SPECIFICATIONS

GNSS Features	
Channels	1698
GPS	L1C, L1C/A, L2C, L2P(Y), L5
GLONASS	G1, G2, G3
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GALILEO	E1, E5a, E5b, E6, AltBOC*
SBAS	L1*
IRNSS	L5*
QZSS	L1, L2C, L5*
MSS L-Band*	Reserve
Positioning Output Rate	1Hz~20Hz
Initialization Time	< 10s
Initialization Reliability	>99.99%

Positioning Precision	
Code Differential Positioning	Horizontal: 0.25 m + 1 ppm RMS Vertical: 0.50 m + 1 ppm RMS
GNSS Static	Horizontal: 2.5 mm + 0.5 ppm RMS Vertical: 3.5 mm + 0.5 ppm RMS
Static (Long Observation)	Horizontal: 2.5 mm + 0.1 ppm RMS Vertical: 3 mm + 0.4 ppm RMS
Rapid Static	Horizontal: 2.5 mm + 0.5 ppm RMS Vertical: 5 mm + 0.5 ppm RMS
PPK	Horizontal: 3 mm + 1 ppm RMS Vertical: 5 mm + 1 ppm RMS
RTK(UHF)	Horizontal: 8 mm + 1 ppm RMS Vertical: 15 mm + 1 ppm RMS
RTK(NTRIP)	Horizontal: 8 mm + 0.5 ppm RMS Vertical: 15 mm + 0.5 ppm RMS
SBAS Positioning	Typically<5m 3DRMS
RTK Initialization Time	2~8s
IMU Tilt Angle	0°~60°

Hardware performance	
Dimension	130mm(W) ×130mm(L) × 80mm(H)
Weight	790g (battery included)
Material	Magnesium aluminum alloy shell
Operating Temperature	-45℃~+75℃
Storage Temperature	-55℃~+85℃
Humidity	100% Non-condensing
Waterproof/Dustproof	IP68 standard, protected from long time immersion to depth of 1m IP68 standard, fully protected against blowing dust
Shock/Vibration	Withstand 2 meters pole drop onto the cement ground naturally
Power Supply	6-28V DC, overvoltage protection
Battery	Inbuilt 6800mAh rechargeable Lithium-ion battery
Battery Life	25h (rover mode)

Communications	
I/O Port	5-PIN LEMO interface (external power port + RS232)
	Type-C interface (charge + OTG+ Ethernet)
	UHF antenna interface
Internal UHF	Radio receiver and transmitter

Frequency Range	410-470MHz
Communication Protocol	Farlink, Trimtalk, SOUTH
Communication Range	Typically 5km with Farlink protocol, up to 12km
Bluetooth	Bluetooth 3.0/4.1 standard, Bluetooth 2.1 + EDR
NFC Communication	Support
Modem	802.11 b/g/n standard

Data Storage/Transmission	
Storage	4GB SSD internal storage
	Support external USB storage (OTG)
	The customizable sample interval is up to 20Hz
Data Transmission	Plug and play mode of USB data transmission
	Supports FTP/HTTP data download
Data Format	Static data format: STH, Rinex2.01, Rinex3.02 and etc.
	Differential data format: RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2
	GPS output data format: NMEA 0183, PJK plane coordinate, Binary code
	Network model support: VRS, FKP, MAC, fully support NTRIP protocol

Sensors	
IMU	Built-in IMU module, calibration-free, 60°
Electronic Bubble	Controller software can display electronic bubble, checking leveling status of the carbon pole in real-time
Thermometer	Built-in thermometer sensor, adopting intelligent temperature control technology, monitoring and adjusting the receiver temperature

User Interaction	
Operating System	Linux
Button	Single button
Indicators	Bluetooth, satellites, data, charging and power indicators
Web Interaction	With access to Web UI via WiFi or USB connection, users can monitor the receiver status and change the configurations
Voice Guidance	Chinese/English/Korean/Spanish/ Portuguese/Russian/Turkish/French/ Italian
Secondary Development	Provides secondary development package, and opens the OpenSIC observation data format and interaction interface definition
Cloud Service	The powerful cloud platform provides online services like remote management, firmware updates, online registers, etc.

*Reserve for future upgrade.
Remarks: Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites. Specifications subject to change without prior notice.

GUANGDONG KOLIDA INSTRUMENT CO., LTD.
Add: 7/F, South Geo-information Industrial Park, No.39 Si Cheng Road, Tian He IBD, Guangzhou 510663, China
Tel: +86-20-22139033   Fax: +86-20-22139032
Email: export@kolidainstrument.com   market@kolidainstrument. com   http://www.kolidainstrument.com

KOLIDA
Professional's Choice

* **S805 GNSS Chip**
1698 Channels

* **Dual Engine Algorithm**
Enhanced Positioning Capability

* **The 5th Gen. IMU**
All-time Available

* **Compact Design**
0.79kg, 13cm * 8cm

* **Farlink 2.0 Radio**
Base Lock + Move Prompt

* **Extended Endurance**
Up to 15 Hours RTK work

K9s

K9s with S805

The Fusion Of
## Superior Utility & Stability

KOLIDA always devote to bring convenience to surveyors through innovations. Through years of research and development of multi-satellite positioning algorithms, we develop the S805 GNSS engine.

S805 with 1698 channels can track more satellites at the same time and capture weak signals under canopies hence better success rate and speed of obtaining a fixed solution. It is possible to get fixed where previously under the dense forest or surrounded by buildings cannot. Now with K9s, you don't need to wait for minutes but seconds in the field to get truly fixed.

New Positioning Algorithm

Exploring & Improving Will Never End

Based on years of exploring on survey technology, KOLIDA have collect large amount of experience and source to improve our own unique GNSS Positioning Algorithm. Benefiting from the newly developed S805 mainboard, K9s uses dual-engine algorithms to ensure more reliable accuracy and working efficiency in harsh environment.
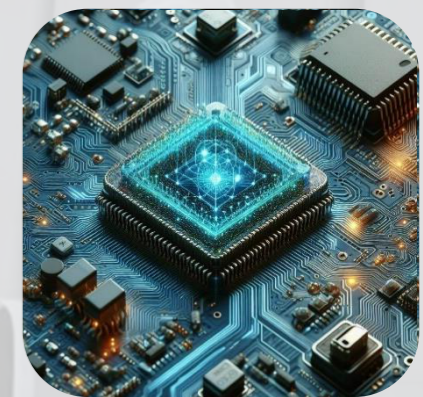
Multipath Effect Mitigation

Improve accuracy in special scenario

Multipath effect is a traditional notorious factor that decrease the accuracy of GNSS receiver. K9s with S805 can disentangle direct signal from reflected ones, therefore it ensures the accurate result when you are measuring target points close to buildings or water area.

Ionospheric Compensation

Be Capable at Anywhere, Any Time

K9s can compensate the error by ionospheric delay. No matter working on where ionosphere is active or doing network RTK positioning over a long distance (10-40 km), it can help you obtain better accuracy result.

K9s, Keep On Shinning

4 Major Improvement
To Simplify and Smooth Your Field Work

KOLIDA's developers team understand the challenges faced by surveyors in their daily tasks, which is why we're proud to introduce our latest offering, K9s.

Designed with meticulous attention to detail, K9s prioritizes the needs of surveyors, aiming to streamline their workflow and enhance their productivity.

Four indispensable features have been incorporated into K9s. From IMU, radio and even to its size, each element is tailored to alleviate the burdens commonly encountered in the field, ensuring that surveyors can perform their duties with greater ease and efficiency.

We wish you a brand new experience in the job!

The New 5th Gen. IMU

Almost All-time Usable

In the past, surveyors would rotate the pole when changing the direction of travel or adjusting the attitude of the receiver, sometimes it disables IMU. Now the 5th generation IMU eliminates the loss of IMU Status in most scenarios to improve the availability and productivity of IMU. The calibrate-free feature save the time of manually initializing IMU each time.

Farlink 2.0 Radio

Farther Transmission, Less Limitation

After years of hardware and firmware updates, Farlink 2.0 can undertake larger data and provide more stable transmission. It can receive data from one specific base by using base-lock function. Even though there are several bases transmitting with the same frequency, your rover will receive data from the correct base. Each radio had extreme temperature-changing testing from 20℃ to 60℃ to ensure its robustness.

Compact & Comfort

Lightness with Ruggedness

K9s represents an ultra-light GNSS receiver surpassing its competitors. Weighing a mere 0.8 kg, inclusive of the battery, it stands as much as 40% to 50% lighter than conventional GNSS receivers. This lightweight construction alleviates surveyors' fatigue while enhancing their maneuverability, making it particularly advantageous for operations in demanding environments.

Extended Working Hours

Lightness with Ruggedness

Thanks to the high-capacity battery and the intelligent power management plan, K9s can work up to 12 hours in RTK radio rover mode, up to 15 hours in static mode. The charging port is Type-C USB, users can choose RUIDE quick charger or their own smartphone charger or power bank to recharge.

Ksurvey APP
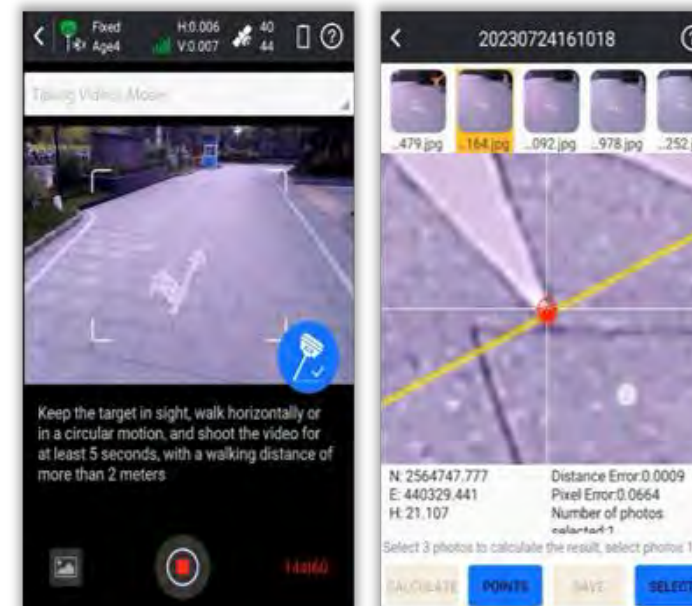## Field Data Collection & Mapping: The Most Advanced is Here

Measure & Draw : Save Time in Field work and Office
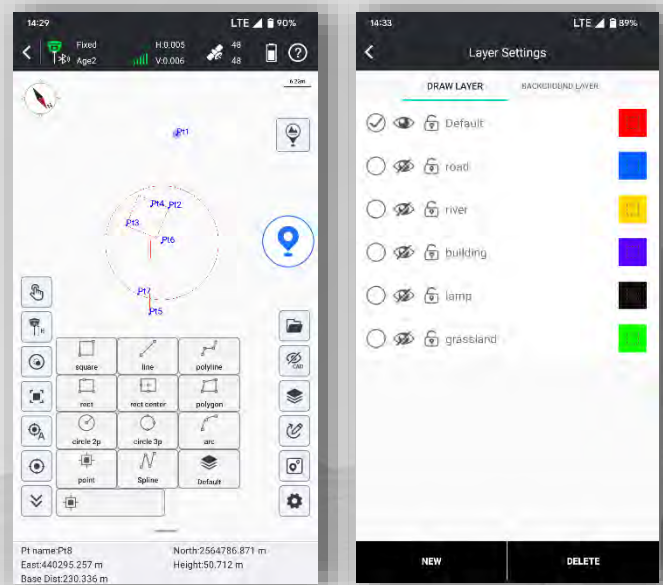
This feature allows you to draw the result map while completing point measurements.

• Before measuring points, users can choose the shape of the target object to be measured from 11 preset figures. The software will guide you to measure points in an order and automatically connect lines and complete the drawing of the figure.

• The .dxf or .dwg maps created on-site can be used directly in office work.

• Users can assign measured objects with different attributes, to different layers for measurement and management, making no mistakes.

CAD Draw : Drafting without a PC
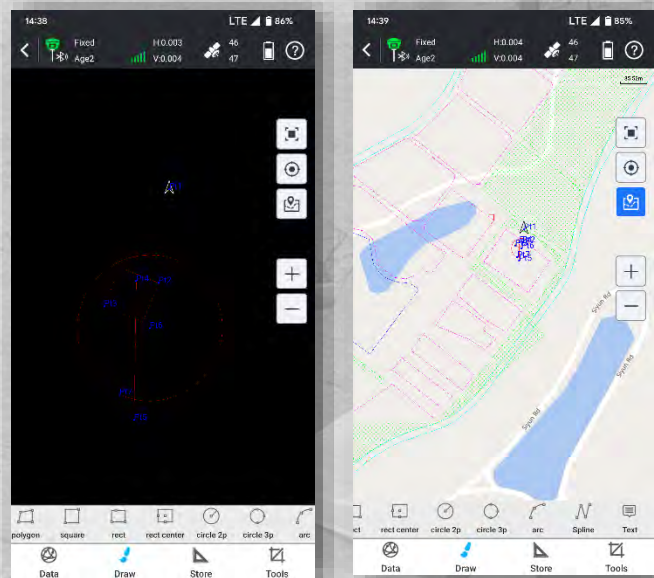
This feature enables CAD drawing capabilities, which were previously only possible on a PC. Now surveyors can edit CAD map on RTK controller or tablet or phones.

• CAD drawing does not require a computer.

• CAD files prepared on office PCs can be edited and managed by users on RTK data collection terminals.

• Drawing tools include up to 11 types of figures and one type of text.

Visual Positioning : Industry-Leading Non-Contact Measurement Technology

Photogrammetry Measurements can be conducted by taking pictures or videos. Coordinates of all points in the photos can be acquired.

• Now, target points that are inaccessible due to dangerous environments, poor satellite signals, or impassable terrain can be measured remotely.

• The captured image data can also be used with software like SGO, Pixel4D, DJI Terra, and CC for 3D modeling.

• Image measurement data can also be combined with drone measurement data to address issues of blurriness and deformation in ground data models collected by drones.

(This function only works with the receiver models that have front-facing camera or dual-cameras)

Static & PPK Measurement : More Assistance Now is Available
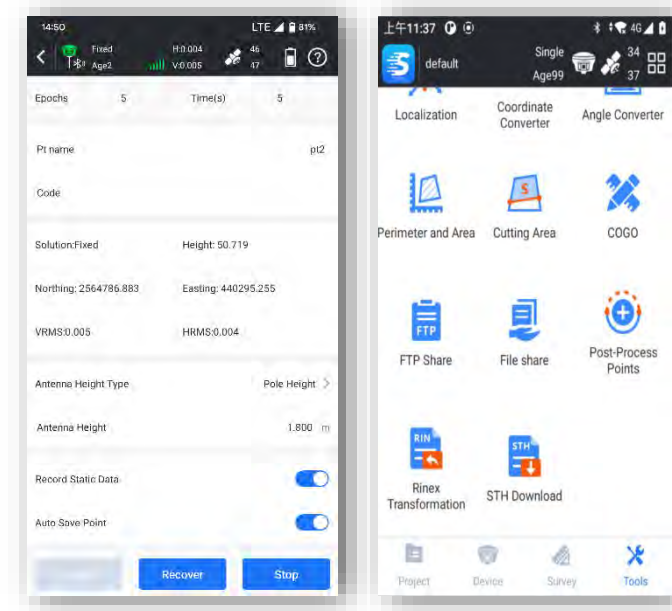

The software provides both static and PPK data collection capabilities.

• Data can be downloaded wirelessly, no need for a PC and cables.

• It is possible to convert .sth files into RINEX files right on the data collector or tablet or your phone, no need of PC.

• Data can be shared with others through mobile Internet.

• The accuracy of PPK data collection is as high as Trimble equipment, the result can be directly imported for use in TBC.

Ksurvey APP

Stakeout: Lighten Your Load, Increase Your Output

CAD Stake-Out : Save Labor Cost and Reduce Errors
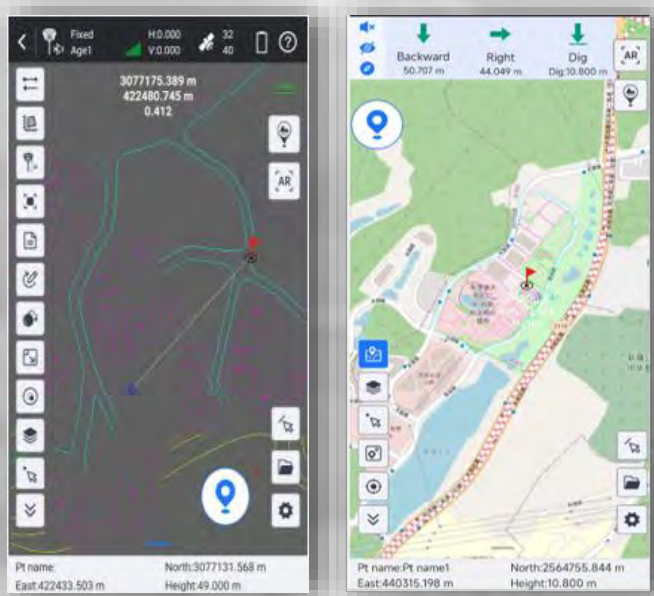
Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

Moreover, for complex shapes such as curves, circles, and polygons, the traditional stake-out process is complicated. Now, our new CAD stake-out program offers a superior solution for surveyors.

• No need for manual editing of point libraries.
• Staking-out geometric shape is faster and easier.

• No need for obtaining coordinate files before work. Staking-out can be done with just a CAD drawing.
• Online maps and CAD drawings can be displayed simultaneously, improving accuracy.
• AR guide lines make staking-out more intuitive.

Live-View Stake-Out : Faster, More Accurate, More Intelligent
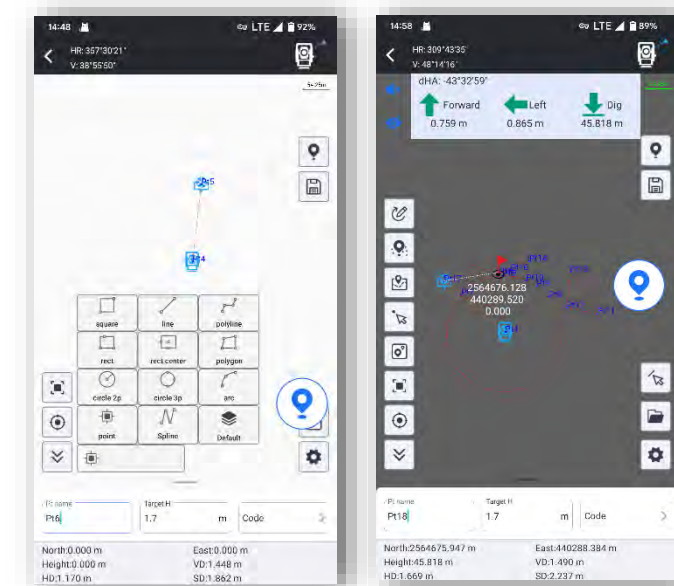

Users utilize the real-time imagery captured by the camera at the bottom of the receiver and the AR guide lines displayed by the software, to locate the target points.

• When users perform stake-out with a dual-camera GNSS receiver, the software can call upon both cameras to work together. At medium to long distances, the software uses the front-facing camera to indicate the direction of travel, and at close range, it uses the downward-facing camera to find the specific location. This further increases the speed of staking out.

• AR guide lines can be displayed in point staking out, line staking out, and CAD staking out programs.

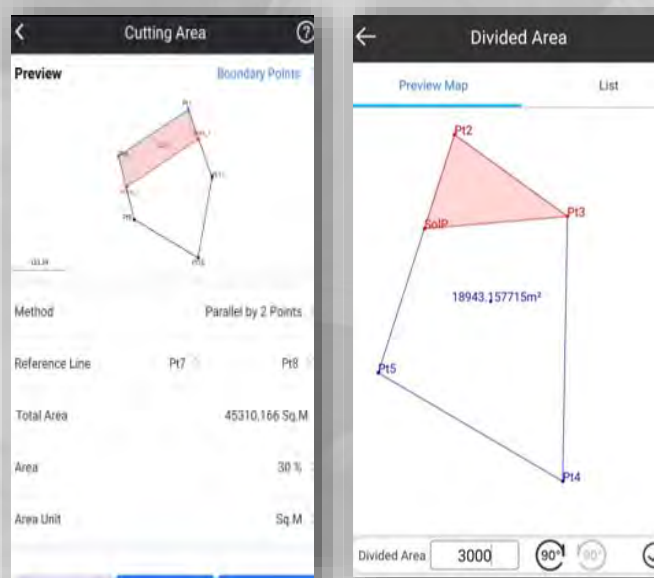*(This function only works with the receiver models that have downward-facing camera or dual-cameras)*

Additional Features

Area Division : Developed for Professional Cadastral Survey and Stake Out

Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• Six methods of division to determine the area division points. The methods are flexible and suitable to different user needs.

• The graphic display is intuitive and understandable.

Compatible with Multiple Devices

The App Now works with GNSS, Total Station, Echo Sounder, GIS Tablet, in future it will work with SLAM Scanner, Terrestrial Lidar Scanner.

Innovations for Better User Experience

■ RTK Data Backup

■ QR Code Share

■ Multiple Basemap Support

■ Basemap Adjustment

■ Network Mount Point Sorting

■ NMEA Output Setting

……

KOLIDA Geo Office (KGO)
Ideal GNSS Data Processor, Help You To Keep Advancing
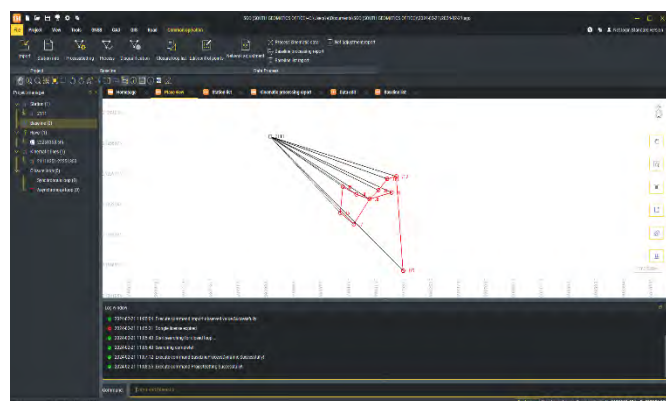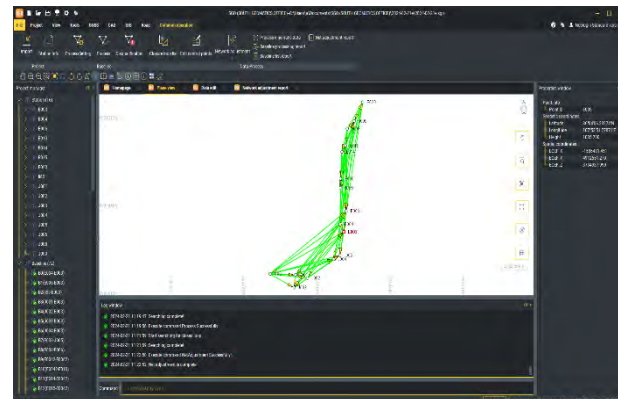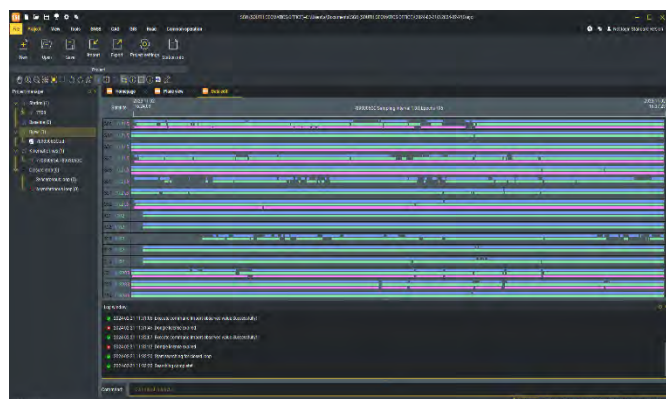
Data Processing & Reporting

When surveyors need to do post-processing of GNSS data, our software always can provide state-of-the-art technology to help you to produce optimal results.

User just need to import field data, the software will automatically process GNSS baselines.

Once results come out, the software can generate reports.

RINEX Import and Export

This feature enables users to import the third party GNSS receiver data into our software and post-process it, by using the industry standard RINEX format.

High Accuracy Guaranteed

RTK check, the unique function in our software, can compare RTK and PPK results to automatically acquire the most accurate coordinates for each target point.

It fills up the gap of poor corrections in RTK or hindered observations in PPK.

This improvement is to provide guarantee for your every survey.

3D Modelling

User can import photogrammetry image data into the software, to achieve 3D modeling, visually presenting geographic information data such as coordinates, areas, and volumes.

Model data can be transformed into different formats and applied with various coordinate parameters based on actual needs, making it adaptable to a wider range of application scenarios.