

Qianxun SI RTK Quick Start

【 Product Introduction 】

The Qianxun SI Survey RTK product suite consists of a Qianxun SI Survey RTK Receiver and related accessories.

Note:

This instruction is applicable to Q300 and Q600 products.

Indicator Description:

Indicator Light	Satellite Status	Blue light flashes when searching for stars, always on after finishing positioning
	Power Status	Power light blinks when the power is <10%
	Data Status	Green light blinks 1s for differential data in dynamic RTK mode Static mode blinks at sampling frequency interval

Key Description:

Key	Startup & Shutdown	Press and hold for 3s to turn on, long press for 3s to turn off
	Inquiry	Click the key to check the battery status
	Mode Switch	Double-click the button to switch modes and click to confirm

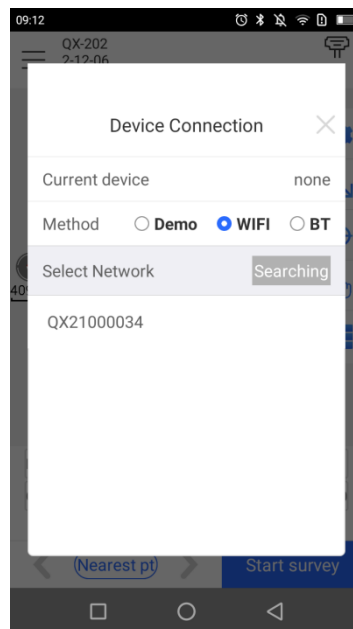
[Turn on the device]

It is suggested to charge the device for the first time before using it.

Turn on the RTK host and controller → Press the "APP" button in the controller to start the measurement software. The first time you use it, a privacy agreement will pop up, accept it and use it.

[Connecting Instruments]

Click the device icon button in the upper right corner of the app to enter the device connection interface. In the device connection interface, you can choose to connect the device after using Wi-Fi search, as in Figure 1.



Note: Qianxun SI survey RTK products start with "QX" by default, such as QX21000034

【Activation 】

Host Registration

When you use the device for the first time, you need to use the registration code to open the authorization to use the device. Please apply for the registration code from the distributor who purchased the device.

Registration method: App upper right corner device icon → click [Device] in the device information after the [Regist] button can be entered, prompt

Service Activation

If you have purchased a star-based service, you need to use the authorization code to open it in order to achieve high-precision positioning operation without network on a single device.

In the device information, you can click the [Regist] button after [XStar] to activate the star-based service, please consult the manufacturer's technical staff for service coverage.

Star-based service needs to update the key file once every six months, and you can select the locally imported key file by [Select file].

[New Project]

When you enter the App, Qianxun SI has automatically created a project for you.

The default project name is controller system time, the coordinate system is WGS84, the projection is horizontal axis Mokato

If necessary, you can go to the left menu bar to create a new project or modify the project information and the required coordinate system parameters, as in Figure-2.

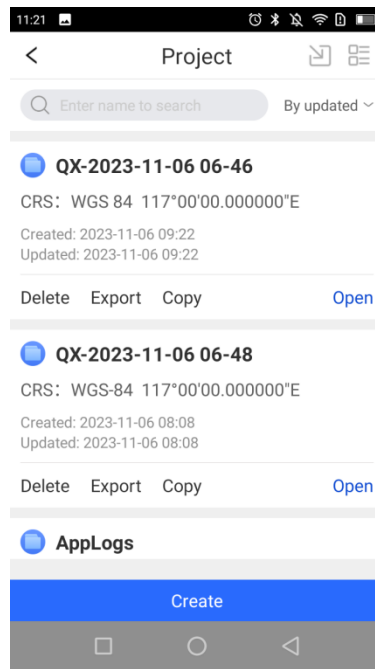
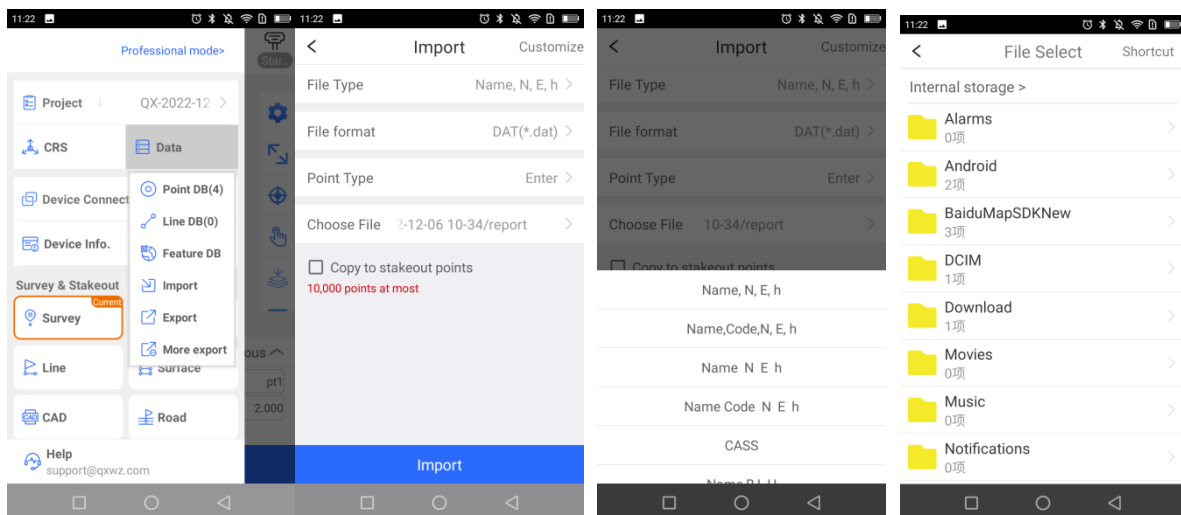


Figure-2

[Data Import]

In the point library, you can select the required data format and file to import data, as shown in Figure 3-6.



[Work Mode Configuration]

The first time you turn on the machine, it will automatically enable "Radio", you can directly carry out survey operations.

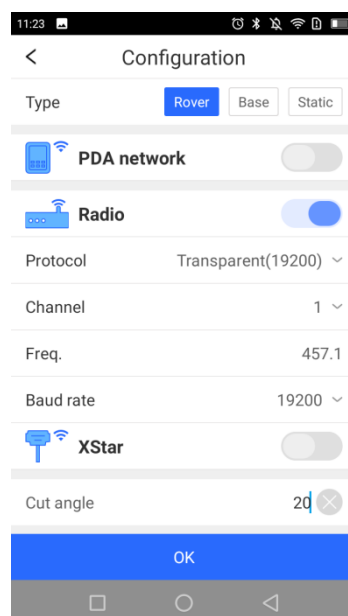
If there is no network on site or you have other needs, you can configure as follows: Enter the device configuration interface through the left menu bar → [Device Config] You can configure rover station, base station and static station as required.

Create Rover Station Mode

Click the [Create] button, [Type] select [Rover], and choose the data chain mode.

Radio: Some models have radio function, at this time you need another RTK to be the Base station and broadcast differential data to the mobile station via radio for measurement operation. This mode is suitable for all outdoor work scenarios.

Star-based: Some models are equipped with star-based function. Star-based service does not depend on network and does not need to set up a reference station, and can achieve centimeter-level positioning by a single machine. The satellite-based service needs to be opened according to the area, and high-precision operation can be realized within the coverage of the satellite-based, please consult customer service or authorized distributors for details.



Create Base Station Mode

Some models have base station function.

Click [Create] button, [Type] select [Base], configure radio related parameters and click OK to finish the configuration. If there is a known point, you can select [Known Point] mode, enter the ground point coordinates and antenna slope height to start, as in Figure-8.

The screenshot shows a mobile application interface for configuring a base station. The title bar at the top indicates the time is 11:23. The main screen is titled "Configuration" and features several settings:

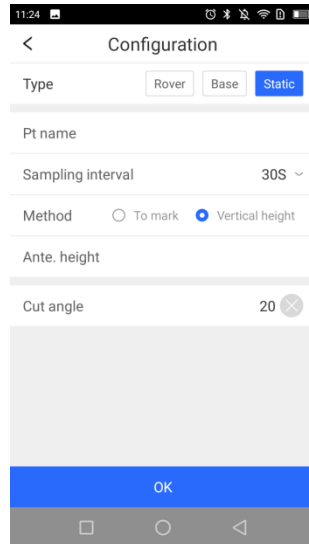
- Type:** A dropdown menu with options "Rover", "Base" (selected), and "Static".
- Mode:** A dropdown menu with options "Unknown Point" and "Known Point" (selected).
- Radio type:** A dropdown menu with options "Inner" (selected) and "External".
- Ante. height:** A text input field with the value "0.000".
- N:** A text input field with the value "0.000".
- E:** A text input field with the value "0.000".
- h:** A text input field with the value "0.000".
- Protocol:** A dropdown menu with the value "Transparent(9600)" and a downward arrow.

At the bottom of the screen, there is a large blue button labeled "OK". The bottom of the screen also shows the standard Android navigation bar with back, home, and recent apps icons.

Create Static Station Mode

Static station mode is used for control network deployment and control point encryption.

Click the [Create] button, select [Static] for [Type], and configure the relevant parameters to complete the configuration. The default sample interval is 10s and the default file format is RINEX3.02, as shown in Figure 9.

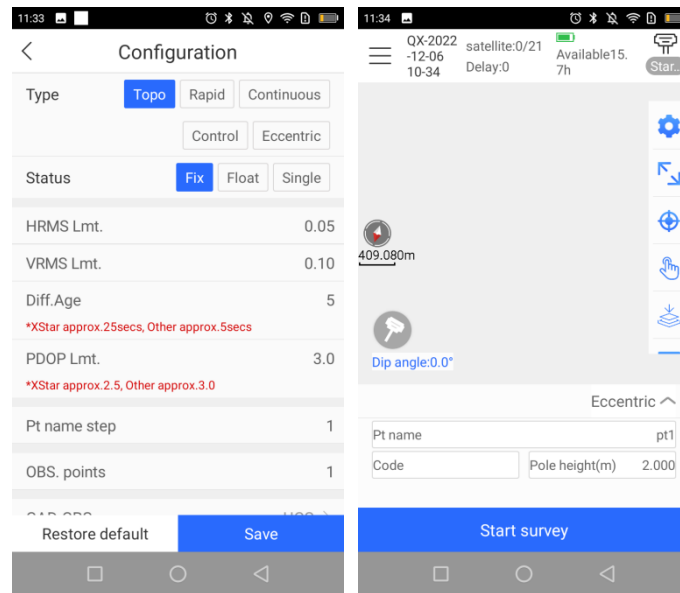


【Survey】

Menu bar on the left → [Survey], the main interface switches to point measurement mode.

In the point measurement mode, you can select the first configuration button in the right toolbar of the interface to configure the required measurement parameters, as shown in Figure-10.

In the main interface, you can switch the type of measurement points (Control Point, Continuous Point, Rapid Point, Topographic Point, Eccentric Point), enter the required number of observation points and other parameters, and then click [Start survey] to collect the required type of points, as shown in Figure-11.



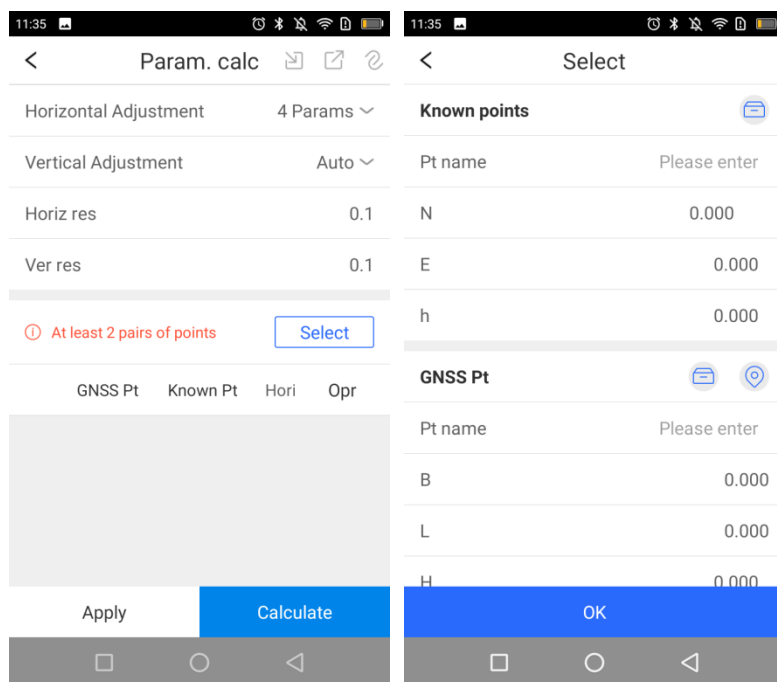
[Parameter Calculation]

Point Correction

The first time you go to a survey area, you need to do point correction if you want the measured point to match the known point coordinates. If you are using Qianxun SI network operation mode and your project coordinates match the CGCS2000 coordinates broadcasted by Qianxun SI, you can skip this step.

The left menu bar → [CRS] → [Site Calib], you can enter the point correction parameter calculation interface, as in Figure-12.

Select the plane coordinates of known points in N pairs of survey area and the latitude and longitude coordinates under the ellipsoid corresponding to known points, click [Calculate] to solve the plane correction and elevation fitting parameters, and click [Apply] to apply the calculation results to the current project coordinate system parameters and update all the measurement results, as in Figure-13.



Station Shift

Site panning is required when a base station is moved or a reboot of a base station started at an unknown point. If you are using Qianxun SI FindCM service, you can skip this step, and you can directly turn on the power to measure every day.

Menu bar on the left → [CRS] → [Station Shift], you can enter the site shift selection interface.

Select the coordinates of known points in the measurement area and the coordinates of latitude and longitude of the corresponding measurement points to find out the translation amount, and click [OK] to apply the current translation parameters to the corresponding base station of the currently selected measurement point and update all the mobile stations measured under the base station synchronously, as in Figure 14.

11:36

< Station shift

Shift Params

Known points

Pt name Please enter

N 0.000

E 0.000

h 0.000

GNSS Pt

Pt name Please enter

B 0.000

I 0.000

OK

[Data Export]

The left menu bar → [Data] → [Export] to export the current measurement results.

In the point library, select the desired point location, export file type, and file format to export.

The exported data is stored in the SurveyMate/RTK/project name/report directory by default, and you can choose the export directory by yourself, as in Figure-15.

11:37

< Export Customize

File type Name, N, E, h >

File name Please enter

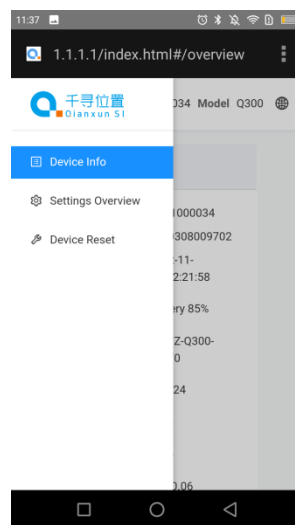
File format DAT(*.dat) >

Path X-2022-12-06 10-34/report >

Export

[Host Web]

When you work separately from your teammates and need to change the base station configuration without PAD, you can use the "RTK Web" application in PAD system or cell phone webpage to enter the 1.1.1.1 host webpage interface to configure the equipment. Some models of cell phones need to turn off the 4G network and use Wi-Fi to connect to the receiver, as shown in Figure-16.



[Update]

The RTK product suite is available for free lifetime firmware/software upgrades to support new features and fix bugs. upgrades include RTK host firmware, PAD system, and App software. Upgrade method.

You can contact our technical support staff to obtain the latest version of the installation package, using USB offline upgrade. When upgrading, connect the RTK host computer through the standard Type-C cable, put the upgrade installation package into the RTK memory, APP upgrade package into the PAD memory, restart the receiver / click the APP installation package in the PAD to upgrade.

【Caution 】

Charging: The battery holder charge is used in an environment of 0~40°C. It is recommended to be used in a well-ventilated, non-direct sunlight environment.

Maintenance: The lithium battery should be charged with 50%~80% of power for a long time without use, and removed from the instrument and stored in a dry and cool environment, and charged once every three months to avoid irreversible capacity loss.

【Technical Support】

If you have any technical questions, you can send an email to overseas@wz-inc.com for technical support.

Qianxun Spatial Intelligence(Zhejiang) Inc.

Registered address: No.1,Building12,Area C,Deqing Geographic Info Town,Wuyang Street,Deqing County,Huzhou City,Zhejiang Province,China

【Certificate of Conformity】

The product is inspected and qualified and allowed to leave the factory.

Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

RF Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

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.