

# 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, E5A/BOC* 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, 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: Reserve		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, E5A/BOC, 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*	
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	
IMU	Update Rate		Tilt Angle		Initialization Way	
	200Hz		0-60°		Shake or Walk	
User Interface	Keys		Touch Screen		LED	
	Power Key		HD 1.39inches color circle touch screen		Power Indicator	
	Voice Guidance		Language Supported			
	Supported		Chinese, English, Korean, Russian, Spanish, Portuguese, Turkish, French, Italian			
Hardware	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.	
AR Stakeout Camera	Dimension		Weight		Material	
	155mm(Φ) *98.5mm(H)		1.2kg		Magnesium aluminum alloy shell	
	Power Supply		Battery			
	6-18V DC, overvoltage protection		Built-in 7.4V 10000mAh, PD quick charge protocol; rover data collector internet mode>20h			
Communication	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			
Data Storage /Transmission	Pixel		Visual Angle		Pixel	
	2M		75°		8M	
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.

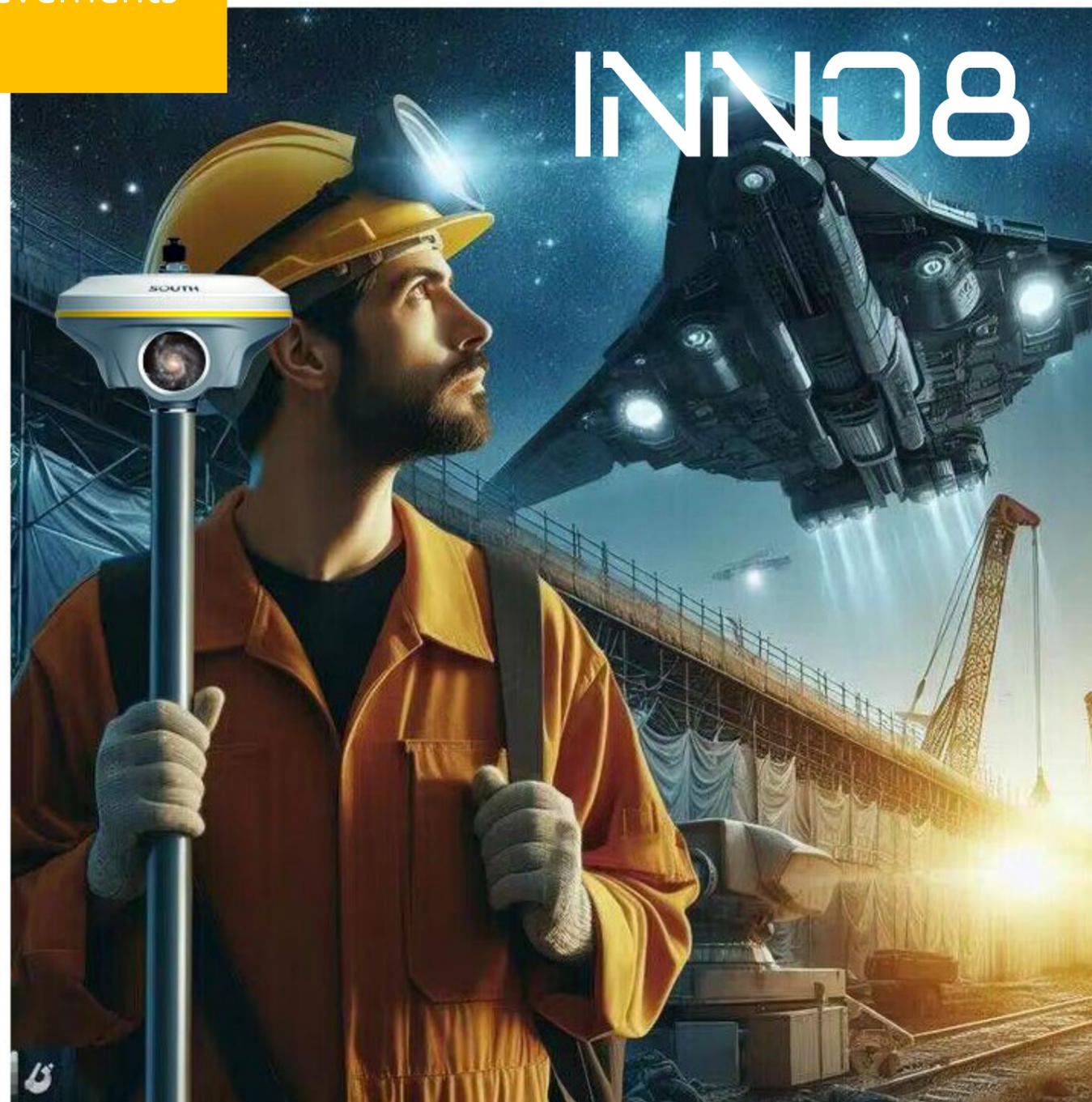
**Remarks:** Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites. Specifications subject to change without prior notice



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We Wish You Great Achievements



# INN08

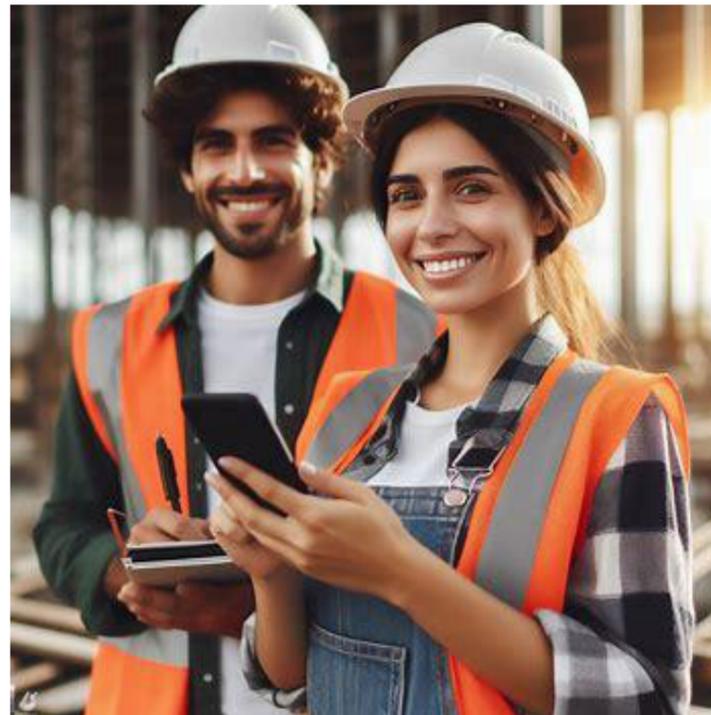
- ✓ Visual Positioning & Stakeout
- ✓ 3D Modeling
- ✓ 3 Ways of Processing
- ✓ Up to 1760 channels
- ✓ Farlink 2.0
- ✓ 4th generation IMU

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

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.



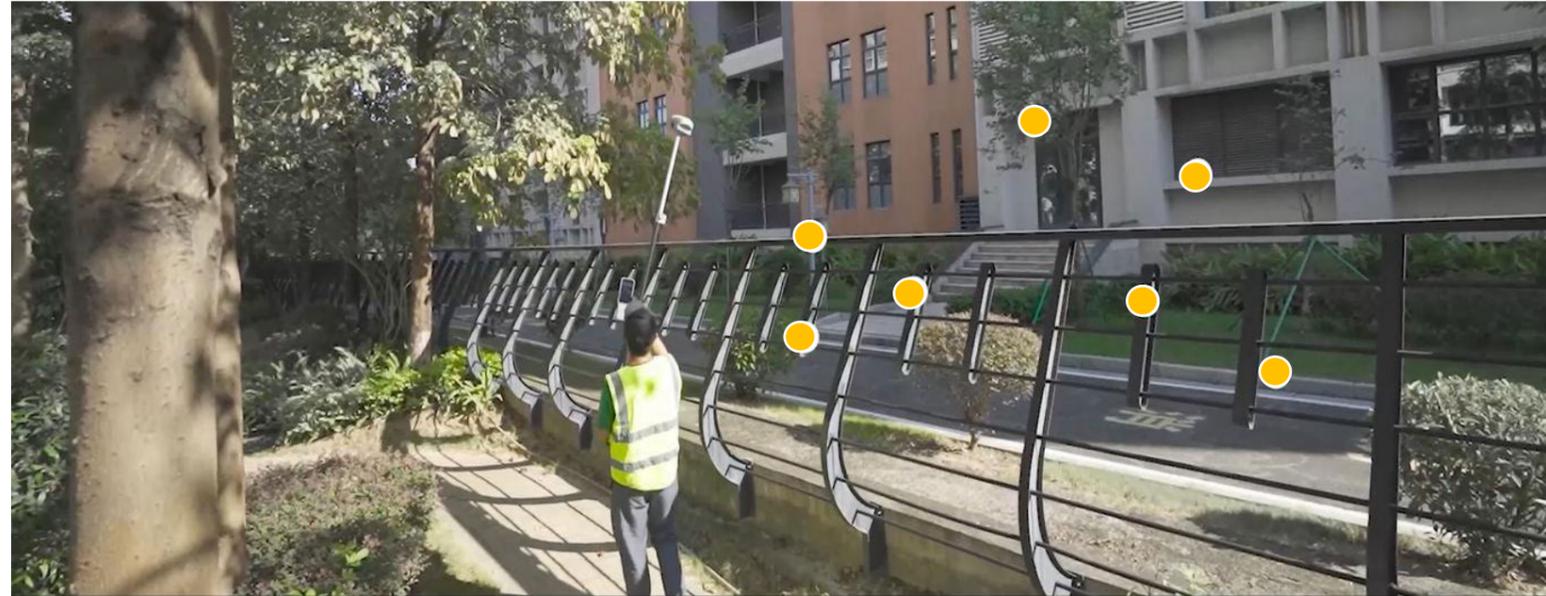
Easy to Learn, Effortless to Use,  
and Uncomplicated for Re-measurement

## 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.

**SOUTH**  
Target your success

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



Wide Applications, Abundant Output,  
Satisfying Return in Investment

## More **Versatile** than Traditional RTK

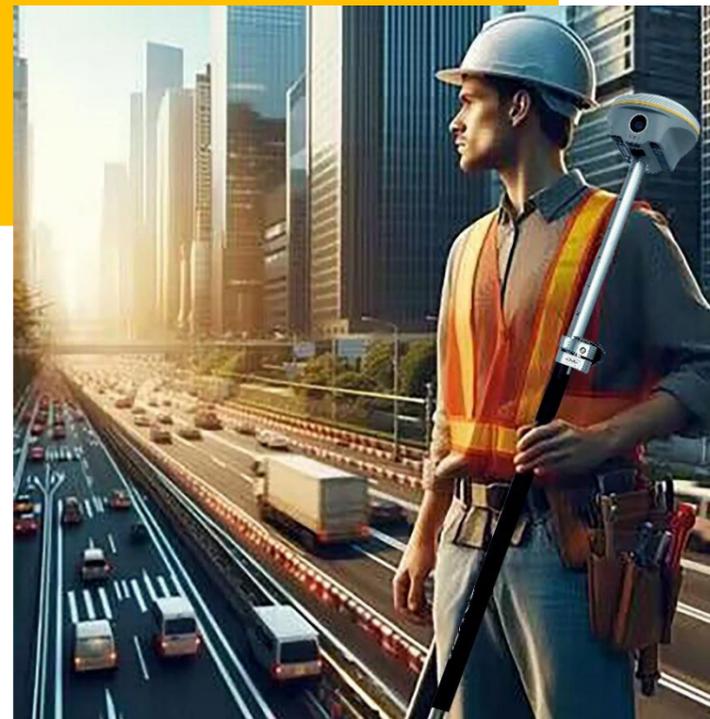
- ✓ Utilizing visual positioning, surveyors can work at a rapid pace in the field. Image data can be stored for a long period and reused at any time. These features are particularly suitable for unconventional GNSS measurement tasks such as recording accident scenes and excavation sites for urban public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

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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

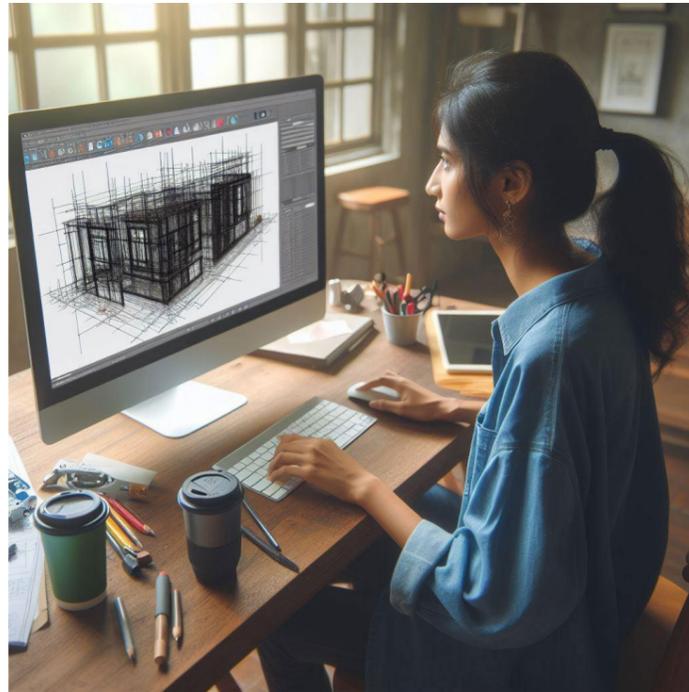


Data Controller Offline Processing,  
What You See is What You Get

### 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

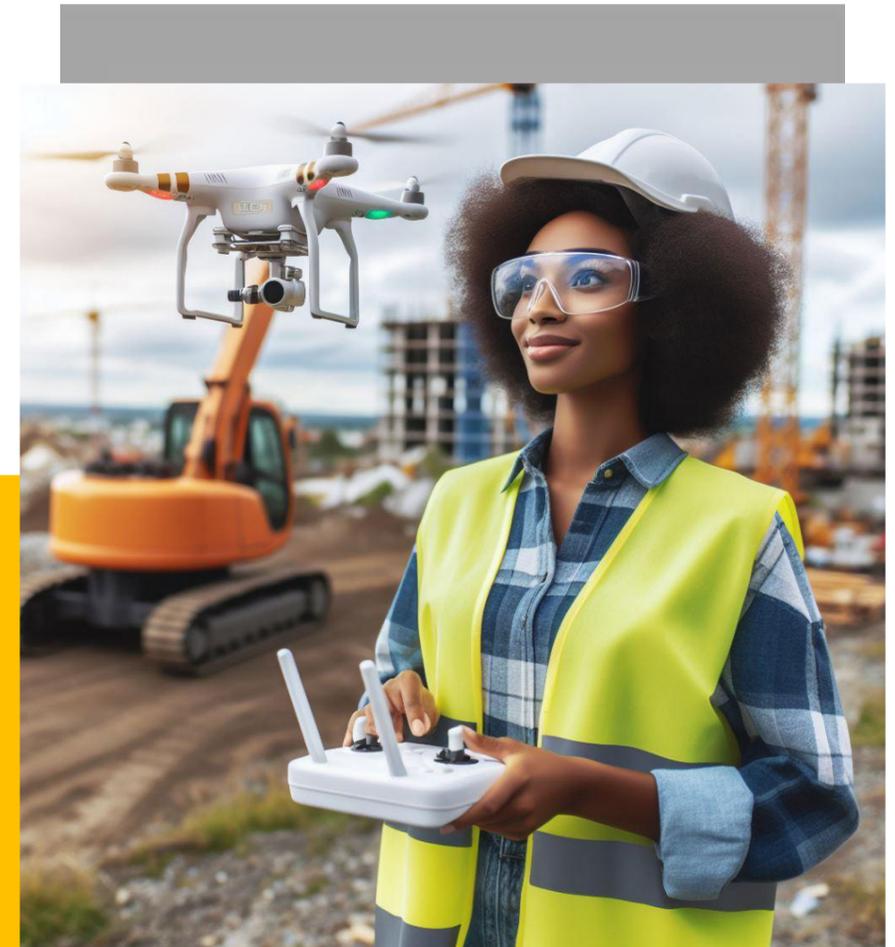


## One-Man 3D Modeling

### 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.

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Target your success



## 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



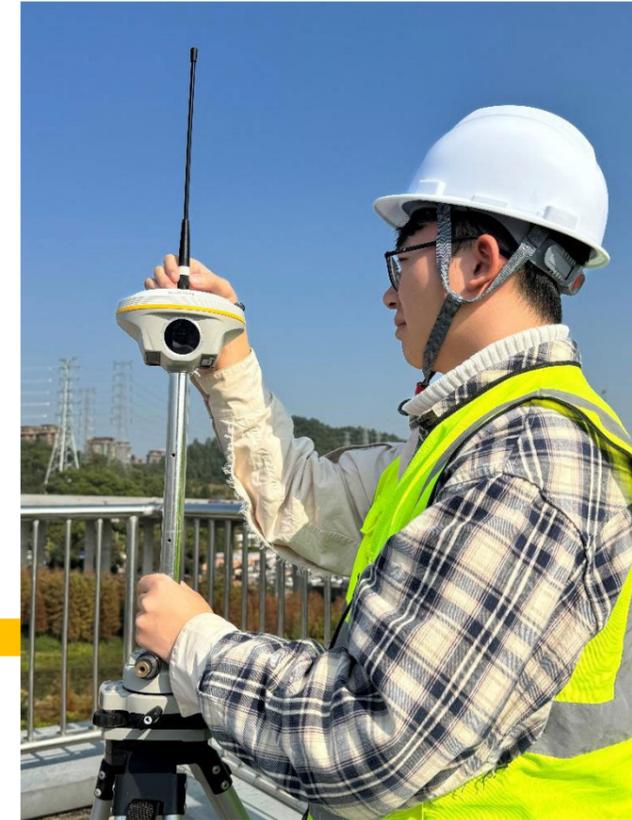
Farlink 2.0

## 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°C to 60°C to protect your device from changing temperature.



The 4th Generation IMU

## Almost All-time Usable

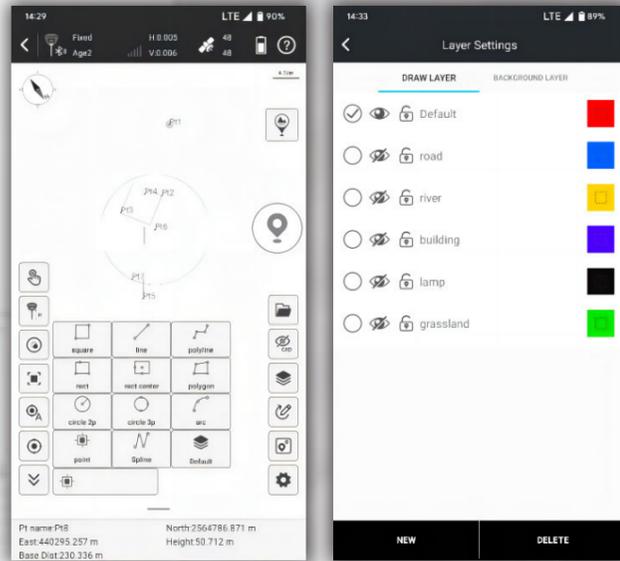
In 2023, we introduced two significant updates: Calibrate-free Initialization and Stability Improvement. Moving into 2024, another noteworthy update has been implemented: the IMU sensor now maintains usability when the pole is rotated.

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

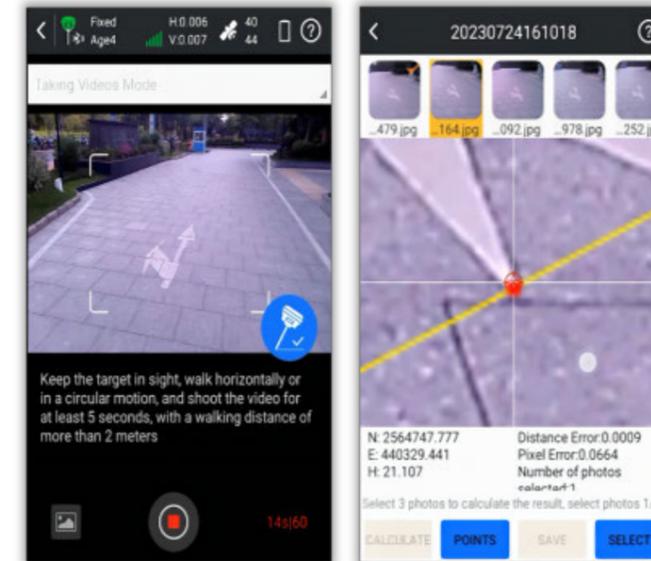
### Measure & Draw : Save Time in Field work and Office



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.

### Visual Positioning : Industry-Leading Non-Contact Measurement Technology

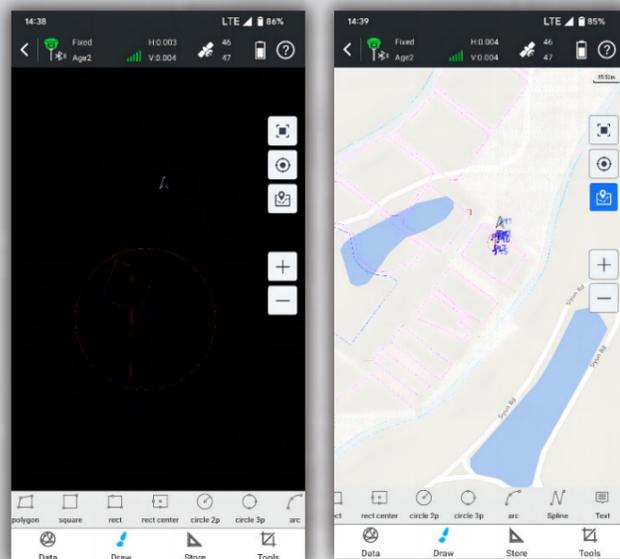


Photogrammetry Measurements can be conducted by taking pictures or videos. Coordinates of all points in the photos can be acquired.

- 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)*

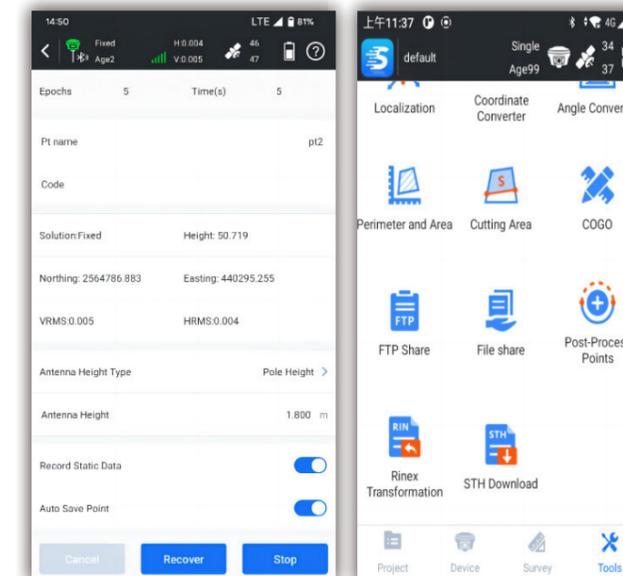
### CAD Draw : Drafting without a PC



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.

### Static & PPK Measurement : More Assistance Now is Available



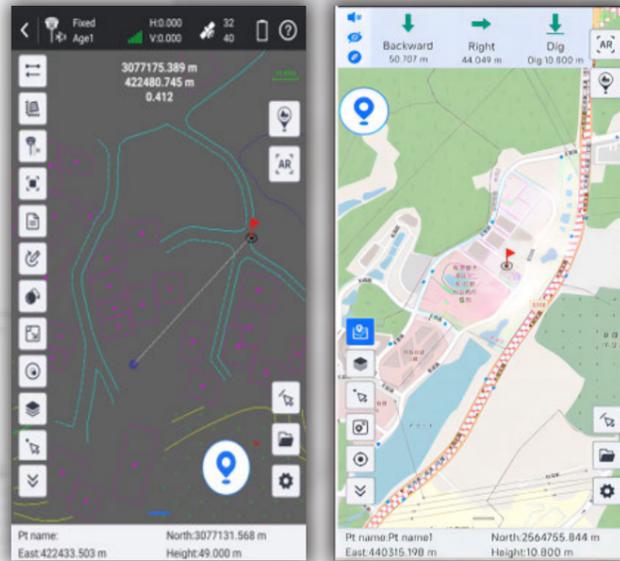
The software provides both static and PPK data collection capabilities.

- 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

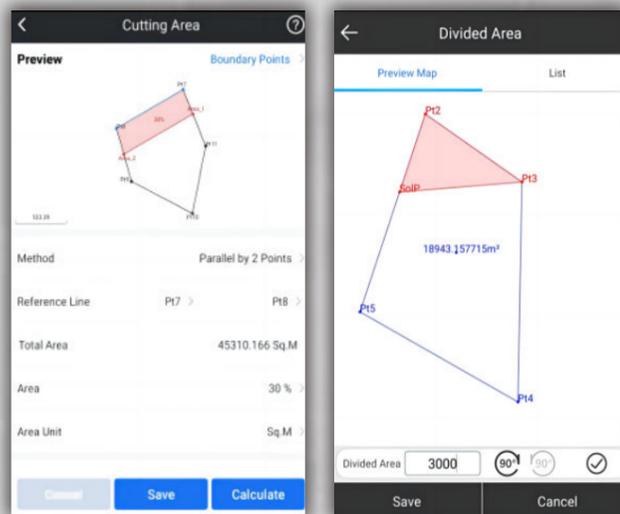


Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

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



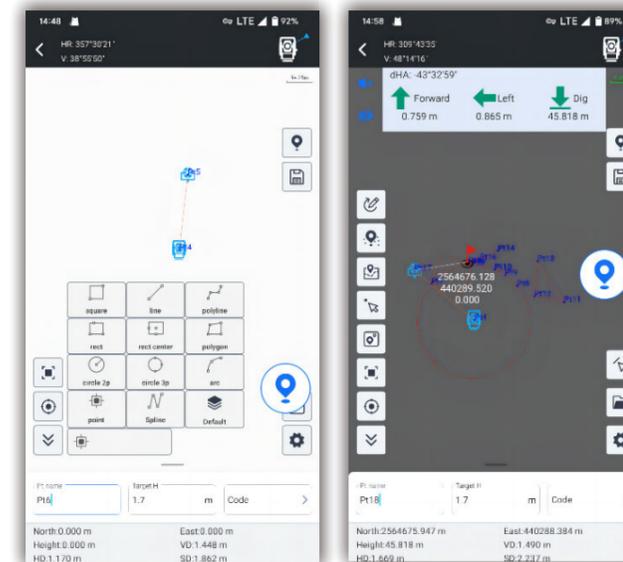
Users utilize the real-time imagery captured by the camera at the bottom of the receiver and the AR guide lines displayed by the software, to locate the target points.

- 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

#### Compatible with Multiple Devices



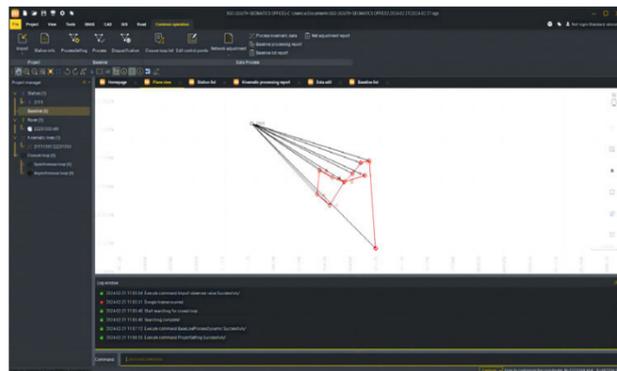
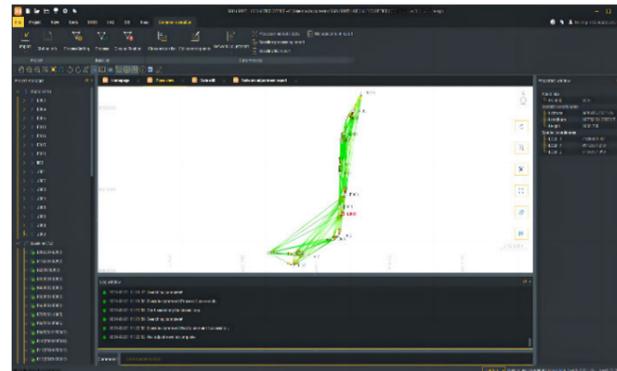
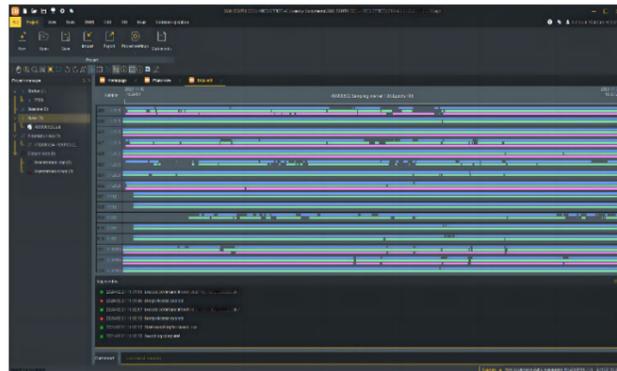
*The App Now works with GNSS, Total Station, Echo Sounder, GIS Tablet, in future it will work with SLAM Scanner, Terrestrial Lidar Scanner.*

#### Innovations for Better User Experience

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

# 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.

## 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.

## 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.

## 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.

