



CHCNAV i85 GNSS

USER GUIDE



Survey & Engineering | July 2025

Table of Content

Preface	1
Copyright	1
Copyright	1
Trademarks	1
Safety Warnings	1
FCC Interference Statement	2
CE Interference Statement	2
Brazil	2
1 Introduction	3
1.1 Safety Information	3
1.1.1 Warnings and Cautions	3
1.2 Regulations and Safety	3
1.2.1 Use and Care	4
1.3 Technical Support	4
1.4 Disclaimer	4
1.5 Your Comments	4
2 Getting Started with i85	5
2.1 About the Receiver	5
2.2 Parts of the Receiver	5
2.2.1 Front Panel	5
2.2.2 Other Panels	6
2.2.3 Laser label instructions	7
2.2.4 Receiver Ports	8
2.3 Batteries and Power	8
2.3.1 Batteries	8
2.3.2 The Internal Battery	8
2.3.3 Battery Safe	9
2.3.4 External Power Supply	9
2.4 Product Basic Supply Accessories	10
2.4.1 Base Kit Basic Supply	10
2.4.2 Rover Kit Basic Supply	11
2.5 Connecting to an Office Computer	12
2.6 Connecting to a Controller	12
2.6.1 Connecting via Wi-Fi with LandStar 8 Software	12
2.6.2 Connecting via Bluetooth with LandStar 8 Software	14

2.7 Downloading Logged Data	16
2.7.1 FTP Download	16
2.7.2 USB Download	18
3 Equipment Setup and Operation	20
3.1 Base Station Setup	20
3.2 Real-Time Rover Station Setup	21
3.3 Working with the Tilt Compensation	22
3.3.1 Operation Steps for first IMU initialization	22
3.3.2 Notes of using tilt measurement	24
3.4 Laser Survey function	25
3.4.1 Notes of using laser survey	27
3.5 Stakeout functions	28
3.5.1 Point stakeout	28
3.5.2 AR stakeout	28
4 Configuring Through a Web Browser	31
4.1 Status Menu	33
4.1.1 Position Submenu	33
4.1.2 Activity Submenu	33
4.1.3 Google Map Submenu	34
4.2 Satellites Menu	34
4.2.1 Tracking Table Submenu	34
4.2.2 Tracking Info. Table Submenu	35
4.2.3 Tracking Skyplot Submenu	35
4.2.4 Satellite Activation Submenu	36
4.3 Receiver Configuration Menu	37
4.3.1 Description	37
4.3.2 Antenna Configuration Submenu	37
4.3.3 Reference Station Settings Submenu	38
4.3.4 Receiver Reset Submenu	41
4.3.5 Languages Submenu	41
4.3.6 User Management Submenu	41
4.4 Data Recording Menu	42
4.4.1 Log Settings Submenu	42
4.4.2 FTP Push Settings Submenu	44
4.4.3 FTP Push Log Submenu	45
4.5 IO Settings Menu	46
4.5.1 IO Settings Submenu	46
4.6 Network Setting Menu	53

4.6.1 Email Alarm Submenu	53
4.6.2 HTTP Submenu	54
4.6.3 HTTPS Submenu	54
4.7 Module Setting Menu	55
4.7.1 Description Submenu	55
4.7.2 WiFi Submenu	55
4.7.3 Bluetooth Settings Submenu	56
4.7.4 Radio Settings Submenu	56
4.7.5 IMU Settings Submenu	57
4.8 Firmware Menu	58
4.8.1 Firmware Info Submenu	58
4.8.2 Hardware Version Submenu	59
4.8.3 Config File Submenu	59
4.8.4 System Log Download Submenu	59
4.8.5 User Log Submenu	59
4.8.6 Firmware Update Submenu	60
4.8.7 GNSS Board Upgrade Submenu	60
4.8.8 Radio Upgrade Submenu	60
4.8.9 GNSS Registration Submenu	61
CHC Navigation	62

Preface

Copyright

Copyright

CHCNAV | CHC Navigation Technology Ltd. All rights reserved. The CHCNAV are trademark of CHC Navigation Technology Limited. All other trademarks are the property of their respective owners.

Trademarks

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

Safety Warnings

GNSS (Global Navigation Satellite System) receivers are electronic devices that use signals from satellites to determine location, speed, and time. While GNSS receivers are generally safe to use, there are some safety considerations that users should keep in mind:

- (1) Do not rely solely on GNSS for navigation: GNSS signals can be disrupted by various factors such as tall buildings, trees, and bad weather. It is important to use other navigation aids such as maps, compasses, and visual landmarks.
- (2) Keep GNSS receivers away from other electronic devices: Electronic devices such as mobile phones, radios, and computers can emit electromagnetic interference (EMI) that can disrupt GNSS signals. Keep GNSS receivers away from such devices to avoid EMI.
- (3) Do not tamper with GNSS receivers: Tampering with GNSS receivers or modifying their software can cause them to malfunction or produce inaccurate readings. Only use GNSS receivers that are certified and authorized for use.
- (4) Follow manufacturer instructions: Follow the manufacturer's instructions regarding the safe use and handling of GNSS receivers. This includes instructions for charging, cleaning, and storing the device.
- (5) Caution - Class 3R laser radiation when open avoid direct eye exposure.
- (6) Dispose of GNSS receivers properly: When disposing of GNSS receivers, follow local regulations for electronic waste disposal to avoid harming the environment.

- (7) It is important to use GNSS receivers safely to avoid accidents or injury. If you experience any issues or concerns with your GNSS receiver, contact the manufacturer or a qualified technician for assistance.
- (8) Caution-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- (9) The laser radiation level emitted by the laser aperture provided exceeds Class 1.
- (10) The laser safety classification of this product is based on IEC 60825-1: 2014.
- (11) During the operation of the product, the laser performance parameters emitted are as follows:

Wavelength:	520nm±10nm
Pulse width:	64.5us
Repetitive frequency	5kHz
Maximum single pulse energy	$5.2 \times 10^{-7} \text{J}$
Laser safety level.	Class 3R

FCC Interference Statement

This equipment has been designed to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules in the Portable Mode. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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.

CE Interference Statement

Declaration of Conformity: Hereby, CHC Navigation Technology Ltd. declares that this i85 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL-www.anatel.gov.br.

1 Introduction

The i85 GNSS Receiver User Guide describe show to setup and use the CHCNAV i85 GNSS receiver. In this manual, “the receiver” refers to the i85 GNSS receiver unless otherwise stated. Even if you have used other Global Navigation Satellite Systems (GNSS) products before, CHCNAV recommends that you spend sometime reading this manual to learn about the special features of this product. If you are not familiar with GNSS, go to www.chcnav.com for an interactive look at CHCNAV and GNSS.

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 data link. 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 i85 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 CHCNAV website (www.chcnav.com) , contact your local CHCNAV dealer from which you purchased the receiver(s). If you need to contact CHCNAV technical support, please contact us by email(support@chcnav.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. CHCNAV holds no responsibility for the wrong operation by users and for the losses incurred by the wrong understanding about this User Guide. However, CHCNAV reserves the rights to update and optimize the contents in this guide regularly. Please contact your local CHCNAV 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@chcnav.com.

2 Getting Started with i85

2.1 About the Receiver

The i85 Pocket Laser RTK is an ultra-compact, centimeter-grade surveying instrument engineered for harsh environments. By integrating GNSS, IMU, dual cameras and an industrial-grade green laser, it boosts stakeout productivity by 40 % through CAD- and AR-driven visual guidance.

Its daylight-visible green laser captures fast, precise 3-D points in obstructed or hard-to-reach areas—even under 50,000 lux midday sunlight. AUTO-IMU eliminates manual centering, delivering instant tilt-compensated measurements and, together with a high-speed SOC and next-generation IMU, accelerating laser workflows by 50 %.

An 8 MP “telescopic” camera with real-time image processing offers autofocus and zoom with ultra-low latency, keeping distant targets razor-sharp so operators can lock on and record points without a second thought.

The receiver can be used as the part of an RTK GNSS system with Landstar8 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. Type-C port ,SMA port 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 four indicator LEDs and two buttons.



Name	Description
Correction LED (Yellow/Green)	<ul style="list-style-type: none"> Indicates whether the receiver is transmitting/receiving differential data. As a Base station: successfully transmitting differential data, flash yellow light. As a Rover station: successfully receiving differential data from Base station will flash yellow light when it is single or float, flash green light when it is fixed.
Satellite LED (Blue)	<ul style="list-style-type: none"> Shows the number of satellites that the receiver has tracked. When the receiver is searching satellites, the blue LED flashes once every 5 seconds. When the receiver has tracked N satellites, the blue LED will flash N times every 5 seconds.
Power LED(Red)	<ul style="list-style-type: none"> If the internal battery is $\geq 20\%$, the indicator stays solid green. If the internal battery is $< 20\%$ but $> 10\%$, the indicator stays solid red. If the internal battery is $\leq 10\%$ but $> 0\%$, the indicator flashes red at 1 Hz (one flash per second).
Static LED (Yellow)	<ul style="list-style-type: none"> Flash means static is on.
Power button (White)	<ul style="list-style-type: none"> Press and hold this button for 3 seconds to turn on or turn off the receiver.
Fn button (White)	<ul style="list-style-type: none"> Press and hold this button for 3 seconds to turn on or turn off the static mode.

2.2.2 Other Panels

The lower housing contains one TNC radio antenna connector(SMA port) , one USB type C communication port and one bottom camera.

The side contains a camera, a Laser receiving window and a laser aperture





2.2.3 Laser label instructions

The product contains two laser labels, one located at the bottom of the instrument and the other on the laser emitter



2.2.4 Receiver Ports

Port	Name	Description
	USB port	<ul style="list-style-type: none"> • This port is a type-C USB connector that supports USB communications. • Users can use USB Cable supplied with the system to download the logged data to a computer but can't upload the data. • USB port can used to charge the i85 GNSS receiver
	Radio antenna connector	<ul style="list-style-type: none"> • 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 Batteries

The receiver has an built-in non-removable Lithium-ion battery.

2.3.2 The Internal Battery

The rechargeable Lithium-ion battery is supplied partially charged.



WARNING – Charge and use the rechargeable Lithium-ion battery only in strict accordance with the instructions. Charging or using the battery in unauthorized device 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 CHCNAV 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 CHCNAV 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 use or charge the battery if it appears to be damaged. Signs of damage include, but are not limited to discoloration, warping, and leaking battery fluid.
- Do not expose the battery to fire, high temperature, or direct sunlight.
- Do not immerse the battery in water.
- Do not use or store the battery inside a vehicle under hot weather condition.
- Do not drop or puncture the battery.
- Do not open the battery or short-circuit its contacts.



WARNING – Avoid contact with the rechargeable Lithium-ion battery if it appears to be leaking. Battery fluid is corrosive and contact with it can result in personal injury and/or property damage.

To prevent injury or damage:

- If the battery leaks, avoid with the battery fluid.
- If battery fluid gets into your eyes, immediately rinses your eyes with clean water and seek medical attention. Please do not rub your eyes!
- If battery fluid gets onto your skin or clothing, immediately use clean water to wash off the battery fluid.









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
i85 GNSS Receiver	
UHF Whip Antenna	
Power Adapter	
USB Type-C	
H.I. Tape	
Extension pole	
Tribrach with optical plummet	
Auxiliary H.I. Tool	

Transport Hard Case	
---------------------	--

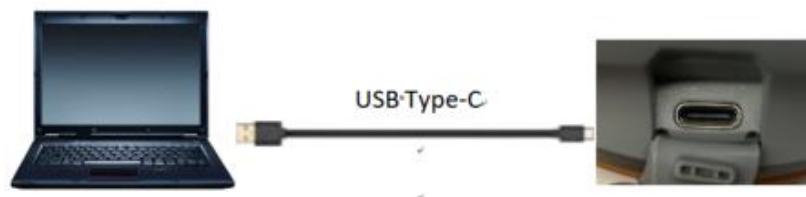
2.4.2 Rover Kit Basic Supply

Item	Picture
i85 GNSS Receiver	
UHF	
Power Adapter	
USB Type-C	
2M Range Pole w/bag	
Auxiliary H.I. Tool	
Transport Hard Case	

2.5 Connecting to an Office Computer

The receiver can be connected to an office computer for serial data transfer or settings via a USB Type-C. Before you connect to the office computer, ensure that the receiver is powered on by internal battery or external power.

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

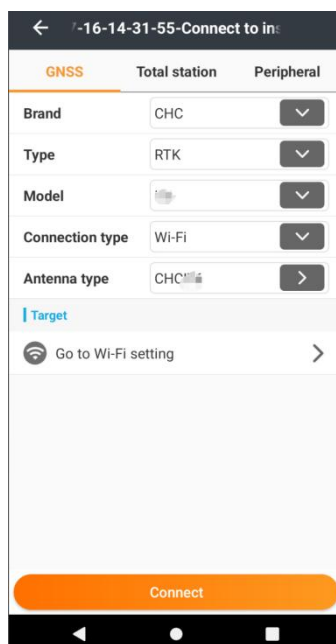


2.6 Connecting to a Controller

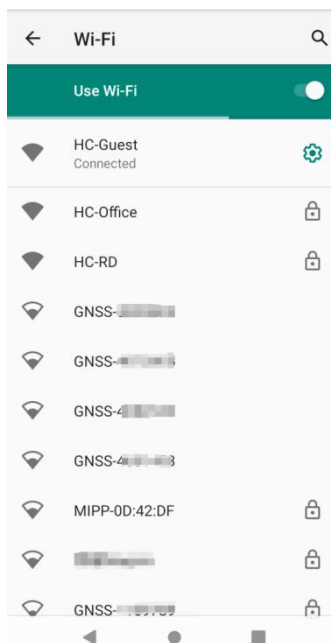
2.6.1 Connecting via Wi-Fi with LandStar 8 Software

Turn on the controller → run LandStar 8 → goto **Config** main menu → tap **Connect**.

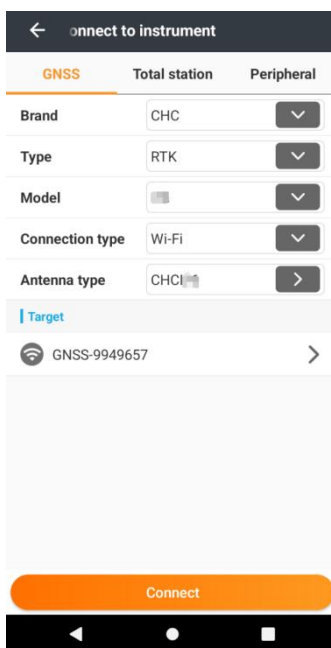
In the Connect screen, select **CHC** for the Manufacture field, **i85** for Device Type field, **WIFI** for Connection Type field.



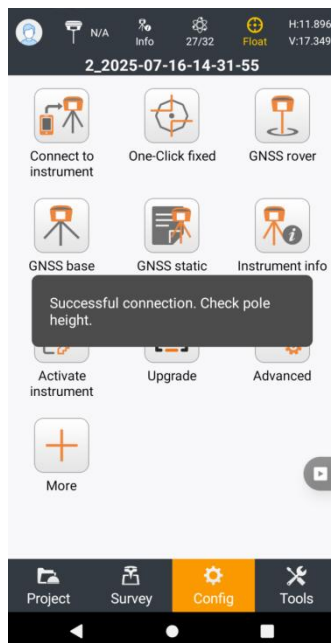
Tap the Wireless Lan icon on the right side to select the hotspot → Switch on the WiFi module by the top switch → select the target device in the list.



Tap **Connect** to link to the hotspot. If the first-time connection to this hotspot, user may type in the password.



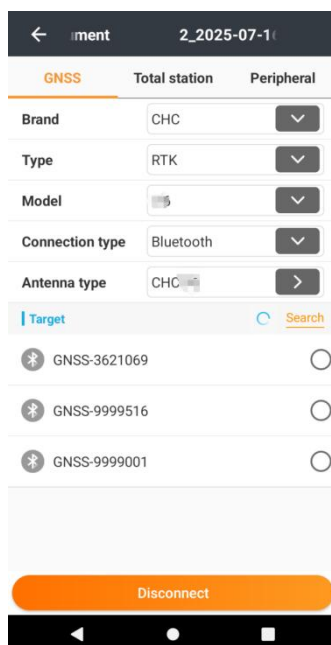
Tap the **Connect** button to build the connection.



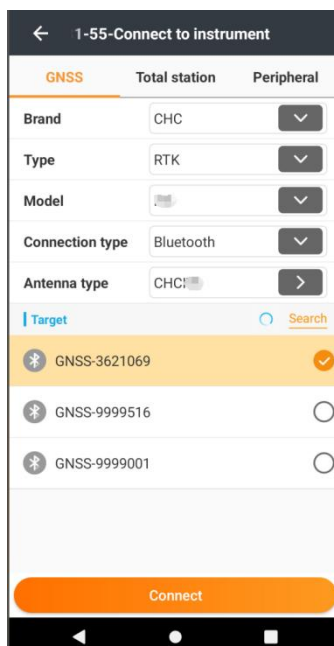
2.6.2 Connecting via Bluetooth with LandStar 8 Software

Turn on the controller → run LandStar 8 → goto **Config** main menu → tap **Connect**.

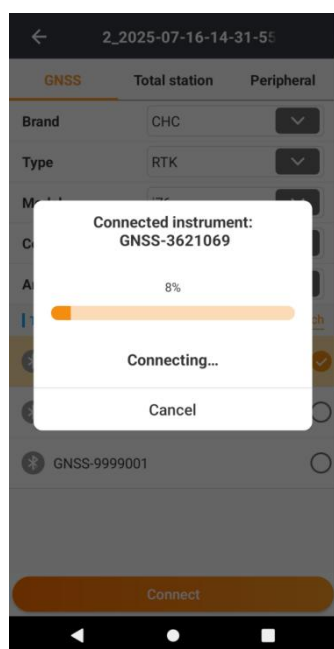
In the Connect screen, select **CHC** for the Manufacture field, **i85** for Device Type field, **Bluetooth** for Connection Type field.



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 CHC Geomatics Office (CGO) Software.

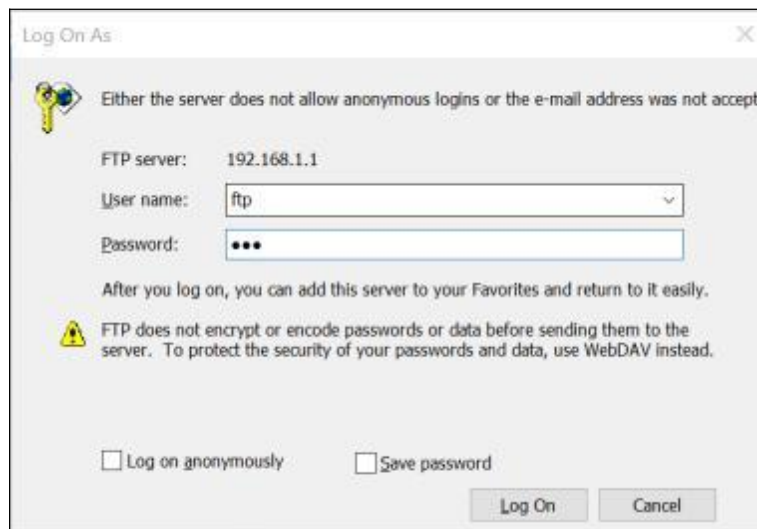
2.7.1 FTP Download

The procedures of downloading logged data through FTP areas follows:

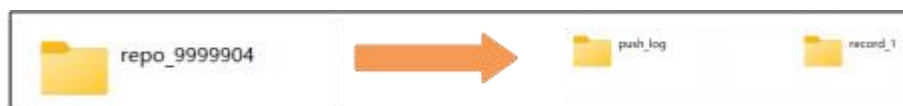
- (1) Switch on the receiver, search its Wi-Fi in the computer and connect.
- (2) After the successful connection, open the file manager in the computer and input “ftp://192.168.1.1” in the address box.



- (3) Input user name and password, the default user name and password are “ftp”.



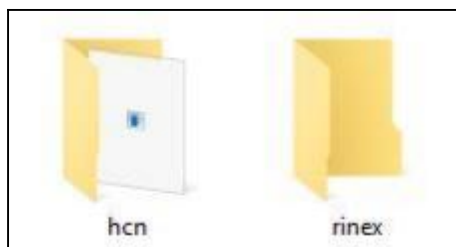
- (4) Double click the folder “repo_receiver SN” (take 3411955 as example), you will see 2 folders. The “push_log” folder is used to save the log files, and another folder is used for store static data.



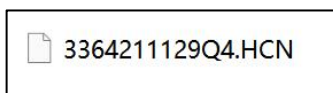
(5) Double click the folder that you have configured to store the static data, you will see the folder(s) created by the i85 system automatically and named by the date which is decide by GPS time when you start to log data.



(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.

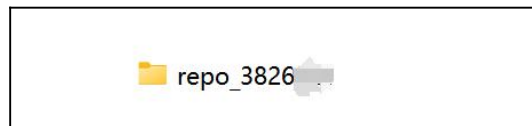
2.7.2 USB Download

The procedures of downloading logged data in the receiver areas follows:

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



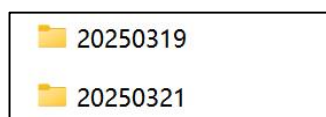
(2) Double click the removable disk and you will see the folder named as “repo”.



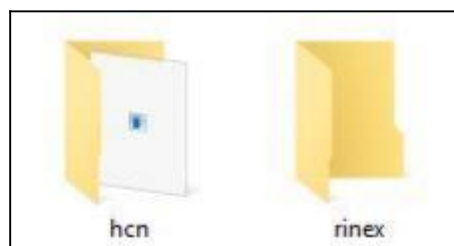
(3) Double click the folder “repo_receiver SN” (take xxxxxxxx as example), you will see 2 folders. The “push_log” folder is used to save the log files, and another folder is used for store static data.



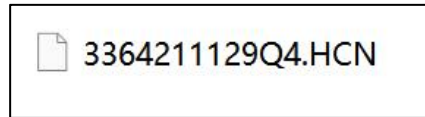
(4) Double click the folder that you have configured to store the static data, you will see the folder(s) created by the i85 system automatically and named by the date which is decide by GPS time when you start to log data.



(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.



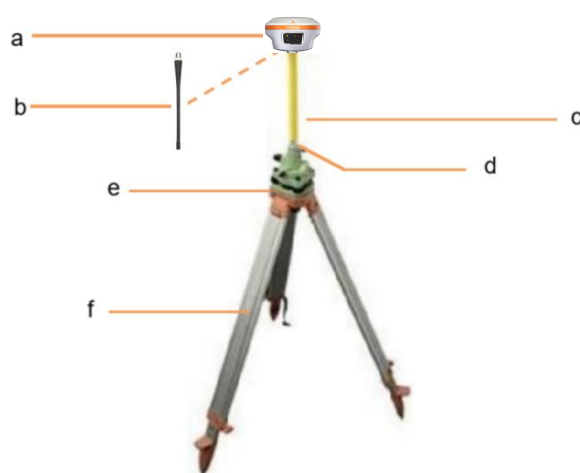
WARNING – The static data will be saved in the first logging session, the “record_1” folder, by default. Old files will be deleted if the storage space is full. If you configure not to auto delete old files when the memory is low, the receiver will stop data logging.

3 Equipment Setup and Operation

3.1 Base Station Setup

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

Components:



No.	Name
a	i85 GNSS receiver
b	SMA Whip Antenna
c	Extension pole (30 cm)
d	Tribrach adaptor
e	Tribrach w/ Opti
f	Aluminum tripod

Steps:

- (1) Put tripod in the target position, center and level it roughly.
- (2) Place and lock the tribrach in the tripod.

If work as a UHF base station, the SMA Whip Antenna need to be connected to the receiver.

- (3) Connect the receiver to external battery by using external power cable if necessary.
- (4) Connect the receiver to external storage disk by using USB cable if necessary.
- (5) Turn on the receiver by pressing the power button for 3 s.
- (6) Measure the antenna height by using H.I. tape and auxiliary H.I. tool.
- (7) Switch on the data controller and connect it to the receiver.
- (8) Use software to configure the receiver as UHF base mode.

3.2 Real-Time Rover Station Setup

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

Components:



No.	Name
a	i85 GNSS receiver
b	2M range pole w/bag

Steps:

- (1) Keep the receiver fully charged.


If work as a UHF rover station, the UHF whip antenna need to be connected to the receiver.

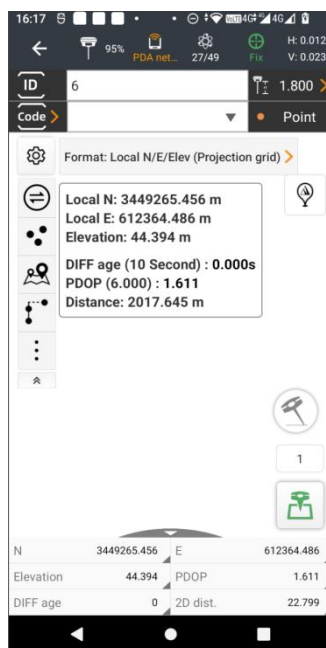
- (2) Turn on the receiver by pressing the power button for 3 s.
- (3) Switch on the data controller and connect it to the receiver.
- (4) Use software to configure the receiver as cellular rover or UHF rover mode.
- (5) Center and level the receiver more precisely.
- (6) Use software to start survey.

3.3 Working with the Tilt Compensation

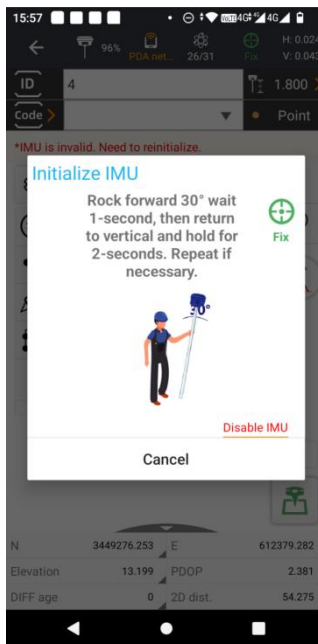
After enable the tilt survey, the i85 with the Auto-IMU can be ready after a few steps walk or a bit movement automatically.


3.3.1 Operation Steps for first IMU initialization

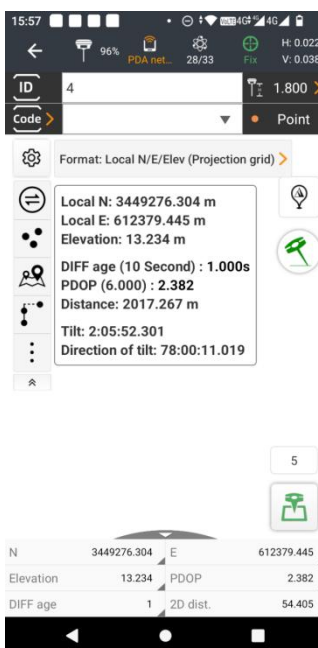
(1) Open Landstar8-> Tap Point Survey-> Tap  to activate tilt measurement.





(2) Hold the pole vertical for a while and shake according to the procedures in the interface to do initialization.

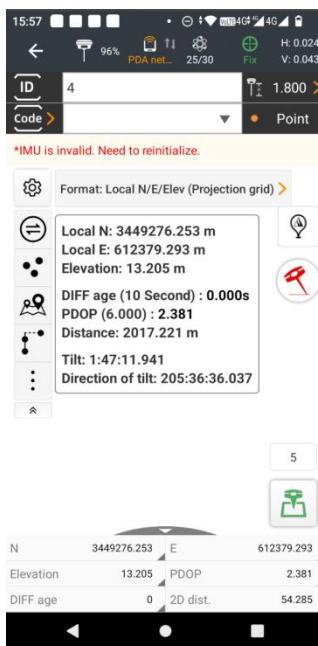



(3) This icon  will appear when the initialization is successful.



(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 "IMU is invalid. Need to reinitialize" at the middle of interface.



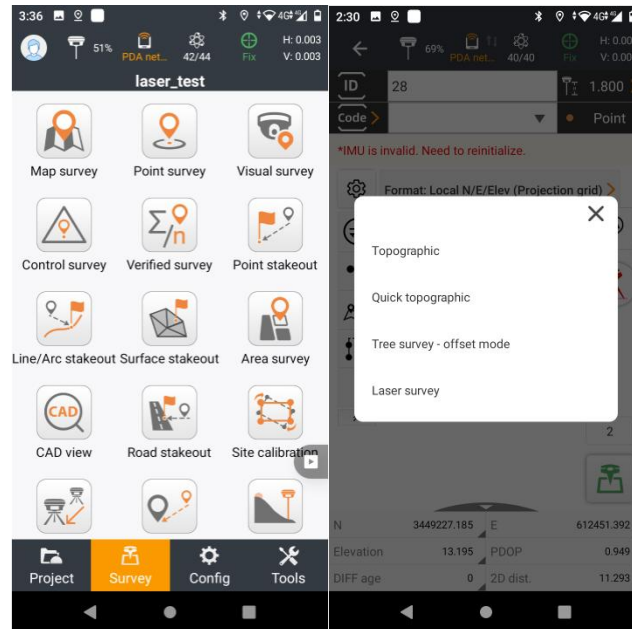
(6) Tap  to close tilt compensation.

3.3.2 Notes of using tilt measurement

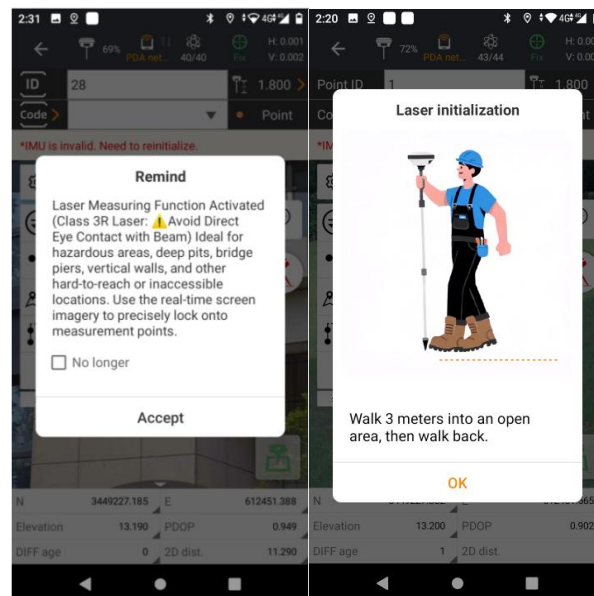
1. At the beginning of initialization, the pole height of the instrument should be the same as that antenna height in the software.
2. In the process of tilt measurement, if the controller shows that “Tilt is not available, please measure in alignment” (red), please shake RTK slightly from left to right 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. Initialization is required:
 - when the RTK is turned on everytime;
 - when IMU module is turned on everytime;
 - 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.

3.4 Laser Survey function

(1) To use this function, tap [Point survey] in the Survey interface and select Laser survey.

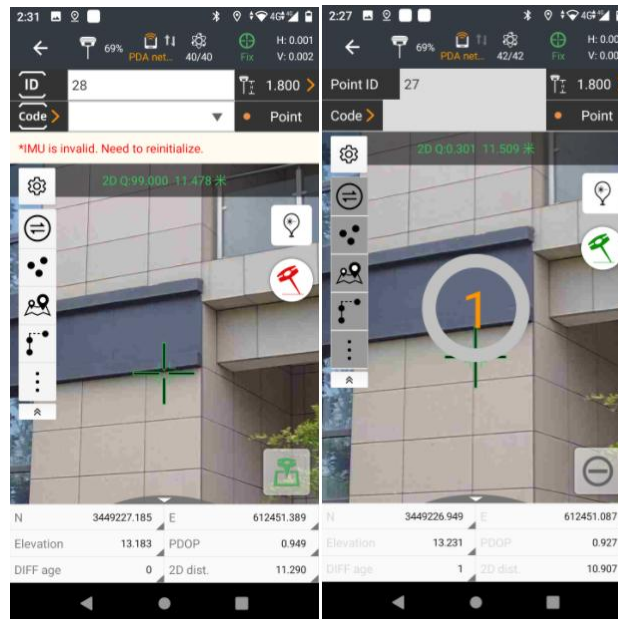


(2) After tapping Laser survey, you'll receive a safety-use notice and a laser initialization prompt. Follow the on-screen instructions to complete the laser initialization. To ensure survey accuracy, it is necessary to walk 6 meters or 3 meters and then return to the original position to complete the laser initialization.



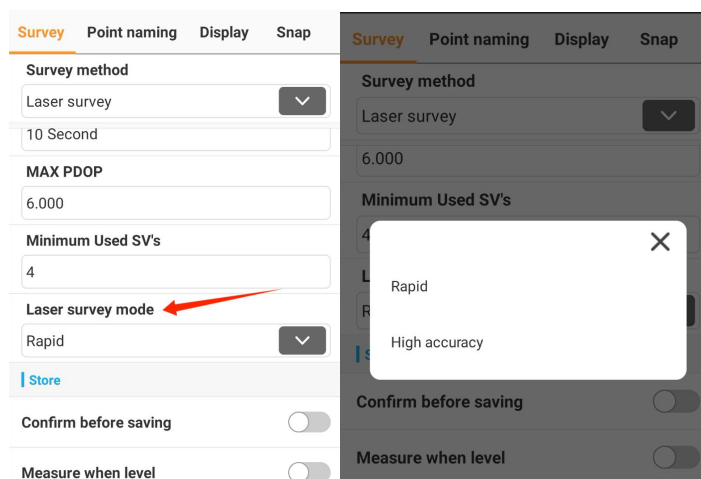
Caution - Class 3R laser radiation when open avoid direct eye exposure.

(3) Once initialization is complete, a laser-aiming crosshair appears. Center it on the point to be measured and tap Measure to finish a laser measurement.



(4) Our camera supports two modes: automatic zoom and manual zooming in and out. When aiming at a distance, the camera will automatically zoom in, it can also be continued manually.

(5) The software supports two laser survey mode---Rapid and High accuracy. Different modes have different requirements for laser initialization.



(6) Our software also supports automatic store. When the laser remains stationary for a certain period of time, the collection can be automatically completed. Users can customize the Max movement distance and time interval

Laser survey mode High accuracy ▼		Measure when level ☑	
Store		Max. movement antenna 0.020 m	
Confirm before saving ☐		Time interval 2 Second	
Measure when level ☐			

3.4.1 Notes of using laser survey

1. When using laser survey, the instrument connection type must be selected as wifi
2. When conducting laser survey, it is recommended that the measurement distance be less than 20 meters, with 10 meters being the best and 50 meters the farthest.
3. It is recommended that the altitude of the measurement scene be less than 1500 meters and the light intensity be less than 50 klux.
4. It is recommended that the temperature of the measurement scene sea be between -10 °C and 60 ° C. If it exceeds or falls below the critical value, the laser will enter a dormant mode
5. After aiming at the target point, the pole should be avoided from shaking.
6. During the measurement process, it is recommended that the tilt Angle of the pole should not be too large.

3.5 Stakeout functions


3.5.1 Point stakeout

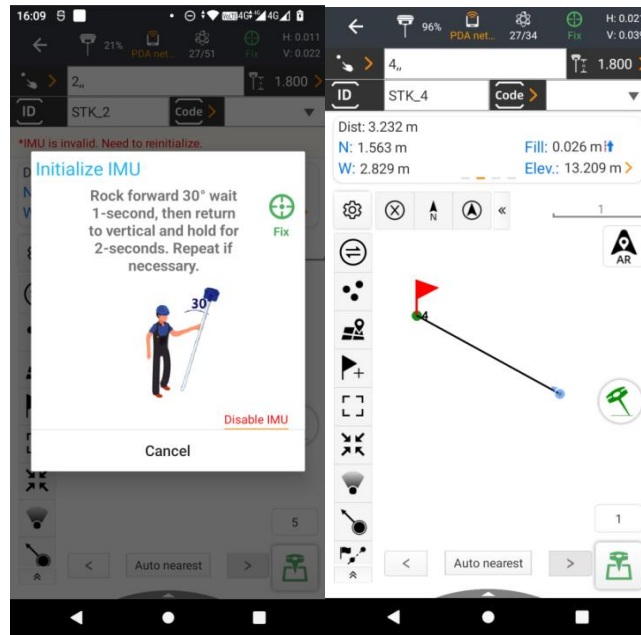
(1) Open the Point Stakeout interface, tap the point-selection icon in the upper-left corner to enter the Point Management screen, choose the point you want to stake out, then tap OK in the lower-right corner. The selected point will appear in the stakeout interface; simply follow the displayed direction and distance to perform the stakeout.



3.5.2 AR stakeout

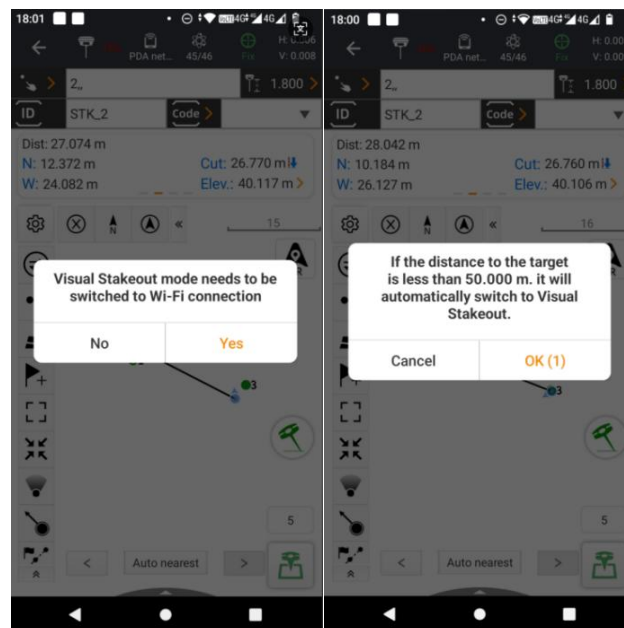
For point stakeout, ensure IMU is initialized. Select the point, tap the “AR” icon on the right, then follow the on-screen direction and distance

(1) Open Point Stakeout, enter the pole height, and tap the Tilt icon to enable tilt compensation. Follow the on-screen prompts to initialize; when successful, the icon turns green .



(2) Tap the AR icon to start AR stakeout.

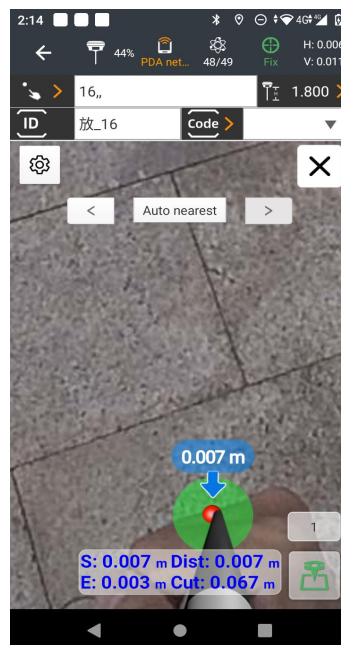
If the controller is connected via Bluetooth, a prompt will appear: “Vision mode requires Wi-Fi.” Tap OK, switch to Wi-Fi in the connection screen, and reconnect.



(3) In Vision Settings, we can adjust the switch distance: the front camera is used from 50 m to 3 m, and the bottom camera takes over within 3 m.



(4) In the video, the target stakeout point appears as a red dot. When the virtual pole tip touches the dot, you've reached the point. Tap the stakeout icon and the point is automatically saved.



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:

192.168.1.1/pc/login.html

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

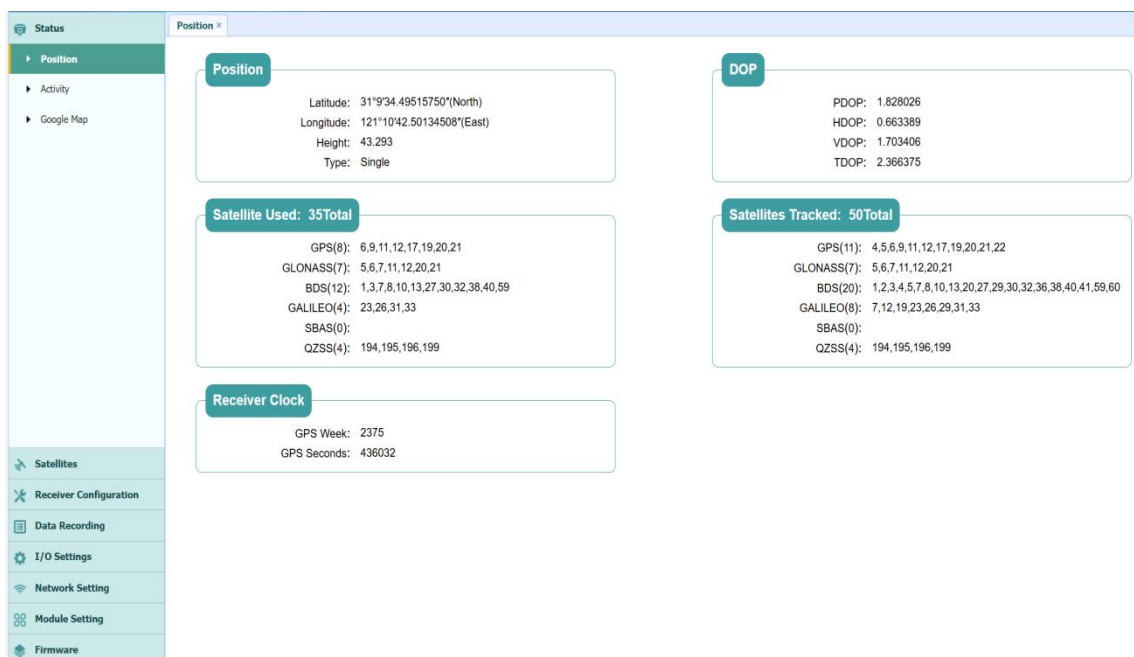


The default login account for the receiver is:

- 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 login, the webpage 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 webpage in another language, select the corresponding language name from the dropdown list on the upper right corner of the webpage.

Currently, seven languages are available:

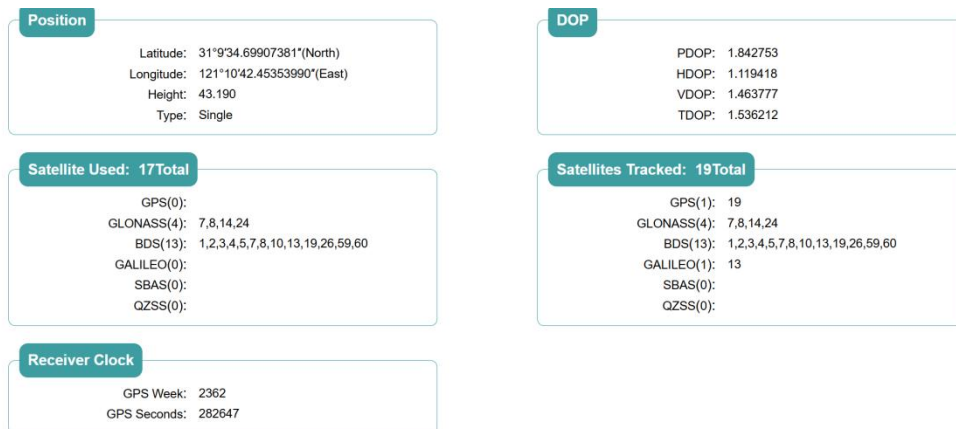


4.1 Status Menu

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.

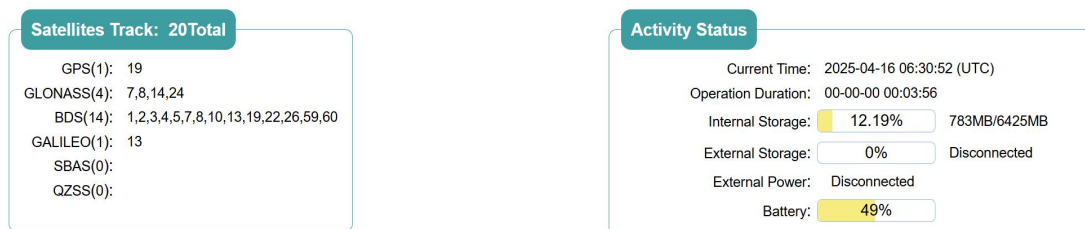
4.1.1 Position Submenu

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.



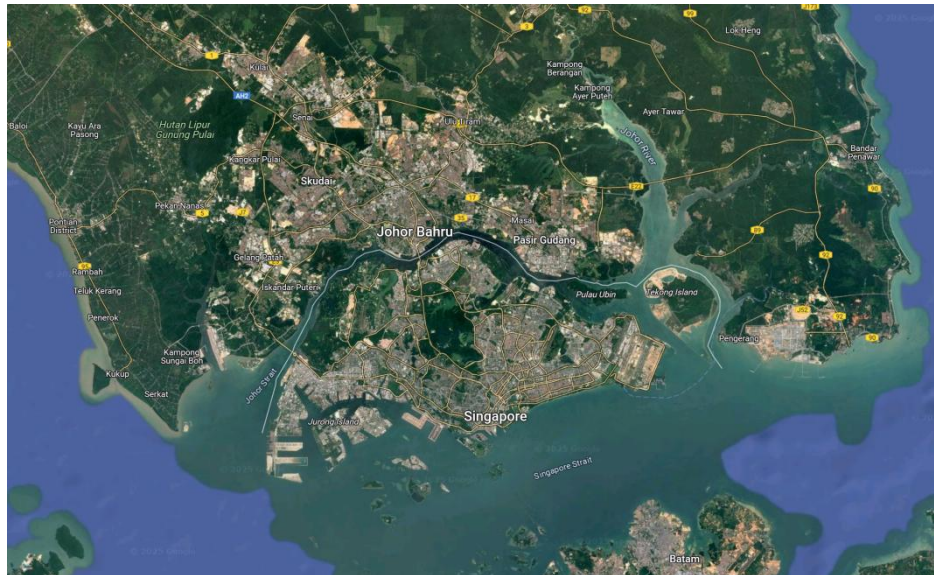
4.1.2 Activity Submenu

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, files being logged, and data streams being output. With this information, it is easy to tell exactly what functions the receiver is performing.



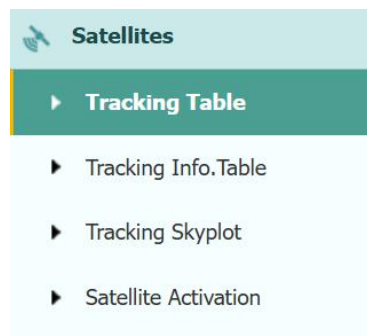
4.1.3 Google Map Submenu

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



4.2 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.



4.2.1 Tracking Table Submenu

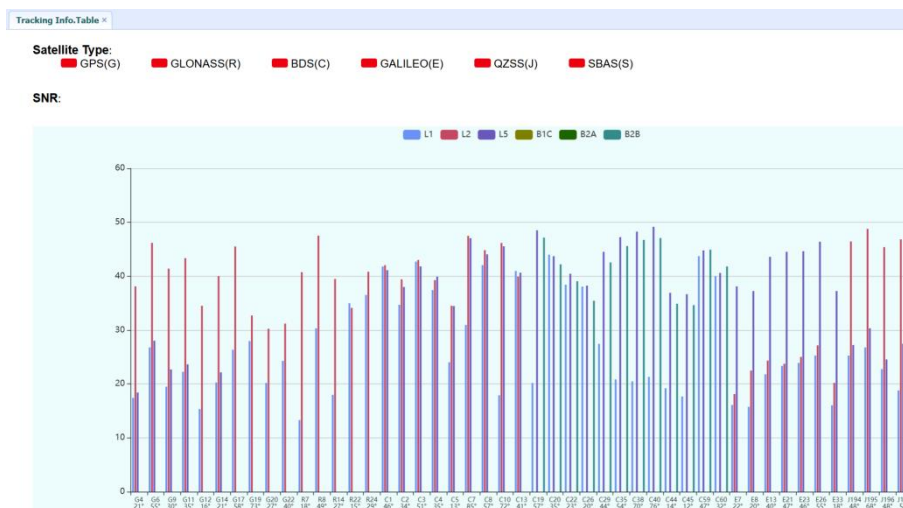
Provides the status of satellites tracked in general, such as the satellite ID, satellite type, attitude angle, azimuth angle, L1 SNR, L2 SNR, L5 SNR and enable/disable status of each one.

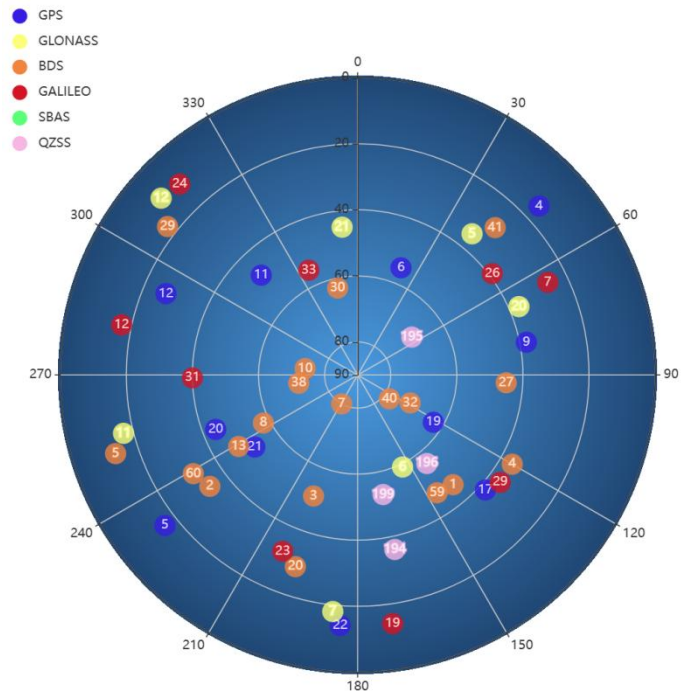
All ☒ GPS ☐ GLONASS ☐ BDS ☐ GALILEO ☐ SBAS ☐ QZSS ☐

SV	Type	Elevation Angle	Azimuth Angle	L1 SNR	L2 SNR	L5 SNR	B1C SNR	B2A SNR	B2B SNR	Enabled
4	GPS	21	75	34.360	37.280	17.950	0.000	0.000	0.000	No
6	GPS	55	326	29.460	45.910	29.160	0.000	0.000	0.000	Yes
9	GPS	30	111	29.260	40.490	20.910	0.000	0.000	0.000	Yes
11	GPS	34	284	26.580	42.530	25.530	0.000	0.000	0.000	Yes
12	GPS	15	316	33.620	34.750	0.000	0.000	0.000	0.000	No
14	GPS	22	179	27.570	40.050	21.720	0.000	0.000	0.000	No
17	GPS	58	100	30.070	44.920	0.000	0.000	0.000	0.000	Yes
19	GPS	73	26	31.830	38.550	0.000	0.000	0.000	0.000	Yes
22	GPS	40	195	26.070	31.200	0.000	0.000	0.000	0.000	No
7	GLONASS	18	34	28.430	41.250	0.000	0.000	0.000	0.000	Yes
8	GLONASS	49	84	30.330	48.240	0.000	0.000	0.000	0.000	Yes
14	GLONASS	27	292	30.560	37.430	0.000	0.000	0.000	0.000	Yes

4.2.2 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.





4.2.4 Satellite Activation Submenu

Use this menu to enable or disable satellites.

Satellite Activation ×

GPS GLONASS BDS GALILEO QZSS SBAS

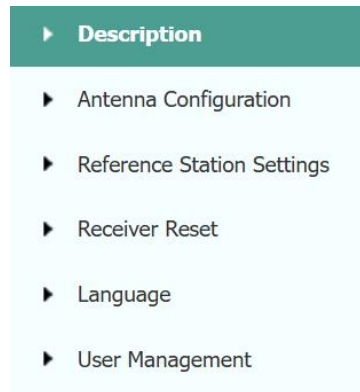
Enable All

Disable All

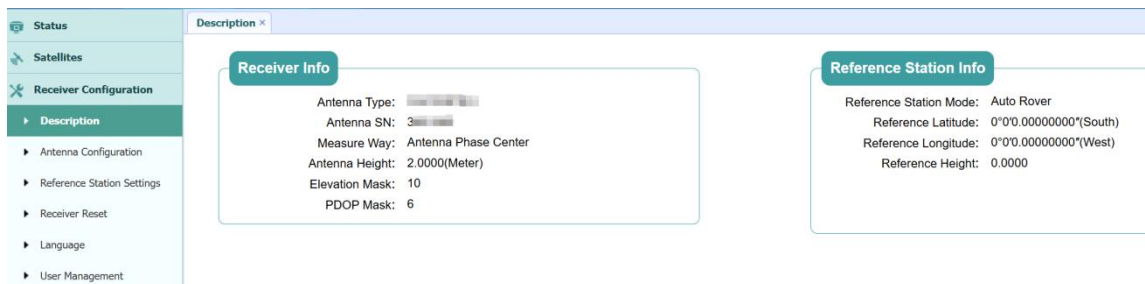
Satellite Id	Enable	Satellite Id	Enable
1	<input checked="" type="checkbox"/>	2	<input checked="" type="checkbox"/>
3	<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>
5	<input checked="" type="checkbox"/>	6	<input checked="" type="checkbox"/>
7	<input checked="" type="checkbox"/>	8	<input checked="" type="checkbox"/>
9	<input checked="" type="checkbox"/>	10	<input checked="" type="checkbox"/>
11	<input checked="" type="checkbox"/>	12	<input checked="" type="checkbox"/>
13	<input checked="" type="checkbox"/>	14	<input checked="" type="checkbox"/>
15	<input checked="" type="checkbox"/>	16	<input checked="" type="checkbox"/>
17	<input checked="" type="checkbox"/>	18	<input checked="" type="checkbox"/>
19	<input checked="" type="checkbox"/>	20	<input checked="" type="checkbox"/>
21	<input checked="" type="checkbox"/>	22	<input checked="" type="checkbox"/>
23	<input checked="" type="checkbox"/>	24	<input checked="" type="checkbox"/>
25	<input checked="" type="checkbox"/>	26	<input checked="" type="checkbox"/>
27	<input checked="" type="checkbox"/>	28	<input checked="" type="checkbox"/>
29	<input checked="" type="checkbox"/>	30	<input checked="" type="checkbox"/>

4.3 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:



4.3.1 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.

4.3.2 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:

Antenna Configuration ×

Antenna Configuration

Measure Way:

Antenna Phase Center

Antenna manufacturer:

Antenna Type:

Antenna SN:

Antenna Height:

2.0000

(Meter)

Elevation Mask:

10

PDOP Mask:

6

Save

4.3.3 Reference Station Settings Submenu

Reference Station Settings ×

Reference Station Mode:

Auto Rover

Save

Sample for Average

Positioning Constraint:

☒ Single Solution Coordinates
 ☐ Fixed Solution Coordinates

Sampling Amount:

300

0%

Start

Stop

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.

b) **Auto Base:** The receiver will serve as a base after this mode is enabled, and then broadcast correction data based on coordinate inputted by user or obtained through autonomous positioning automatically.

Reference Station Settings

Reference Station Mode: Auto Base
Base Station Name:
Base Station ID:
Reference Latitude: ° ′ ″ 0.00000000 ☐ N ☒ S
Reference Longitude: ° ′ ″ 0.00000000 ☐ E ☒ W
Reference Height: 0.0000

Sample for Average
Positioning Constraint: ☒ Single Solution Coordinates ☐ Fixed Solution Coordinates
Sampling Amount: 300 0%

Coordinates transfer threshold value(Meter): 0

Base list

ID	Height	Latitude		Longitude	
1	<input type="text"/> 48.8410	<input type="text"/> 31	<input type="text"/> 9	<input type="text"/> 34.51635113	<input type="radio"/> S <input checked="" type="radio"/> N <input type="text"/> 121 <input type="text"/> 10 <input type="text"/> 42.51292375 <input type="radio"/> E <input checked="" type="radio"/> W
2	<input type="text"/> 44.3753	<input type="text"/> 31	<input type="text"/> 9	<input type="text"/> 34.54676214	<input type="radio"/> S <input checked="" type="radio"/> N <input type="text"/> 121 <input type="text"/> 10 <input type="text"/> 42.59686917 <input type="radio"/> E <input checked="" type="radio"/> W

c) **Manual Base:** The receiver will serve as a base after this mode is enabled. Users need to configure the receiver manually.

Reference Station Settings

Reference Station Mode: Manual Base
Base Station Name: 3621069
Base Station ID: 3621069
Reference Latitude: ° ′ ″ 0.00000000 ☐ N ☒ S
Reference Longitude: ° ′ ″ 0.00000000 ☐ E ☒ W
Reference Height: 0.0000

Sample for Average
Positioning Constraint: ☒ Single Solution Coordinates ☐ Fixed Solution Coordinates
Sampling Amount: 300 0%

For **Reference Latitude** and **Reference Longitude**:


There are mainly three methods to enter the reference coordinates and shown as follows:

- a) **Acquire Current Position**: Click this button to acquire current position obtained through autonomous positioning automatically.
- b) **Manual Input**: Manually input the coordinate of a control point.
- c) **From CORS**: After the receiver logging in CORS, the software can record the coordinate of current position based on fix solution.

For **Sample for Average**:

Users can determine the positioning limit and sampling amount. The positioning limit falls into two types:

- a) **Single Solution Coordinates**: Collect the coordinates of receiver obtained through autonomous positioning.
- b) **Fixed Solution Coordinates**: Only collect coordinates of receiver with a fixed solution.

After the configuration of positioning limit and sampling amount, click  to carryout sampling and averaging → the progress bar will show the progress → the result will be served as the coordinate of current position.

If users need to save the changes, please tap  button.

4.3.4 Receiver Reset Submenu

Use this screen to completely or partially reset the receiver:

Receiver Reset ×

Reboot Receiver:

✓ Confirm

Return to Factory Defaults:

✓ Confirm

Clear Satellite Data:

✓ Confirm

Turn Off Receiver:

✓ Confirm

4.3.5 Languages Submenu

Use this screen to select the web interface language:

Language ×



English

▼

English

中文

Русский

Español

Português





Français

日本語

✓ Confirm

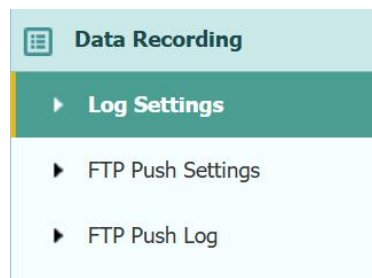
4.3.6 User Management Submenu

User Management ×

User Management			
<div style="display: flex; justify-content: space-between; padding: 5px;">  Add  Save  Delete  Modify Anti-theft password </div>			
ID	User Name	Password	
1	<input type="text" value="admin"/>	<input type="password" value="....."/>	
2	<input type="text" value="admin1"/>	<input type="password" value="....."/>	
3	<input type="text" value="admin2"/>	<input type="password" value="....."/>	

4.4 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:



4.4.1 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.

Log Settings ×

Store Info

	Position	Total Storage	Storage Available
1	Internal Storage	6425MB	2701MB
2	External Storage	0MB	0MB

Attention: Total assigned storage size should be less than 6GB. It will stop recording when the storage is full.

Record Info

Clear All

Recording Number	File Name	Activated	Log Status	Setting Parameter	Switch	Clear Data
1	record1	No	Not Recording	<a>Modify <a>Detail	<a>ON <a>OFF	<a>Clear

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:

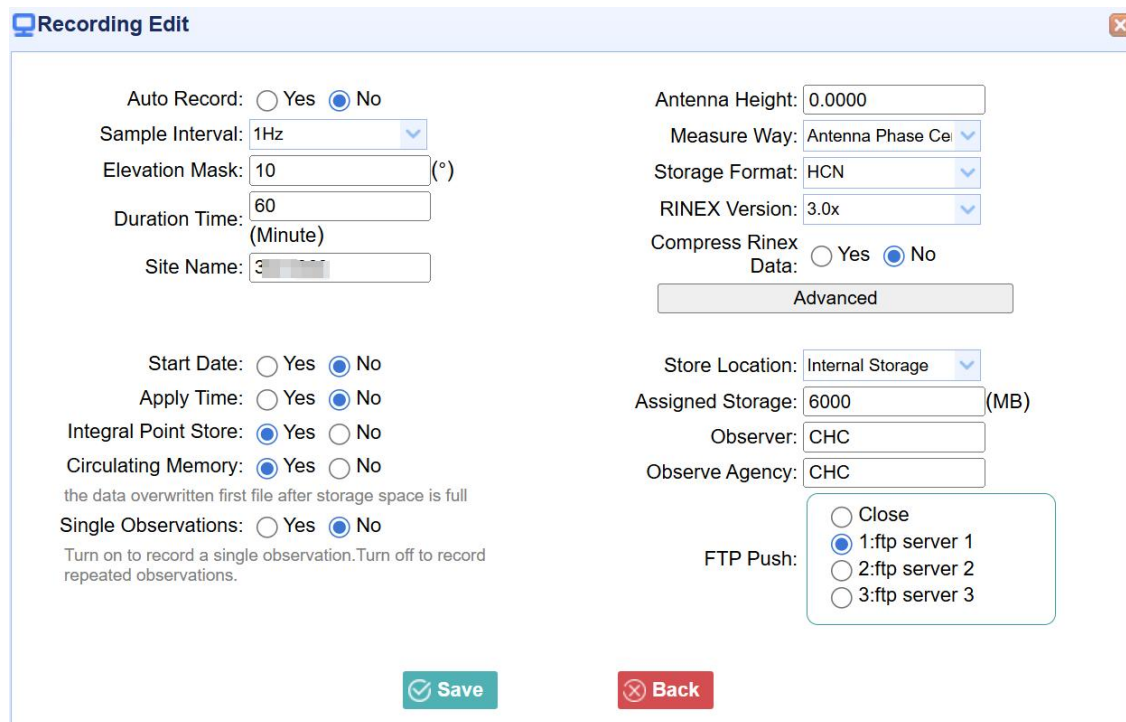
Recording Edit

Auto Record: ☐ Yes ☒ No
Sample Interval: 1Hz
Elevation Mask: 10 (°)
Duration Time: 60 (Minute)
Site Name: 3001000

Antenna Height: 0.0000
Measure Way: Antenna Phase Ce
Storage Format: HCN
RINEX Version: 3.0x
Compress Rinex Data: ☐ Yes ☒ No
Advanced

Save
Back

Click advanced to see more settings.



The 'Recording Edit' window contains the following settings:



- Auto Record:** ☐ Yes ☒ No
- Sample Interval:** 1Hz (dropdown)
- Elevation Mask:** 10 (°)
- Duration Time:** 60 (Minute)
- Site Name:** 3 (text input)
- Antenna Height:** 0.0000
- Measure Way:** Antenna Phase Center (dropdown)
- Storage Format:** HCN (dropdown)
- RINEX Version:** 3.0x (dropdown)
- Compress RINEX Data:** ☐ Yes ☒ No
- Advanced** (button)
- Start Date:** ☐ Yes ☒ No
- Apply Time:** ☐ Yes ☒ No
- Integral Point Store:** ☒ Yes ☐ No
- Circulating Memory:** ☒ Yes ☐ No
- Single Observations:** ☐ Yes ☒ No
- Store Location:** Internal Storage (dropdown)
- Assigned Storage:** 6000 (MB)
- Observer:** CHC
- Observe Agency:** CHC
- FTP Push:**
 - ☐ Close
 - ☒ 1:ftp server 1
 - ☐ 2:ftp server 2
 - ☐ 3:ftp server 3

Buttons at the bottom: **Save** (green) and **Back** (red).

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 6000MB.
- **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,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.

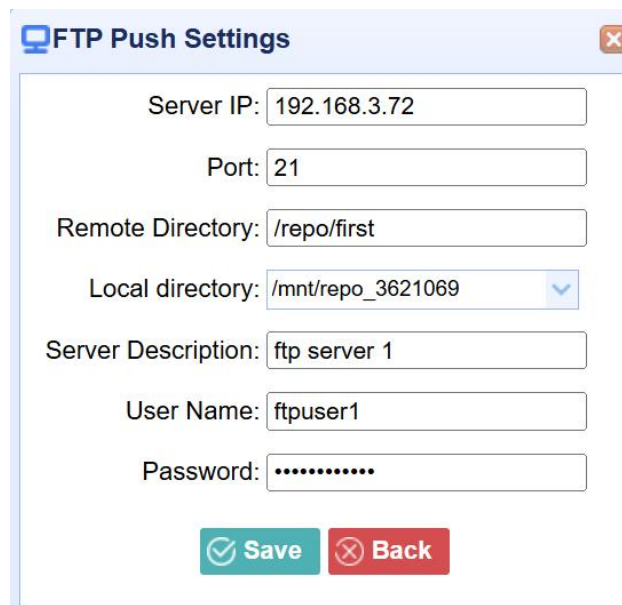
To delete the recorded files of ALL data logging sessions, tap the Clear ALL Accounts button.

4.4.2 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.

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

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

A dialog box titled "FTP Push Settings" with a close button in the top right corner. It contains several input fields: "Server IP" with the value "192.168.3.72", "Port" with the value "21", "Remote Directory" with the value "/repo/first", "Local directory" with a dropdown menu showing "/mnt/repo_3621069", "Server Description" with the value "ftp server 1", "User Name" with the value "ftpuser1", and "Password" with masked characters ".....". At the bottom, there are two buttons: a green "Save" button with a checkmark icon and a red "Back" button with a close icon.

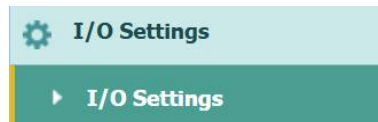
4.4.3 FTP Push Log Submenu

Shows the related information about the recorded file 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.

FTP Push Log ×

Record Info					
Server ID	Push File	File Size	Push Time	Push Successful Or Not	
					

4.5 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.

4.5.1 IO Settings Submenu

The following figure shows an example of the screen that appears when you select this submenu.

I/O Settings ×					
	Type	Description	Output	Connection Status	Modify
1	RTK Client		---	Unconnected	Connect Disconnecting Detail
2	TCP/UDP_Client1/NTRIP Server1	192.168.3.18:9900	---	Unconnected	Connect Disconnecting Detail
3	TCP/UDP_Client2/NTRIP Server2	192.168.3.18:9901	---	Unconnected	Connect Disconnecting Detail
4	TCP/UDP_Client3/NTRIP Server3	192.168.3.18:9902	---	Unconnected	Connect Disconnecting Detail
5	TCP/UDP_Client4/NTRIP Server4	192.168.3.18:9903	---	Unconnected	Connect Disconnecting Detail
6	TCP/UDP_Client5/NTRIP Server5	192.168.3.18:9904	---	Unconnected	Connect Disconnecting Detail
7	TCP/UDP_Client6/NTRIP Server6	192.168.3.18:9905	---	Unconnected	Connect Disconnecting Detail
8	TCP Server/NTRIP Caster1	9901	---	Closed	Connect Disconnecting Detail
9	TCP Server/NTRIP Caster2	9902	---	Closed	Connect Disconnecting Detail
10	TCP Server/NTRIP Caster3	9903	---	Closed	Connect Disconnecting Detail
11	TCP Server/NTRIP Caster4	9904	---	Closed	Connect Disconnecting Detail
12	Serial Port	115200	---	---	Settings
13	Bluetooth	GNSS-3	GPGGA:5s,	---	Settings
14	Radio	456.050000MHz	---	---	Settings

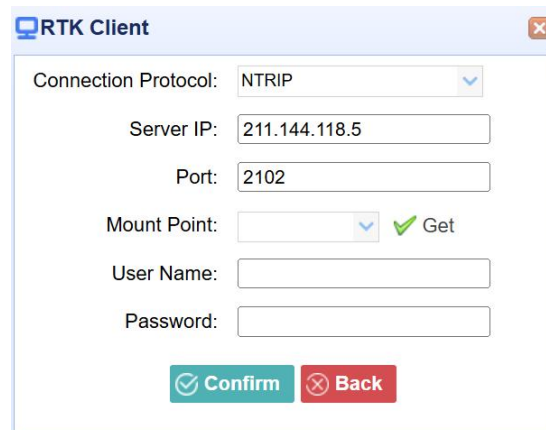
In this submenu, users can configure 6 types of input and output settings.

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 and APIS_ROVER → configure the related parameters

➤ click [Confirm](#) to logon CORS or APIS.

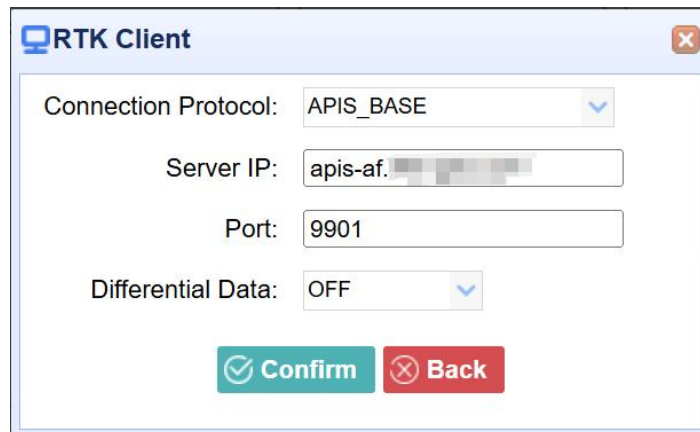
➤ Connection Protocol: NTRIP



The RTK Client window for NTRIP connection shows the following fields:

- Connection Protocol: NTRIP (dropdown menu)
- Server IP: 211.144.118.5 (text input)
- Port: 2102 (text input)
- Mount Point: (empty dropdown menu) with a green checkmark and "Get" button
- User Name: (empty text input)
- Password: (empty text input)
- Buttons: Confirm (green) and Back (red)

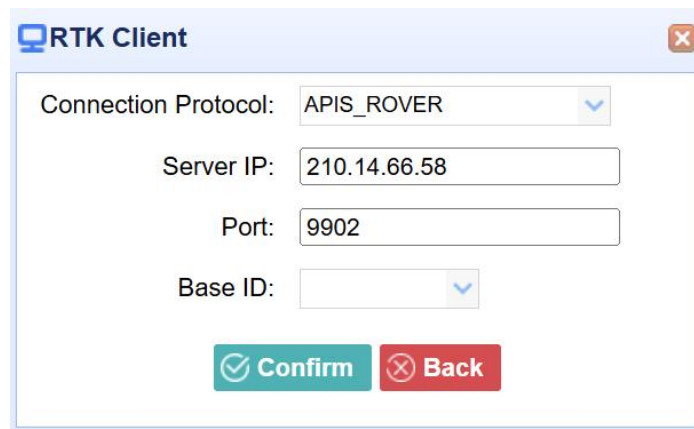
➤ Connection Protocol: APIS_BASE



The RTK Client window for APIS_BASE connection shows the following fields:

- Connection Protocol: APIS_BASE (dropdown menu)
- Server IP: apis-af. (text input)
- Port: 9901 (text input)
- Differential Data: OFF (dropdown menu)
- Buttons: Confirm (green) and Back (red)

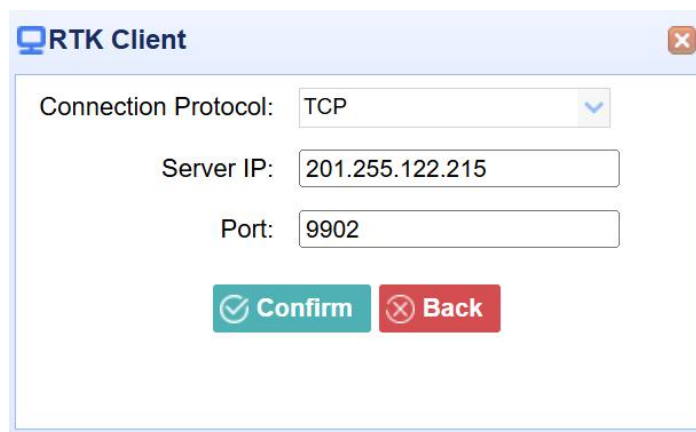
➤ Connection Protocol: APIS_ROVER




The RTK Client window for APIS_ROVER connection shows the following fields:

- Connection Protocol: APIS_ROVER (dropdown menu)
- Server IP: 210.14.66.58 (text input)
- Port: 9902 (text input)
- Base ID: (empty dropdown menu)
- Buttons: Confirm (green) and Back (red)

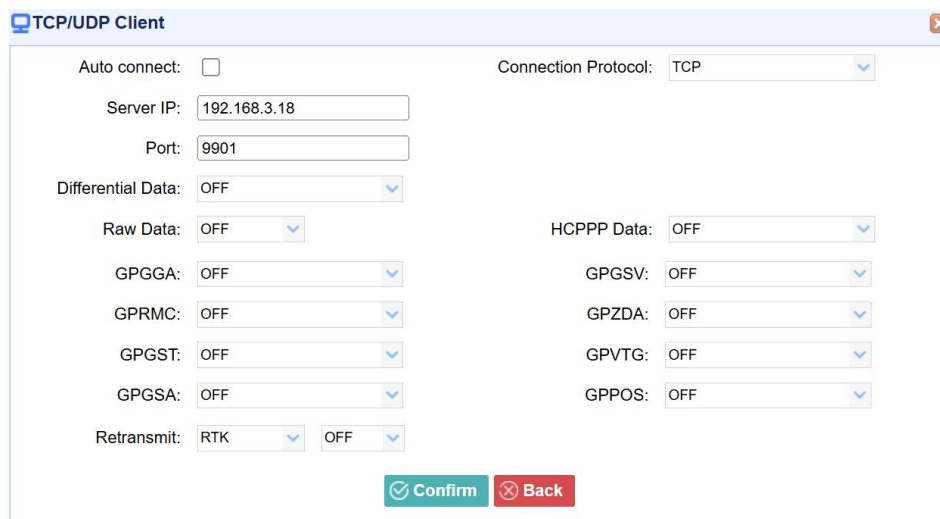
➤Connection Protocol: TCP



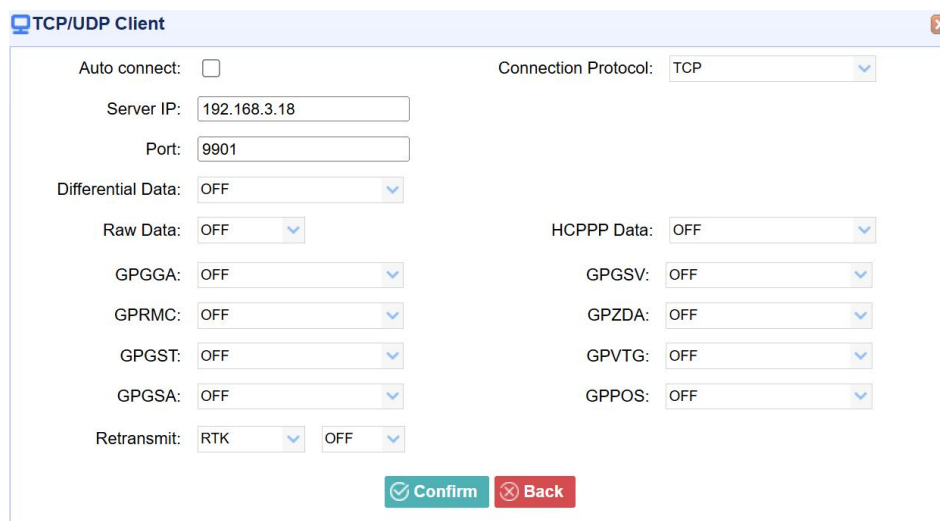
1. TCP/UDP_Client/NTRIP Server

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  to save and complete the connection.

➤Connection Protocol: TCP

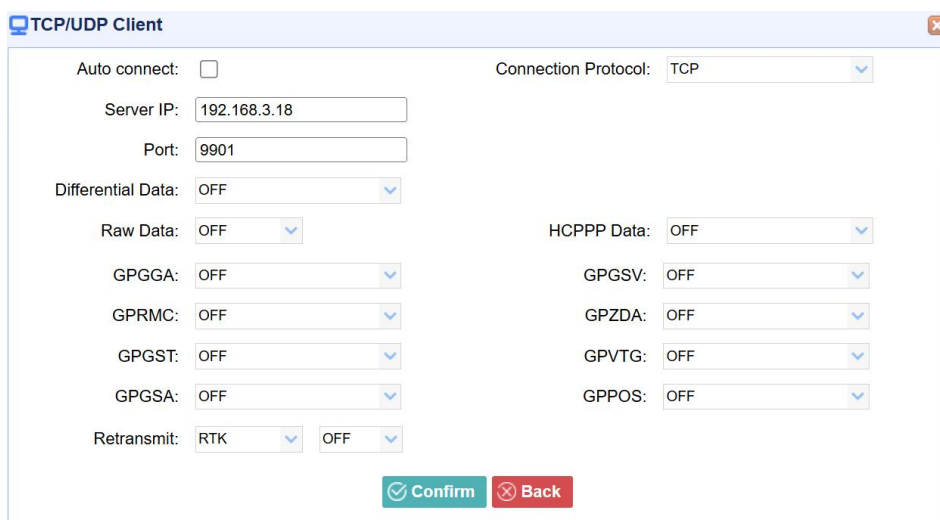


➤ Connection Protocol: UDP



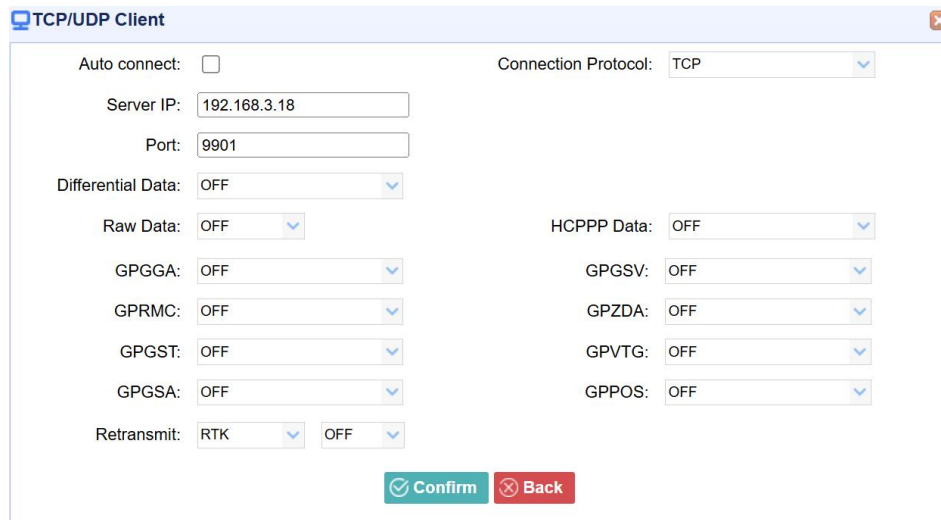
The screenshot shows the 'TCP/UDP Client' configuration window. The 'Connection Protocol' is set to 'TCP'. The 'Auto connect' checkbox is unchecked. The 'Server IP' is '192.168.3.18' and the 'Port' is '9901'. The 'Differential Data' is set to 'OFF'. The 'Raw Data' is set to 'OFF'. The 'HCPPP Data' is set to 'OFF'. The 'GPGGA' is set to 'OFF'. The 'GPGSV' is set to 'OFF'. The 'GPRMC' is set to 'OFF'. The 'GPZDA' is set to 'OFF'. The 'GPGST' is set to 'OFF'. The 'GPVTG' is set to 'OFF'. The 'GPGSA' is set to 'OFF'. The 'GPPOS' is set to 'OFF'. The 'Retransmit' is set to 'RTK' and 'OFF'. The 'Confirm' button is highlighted in green, and the 'Back' button is highlighted in red.

➤ Connection Protocol: NTRIP1.0




The screenshot shows the 'TCP/UDP Client' configuration window. The 'Connection Protocol' is set to 'TCP'. The 'Auto connect' checkbox is unchecked. The 'Server IP' is '192.168.3.18' and the 'Port' is '9901'. The 'Differential Data' is set to 'OFF'. The 'Raw Data' is set to 'OFF'. The 'HCPPP Data' is set to 'OFF'. The 'GPGGA' is set to 'OFF'. The 'GPGSV' is set to 'OFF'. The 'GPRMC' is set to 'OFF'. The 'GPZDA' is set to 'OFF'. The 'GPGST' is set to 'OFF'. The 'GPVTG' is set to 'OFF'. The 'GPGSA' is set to 'OFF'. The 'GPPOS' is set to 'OFF'. The 'Retransmit' is set to 'RTK' and 'OFF'. The 'Confirm' button is highlighted in green, and the 'Back' button is highlighted in red.

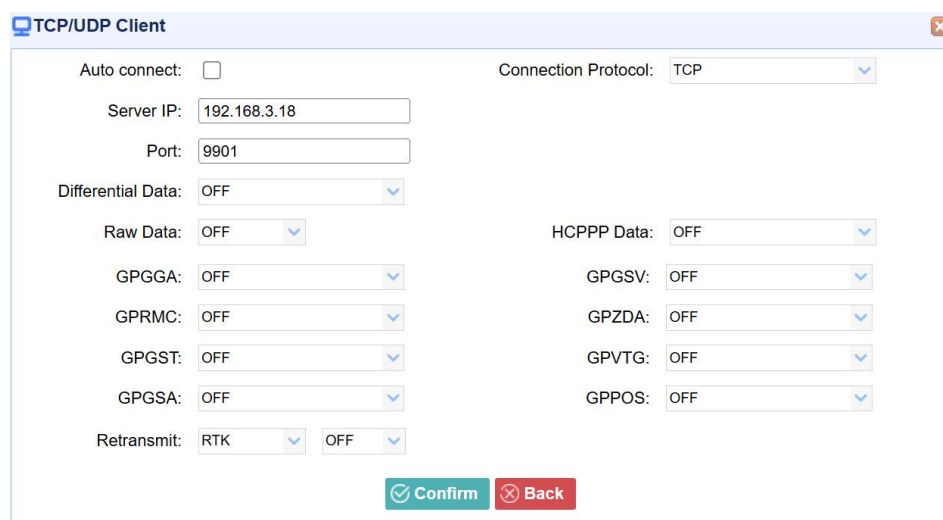
➤ Connection Protocol: NTRIP2.0



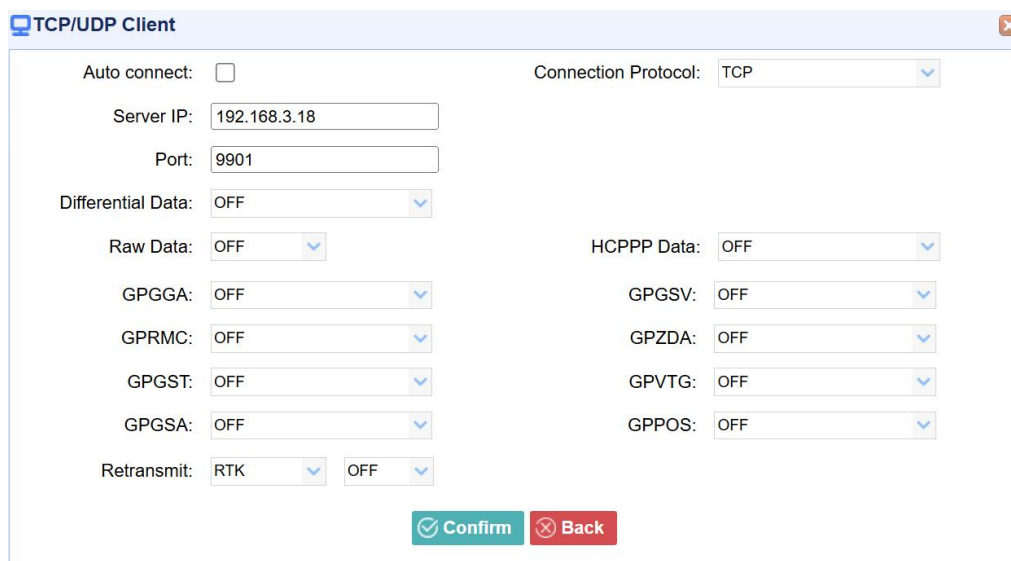
2. TCP Server/NTRIP Caster

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  to save the settings and open the server.

➤ Connection Protocol: TCP



➤ Connection Protocol: NTRIP



TCP/UDP Client

Auto connect: ☐ Connection Protocol: TCP

Server IP: 192.168.3.18

Port: 9901

Differential Data: OFF

Raw Data: OFF

HCPPP Data: OFF

GPGGA: OFF

GPRMC: OFF

GPGSV: OFF

GPGST: OFF

GPZDA: OFF

GPGSA: OFF

GPVTG: OFF

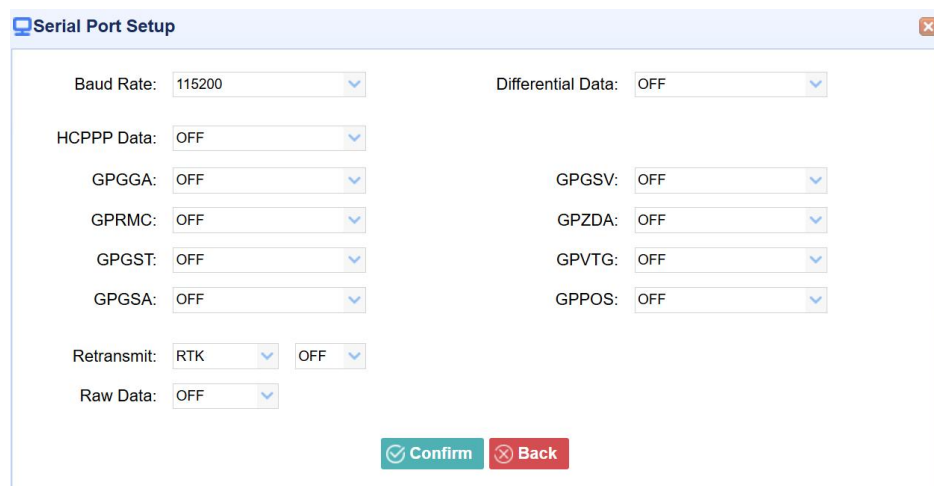
Retransmit: RTK OFF

GPPOS: OFF

Confirm **Back**

3. Serial Port

Tap the **Settings** button on the right of Serial Port → the *Serial Port Setup* screen will appear → select Baud Rate used to transmit data → configure the messages that you want to output through the serial port → click **Confirm** to save the settings and start to transmit.



Serial Port Setup

Baud Rate: 115200

Differential Data: OFF

HCPPP Data: OFF

GPGGA: OFF

GPRMC: OFF

GPGSV: OFF

GPZDA: OFF

GPGST: OFF

GPVTG: OFF

GPGSA: OFF


GPPOS: OFF

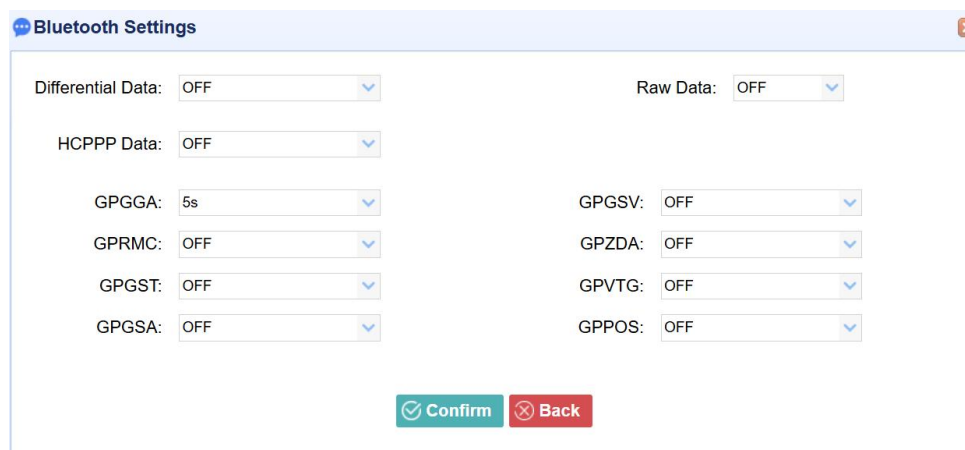
Retransmit: RTK OFF

Raw Data: OFF

Confirm **Back**

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  to save the settings and start to transmit.



Bluetooth Settings

Differential Data: OFF

Raw Data: OFF

HCPPP Data: OFF

GPBGA: 5s

GPRMC: OFF

GPGST: OFF



GPGSA: OFF

GPGSV: OFF

GPZDA: OFF


GPVTG: OFF

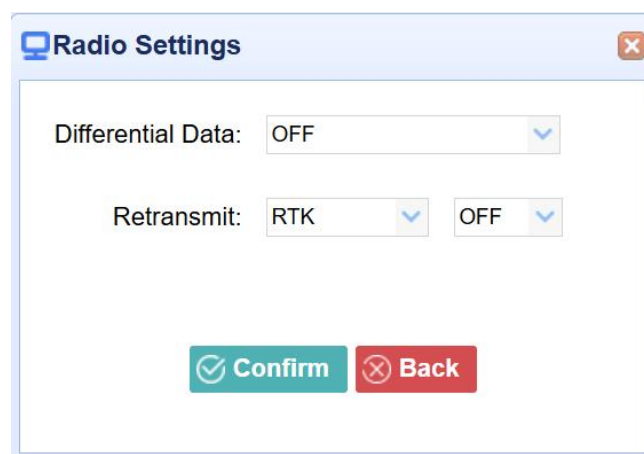
GPPOS: OFF

5. Radio

Tap the **Settings** button to the right of Radio → the *Radio Settings* screen will appear → select the format of differential data that you want to transmit through radio from the dropdown list



➤ click  to save the settings and start to transmit.



Radio Settings

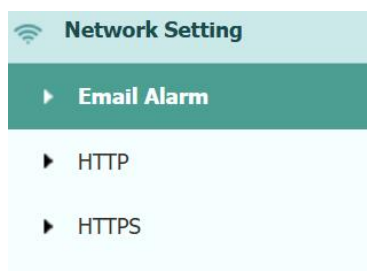
Differential Data: OFF

Retransmit: RTK OFF

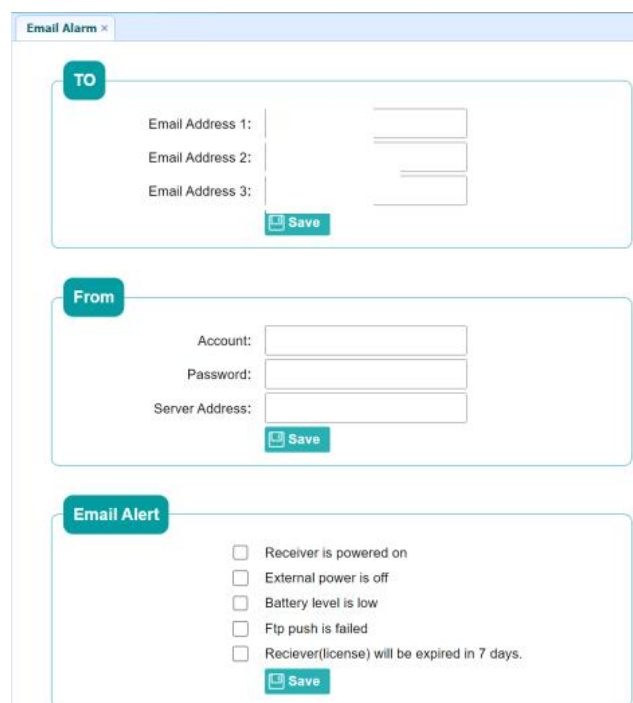
4.6 Network Setting Menu

Use this menu to view network information, configure the receiver's mobile network, set email alert for specific situation, configure HTTP or HTTPS port, and the username and password of internal FTP site:



4.6.1 Email Alarm Submenu

Use this to choose which situation of receiver will be alerted and input the email address.



4.6.2 HTTP Submenu

Use this submenu to configure HTTP port.

HTTP ×

HTTP Port:

80

Save

4.6.3 HTTPS Submenu

Use this submenu to configure HTTPS port.

HTTPS ×

HTTPS

Enable HTTPS: ☒ Yes ☐ No

HTTPS Port:

443

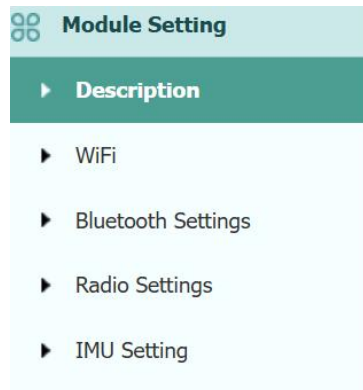
Save

CHCNAV i85 GNSS USER GUIDE | 2025-07

Page | 54

4.7 Module Setting Menu

Use this menu to check module information, configure WiFi, bluetooth, radio related settings, and IMU Setting:



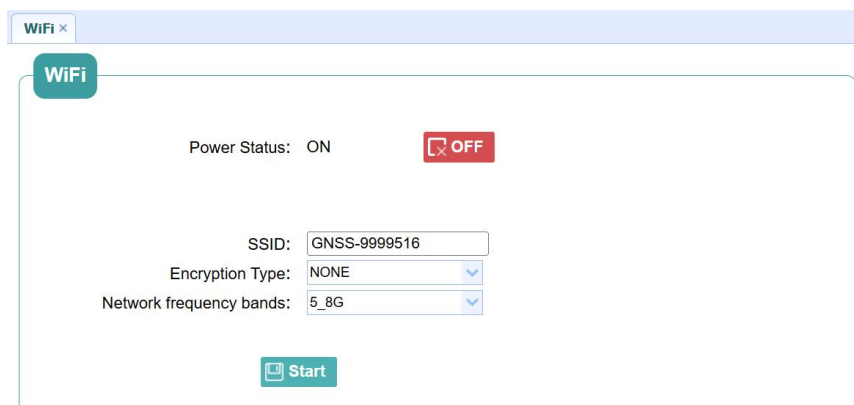
4.7.1 Description Submenu

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



4.7.2 WiFi Submenu

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



4.7.3 Bluetooth Settings Submenu

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


Bluetooth Settings ×

Bluetooth Settings

Local Name: GNSS-9999516

MAC Address: EC:A7:AD:AD:A8:10

PIN:



 Save

4.7.4 Radio Settings Submenu

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

Radio Settings ×

Radio Settings

Radio Status: OFF  

Auto Start: ☐ Yes ☒ No

Radio Protocol:


Channel Bandwidth : (kHz)

OTA Baud Rate:

Radio Power:

Radio Frequency: (410MHz---470MHz)

FEC: ☐

 Save

4.7.5 IMU Settings Submenu


Use this submenu to turn on/off IMU function.

IMU Setting ×

IMU Setting

IMU Status: ☐ ON ☒ OFF

Antenna Height:

 Save

IMU Init Status:

Lat:

Lon:

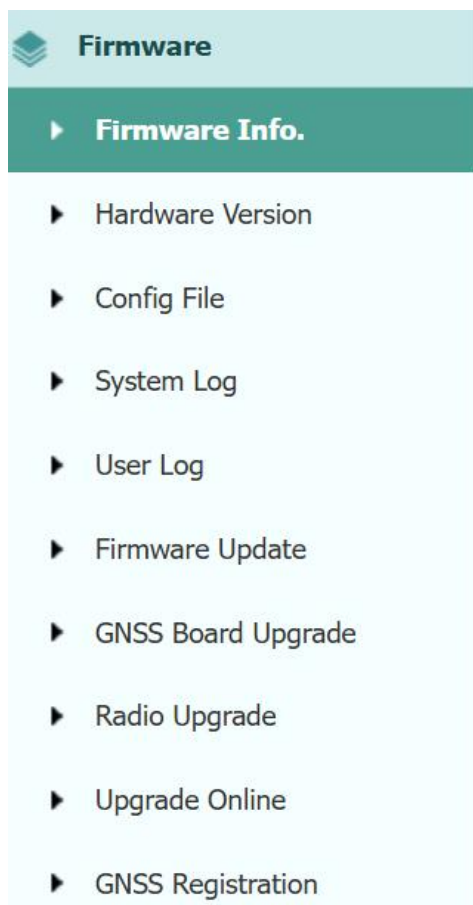
Alt:

Vertical dip:

direction of dip:

4.8 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:



4.8.1 Firmware Info Submenu

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



4.8.2 Hardware Version Submenu

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

Hardware Version ×

Main Board: 1.1.0
Core Board: 1.1.0
PN: A11603985807070503
Board Firmware Version Number: 14259

4.8.3 Config File Submenu

Use this submenu to update Configuration File.

Config File ×

Download Configuration File : [Download](#)
Update Configuration File: [Browse](#)
[Confirm](#)

4.8.4 System Log Download Submenu

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

System Log ×

System Log Type: Firmware Log
[Download](#)

4.8.5 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.

User Log ×

Download User Log: [Download](#)

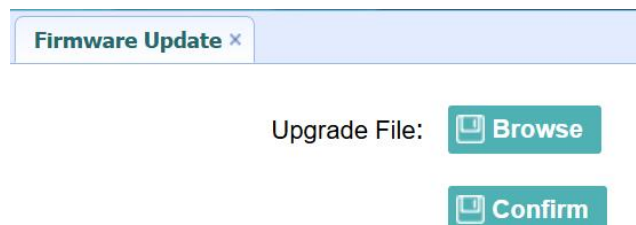
User Log settings

☒ System Starting Time
☒ External Power Removed
☒ Satellites Tracking Status Changed
☒ TCP Client Connection
☒ TCP Client Disconnect
☒ Observation Recording Start and End
☒ FTP file pushed
☒ Email alert time
☒ Wi-Fi Status
☒ Bluetooth status
☒ CORS and APIS states
☒ 3g Connection status

[Confirm](#)

4.8.6 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.



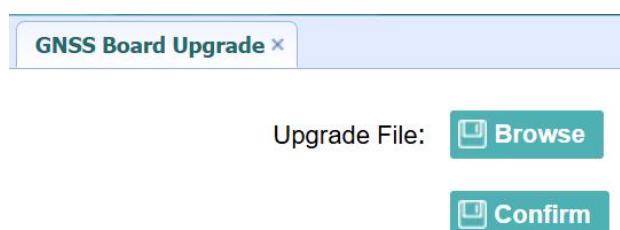
NOTES:

(1)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.

(2)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.

4.8.7 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.



4.8.8 Radio Upgrade Submenu

Use this submenu to browse upgrade file and upgrade radio. Use this submenu to load new radio 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.

Radio Upgrade x

Upgrade File:

 Browse

 Confirm

4.8.9 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 x

Serial Number:

Registration Limit:

Registration Code:

 Registration



CHC Navigation

Building C, 577 Songying Road, Qingpu, District,
201703 Shanghai, China

Tel: +86 21 542 60 273 | Fax: +86 21 649 50 963

Email: sales@chcnav.com | support@chcnav.com

Skype: chc_support

Website: www.chcnav.com

This document is intended for general information purposes only. It

does not consider the reader's specific circumstances and

environmental constraints of use of GNSS.

Make your work more efficient