Specifications

GNSS Performances	Signal Tracking(1598)		Signal Tracking(1698)		Signal Tracking(1760)
	1598 channels GPS: L1, L1C, L2C, L2P, L5 GLONASS: L1C/A,L1P,L2C/A,L2P,L3 BDS: BDS-2: B1I, B2I, B3I, BDS-3: B1I, B3I, B1C, B2a, B2b* GALILEO: E1, E5A, E5B, E6C, AltBOC* SBAS(WAAS/MSAS/EGNOS/GAGAN): L1* IRNSS: L5* QZSS: L1, L2C, L5* MSS L-Band: BDS-PPP, Galileo HAS		1698 channels GPS: L1, L1C, L2C, L2P, L5 GLONASS: G1, G2, G3 BDS: B1I, B2I, B3L, B1C, B2A, B2B* GALILEO: E1, E5A, E5B, E6C* SBAS(WAAS/MSAS/EGNOS/GAGAN): L1C, L1A* Navic/IRNSS: L5* QZSS: L1, L2C, L5* MSS L-Band: BDS-PPP, GALILEO-HAS		1760 channels GPS: L1C/A, L1C, L2C, L2P, L5 GLONASS: L1C/A, L2C/A, L2P, L3CDMA BDS: B1I, B1C, B2I, B2a, B3 GALILEO: E1, E5A, E5B, E5AltBOC, E6 SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM(L1,L5) Navic: L5 QZSS: L1C/A, L1C, L2C, L5, L6 MSS L-Band: BDS-PPP, Galileo HAS*
	Other Features				
	Initialization Time: <10s Initialization reliability: >99.99% Positioning output rate: 1Hz~20Hz				
Positioning Precision	Code differential GNSS positioning		Static(long observations)		Static
	H: 0.25m+1 ppm RMS V: 0.50m+1 ppm RMS		H: 2.5mm+0.1 ppm RMS V: 3mm+0.4 ppm RMS		H: 2.5 mm + 0.5 ppm RMS V: 3.5 mm + 0.5 ppm RMS
	Rapid static		PPK		RTK(UHF)
	H: 2.5 mm + 0.5 ppm RMS V: 5 mm + 0.5 ppm RMS		H: 3 mm + 1 ppm RMS V: 5 mm + 1 ppm RMS		H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS
	RTK(NTRIP)		RTK initialization time		SBAS positioning
	H: 8 mm + 0.5 ppm RMS V: 15 mm + 0.5 ppm RMS		2 ~ 8s		Typically<5m 3DRMS
	BDSPPP		Galileo HAS		
	H:10cm V: 20cm		H: 20cm V: 40cm		
IMU	Update Rate	Tilt Angle	Initialization Way	Type	
	200Hz	0-120°	Shake or Walk	Calibration Free	
User Interface	Keys	Touch Screen	LED	WEB UI	
	Power Key	HD 1.39inches color circle touch screen	Power Indicator	Supported	
	Voice Guidence	Language Supported			
	Supported	Chinese, English, Korean, Russian, Spanish, Portuguese, Turkish, French, Italian			
	Operating system	Secondary development	Cloud service		
	Linux	Provides secondary development package and opens the OpenSIC observation data format and interaction interface definition	Cloud serviceThe powerful cloud platform provides online services like remote management, firmware update, online register, etc.		
Hardware	Dimension	Weight	Material	Temperature	Humidity	Waterproof/Dustproof Shock/Vibration
	155mm(Φ) *98.5mm(H)	1.2kg	Magnesium aluminum alloy shell	Working: -45℃ to +75℃ Storage: -55℃ to +85 ℃	100% Non -condensing	IP68 standard; Withstand 2m pole drop onto the cement ground naturally
	Power Supply		Battery[1]			
	6-18V DC, overvoltage protection		Built-in 7.4V 10000mAh,Base mode up to 8h,rover data collector internet mode>20h			
	Electronic bubble		Thermometer			
	Controller software can display electronic bubble, checking leveling status of the carbon pole in real-time		Built-in thermometer sensor, adopting intelligent temperature control technology, monitoring and adjusting the receiver temperature			
AR Stakeout Camera	Pixel	Visual Angle		Pixel		
	2M	75°	Visual Positioning Camera	8M		
Communication	I/O Ports	Radio	WIFI			
	5-PIN LEMO (external power port + RS232) Type-C(charge+USB+OTG+Ethernet) UHF antenna interface	5W Radio receiver and transmitter Frequency range: 410-470MHz Protocol: Farlink, SOUTH, TrimTalk, Hi-target, HUACE Radio router, Radio repeater Range: With Farlink protocol, up to 30km	802.11b/g/n Support AP mode and Client mode			
	Cellular Network	NFC	BT			
	4G LTE, 3G WCDMA, 2G GPRS, GSM	Automatic pair between receiver and controller (controller requires NFC wireless communication module)	Bluetooth 4.0 standard, Bluetooth 2.1+EDR			
Data Storage /Transmission	Storage	Data transmission	Data Formats			
	64GB SSD internal storage Automatic cycle storage Support external USB storage The customizable sample interval is up to 50Hz	Plug and play mode of USB data transmission Supports FTP/HTTP data download	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			

*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.

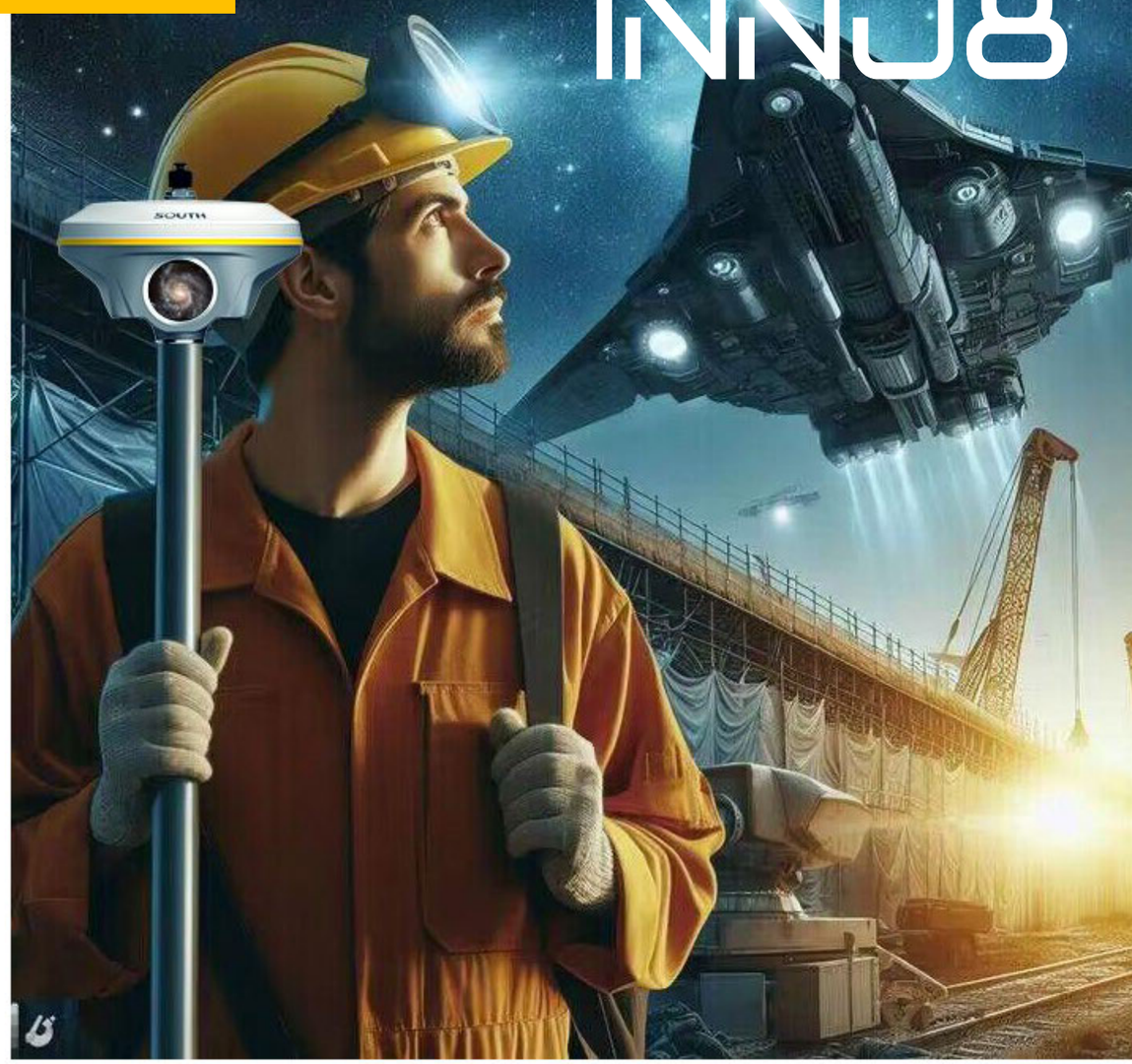
SOUTH
Target your success

SOUTH SURVEYING & MAPPING TECHNOLOGY CO., LTD.
Add: South Geo-information Industrial Park, No.39 Si Cheng Rd, Guangzhou, China
Tel: +86-20-23380888 Fax: +86-20-23380800
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http://www.southinstrument.com http://www.southsurvey.com

We
Wish You
Great
Achievements

SOUTH
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INNO8



- ✓ Visual Positioning & Stakeout
- ✓ 3D Modeling
- ✓ 3 Ways of Processing
- ✓ Up to 1760 channels
- ✓ Farlink 2.0
- ✓ 4th generation IMU

The Unique UAV Photogrammetry Algorithms from SOUTH is Adding 10 Advantages to Traditional GNSS RTK



SOUTH
Target your success

More Points Collected in Less Time, With Less Blind Spots

More Efficient than Traditional RTK

√ SOUTH Group has accumulated a decade of experience in the development of UAV photogrammetry solutions. This has led to the creation of a unique and efficient photogrammetry algorithm for INNO8. This allows INNO8 to directly collect both image and coordinate data. Users can capture still photos or shoot videos while walking. With just one group of photos or a video, users can obtain coordinates for all target points within the measurable range, measuring hundreds of points in few minutes.

√ Compared to traditional photogrammetry equipment, INNO8's data acquisition speed is faster. After collecting photos or videos, users can perform real-time automatic processing by using data collection App on controller. This allows users to obtain coordinates without the need for PC post-processing software, especially in time-sensitive situations.

√ Compared to traditional RTK, INNO8 has a broader working range and fewer blind spots. By photogrammetry function, surveyors can remotely measure points that are without GNSS signal or poor signal quality, from a well-signaled position. Points without satellite signals, such as spaces under rooftops, can now be measured. Previously challenging blind spots or places with severe multipath effects like dense tree areas or construction sites with multiple obstacles, are now easier to measure.





Easy to Learn, Effortless to Use,
and Uncomplicated for Re-measurement

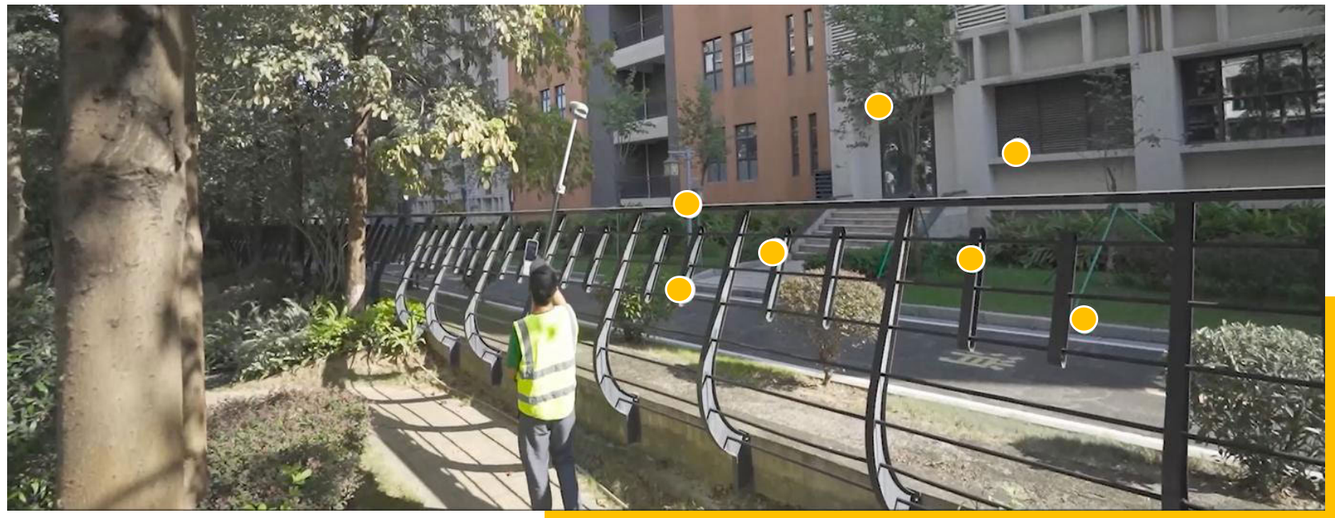
More User-friendly than Traditional RTK

√ When surveyors process photos in the controller App, they simply need to click on the same point in just three photos to calculate the coordinates. This operation is quite easy to learn.

√ A notable feature of photogrammetry is labor-saving. When using INNO8, surveyors can achieve remote measurements at distances of up to 10 meters or even more (in ideal condition), eliminating the need to physically approach each measurement point. This working method significantly saves the surveyor's physical effort, reducing the labor involved in fieldwork.

√ In cases some data needs to be remeasured, surveyors do not have to return to the field. They can simply click on the saved photos to obtain coordinates, making re-measurement a hassle-free process.

The Unique UAV Photogrammetry Algorithms from SOUTH is Adding 10 Advantages to Traditional GNSS RTK



SOUTH
Target your success

Wide Applications, Abundant Output, Satisfying Return in Investment

More Versatile than Traditional RTK

√ Utilizing visual positioning, surveyors can work at a rapid pace in the field. Image data can be stored for a long period and reused at any time. These features are particularly suitable for unconventional GNSS measurement tasks such as recording accident scenes and excavation sites for urban public facilities.

√ When using in conjunction with SOUTH UAV, SGO, or other third-party post-processing software, INNO8 not only outputs coordinates but also various types of data such as images, 3D models, point clouds, and supports multiple coordinate systems. This feature meets your diverse application needs for various types of data and provides a richer output of results.

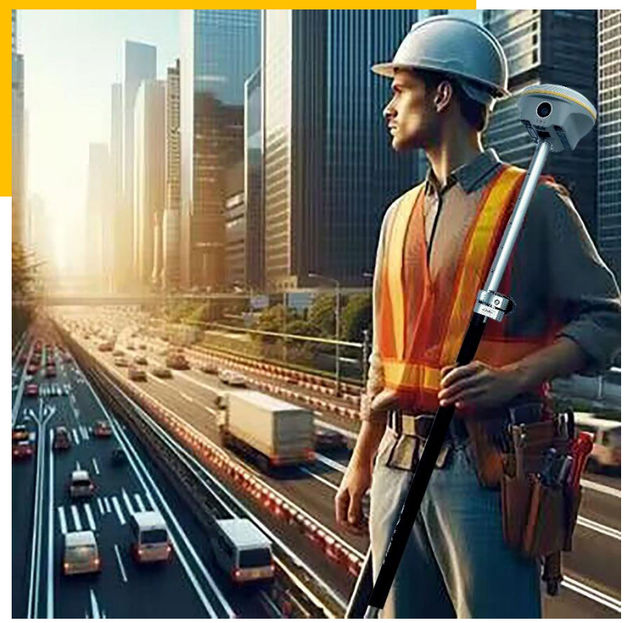
√ Considering the investment perspective, INNO8 stands out as a more cost-effective and versatile option for surveying tasks, compared to other measurement equipment such as laser scanners.

Your Safety, We Care

Safer than Traditional RTK

√ During measurements along the edges and central areas of busy roads, safety risks are present for surveyors. To minimize these risks, surveyors can utilize INNO8 visual positioning to maintain a safe distance from hazardous locations while completing their work, ensuring maximum safety.

√ During measurements, the potential hazards of conducting surveys near water bodies, like rivers and lakes, should not be underestimated. Visual positioning aids users in mitigating risks in comparable scenarios, ensuring their safety. Ensuring a secure working approach is not just a personal requirement but also a necessity for the well-being of your family.





Three Types of Image Data Processing Modes

-- Carefully Designed for Your Challenging Work Requirements



Cloud Server Online Processing, Balancing Performance and Efficiency

Designed for Urban Surveying

When surveyors have a high-quality internet connection, they can process image data online through the network and cloud servers. INNO8 can obtain coordinate data for image measurements with 2cm accuracy in just a few minutes. This processing mode balances high accuracy and fast processing speed.



Desktop Software Processing,
Leave More Time for Fieldwork

Designed for Users with Tight Fieldwork Schedules

Sometimes, surveyors have limited time for fieldwork and need to collect the maximum amount of data in the shortest possible time. In such cases, they can choose not to process data on-site but instead use desktop data post-processing software to process image data after returning to the office.

This working mode offers richer measurement and calculation functionalities, comprehensive data applications, allowing users to focus on data collection outdoors, achieving the highest point acquisition speed, and making the most of their time.

SOUTH
Target your success

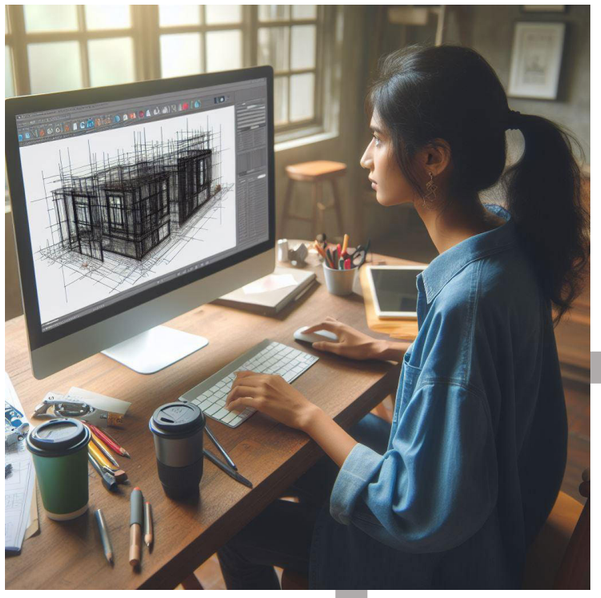


Data Controller Offline Processing,
What You See is What You Get

Designed for Field Surveying

When outside the coverage area of internet, surveyors can achieve offline processing of image data through the data controller app. This processing mode boosts the fastest processing speed by saving time of uploading image data, providing 4cm accuracy results within 30 seconds.

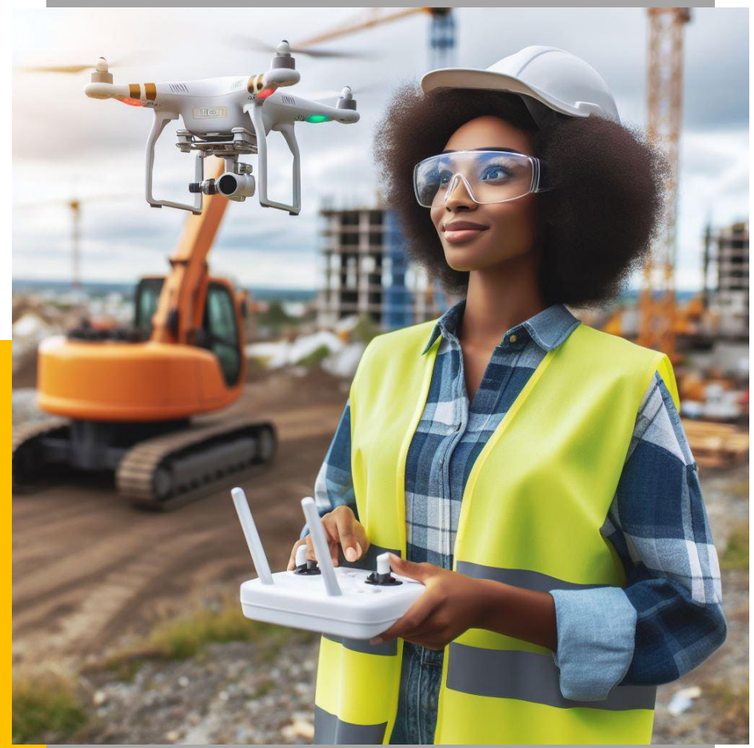
3D Modeling—Broadening Your Working Power is Our Duty and Privilege



One-Man 3D Modeling

Eyes on Now, Be Prepared for Future

With INNO8, single-user standalone operation is sufficient 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.



One Data, Multiple Uses

Work in Your Preferred Way

Surveyors can import the data outcomes from INNO8 into SOUTH UAV and other third-party modeling software for 3D modeling.

SGO (PC version) and SurvStar (Android App) will also support 3D modeling function in the future. Users can choose the software that best suits the current scenario and task requirements to achieve the highest work efficiency.



Complement for UAV Survey Data

Ensuring a Smooth Journey for Your Success

SOUTH's 3D modeling technology are fully utilized and transformed in INNO8. The results of image measurements by INNO8, can be seamlessly integrated with data outcomes from DJI and other brand UAV.

UAV surveys often face challenges of data gaps, leading to incomplete model outcomes. In such cases, surveyors can use INNO8 to collect image data on the ground and incorporate it into aerial survey data as a supplement, thereby enhancing the overall model outcome.

AR Stakeout

Stakeout Intuitively with Live-view Video Display

Experience INNO8 AR stakeout by following the real-time, real-scene guidance on the data controller display without continuously watching on the compass or leveling the pole.

In addition to points, INNO8 can handle staking out lines and curves with AR, which broaden its applications and is suitable for more complex work demands. With AR stakeout, you can now achieve quick and precise stakeouts with ease.





Smart LCD Touchscreen

Make Workflow Simpler and Smoother

INNO8 is thoughtfully designed with a user-friendly interface featuring a large touchscreen to:

- √ Quickly touch screen to switch working mode and datalink, without data controller or mobile devices
- √ Quickly check system information on receiver screen, no need of other device
- √ Quickly launch PPK measurement program, without handheld controller
- √ Precisely display self-check status on receiver screen, saving time, never miss information

Farlink 2.0

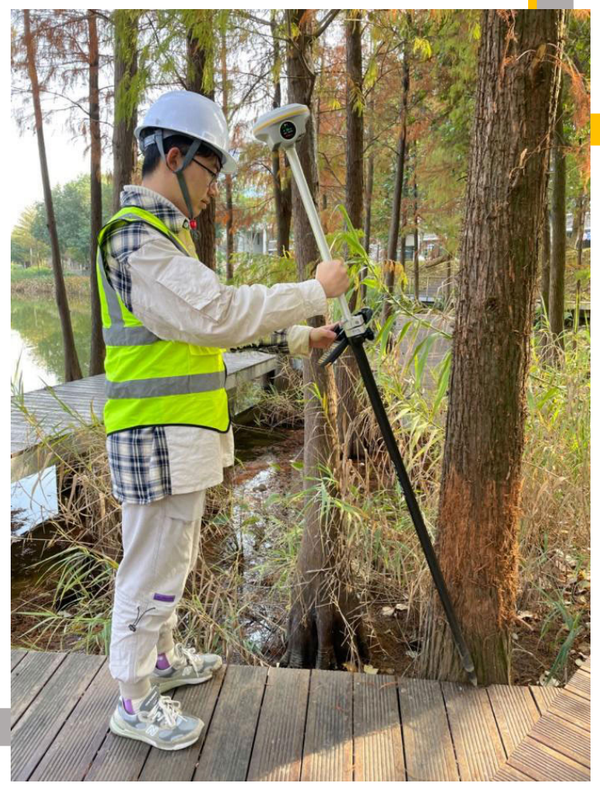
Less Limitation
Better Performance

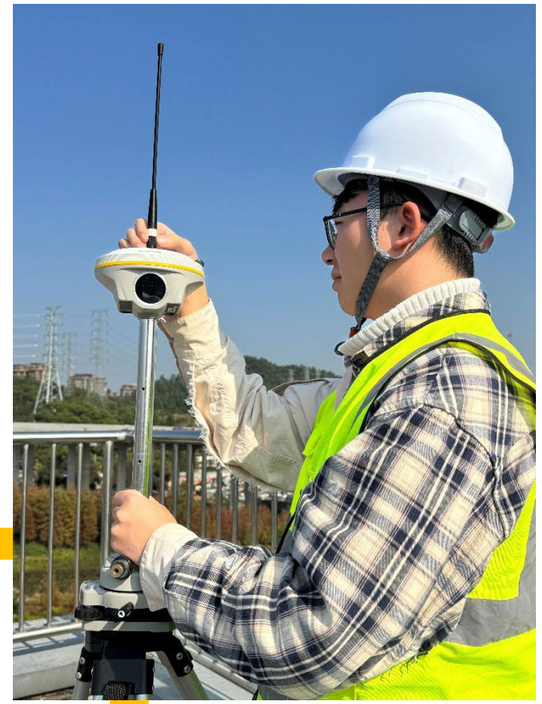
Here comes the Farlink 2.0. After years of hardware and firmware updates, Farlink 2.0 can undertake larger data and provide more stable transmission. Its communication range reach up to 15-20km, being a base can easily cover the working area without moving it frequently.

In addition, Farlink 2.0 can receive data from one specific base. 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 protect your device from changing temperature.







The 4th Generation IMU

Almost All-time Usable

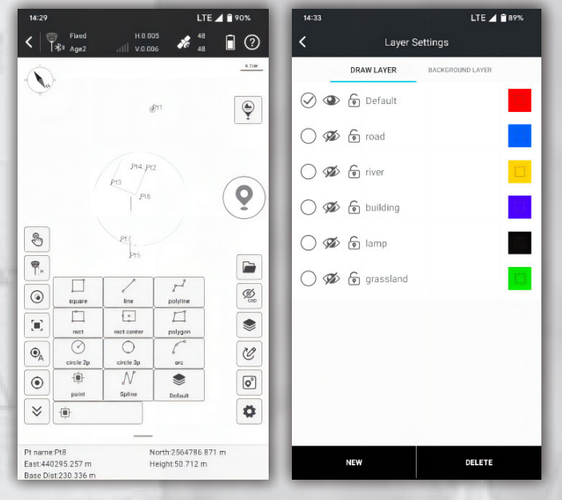
In 2023, we introduced two significant updates: Calibrate-free Initialization and Stability Improvement. Moving into 2024, another noteworthy update has been implemented: the IMU sensor now maintains usability when the pole is rotated.

Traditionally, surveyors encountered issues where rotating the pole during changes in travel direction or adjusting receiver attitude would occasionally disable the IMU. The latest update 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 with your own pace without worry about losing IMU, making workflow smooth.

SurvStar APP

Field Data Collection & Mapping: The Most Advanced is Here

Measure & Draw : Save Time in Field work and Office



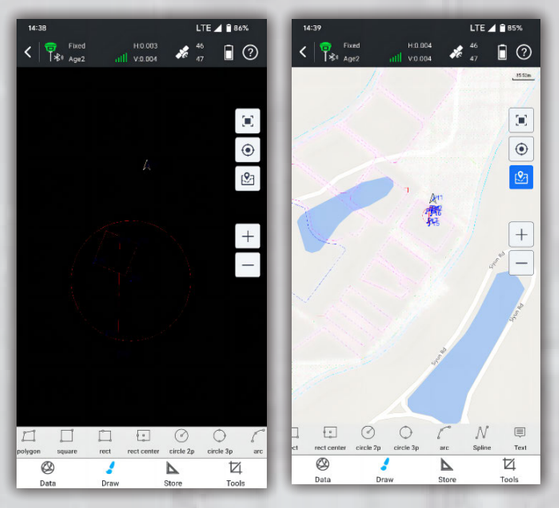
This feature allows you to draw the result map while completing point measurements.

• 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



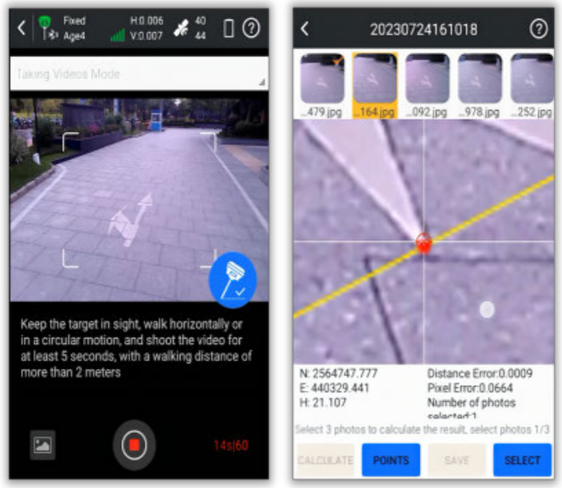
Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• 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



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

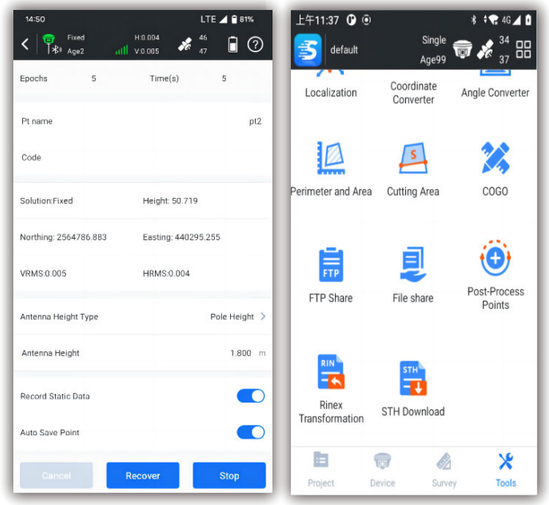
Photogrammetry Measurements can be conducted by taking pictures or videos. Coordinates of all points in the photos can be acquired.

• 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.

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.

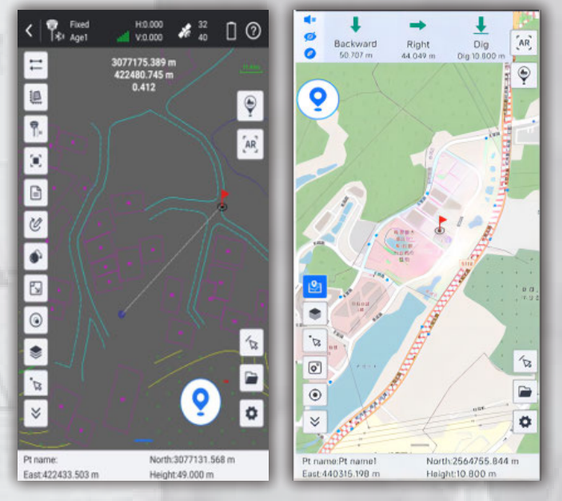
• Data can be shared with others through mobile Internet.

• 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



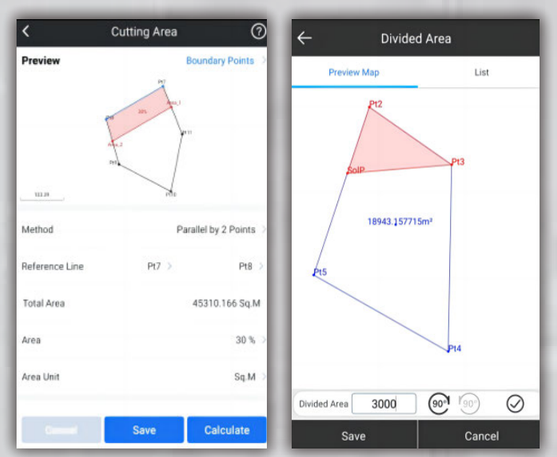
Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

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)

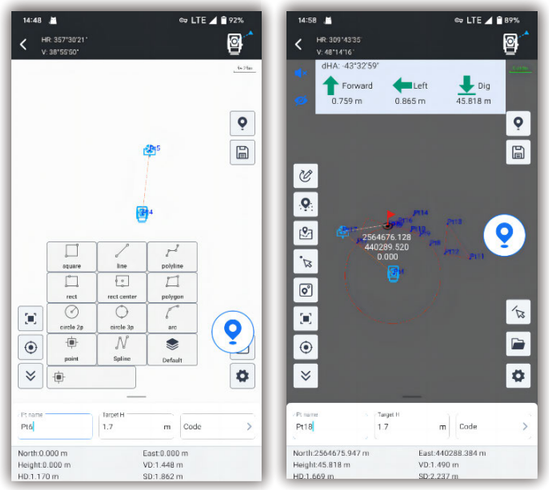
Users utilize the real-time imagery captured by the camera at the bottom of the receiver and the AR guide lines displayed by the software, to locate the target points.

- 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.

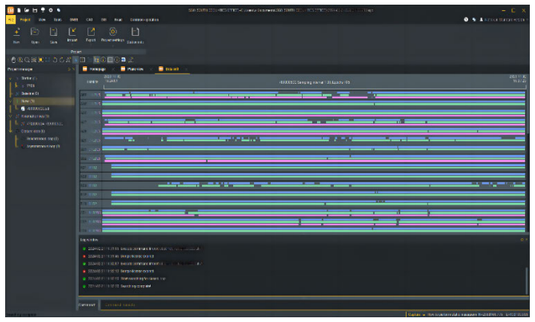
Innovations for Better User Experience

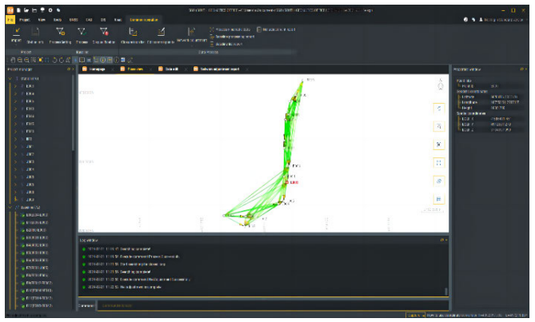
- RTK Data Backup
- QR Code Share
- Multiple Basemap Support
- Basemap
- Adjustment
- Network Mount Point Sorting
- NMEA Output Setting

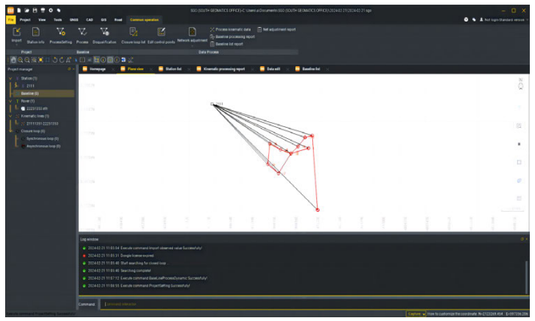
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SOUTH Geo Office (SGO)

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.

