ICEGPS

Professional RTK Installation & Instruction Manual

ICEGPS Navigation has the right to update the functional parameters of the product at any time without prior notice.

Shenzhen ICEGPS Navigation Technology Co., Ltd

Professional RTK Installation & Instruction Manual

Overview

Introduction

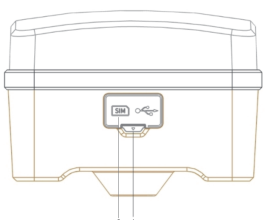
Professional RTK is a high-precision satellite locator, built-in full-system full-frequency RTK module, high-precision measurement antenna, tilt measurement module,4G module, WIFI module, Bluetooth module, large-capacity battery, using magnesium aluminum alloy shell, small size, light weight, high precision, full functions, is a good helper for high-precision measurement.

Product Introduction

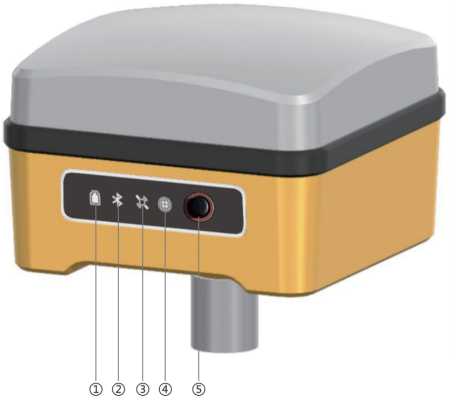
1. External interface

①Type-C interface, used for charging, data transmission, firmware upgrade and other purposes.

② SIM card and TF card are also replaced here.



2.Appearance, buttons, indicators



① Power lamp

The red light is always on means that the battery level is less than 20%, the yellow light is always on means the battery is 20%-50%, and the green light is always on means that the battery level is greater than 50%.

② Bluetooth light

If it is not lit, it means that Bluetooth is not connected, and the green light is always on means that Bluetooth is connected.

③ Positioning light

Base station mode: solid red is not positioned, solid green is positioned;
Measuring station mode: no light and no positioning, red solid single point, yellow light always floating, green light always fixed;

Measuring station mode + tilt measurement: no light and no positioning, red light always on single point, yellow light always on floating, traffic light flashing fixed + tilt measurement needs to be calibrated, green light always on tilt measurement available.

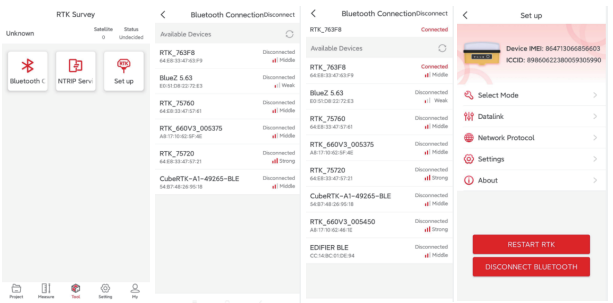
④Network lights

If it is not lit and not connected to the network, the green light is always on to connect to WIFI,and the green light flashes to connect to 4G.

Instructions

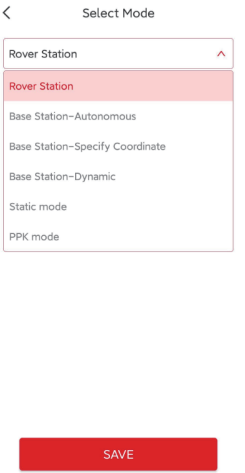
1. Connect the device

Open the "RTK Measurement" APP , click "Bluetooth Connection", search for the Bluetooth of the device, and select the correct Bluetooth name from the Bluetooth list to connect the device.



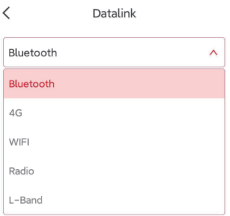
2. Select the working mode

Select the working mode according to your needs. There are Rover station, Base station Autonomous,Base station-Specify coordinate,Base station-Dynamic,Static mode and PPK mode.



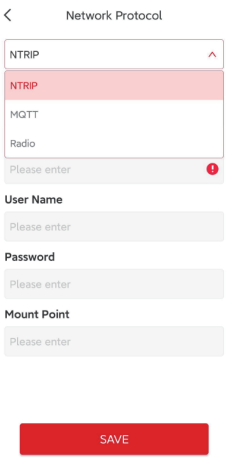
3. Select data link

Choose the datalink according to your needs. There are Bluetooth, 4G, WIFI, Radio and L-Band.



4. Select a network protocol

Select the network protocol according to your needs, such as NTRIP , MQTT and Radio.



5.Instructions for the erection of the base station

①In order to ensure the differential effect of RTK, the base station should be erected in an open sky environment, avoid being obstructed by large buildings, away from strong signal reflectors, and away from high-power electrical equipment (such as high-voltage lines, signal towers,radios, transformers, etc.).

②Set the data link to 4G or WiFi on the RTK setting APP, the network protocol can only be selected as NTRIP in the base mode, enter the NTRIP account, and the positioning light will be solid green when the base station is working normally.

6. Instructions for the use of the Rover station

①Bluetooth and L-Band are added to the measurement station mode.

②When the cubic RTK is used as a rover station, it is attached to the monopod by means of an adapter.

③Bluetooth differential only needs to select Bluetooth in the datalink, and then use the measurement APP to forward the differential data to the cubic RTK for differential.

④The L-Band differential only needs to select the L-Band in the datalink, and the measurement APP can be used to receive the positioning data of the cubic RTK, and the initialization time of the L-Band differential is long and the positioning accuracy is poor.

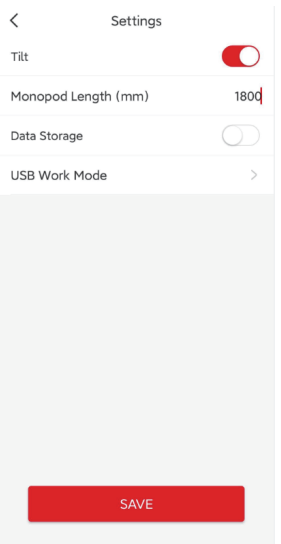
7. Static mode and PPK mode

Set it to static mode or PPK mode, and then collect data, and after the data collection is completed, the user needs to transfer the data file to the computer (according to the model of different TF card or use a USB cable to connect to the computer), and then use post processing software to process the data.

8. Tilt measurement settings

①Start the tilt measurement, enter the Monopod length, and then shake the cube RTK according to the status of the indicator light for calibration, the amplitude and speed of the shaking should not be too large or too small, you can watch the calibration video on the company's official website.

②During use, it is necessary to pay attention to observe the status of the positioning light at any time and whether it needs to be recalibrated.



Accessories

1.Cube RTK
2.USB cable(standard)
3.Adaptor(standard)
4.Centring rod (optional)
5.Android handbook (optional)
6.Android measurement APP



Technical specifications

GNSS	
RTK	built-in full-system full-frequency RTK module (SBAS optional)
Frequency	BDS：B1I, B2I, B3I, B1C, B2a, B2b GPS：L1C/A, L1C, L2C, L2P(Y), L5 GLONASS：G1, G2, G3 Galileo：E1, E5a, E5b, E6 QZSS：L1C/A, L1C, L2C, L5 NavIC：L5 SBAS：L1C/A
RTK accuracy	Plane：0.8 cm + 1 ppm Elevation：1.5 cm + 1 ppm
PPP accuracy	Plane：5 cm Elevation：10 cm
Tilt measurement	10 mm + 0.7 mm/° tilt (Accuracy within 30° < 2.5 cm)
Initialization	< 5 s (Typical)
Initialization reliability	> 99.9%

Professional RTK	Standard S	Professional L	Professional A
RTK	built-in full-system full-frequency RTK module(SBAS optional)		
Memory	/	16GB（optional 64GB）	16GB（optional 64GB）
Tilt measurement	Standard inclination measurements	Advanced tilt measurement, non-inductive calibration	Advanced tilt measurement, non-inductive calibration
Laser measurement	/	Optional	Optional
Visual measurement	/	AR optional	AR optional
Network	4G CAT1, region optional	4G CAT1, region optional	4G+3G+2G, region optional
WIFI	2.4GHz	2.4GHz	DUAL-BAND WIFI
BT	BLE	Dual-mode Bluetooth	Dual-mode Bluetooth
Radio	/	Optional，410-470MHz，LoRa or UHF	
Battery	6000mAh lithium battery, > 12 hours	6000mAh lithium battery, > 8 hours	6000mAh lithium battery, > 8 hours
Type-C	charge	Charging, U disk, virtual serial port	Charging, U disk, virtual serial port
Operating system	/	Linux	Android
SIM card	Support, Nano format		
TF card	Support, FAT32 file system		
Waterproof	IP65		
Threaded connection for centering rods	The tripod comes standard with a 3/8-16 connector including 3/8-18 to 5/8-11 adapters		
Enclosure	The bottom shell is made of aluminum-magnesium alloy		
Dimensional weight	104*104*75mm，515g		

Warranty

1. When the user purchases the machine, with the machine with instructions and warranty, by the dealer and the user to fill out the warranty sheet, please keep it as warranty vouchers.
2. Since the date of purchase, within one year of the host under normal use of quality problems (determined by the company's official staff), the user with a certificate to enjoy free maintenance services.
3. The following do not belong to the warranty.
A: warranty card without the sales unit signature or seal.
B: man-made or irresistible factors causing damage.
C: Normal wear and tear of the machine.
4. If the failure is caused by man-made, beyond the warranty period and irresistible factors, we will charge the cost of spare parts, free of labour charges.
5.When the product failure, please ask the agent for warranty, please write down the specific address, name and failure phenomenon.
6. Shenzhen ICEGPS Navigation Technology Co., Ltd. reserves the right to interpret and modify these terms.

ICEGPS

Shenzhen ICEGPS Navigation Technology Co., Ltd

Product Warranty			
Product Name	Cube RTK	Dealer Name	
User Name		User's phone number	
Purchase Date			
Product Service Address			
Product SN No.			

User Signature:　　User Signature:

Remarks.
1. This warranty is only applicable to the genuine warranty service of the above products.
2. Man-made damage or water immersion is non-warranty.
3. Please keep this warranty form in a safe place and present it with the relevant invoice when reporting for repair.
This warranty form in triplicate, the first company retained; the second dealer retained; the third user retained.