



G40PRO AR GNSS Receiver User Manual

Guangzhou GEOSURV Information Technology Co.,Ltd.

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Menu

Chapter I: Overview	- 1 -
§1.1 Introduction	- 1 -
§1.2 Highlights of G40PRO	- 1 -
Chapter II: Product Introduction	- 3 -
§2.1 Appearance	- 3 -
§2.2 Introduction of G40PRO	- 4 -
§2.2.1 Structure and Interface	- 4 -
§2.2.2 Buttons and Indicators	- 5 -
§2.2.3 Function of Button	- 6 -
§2.3 P3 Controller	- 7 -
§2.3.1 Appearance	- 7 -
§2.3.2 Keyboard	- 8 -
§2.3.3 Bluetooth Connection	- 9 -
§2.4 Introduction of Accessories	- 10 -
§2.4.1 Packing List of G40PRO+P3	- 10 -
§2.4.2 Charger	- 11 -
§2.4.3 UHF Radio Antenna	- 11 -
§2.4.4 TYPE - C Cable	- 11 -
Chapter III: Mode Setting	- 12 -
§ 3.1 RTK Mode (Internal Radio)	- 12 -
§3.1.1 Base setup	- 12 -
§3.1.2 Starting Base	- 13 -
§3.1.3 Rover Setup	- 13 -
§3.2 RTK Mode (Network Mode)	- 14 -
§3.2.1 Base Setup	- 14 -
§3.2.2 Starting Base	- 14 -
§3.2.3 Rover Setup	- 15 -
§3.3 AR Stakeout	- 16 -
Chapter IV: WEB UI	- 19 -
§4.1 WEB UI Login	- 19 -
§4.2 Common Function from WEB UI	- 19 -
§4.2.1 Code Registering	- 19 -
§4.2.2 Time Zone Setting	- 20 -
§4.2.3 Data Download	- 20 -
§4.2.4 Device Firmware Update	- 21 -
Appendix A: G40PRO Technical Specifications	- 23 -

Chapter I: Overview

In this chapter, you will learn about GINTEC Team and G40PRO AR 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 takes G40PRO measurement system as an example, for how to install, set up, upgrade, daily maintenance, the use of accessories and explain how to use RTK system operation. Even if you have used other models of RTK products of our company, it is recommended that you read this instruction carefully before using the instrument for better use.

§1.2 Highlights of G40PRO

1. Efficient CAD AR Stakeout

G40PRO significantly enhances stakeout efficiency in construction projects by 40% through integrating CAD base maps with augmented reality (AR) visualization. This combination of GNSS, IMU, and AR technologies offers a comprehensive and intuitive view of site layouts, which facilitates efficient path planning and minimizes unnecessary detours.

2. Small size, large capacity

Smaller and lighter, perfect for your fieldwork as a ROVER.

With a high capacity of 9800mAh, it meets all your operational power needs, eliminating any battery anxiety.

3. HD Stellar Camera

Adaptive Exposure Adjustment under Different Lighting Conditions + IR Filter, it is more suitable for dark vision usage, effectively filtering infrared light and significantly improving nighttime shooting results.

4. Valid Real-time Data Collection

Continuously collecting and transmitting laser data at up to 20Hz, coupled with supporting of CY software, G40PRO implements real-time measurement, greatly shorten the acquisition time.

5. Up to 120° Tilt Within 2.5cm Accuracy

The use of fourth-generation measurement technology ensures the G40PRO can still get fixed for tilt measurement work at even 120° measurement angles.

6. G-FIX Correction outage Technology

Extending Fix solution up to 10 minutes

Reducing downtime waiting to re-establish RTK corrections

7. GALILEO HAS/BDS PPP Service Supported

HAS provides free high-precision PPP correction services on the Galileo E6-B signal to improve real-time user positioning performance

BDS PPP Provides free BDS high precision PPP correction services with its coverage area.

Chapter II: Product Introduction

By reading this chapter, you can master the composition, installation, and functions of the G40PRO measurement system in detail.

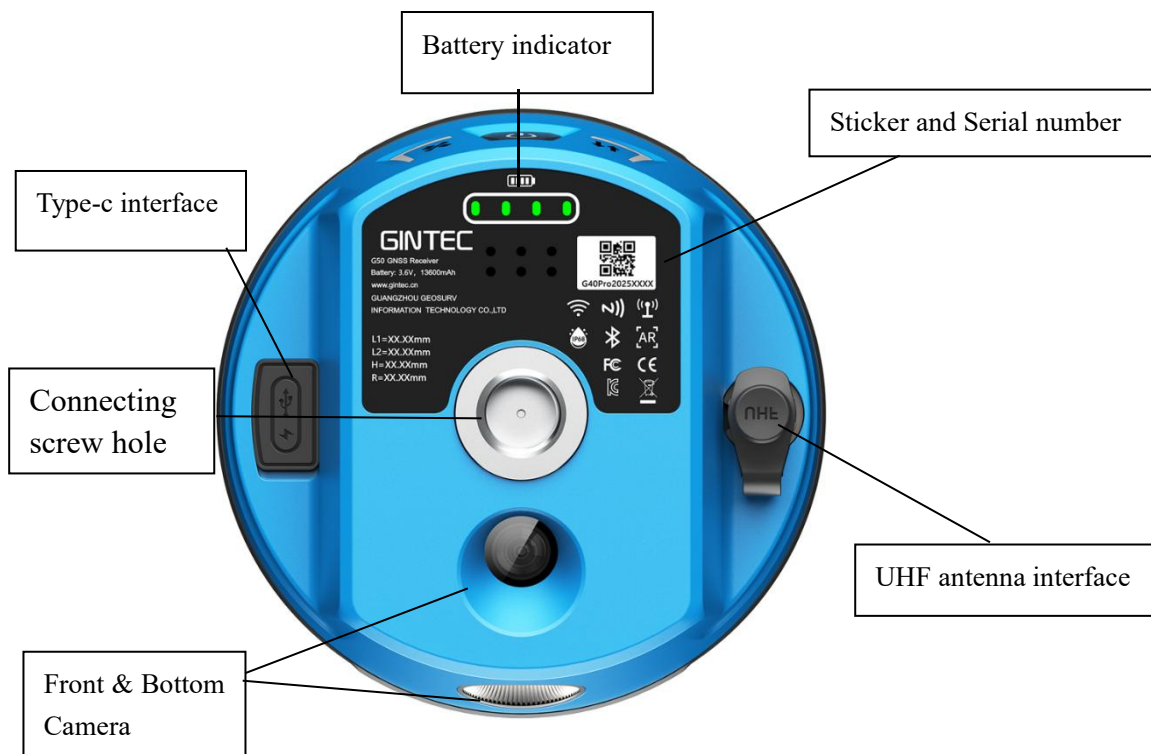
G40PRO measurement system is mainly composed of device, manual and accessories, as shown in the figure:

§2.1 Appearance



§2.2 Introduction of G40PRO

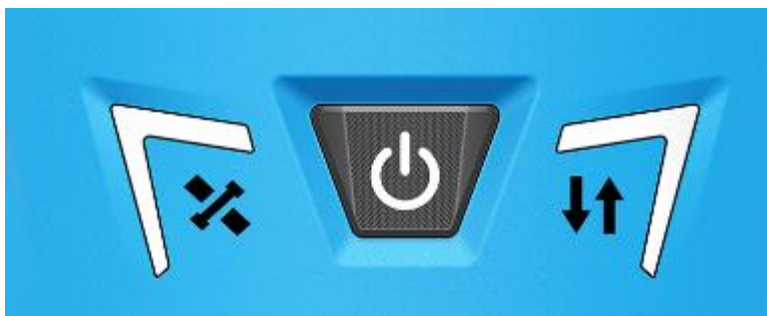
§2.2.1 Structure and Interface



Structure and Interface	Application
Type-C interface	Charging and data transmission
UHF Antenna interface	Built-in radio: supports low power and high power options
Connecting screw hole	Used to fix the G40PRO on the base or pole
Serial number	To identify each device and register code
Sticker	To show some information about G40PRO
Camera	Support AR stakeout/Assist laser spotting
Battery indicator	Display the percentage of battery brightness. Each bar represents one quarter of the battery capacity.

§2.2.2 Buttons and Indicators

G40PRO has three indicators and one button.



Buttons and indicators	Function	Condition
	Switch on/off, confirm	Power on, power off, Broadcast the current work status
	Satellite indicator	Red light flashing indicates no satellite signal Green light flashing indicates receipt of satellite signal but not fixed Constant green light indicates device is fixed
	Data indicator	A constant blue light indicates that Bluetooth has been connected Blink blue: Data transmission

§2.2.3 Function of Button

I Mode checking

When G40PRO is working normally, click the power button, then a voice will broadcast the current working mode. (mode, communication mode, solution state)

II Power on

In shutdown state, long press the power button, when G40PRO ticks and all the lights on, release the button and G40PRO will power on.

III Power off

In boot on state, long press the power button, when the voice broadcast "press again to power off", click the power button again to power off.

§2.3 P3 Controller

§2.3.1 Appearance



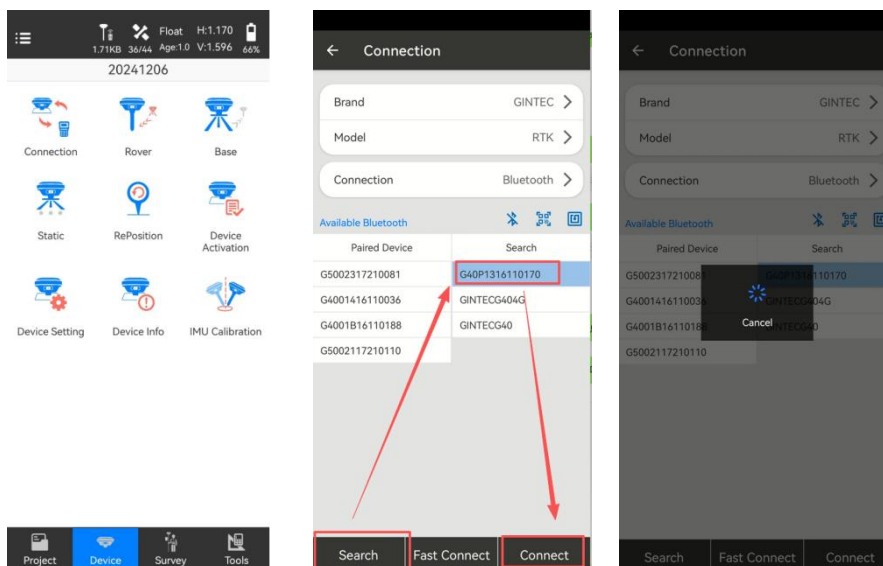
§2.3.2 Keyboard



No.	Section	Specification
1	Numeric keys	Enter numbers
	Special function key	Orange icons take effects when "Fn" is locked The functions of F1-F6 can be customized by users in "Settings"
2	Power button	Turn on/off device/sleep/wake up
3	@key	Enter the character @
4	Input method switching	Input uppercase/lowercase/digital switch
5	Return Key	Back to last interface
6	Fn Key	Tap to lock Fn and activate the function indicated by the yellow icon on the number key
7	Shift Key	Input method select key, call out "Select input method" interface
8	Tab Key	Make tableadvance to the next anchor point or move the input focus to the next control
9	Delete Key	Delete one character before entering other characters
10	Survey Key	Users can customize the function in the "Settings" button
11	Keys for direction	Move the cursor or anchor point
12	Application Key	Users can customize the function in the "Settings button

§2.3.3 Bluetooth Connection

Start the G40PRO first, and then use P3 controller to perform the following operations:



1. Open CreateYours software and click "Connection" to enter the connection interface.
2. Select the manufacturer as "GINTEC", the device Model as "RTK", and the communication mode as "Bluetooth"
3. Select the corresponding SN and click "Connect". The connection succeeds after the progress bar ends.

§2.4 Introduction of Accessories

§2.4.1 Packing List of G40PRO+P3



G40 Pro Packing List

G40 Pro GNSS Receiver (Rover)

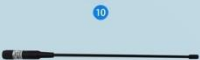












- ① Carrying Case
- ② G40 Pro GNSS Receiver
- ③ Charger and Adapter(AU/UK/EU/KR/US)
- ④ USB to Type-C Data Cable
- ⑤ Type-C to Type-C Charging Cable
- ⑥ 16 GB USB Flash Drive(manuals & tools)

- ⑦ 3 meters Measuring Tape
- ⑧ Connector
- ⑨ Height Measuring Plate
- ⑩ 430-450 MHz Radio Antenna
- ⑪ Carbon Fiber Pole

TEL: 8620-82514956

Website: www.gintec.cn

Email: overseas@gintec.cn

ADD: Room606, Building A02, No. 83, Kaiyuan Avenue, Huangpu District, Guangzhou, Guangdong, China

§2.4.2 Charger

Standard configuration includes charger and charging cable:

While charging, when the power indicator is red, it means charging; when the indicator is green, it means full.

Power adapter and charging cable:



§2.4.3 UHF Radio Antenna



UHF radio antennas are required for the built-in radio Base mode and the built-in radio Rover mode.

§2.4.4 TYPE - C Cable

TYPE - C cable is to connect the G40PRO with computer, used for transmission of static data or receiver firmware upgrading.



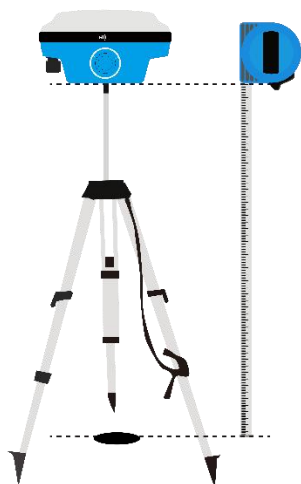
Chapter III: Mode Setting

§ 3.1 RTK Mode (Internal Radio)

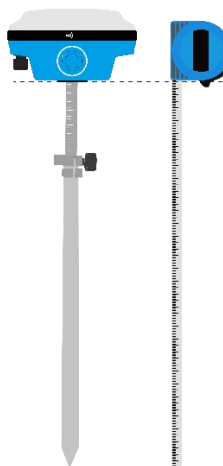
§3.1.1 Base setup

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.

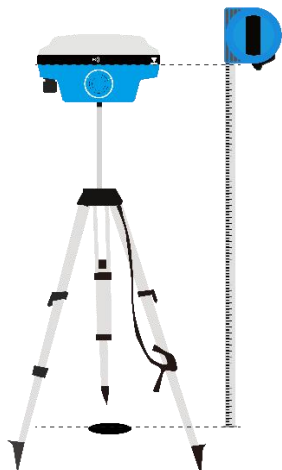
GNSS Bottom Height



Pole Height



Mark Line Height



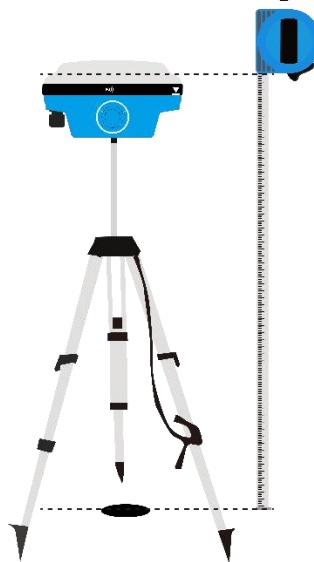
Mark Line Slant Height



Extension Plate Slant Height

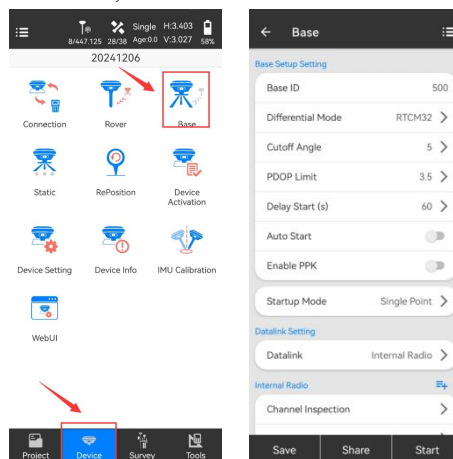


Phase Center Height



§3.1.2 Starting Base

- 1) Open CreateYours 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 start to finish setting.

§3.1.3 Rover Setup

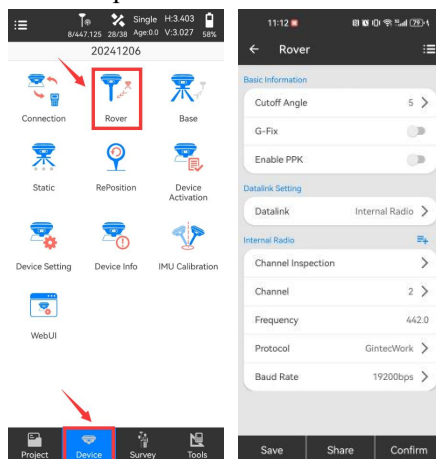
After successful set up of the base station, now we can start the rover setting.

Install the G40PRO on the centering lever, install the radio antenna, bracket, clamp the

controller.

The steps are as follows:

- 1) Turn on the G40PRO and controller, open CreateYours software and connect Bluetooth.
- 2) Click "Device" - "Rover", choose "Data link" as "Internal Radio", and choose the same channel and protocol as Base. Click "Confirm" to start rover.



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

§3.2 RTK Mode (Network Mode)

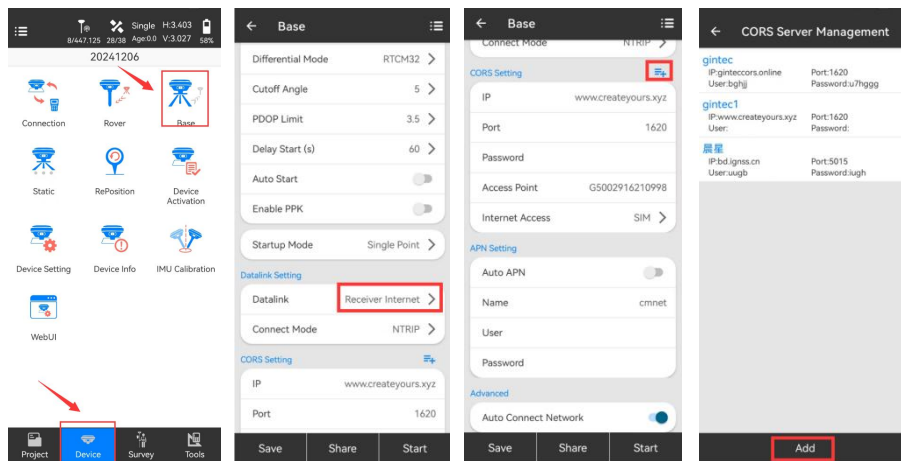
§3.2.1 Base Setup

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.

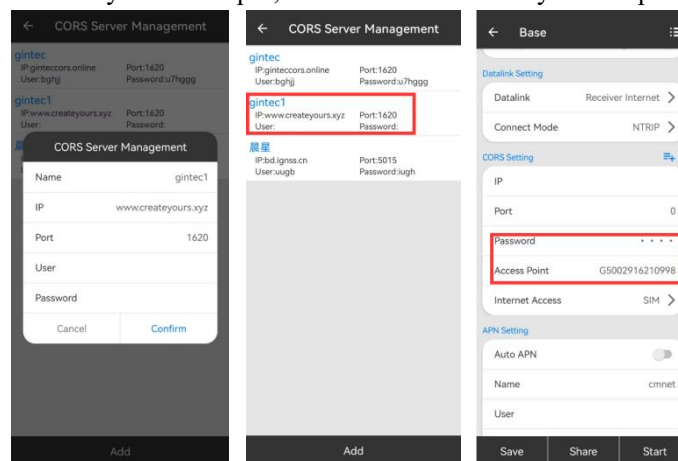
Set up the tripod, fix the G40PRO.

§3.2.2 Starting Base

- 1) After setting up, please make sure there is a workable Sim card inside G40PRO base. Then open CreateYours in the controller, Click "Device"→ "Base" to set Base station.



- 2) Under "Base Setup Settings", Choose "Data link" to be "Receiver Internet", then go to set CORS parameter. (When use "Receiver 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 "Base Access Point", and you can also input "password" , then apply. (Remember what you have input, it will be useful when you set up rover).



§3.2.3 Rover Setup

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

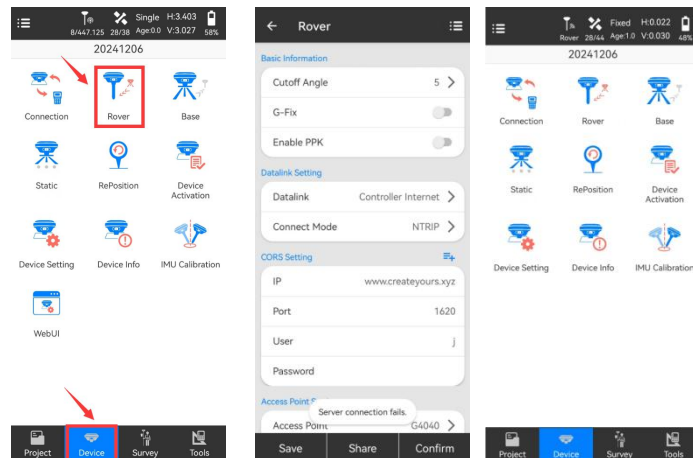
Install the G40PRO on the centering lever, install the bracket, clamp the controller.

The steps are as follows:

- 1) Turn on the G40PRO and controller, open CreateYours software and connect Bluetooth.
- 2) Clip "Device" - "Rover", choose "Data link" as "Controller/Receiver Internet" (When use

"Receiver Internet", please input the correct the APN setting as your mobile network service provider ask for).

- 3) Clip "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. Clip "Confirm" to start rover.



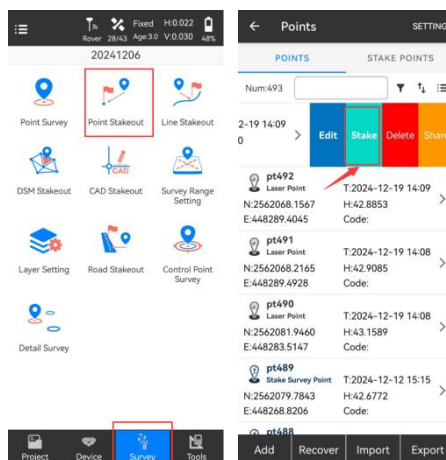
- 4) When it shows "Fixed", it is correctly setting, now you can start the surveying work.

§3.3 AR Stakeout

- 1) Turn on CreateYours software, Click "Device" - "Connections", Connection Mode choose "WI-FI"



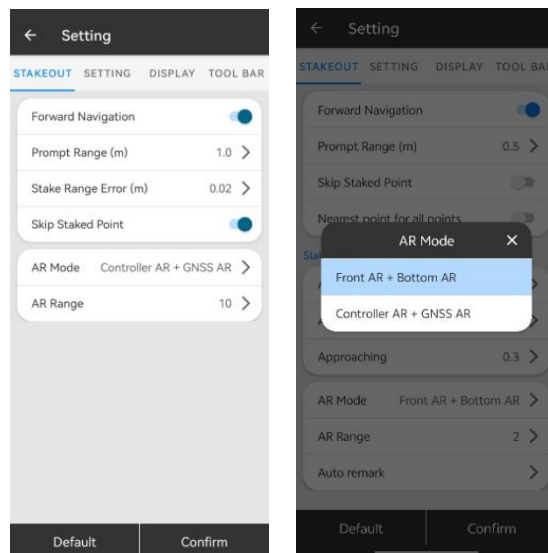
2) Click "Survey" - "Point Stakeout", choose the point what you want to stakeout and click "AR"



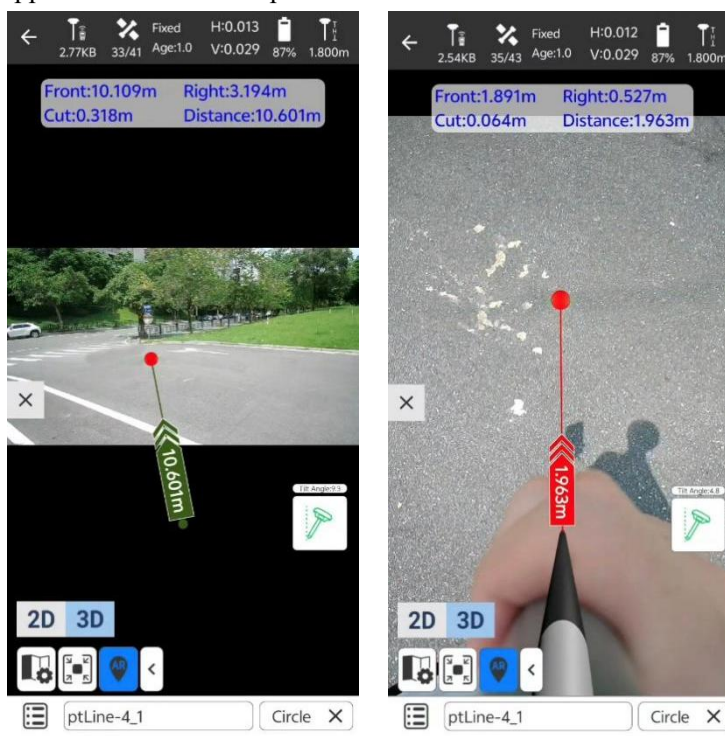
4) Find lofting points by following the arrows and line segments.(This is the front camera AR view.)



The Default stakeout mode is set to G40PRO "Front AR+Bottom AR". The RTK AR prompt Range(m) is the boundary distance between Front AR and bottom RTK AR.(e.g.If set to 5 meters, when the device distance from target point is less than 5m, the AR view will switch front AR to bottom camera)



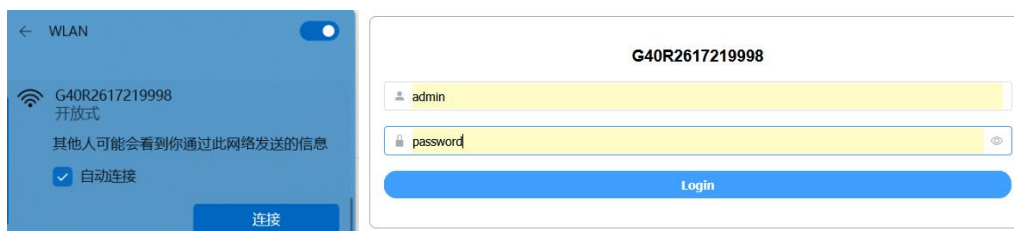
The following is the view of the front and bottom AR camera, when the target point is reached, a green circle will appear at the collection point.



Chapter IV: WEB UI

§4.1 WEB UI Login

Start the G40PRO properly, use a mobile terminal such as a laptop or mobile phone, open Wi-Fi, and find the G40PRO hotspot. The hotspot name format is the device SN number. After connecting successfully, enter 192.168.10.1 in the browser and go to the WEBUI background page.



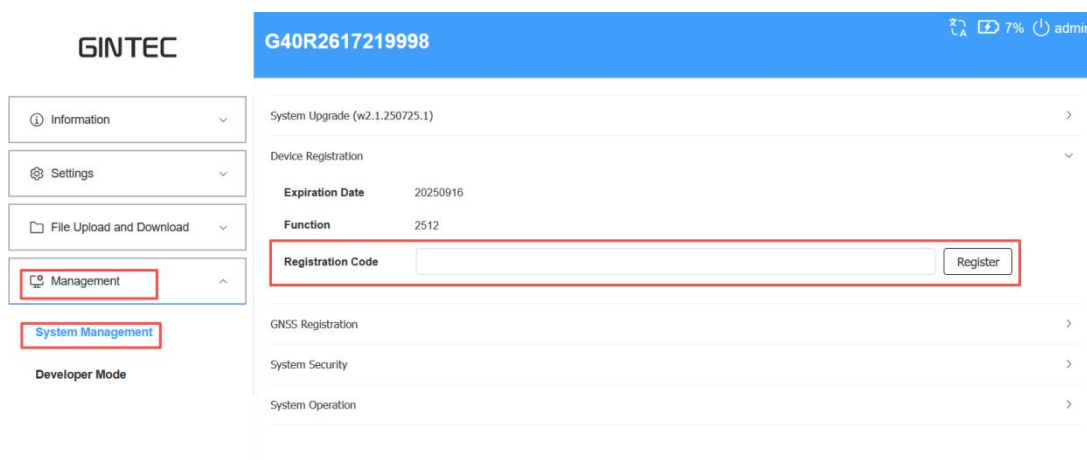
The username and password needs to be entered when first time login WEBUI through a new browser.

User name: admin

Password: password

§4.2 Common Function from WEB UI

§4.2.1 Code Registering



Click "Management-System Manage"->"Device Registration", you can paste the register code here to active the G40PRO.

§4.2.2 Time Zone Setting

GINTEC G40R2617219998

Information Settings Mode Setting Satellite Settings **Parameter Setting** Output Setting File Upload and Download Management

Time Zone GMT+8:00

Voice ☒

Base Station Transmission Site Information ☒

Base Station Alarm ☒

Automatic power-on when USB is inserted ☐

Automatic power-off when USB is removed ☐

Enable the WIFI client ☒

Long-Term Network Operation ☐

RTK LOG ☐

PPP LOG ☐

ANTIJAM AUTO

Submit

Click "Settings-Parameter Setting", where you can modify time zone. You can also modify other parameters here.

§4.2.3 Data Download

Methods I: WEBUI

Click "File Upload and Download - Raw Data", choose the right data format and date to get the data list. Download the data you want in the coming list.

GINTEC G40R2617219998

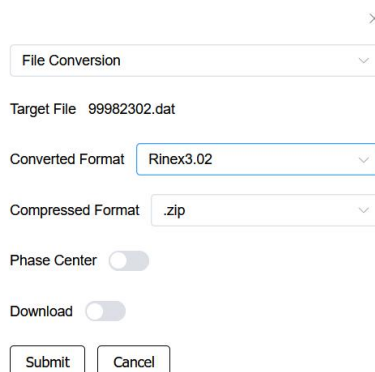
Information Settings **File Upload and Download** Log File Management

Raw Data

Raw Data

Files	Size(Mb)	Antenna Measurement Height(m)	Start Time	End Time	Operations
☐ 99982271.dat	1031.598	1.800	2025-08-15 14:06:47	2025-08-16 02:53:44	<input checked="" type="button" value="Download"/> Delete Edit
☐ 99982301.dat	145.179	1.800	2025-08-18 05:23:52	2025-08-18 07:25:23	Download Delete Edit
☒ 99982302.dat	0.112	1.800	2025-08-18 10:01:53	2025-08-18 10:02:03	Download Delete Edit
☐ scheck.log	0		1980-01-01		Download Delete

You can also convert the file to Renix3.02 format and download it though webui.



File Conversion

Target File 99982302.dat

Converted Format Rinex3.02

Compressed Format .zip

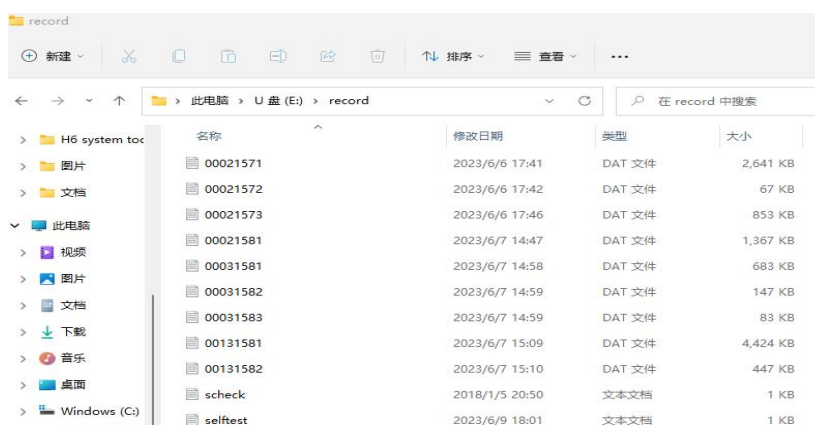
Phase Center ☐

Download ☐

Submit Cancel

Methods II: USB cable

Connect G40PRO with your PC by USB to Type-C cable, your computer will automatically read a G40PRO storage folder. Open it and choose the "record" 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 G40PRO from, follow the next steps to update the firmware.

Enter WEB UI

Click "Management- System Management", "System Upgrade"- "Select file" function. Choose the firmware file you got and upload. G40PRO will automatically restart after the firmware is installed successfully.

GINTEC

Information

Settings

File Upload and Download

Management

System Management

Developer Mode

G40R2617219998

System Upgrade (w2.1.250725.1)

Select FileUpload

Device Registration

GNSS Registration

System Security

System Operation

Appendix A: G40PRO Technical Specifications



Positioning

Channels	1408
GPS	L1C/A,L1C,L2P(Y),L2C,L5
GLONASS	G1,G2,G3
BDS	B1I,B2I,B3I,B1C,B2a,B2b
GALILEO	E1,E5a,E5b,E6
QZSS	L1,L2C,L5,L6
NAVIC(IRNSS)	L5
SBAS	L1C/A
PPP	B2B-PPP E6-HAS
Data Update Frequency	50Hz
Positioning Frequency	1Hz 2Hz 5Hz 10Hz 20Hz 50Hz
Cold Start Time	<12s
Initialization Time	<5s
Initialization Confidence	>99.9%



Measurement Accuracy

Static Mode Accuracy	H:±2.5mm+0.5ppm V:±5.0mm+0.5ppm
Single Point Solution Accuracy	H:1.5m V:2.5m
Differential Solution Accuracy	H:0.4m V:0.8m
RTK Accuracy	H:±8.0mm+1ppm V:±15.0mm+1ppm
Time Accuracy	20ns
Tilt Measurement Accuracy	≤2.5cm within 120°



Physical Properties

Shell Material	Magnesium-Aluminum Alloy
Weight	692g
Dimensions	Φ124*69.5mm
Button	Power Button
Indicator Lights	Satellite Signal Light, Data Transmission Light, Current Battery Light



Power

Battery Life	Static 40h, Rover 25h, Base 20h
Power Supply	Built-in Li-ion 9V/2A MAX18W 3.6V_9800mAh



System

Operating System	Linux
Memory	8G
Data Transmission	Bluetooth/WIFI/Radio
Bluetooth	V5.0, BLE
WIFI	802.11a/b/g/n
Radio Power	1W
Radio Frequency	410-470MHz
Air Baud Rate	19200, 9600, 4800
Supported Protocols	Gintec Work, TrimTalk450s(T), TrimMark III, SOUTH, PCC-EOT, Hi-target, Satel, Farlink, etc.
Supported Languages	Chinese, English, Polish, Turkish, Korean, Indonesian, Spanish, Telugu, Russian, etc.



Camera

Number of Lenses	2
Front Lens Field of View	83.4°
Front Sensor Pixel	2 Mega Pixel
Front Camera Focal Length	5m
Front Sensor Resolution	1920*1080
Bottom Lens Field of View	83.4°
Bottom Sensor Pixel	2 Mega Pixel
Bottom Camera Focal Length	2m
Bottom Sensor Resolution	1920*1080



Environmental Adaptability

Operating Temperature	-30℃ ~ +65℃
Storage Temperature	-40℃ ~ +80℃
Water and Dust Resistance Rating	IP68
Operating Humidity	99.9% non-condensing

FCC Warning

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

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.