R26propro RTK

operating instruction

preface

foreword

Welcome to use the RTK products of Shanghai AllyNav Technology Co.,Ltd. If you want to know more about intelligent RTK or other products of our company, please visit the official website of Lianhe Navigation at www.allynav.cn 。

This specification mainly describes the company's RTK products (model: , R26pro) and operation software, describing how to erect, connect, set up and use the product. If there is any difference between the ICONS and pictures in the manual and the real object, please take the real object. In order to make better use of our RTK products, it is recommended that you read this instructions carefully before using the instrument.

Product characteristics

Vacal acid efficient operation

There are no complex calibration processes, such as rotation, integration and equality.

Just take the instrument to ensure that the bottom of the middle rod does not move, and shake along one direction for more than ten seconds, you can initialize the internal inertial navigation module, to realize the tilt operation.

60 No bubble viewing within the inclination range (for accuracy, recommended within the tilt range 30)

Increase the measurement efficiency by at least 20%

Increase the lofting efficiency by at least 20%

Significantly reduced measurement personnel fatigue

High precision forever

The receiver integrating with inertial navigation module ensures real-time interference-free tilt compensation and is not affected by any environment such as geomagnetic and external metal structures.

The tilt compensation accuracy of 2.5CM.

Base station offset warning, does not give the surveyor a chance to make mistakes.

company introduction

Shanghai AllyNav Technology Co.,Ltd. is a high-tech enterprise integrating research and development, production, sales and service. Based on Beidou satellite navigation, it expands the application of Beidou industry and is committed to providing customers with all-round and multi-field Beidou high-precision navigation and positioning system solutions.

Following the development trend of the world's four major satellite navigation systems, the comprehensive layout of high-precision industry application and promotion, to meet the differentiated application needs of different industries, the product application covers precision agriculture, intelligent transportation, mechanical control, deformation monitoring, geographic information, surveying and mapping engineering and other high-precision fields.

The main core personnel of the company have won the National provincial and ministerial Science and Technology Progress Award, and have more than 10 years of experience in product research and development, industrial application, product promotion and technical service of satellite navigation industry. The main products and services cover high precision GNSS board, high precision Beidou / GNSS receiver, wireless data transmission equipment, combined navigation products, deformation monitoring system, automatic driving system, intelligent navigation, variable control and other

products, solutions and related software development and application.

disclaimer

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User instructions

- Before using this product, please carefully read all the random user information to understand the use methods and precautions of this product.
- During the process of outdoor installation of the base station equipment, the base station host should pay attention to the long-term waterproof treatment, and the base station antenna must be placed in the outdoor open environment during use or testing.
- Do not remove the base station antenna or serial port cable when the power supply is on.
- Please connect your equipment strictly following the requirements in the manual. For data cables and other cables, it is necessary to pinch the root of the plug and gently plug, not to pull or rotate, otherwise it is easy to cause broken needles.
- When supplying power to the product (system), pay attention to the power supply requirements of the equipment (the power supply voltage must be 9~36V).
- The base station transmitting station may produce high temperature during the use. Please pay attention to avoid burns. In addition, avoid or reduce unnecessary coverage on the surface of the station and maintain a good ventilation environment.
- When using the transmitting station for a long time, the person should keep a distance of more than 2 meters from the transmitting antenna to avoid radiation.
- When installing the antenna outdoors, users should pay attention to take

appropriate lightning protection measures to prevent lightning strikes.

- Please do not continue to use the connection cables after being damaged. Please purchase and replace the new cables in time to avoid unnecessary damage affecting the use effect.
- The equipment is damaged due to force majeure (lightning strike, high pressure, collision), and it does not belong to the scope of free maintenance of the company.
- Please do not remove the product shell, otherwise no warranty.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

catalogue

1. product presentation

1.1 R26pro receiver keys and indicators

 Static record button: long press for 5 seconds to turn on or off the static record mode

 Recorder lamp: red, flashing after static recording mode, otherwise off

 Satellite light: red, receive the satellite flashing, otherwise turn off

 Differential light: red, radio or 4G module receives or sends data in a second, do not flash when there is no difference data

 Power light: three-color light, charging light blue always bright, full of green always bright, working red always bright, power is less than 10% red flashing

 Power button: long press for 3 seconds to start the power, long press for 3 seconds to report whether the shutdown, release the button to short press, long press for 3s to enter the self-test mode

1.2 Description at the bottom of the R 26 instrument

 Dust plug, the internal connector is divided into base station and mobile station accessories

 The mobile station is configured with a Typec connector and the SIM card slot

 The UHF radio station antenna interface

2. The RTK measures the operation process

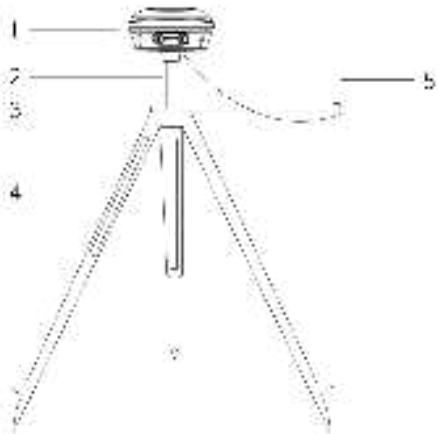
Flow chart of the RTK measurement operation

2.1 Instrument erection

2.1.1 Erection of the base station

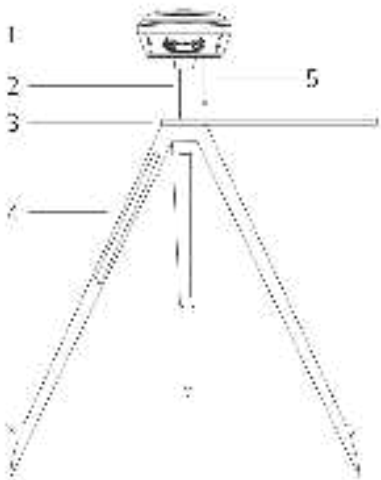
Set up a tripod on a known or unknown point, and then install the reference station receiver on the extended bar or the base of the tripod.

The antenna of base station is as follows:



1 host 2 10CM extension rod 3 extension plate 4 tripod 5 whip radio antenna

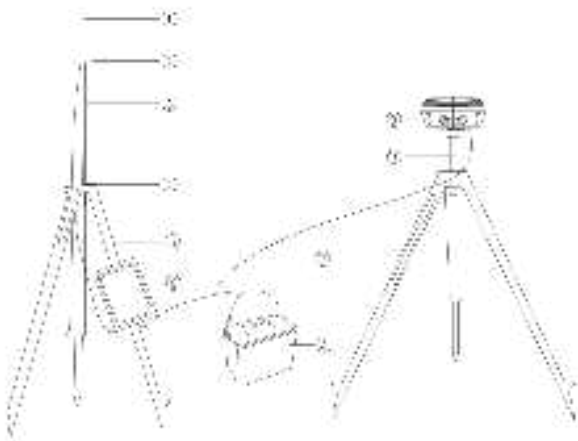
The base station is as follows:



1 host 2 10CM extension rod 3 extension plate 4 tripod 5 rod radio antenna

Note: both rod antenna and whip antenna are RADIO interfaces connected to the host.

The erection of external station antenna of base station is as follows:



1, whip antenna 2, radio antenna connection seat 3, radio antenna extension bar 4,

aluminum plate 5, tripod 6, radio 7, power line + number transmission line = radio number transmission integrated line 8, battery 9, host 10, extension bar

2.1.2 Installation of mobile stations

The handle book bracket is mounted on the center bar, the hand book is fixed on the book tray, and the receiver is fixed on the center bar.

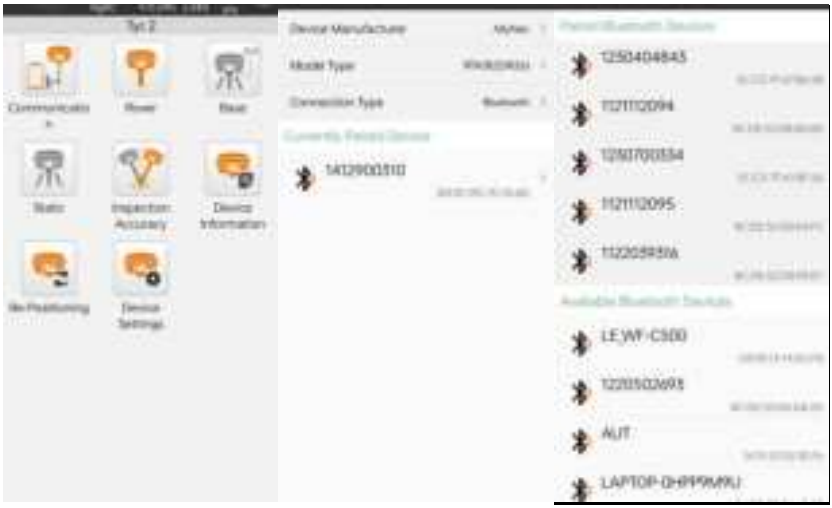
2.2 Introduction to the operation of the flagship version

2.2.1 New / open a project

Click [Project] -- [Project Management] -- [New], fill in the relevant information of the project and the setting of the coordinate system parameters, select the coordinate system, modify the central meridian, and click OK to complete the new construction of a project.

.22.2 Connect the equipment

First click [Instrument] - [Communication Settings] connection for the first time click the blank area under the device parameters. The software automatically search the Bluetooth device, and then select the correct RTK device SN number and click the connection.



2.2.3 Set up the working mode of the reference station and the mobile station

1. Base station- -built-in radio mode

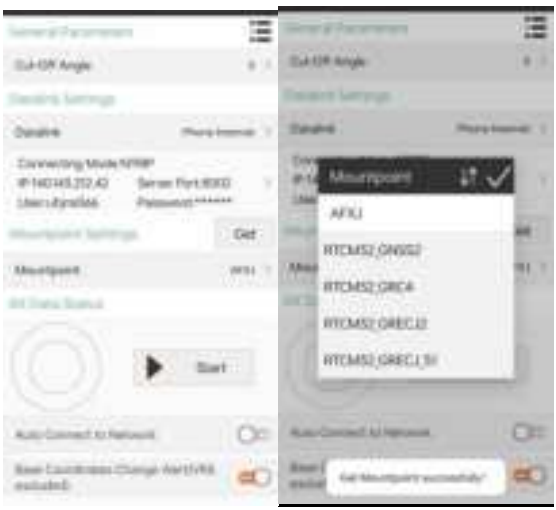
Enter [base station mode] -select the built-in station-select the corresponding channel frequency and other information

2. Mobile station- -Radio station mode

Enter the mobile station mode-select the built-in station- -select the corresponding channel frequency and other information

3. Mobile station- -CORS account login

Enter the mobile station mode-select the manual network or host network-enter the data link and fill in the corresponding IP address, port, user name and password. After obtaining the access point, please select the corresponding access point.



4. Mobile station- -star station difference mode

Enter the mobile station mode-select the star station difference (B2b) or (E6) -application

After application, the receiver is placed in the open area waiting for convergence, and the PPP can be used

2.2.4 Parameter configuration

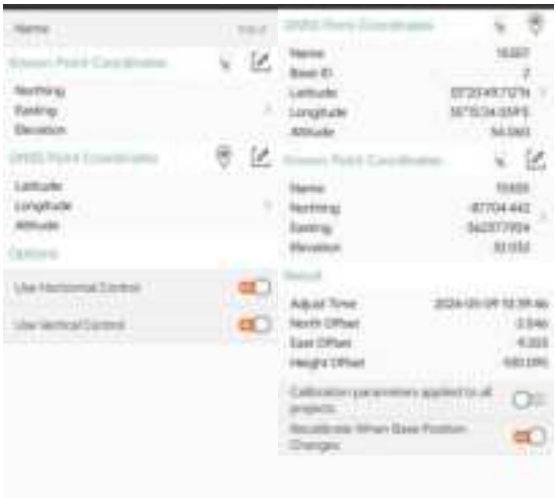
1. Point correction

Enter the known control coordinates in the coordinate point library and the original WGS-84 raw coordinates are collected at the corresponding control points

Enter the point calibration menu, click Add, select the input control point, GNSS coordinates select the collected point, select and then click calculation to obtain the calculation results of conversion parameters.

2. Base station translation correction

The base station movement or shutdown restart, need to do the base station translation. Enter the base station translation calibration, GNSS point coordinate is the coordinate collected by the receiver, the known point coordinate to select the corresponding known coordinate point, and determine after selecting the point.



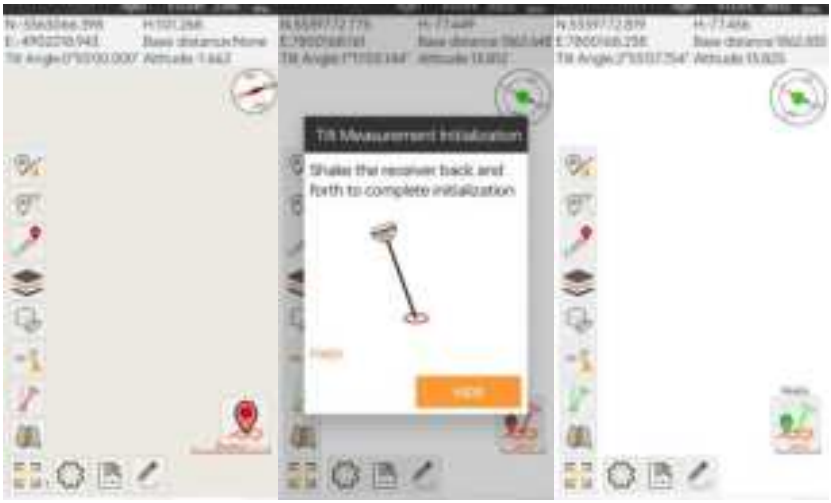
2.2.5 Measurement operation

1. Point measurement

Select the [measurement] - - [point measurement] menu, enter the point measurement inter  input the roll call, bar advanced information, click the button to correct the middle rod, and the collected points can be viewed in the coordinate point library.

2. Tilt measurement

Open the tilt measurement function button in the point measurement interface and calibrate and set the antenna height. The antenna height can be changed at any time. After the setting is completed, the inertial navigation can be used for point measurement.



3. Point lofting

Click [Measurement] - - [Point release point] to import the release points into the pending release points by adding points or library selection methods

4. Coordinates are calculated

Click [tool] - - [coordinate calculation] to calculate the coordinates of the target point by adding the coordinates of known two points and the azimuth and distance of the target point; and the due north direction only a known point and azimuth and coordinates, click the due north direction switch.

5. Countercalculation of coordinates

Click [tool] - - [coordinate reverse calculation] By adding the coordinates of two known points, find the azimuth Angle of AB two points and the plane distance, spatial distance, elevation difference and slope ratio of AB.

2.2.6 Results and export

As shown in the figure, select (multiple optional) the exported data format, select the export location and input the export file name, and the point export can complete the data export. If you choose to export multiple formats, it is generated into a folder.

2.3 Introduction to WEBUI operation

2.3.1 Login and out

Use the terminal device to connect the receiver WiFi, enter the default password: 12345678, enter the browser IP address in the browser of the terminal device (IP address: 192.168.1.1), and configure the system login interface of GNSS receiver. As shown in the following figure: user name admin, password password.

2.3.2 Receiver management

Receiver information

In the device management interface, the green [device configuration] button will be displayed after the online receiver. After clicking the button, the browser opens the management interface of the receiver on the new tab page. Display the various hardware parameter information of the connected receiver. The interface is shown in the following figure:

1) After entering, the "Receiver Information" page is displayed by default to display the host machine and each module information of the connected receiver.

2) The Receiver information is:

- Device type, SN, PN, base plate firmware version, data storage, battery power, motherboard firmware version, set station firmware version, IMU firmware version.
- Operation: Four operations can be performed on the receiver.

Restart the receiver: Click and pop up prompt " Whether to restart the receiver?", Click" OK "to restart the receiver, and prompt" restart successfully ". Restart failure prompt "Restart failure". Click "Cancel" to prompt to disappear.

Restore factory Settings: Restore factory Settings removes the configuration parameters in the receiver.

Board card reset: Board card reset is to reset the receiver positioning board card, and research for stars to obtain the positioning data.

Close the receiver: Close the receiver.

Firmware update

Make a firmware upgrade for the receiver host and all modules. Can perform firmware upgrades for host, GNSS, radio, IMU.

Select file: click upload to enter select local file popup, file type is not limited.

Tip: The file size does not exceed 2M, after 2M, the uploaded file is too large, please upload again. After the file selection, the page displays the file name.

Firmware upgrade: Click the firmware upgrade button, the page shows loading load, upgrade successful pop-up popup prompt upgrade success, upgrade failure popup prompt upgrade failure.

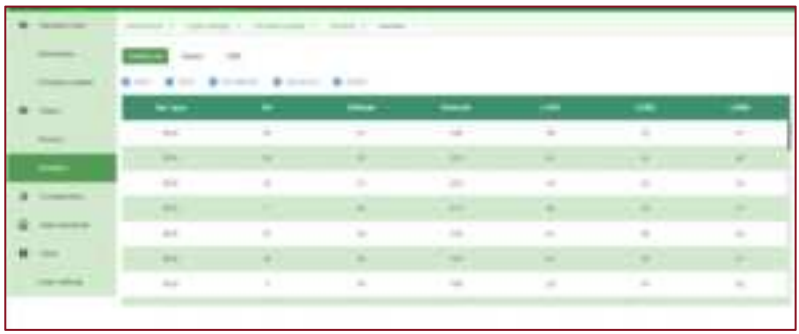
2.3.3 Receiver status

position information

Click the location information in the menu bar to jump to the interface, which displays the receiver longitude, latitude, number of tracking satellites, UTC time and other related information. The interface is shown in the following figure:

Satellite information

Click the menu bar of satellite information to jump to the interface, which displays the receiver tracking satellite list, satellite star map and satellite signal to noise ratio information. The satellite list is shown in the figure below:



noise-signal ratio

2.3.4 Allocation of the receiver

work pattern

Set up the operating mode of the receiver. At present, the setting of the reference station and the mobile station is supported.

Set the receiver as the base station mode. Set the position of the receiver (currently support manual input or obtaining location); the data link configuration is to configure correct data format, transmission data link, transmission protocol (supporting TCP and Ntrip); after the configuration, click the start and save the configuration button.

Reference station fixed coordinate station mode.

Mobile station radio mode

Mobile station network link mode

Static station working mode

Antenna high setting

Click the menu bar, the antenna height setting jump to the interface, the interface can configure the antenna quantity taking mode, input antenna volume height, the platform will automatically calculate the phase center height of the antenna, click the save button to set and save.

Satellite setting

Click the menu bar satellite Settings to jump to the interface, the interface can configure the satellite constellation enable / disabled, set the satellite altitude cut-off corner, click the Save button to set the save.

2.3.5 Data download

Download the static data for the receiver.

2.3.6 Language settings

Language switching

In the WebUI interface, click the Flag button. Select the appropriate country to switch the interface language, and the receiver will switch the voice. At present, it supports five languages (Chinese, English, Russian, Turkish and Spanish).

2

Three, the firmware upgrade method

If the host needs a firmware upgrade, it can upgrade on the WEBUI or through the data cable.

4. Advanced functions

Advanced features include base station offset warning, which is recommended to be skilled in regular functions or under the guidance of professionals.

4.1 Base station offset warning

When the base station dumps or is offset by the collision, the base station coordinate

change prompt. At this time, the collected coordinates are not accurate, and the base station must be turned off and restarted after the base station offset.

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could

void the user's authority to operate the equipment.

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.

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