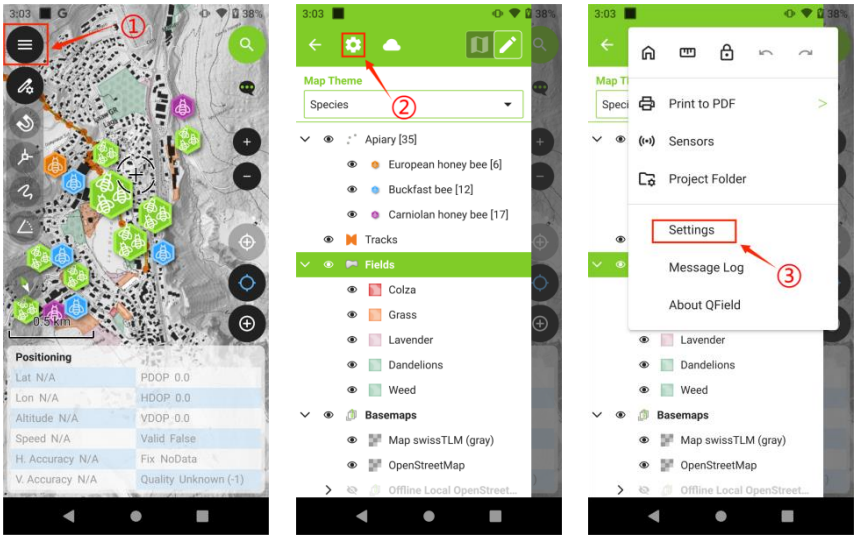
3.3 Connection to third-party GIS software

Users who want to use third-party GIS software to obtain location information on the **Data Collector** should first ensure that the P2 series receiver has been set up as a device network through **<Singular Nav>**, and then connect to the P2 series receiver through **<Singular Pad>**.

3.3.1 Third-party support

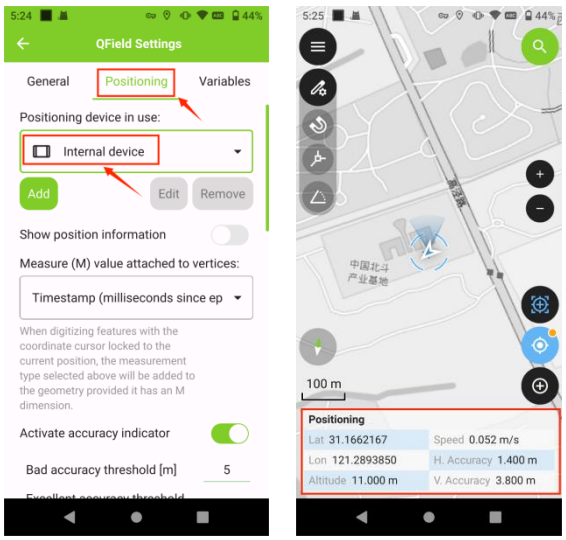
Third-party GIS software: QField

Step1: Open the application and go to <Qfield Settings>.



Step2: Positioning -> Positioning device in use -> Internal device

Users can see the location information of the device on the page.

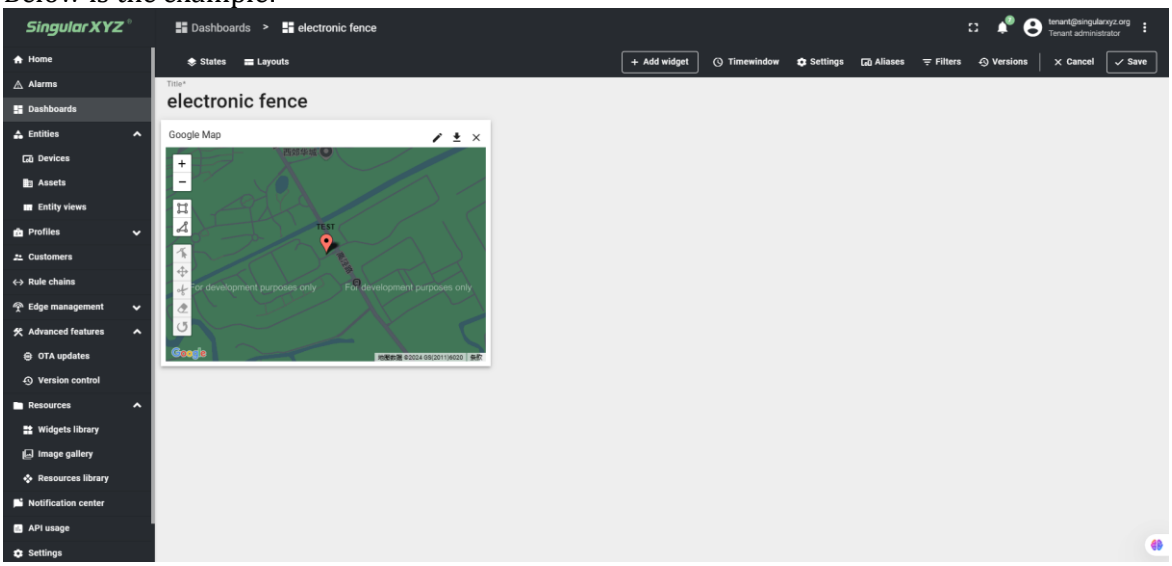


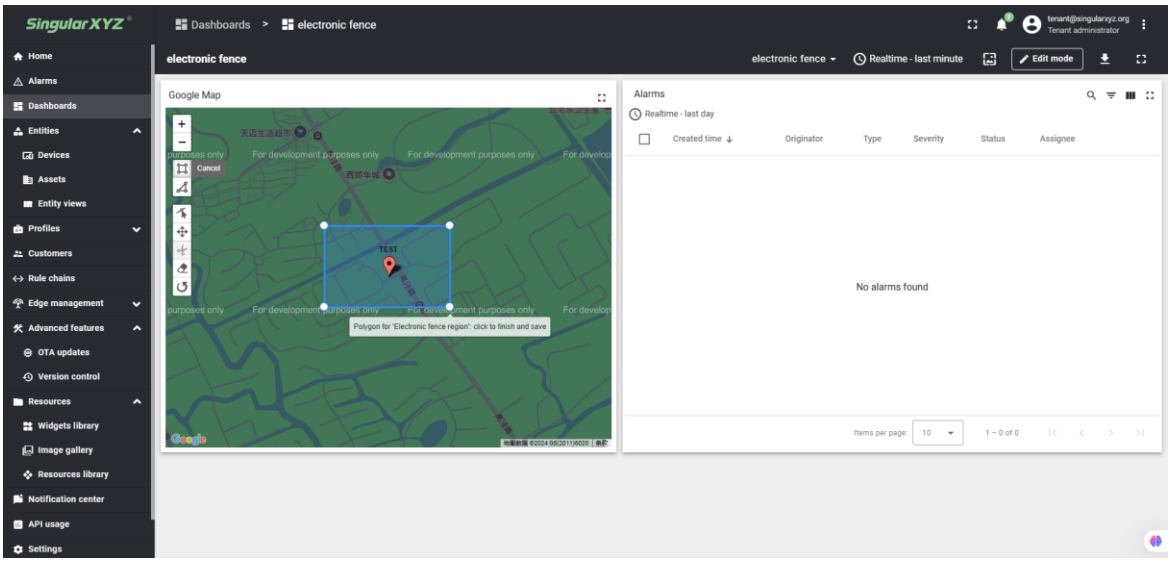
3.4 Promotion Function

3.4.1 Personal Tracking

To use this function, the user should first login to the **<singular thing>** platform in the browser.

This function is commonly used for personnel tracking and geofencing. It triggers an alert when an individual enters a predefined danger zone, serving as a safety warning. Generally used for warning of dangerous areas, positioning of personnel in forests and division of construction safety areas.
Below is the example:

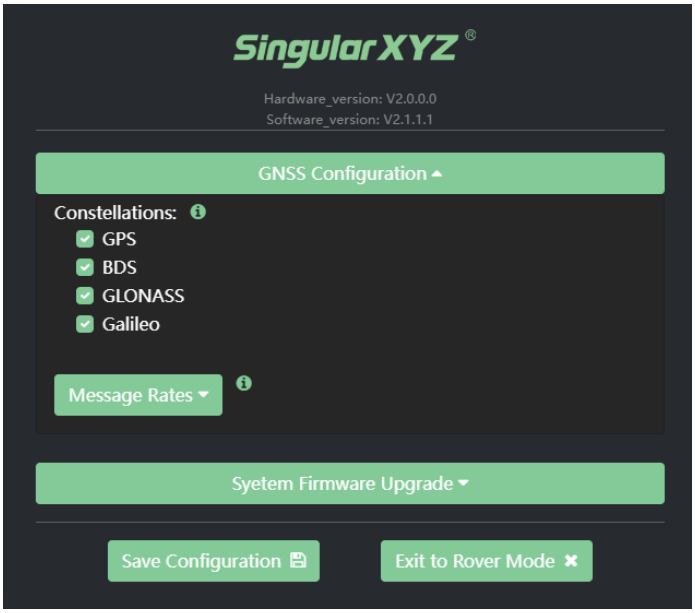




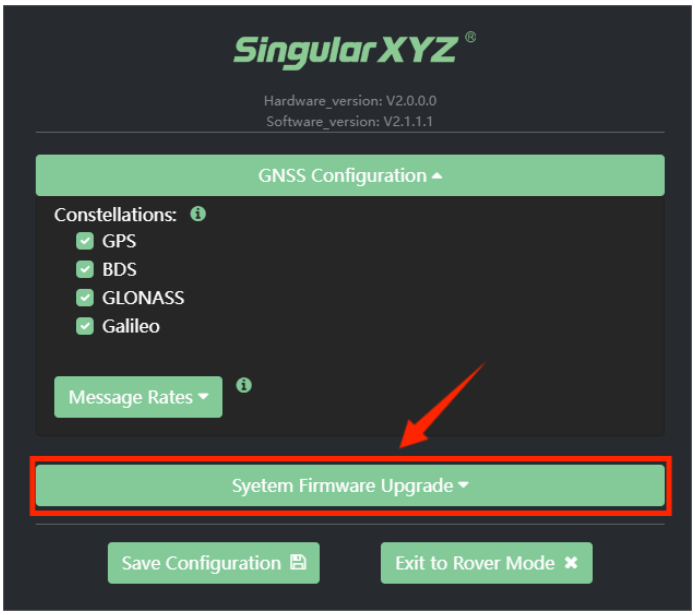
If you have other functional requirements or project requirements, you can contact us for customization and we will provide it for you. Here is an example of our platform.

3.5 Firmware update

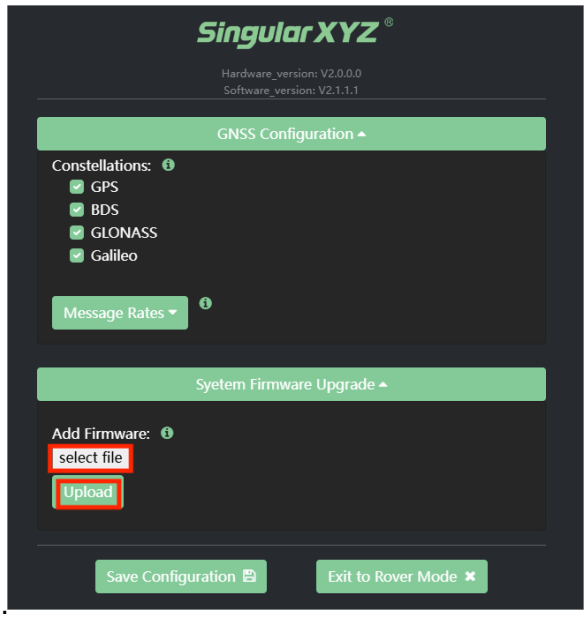
- Step1: Connect PC to the device's Wi-Fi. WIFI account: device SN number, **password**: 12345678.
- Step2: Enter IP: 192.168.4.1 in the browser and go to the following page for firmware upgrade.



- Step3: Click **<System Firmware Upgrade>**



- Step4: Click **<select file>**, add the firmware pack, then click **<upload>**.



<Upload Success> appears, indicating that the firmware upgrade is complete.

3.6 How to contact us

If you have any question and cannot find the answer in this manual, please contact us from

SingularXYZ Website: www.singularxyz.com

Technical support email: support@singularxyz.com

Your feedback about this manual will help us improve it with future revisions