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*	BDS-PPP, GALILEO-HAS
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	134mm(φ)×79.1mm(H)
Weight	860g (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[1]	25h (rover mode)
Communications	
I/O Port	5-PIN LEMO interface (external power port + RS232) Type-C interface (charge+OTG+Ethernet) UHF antenna interface SIM card slot (Micro SIM)
Internal UHF	Radio receiver and transmitter
Frequency Range	410-470MHz
Communication Protocol	Farlink, Trimtalk, SOUTH, HUACE, Hi-target, Satel
Communication Range	Typically 8km with Farlink protocol
Cellular Mobile Network	4G
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	16GB SSD internal storage Automatic cycling 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°
Camera	Visual positioning camera: 8MP (can be used in AR stakeout) AR stakeout camera: 2MP
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
Buttons	Dual buttons
Indicators	Satellites, data and power indicators
Display	1.14', 135*240 pixel
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.*
1.Actual battery life can vary depending on usage patterns and other factors. The listed parameter was obtained under controlled testing conditions.

Explore more features:

SOUTH
Target your success

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Tel: +86-20-23380888 Fax: +86-20-23380800
E-mail: mail@southsurvey.com export@southsurvey.com impexp@southsurvey.com gnss@southsurvey.com
http://www.southinstrument.com http://www.southsurvey.com

SOUTH
Target your success

Powered By
S805

INSIGHT V3

VISUAL POSITIONING RTK

- ☑ Dual Camera Visual Positioning
- ☑ Dual Camera AR Stakeout
- ☑ 3D Modeling by Video Shooting
- ☑ A Few of Ways for Data Processing
- ☑ 1698 channels S805 Inside
- ☑ Dual-Engine Algorithm
- ☑ Farlink 2.0 Radio
- ☑ 5th generation IMU

Five New Features
— To Give You More Productivity

S805, the New Pop Star
Save Weak Signal

SOUTH S805 has 1698 channels to track more satellites and weak signals.

The success rate and speed of obtaining a fixed solution has been greatly improved. Under the dense forest and surrounded by buildings, it just takes tens of seconds to get a fixed solution.

Farlink 2.0 Radio
More Performance

When compared with the last generation Farlink, V3's Farlink 2.0 radio can undertake larger data and provide more stable transmission, working range is as far as 10-12 km in ideal condition.

With the "lock-base" function, V3 can keep receiving data from one specific base. Even though several bases are transmitting with the same frequency

Dual Camera AR Stakeout
Extra Convenience

V3 allows you to use both of front camera and bottom camera to stakeout points, lines, curves.

The AR guideline on controller app will indicate you to go to the correct direction since you are tens of meters away from the target.

The 5th Gen. IMU
New Experience

The latest update of IMU effectively eliminates the loss of Inertial-Measurement-Usable Status in the majority of scenarios, enhancing IMU availability and productivity.

During AR stakeout, visual positioning and 3D modeling collection, you can walk at your own pace without worrying about losing IMU, making workflow smooth.

Dual-Engine GNSS
Positioning Algorithm

Unlike traditional GNSS receivers, the INSIGHT V3 is equipped with two different positioning algorithms.

When users encounter inaccurate VRS RTK positioning due to unusually active ionospheric conditions, they can enable the second set of algorithms in the software to correct errors in real-time and improve measurement accuracy. (by selecting Enhanced Positioning Mode in the SurvStar app.)

SOUTH
Target your success

INSIGHT V3

Visual Positioning
—Do What Traditional RTK Cannot Do

More Efficient than Traditional RTK

Insight V3 processes a group of photos or a video in real-time, obtaining coordinates for hundreds of points within minutes. It outpaces traditional RTK in data acquisition speed. Insight V3 also has a broader working range and fewer blind spots, enabling remote measurements in areas with poor GNSS signal quality. Previously challenging spots, like spaces under rooftops and areas with obstacles, are now easily measurable.

More Versatile than Traditional RTK

Leveraging visual positioning, surveyors can efficiently operate in the field. Image data, stored for an extended period, is reusable at any time. These capabilities are especially well-suited for unique GNSS measurement tasks, such as documenting accident scenes and excavation sites for urban public facilities.

SOUTH
Target your success

More Friendly than Traditional RTK

Insight V3 visual positioning allows surveyors to remotely measure points up to 10 meters or more (in ideal conditions), eliminating the need to physically approach each point. This method significantly reduces physical effort in fieldwork.

Safer than Traditional RTK

Visual positioning helps users mitigate risks when surveying near hazardous areas, such as busy roads and lakes, ensuring surveyors' safety. A secure working approach is not only a personal requirement but also essential for the well-being of your family.

3D Modeling

—Broadening Your Working Power

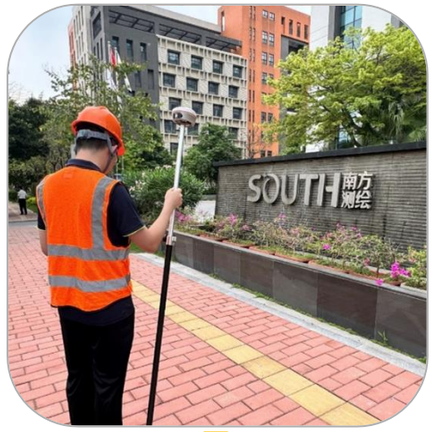
Insight V3 utilizes SOUTH's 3D modeling technology, integrating image measurements seamlessly with UAV data from DJI and other brands. Addressing data gaps in UAV surveys,

Insight V3 enhances survey outcomes by supplementing incomplete models with ground image data collection.

Insight V3 facilitates streamlined single-user 3D modeling, visually presenting geographic information such as coordinates, areas, and volumes. Effortlessly convert model data into various formats and tailor coordinate parameters to meet the needs of different applications.

Surveyors can integrate Insight V3 data into SOUTH software and third-party modeling software for efficient 3D modeling.

Upcoming versions of SGO (PC) and SurvStar (Android App) will incorporate 3D modeling functions, enabling users to choose the most suitable software for optimal work efficiency based on their specific scenarios and task requirements.

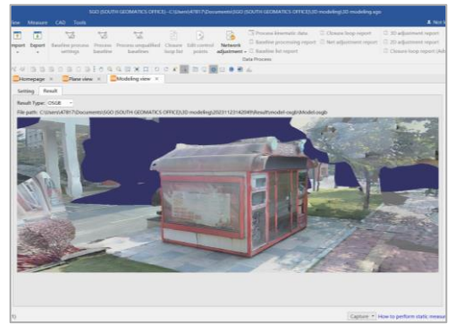


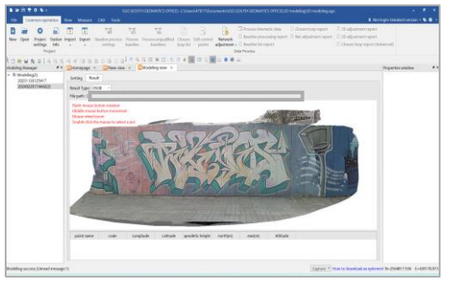
A Few Ways to Process Images

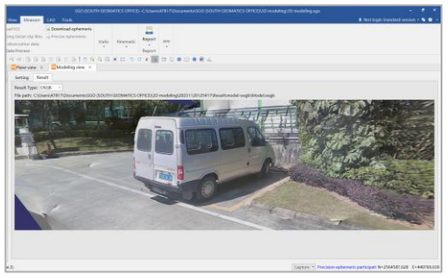
—Tailored for Your Work Needs

Cloud Server Online Processing
Acquire data timely and precisely

Scan here watch video







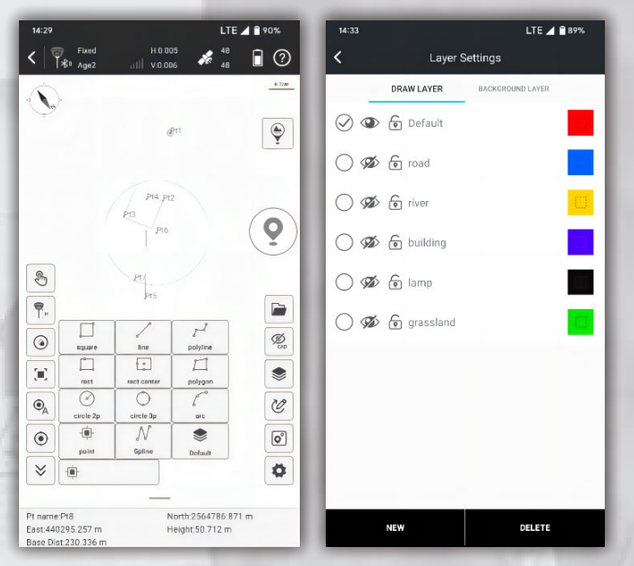
Desktop Software Processing
Ultra accurate and detailed

Scan here watch video

SurvStar APP

Field Data Collection & Mapping: The Most Advanced is Here

Measure & Draw : Save Time in Field work and Office



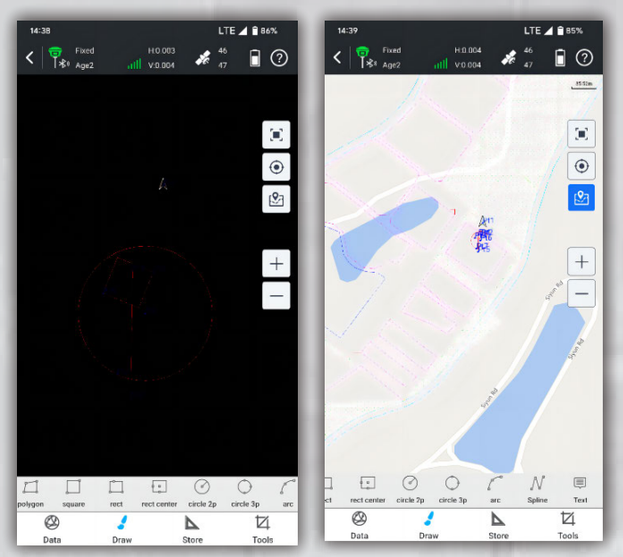
This feature allows you to draw the result map while completing point measurements.

• 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



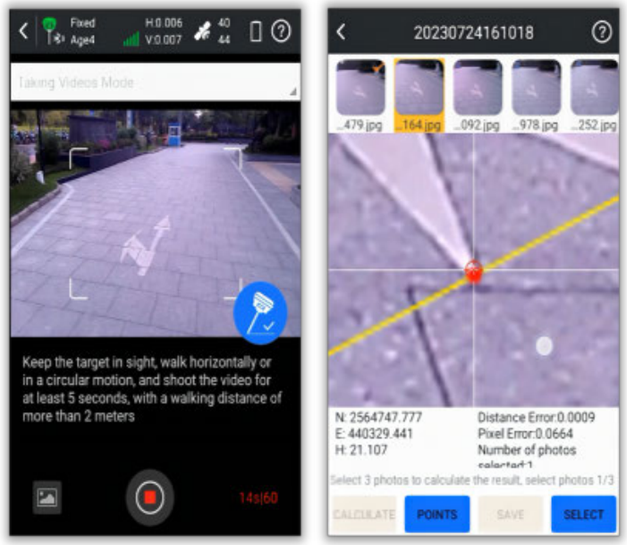
Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• 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.

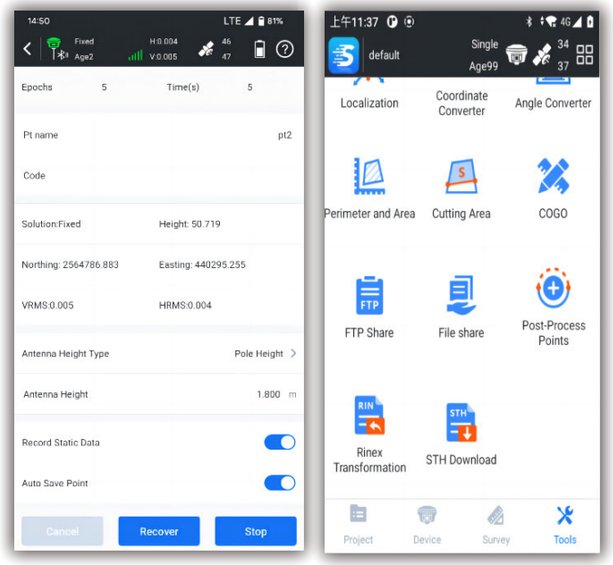
• Now, target points that are inaccessible due to dangerous environments, poor satellite signals, or impassable terrain can be measured remotely.

• 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.

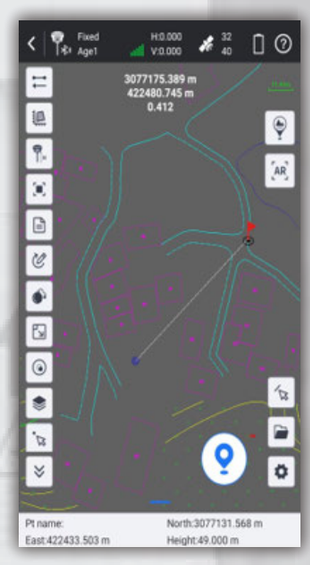
• Data can be shared with others through mobile Internet.

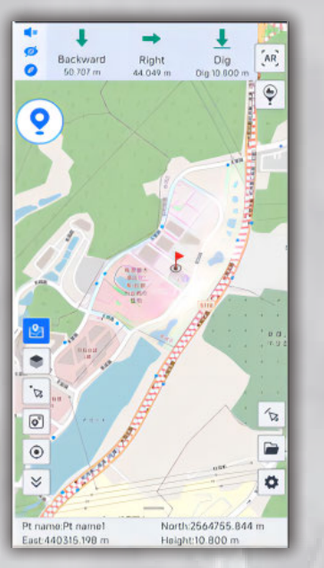
• The accuracy of PPK data collection is as high as Trimble equipment, the result can be directly imported for use in TBC.

SurvStar APP

Stakeout: Lighten Your Load, Increase Your Output

CAD Stake-Out : Save Labor Cost and Reduce Errors





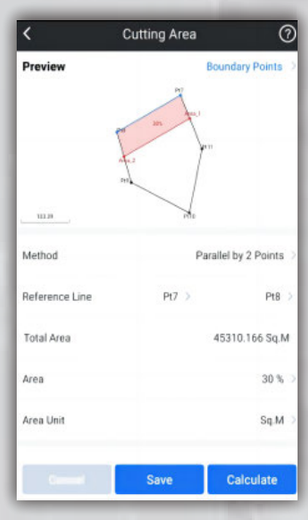
Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

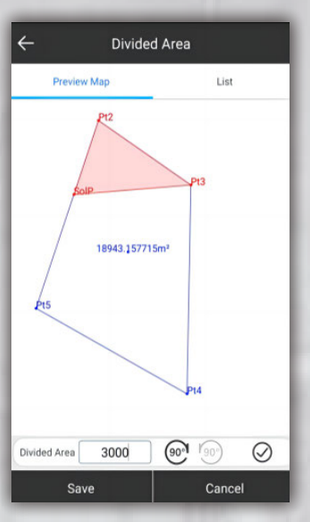
Moreover, for complex shapes such as curves, circles, and polygons, the traditional stake-out process is complicated. Now, our new CAD stake-out program offers a superior solution for surveyors.

- 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.

Area Division : Developed for Professional Cadastral Survey and Stake Out



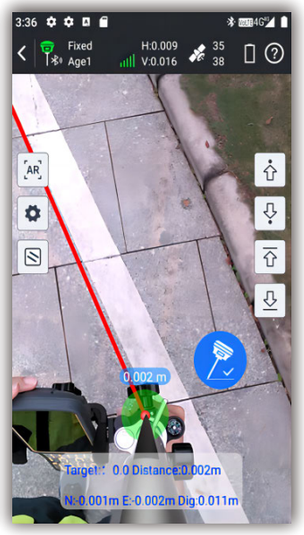


Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

- 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.

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



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

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.

Additional Features

Compatiblewith 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

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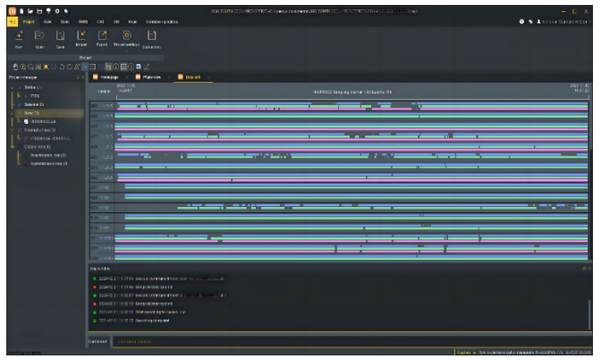
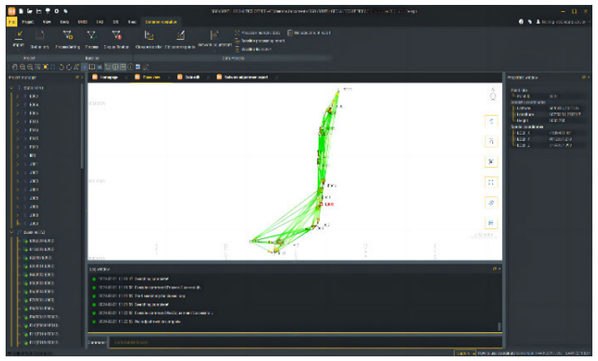
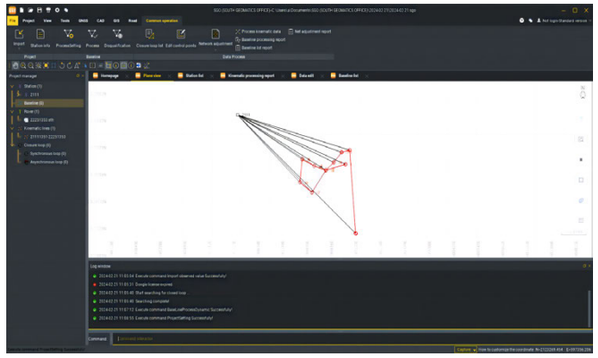
SOUTH Geo Office (SGO)

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.