



G30 Pro GNSS Receiver
User Manual

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Chapter I: Overview

In this chapter, you will learn about Gintec Team and G30 Pro GNSS Receiver.

§1.1 Introduction

Welcome to use GNSS products of GINTEC team (Guangzhou Geosurv Information Technology Co.,Ltd). Our team has been committed to popularize the advanced GPS surveying and mapping technology and products to the hands of measurement users. If you want to know more about us, please visit the official website: <http://www.gintec.cn/>.

This manual uses G30 Pro measurement system as an example, for how to install, set up, upgrade, daily maintenance, the use of accessories and how to use RTK system operation to explain. Even if you have used other models of RTK products of our company, it is highly recommended that you read this instruction carefully before using the instrument for better use.

§1.2 Highlights of G30 Pro

➤ **Built-in radio, external performance**

Using new radio communication technology, it is not afraid of spatial link attenuation. It can accurately capture weak signals, realizing the 15km limit transmitting and receiving of built-in radio, bringing lightweight, convenient and lasting triple pleasure experience for field operations.

➤ **Smart locking to base**

Based on Farlink "instant" protocol, the industry's first one-to-one signal tracking and locking technology, can achieve the target base station signal continuous tracking and locking, eliminate crosstalk, interference.

➤ **HD LCD screen**

HD 1.3-inch TFT color LCD screen, high brightness, low power consumption, more suitable for field work

➤ **eSIM**

Using built-in eSIM technology, embedded eSIM chip, no card, real-time network resources to ensure that the host network operations continue online; External SIM card is supported

➤ **Smart network connection**

With innovative network connection technology, the connecting work between rover and base station can be completed with one click, which is simple, convenient and useful.

➤ **Inertial tilt measurement**

Built-in IMU inertial measurement sensor, with $0^{\circ} \sim 60^{\circ}$ super-large angle, 200HZ ultra-high update rate, can automatically correct the coordinates according to the tilt direction and Angle of the centering bar, the user does not need to strictly be centering, lifting the bar to measure.

➤ **Base station movement alert**

Built-in IMU sensor can always read the attitude information, when the base station movement, tipping can accurately judge and remind.

➤ **Type-C fast charging**

Type-C interface design, with high power PD3.0 protocol fast charging scheme, make charging more convenient and efficient.

➤ **Ultra-long endurance**

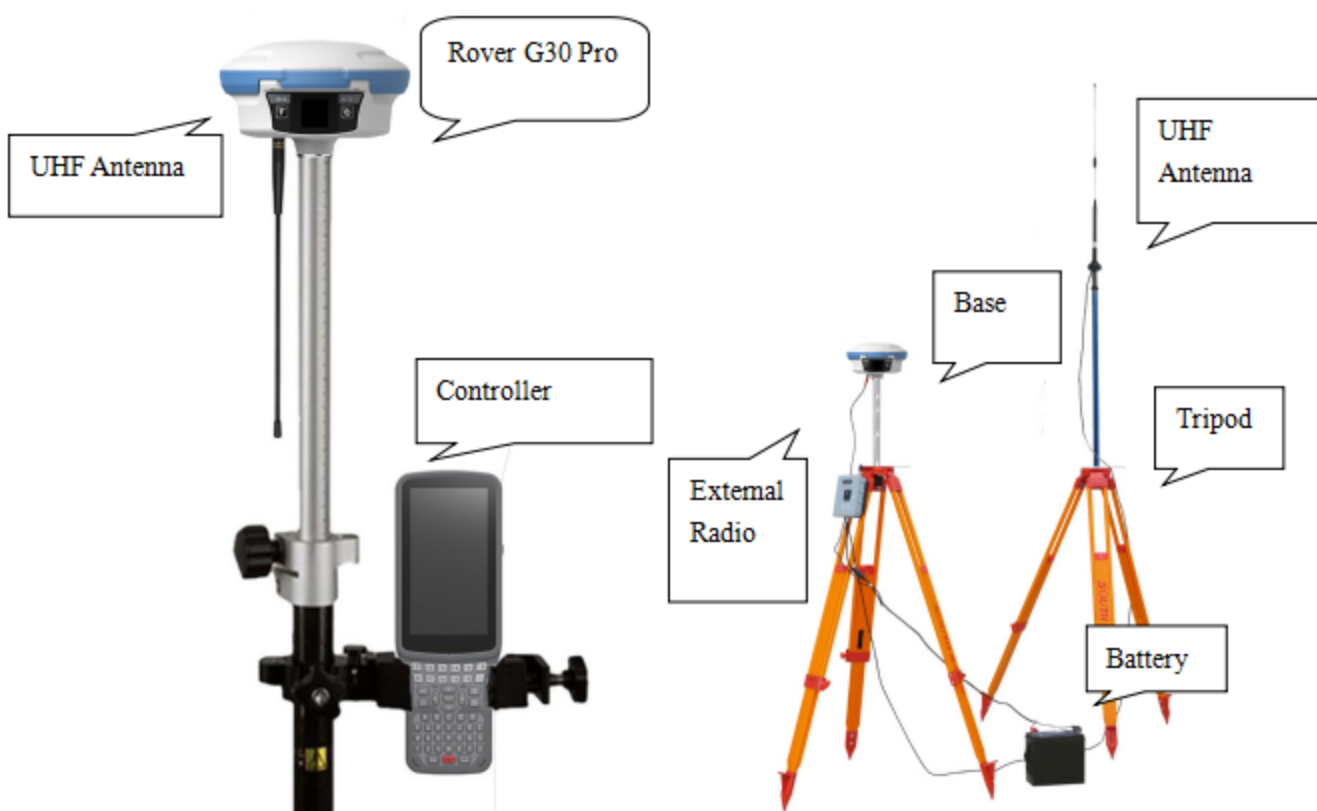
Built-in 10000mAh high-performance lithium battery, more than 16 hours of super long battery life, one charge, meet the whole day of operation. Supporting the power supply scheme of charging bank, power supply anytime and anywhere, to meet the needs of higher intensity operations.

Chapter II: Product Introduction

By reading this chapter, you can master the composition, installation, and functions of the G30 Pro measurement system in detail.

§2.1 Introduction

G30 Pro measurement system is mainly composed of host, controller and accessories, as shown in the figure:



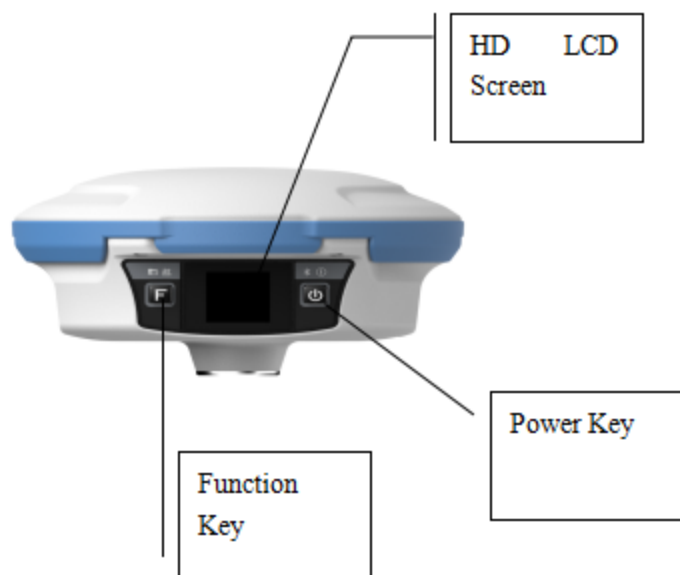
Schematic diagram of G30 Pro measurement system

§2.2 Introduction of G30 Pro

§2.2.1 Structure and Interface

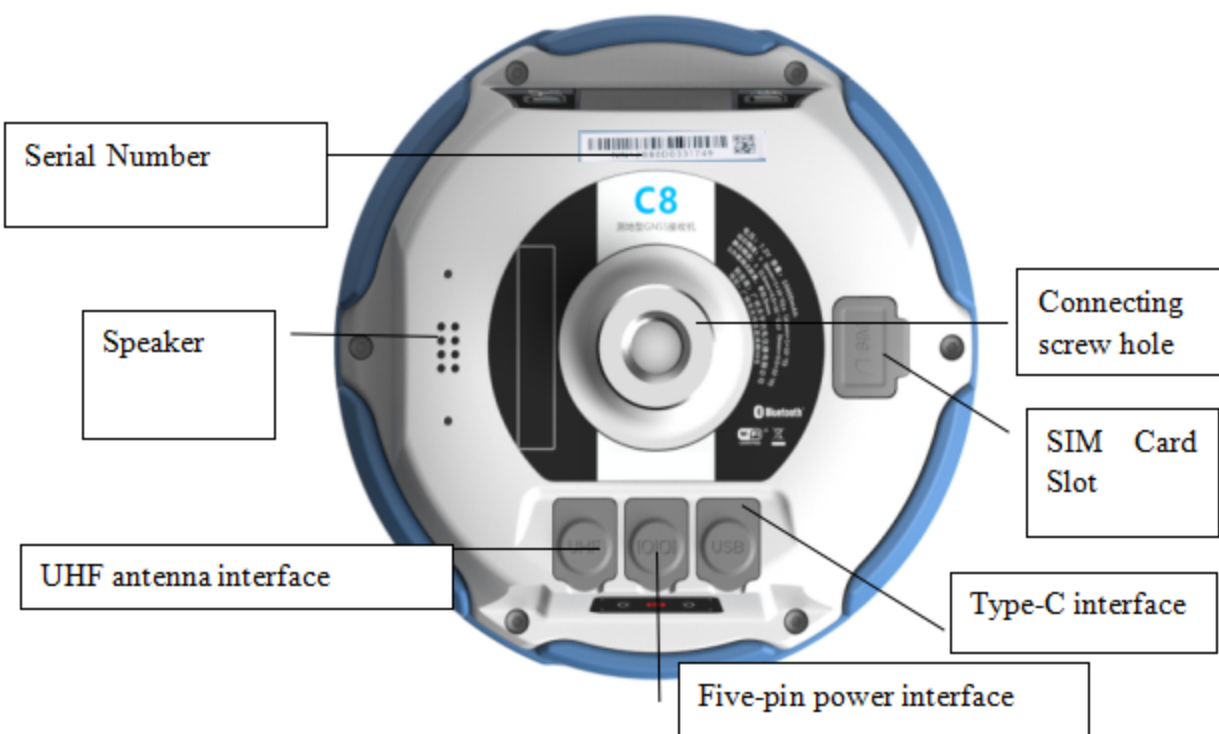
The G30 Pro is flat cylindrical, with a diameter of 166mm and a height of 95.5mm. The body made of magnesium aluminum alloy is dustproof and non-slip, with small volume density and one-third lighter than aluminum. Use double solid button design, combined with HD LCD display, host function setting, information browsing completely. Switch function, mode switch function, data link switch function, USB mode switch function, information view and other functions. Detailed introduction is as follows:

Front





Side











Structure and Interface	APPLICATION
Five-pin power interface	As a power interface, it can be connected to power bank and other power supply equipment. As a serial port output interface, you can view the output data and debug G30 Pro through the serial port software
UHF antenna interface	Connecting build-in radio antenna
Type-C interface	Charging and data transmission
Connecting screw hole	Used to fix the G30 Pro on the base or pole
Serial number	To identify each device and register code
Sticker and NFC	To show basic information about G30 Pro, or connect to Bluetooth by pressing the controller close here
SIM card slot	Install an external SIM card to provide the network

§2.2.2 Buttons and Indicators

The indicators are located on both sides of the LCD. From right to left, they are the power indicator, Bluetooth indicator, data transmitting/receiving indicator, and data storage indicator. Buttons are located on the left and right sides of the LCD screen,  for function key \ switch key,  for confirm key \ power key. The specific information is shown in the following table.



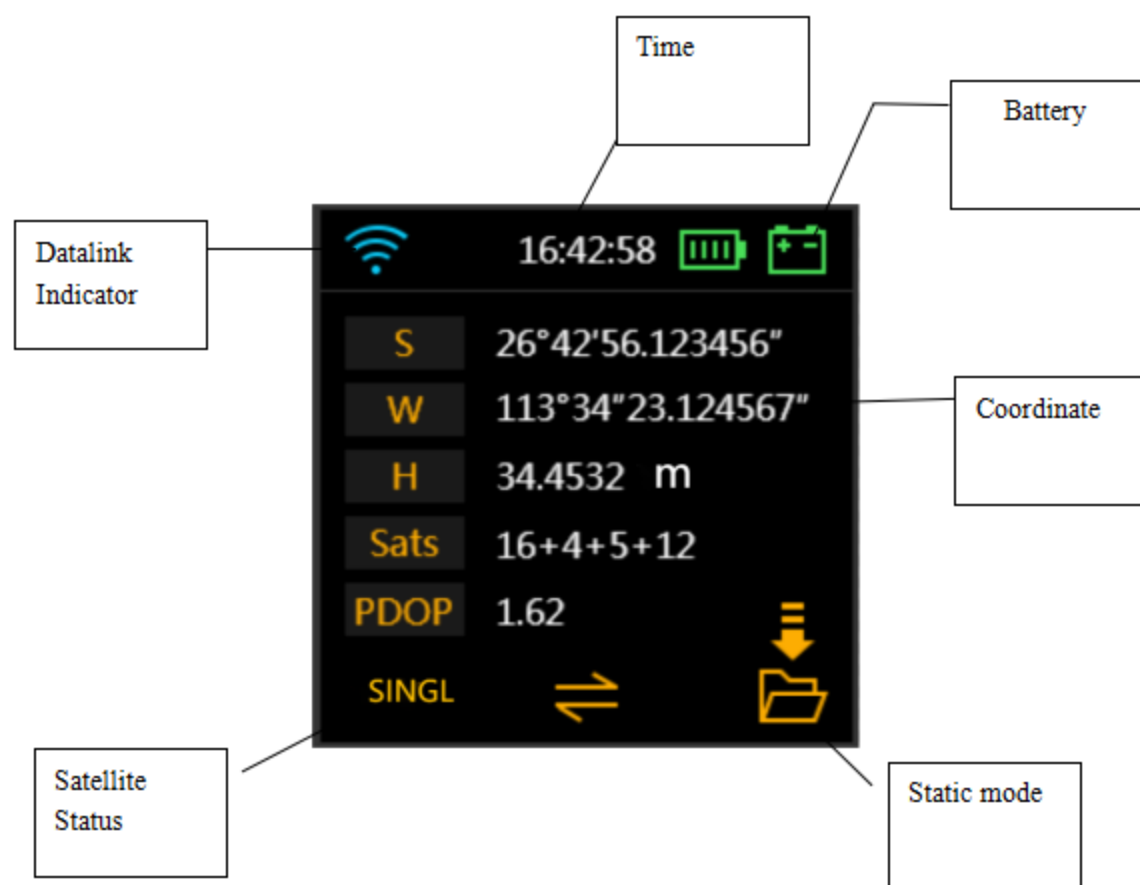
Buttons and indicators	Function	Condition
	Switch on/off, confirm, modify	Power on, power off, confirm the modification item, and select the modification content
	Select	Select modified item
	Static data receiving lamp(Red)	When recording data, blink at the set collection interval
	Data indicator	Blink by receiving interval or transmitting interval
	Bluetooth indicator	Always on when Bluetooth is connected
	Power light(RED,BLUE,GREEN)	Normal Status: Red light On; Battery low: Red light flashing; Charging(Power on): Pink light on; Fully Charged(Power on): Orange light on; Power off: Blue light on when charging; Green on light when fully charged;

§2.3 Function of Button and LCD screen setting

§ 2.3.1 Main interface

Turn on the G30 Pro power supply and enter the main interface of the program. The main interface is divided into coordinate display and satellite image display and automatically switches the interface every 10 seconds.

(1) Coordinate display interface



Data link indicator:

Shows internal radio mode, mobile network, dual transmitter, external module, wireless network, mobile network and no data link status. represents a built-in radio channel,

represents mobile network mode, represents dual network mode, represents

external mode, represents mobile phone network mode, represents WIFI

mode, represents no data link available.

Difference scheme/solution state indication:

The difference scheme indicating the emission from the reference station, such as RTCM3.2; Indicates the solution state of the mobile station when moving station mode, such as fixed solution.

Coordinate display area:




Base station mode display base station starting coordinates display the longitude and latitude coordinates output by the host, the number of satellites involved in the calculation, PDOP value information.

(2) Satellite display interface





The main difference between the satellite display interface and the coordinate display interface is that the coordinate display area is changed into the satellite display area, which displays the satellite star map and the number of locked satellites

(3) Host setting interface

Press the function key  to enter the host setting screen, where you can set the working mode, data link, system configuration, and host control. Press the function key  to move the selection box to the right, and press the power key  to determine the selected mode. The detailed configurations are described in the following sections.

§2.3.2 Setting work mode

Press the function key  to select the setting working mode icon and press the on/off button  to confirm, as shown below:



Work mode




Set Datalink



System option



Receiver Operation

Click the "on/off" button  to enter the setting mode and enter the mode selection interface,



Static mode



Base mode




Rover mode




Main menu

Press the function key to select static mode, base station mode, mobile station mode, and press on/off button to confirm.

(1) Static mode setting

Press the function key  on the main interface to select and set the working mode, and press

the on/off key  to enter the static mode, as shown in the picture below:

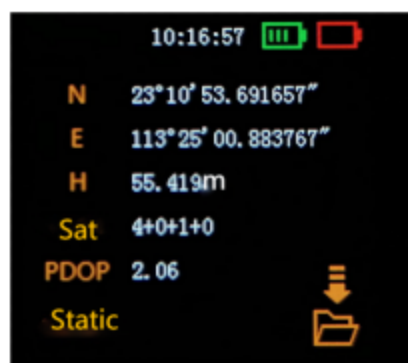


Work mode





Static mode

Press the "on/off" button  to set the static mode.



Note: Several G30 Pro hosts working at the same time should ensure the same height cutoff Angle and acquisition interval with same setting value.

(2) Base mode setting


Enter the main interface, press the function key  to select and set the working mode, and press the on/off key  to enter the base station mode, as shown below:





Work mode



Base mode

Press "on/off"  to complete the setting of base station mode, and the setting of base station is successfully started.

(3) Rover mode setting


Enter the main interface, press the function key  to select and set the working mode, and press the on/off key  to enter the Rover mode, as shown below:



Work mode




Rover mode

Press the "on/off" button  to complete the setting of rover mode, and the setting of rover mode is successfully started.

Setting up Rover mainly includes communication protocol and radio channel setup.

(4) Return to the main menu Settings

In setting the working mode, select return to the main menu and press the "on/off"  button to return to the main interface.





Work mode





Main menu

§ 2.3.3 Datalink setting

Datalink has the following options: built-in radio, mobile network, Bluetooth data link, WIFI data link, external module, off the data link, return to the main menu. Press the function key  to move the selection box right and press the power key  to determine the selected mode.


Steps to enter datalink in base/rover mode:

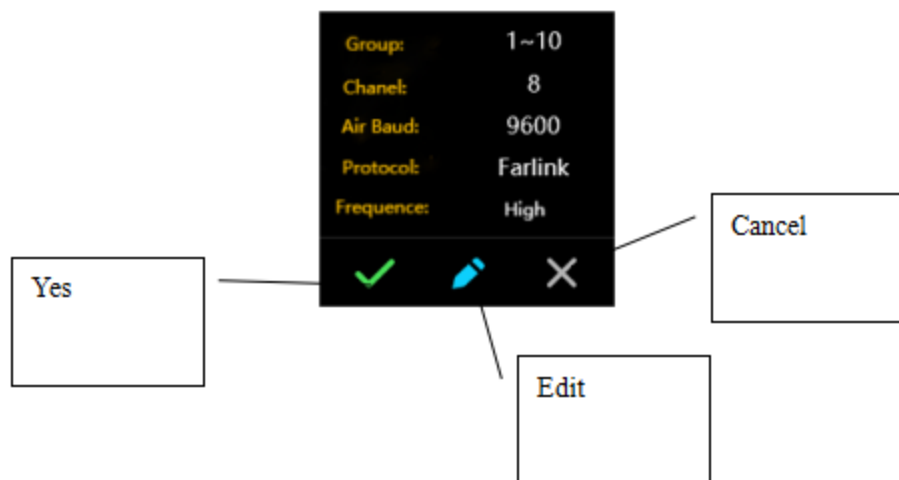
After setting the working mode, select OK and return to the main interface. Press the function key  to move right to the selection box and press the power key  to confirm the selected mode to enter the interface of setting data link, as shown below:



Select "yes" enter the base or rover mode setting interface as shown below:

**(1) Internal radio settings:**

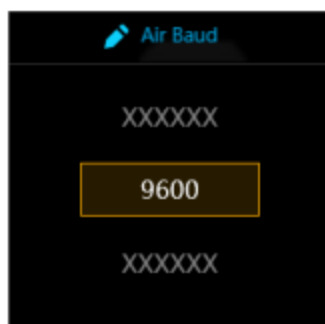
When setting datalink, press the power button  to select the internal radio mode. In the internal radio, you can choose to set channel group, radio channel, air rate, communication protocol, radio power and other functions, as shown below:



Take setting air speed as an example, press the function key to select, press the power key to confirm and enter the editing state, press the function key to select air speed, press the on key to confirm and enter the editing state, as shown below:



Edit the air rate, press the function key to select the Air Baud, press the on/off key to confirm and return to the upper menu, as shown in the picture:



Air Baud: The efficiency with which a station transmits data. The higher the rate, the greater the number of transmissions per second. Generally use the default setting, if there is any change, base station and rover need to be changed to the same.

Communication protocol: The protocol standard used by radio stations to transmit data. Generally, the default SOUTH transmission protocol is used. If there is any change, the mobile station and the base station should be changed to the same.

Radio power (base only) : Sets the transmitting power of the station's internal radio.

(2) Cellular Network

Through the SIM card connected to the cellular mobile network, differential data transmission



(3) Bluetooth(Rover only)

Connect with mobile phone through Bluetooth, and transfer differential data through mobile phone Internet, which is mobile phone differential mode.



(4) WIFI Datalink

Differential data transmission is carried out by connecting WIFI to the Internet.



(5) External Radio

Select this option when you use an external radio



(6) Close datalink

Disable all differential transmission links.





(7) Main Menu

Back to main menu





In shutdown state, long press the power button, when G30 Pro tick and all the lights on, release the button and G30 Pro will power on.

§ 2.3.4 System settings

Press  to select system configuration, and then press  to enter system configuration information.

The system configuration options are as follows: Configure wireless network, normal mode, other Settings, online function Settings, and return to the main menu. Press the function key

 to move the selection box to the right, and press the power key  to enter the selected options.



WIFI Config



Normal/Saving



Other option



Online option



Main Menu

§ 2.3.5 Host control

On the host control screen, shut down the host, restart the host, restore the default settings, perform system self-check, return to the main menu, and select the corresponding mode.



Power Off



Reset

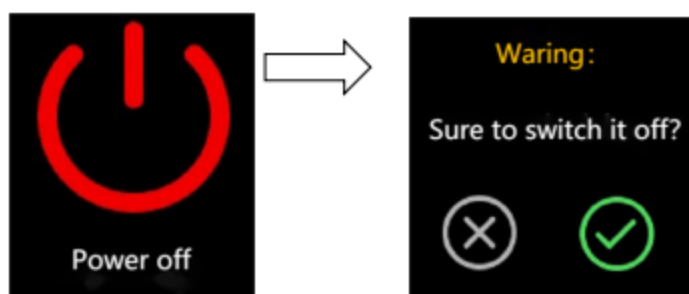


Set Default

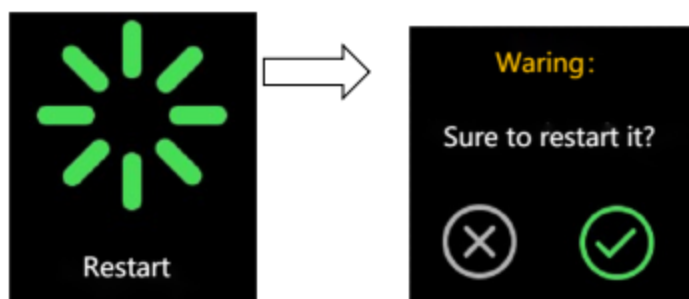


Self-check

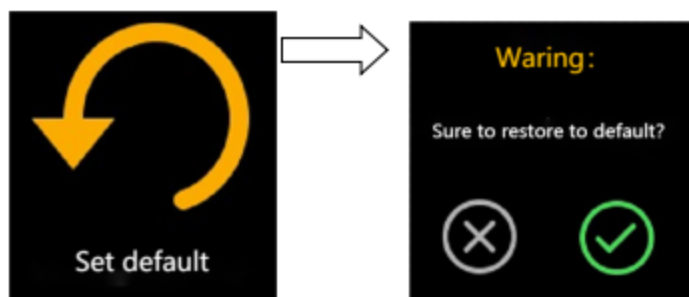
(1) Power Off



(2) Reset



(3) Set default



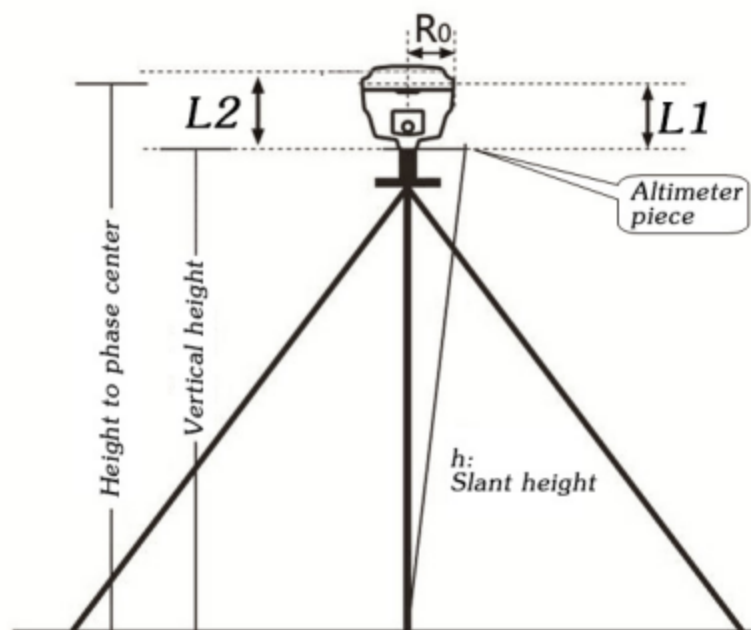
(5) Self-check



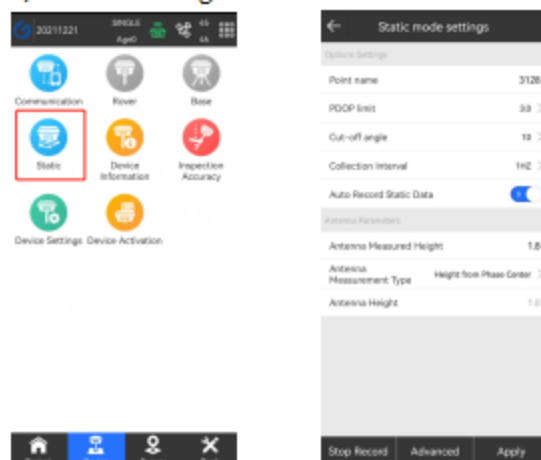
Chapter III: Mode Setting

§3.1 Static Mode

- 1) Set up a tripod at the control point, connect the tribrach, strictly center and level the measuring point.



- 2) Measure instrument height for three times, and the difference between the three times shall not exceed 3 mm and take the average value.
- 3) Record SN, point name, instrument height and start time.

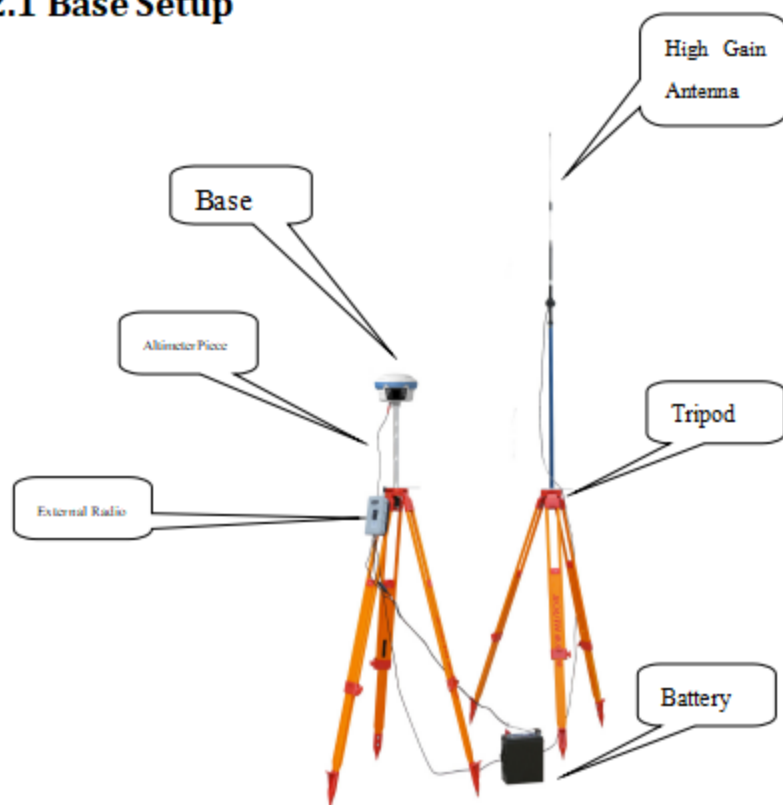


- 4) Switch on the G30 Pro and connect with controller software, set the receiver to static mode, and set the parameters as the picture shows. (The memory capacity of G30 Pro must be

- sufficient. Generally, 8 MB storage capacity is required in an hour.)
- 5) G30 Pro starts to search for satellite and the satellite lights start flashing. When the recording condition is reached, the status light will flash at the set sampling interval, and the flash indicates that an epoch is collected.
 - 6) After the surveying finished, shut down G30 Pro, and then transport the data and process data.

§3.2 RTK Mode (External Radio)

§3.2.1 Base Setup



Base station must be set up in the open field, the surrounding environment should be open, the terrain should be higher. Do not set it up near high-voltage power transmission, transformation equipment, near radio communication equipment antenna, or under trees and near water.

Setting steps:

- 1) Set up the tripod as shown in the figure above, hang up the radio, fix the G30 Pro, and connect the extension rod and the large radio transmitting antenna.
- 2) Connect G30 Pro by 5-pin data transmission cable with external radio. Connect the battery with Radio by Y-type power cable.



(G30 Pro)



(External Radio)

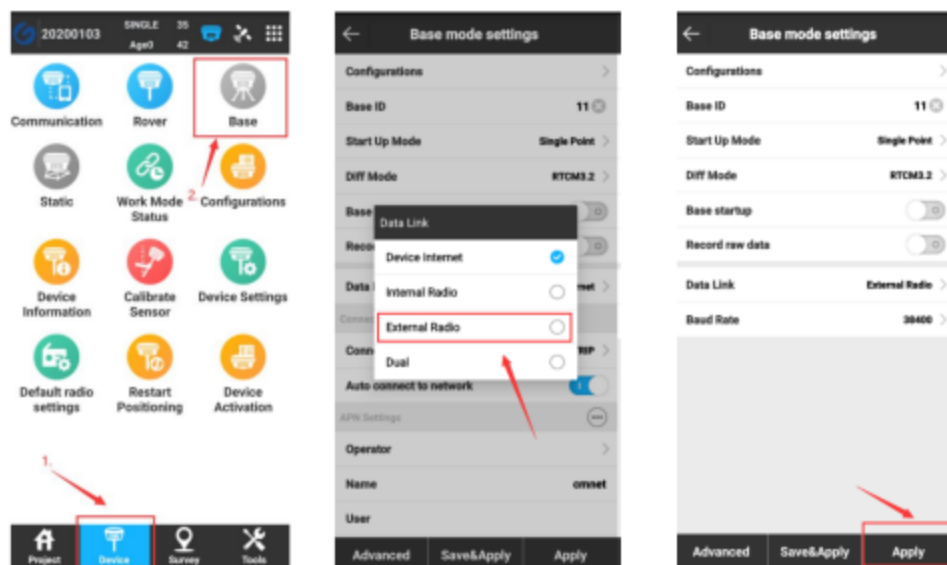


(Battery)

§3.2.2 Starting Base

Used TRU35 external radio as an example to show the process, and if has another radio, please consult the technician.

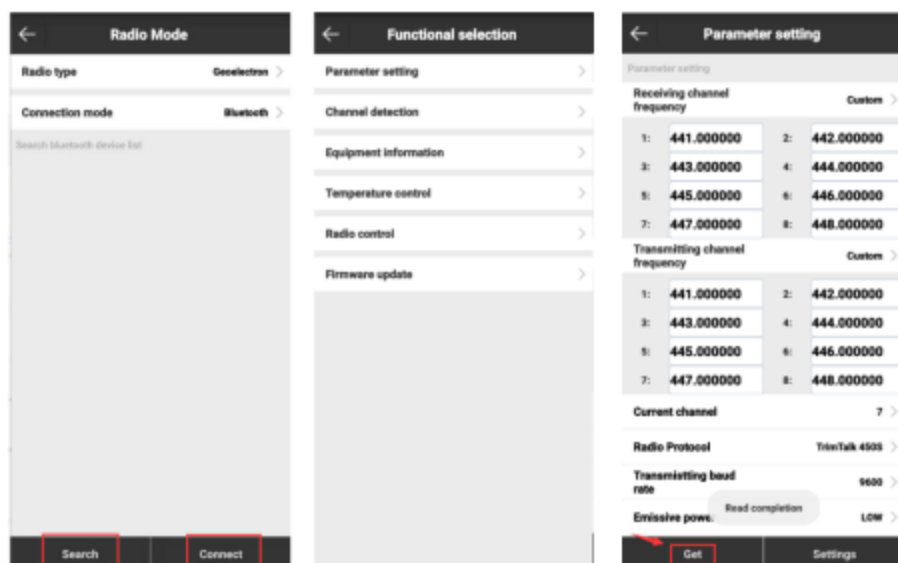
- 1) Open SurPad in the controller, Click “Device”→ “Base” to set Base station.



- 2) Under “Base Mode Settings”, Choose “Data link” to be “External Radio” and apply.
- 3) Disconnect G30 Pro receiver and Open “External Radio Configuration” under “Tools” in SurPad.



- 4) In “External Radio configuration”, choose “Radio type” to be “Geoelectron” and “Connection mode” to be “Bluetooth”, then search TRU35 radio and connect it.(Pairing code is “1234”).

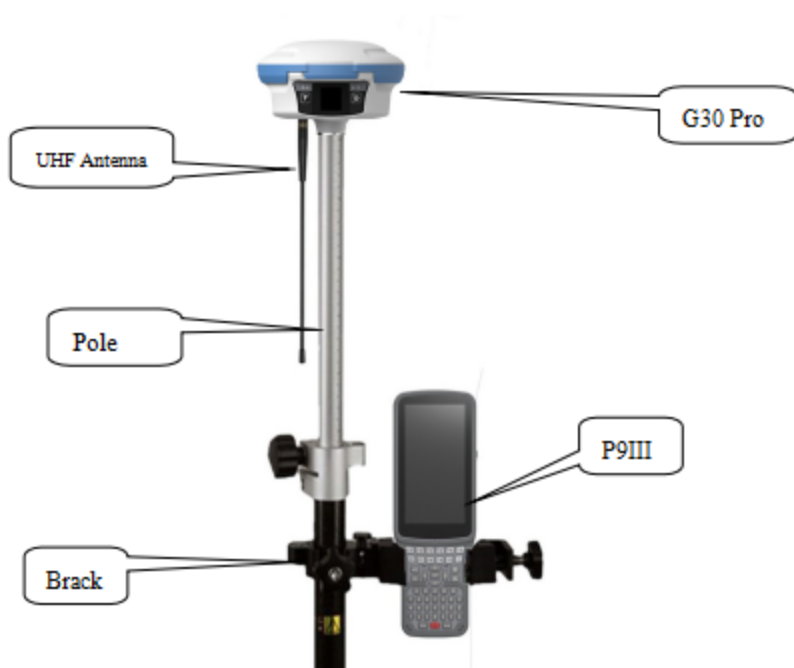


- 5) After connected, you will come to “Functional selection” interface, click “Parameter settings”, click “Get” to receive TRU35 parameters and there to change the “Receiving channel frequency”, “Transmitting channel frequency” and other settings, then press “Settings” to finish settings.

§3.2.3 Rover Setup

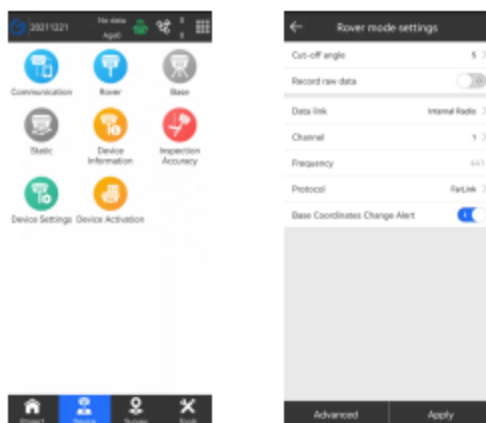
After successful set up of the base station, now we can start the rover setting.

Install the G30 Pro on the centering lever, install the radio antenna, bracket, clamp the controller.



The steps are as follows:

- 1) Turn on the G30 Pro and controller, open SurPad software and connect Bluetooth.
- 2) Clip "Device" - "Rover", choose "Data link" as "Internal Radio", and choose the same channel and protocol as Base. Clip "Apply" to start rover.



- 3) When it shows "Fixed", it is correctly setting, now you can start the surveying work.

§ 3.3 RTK Mode (Internal Radio)

§3.3.1 Base setup

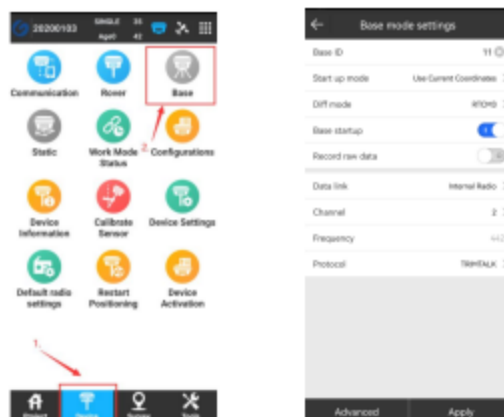
Base station must be set up in the open field, the surrounding environment should be open, the terrain should be higher. Do not set it up near high-voltage power transmission, transformation equipment, near radio communication equipment antenna, or under trees and near water.



Set up the tripod as shown in the figure above, fix the G30 Pro, and connect the radio antenna.

§3.3.2 Starting Base

- 1) Open SurPad in the controller, Click “Device”→ “Base” to set Base station.



- 2) Under “Base Mode Settings”, Choose “Data link” to be “Internal Radio”, set the channel, frequency and protocol, then apply to finish setting.

§3.3.3 Rover Setup

This step is the same as §3.2.3 Rover Set up, please check this section.

§3.4 RTK Mode (Network mode)

§3.4.1 Base Setup

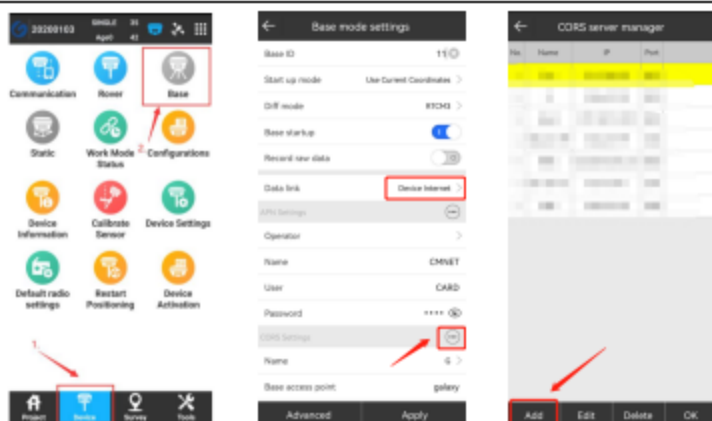
Base station must be set up in the open field, the surrounding environment should be open, the terrain should be higher. Do not set it up near high-voltage power transmission, transformation equipment, near radio communication equipment antenna, or under trees and near water.



Set up the tripod as shown in the figure above, fix the G30 Pro, and connect the radio antenna.

§3.4.2 Starting Base

- 1) After setting, please make sure there is a workable Sim card inside G30 Pro base. Then open SurPad in the controller, Click “Device”→ “Base” to set Base station.



- 2) Under “Base Mode Settings”, Choose “Data link” to be “Device Internet”, then go to set Cors parameter. (When use “Device Internet”, please input the correct the APN setting as your mobile network service provider ask for)
- 3) Clip “Add” in the Cors setting page, then import your Cors “IP” and “Port”, then choose the Cors information you set, clip “OK”.
- 4) Input the name you want in “Bae access point”, and you can also input “password”, then apply. (Remember what you have input, it will be useful when you set up rover).



§3.4.3 Rover Setup

After successful set up of the base station, now we can start the rover setting.

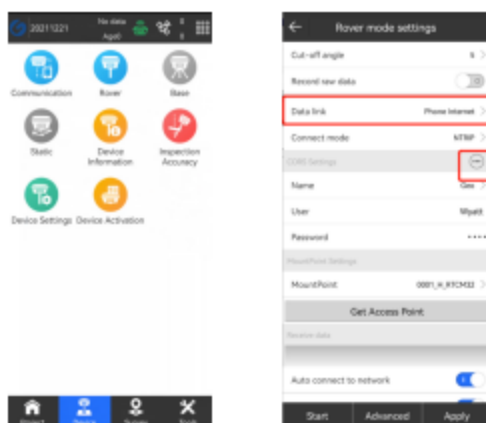
Install the G30 Pro on the centering lever, install the radio antenna, bracket, clamp the controller.

The steps are as follows:

- 1) Turn on the G30 Pro and controller, open SurPad software and connect Bluetooth.
- 2) Clip “Device” - “Rover”, choose “Data link” as “Phone/Device Internet”(When use “Device Internet”, please input the correct the APN setting as your mobile network service provider

ask for).

- 3) Click “Cors Setting” and choose the same item as what your base used.
- 4) “Get Access Point” and choose the access point as your base setting. Click “Apply” to start rover.

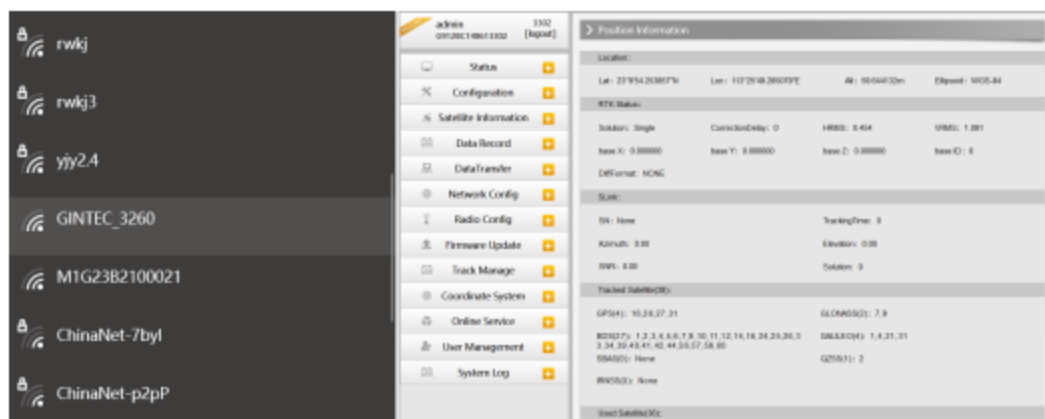


- 4) When it shows “Fixed”, it is correctly setting, now you can start the surveying work.

Chapter IV: WEB UI

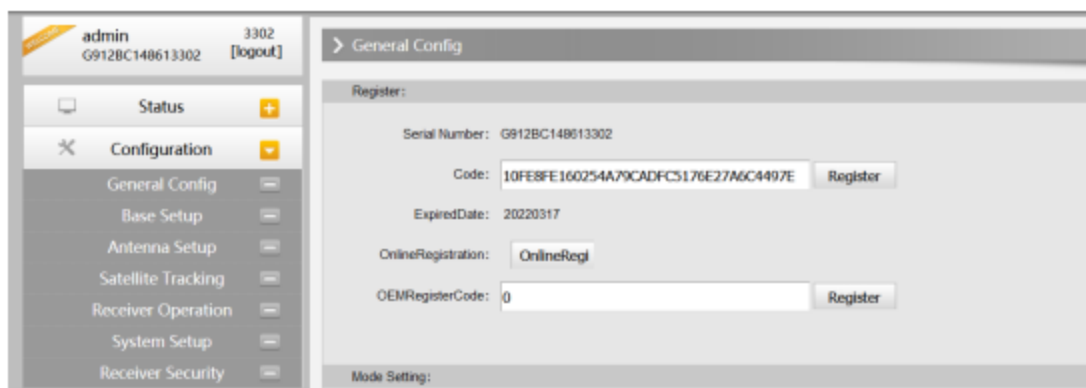
§4.1 WebUI Login

Start the G30 Pro properly, use a mobile terminal such as a laptop or mobile phone, open wifi, and find the G30 Pro's hotspot. The hotspot name format is "GINTEC_XXXX"(GINTEC_3260). After connecting successfully, enter 192.168.10.1 in the browser and go to the WebUI background page.



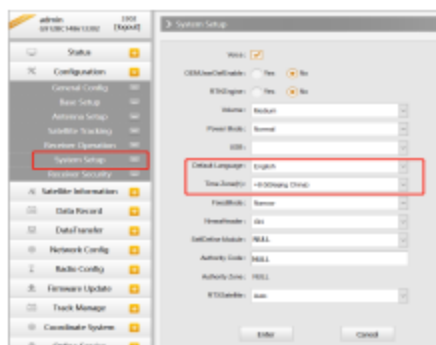
§4.2 Common Function from WEB UI

§4.2.1 Code Registering



Click "Configuration-General Config", you can paste the register code here to activate the G30 Pro. Function codes such as PPP activation codes are also registered here.

§4.2.2 Language/Time Zone Setting



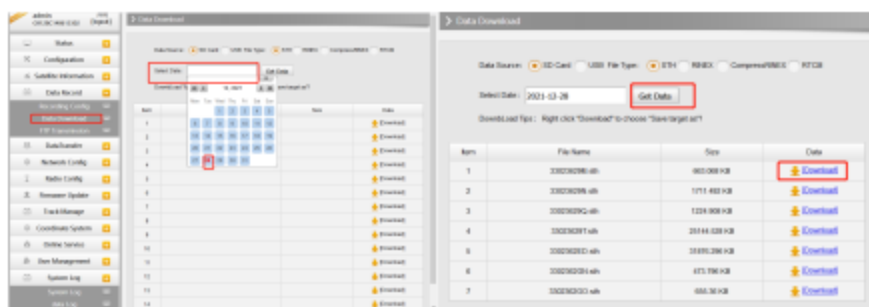
Clip “Configuration-System Setup”, where you can modify language and time zone. You can also modify other parameters here.

No	Category	Description
1	Status	Host Status Provides the system information, operating status, and location information about the host
2	Configuration	Host configuration For host registration, base station coordinate Settings, antenna Settings, satellite tracking Settings, host control and default language
3	Satellite Information	Satellite information Indicates the current satellite tracking information and satellite enabling Settings
4	Data Record	Data recording Static data collection interval, sampling interval, and format setting and download
5	Data Transfer	Data transmission Set the communication between the original data and differential data of the host and PC
6	Network Config	Network Settings Set network parameters and WiFi parameters of the host
7	Radio Config	Radio Settings Set radio parameters of the host
8	Firmware Update	Firmware Upgrade Upgrade the host firmware
9	Track Manage	Parameter Setting and Data Download
10	Coordinate System	Enter Coordinate Projection and Seven Parameter
11	Online Service	Remote assistance
12	User Management	Add and manage Web Server users
13	System Log	Record of operating system events

§4.2.3 Data Download

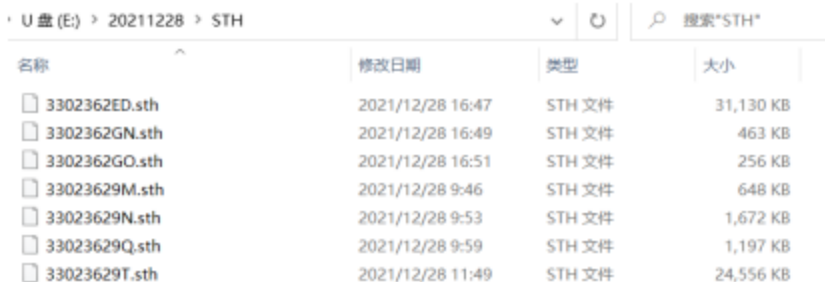
Methods I: WebUI

Click “Data-Download”, choose the right data format and date to get the data list. Download the data you want from the list below.



Methods II: USB cable

Connect G30 Pro with your PC by USB to Type-C cable, your computer will automatically read a G30 Pro storage folder. Open it and choose the “Date – Format” to the folder you want and download the file you need.

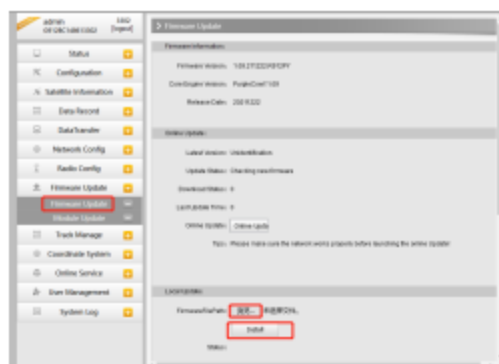


§4.2.4 Device Firmware Update

Ask the newest firmware from the technician where you buy G30 Pro from, follow the next steps to update the firmware. There are 2 kinds of methods, you can choose as you wish.

Methods I: WebUI

Click “Firmware Update-Firmware Update”, better to use “Local Update” function. Choose the firmware file you got and upload. G30 Pro will automatically restart after the firmware is installed successfully.



Methods II: USB cable

Connect G30 Pro with your PC by USB to Type-C cable, your computer will automatically read a G30 Pro storage folder. Copy the firmware to this folder and restart the G30 Pro to automatically upgrade the firmware.

名称	修改日期	类型	大小
Config.ini	2021/12/16 14:36	配置设置	1 KB
log	2021/12/16 13:47	文件夹	
backup	2021/12/16 15:52	文件夹	
20211228	2021/12/28 9:44	文件夹	
1.09.211222.RG60PY.img	2021/12/27 15:45	光盘映像文件	9,942 KB

§4.2.5 Network settings

The "Network Settings" mainly includes GSM/GRPS Settings, CSD Settings, WIFI Settings, Bluetooth Settings, port mapping, routing table, and network testing. Network Settings allows you to set the Internet access mode and content for a host.

(1)GSM/GRPS Config: used to view the network dial-up status and dial-up parameter Settings in mobile network mode (mobile card Internet access). As shown below: