EFIX

EFIX C5 GNSS

USER GUIDE

Survey & Engineering | March 2022

By surveyors, for surveyors

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Preface

Copyright

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Trademarks

All product and brand names mentioned in this publication are trademarks of their respective holders.

Safety Warnings

The Global Positioning System (GPS) is operated by the U.S. Government, which is solely responsible for the accuracy and maintenance of the GPS network. Accuracy can also be affected by poor satellite geometry and obstructions, like buildings and heavy canopy.

1 Introduction

The C5 GNSS receiver is a portable and fully functional device, which remains the internal radio module. Featuring full GNSS technology, it offers best-in-class GNSS signal tracking even in a harsh environment, enabling GNSS surveying beyond usual constraints. The C5 GNSS incorporates the latest innovations such as an inertial module (IMU) providing automatic pole-tilt compensation in a very compact design.

1.1 Safety Information

1.1.1 Warnings and Cautions

An absence of specific alerts does not mean that there are no safety risks involved.

A Warning or Caution information is intended to minimize the risk of personal injury and/or damage to the equipment.

WARNING - A Warning alerts you to a potential misused or wrong setting of the equipment.

CAUTION - A Caution alerts you to a possible risk of serious injury to your person and/or damage to the equipment.

1.2 Regulations and Safety

The receivers contain a built-in wireless modem for signal communication through Bluetooth® wireless technology or through external communication datalink. Regulations regarding the use of the wireless modem vary greatly from country to country. In some countries, the unit can be used without obtaining an end-user license. However, in some countries, the administrative permissions are required. For license information, consult your local dealer. Bluetooth® operates in license-free bands.

Before operating a C5 GNSS receiver, determine if authorization or a license to operate the unit is required in your country. It is the responsibility of the end-user to obtain an operator's permit or license for the receiver for the location or country of use.

1.2.1 Use and Care

This receiver is designed to withstand the rough environment that typically occurs in the field. However, the receiver is high-precision electronic equipment and should be treated with reasonable care.

CAUTION - Operating or storing the receiver outside the specified temperature range will cause irreversible damage.

1.3 Technical Support

If you have a problem and cannot find the information you need in this manual or EFIX website (www.efix-geo.com), contact your local EFIX dealer from which you purchased the receiver(s).

If you need to contact EFIX technical support, please contact us by email (support@efix-geo.com) or Skype (support@efix-geo.com).

1.4 Disclaimer

Before using the receiver, please make sure that you have read and understood this User Guide, as well as the safety information. EFIX holds no responsibility for the wrong operation by users and for the losses incurred by the wrong understanding about this User Guide. However, EFIX reserves the rights to update and optimize the contents in this guide regularly. Please contact your local EFIX dealer for new information.

1.5 Your Comments

Your feedback about this user guide will help us to improve it in future revision. Please email your comments to support@ efix-geo.com.

2 Getting Started with C5

2.1 About the Receiver

The new C5 GNSS receiver offers integrated IMU-RTK technology to provide a robust and accurate GNSS positioning in any circumstances. Unlike the standard MEMS based GNSS receivers, the C5 GNSS IMU-RTK combines state-of-the-art GNSS RTK engine, calibration-free professional IMU sensor, 4D-3S initialization and advanced GNSS tracking capabilities. Survey projects are achieved with high productivity and reliability pushing the boundaries of conventional GNSS RTK survey.

The receiver can be used as the part of an RTK GNSS system with EFIX eField software. Moreover, user can download the GNSS data that recorded in the internal memory of receiver to a computer.

To configure the receiver for performing a wide variety of functions, you can use the web interface by connecting the receiver with PC or smartphone through Wi-Fi.

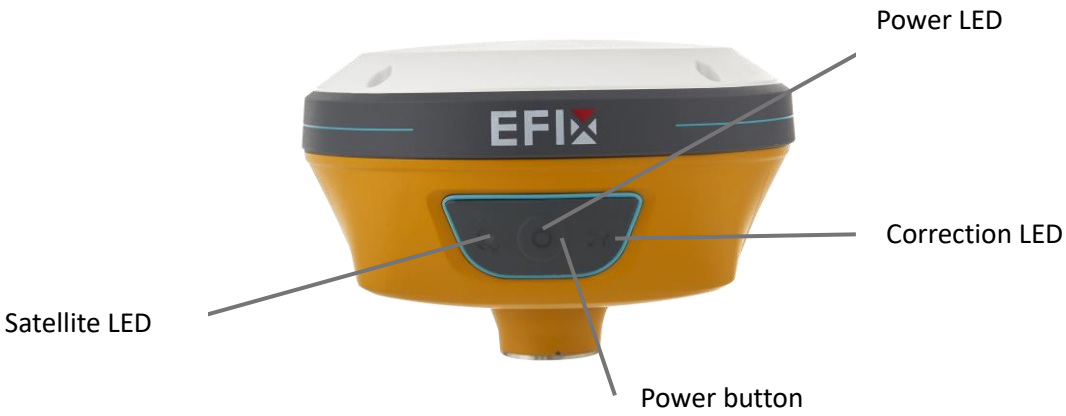
2.2 Parts of the Receiver

The operating controls are all located on the front panel. Serial ports and connectors are located on the bottom of the unit.

2.2.1 Front Panel

The following figure shows a front view of the receiver.

The front panel contains two indicator LEDs and one button.



Name	Color	Description
Correction LED	Yellow	• As a Base station: successfully transmitting differential data, the correction LED shows yellow.
	Yellow / Green	• As a Rover station: successfully receiving differential data from Base station, the correction LED shows yellow when it is single or float, shows green when it is fixed.
Power LED	Red	• Under normal conditions red power light • The power light shows yellow when charging • The power light shows green when fully charged
	Yellow	
Satellite LED	• The light glitters every 5 seconds means searching for satellites • The light glitters N times every second means it has got N satellites	
Power button	• Works as a Power button • Press and hold this button for 3 seconds to turn on or turn off the receiver.	

2.2.2 Receiver Ports

The receiver ports contain one TNC radio antenna connector, one communication and power ports, one 5/8-11 threaded insert, and one nameplate.

Port	Name	Description
	USB Type-C port	• This port is a USB Type-C connector that supports USB communications. • Users can use USB Type-C Cable supplied with the system to download the logged data to a computer.
	Radio antenna connector	• Connect a radio antenna to internal radio of the receiver. And this connector is not used if you are using an external radio.

2.3 Batteries and Power

2.3.1 Built-in batteries

The receiver has a built-in 6800 mAh rechargeable Lithium-ion battery.

2.3.2 Charging the Battery

The rechargeable Lithium-ion battery is supplied partially charged. Charge the battery completely before using it for the first time. Charge via USB Type-C port.

WARNING – Charge and use the rechargeable Lithium-ion battery only in strict accordance with the instructions. Charging or using the battery in unauthorized equipment can cause an explosion or fire and can result in personal injury and/or equipment damage.

To prevent injury or damage:

- Do not charge or use the battery if it appears to be damaged or leaking.
- Charge the Lithium-ion battery only in a EFIX product that is specified to charge it. Be sure to follow all instructions that are provided with the battery charger.
- Discontinue charging a battery that gives off extreme heat or a burning odor.
- Use the battery only in EFIX equipment that is specified to use it.
- Use the battery only for its intended use and according to the instructions in the product documentation.

2.3.3 Battery Safe

WARNING – Do not damage the rechargeable Lithium-ion battery. A damaged battery can cause an explosion or fire and can result in personal injury and/or property damage.

To prevent injury or damage:

- Do not expose the battery to fire, high temperature, or direct sunlight.
- Do not immerse the battery in water.
- Do not drop or puncture the battery.

2.3.4 External Power Supply

Provide the external power to the receiver by the USB Type-C Cable + Power Adapter.

The Power Adapter is connecting with AC power of 100-240V, the output port of the Power Adapter connects with the USB Type-C Cable.

2.4 Product Basic Supply Accessories

2.4.1 Base Kit Basic Supply

Item	Picture
C5 GNSS Receiver	
UHF Bar Antenna (410-470 MHz)	
USB Type-C	
Tribrach adaptor	
H.I. tape	
Tribrach with optical plummet	
Extension pole	
Auxiliary H.I. Tool	

Pole mounting	
Power Adapter.	
Transport Hard Case	
Base kit	

2.4.2 Rover Kit Basic Supply

Item	Picture
C5 GNSS Receiver	
UHF Bar Antenna (410-470 MHz)	

USB Type-C	
2M Range Pole w/bag	
Auxiliary H.I. Tool	
Power Adapter.	
Transport Hard Case	
Rover kit	

2.5 Connecting to an Office Computer

The receiver can be connected to an office computer via a eField USB Type-C. Before you connect to the office computer, ensure that the receiver is powered on.

The following figure shows how to connect to the computer for serial data transfer or settings:

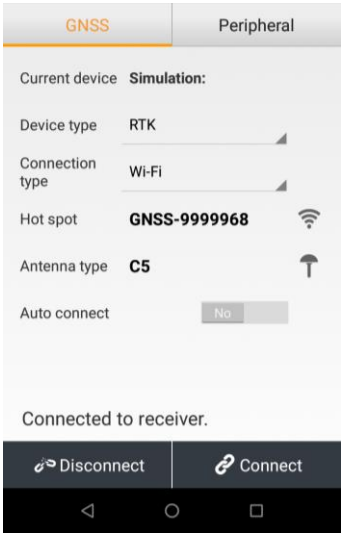
USB Type-C

2.6 Connecting to a Controller

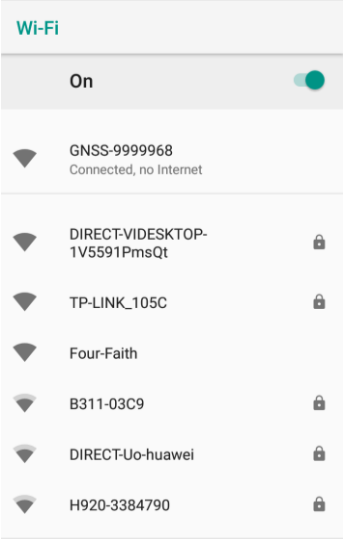
2.6.1 Connecting via Wi-Fi with eField Software

Turn on the controller → run eField→ go to **Config** main menu → tap **Connect**.

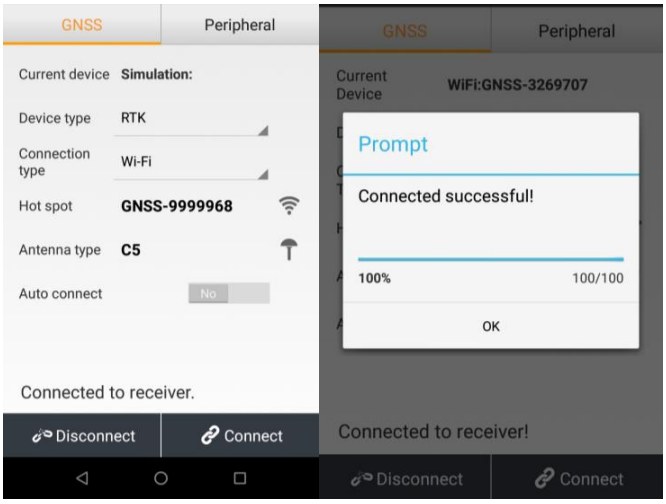
In the *Connect* screen, select EFIX for the *Manufacture* field, **C5** for *Device Type* field, **WIFI** for *Connection Type* field.



Tap the Wireless Lan icon on the right side to select the hot spot → Switch on the WiFi module by the top switch → select the target device in the list.



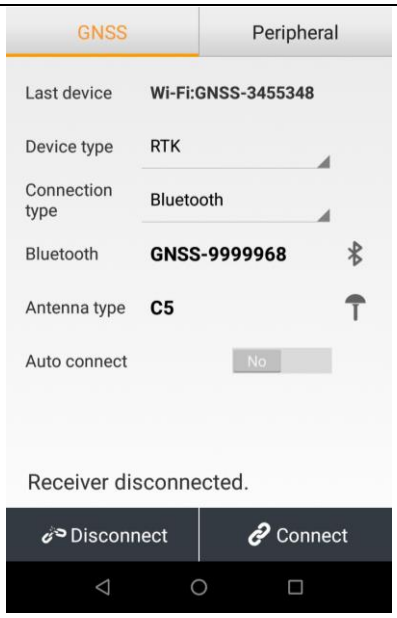
Tap the **Connect** button to build the connection.



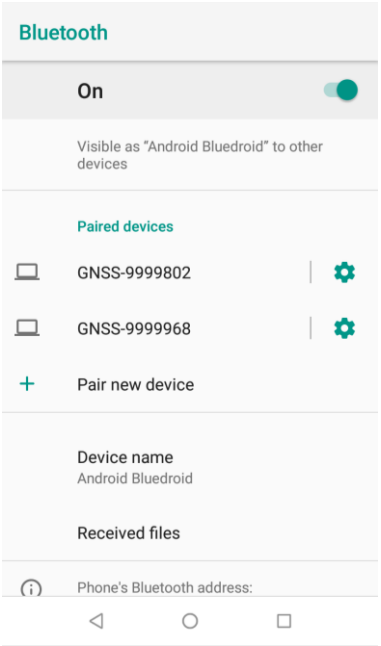
2.6.2 Connecting via Bluetooth with eField Software

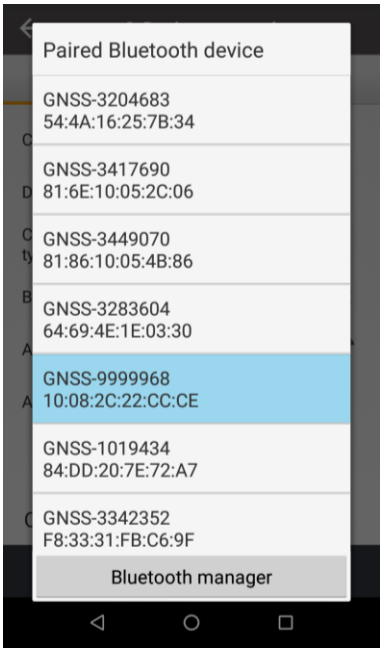
Turn on the controller → run eField → go to **Config** main menu → tap **Connect**.

In the *Connect* screen, select EFIX for the *Manufacture* field, **C5** for *Device Type* field, **Bluetooth** for *Connection Type* field.

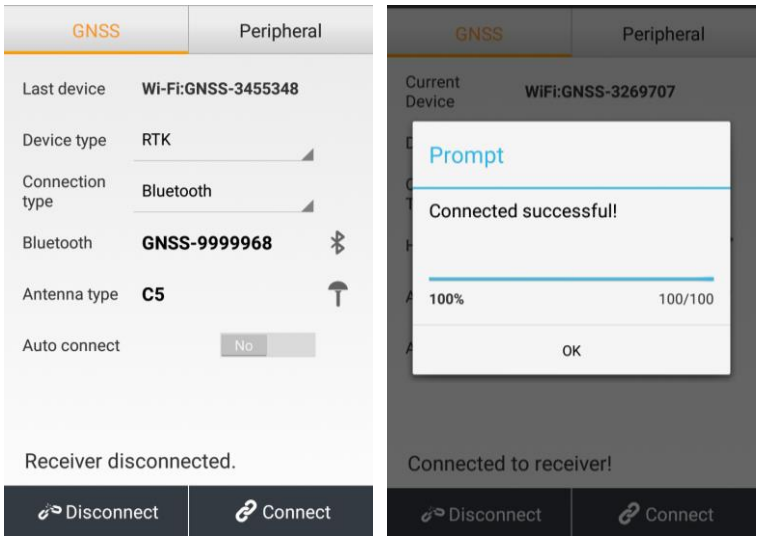


Tap the **Bluetooth Manager** and turn on the **Bluetooth** function to search Bluetooth device around → select the target device in the list → Tap back button → select the target device in the Bluetooth manager list.





Tap the **Connect** button to build the connection.



2.7 Downloading Logged Data

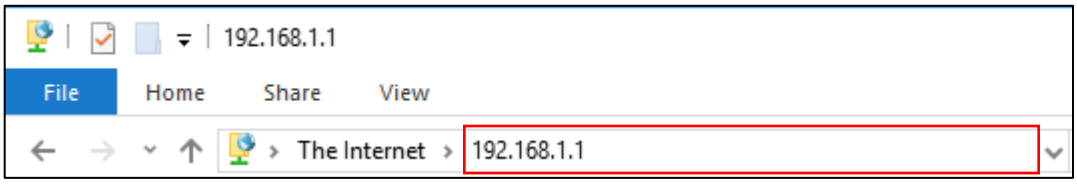
Data logging involves the collection of GNSS measurement data over a period at a static point or points, and subsequent post-processing of the information to accurately compute baseline information. Data logging using receivers requires access to suitable GNSS post-processing software such as the eOffice Software.

2.7.1 FTP Download

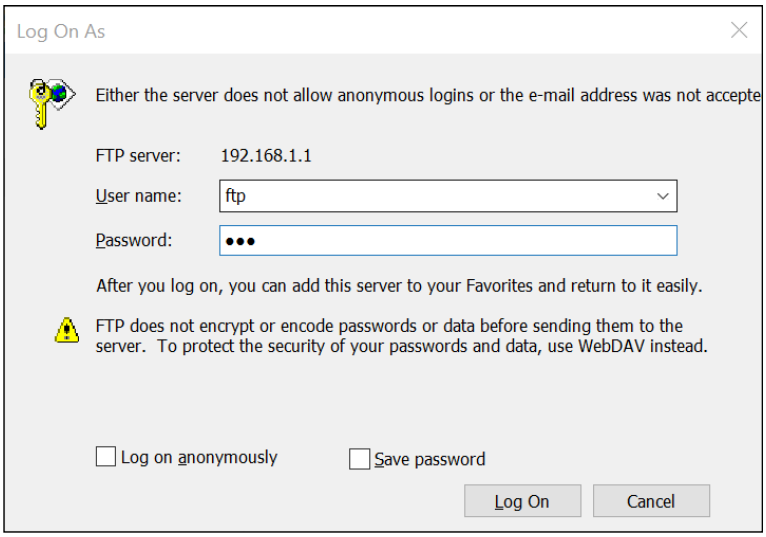
The procedures of downloading logged data through FTP are as follows:

(1) Switch on the receiver, search its Wi-Fi in the computer and connect.

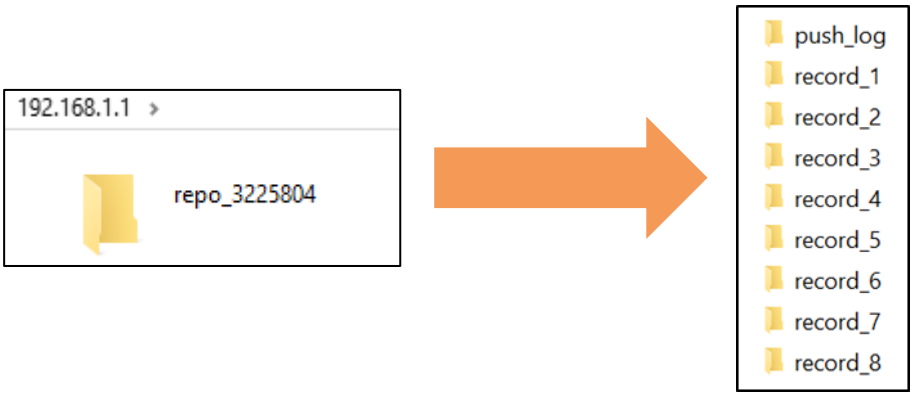
(2) After the successful connection, open the file manager in the computer and input "ftp:\\192.168.1.1" in the address box.



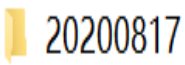
(3) Input user name and password, the default user name and password are "ftp".



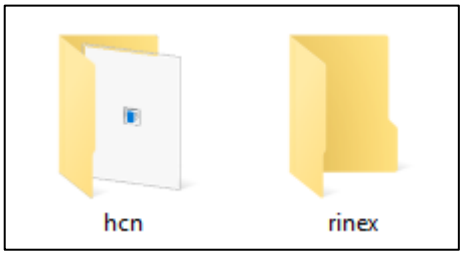
(4) Double click the folder "repo_receiver SN" (take 3225804 as example), you will see 9 folders. The "push_log" folder is used to save the log files, and the other 8 folders represent different logging sessions and are used for store static data.



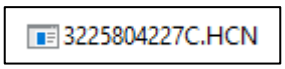
(5) Double click the folder that you have configured to store the static data, you will see the folder(s) created by the C5 system automatically and named by the date which is decide by GPS time when you start to log data.



(6) Select the destination folder and double click it, two folders named as different data format (hcn and rinex) will be displayed.



(7) Select the data format that you configured to save the static data, you will find the static raw data.



Notes: For hcn files, the name of the file is represented as XXXXXXDDDNN, where XXXXXX is the SN of the receiver, DDD is day of year, and NN is the recording session.

WARNING – The static data will be saved in the first logging session, the “record_1” folder, by default. Old files will be deleted if the storage space is full. If you configure not to auto delete old files when the memory is low, the receiver will stop data logging.

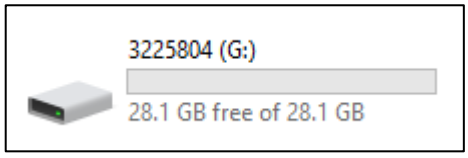
2.7.2 Web Server Download

The procedures of downloading logged data through web server refer to 5.4.4 Data Download Submenu.

2.7.3 USB Download

The procedures of downloading logged data in the receiver are as follows:

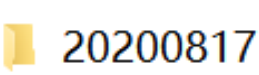
(1) Switch on the receiver and connect it with a computer by eField Type-C. After the successful connection, a removable disk named as the Serial Number (SN) of the receiver will appear on the computer.



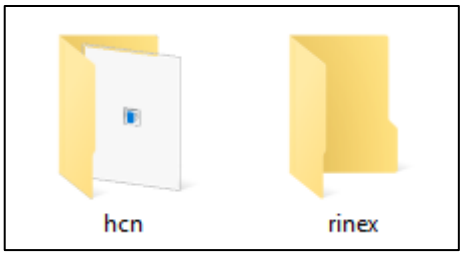
(2) Double click the removable disk and you will see the folder named as “repo”.

(3) Double click this folder, you will see 9 folders. The “push_log” folder is used to save the log files, and the other 8 folders represent different logging session and are used for store static data.

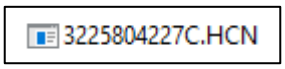
(4) Double click the folder that you have configured to store the static data, you will see the folder(s) created by the C5 system automatically and named by the date which is decide by GPS time when you start to log data.



(5) Select the destination folder and double click it, and then two folders named as different data format (hcn and rinex) will be displayed.



(6) Select the data format that you have configured to save the static data, you will find the static raw data.



Tip – For hcn files, the name of the file is represented as XXXXXXDDDNN, where XXXXXX is the SN of the receiver, DDD is day of year, and NN is the recording session.

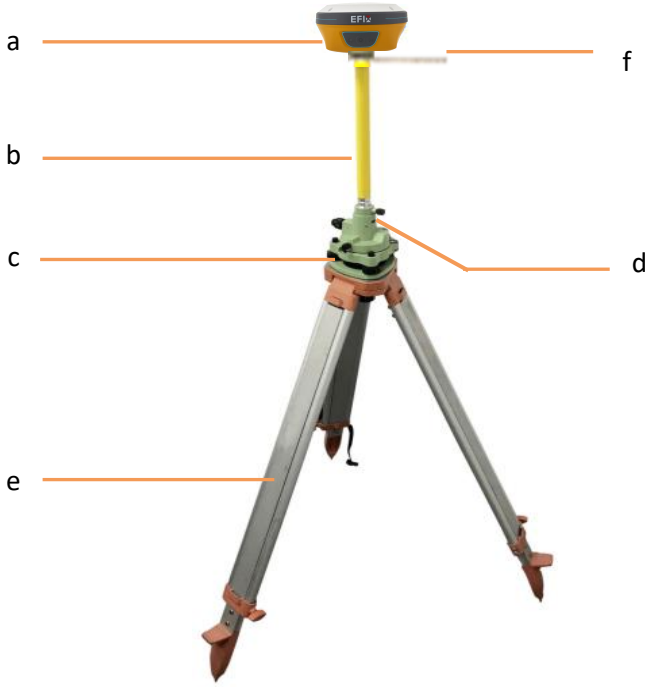
WARNING – The static data will be saved in the first logging session, the “record_1” folder, by default. Old files will be deleted if the storage space is full. If you configure not to auto delete old files when the memory is low, the receiver will stop data logging.

3 Equipment Setup and Operation

3.1 Post-processing Base Station Setup

For good performance, the following base station setup guidelines are recommended:

Components:



No.	Name
a	C5 GNSS receiver
b	Extension pole (30 cm)
c	Tribrach adaptor
d	Tribrach w/ Opti
e	Aluminum tripod
f	Auxiliary H.I. tool

Steps:

(1) Put tripod in the target position, center and level it roughly.

(2) Place and lock the tribrach in the tripod.
(3) Screw the receiver onto the tribrach.
(4) Center and level the receiver more precisely.
(5) Connect the receiver to external battery by using USB Type-C cable if necessary.
(6) Turn on the receiver by pressing the power button for 3 s.
(7) Measure the antenna height by using H.I. tape and auxiliary H.I. tool.
(8) Press the function button to select Data to start recording static raw.

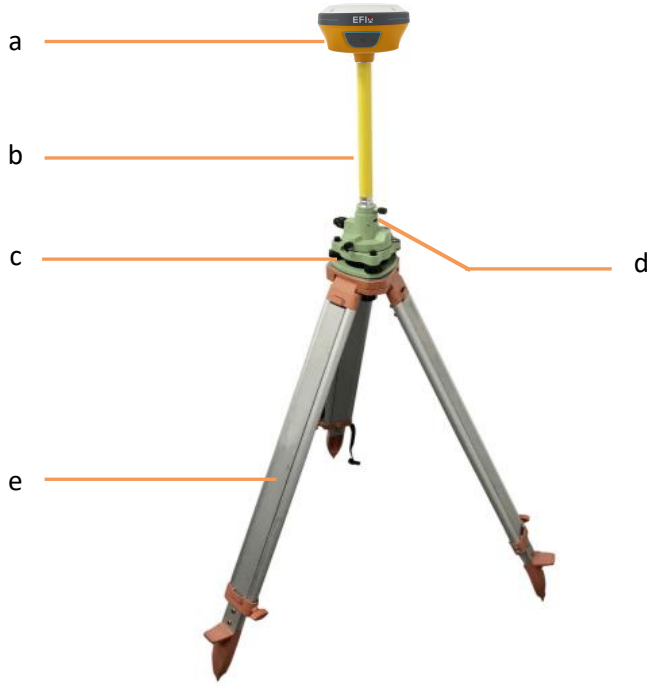
If work with a data controller:

(9) Switch on the data controller and connect it to the receiver.
(10) Use software to configure the receiver as static mode.

3.2 Real-Time Base Station Setup

For good performance, the following base station setup guidelines are recommended:

Components:



No.	Name
a	C5 GNSS receiver
b	Extension pole (30 cm)
c	Tribrach adaptor
d	Tribrach w/ Opti
e	Aluminum tripod

Steps:

(1) Put tripod in the target position, center and level it roughly.
(2) Place and lock the tribrach in the tripod.
(3) Screw the receiver onto the tribrach.
(4) Connect the UHF whip antenna to the receiver if necessary.
(5) Connect the receiver to external battery by using USB Type-C cable if necessary.
(6) Turn on the receiver by pressing the power button for 3 s.

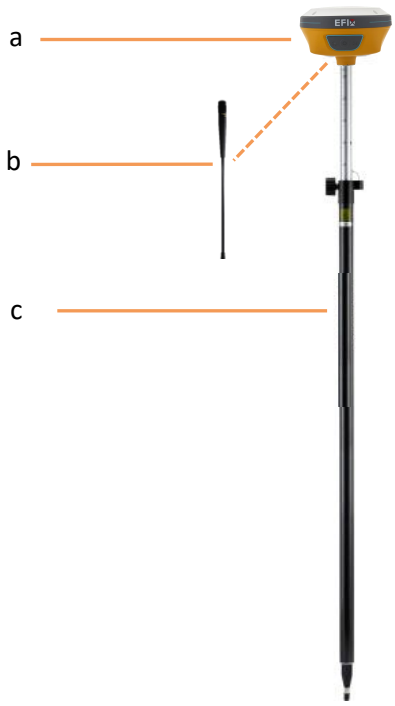
(7) Switch on the data controller and connect it to the receiver.

(8) Use software to configure the receiver as base mode.

3.3 Real-Time Rover Station Setup

For good performance, the following rover station setup guidelines are recommended:

Components



No.	Name
a	C5 GNSS receiver
b	UHF whip antenna
c	2M range pole w/bag

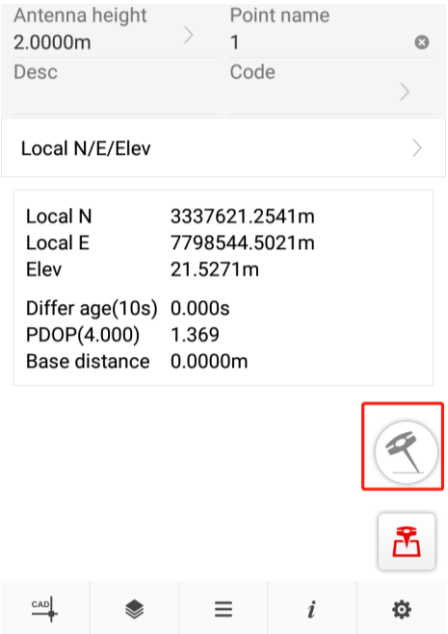
Steps:

(1) Connect the UHF whip antenna to the receiver if necessary.
(2) Screw the receiver onto the pole.
(3) Turn on the receiver by pressing the power button for 3 s.
(4) Switch on the data controller and connect it to the receiver.
(5) Use software to configure the receiver as rover mode.
(6) Center and level the receiver more precisely.
(7) Use software to start survey.

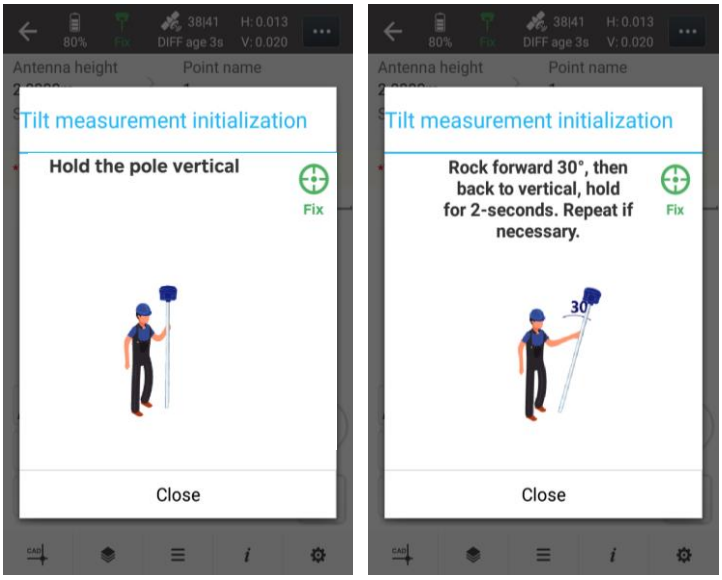
3.4 Working with the Tilt Compensation

3.4.1 Operation Steps

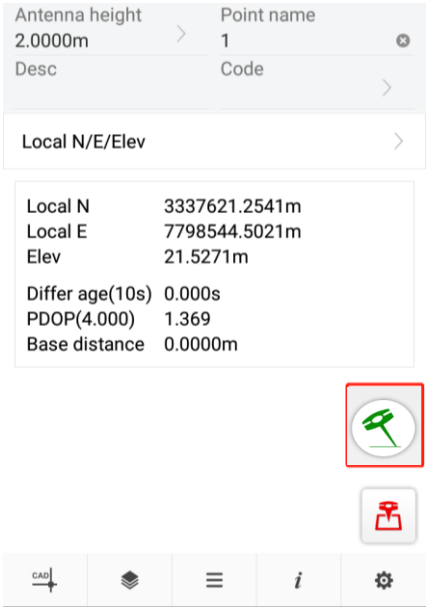
(1) Open eField-> Tap PT Survey-> Tap to activate tilt measurement.



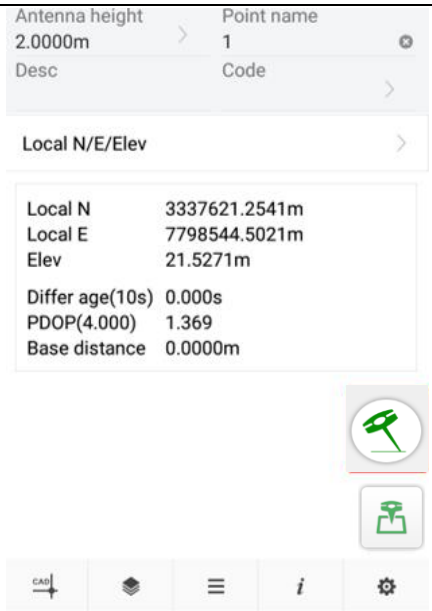
(2) Shake around according to the procedures in the interface to do initialization.



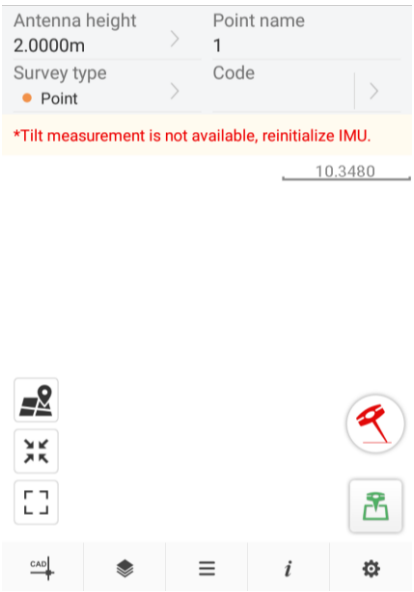
(3) This icon will appear when the initialization is successful.



(4) Enter the Name and Antenna, then tap point will be collected and store to Points automatically.



(5) When this icon appears, the text will show “Tilt is not available, please measure in alignment” at the bottom of interface.



(6) Tap to close tilt compensation.

3.4.2 Notes of using tilt measurement

1. At the beginning of initialization, the pole height of the instrument should be the same as that antenna height in the software.

2. In the process of tilt measurement, if the controller shows that “Tilt is not available, please

measure in alignment" (red), please shake RTK slightly from left to right or back to front until the reminder disappears.

3. The controller will prompt "Tilt is not available, please measure in alignment" when the receiver is stationary over 30 seconds or the pole hit the ground toughly.

4. The pole cannot be shaken when point is collected.

5. The receiver cannot be moved in a circle in one direction for more than 360 degrees. if the receiver has been rotated 360 degrees, it must be rotated in the opposite direction to recover again.

6. Initialization is required:

- when the RTK is turned on every time;
- when IMU module is turned on every time;
- when receiver drops at working;
- when the pole is tilted more than 65 degree;
- when the receiver is stationary more than 10 minutes;
- when the RTK rotates too fast on the matching pole (2 rounds per second);
- when the pole hit the ground toughly.

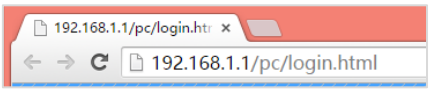
4 Configuring Through a Web Browser

Supported browsers:

- Google Chrome
- Microsoft Internet Explorer® version 10, or higher

To connect to the receiver through a web browser:

1. Turn on the Wi-Fi of the receiver.
2. Search the wireless network named as GNSS-XXXXXXX (the SN of your receiver) on your computer, and then establish the connection.
3. After the successful connection between your computer and the receiver, enter the IP address (192.168.1.1) of the receiver into the address bar of the web browser on your computer:



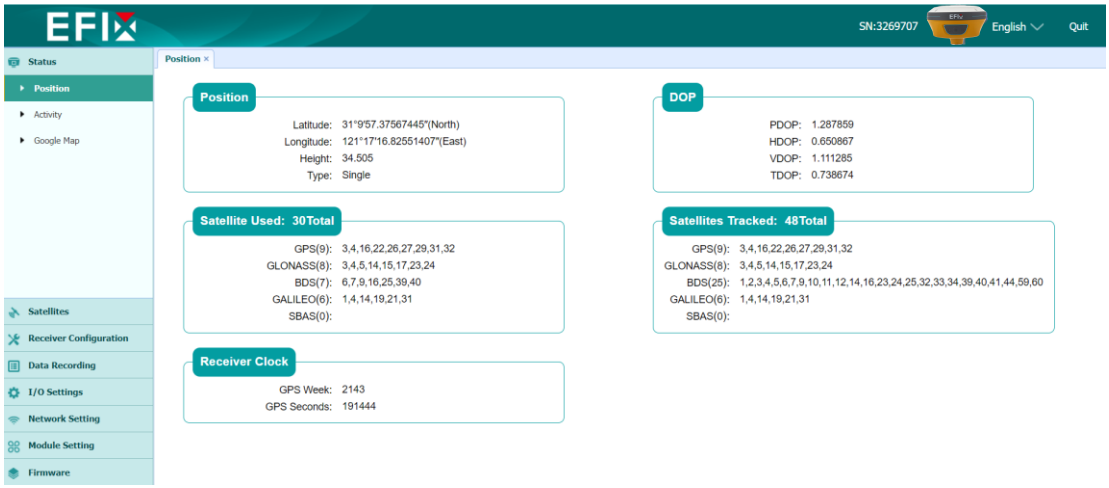
4. The web browser prompts you to enter a login account and password:

The default login account for the receiver is:

- Login Account: admin
- Password: password

Note – Tick **remember me** option, and then the browser will remember the Login Account and Password you entered.

5. Once you log in, the web page appears as follows:

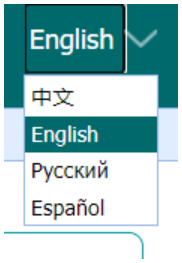


This web page shows the configuration menus on the left of the browser window, and the setting on the right. Each configuration menu contains the related Submenus to configure the receiver and monitor receiver performance.

This chapter describes each configuration menu.

To view the web page in another language, select the corresponding language name from the dropdown list on the upper right corner of the web page.

Currently, six languages are available:



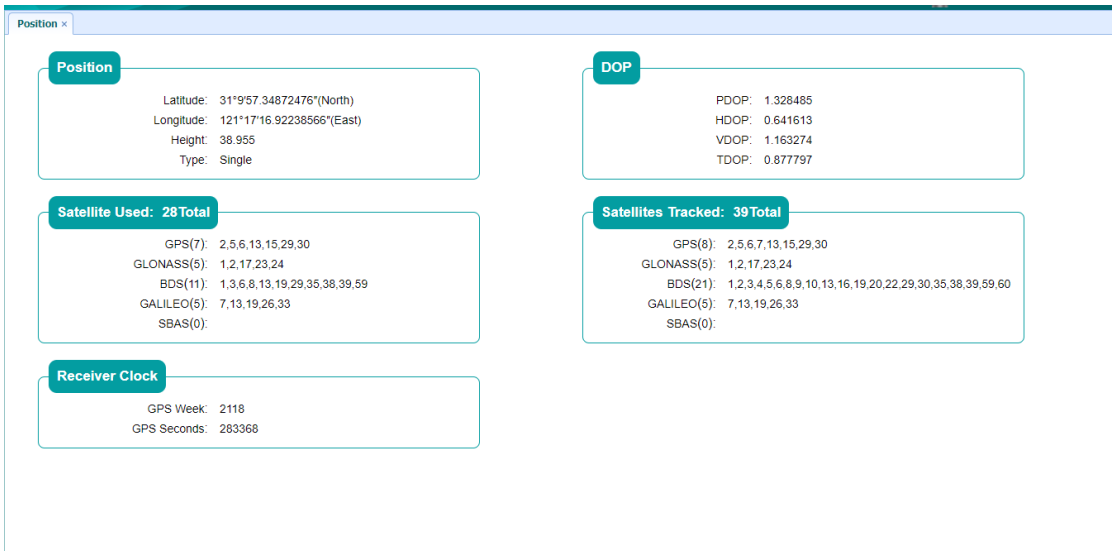
5.1 Status Menu

This menu provides a quick link to review the receiver's position information, satellites tracked, runtime, current data log status, current outputs, available memory, and more.

5.1.1 Position Submenu

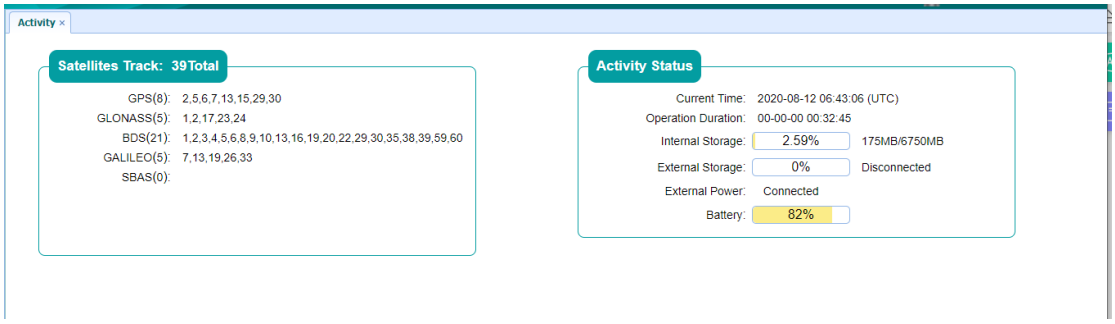
This page shows the relevant position information about the receiver's position solution which

including the position, DOP values, satellites used and tracked, and the receiver clock information.



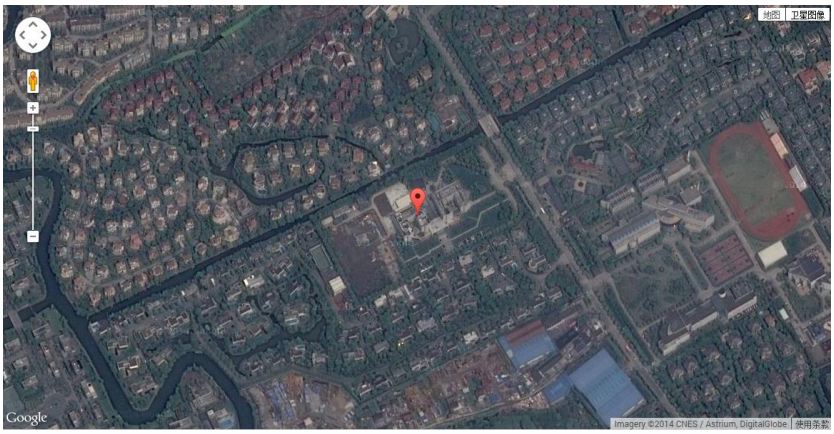
5.1.2 Activity Submenu

Lists several important items to help you understand how the receiver is being used and its current operating condition. Items include the identities of currently tracked satellites, internal and external storage usage rate, how long the receiver has been operational, state of the internal battery, power source state. With this information, it is easy to tell exactly what functions the receiver is performing:



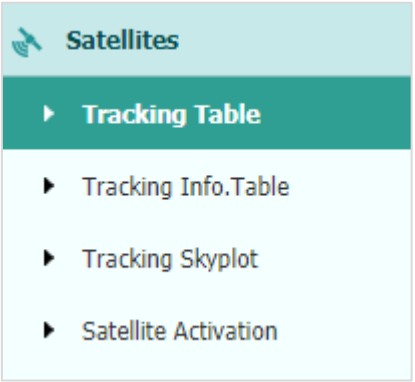
5.1.3 Google Map Submenu

Tap this submenu to show the location of the receiver on Google map.



5.2 Satellites Menu

Use the Satellites menu to view satellite tracking details and enable/disable GPS, GLONASS, BDS and Galileo constellations. These menus include tabular and graphical displays to provide all required information on satellite tracking status.



5.2.1 Tracking Table Submenu

Provides the status of satellites tracked in general, such as the satellite ID, satellite type, attitude angle, azimuth angle, L1 SNR, L2 SNR, L5 SNR and enable/disable status of each one.

Tracking Table ×

All GPS GLONASS BDS GALILEO SBAS

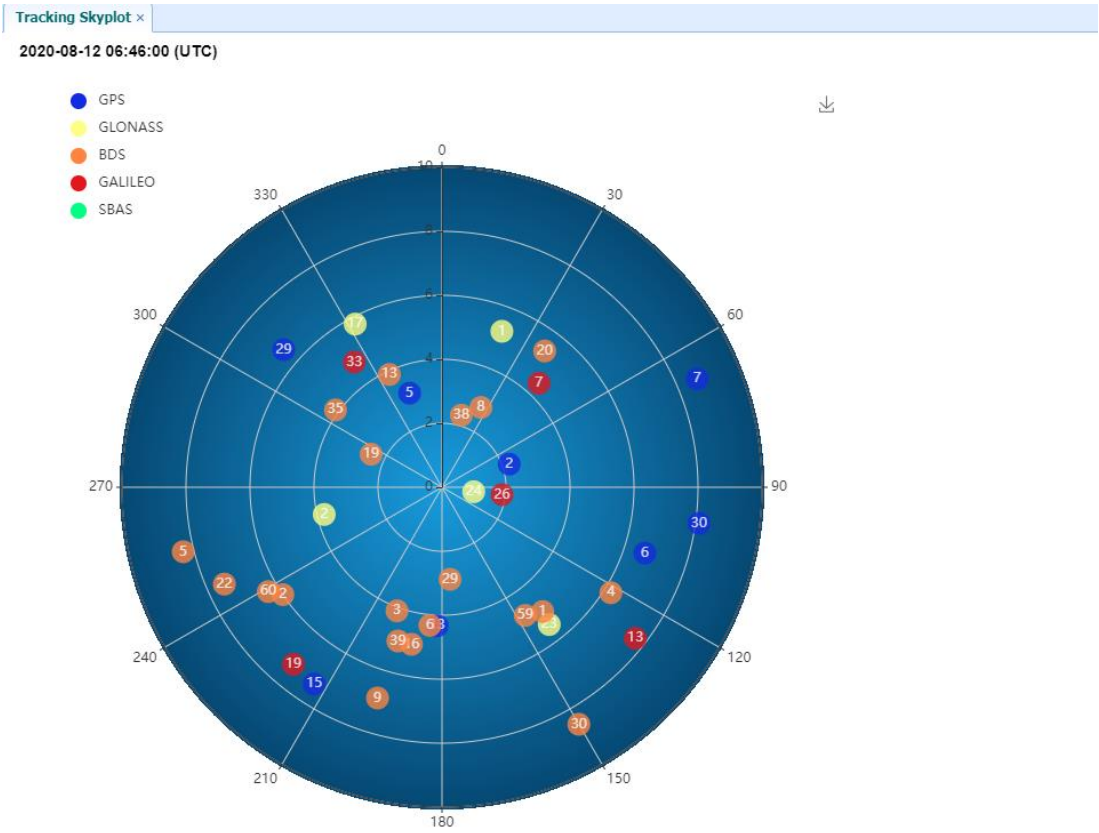
SV	Type	Elevation Angle	Azimuth Angle	L1 SNR	L2 SNR	L5 SNR	Enabled
2	GPS	53	332	45.660	36.420	0.000	Yes
5	GPS	47	258	48.280	34.340	0.000	Yes
6	GPS	51	59	46.480	39.220	47.300	Yes
9	GPS	32	55	42.130	33.920	44.300	Yes
12	GPS	25	265	44.080	34.830	0.000	Yes
17	GPS	30	148	44.390	33.470	0.000	Yes
19	GPS	45	147	44.230	34.510	0.000	Yes
25	GPS	10	303	37.660	31.190	39.240	Yes
4	GLONASS	42	28	46.520	47.890	0.000	Yes
5	GLONASS	81	230	47.930	51.230	0.000	Yes
19	GLONASS	51	99	35.050	46.220	0.000	Yes
20	GLONASS	50	349	40.390	50.220	0.000	Yes
1	BDS	48	146	42.080	42.740	43.530	Yes
2	BDS	36	236	37.350	40.800	40.080	No
3	BDS	52	200	43.130	42.120	44.200	Yes
4	BDS	35	122	37.550	38.470	40.850	Yes
5	BDS	15	256	33.570	35.130	34.650	No
6	BDS	40	179	38.970	38.900	41.820	Yes
7	BDS	11	195	31.840	31.010	35.650	No
8	BDS	61	15	44.190	44.860	46.650	Yes
9	BDS	20	191	36.140	35.200	36.780	Yes
10	BDS	17	217	33.330	34.840	35.540	No
13	BDS	52	331	44.300	42.940	45.260	Yes
4	GALILEO	26	203	37.790	40.350	34.420	Yes
12	GALILEO	54	335	41.650	43.420	39.840	No
19	GALILEO	73	132	39.940	42.290	39.230	Yes
26	GALILEO	10	113	33.220	33.960	31.130	No

5.2.2 Tracking Info. Table Submenu

The following figure is an example of satellite track diagram page. Users can determine the satellite types and the corresponding SNR of L-band carriers to be displayed in any combination.

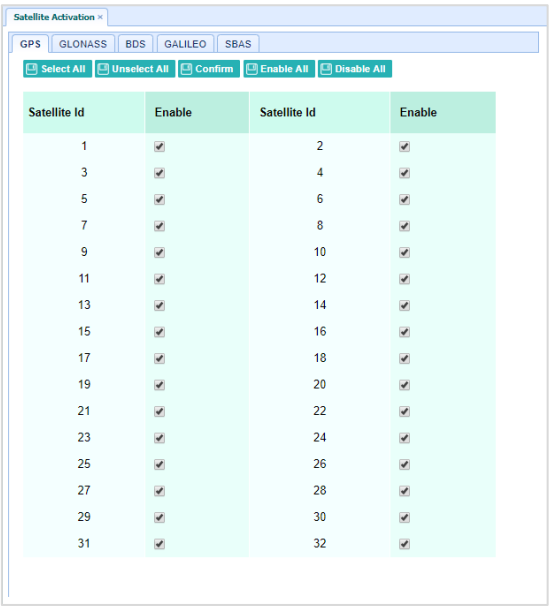
5.2.3 Tracking Skyplot Submenu

The following figure is an example of Skyplot page.



5.2.4 Satellite Activation Submenu

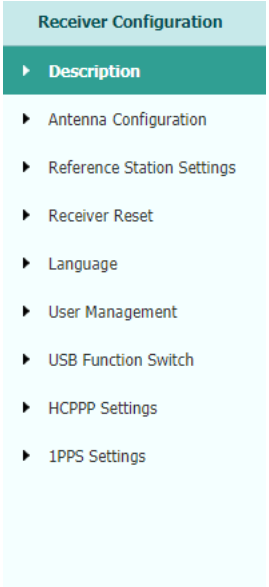
Use this menu to enable or disable satellites.



Satellite Id	Enable	Satellite Id	Enable
1	☑	2	☑
3	☑	4	☑
5	☑	6	☑
7	☑	8	☑
9	☑	10	☑
11	☑	12	☑
13	☑	14	☑
15	☑	16	☑
17	☑	18	☑
19	☑	20	☑
21	☑	22	☑
23	☑	24	☑
25	☑	26	☑
27	☑	28	☑
29	☑	30	☑
31	☑	32	☑

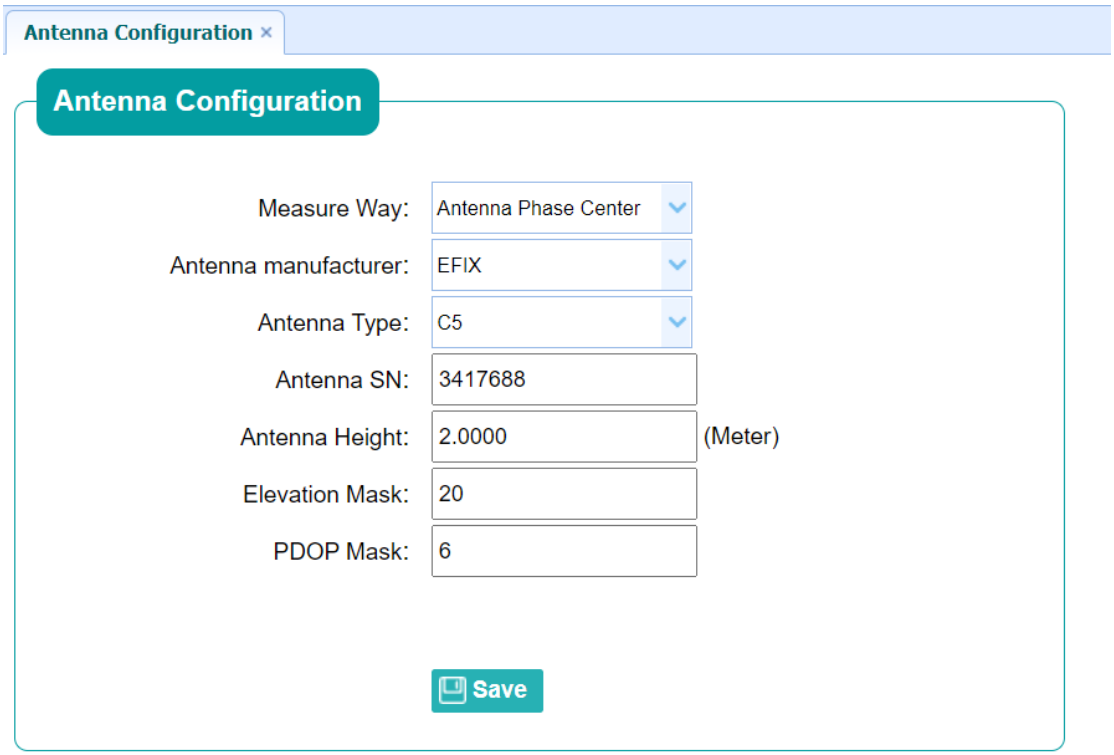
5.3 Receiver Configuration Menu

Use this menu to configure settings such as the antenna type and height, elevation mask and PDOP setting, the reference station coordinates, receiver resetting and web interface language:



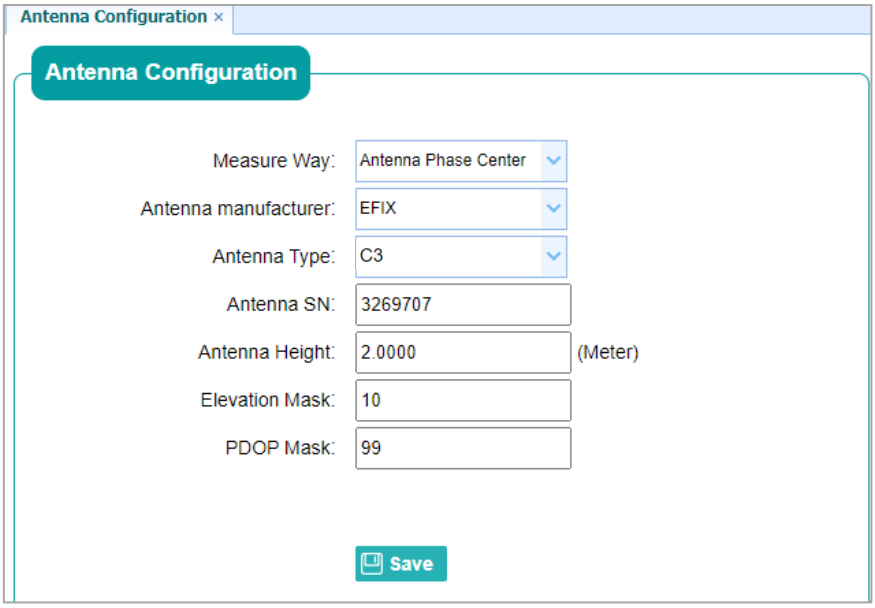
5.3.1 Description

This submenu shows the receiver information and reference station information, including antenna related information, elevation mask angle, reference station work mode and position, etc.



5.3.2 Antenna Configuration Submenu

Use this screen to configure all the items related to the GNSS antenna. You must enter the correct values for all antenna-related fields, because the choices you make affect the accuracy for logged data and broadcast correction data significantly:



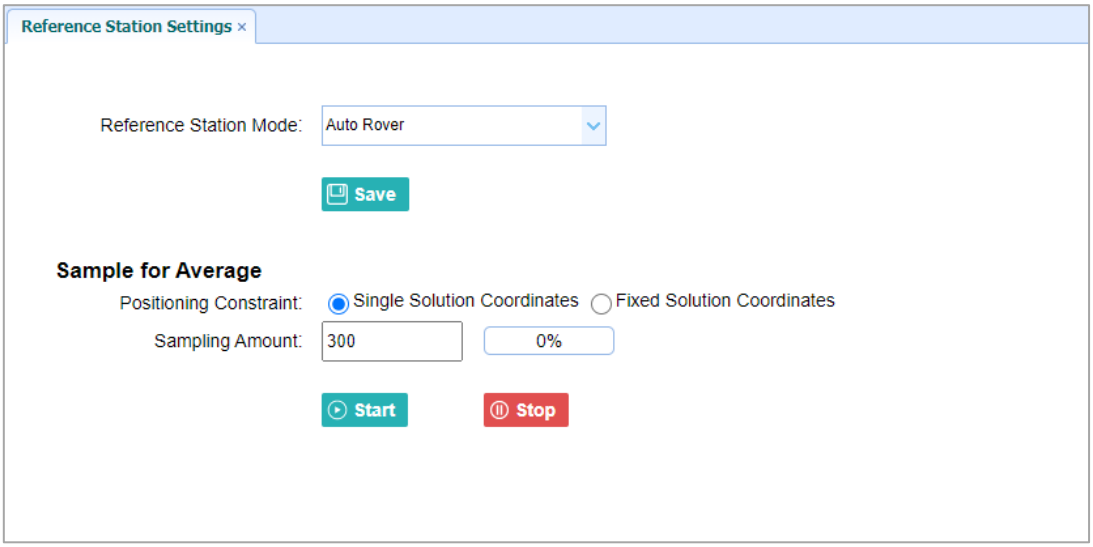
5.3.3 Reference Station Settings Submenu

Use this screen to configure settings such as the station coordinates and the broadcast station identifiers. You must enter accurate information in these fields, as this data affects the accuracy of logged data files and broadcast correction data significantly:

For **Reference Station Mode**:

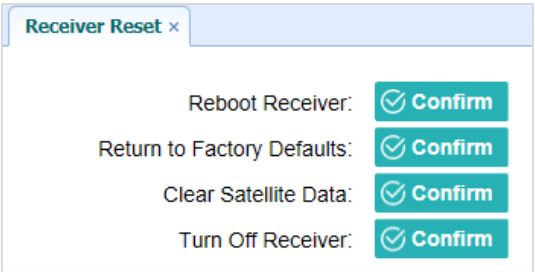
There are three modes available:

a) **Auto Rover:** The receiver will serve as a rover after this mode is enabled, and then receive correction data through the working mode set last time.



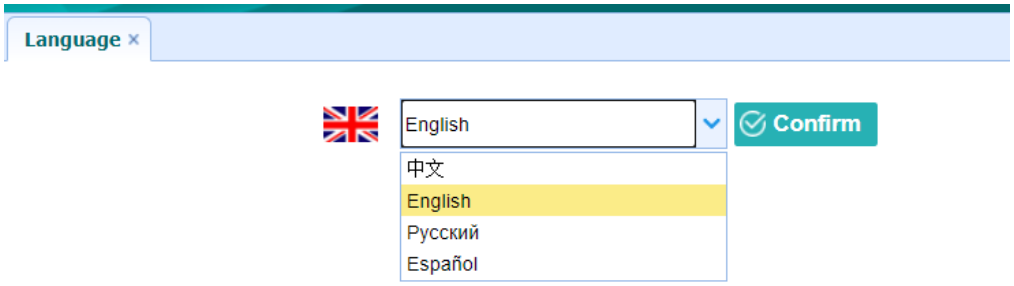
5.3.4 Receiver Reset Submenu

Use this screen to completely or partially reset the receiver:

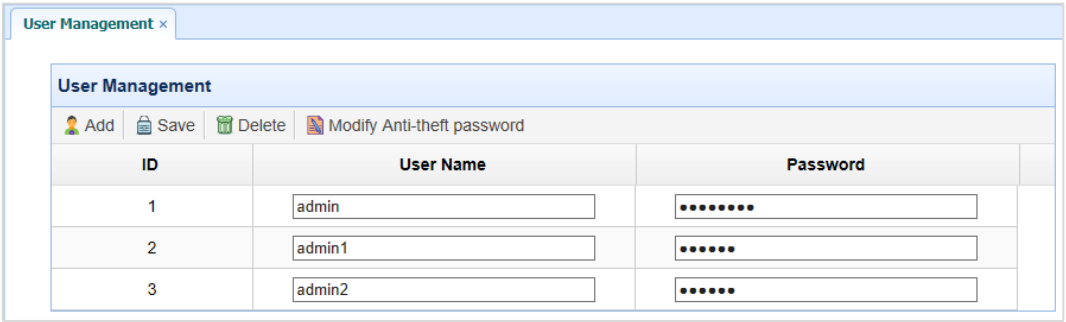


5.3.5 Languages Submenu

Use this screen to select the web interface language:

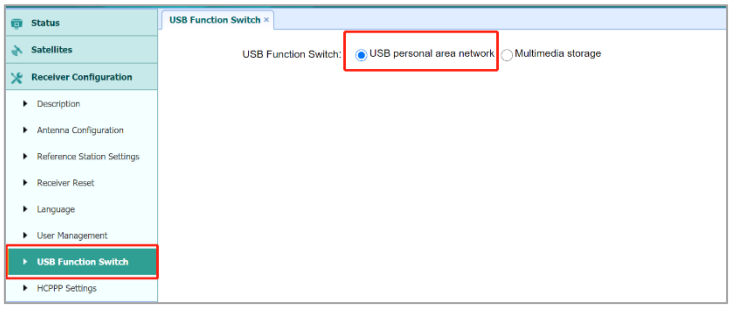


5.3.6 User Management Submenu

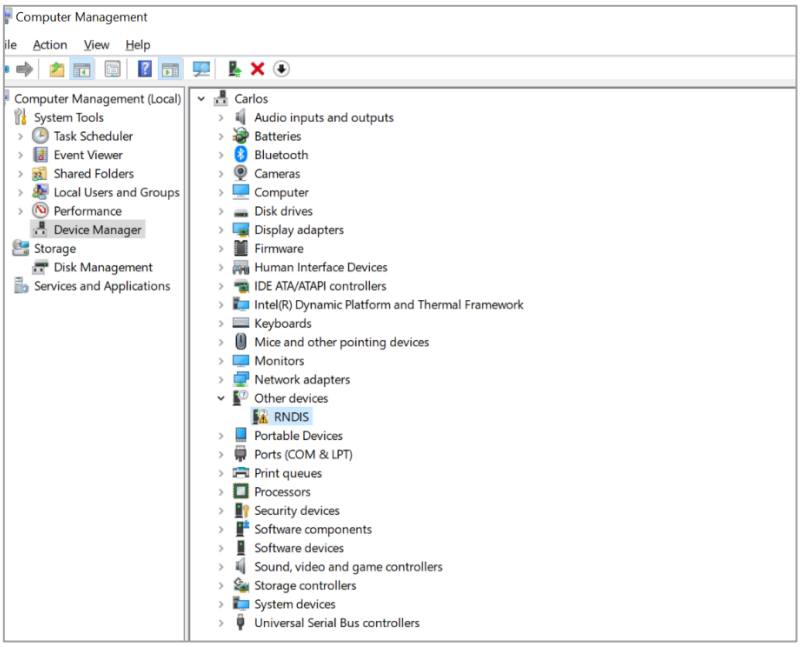


5.3.7 USB Function Switch

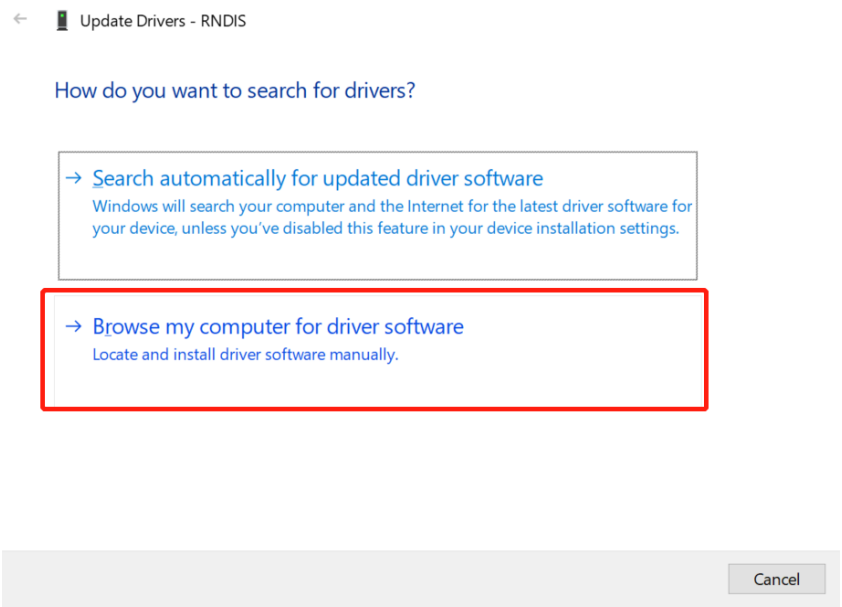
Use this screen to set C5 work as APIS base.



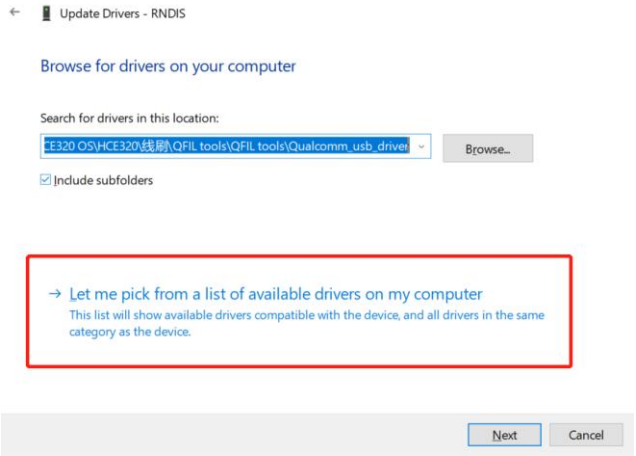
1. Connect C5 to PC by USB cable, it will be shown in device manager as unknown device: RNDIS



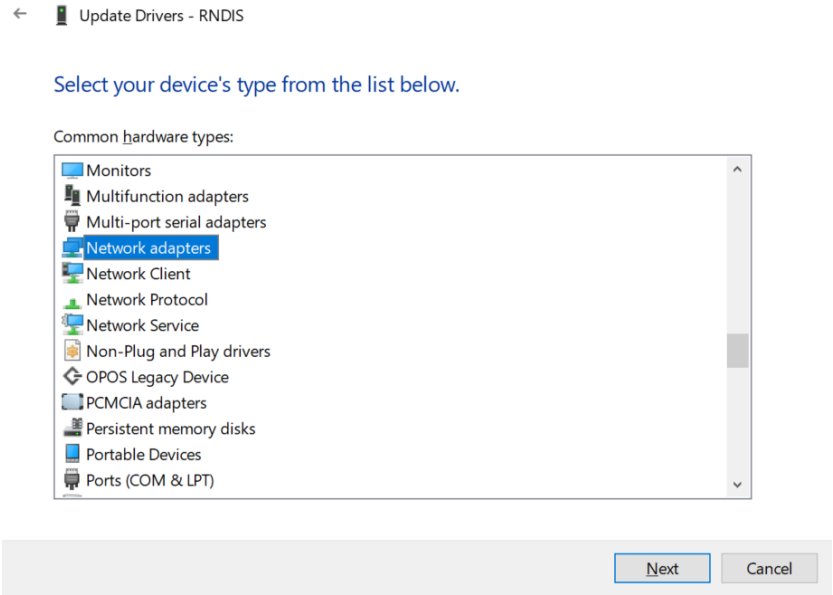
2. Install the driver for C5 RNDIS
   a) Right click RNDIS, and select update driver, and choose Browse my computer for driver software.



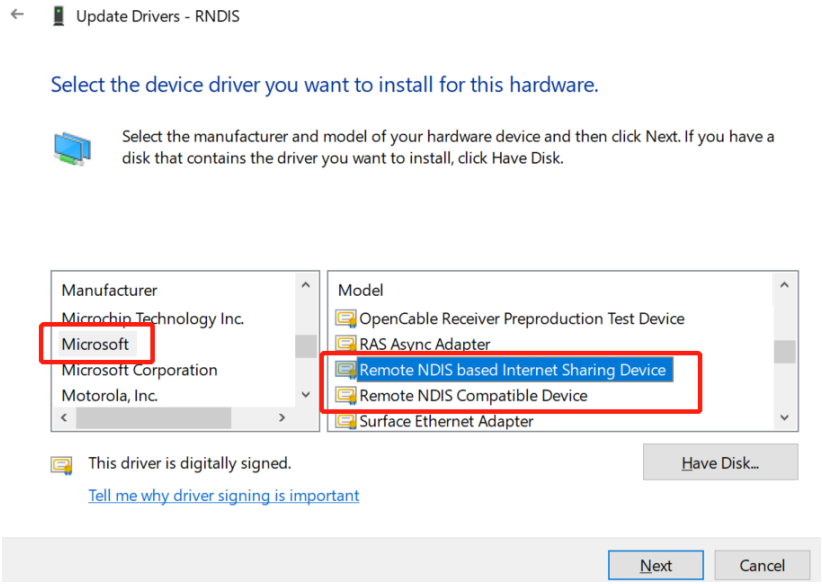
   b) Select Let me pick from a list of available drivers on my computer, and click next



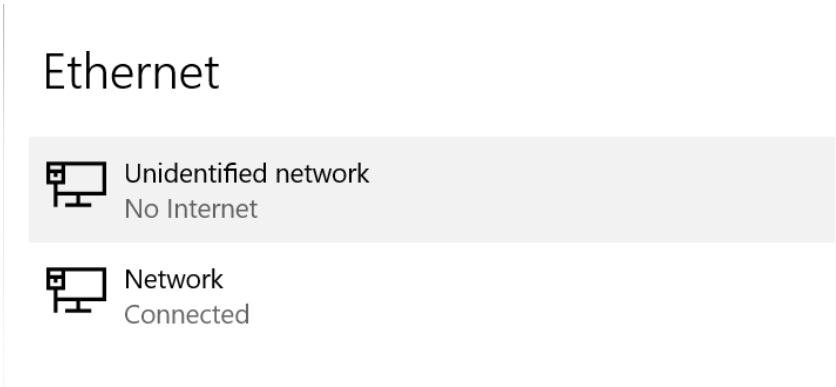
c) Then there will appear a hardware type list. In the list, select Network adapters.



d) Then find Microsoft in the Manufacturer list, and select Remote NDIS based Internet Sharing Device in the model list.

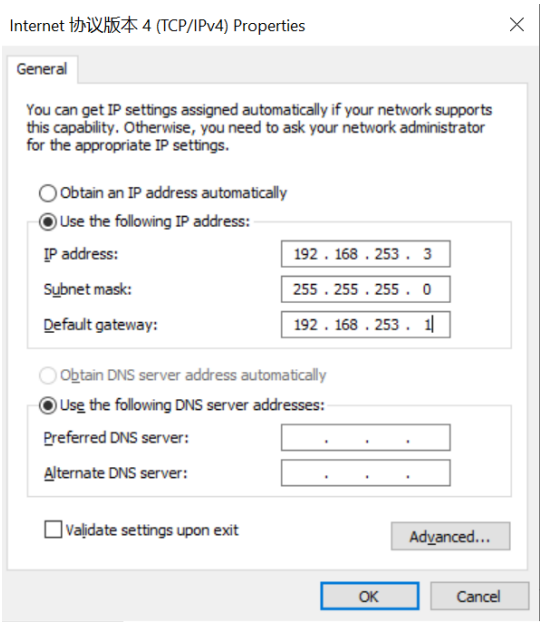


3. Config IP for C5.
   a) After installing the driver, there will show another Ethernet connection in Network connections.

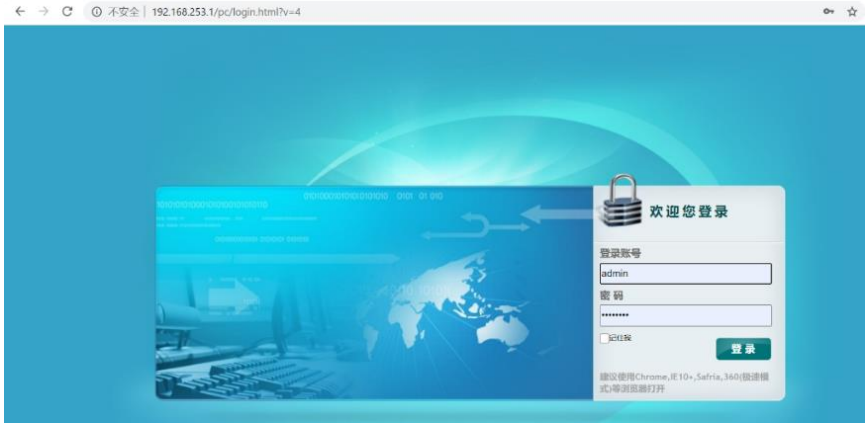


   b) Go to properties, and double click IPV4 to change the IP address.

c) Change the IP address, Subnet mask and Default gateway as following:

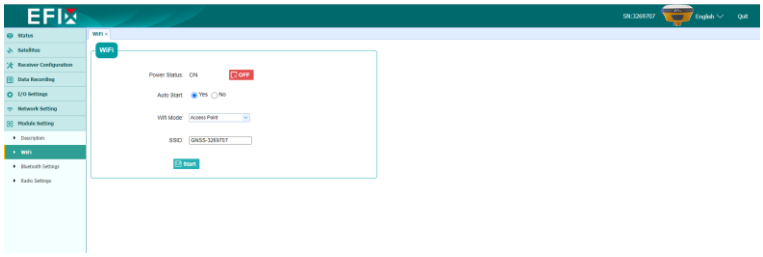


4.Login into C5 webpage in Chrome by inputting: 192.168.253.1, keep same as the default gateway.

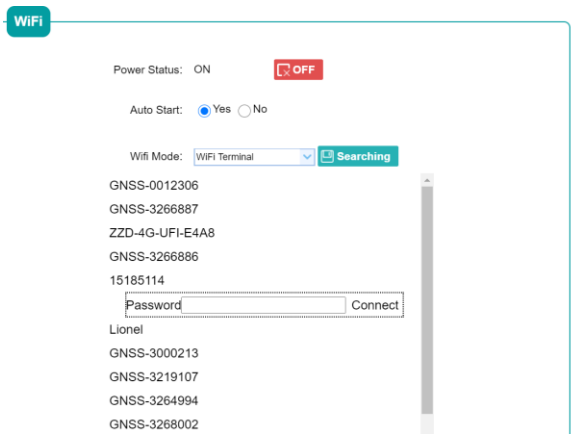


5.Config C5 to connect WiFi and work as APIS base.

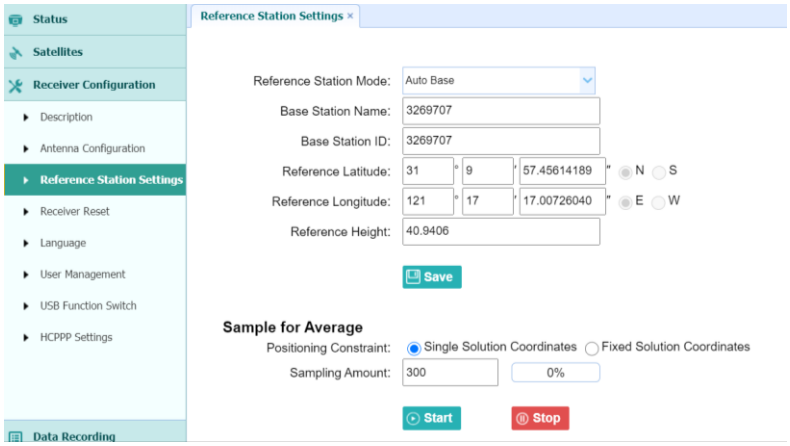
a) Go to Module Setting -> WiFi, change WiFi mode to WiFi Terminal.



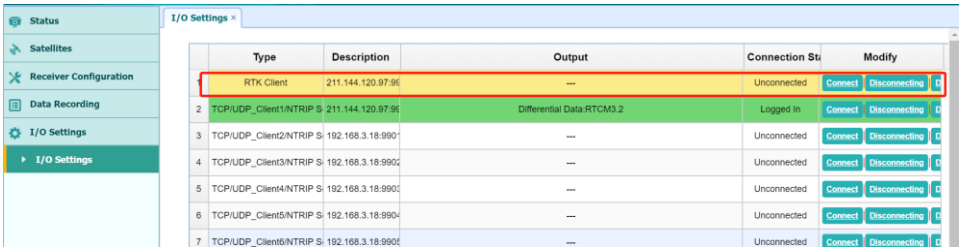
b) Click Start to searching the wifi and connect.



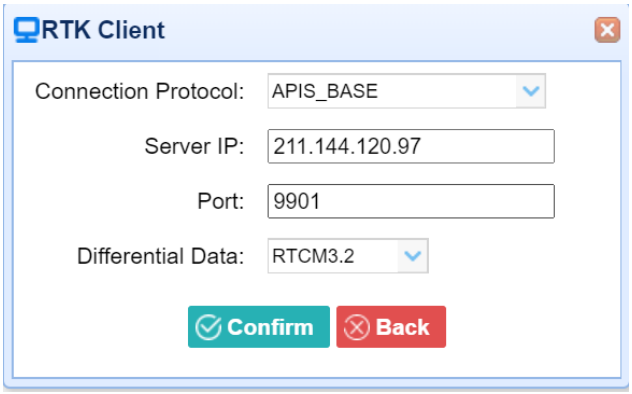
c) Go to Receiver Configuration -> Reference Station Settings. Set C5 as auto base, and get the base station.



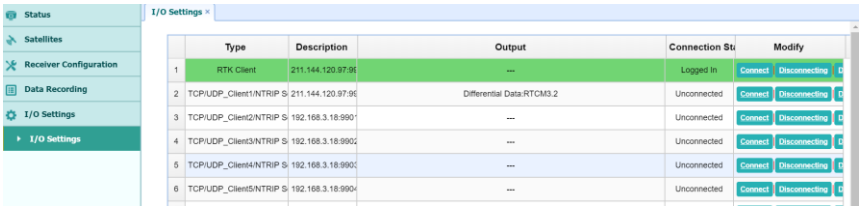
d) Go to I/O settings, in RTK Client, config it.



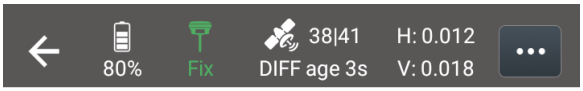
e) Connect and config it as APIS base, use local APIS address. Then click Confirm to set.



f) After send correction data to APIS server successfully, the RTK Client option will become green background.



g) Then set rover as APIS rover, and it will get fix solution.

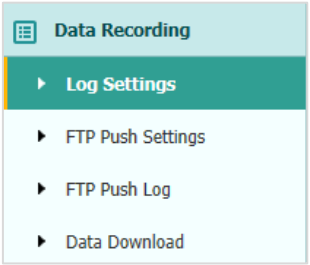


5.3.8 HCPPP Settings

Reserved for HCPPP.

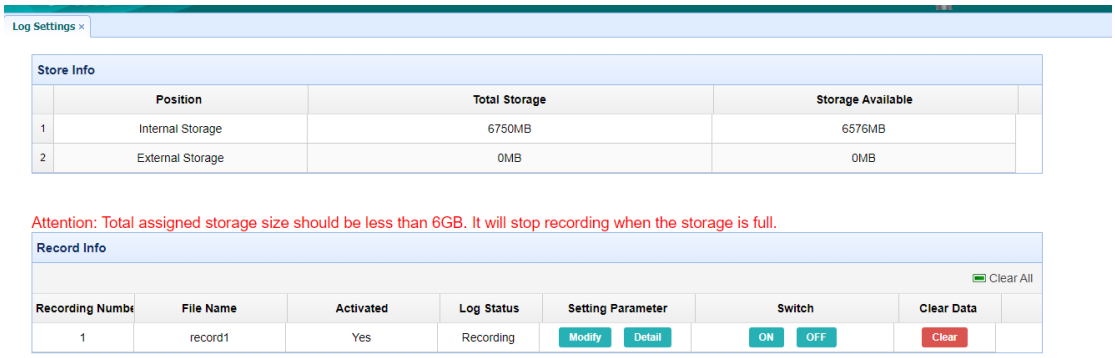
5.4 Data Recording Menu

Use the Data Logging menu to set up the receiver to log static GNSS data and to view the logging settings. You can configure settings such as observable rate, recording rate, continuous logging limit, and whether to auto delete old files when memory is low. This menu also provides the controls for the FTP push feature:

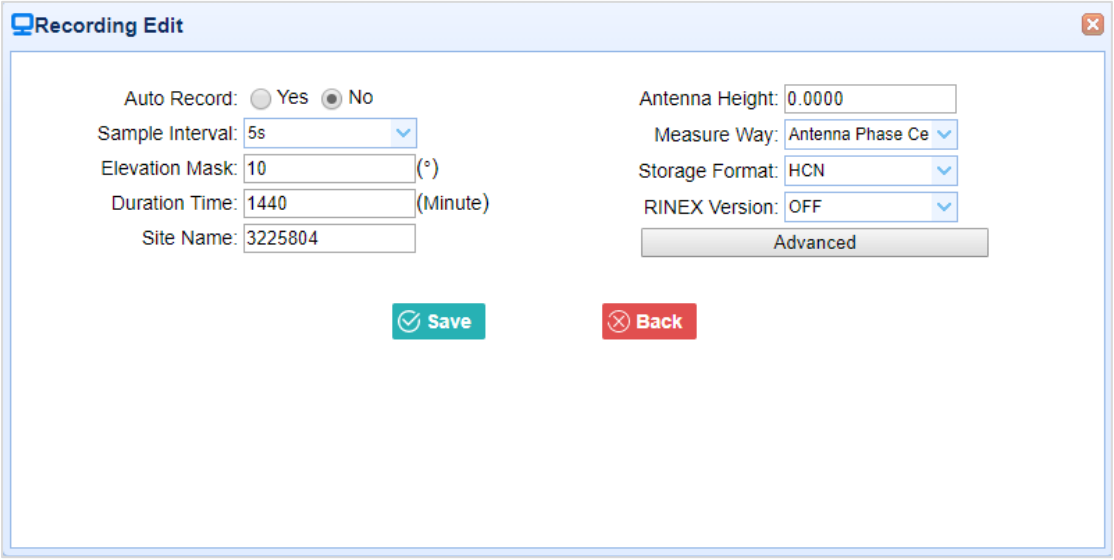


5.4.1 Log Settings Submenu

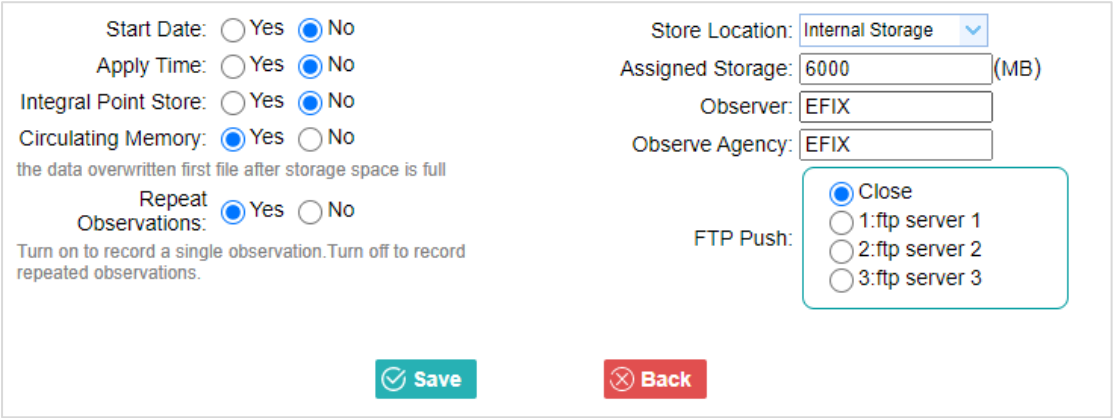
Here shows the data logging status, including internal and external storage usage and data logging status of each session. Also, users can configure the data logging settings for each session, including recording name, store location, storage limit, store formats, start time, etc.



To edit the settings of each session, click the **Modify** button to the right of the required session, and then the *Recording Edit* screen appears:



Click advanced to see more settings.



In this screen, you can configure all the data logging parameters, and determine whether the recording files will be affected by the FTP Push. The parameters are mainly as follows:

- **Auto Record**: on or off.
- **Sample Interval**: Select the observable rate from the dropdown list.
- **Elevation Mask**: Enter the elevation mask.
- **Duration Time**: Set the duration of data logging.
- **Site Name**: Enter the name of the site.
- **Antenna Height**: the measured height value.
- **Measure way**: Antenna Phase Center, Vertical Height, Slant Height
- **Storage Format**: Select the format of the data store.
- **RINEX Version**: OFF, 3.02, 2.11
- **Start Date:** Select **Yes** or **No** option to determine whether to auto record start date.
- **Apply Time:** Select **Yes** or **No** option to determine whether to auto record apply time.
- **Integral Point Store:** Select **Yes** or **No** option to determine whether to allow receiver to save data every hour.
- **Circulating Memory**: Select **Yes** or **No** option to determine whether to auto delete old files if the storage space is full.
- **Repeat Observations:** Select **Yes** or **No** option to determine whether to turn on to record a single observation.
- **Store Location:** Internal Storage, External Storage.
- **Assigned Storage:** The assigned memory size of current thread(for example, Record 1) is 10000MB
- **Observer:** Enter the name of observer.
- **Observer Agency:** Enter the name of observer agency.
- **FTP Push**: Decide whether to push the stored files to the FTP server of your choice.

Tap

button to save the settings and back to the *Log Settings* screen. Also, users can click

to abandon the changed settings and back to *Log Settings* screen.

Note – To modify data logging parameters, make sure the data logging session is switched off.

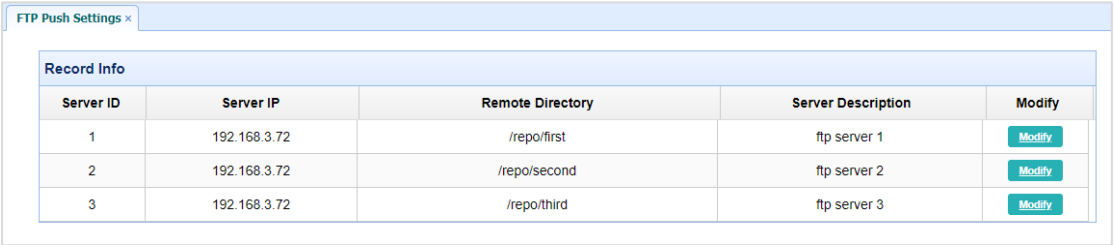
To switch on or off **ANY** data logging session, tap the **ON** or **OFF** button on the right of the required session.

To delete the recorded files of **ANY** data logging session, tap the **Clear** button on the right of the required session.

To delete the recorded files of **ALL** data logging sessions, tap the **Clear ALL Accounts** button.

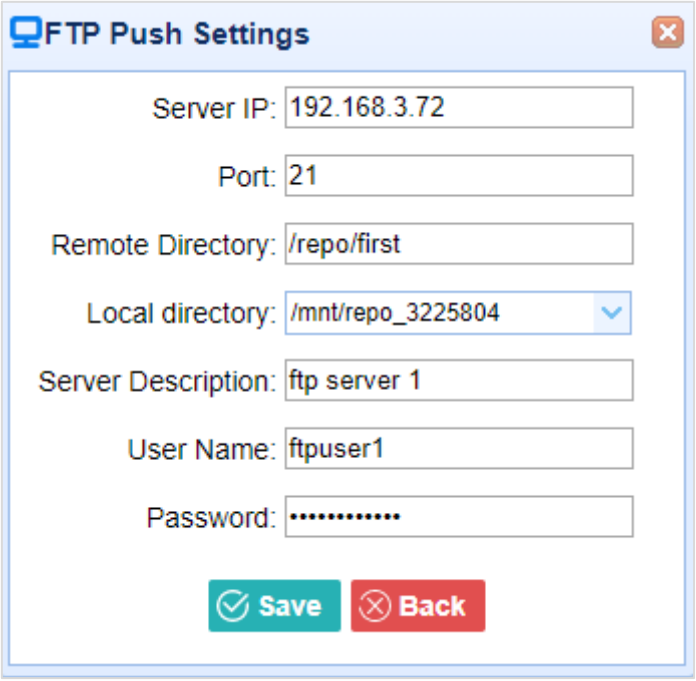
5.4.2 FTP Push Settings Submenu

Use this screen to configure the receiver to push stored files to the FTP server of your choice. Only files that are configured to use FTP push are transmitted.



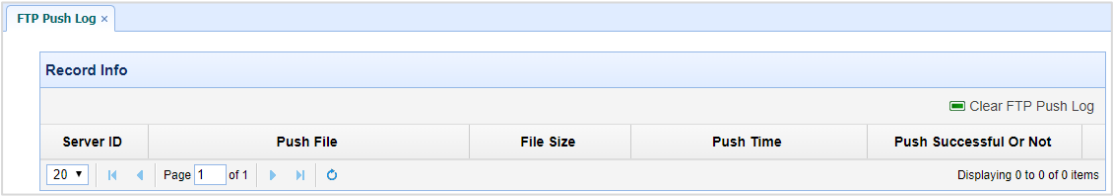
Server ID	Server IP	Remote Directory	Server Description	Modify
1	192.168.3.72	/repo/first	ftp server 1	Modify
2	192.168.3.72	/repo/second	ftp server 2	Modify
3	192.168.3.72	/repo/third	ftp server 3	Modify

Tap **Modify** button on the right of the required FTP server and the *FTP Push Settings* screen appears:



5.4.3 FTP Push Log Submenu

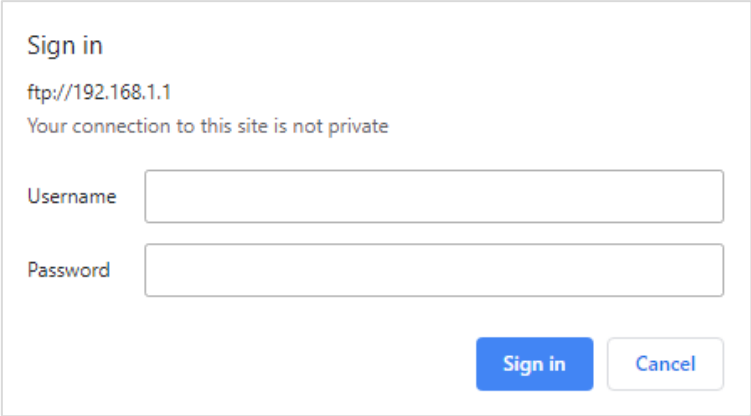
Shows the related information about the recorded filed that be pushed. And users can tap **Clear Ftp Send Log** button in the upper right corner to clear the log of FTP Push operations.



5.4.4 Data Download Submenu

In this submenu, users can download the data files that recorded in the internal storage through the internal FTP site.

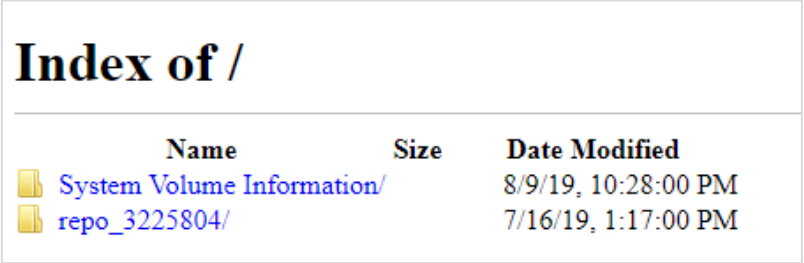
1. Click this submenu, and then the log on dialogue box will prompt you to enter a user name and password:



The default logon account for the internal FTP site is:

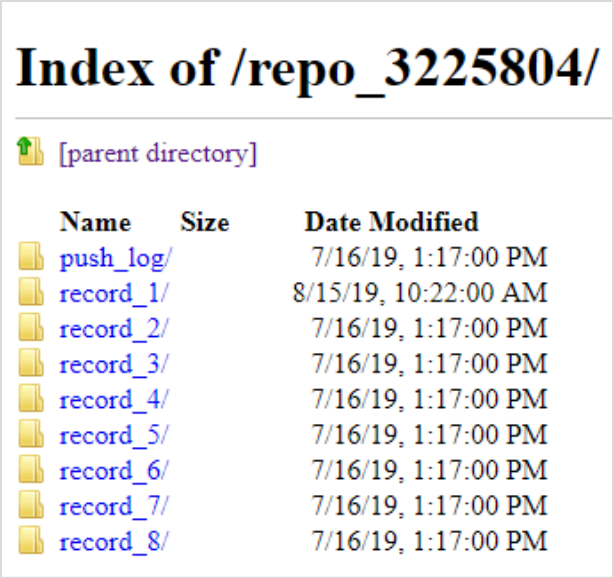
- User name: ftp
- Password: ftp

2. Click the directory named as “repo” to view and download the files currently stored on the receiver:



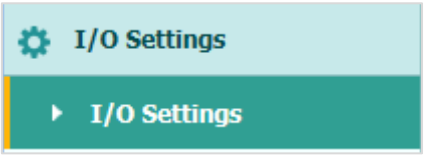
3. To find the file need to be downloaded, click the name of data logging session → the

date of file that be recorded → the format of the file → the name of the target file.



4. To download a file, left-click the name of the target file → download the file according to the prompts.

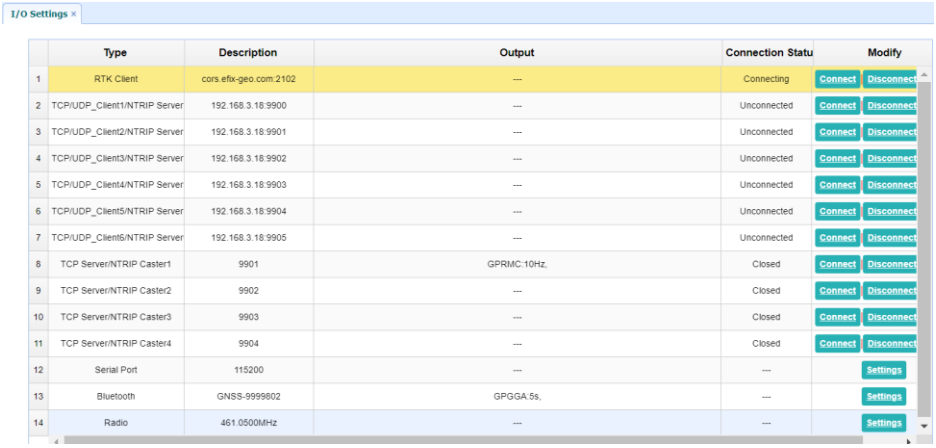
5.5 IO Settings Menu



Use the IO Settings menu to set up all receiver outputs and inputs. The receiver can output CMR, RTCM, Raw data, Ephemeris data, GPGGA, GPGSV, on TCP/IP, UDP, serial port, or Bluetooth ports.

5.5.1 IO Settings Submenu

The following figure shows an example of the screen that appears when you select this submenu. (serial port setting is reserved menu)



I/O Settings

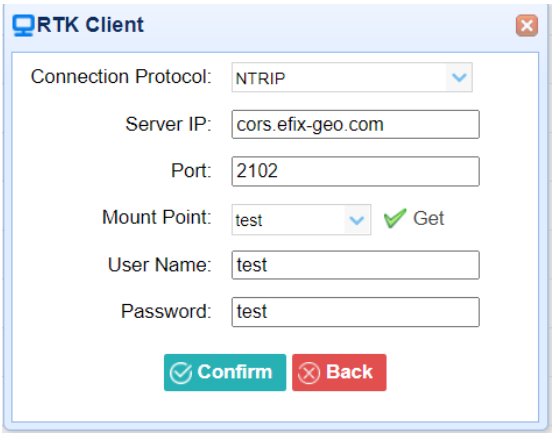
	Type	Description	Output	Connection Statu	Modify
1	RTK Client	cors.efix-geo.com:2102	---	Connecting	Connect Disconnect
2	TCP/UDP_Client1/NTRIP Server	192.168.3.18:9900	---	Unconnected	Connect Disconnect
3	TCP/UDP_Client2/NTRIP Server	192.168.3.18:9901	---	Unconnected	Connect Disconnect
4	TCP/UDP_Client3/NTRIP Server	192.168.3.18:9902	---	Unconnected	Connect Disconnect
5	TCP/UDP_Client4/NTRIP Server	192.168.3.18:9903	---	Unconnected	Connect Disconnect
6	TCP/UDP_Client5/NTRIP Server	192.168.3.18:9904	---	Unconnected	Connect Disconnect
7	TCP/UDP_Client6/NTRIP Server	192.168.3.18:9905	---	Unconnected	Connect Disconnect
8	TCP Server/NTRIP Caster1	9901	GPRMC:10Hz,	Closed	Connect Disconnect
9	TCP Server/NTRIP Caster2	9902	---	Closed	Connect Disconnect
10	TCP Server/NTRIP Caster3	9903	---	Closed	Connect Disconnect
11	TCP Server/NTRIP Caster4	9904	---	Closed	Connect Disconnect
12	Serial Port	115200	---	---	Settings
13	Bluetooth	GNSS-9999802	GPGGA:5s,	---	Settings
14	Radio	461.0500MHz	---	---	Settings

In this submenu, users can configure 6 types of input and output settings.

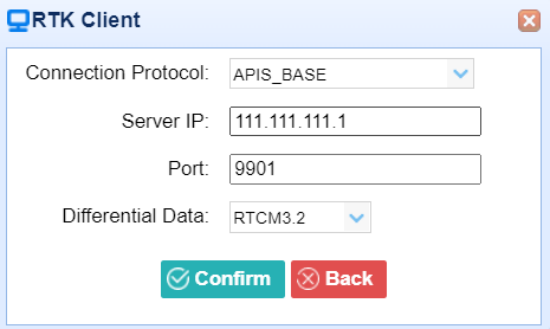
1. RTK Client

After configuring the settings of RTK client, users can log on CORS or APIS. Tap the **Connect** button to the right → the *IO Settings* screen will appear → choose one of the connection protocols among the NTRIP, APIS_BASE, APIS_ROVER and TCP → configure the related parameters → click Confirm to log on CORS or APIS.

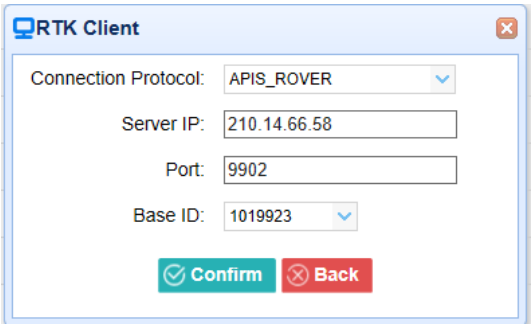
- Connection Protocol: NTRIP



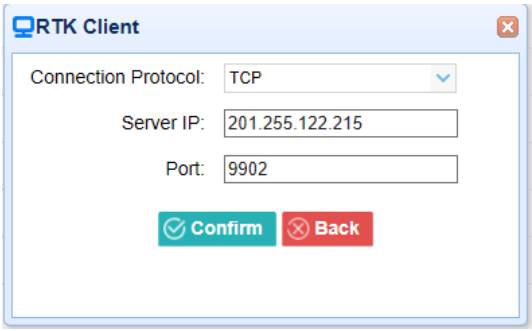
- Connection Protocol: APIS_BASE



- Connection Protocol: APIS_ROVER



- Connection Protocol: TCP

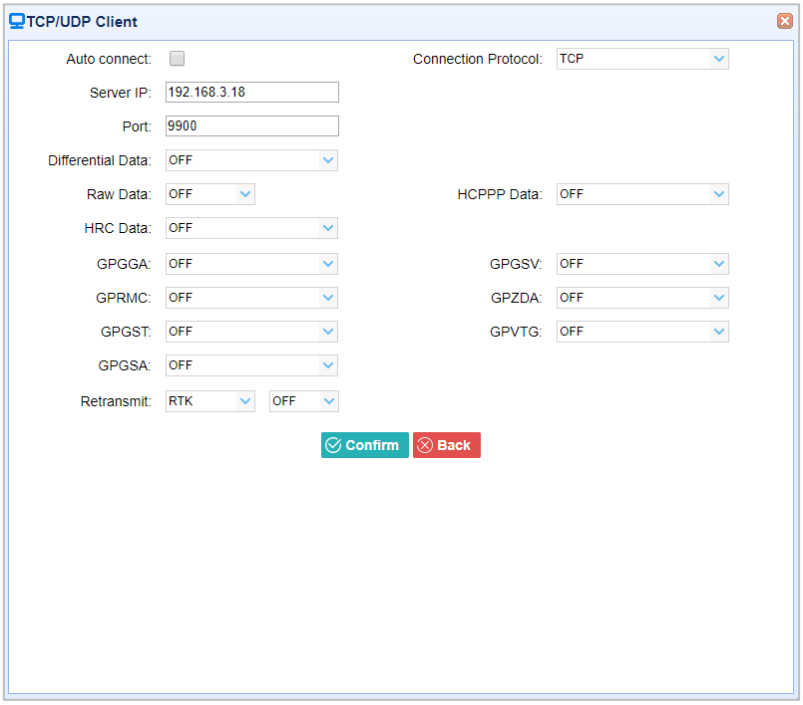


2. TCP/UDP_Client/NTRIP Server

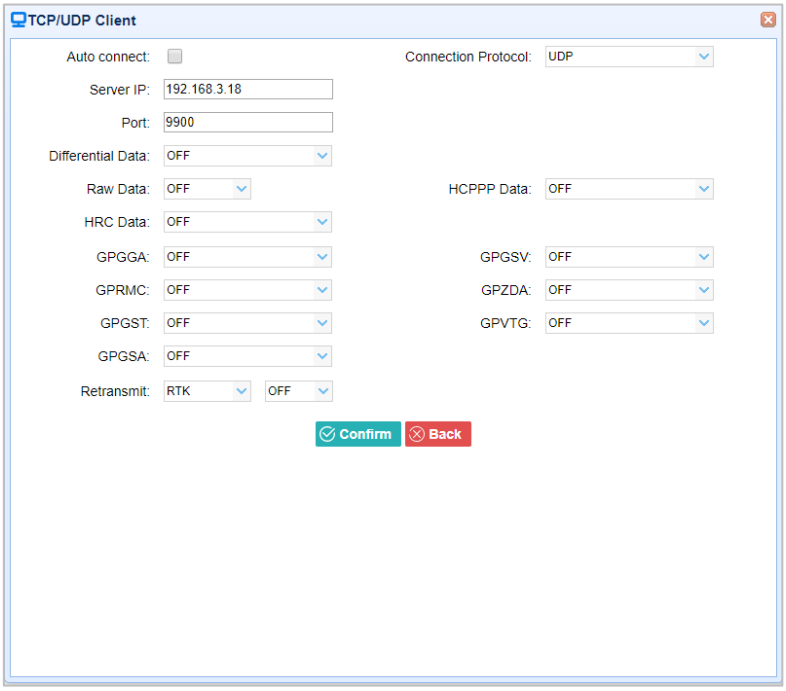
Tap the **Connect** button on the right of required TCP/UDP Client → the *IO Settings* screen will

appear → select the connection protocol from TCP, UDP, NTRIP1.0 and NTRIP2.0 → enter the IP and Port of the target server → configure messages that you want to output to the target server → click Confirm to save and complete the connection.

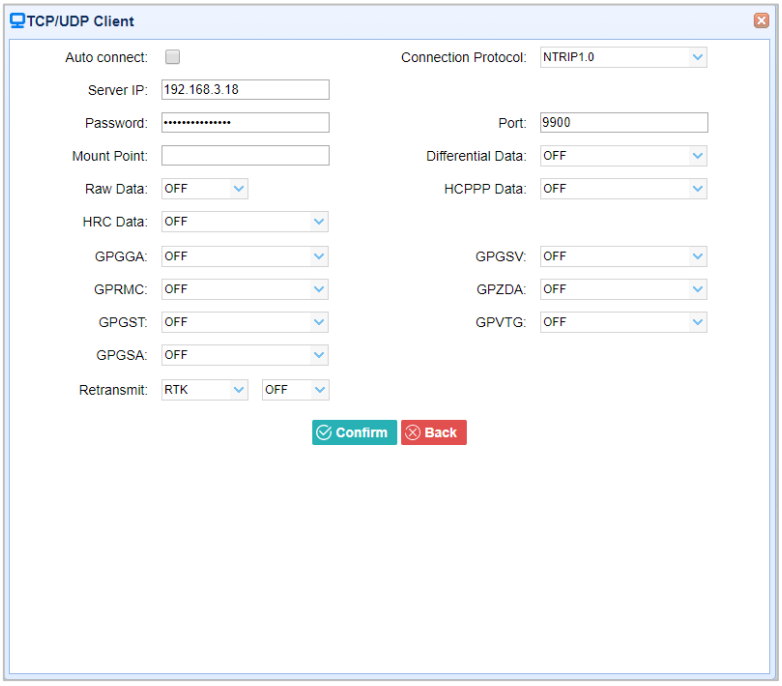
- Connection Protocol: TCP



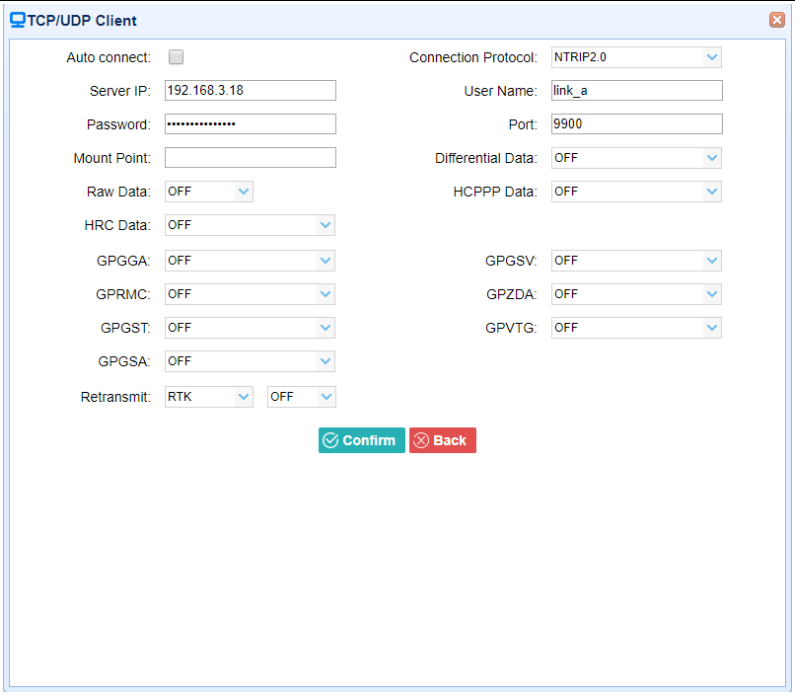
- Connection Protocol: UDP



- Connection Protocol: NTRIP1.0



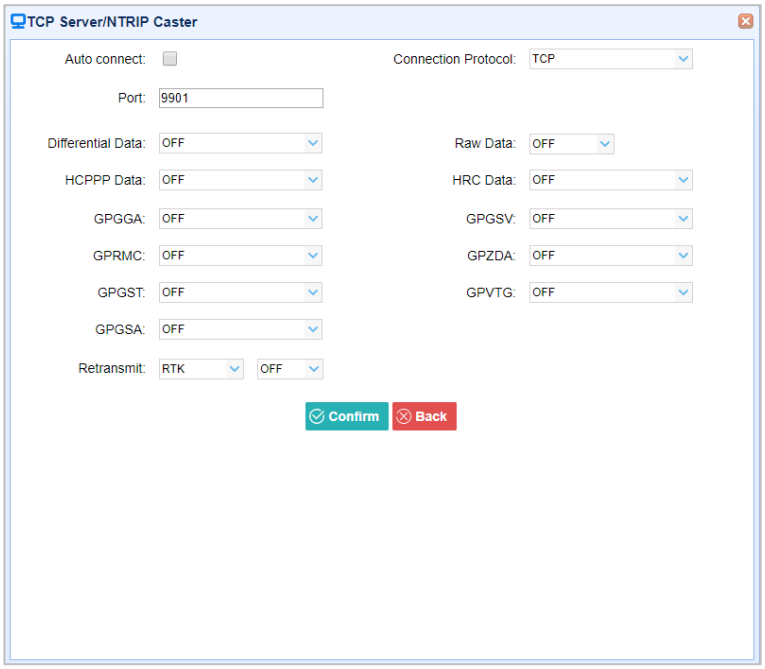
- Connection Protocol: NTRIP2.0


TCP/UDP Client
Auto connect:
Connection Protocol: NTRIP2.0
Server IP: 192.168.3.18
User Name: link_a
Password: ••••••••••••••••
Port: 9900
Mount Point:
Differential Data: OFF
Raw Data: OFF
HCPPP Data: OFF
HRC Data: OFF
GPGGA: OFF
GPGSV: OFF
GPRMC: OFF
GPZDA: OFF
GPGST: OFF
GPVTG: OFF
GPGSA: OFF
Retransmit: RTK OFF
Confirm
Back

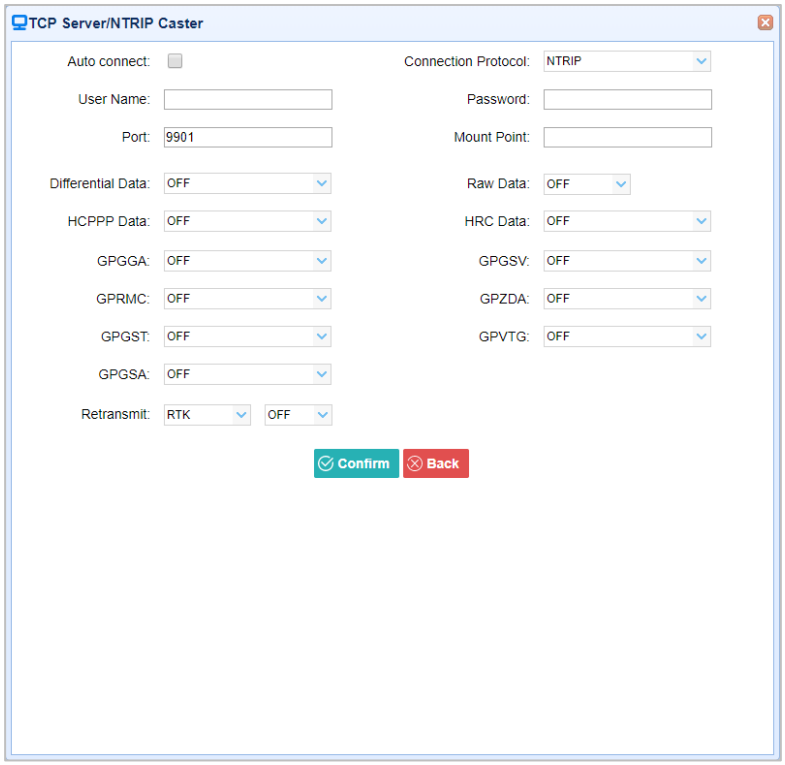
3. **TCP Server/NTRIP Caster**

Tap the **Connect** button to the right of required TCP Server/NTRIP Caster→ the **IO Settings** screen will appear → select one of the connection protocols between NTRIP and TCP → configure the other related parameters → click Confirm to save the settings and open the server.

- Connection Protocol: TCP

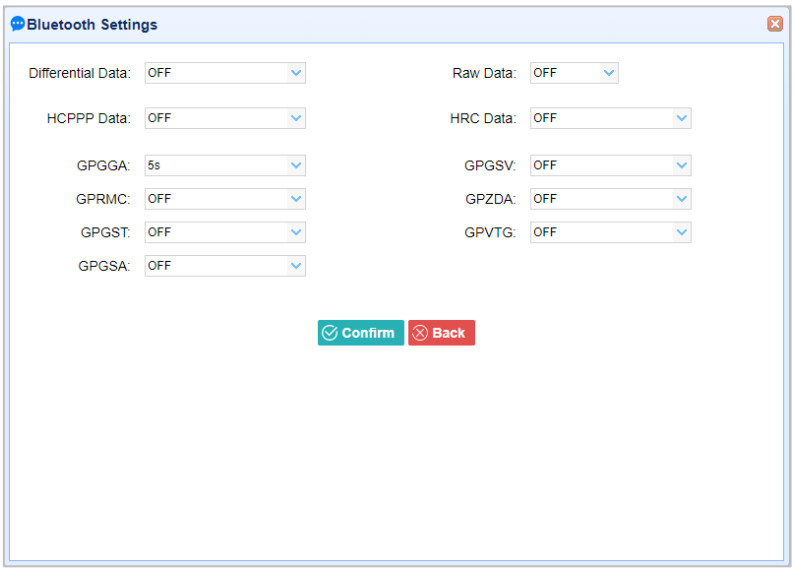


- Connection Protocol: NTRIP



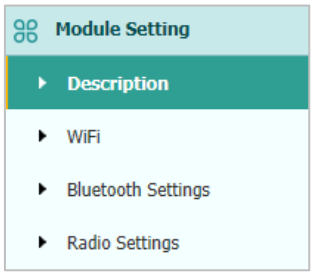
4. Bluetooth

Tap the **Settings** button to the right of Bluetooth → the *Bluetooth Set* screen will appear → configure the messages that you want to transmit through Bluetooth → click Confirm to save the settings and start to transmit.



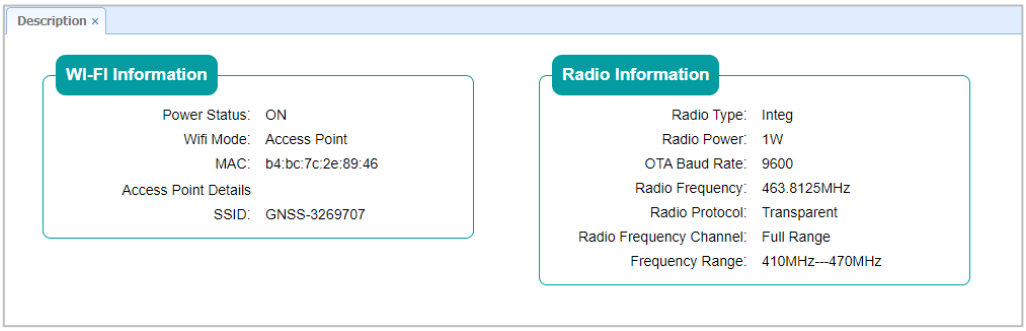
5.6 Module Setting Menu

Use this menu to check module information, configure WiFi, bluetooth, radio related settings.



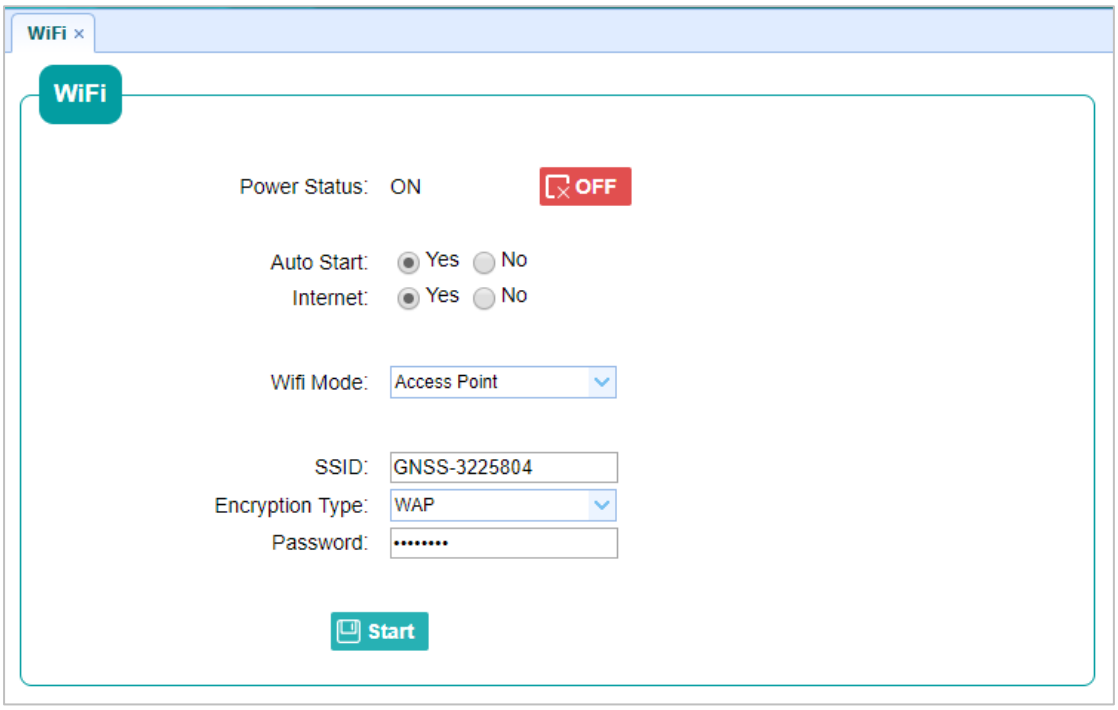
5.6.1 Description Submenu

Use this submenu to check the information of WiFi module, bluetooth module and radio module.



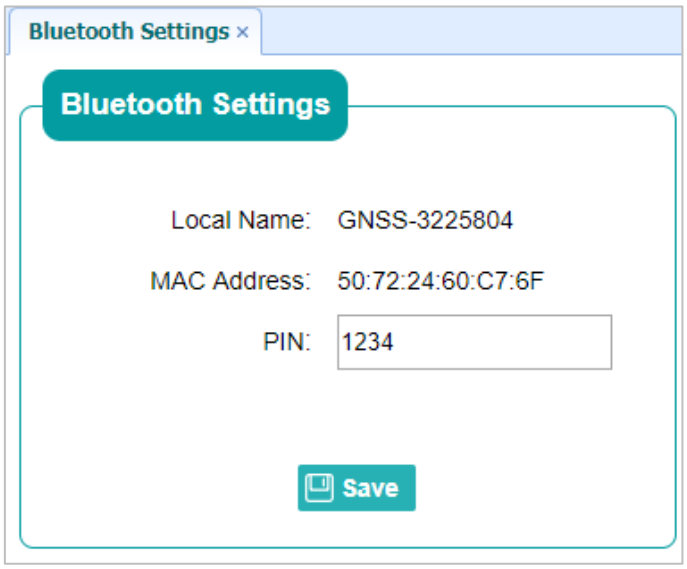
5.6.2 WiFi Submenu

Use this submenu to turn on/off WiFi function and modify password.



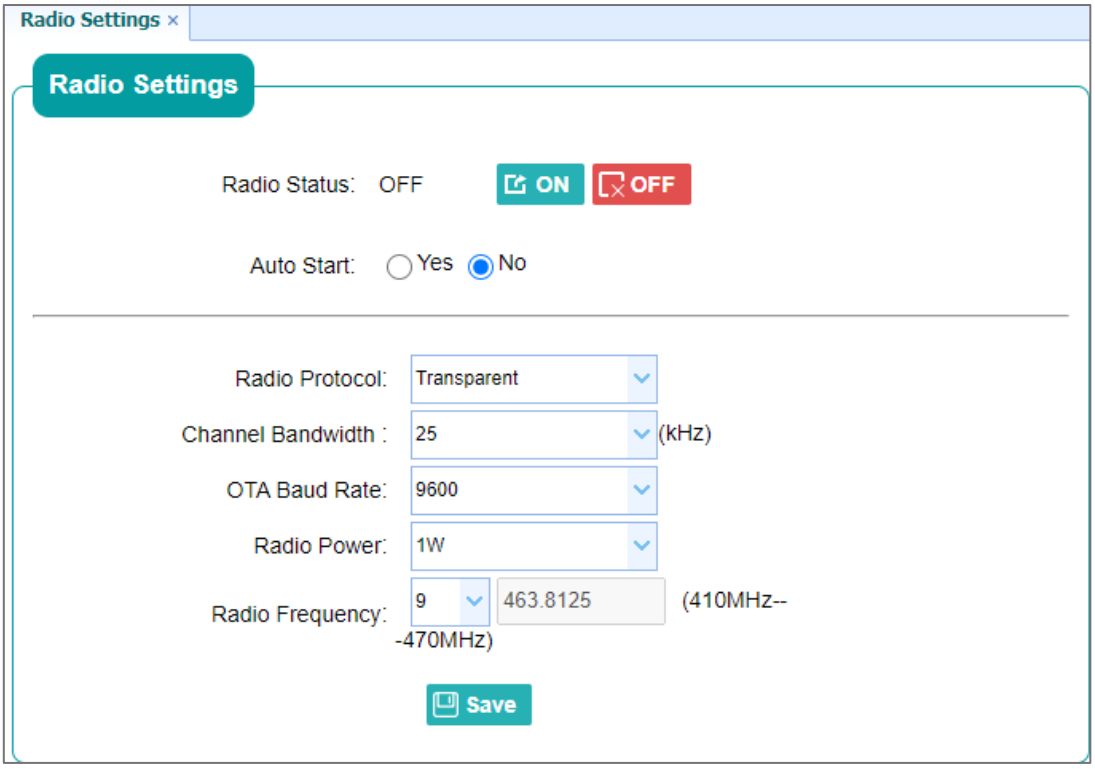
5.6.3 Bluetooth Settings Submenu

Use this submenu to turn on/off bluetooth function and modify PIN number.



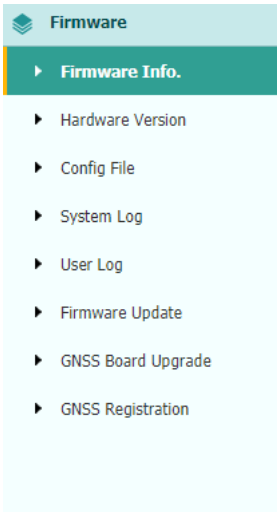
5.6.4 Radio Settings Submenu

Use this submenu to turn on/off radio function and configure radio parameters.



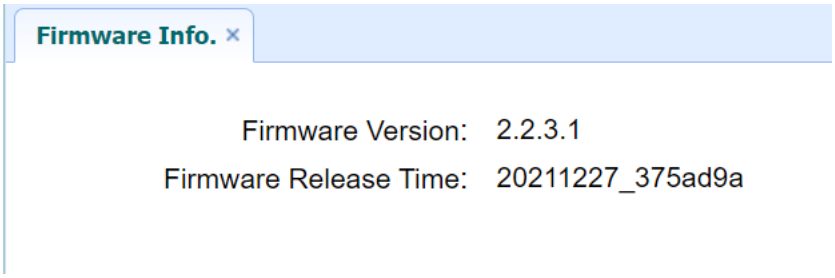
5.7 Firmware Menu

Use this menu to check the current firmware information, download the system log, update the receiver firmware, download or update the configuration file and register the receiver, and more:



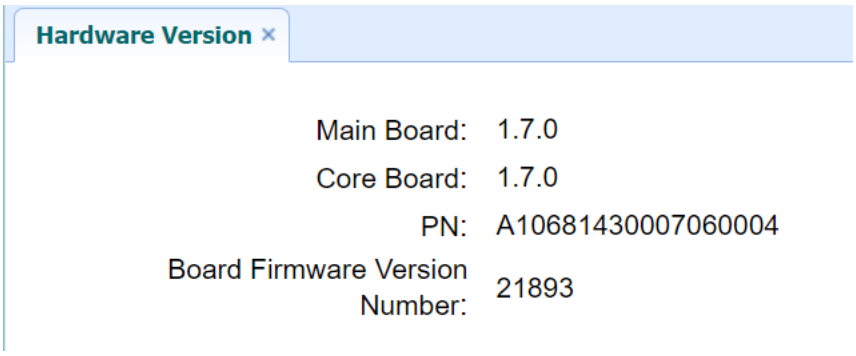
5.7.1 Firmware Info Submenu

Use this submenu to check the current firmware information. The following figure shows an example of the firmware information.



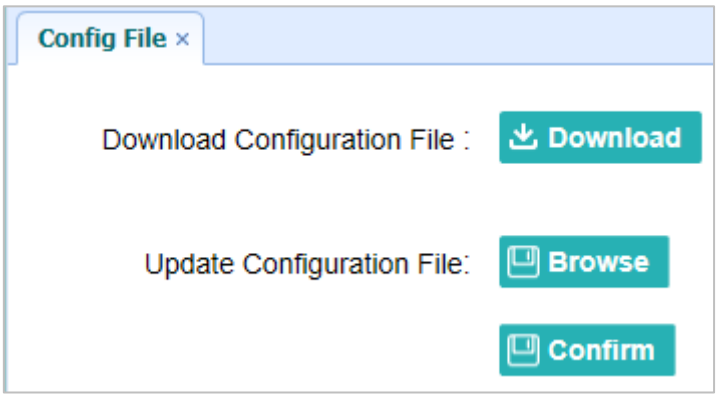
5.7.2 Hardware Version Submenu

Use this submenu to check the hardware information, including main board version and core board version:



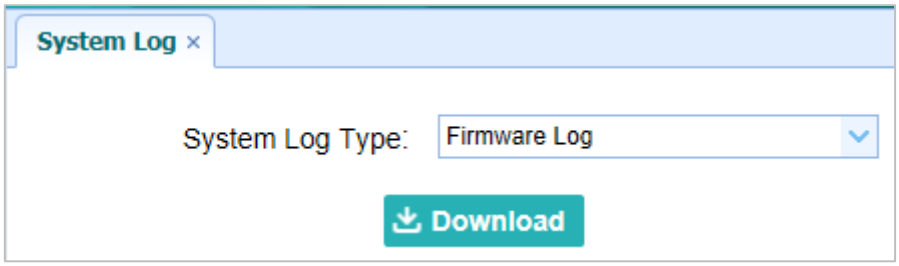
5.7.3 Config File Submenu

Use this submenu to update Configuration File.



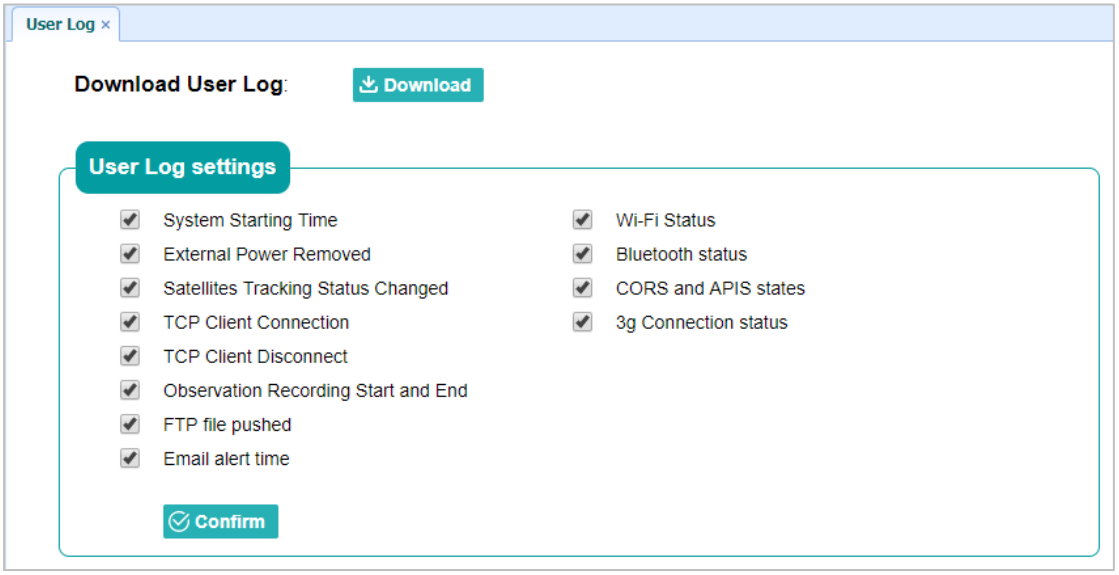
5.7.4 System Log Download Submenu

Use this submenu to download the system log of the receiver.



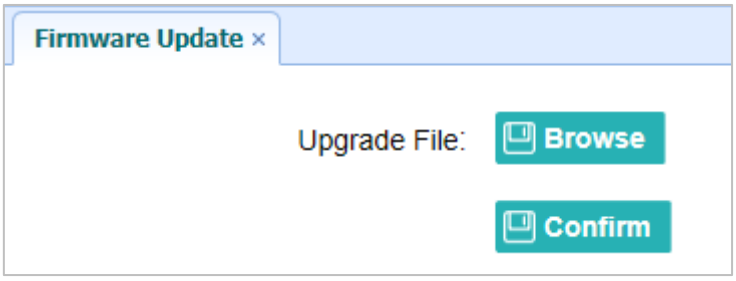
5.7.5 User Log Submenu

Use this submenu to download the user log. Tap **Download** to download current user log; Tick items that you want to see on the user log and tap confirm button to confirm selected user log.



5.7.6 Firmware Update Submenu

Use this submenu to load new firmware to the receiver across the network. Tap the **Browse** button to locate the upgrade file → tap **Confirm** button to confirm the selected upgrading file and start upgrading.

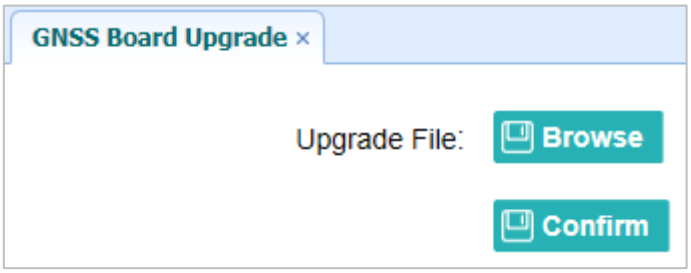


Notes

- It may take about 3 or 4 minutes to complete the firmware upgrading. Do not touch the power button or unplug the power until the upgrading process finishes, or damage will be caused to the receiver.
- The receiver will restart after the firmware upgrading is done, so users need to reconnect the receiver with your computer via Wi-Fi, and then log-in the receiver through a web browser to continue the configuration.

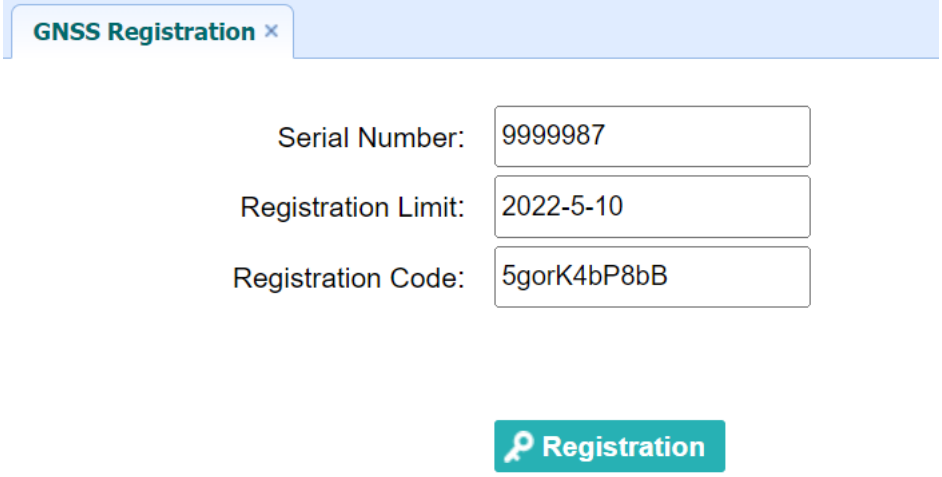
5.7.7 GNSS Board Upgrade Submenu

Use this submenu to upgrade GNSS Board. Use this submenu to load new board to the receiver across the network. Tap the **Browse** button to locate the upgrade file → tap **Confirm** button to confirm the selected upgrading file and start upgrading.



5.7.8 GNSS Registration Submenu

Use this submenu to register the receiver. Paste or enter the registration code to the *Registration Code* field → tap **Registration** button to complete the registration.


GNSS Registration
Serial Number:
9999987
Registration Limit:
2022-5-10
Registration Code:
5gorK4bP8bB
Registration

EFIX Geomatics

1st Floor, No. 258 Pingyang Rd., Minhang

District, Shanghai, 201102, CHINA

Tel: +86 15021007664

Email: sales@ efix-geo.com |support@ efix-geo.com

Skype: support@efix-geo.com

Website: www.efix-geo.com

1) FCC 15.19

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2）FCC 15.21

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

3) FCC 15.105

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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.

4）FCC RF Exposure- portable

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 60cm between the radiator & your body.