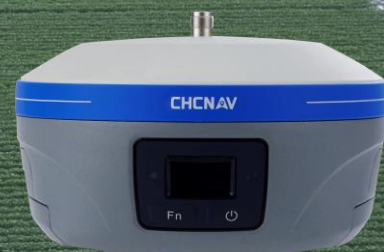




CHCNAV IBASE USER GUIDE

AG RTK BASE

PRECISION
AGRICULTURE



Revision 1.0

March, 2023

Precision Agriculture | Mar 2023

Make your work more efficient

Table of Content

Table of Content	2
Preface	5
Copyright.....	5
Safety Warnings	5
1 Introduction.....	7
1.1 Safety Information	7
1.1.1 Warnings and Cautions.....	7
1.2 Regulations and Safety	7
1.2.1 Use and Care.....	7
1.3 Technical Support	8
1.4 Disclaimer.....	8
1.5 Your Comments	8
2 Getting Started with iBase	9
2.1 About the Receiver.....	9
2.2 Parts of the Receiver.....	9
2.2.1 Front Panel.....	9
2.2.2 Lower Housing	11
2.2.3 Receiver Ports	12
2.3 Batteries and Power	12
2.3.1 Internal Batteries	12
2.3.2 Charging the Battery.....	12
2.3.3 Battery Safety	13
2.3.4 External Power Supply.....	14
2.4 Inserting Battery and SIM Card	15
2.4.1 Inserting battery	15
2.4.2 Inserting SIM card.....	15
2.5 Product Basic Supply Accessories	16
3 Front Panel Operation	18
3.1 Main Operation Menus.....	18
3.2 Configure the Working Mode	20
4 Equipment Setup and Operation	23
4.1 Real-Time Base Station Setup	23
4.1.1 Internal Cellular or UHF	23
4.1.2 External UHF.....	24
5 Configuring Through a Web Browser	26
5.1 Status Menu.....	27
5.1.1 Position Submenu.....	27
5.1.2 Activity Submenu.....	28

5.1.3	Google Map Submenu	28
5.2	Satellites Menu	29
5.2.1	Tracking Table Submenu	29
5.2.2	Tracking Info. Table Submenu	30
5.2.3	Tracking Skyplot Submenu.....	30
5.2.4	Satellite Activation Submenu.....	31
5.3	Receiver Configuration Menu.....	31
5.3.1	Description	32
5.3.2	Antenna Configuration Submenu	32
5.3.3	Receiver Reset Submenu	34
5.3.4	Languages Submenu	35
5.3.5	User Management Submenu.....	35
5.3.6	HCPPT Settings Submenu	35
5.4	Data Recording Menu	36
5.4.1	Log Settings Submenu	36
5.4.2	FTP Push Settings Submenu	38
5.4.3	FTP Push Log Submenu.....	39
5.4.4	Data Download Submenu	40
5.5	IO Settings Menu.....	41
5.5.1	IO Settings Submenu	41
5.6	Network Setting Menu	48
5.6.1	Description Submenu	48
5.6.2	Mobile Network Setting Submenu	49
5.6.3	Email Alarm Submenu	50
5.6.4	HTTP Submenu	51
5.6.5	HTTPS Submenu	51
5.6.6	FTP Service Submenu	51
5.7	Module Setting Menu.....	52
5.7.1	Description Submenu	52
5.7.2	WiFi Submenu	53
5.7.3	Bluetooth Settings Submenu	53
5.7.4	Radio Settings Submenu	54
5.8	Firmware Menu.....	54
5.8.1	Firmware Info Submenu	55
5.8.2	Hardware Version Submenu	55
5.8.3	Config File Submenu	56
5.8.4	System Log Download Submenu	56
5.8.5	User Log Submenu.....	56
5.8.6	Firmware Update Submenu.....	57
5.8.7	GNSS Board Upgrade Submenu	57
5.8.8	Upgrade Online Submenu	58
5.8.9	GNSS Registration Submenu	58

6	Quick guide	59
6.1	Log into the webpage	59
6.2	Set Auto Base/Manual Base	59
6.3	Radio Settings	60
6.4	I/O settings	60
6.5	AGNAV3.0 radio settings	61
A	Communication Ports Definition.....	62
AI	CHCNAV iBase Receiver IO Port (7-pin Lemo Port) Definition	62
	CHC Navigation	63

Preface

Copyright

Copyright 2023

CHCNAV | Shanghai Huace Navigation Technology Ltd. All rights reserved. The CHCNAV Navigation and CHCNAV are trademark of Shanghai Huace 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:

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.

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.

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.

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.

Dispose of GNSS receivers properly: When disposing of GNSS receivers, follow local regulations for electronic waste disposal to avoid harming the environment.

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.

1 Introduction

The iBase GNSS Receiver User Guide describes how to set up and use the CHCNAV iBase GNSS receiver. In this manual, “the receiver” refers to the iBase GNSS receiver unless otherwise stated. Even if you have used other Global Navigation Satellite Systems (GNSS) products before, CHCNAV recommends that you spend some time 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 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 the iBase 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.

Make your work more efficient

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) or Skype (chc_support).

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 iBase

2.1 About the Receiver

RECEIVER

The iBase Ag GNSS receiver is an advanced, all-in-one base station designed specifically to meet the needs of farmers using CHCNAV agricultural guidance and autosteering systems with UHF-based RTK corrections. With the iBase Ag UHF base station, farmers can significantly improve the efficiency and productivity of their precision farming operations. Built-in features make it incredibly easy to use on a daily basis, while compatibility with external batteries and radios allows for all the day use and much larger coverage.

The iBase Ag GNSS base station features an advanced electronic design that reduces power consumption without compromising UHF modem performance. Equipped with two hot-swappable high-capacity batteries, it can operate continuously for up to 10 hours while transmitting RTK corrections at 5 watts. With optimal UHF coverage of up to 15 km and up to 5 km in difficult terrain such as wooded and hilly areas, the iBase Ag GNSS base station ensures seamless performance in all operating conditions.

The LCD display allows the user to check the satellite tracking status, internal battery status, Wi-Fi status, working mode, data logging status and basic receiver information.

To configure the receiver to execute a wide variety of functions, you can use the web interface by connecting the receiver to a PC or smartphone via Wi-Fi.

2.2 Parts of the Receiver

The operating controls are all located on the front panel. Battery compartment and SIM card slot are on the bottom. Serial port is located on the bottom of the unit. The radio antenna port is located on the top of the unit.

2.2.1 Front Panel

The following figure shows a front view of the receiver.



Front panel

The front panel contains four indicator LEDs and two buttons.



Satellite LED

Correction LED

Function button

Power button

Name	Description
Correction LED (Orange)	- Indicates whether the receiver is transmitting differential data. - The green LED flashes once per second when - As a Base station: successfully transmitting differential data.
Satellite LED (Blue)	- Shows the number of satellites that the receiver has tracked. - When the receiver is searching satellites, the blue LED flashes once every 5 seconds.

Name	Description
	When the receiver has tracked N satellites, the blue LED will flash N times every 5 seconds.
Fn button	- Move to next line of the menus or options. - Move to next character of the value that you want to make change. - Cancel the change you make on a function.
Power button	- Works as a Power button: - Press and hold this button for 3 seconds to turn on or turn off the receiver. - Works as a Confirm button - Hold Fn button and press this button for 5 times continuously to reset the mainboard.

2.2.2 Lower Housing

The lower housing contains one SIM card slot, two battery compartments, one TNC radio antenna connector, two communication and power ports, one 5/8-11 threaded insert, and two nameplates.



Battery compartment

TNC radio antenna connector



IO serial
communication and
power in port

5/8-11 threaded

2.2.3 Receiver Ports

Port	Name	Description
	IO p	- This port is a 7-pin LEMO connector that supports RS-232 communications and external power input. - Users can use a 7-pin cable to transmit differential data to an external radio.
	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 Internal Batteries

The receiver has two rechargeable Lithium-ion batteries, which can be removed for charging.



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. To charge the battery, first remove the battery from the receiver, and then place it in the battery charger which is connected to AC power.



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 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 Safety



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:

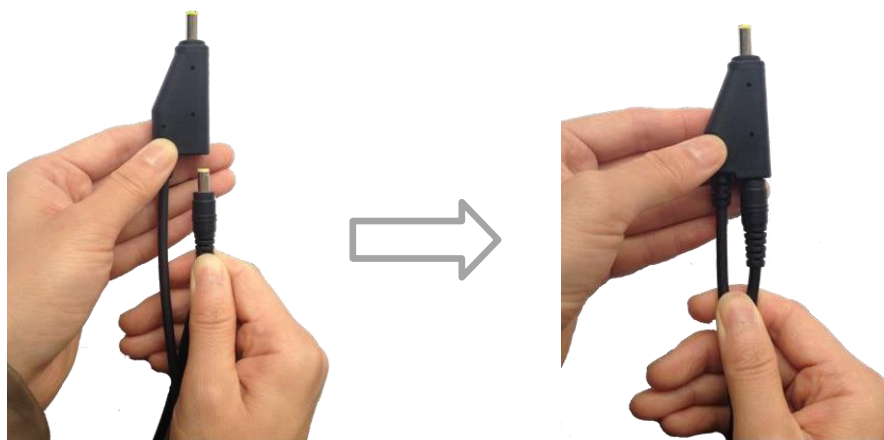
- If the battery leaks, avoid with the battery fluid.
- If battery fluid gets into your eyes, immediately rinses your eyes with clean water and seek medical attention. Please do not rub your eyes!
- If battery fluid gets onto your skin or clothing, immediately use clean water to wash off the battery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

2.3.4 External Power Supply

Two methods are available for providing the external power to the receiver by the GPS to PC Data Cable+ Power Adapter, or GPS to PC Data Cable + external power cable (option purchase) + vehicle battery.

In the office:

The Power Adapter is connecting with AC power of 100-240V, the output port of the Power Adapter connects with the Power Port of the GPS to PC Data Cable.



In the field:

The external power cable is connecting with a vehicle battery, the output port of the external power cable connects with the Power Port of the GPS to PC Data Cable.

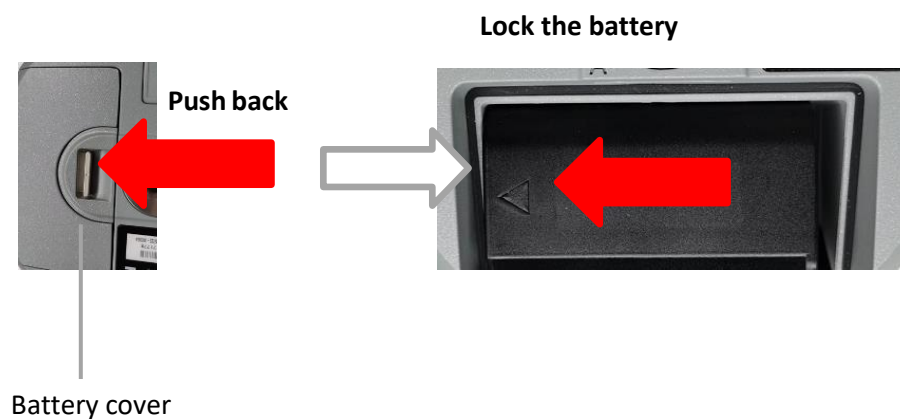


WARNING – Use caution when connecting external power cable's clip leads to a vehicle battery. Do not allow any metal object to connect (short) the battery's positive (+) terminal to either the negative (-) terminal or the metal part of the vehicle battery. This could result in high current, arcing, and high temperatures, exposing the user to possible injury.

2.4 Inserting Battery and SIM Card

2.4.1 Inserting battery

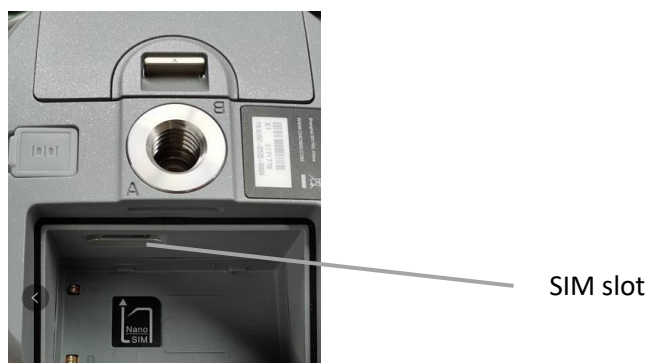
- (a) Push down the spring-loaded button on the battery cover to open the cover.
- (b) Put the battery into the iBase slot, lock the battery as the picture shows like below.



- (c) Close the battery cover to prevent water immersion.
- (d) To remove the battery, unlock the battery from the slot first.

2.4.2 Inserting SIM card

- (e) Push down the spring-loaded button on the battery cover to open the cover.
- (f) Insert the SIM card with the contacts facing downward, as indicated by the SIM card icon on the battery slot.



(g) Close the battery cover to prevent water immersion.

(h) To eject the SIM card, slightly push it in to trigger the spring-loaded release mechanism

Insert the SIM card with the contacts facing upward, as indicated by the SIM card icon next to the SIM card slot.

To eject the SIM card, slightly push it in to trigger the spring-loaded release mechanism.

Tip – The SIM card is provided by your cellular network service provider.

2.5 Product Basic Supply Accessories

Item	Picture
iBase GNSS Receiver	
UHF Bar Antenna (450-470 MHz)	
Lithium Battery	
H.I. Tape	
Extension pole	
C300 Pedestal charger	
C300 Power Adapter with Cord	
Tribrach adaptor	
Auxiliary H.I. Tool	

Transport Hard Case



3 Front Panel Operation

The front panel contains one LCD screen, two indicator LEDs, and two buttons. The operating controls are all located on the front panel.

3.1 Main Operation Menus

The top-level menu of the front panel includes 6 parts: Status, mode, static and info. Status shows satellites, receiver solution and the power percentage. Mode is the important part which illustrate the work mode and users can select the mode according to their needs. Static is used to set static mode. Info is the basic information of firmware such as SN, PN and etc.

The details of main operation are as follows and they are concluded two tables. The first table includes 5 parts: Info, SV, Power, Data and Set and the second table displays details of Data.

Top-level Menu	Second-level Menu	Description
Status	36=G07 R03....	Indicate the total number of satellites that have been tracked and the number of satellites tracked of each constellation, where G represents GPS, R represents GLONASS, C represents BeiDou, S represents SBAS and E represents Galileo.
	Power	Indicates the remaining power of the battery inserted in the left (B) and right (A) battery compartment.
	WIFI ON/OFF	Press Enter to turn on or turn off WIFI
	Network status	displays the if a sim card inserts the RTK
	Back	Press Enter to back to last page

Top-level Menu	Second-level Menu		Description
Mode	Base External UHF Base Internal UHF Base APIS Base External UHF & APIS Back		Press Enter button to enter the configuration screen of the selected working mode.
Static	Set on/off		Press Enter button to switch static measurement on or off.
	Recording 00:00		Display the time of recording
	Advanced	Sample	Press Enter to change sample interval (1s, 2s, 5s, 10s, 15s, 30s, 1m)
		Elev Mask 10 degree	Press Enter button to change the mask degree from 0 degree to 90 degrees.
		Duration 1440min	- Press Enter button to enter Duration Time Setting screen. - In the Duration Time Setting screen, press Fn button to move to the character of the duration time value user want to make change, and then press Enter button to change from 0 to 9. After the change has been done, user can press Fn button to move to OK field, and then Press Enter button to save the change and back to the second-level menu; or press Fn button to move to Cancel field and press Enter button to cancel the change and back to the second-level menu.
		Measurement phase Center	Press Enter button and switch height between oblique, vertical, phase center.
		Antenna Height 0.0000m	Press Enter button and input the measured antenna height.
		Back	Press Enter button to back to the last menu.

Top-level Menu	Second-level Menu	Description
	OK	Press Enter to complete settings.
	Back	Press Enter button to back to the top-level menu.
Info	SN 322584 PN 118032 -015701 -020104 Register 2020-09-16 Sleep Time 1min Version 2.0.7 IMEI 861529049455435 Language English Back	Describe the main information of this machine. SN displays the Serial Number of the receiver. PN displays the Part Number of the receiver. Register displays the expiry date of registration code. Press Enter to select sleep time including 5s, 10s, 30s, 1min, 30min. Version displays the firmware version. IMEI is International Mobile Equipment Identity which is used to identify the RTK. Press Enter to change languages. Press back to go back to the previous menu.

3.2 Configure the Working Mode

7 working modes are provided for quickly setting up an RTK base station or rover station. Users can configure each working mode through the front panel as follows:

Top-level Menu	Second-level Menu	Description
Base External UHF	Mode Base External UHF	The title of this configuration screen.
	Format	Press Enter to select correction format (RTD, RTCMv2.3, RTCMv3 and RTCMv3.2).
	OK	Press Enter button to save the settings and back to the top-level menu, and then this working mode can take effect.
	Cancel	Press Enter button to cancel the settings and back to the second-level menu.
	Mode Base External UHF	The title of this configuration screen.

Top-level Menu	Second-level Menu	Description
Base Internal UHF	Protocol CHC	Press Enter to select current protocol (CHC, Transparent, TT450s)
	Channel 1 456.0500	Press Enter to change the channel from 0 to 9
	Baud 9600	Press Enter to select Baud (4800, 9600 and 19200)
	Power 1w	Press Enter button to change the transmitting power (0.5w,1w,2w).
	Format	Press Enter to select correction format (RTD, CMR, RTCMv2.3, RTCMv3 and RTCMv3.2).
	OK	Press Enter button to save the settings and back to the top-level menu, and then this working mode can take effect.
	Cancel	Press Enter button to cancel the settings and back to the second-level menu.
Base APIS	Mode Base APIS	The title of this configuration screen.
	Format CMR	Press Enter to select correction format (RTD, CMR, RTCMv2.3, RTCMv3 and RTCMv3.2).
	IP 111.111.111.1	Press Enter to enter third-level menu to select IP (APIS1.huace.cn, APIS2.huace.cn, 211.144.120.97, 101.251.112.206) or press Customized IP to customize your own IP
	Port 9901	Press Enter button to change the port from 9901 to 9920.
	OK	Press Enter button to save the settings and back to the top-level menu, and then this working mode can take effect.
	Cancel	Press Enter button to cancel the settings and back to the second-level menu.

Top-level Menu	Second-level Menu	Description
Base External UHF & APIS	Mode Base External UHF & APIS	The title of this configuration screen.
	Way External UHF+APIS	Display the way of base station combination.
	Format CMR	Press Enter to select correction format (RTD, CMR, RTCMv2.3, RTCMv3 and RTCMv3.2).
	IP 111.111.111.1	Press Enter to enter third-level menu to select IP (APIS1.huace.cn, APIS2.huace.cn, 211.144.120.97, 101.251.112.206) or press Customized IP to customize your own IP
	Port 9901	Press Enter button to change the port from 9901 to 9920.
	OK	Press Enter button to save the settings and back to the top-level menu, and then this working mode can take effect.
	Cancel	Press Enter button to cancel the settings and back to the second-level menu.

4 Equipment Setup and Operation

4.1 Real-Time Base Station Setup

4.1.1 Internal Cellular or UHF

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

Components:



No.	Name
a	UHF whip antenna
b	iBase GNSS receiver
c	Extension pole (30 cm)
d	Tribrach adaptor
e	Tribrach w/ Opti
f	Aluminum tripod
g	Nino SIM card (12 mm x 9 mm)
h	Lithium battery

Steps:

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

If work as a cellular base station, the SIM card need to be inserted before the batteries.

- (4) Screw the receiver onto the tribrach.
- (5) Center and level the receiver more precisely.

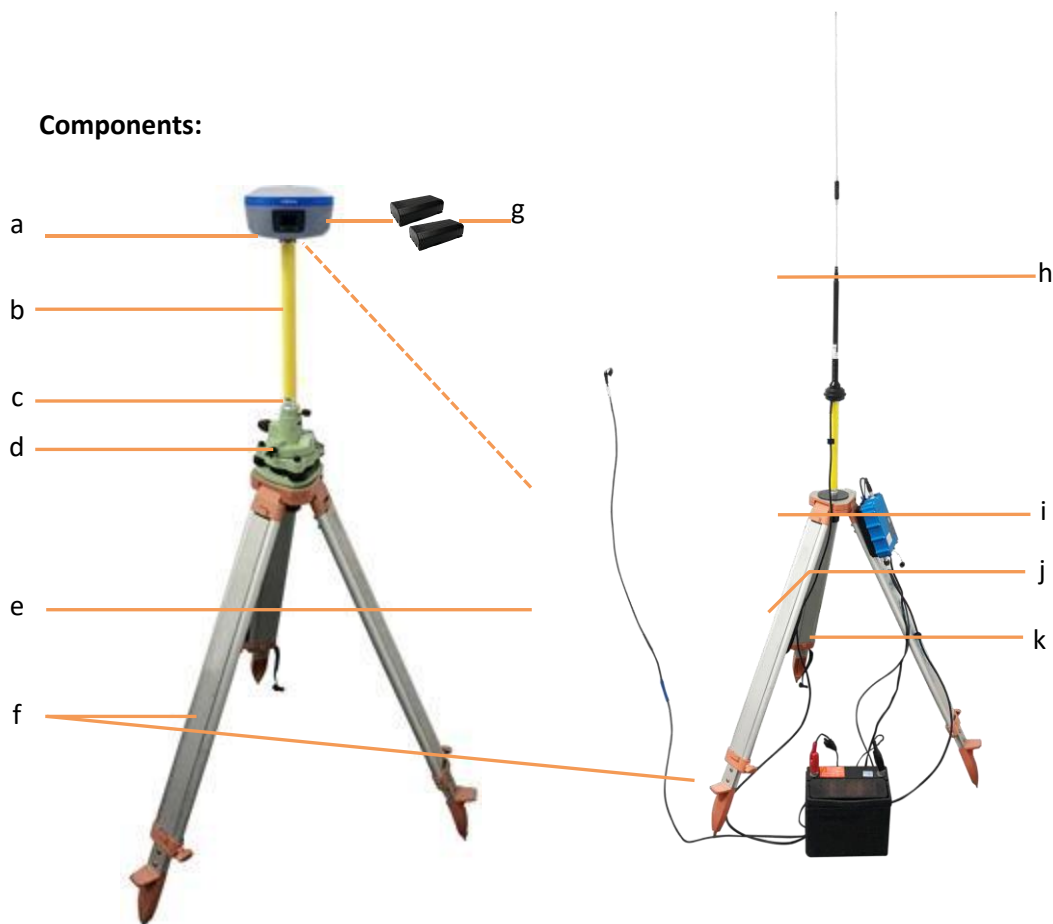
If work as a UHF base station, the UHF whip antenna need to be connected to the receiver.

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

4.1.2 External UHF

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

Components:



No.	Name
a	iBase GNSS receiver
b	Extension pole (30 cm)
c	Tribrach adaptor
d	Tribrach w/ Opti
e	GPS to datalink cable (power cable)
f	Aluminum tripod
g	Lithium battery
h	Whip antenna
i	3 m cable for datalink antenna 3m
j	Pole mounting
k	External 410-470 datalink

Steps:

- (1) Put tripod in the target position, center and level it roughly.
- (2) Place and lock the tribrach in the tripod.
- (3) Insert the batteries into the receiver.
- (4) Screw the receiver onto the tribrach.
- (5) Center and level the receiver more precisely.
- (6) Connect the receiver to external datalink by using GPS to datalink cable.
- (7) Hang the external datalink on the tripod leg.
- (8) Connect the receiver to external battery by using external power cable if necessary.
- (9) Connect the receiver to external storage disk by using USB cable if necessary.
- (10) Turn on the receiver by pressing the power button for 3 s.
- (11) Measure the antenna height by using H.I. tape and auxiliary H.I. tool.
- (12) Turn on the external datalink and configure it as need.

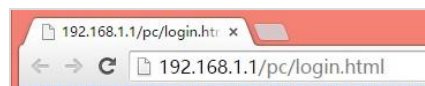
5 Configuring Through a Web Browser

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:

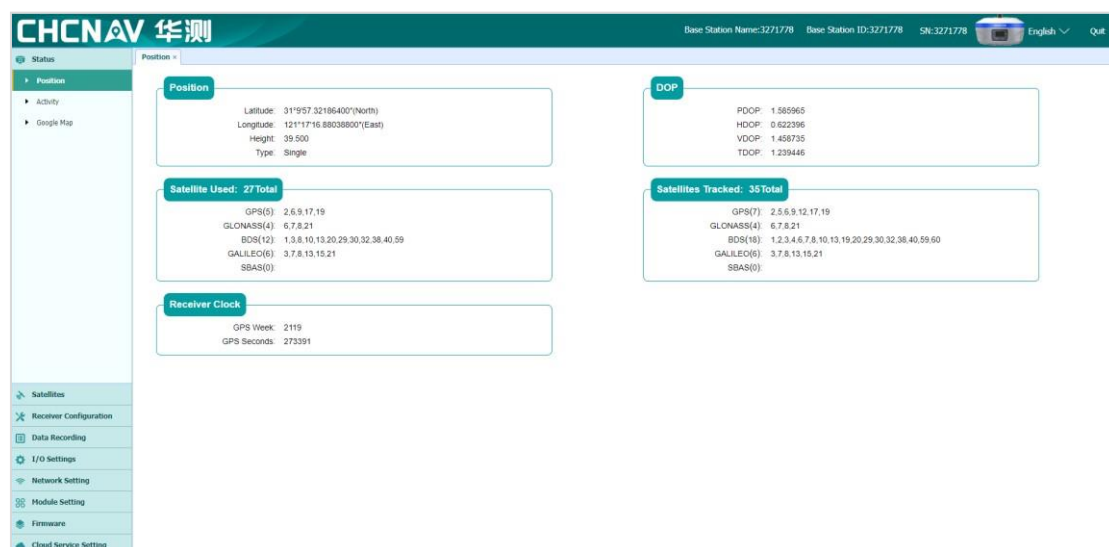


The default login account for the receiver is:

- 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:

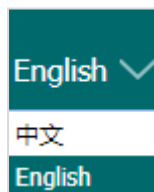


This web page shows the configuration menus on the left of the browser window, and the setting on the right. Each configuration menu contains the related submenus to configure the receiver and monitor receiver performance.

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, two 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.

Position

Latitude: 31°9'57.33288415"(North)

Longitude: 121°17'16.91010058"(East)

Height: 38.390

Type: Single

DOP

PDOP: 1.129313

HDOP: 0.962132

VDOP: 0.979467

TDOP: 0.704269

Satellite Used: 27 Total

GPS(8): 2,5,6,9,12,17,19,23

GLONASS(4): 4,5,19,20

BDS(10): 1,2,3,4,5,6,7,8,10,13

GALILEO(5): 4,12,19,24,26

SBAS(0):

Satellites Tracked: 28 Total

GPS(8): 2,5,6,9,12,17,19,23

GLONASS(5): 4,5,18,19,20

BDS(10): 1,2,3,4,5,6,7,8,10,13

GALILEO(5): 4,12,19,24,26

SBAS(0):

Receiver Clock

GPS Week: 2066

GPS Seconds: 365764

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:

Activity

Satellites Track: 29 Total

GPS(8): 2,5,6,9,12,17,19,23

GLONASS(5): 4,5,18,19,20

BDS(11): 1,2,3,4,5,6,7,8,9,10,13

GALILEO(5): 4,12,19,24,26

SBAS(0):

Activity Status

Current Time: 2019-08-15 05:41:35 (UTC)

Operation Duration: 00-00-00 00:13:30

Internal Storage: 0.59% 172MB/29110MB

External Storage: 0% Disconnected

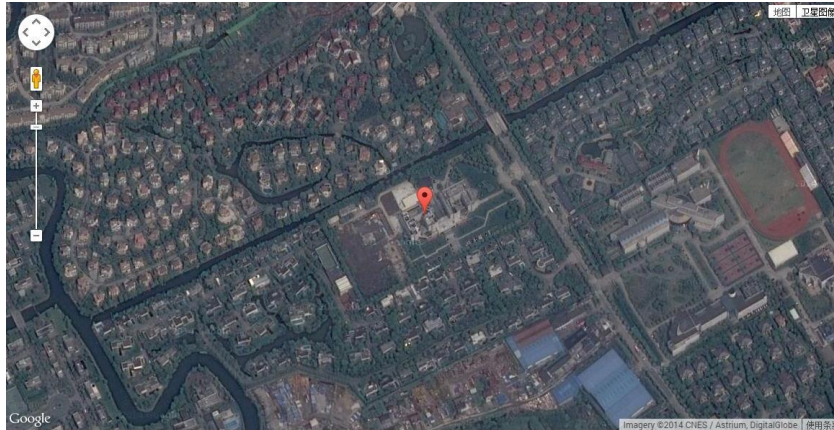
External Power: Disconnected

Battery A: 6%

Battery B: 19%

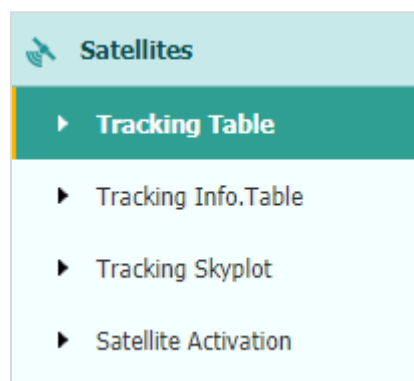
5.1.3 Google Map Submenu

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	55	332	45.660	36.420	0.000	Yes
5	GPS	47	258	48.280	34.340	0.000	Yes
6	GPS	51	56	46.460	39.220	47.060	Yes
9	GPS	32	55	42.120	33.920	44.060	Yes
12	GPS	25	295	44.020	34.630	0.000	Yes
17	GPS	30	145	44.760	33.470	0.000	Yes
19	GPS	45	147	44.730	34.510	0.000	Yes
25	GPS	10	303	37.860	31.190	39.240	Yes
4	GLONASS	42	26	46.520	47.890	0.000	Yes
5	GLONASS	81	230	47.630	51.230	0.000	Yes
10	GLONASS	51	50	35.050	46.220	0.000	Yes
20	GLONASS	50	340	40.300	50.220	0.000	Yes
1	BDS	46	140	42.000	42.740	43.030	Yes
2	BDS	36	238	37.350	40.600	40.600	No
3	BDS	50	200	43.130	47.170	44.760	Yes
4	BDS	35	177	37.550	38.470	40.650	Yes
5	BDS	15	256	33.570	35.130	34.650	No
6	BDS	40	179	38.570	38.960	41.820	Yes
7	BDS	11	195	31.840	31.010	35.650	No
8	BDS	61	15	44.100	44.880	45.650	Yes
9	BDS	20	101	36.140	35.200	35.780	Yes
10	BDS	17	217	33.030	34.640	35.040	No
13	BDS	52	331	44.000	42.940	42.260	Yes
4	GALILEO	26	205	37.760	40.550	34.470	Yes
17	GALILEO	54	335	41.650	43.470	39.640	No
19	GALILEO	73	132	39.540	42.290	39.230	Yes
26	GALILEO	10	113	33.220	33.960	31.130	No

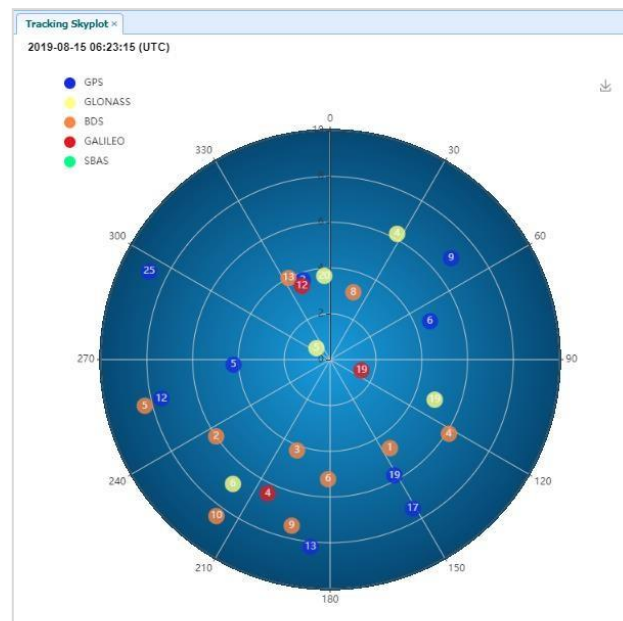
5.2.2 Tracking Info. Table Submenu

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.



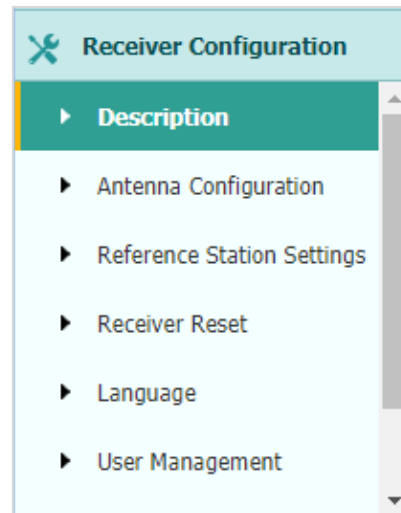
5.2.4 Satellite Activation Submenu

Use this menu to enable or disable satellites.

Satellite Activation			
GPS GLONASS BDS GALILEO SBAS			
Select All Unselect All Confirm Enable All Disable All			
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.

A screenshot of the 'Description' submenu. It contains two main sections: 'Receiver Info' and 'Reference Station Info'.
Receiver Info:
Antenna Type: CHCX12
Antenna SN: 3225804
Measure Way: Antenna Phase Center
Antenna Height: 2.0000(Meter)
Elevation Mask: 10
PDOP Mask: 6
Reference Station Info:
Reference Station Mode: Auto Rover
Reference Latitude: 0°0'0.00000000"(South)
Reference Longitude: 0°0'0.00000000"(West)
Reference Height: 0.0000

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:

The screenshot shows the 'Antenna Configuration' web interface. It features a title bar with 'Antenna Configuration' and a close button. Below the title bar is a teal header with the text 'Antenna Configuration'. The main content area contains several configuration fields: 'Measure Way' (dropdown menu set to 'Antenna Phase Center'), 'Antenna manufacturer' (dropdown menu set to 'CHCNav'), 'Antenna Type' (dropdown menu set to 'CHCE91'), 'Antenna SN' (text input field with '3200193'), 'Antenna Height' (text input field with '2.0000' and a '(Meter)' label), 'Elevation Mask' (text input field with '10'), and 'PDOP Mask' (text input field with '6'). At the bottom right of the form is a teal 'Save' button with a floppy disk icon.

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:

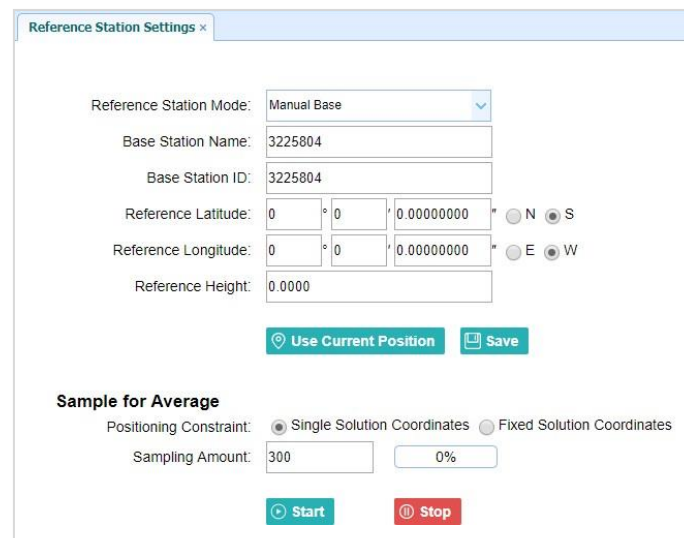
For Reference Station Mode:

There are two modes available:

- a) **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.

The screenshot shows the 'Reference Station Settings' web interface. It has a title bar with 'Reference Station Settings' and a close button. The main content area contains several configuration fields: 'Reference Station Mode' (dropdown menu set to 'Auto Base'), 'Base Station Name' (text input field with '3225804'), 'Base Station ID' (text input field with '3225804'), 'Reference Latitude' (text input field with '0' and a '0.00000000' scale), 'Reference Longitude' (text input field with '0' and a '0.00000000' scale), and 'Reference Height' (text input field with '0.0000'). Below these fields is a teal 'Save' button. Further down, there is a section titled 'Sample for Average' with two radio buttons: 'Single Solution Coordinates' (selected) and 'Fixed Solution Coordinates'. Below this are 'Positioning Constraint' and 'Sampling Amount' (text input field with '300' and a '0%' label). At the bottom of this section are 'Start' and 'Stop' buttons. At the very bottom of the form is a 'Coordinates transfer threshold value(Meter)' (text input field with '0') and a teal 'Save' button.

- b) **Manual Base:** The receiver will serve neither as a base nor a rover after this mode is enabled. Users need to configure the receiver manually.



The image shows a web browser interface for 'Reference Station Settings'. It includes fields for 'Reference Station Mode' (set to 'Manual Base'), 'Base Station Name' (3225804), 'Base Station ID' (3225804), 'Reference Latitude' (0° 0' 0.00000000"), 'Reference Longitude' (0° 0' 0.00000000"), and 'Reference Height' (0.0000). There are radio buttons for North/South and East/West. Below these are 'Use Current Position' and 'Save' buttons. A 'Sample for Average' section has 'Positioning Constraint' (Single/Fixed Solution Coordinates) and 'Sampling Amount' (300 and 0%). At the bottom are 'Start' and 'Stop' buttons.

For Reference Latitude and Reference Longitude:

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

- Acquire Current Position:** Click this button to acquire current position obtained through autonomous positioning automatically.
- Manual Input:** Manually input the coordinate of a control point.
- 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:

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

After the configuration of positioning limit and sampling amount, click **Start** to carry out 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 **Save** button.

5.3.3 Receiver Reset Submenu

Use this screen to completely or partially reset the receiver:

Receiver Reset x

Reboot Receiver:

Confirm

Return to Factory Defaults:

Confirm

Clear Satellite Data:

Confirm

Turn Off Receiver:

Confirm

5.3.4 Languages Submenu

Use this screen to select the web interface language:

Language x



English

中文

English

Confirm

5.3.5 User Management Submenu

Use this menu to add, delete and modify the login user name and password.

User Management x

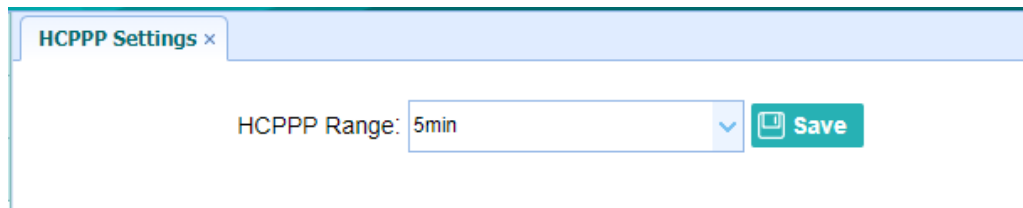
User Management

 Add  Save  Delete  Modify Anti-theft password

ID	User Name	Password
1	admin	
2	admin1	
3	admin2	

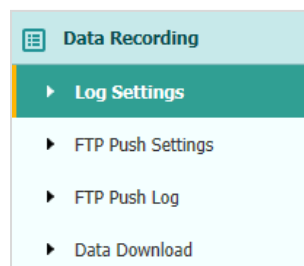
5.3.6 HCPPP Settings Submenu

Reserved menu.



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. Also, users can configure the data logging settings, including recording name, store location, storage limit, store formats, start time, etc.

Log Settings >

Store Info			
	Position	Total Storage	Storage Available
1	Internal Storage	6750MB	6583MB

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

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

[Clear All](#)

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:
 Elevation Mask: (°)
 Duration Time: (Minute)
 Site Name:

Antenna Height:
 Measure Way:
 Storage Format:
 RINEX Version:

Click advanced to see more settings.

Site Name:

Start Date: ☐ Yes ☒ No
 Apply Time: ☐ Yes ☒ No
 Integral Point Store: ☐ Yes ☒ No
 Circulating Memory: ☒ Yes ☐ No
the data overwritten first file after storage space is full
 Repeat Observations: ☒ Yes ☐ No
Turn on to record a single observation. Turn off to record repeated observations.

Store Location:
 Assigned Storage: (MB)
 Observer:
 Observe Agency:
 FTP Push:

☒ Close
☐ 1:ftp server 1
☐ 2:ftp server 2
☐ 3:ftp server 3

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

FTP Push Settings x				
Record Info				
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:

 **FTP Push Settings** 

Server IP:

Port:

Remote Directory:

Local directory:

Server Description:

User Name:

Password:

5.4.3 FTP Push Log Submenu

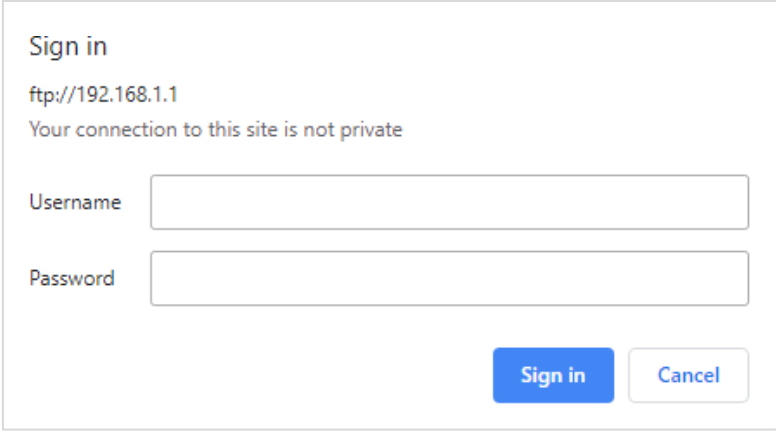
Shows the related information about the recorded file that be pushed. And users can tap **Clear Ftp Send Log** button in the upper right corner to clear the log of FTP Push operations.

FTP Push Log x					
Record Info					
Server ID	Push File	File Size	Push Time	Push Successful Or Not	
20					
Page 1 of 1					Displaying 0 to 0 of 0 items

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:



Sign in

ftp://192.168.1.1

Your connection to this site is not private

Username

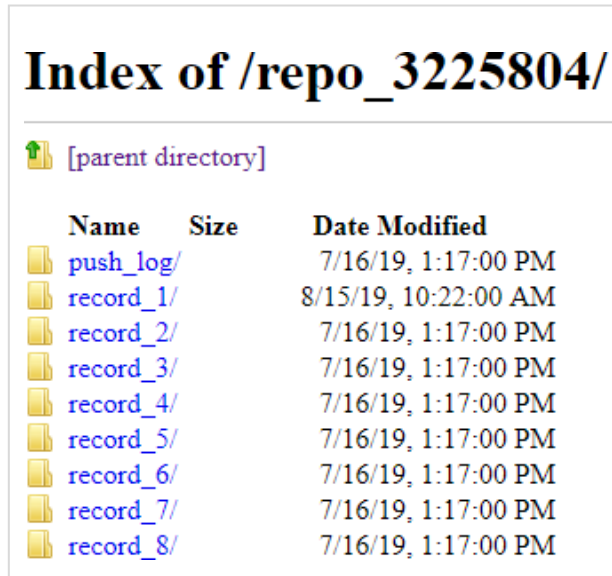
Password

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:

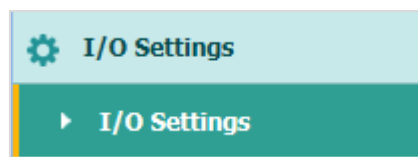
Index of /		
	Name	Size Date Modified
	System Volume Information/	8/9/19, 10:28:00 PM
	repo_3225804/	7/16/19, 1:17:00 PM

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, GPGLA, GPGLV, 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.

I/O Settings x					
	Type	Description	Output	Connection Status	Modify
1	RTK Client	211.144.118.5:2102	---	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-3225804	GPGLGA:5s,	---	Settings
14	Radio	456.0500MHz	---	---	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 and APIS_ROVER → configure the related parameters → click [Confirm](#) to log on CORS or APIS.

- Connection Protocol: NTRIP

RTK Client

Connection Protocol: NTRIP

Server IP: 211.144.118.5

Port: 2102

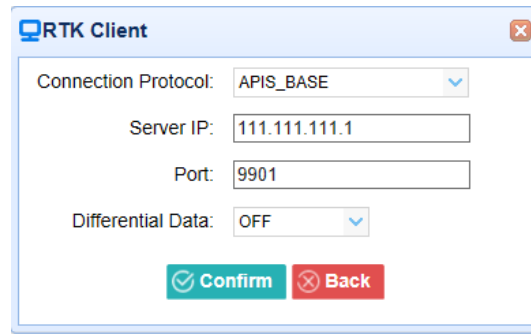
Mount Point: asd [Get](#)

User Name: zc

Password: zc

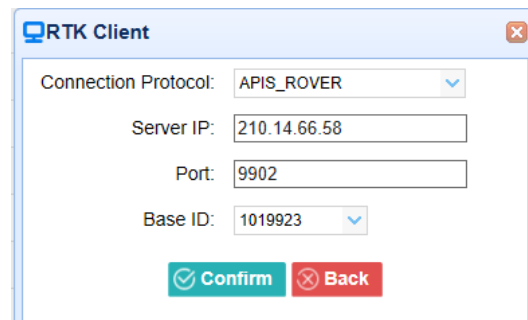
[Confirm](#)
[Back](#)

- Connection Protocol: APIS_BASE



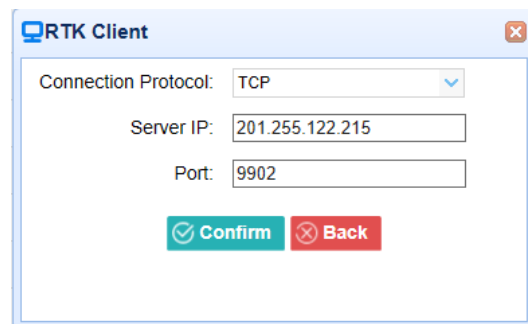
The screenshot shows the 'RTK Client' configuration window. The 'Connection Protocol' is set to 'APIS_BASE'. The 'Server IP' is '111.111.111.1', the 'Port' is '9901', and 'Differential Data' is 'OFF'. At the bottom, there are 'Confirm' and 'Back' buttons.

- Connection Protocol: APIS_ROVER



The screenshot shows the 'RTK Client' configuration window. The 'Connection Protocol' is set to 'APIS_ROVER'. The 'Server IP' is '210.14.66.58', the 'Port' is '9902', and the 'Base ID' is '1019923'. At the bottom, there are 'Confirm' and 'Back' buttons.

- Connection Protocol: TCP

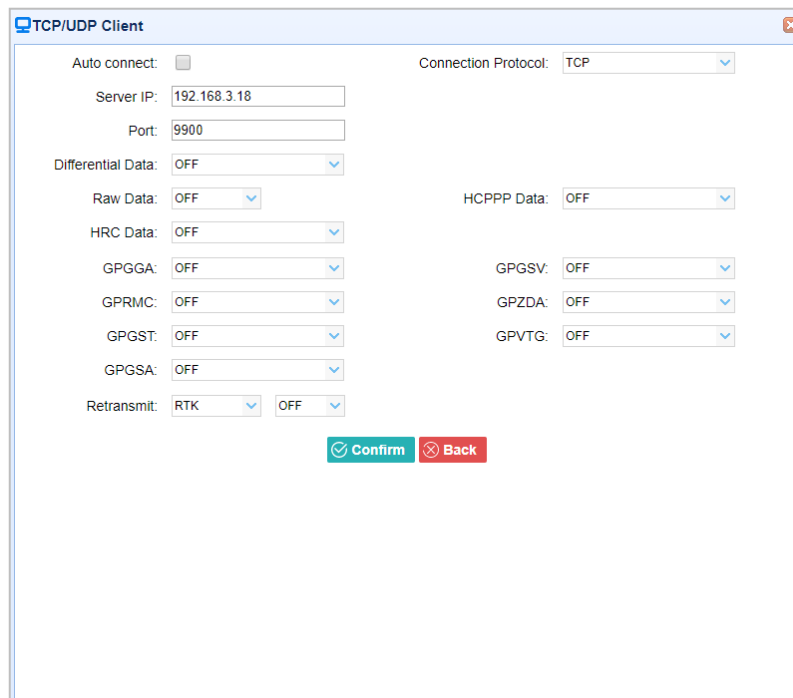


The screenshot shows the 'RTK Client' configuration window. The 'Connection Protocol' is set to 'TCP'. The 'Server IP' is '201.255.122.215', and the 'Port' is '9902'. At the bottom, there are 'Confirm' and 'Back' buttons.

2. TCP/UDP_Client/NTRIP Server

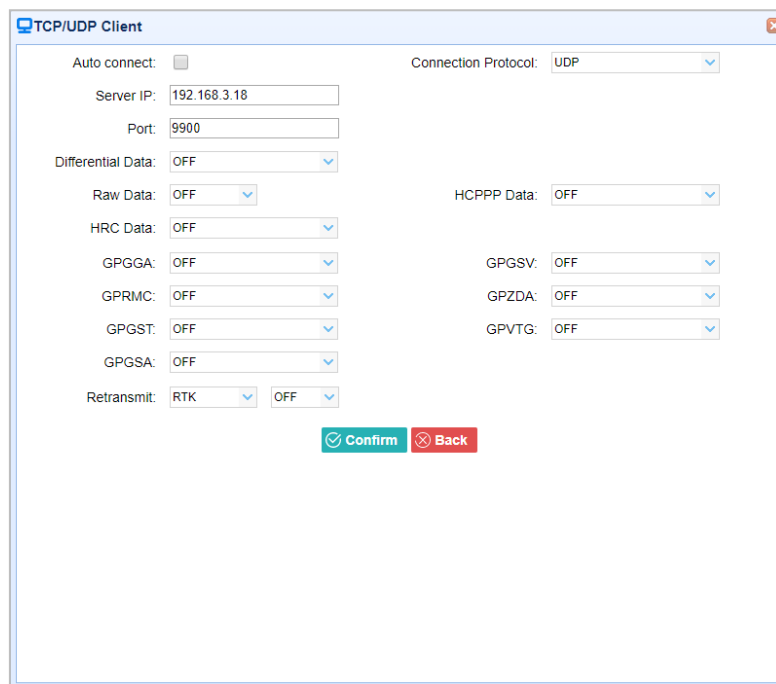
Tap the **Connect** button on the right of required TCP/UDP Client → the *IO Settings* screen will appear → select the connection protocol from TCP, UDP, NTRIP1.0 and NTRIP2.0 → enter the IP and Port of the target server → configure messages that you want to output to the target server → click  to save and complete the connection.

- Connection Protocol: TCP



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 '9900'. The 'Differential Data' is set to 'OFF'. The 'Raw Data' is set to 'OFF'. The 'HRC Data' is set to 'OFF'. The 'GPGGA' is set to 'OFF'. The 'GPRMC' is set to 'OFF'. The 'GPGST' is set to 'OFF'. The 'GPGSA' is set to 'OFF'. The 'Retransmit' is set to 'RTK' and 'OFF'. The 'HCPPP Data' is set to 'OFF'. The 'GPXSV' is set to 'OFF'. The 'GPZDA' is set to 'OFF'. The 'GPVTG' is set to 'OFF'. At the bottom, there are 'Confirm' and 'Back' buttons.

➤ Connection Protocol: UDP



The screenshot shows the 'TCP/UDP Client' configuration window. The 'Connection Protocol' is set to 'UDP'. The 'Auto connect' checkbox is unchecked. The 'Server IP' is '192.168.3.18' and the 'Port' is '9900'. The 'Differential Data' is set to 'OFF'. The 'Raw Data' is set to 'OFF'. The 'HRC Data' is set to 'OFF'. The 'GPGGA' is set to 'OFF'. The 'GPRMC' is set to 'OFF'. The 'GPGST' is set to 'OFF'. The 'GPGSA' is set to 'OFF'. The 'Retransmit' is set to 'RTK' and 'OFF'. The 'HCPPP Data' is set to 'OFF'. The 'GPXSV' is set to 'OFF'. The 'GPZDA' is set to 'OFF'. The 'GPVTG' is set to 'OFF'. At the bottom, there are 'Confirm' and 'Back' buttons.

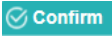
➤ Connection Protocol: NTRIP1.0

The screenshot shows the 'TCP/UDP Client' configuration window. The 'Connection Protocol' is set to 'NTRIP1.0'. The 'Auto connect' checkbox is unchecked. The 'Server IP' is '192.168.3.18', 'Password' is masked with dots, and 'Mount Point' is empty. The 'Port' is '9900'. The 'Raw Data' dropdown is set to 'OFF'. The 'Differential Data' dropdown is set to 'OFF'. The 'HCPPP Data' dropdown is set to 'OFF'. The 'HRC Data' dropdown is set to 'OFF'. The 'GPGGA' dropdown is set to 'OFF'. The 'GPRMC' dropdown is set to 'OFF'. The 'GPGST' dropdown is set to 'OFF'. The 'GPGSA' dropdown is set to 'OFF'. The 'Retransmit' dropdown is set to 'RTK'. The 'GPVTG' dropdown is set to 'OFF'. At the bottom, there are 'Confirm' and 'Back' buttons.

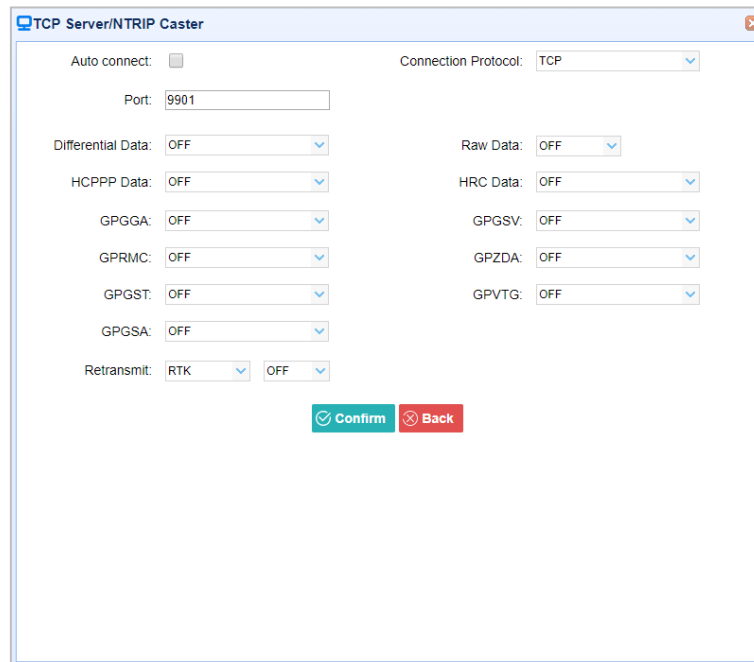
➤ Connection Protocol: NTRIP2.0

The screenshot shows the 'TCP/UDP Client' configuration window. The 'Connection Protocol' is set to 'NTRIP2.0'. The 'Auto connect' checkbox is unchecked. The 'Server IP' is '192.168.3.18', 'Password' is masked with dots, and 'Mount Point' is empty. The 'Port' is '9900'. The 'Raw Data' dropdown is set to 'OFF'. The 'Differential Data' dropdown is set to 'OFF'. The 'HCPPP Data' dropdown is set to 'OFF'. The 'HRC Data' dropdown is set to 'OFF'. The 'GPGGA' dropdown is set to 'OFF'. The 'GPRMC' dropdown is set to 'OFF'. The 'GPGST' dropdown is set to 'OFF'. The 'GPGSA' dropdown is set to 'OFF'. The 'Retransmit' dropdown is set to 'RTK'. The 'GPVTG' dropdown is set to 'OFF'. At the bottom, there are 'Confirm' and 'Back' buttons. Additionally, a 'User Name' field is present and set to 'link_a'.

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.

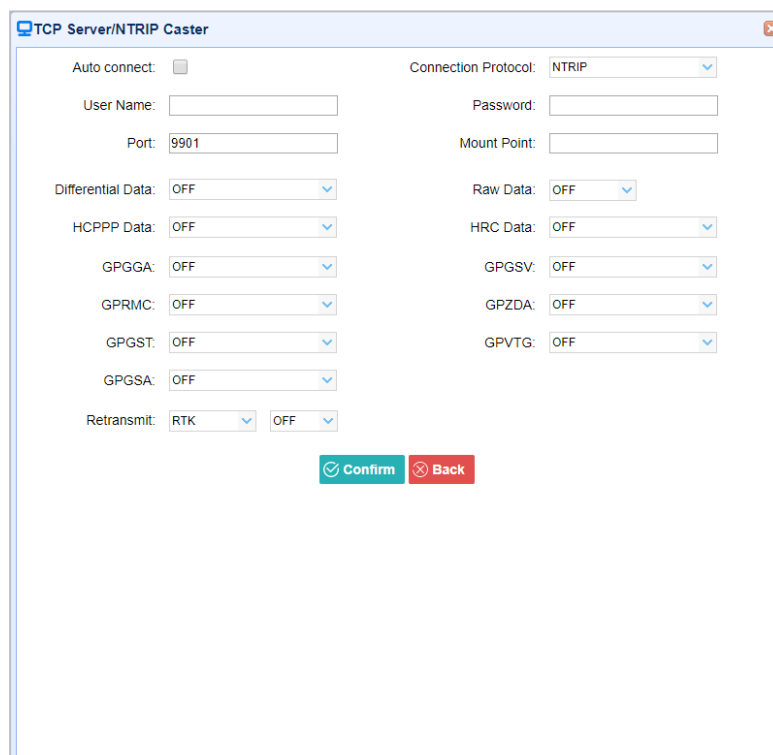
➤ Connection Protocol: TCP



The screenshot shows the 'TCP Server/NTRIP Caster' configuration window. The 'Connection Protocol' is set to 'TCP'. The 'Auto connect' checkbox is unchecked. The 'Port' is set to '9901'. The 'Retransmit' option is set to 'RTK' and 'OFF'. All other data types (Differential Data, HCPPP Data, GPGGA, GPRMC, GPGST, GPGSA, Raw Data, HRC Data, GPGSV, GPZDA, GPVTG) are set to 'OFF'. The 'Confirm' and 'Back' buttons are at the bottom.

Setting	Value
Auto connect	☐
Connection Protocol	TCP
Port	9901
Differential Data	OFF
HCPPP Data	OFF
GPGGA	OFF
GPRMC	OFF
GPGST	OFF
GPGSA	OFF
Retransmit	RTK OFF
Raw Data	OFF
HRC Data	OFF
GPGSV	OFF
GPZDA	OFF
GPVTG	OFF

➤ Connection Protocol: NTRIP

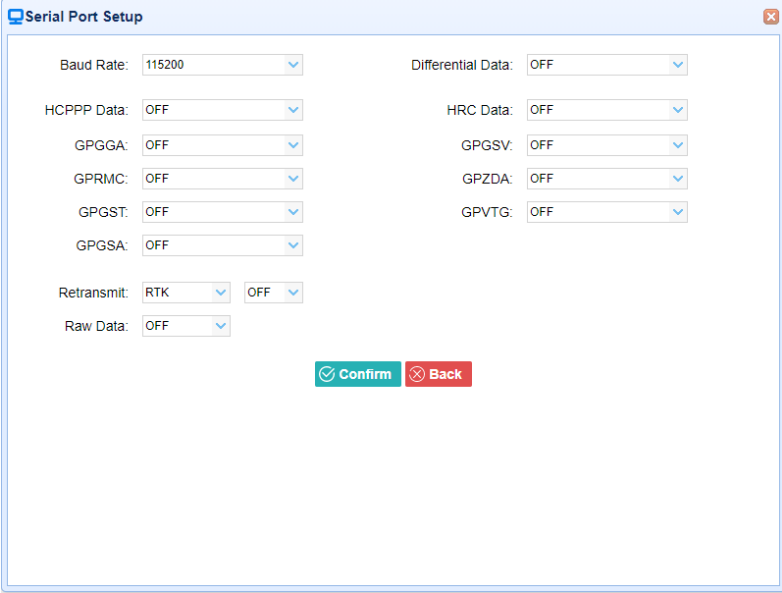


The screenshot shows the 'TCP Server/NTRIP Caster' configuration window. The 'Connection Protocol' is set to 'NTRIP'. The 'Auto connect' checkbox is unchecked. The 'User Name' and 'Password' fields are empty. The 'Port' is set to '9901'. The 'Mount Point' field is empty. The 'Retransmit' option is set to 'RTK' and 'OFF'. All other data types (Differential Data, HCPPP Data, GPGGA, GPRMC, GPGST, GPGSA, Raw Data, HRC Data, GPGSV, GPZDA, GPVTG) are set to 'OFF'. The 'Confirm' and 'Back' buttons are at the bottom.

Setting	Value
Auto connect	☐
Connection Protocol	NTRIP
User Name	
Password	
Port	9901
Mount Point	
Differential Data	OFF
HCPPP Data	OFF
GPGGA	OFF
GPRMC	OFF
GPGST	OFF
GPGSA	OFF
Retransmit	RTK OFF
Raw Data	OFF
HRC Data	OFF
GPGSV	OFF
GPZDA	OFF
GPVTG	OFF

4. Serial Port

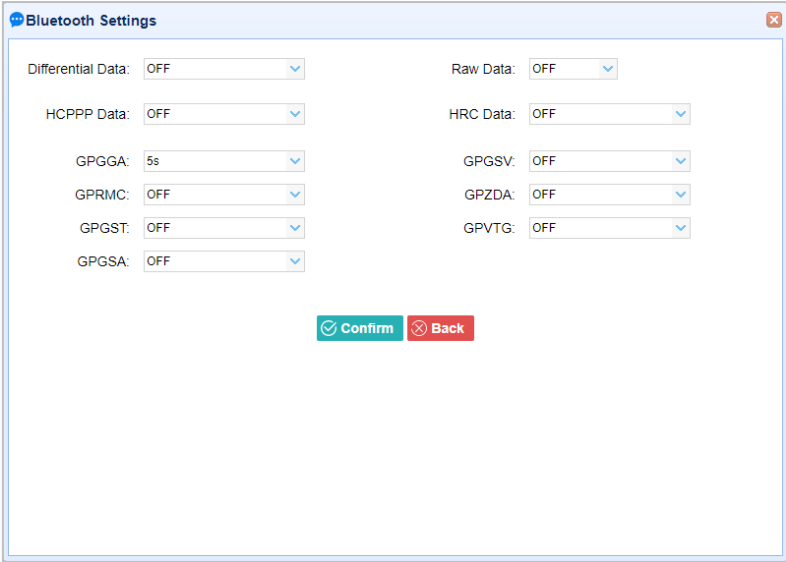
Tap the **Settings** button on the right of Serial Port → the *Serial Port Setup* screen will appear → select Baud Rate used to transmit data → configure the messages that you want to output through the serial port → click  to save the settings and start to transmit.



The **Serial Port Setup** screen displays various configuration options for serial communication. The Baud Rate is set to 115200. Differential Data is OFF. HCPPP Data is OFF. GPGGA is OFF. GPRMC is OFF. GPGST is OFF. GPGSA is OFF. Retransmit is set to RTK and OFF. Raw Data is OFF. HRC Data is OFF. GPGSV is OFF. GPZDA is OFF. GPVTG is OFF. At the bottom, there are  and  buttons.

5. 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.

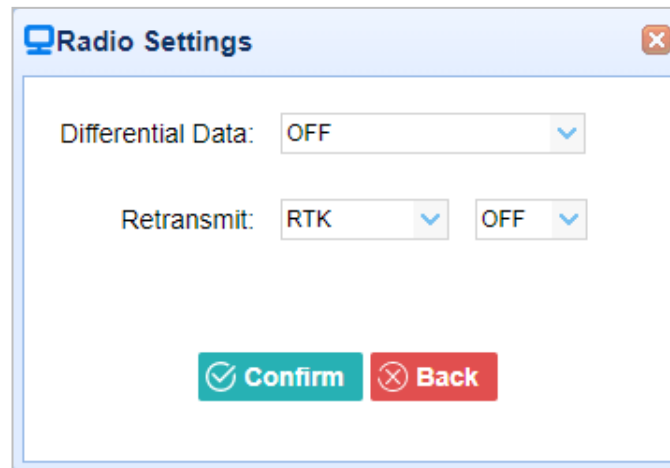


The **Bluetooth Settings** screen displays various configuration options for Bluetooth communication. Differential Data is OFF. Raw Data is OFF. HCPPP Data is OFF. HRC Data is OFF. GPGGA is set to 5s. GPRMC is OFF. GPGST is OFF. GPGSA is OFF. GPGSV is OFF. GPZDA is OFF. GPVTG is OFF. At the bottom, there are  and  buttons.

6. Radio

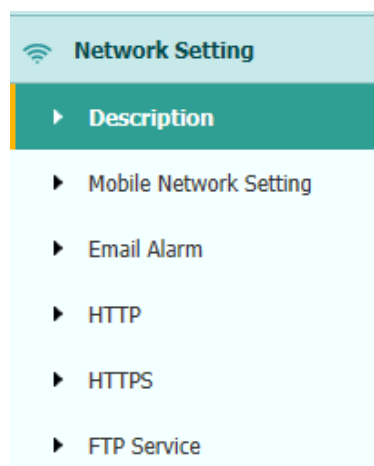
Tap the **Settings** button to the right of Radio → the *Radio Settings* screen will appear → select the format of differential data that you want to transmit through radio from the dropdown list

→ click  **Confirm** to save the settings and start to transmit.



5.6 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 user name and password of internal FTP site:



5.6.1 Description Submenu

Use this submenu to check the information of network setting.

Description x

Network Info

Power Status:

ON

Network Mode:

2G/3G/4G Auto

Connection Protocol:

CHINA MOBILE

Signal Strength:

-71(dBm)

SIM Status:

SIM Card Ok

Dialing Status:

Offline

IMEI:

861529049455435

PhoneNumber:

1440033974571

5.6.2 Mobile Network Setting Submenu

Use this submenu to configure GPRS model, network module and modify dialing status.

Mobile Network Setting x

Network Settings

GPRS Model Status:

ON

ON OFF

Auto Start:

☒ Yes ☐ No

Network Mode:

☐ 2G Only

☐ 3G Only

☐ 2G/3G Auto

☐ 4G Only

☒ 2G/3G/4G Auto

SIM Type:

E-SIM

Switch

Dialing Status:

Offline

Dial Break

Auto Connect:

☐ Yes ☒ No

APN:

3gnet

Dialing String:

*99#

User Name:

card

Password:

Save

5.6.3 Email Alarm Submenu

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

Email Alarm ×

TO

Email Address 1:

Email Address 2:

Email Address 3:

 **Save**

From

Account:

Password:

Server Address:

 **Save**

Email Alert

☐ Receiver is powered on

☐ External power is off

☐ Battery level is low

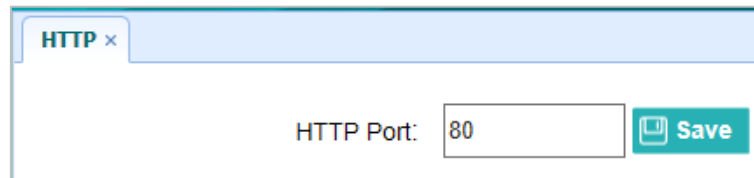
☐ Ftp push is failed

☐ Reciever(license) will be expired in 7 days.

 **Save**

5.6.4 HTTP Submenu

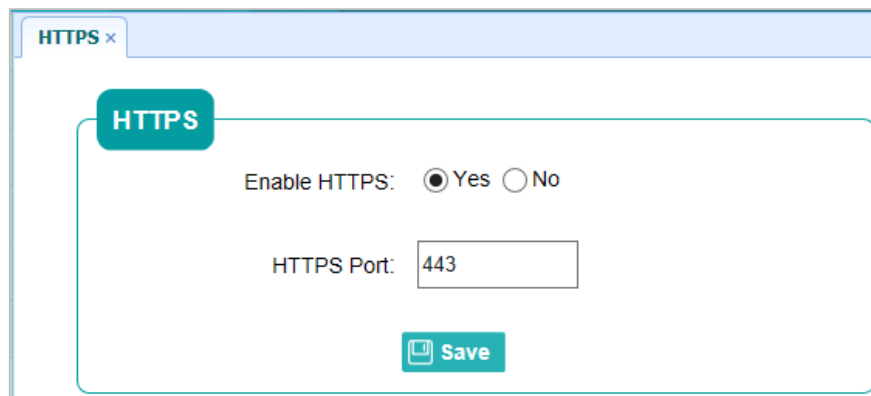
Use this submenu to configure HTTP port.



The screenshot shows a web browser window with a tab labeled "HTTP x". Inside the window, there is a label "HTTP Port:" followed by a text input field containing the number "80". To the right of the input field is a green button with a floppy disk icon and the text "Save".

5.6.5 HTTPS Submenu

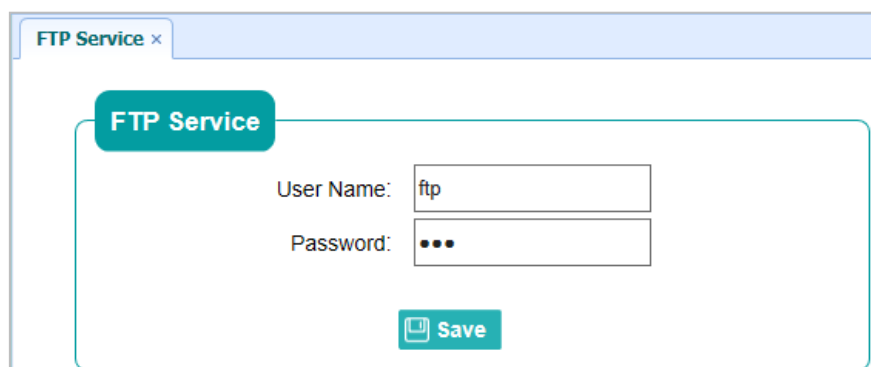
Use this submenu to configure HTTPS port.



The screenshot shows a web browser window with a tab labeled "HTTPS x". Inside the window, there is a teal button labeled "HTTPS". Below it, the text "Enable HTTPS:" is followed by two radio buttons: "Yes" (which is selected) and "No". Below this, the text "HTTPS Port:" is followed by a text input field containing the number "443". At the bottom right is a green button with a floppy disk icon and the text "Save".

5.6.6 FTP Service Submenu

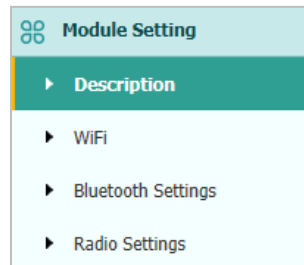
Use this submenu to configure the user name and password of internal FTP site.



The screenshot shows a web browser window with a tab labeled "FTP Service x". Inside the window, there is a teal button labeled "FTP Service". Below it, the text "User Name:" is followed by a text input field containing the text "ftp". Below this, the text "Password:" is followed by a text input field containing three dots. At the bottom right is a green button with a floppy disk icon and the text "Save".

5.7 Module Setting Menu

Use this menu to check module information, configure WiFi, bluetooth, radio related settings, and turn on/off static voice of buzzer:



5.7.1 Description Submenu

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



5.7.2 WiFi Submenu

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

The screenshot shows a web browser window with a tab labeled "WiFi x". The main content area has a teal header with the word "WiFi". Below this, the "Power Status" is set to "ON", with a red "OFF" button next to it. There are two rows of radio buttons: "Auto Start" with "Yes" selected and "No" unselected, and "Internet" with "Yes" selected and "No" unselected. The "Wifi Mode" is set to "Access Point" in a dropdown menu. The "SSID" is "GNSS-3225804", the "Encryption Type" is "WAP" in a dropdown menu, and the "Password" is masked with eight dots. A teal "Start" button with a document icon is at the bottom.

5.7.3 Bluetooth Settings Submenu

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

The screenshot shows a web browser window with a tab labeled "Bluetooth Settings x". The main content area has a teal header with the words "Bluetooth Settings". Below this, the "Local Name" is "GNSS-3225804" and the "MAC Address" is "50:72:24:60:C7:6F". The "PIN" is "1234" in a text input field. A teal "Save" button with a document icon is at the bottom.

5.7.4 Radio Settings Submenu

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

Radio Settings ×

Radio Settings

Radio Status: ON ☒ ON ☐ OFF

Auto Start: ☒ Yes ☐ No

Radio Protocol: CHC

Channel Bandwidth : 25 (kHz)

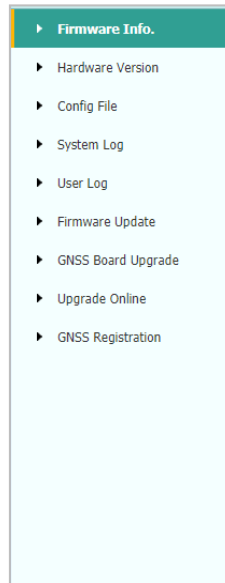
OTA Baud Rate: 9600

Radio Power: 2W

Radio Frequency: 3 457.0500 (410MHz---470MHz)

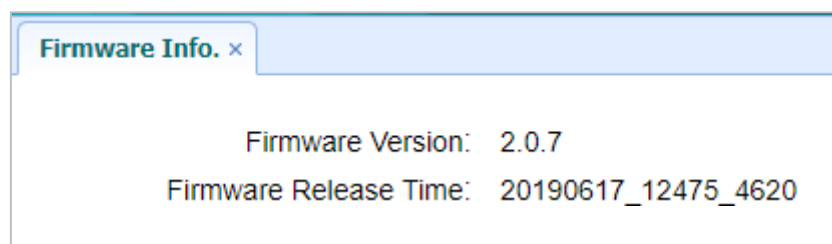
5.8 Firmware Menu

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:



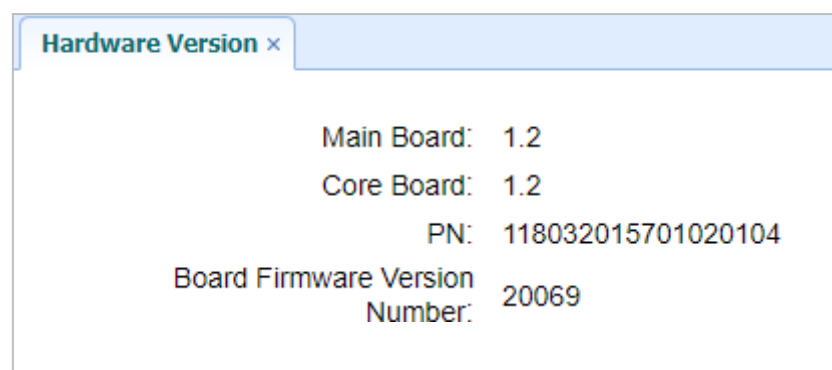
5.8.1 Firmware Info Submenu

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



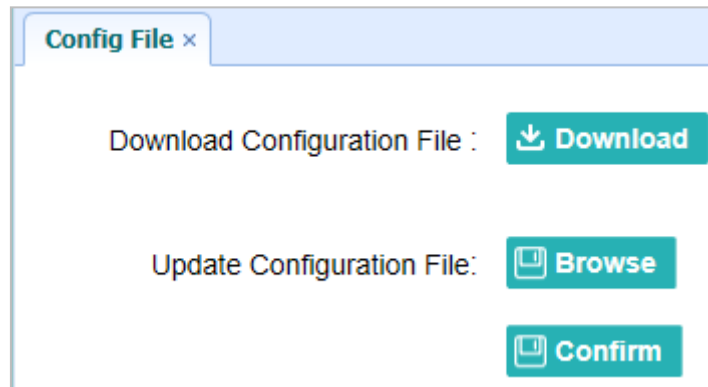
5.8.2 Hardware Version Submenu

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



5.8.3 Config File Submenu

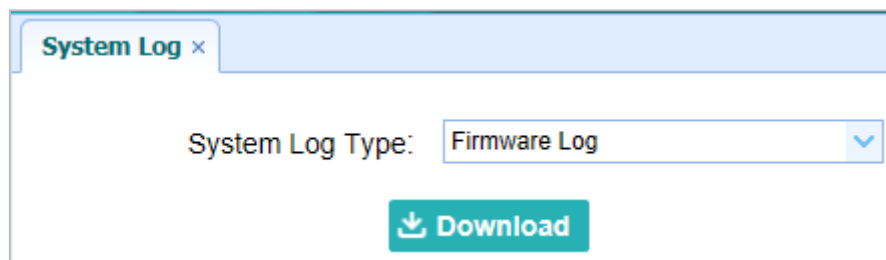
Use this submenu to update Configuration File.



The screenshot shows a web interface for the 'Config File' submenu. It has a light blue header bar with the text 'Config File' and a close icon. Below the header, there are two main sections. The first section is labeled 'Download Configuration File :' and contains a teal button with a download icon and the text 'Download'. The second section is labeled 'Update Configuration File:' and contains two teal buttons: one with a document icon and the text 'Browse', and another with a document icon and the text 'Confirm'.

5.8.4 System Log Download Submenu

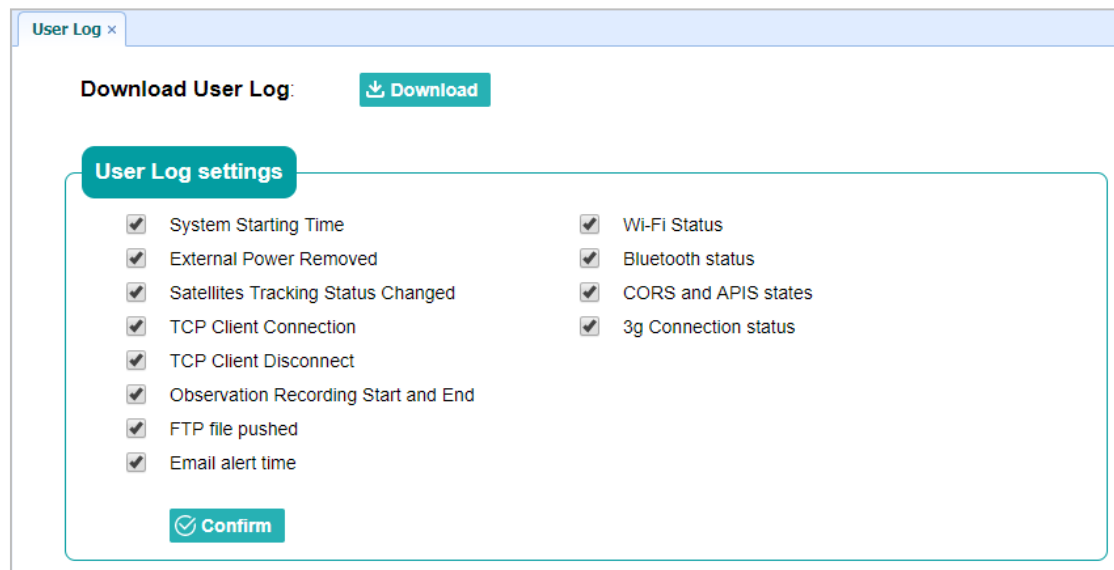
Use this submenu to download the system log of the receiver.



The screenshot shows a web interface for the 'System Log' submenu. It has a light blue header bar with the text 'System Log' and a close icon. Below the header, there is a label 'System Log Type:' followed by a dropdown menu showing 'Firmware Log'. Below the dropdown menu is a teal button with a download icon and the text 'Download'.

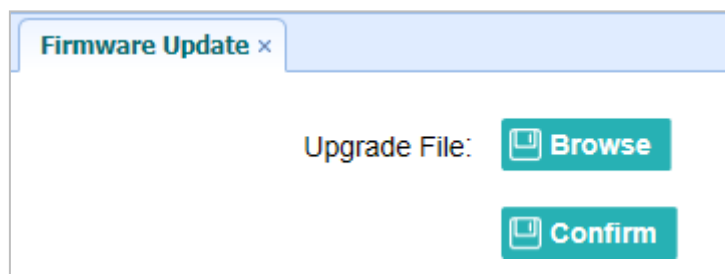
5.8.5 User Log Submenu

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.



5.8.6 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.



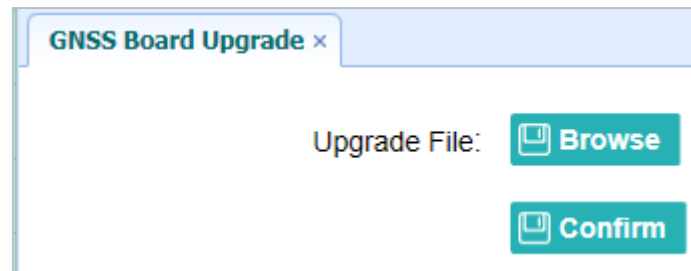
Notes

- 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.

5.8.7 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.



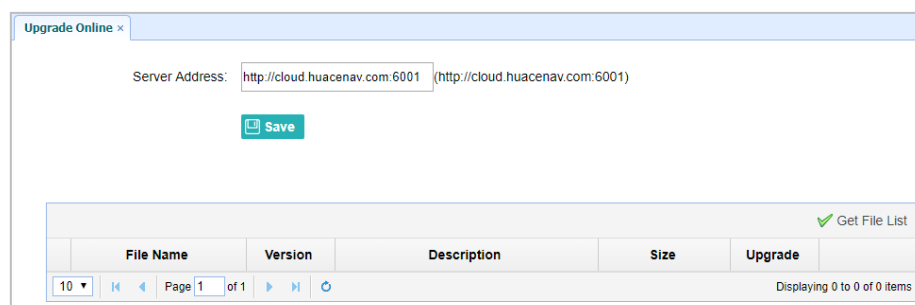
GNSS Board Upgrade ×

Upgrade File:  **Browse**

 **Confirm**

5.8.8 Upgrade Online Submenu

Use this submenu to input Server Address and upgrade online.



Upgrade Online ×

Server Address: (http://cloud.huacnav.com:6001)

 **Save**

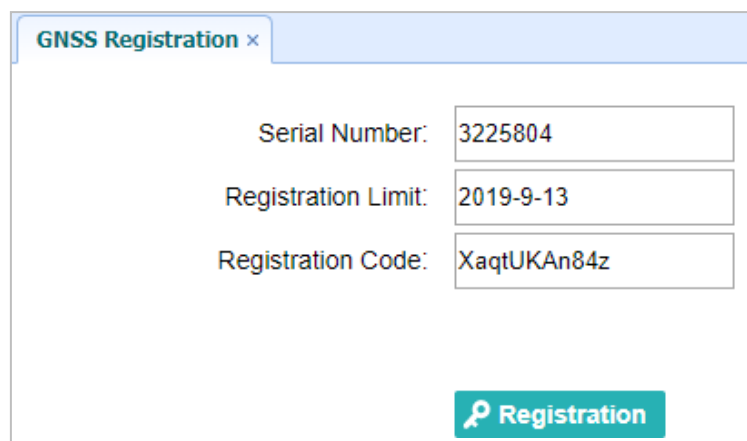
File Name	Version	Description	Size	Upgrade
-----------	---------	-------------	------	---------

10 ▾ | Page 1 of 1 | Displaying 0 to 0 of 0 items

✓ Get File List

5.8.9 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 ×

Serial Number:

Registration Limit:

Registration Code:

 **Registration**

6 Quick guide

After turn on the base station and the WIFI will be turned on automatically. Connect the WIFI via mobile phone/PC.

Wifi Name: GNSS-xxxxxxx(xxxxxxx is the SN number of the device)

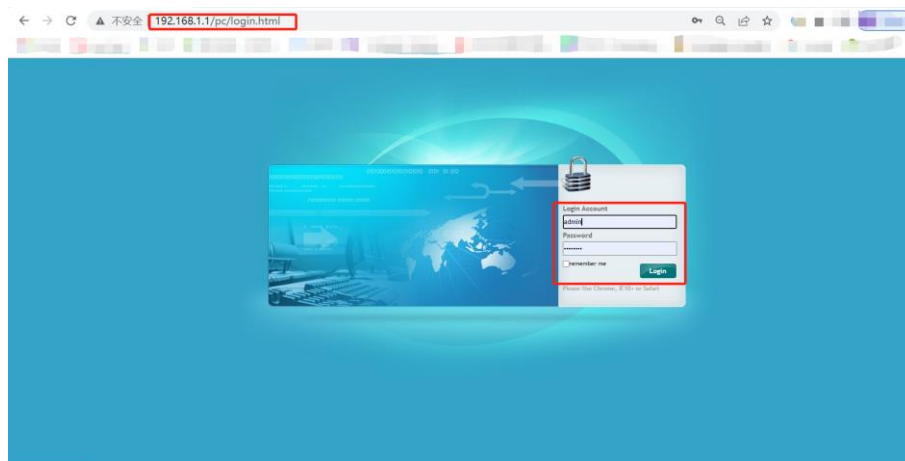
Password: No password

After connect to the mobile phone/PC with WIFI, turn on a browser, then log in 192.168.1.1/pc

6.1 Log into the webpage

User name: admin

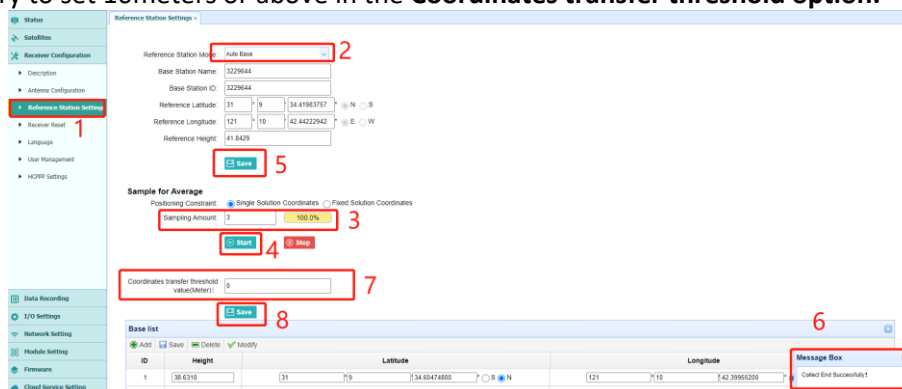
Password: password



6.2 Set Auto Base/Manual Base

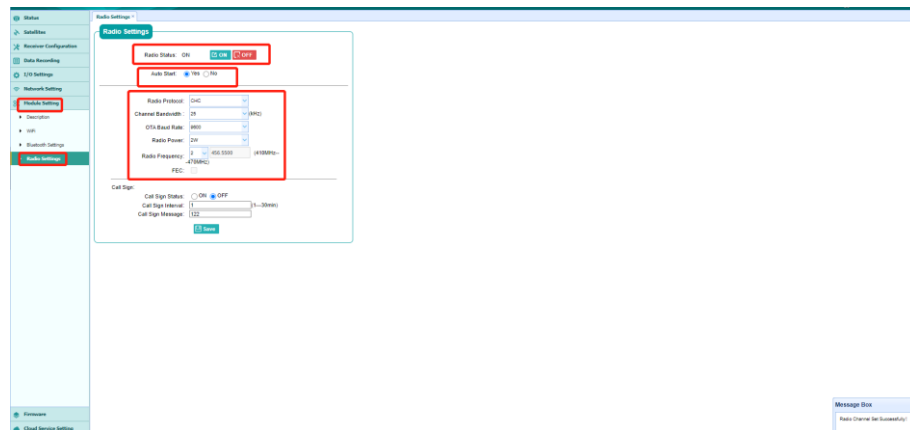
Go to **Reference Configuration --- Reference station settings**, select **Auto Base** as example, then get the approximate Autonomous coordinate in **Sample for Average** option and save it.

Also if want to keep same coordinate after restart the base station at the same location, it is necessary to set 10meters or above in the **Coordinates transfer threshold** option.



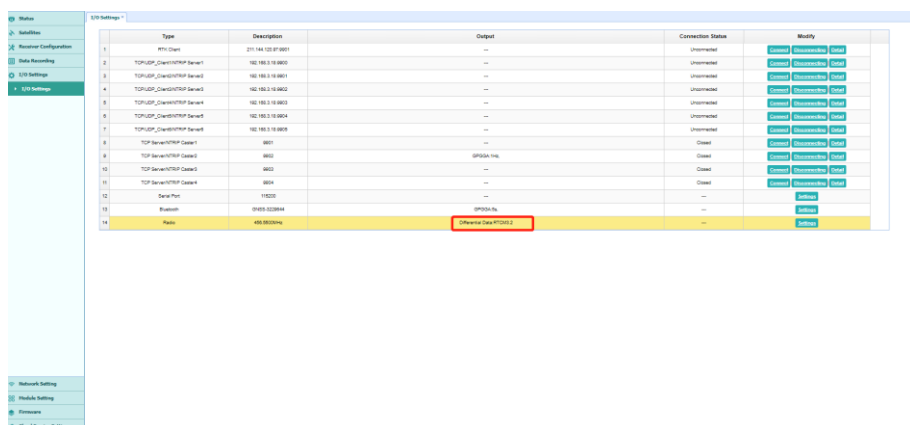
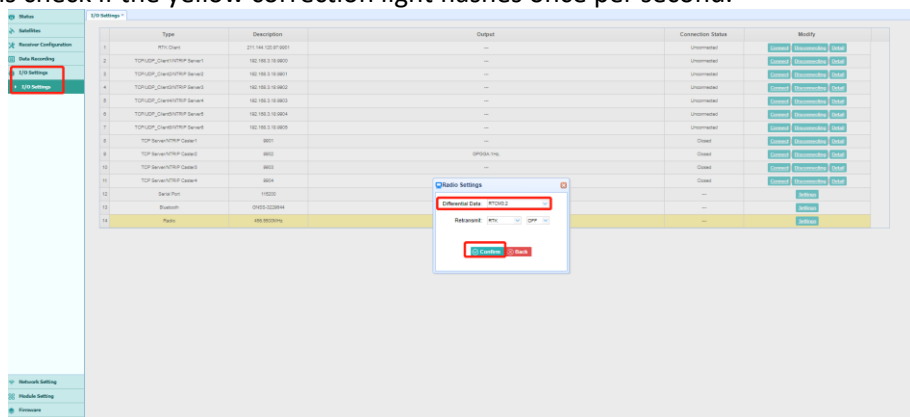
6.3 Radio Settings

Go to **Module setting---Radio Settings**, turn on the radio and set it as Yes in Auto Start option so next after restart, it will start the radio automatically. Next set the radio protocol, channel bandwidth, radio power and radio frequency as the photo below as example, finally Click **Save**.



6.4 I/O settings

Go to **I/O settings**, Click **Settings** in the radio option and set **RTCM3.2** output, then click **Confirm**, finally pls check if the yellow correction light flashes once per second.



6.5 AGNAV3.0 radio settings

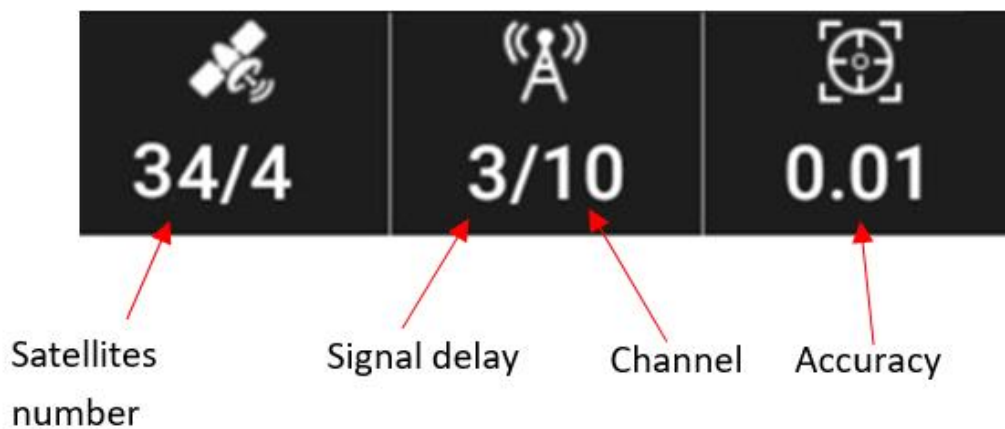
Go to **Settings---Receiver**, choose **Internal Radio** mode, pls confirm the Radio Protocol and Radio Frequency are same as the base station.

HUACE/CHC-AG is same as CHC.

After confirm everything, NX510 will connect to the base, also the red light will be on all the time and the green light will flash per second if it gets Fix solution.

Setting	Value	Action
Data Link	Internal Radio	▼
Channel	Channel 2	▼
Radio Frequency	856.5500	Setup
Radio Protocol	CHC-AG	▼
Channel Bandwidth	25	▼
OTA Baud Rate	9600	▼
Radio Power	0.5w	▼
Apply		

The signal status will show like this which means the signal is fixed and it is ready for auto driving.



A Communication Ports Definition

AI CHCNAV iBase Receiver IO Port (7-pin Lemo Port) Definition



PIN	FUNCTION
1	Ground (-)
2	Ground (-)
3	RS232-TX (Output)
4	PPS
5	Not Used
6	VIN
7	RS232-RX (Input)



CHC Navigation

Building C, 577 Songying Road, Qingpu,
District, 201702 Shanghai, China

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

Email: sales@chcnav.com | support@chcnav.com Skype:
[chcnav_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