

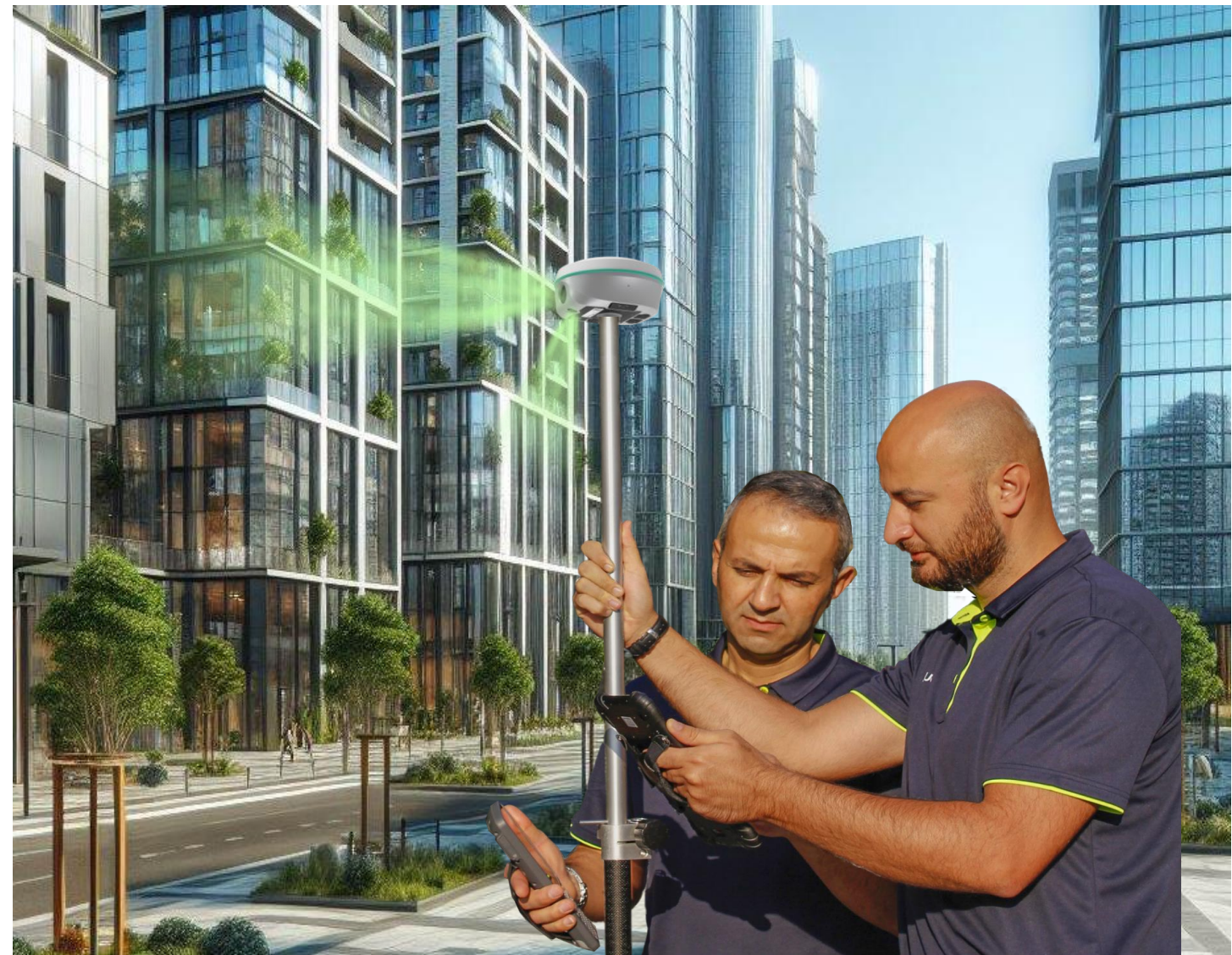
GNSS Features	
Channels	1698
GPS	L1, L1C, L2C, L2P, L5
GLONASS	G1, G2, G3
BDS	BDS-2: B1I, B2I, B3I BDS-3: B1I, B3I, B1C, B2a, B2b*
GALILEO	E1, E5A, E5B, E6C, AltBOC*
SBAS	L1*
IRNSS	L5*
QZSS	L1, L2C, L5*
MSS L-Band*	Reserve
Positioning output rate	1Hz~20Hz
Initialization time	< 10s
Initialization reliability	>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: 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 RTK initialization time	Typically<5m 3DRMS 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	-25°C~+65°C
Storage temperature	-35°C~+80°C
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 Single battery: 16h (static mode)
Battery life	10h (internal UHF base mode) 12h (rover mode)

\*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



Communications	
	5-PIN LEMO interface (external power port + RS232)
I/O Port	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, Trintalk, 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	Support
Communication Modem	802.11 b/g/n standard
Data Storage/Transmission	
	16GB SSD internal storage Automatic cycling storage Support external USB storage (OTG) The customizable sample interval is up to 20Hz Plug and play mode of USB data transmission
Storage	
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
Data Format	GPS output data format: NMEA 0183, PJK plane coordinate, Binary code, Trimble GSOFF Network model support: VRS, FKP, MAC, fully support NTRIP protocol
Sensors	
IMU	Built-in IMU module, calibration-free
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	Single button
Indicators	Satellites, data and power indicators With access to Web UI via WiFi or USB connection, users can monitor the receiver status and change the configurations
Web interaction	Chinese/English/Korean/Spanish/Portuguese/Russian/Turkish/French/Italian
Voice guidance	Provides secondary development package, and opens the OpenSIC observation data format and interaction interface definition
Secondary development	The powerful cloud platform provides online services like remote management, firmware updates, online registers, etc.
Cloud service	



# RENCO<sup>2</sup>

*Eyes on Future!*

- Visual Positioning & Stakeout
- 3D Modeling
- 3 Ways of Processing
- 1698 Channels
- Farlink 2.0
- 5<sup>th</sup> Generation IMU

## More Efficient than Traditional RTK



RENO2 processes groups of photos or videos in real-time, acquiring coordinates for hundreds of points within minutes. With remote measurement via camera, it has an extended working range and fewer blind spots. Previously difficult-to-measure locations, such as spaces under rooftops and areas with obstacles, are now easily accessible with RENO2.

## More Versatile than Traditional RTK



Utilizing visual positioning, surveyors can obtain multiple types of data. The image data is reusable at any given time. These functionalities are particularly suitable for distinctive GNSS measurement tasks, including the documentation of accident scenes and excavation sites for urban public facilities to record both images and coordinate data and use in the future.

## Three Processing Approaches --For Your Diverse Work Specifications

1



Designed for Urban Surveying  
--Cloud Server Online Processing

2

Designed for Users with Tight Fieldwork Schedules  
--Desktop Software Processing

3



Designed for Field Surveying  
--Data Controller Offline Processing

## More User-friendly than Traditional RTK



The visual positioning feature of the RENO2 is a labor-saving function that enables surveyors to remotely measure points up to 10 meters or more (under ideal conditions) without physically approaching each point. This approach decreases the physical exertion required during fieldwork.

## Safer than Traditional RTK



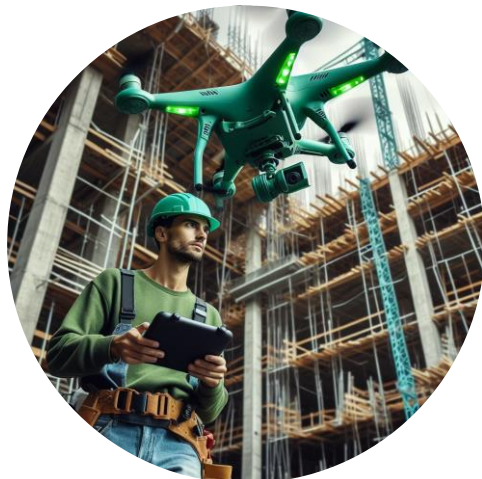
Utilizing visual positioning assists users in minimizing risks during surveys conducted near hazardous areas, such as busy roads and lakes, ensuring the safety of surveyors. Adopting a secure working approach is not just a personal demand but also crucial for the well-being of your family.

## Eyes on Now, Be Prepared for Future



RENO2 facilitates individual 3D modeling, visually presenting geographic information such as coordinates, areas, and volumes. In addition, model data can be converted into various formats and tailor coordinate parameters to suit diverse applications.

## Ensuring a Smooth Journey for Your Success



RENO2 leverages RUIDE's advanced 3D modeling technology to incorporate image measurements with UAV data, encompassing platforms like DJI and others. Addressing data gaps in UAV surveys, RENO2 enhances incomplete models by gathering ground image data, thereby improving the overall quality of survey outcomes.

## Work in Your Preferred Way



Surveyors have the flexibility to import RENO2 data into both RUIDE UAV and third-party modeling software to facilitate 3D modeling. Subsequent updates to SGO (PC version) and RTKGO (Android App) will incorporate 3D modeling functions, empowering users to choose the most suitable software based on scenario and task requirements for optimal work efficiency.



### 0.1mm

**Left and Right Camera Deviation**

The modular design ensures that the assembly flatness of the camera is within 0.15mm, with a left and right deviation of within 0.1mm, preventing camera misalignment and ensuring the accuracy of visual positioning.

### 5 Years

**Polycarbonate Top Cover**

The top cover and ring utilize integral molding technology, ensuring strong integrity and resistance to damage. The polycarbonate material is corrosion-resistant, protecting internal precision components. It mitigates the impact of extreme environments on the mainframe and can be used in natural settings for over 5 years.

### 110N

**Impact Resistance**

The anti-collision ring utilizes TPU material, effectively cushioning against an impact force of 110N (the impact force from a 2-meter drop is approximately 30N). Therefore, it safeguards your RENO2 from a 2-meter pole drop or other unexpected impacts.

### 10 Years

**Protective Layer**

The polyethylene coating can reach 100-300 $\mu$ m, preventing aging and rust of the shell, providing scratch resistance, and offering effective protection for over ten years.

### 0.1 $\mu$ m<sup>minimum</sup>

**Micropore Diameter of the Waterproof Membrane**

The diameter of drizzle (400 $\mu$ m) is 40-4000 times that of the E-PTFE membrane. Therefore, it can prevent rainwater from passing through the protective film. The design with a contact angle of 135.6° prevents liquid water from wetting and capillary infiltration. At the same time, it allows for breathability, ensuring the normal operation of internal components of the instrument.

### 5°

**Rotational Deviation**

The bottom threaded interface maintains a rotational deviation of within 5° for the pole, allowing users to precisely install the pole with ease. This convenient installation process saves time for the fieldwork.

### 65W/(m·k)

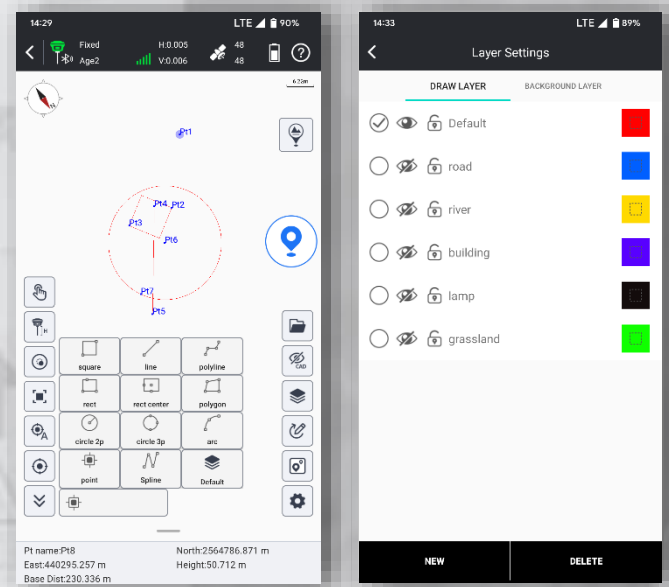
**Thermal Conductivity**

The internal heating components are closely fitted to the shell, and passive air cooling is utilized for heat dissipation. With a thermal conductivity of 65W/(m·K), it can achieve heat dissipation without the need for additional cooling components, ensuring optimal operation under different temperature conditions.

# RTK GO APP

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

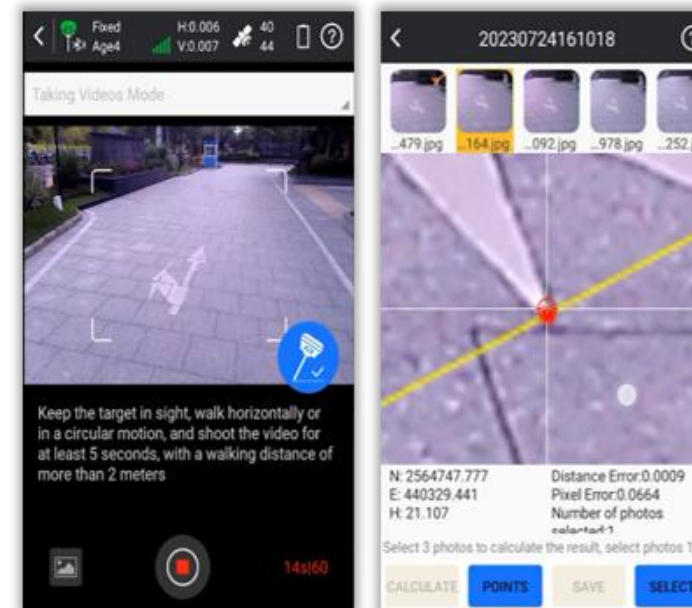
### Measure & Draw : Save Time in Field work and Office



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

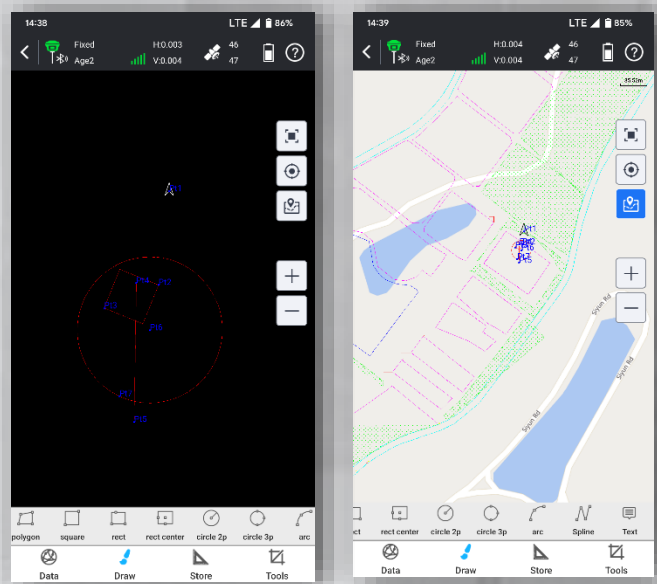


Photogrammetry Measurements can be conducted by taking pictures or videos. Coordinates of all points in the photos can be acquired.

- 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)*

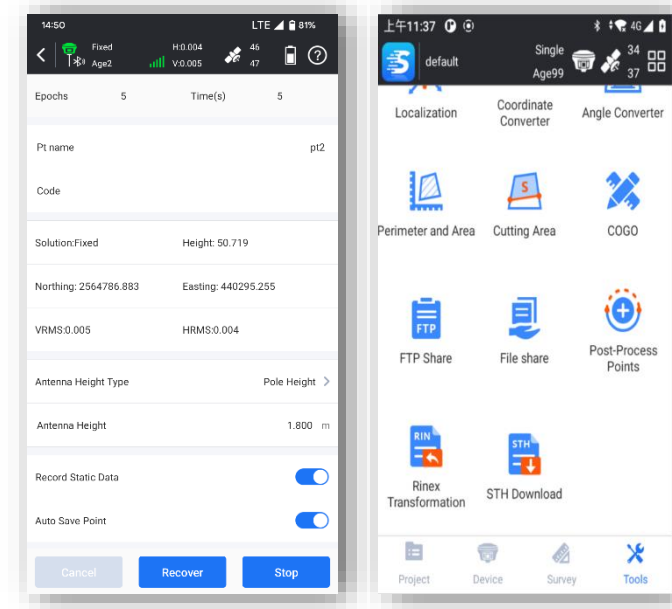
### CAD Draw : Drafting without a PC



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.

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



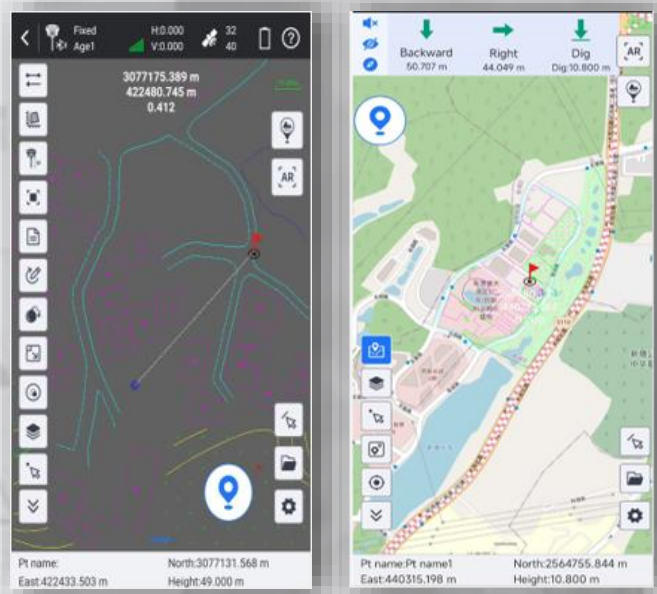
The software provides both static and PPK data collection capabilities.

- 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.

# RTK GO 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 set out 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

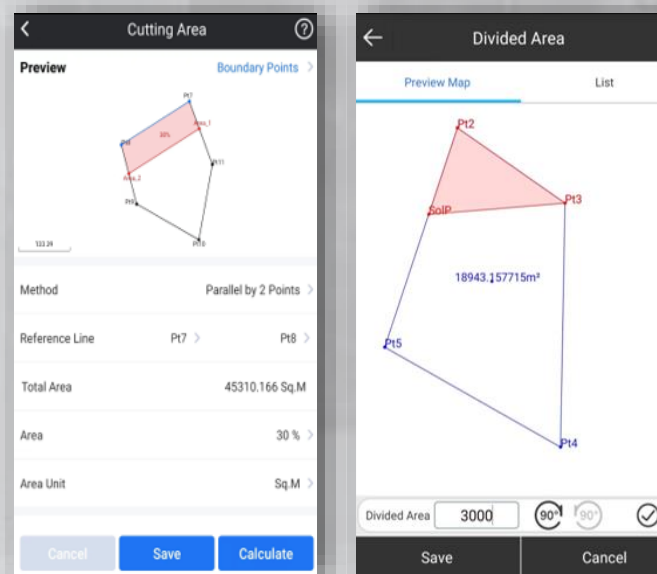


*(This function only works with the receiver models that have downward-facing camera or dual-cameras)*

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.

### Area Division : Developed for Professional Cadastral Survey and Stake Out

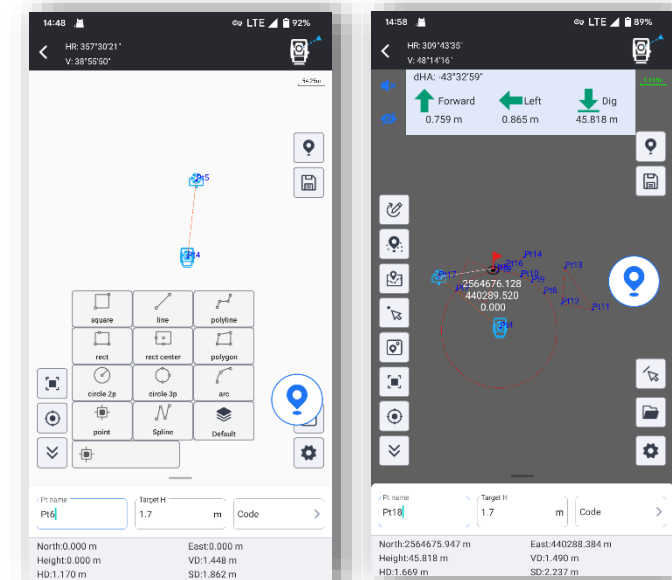


Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

- 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.

## Additional Features

### Compatible with Multiple Devices



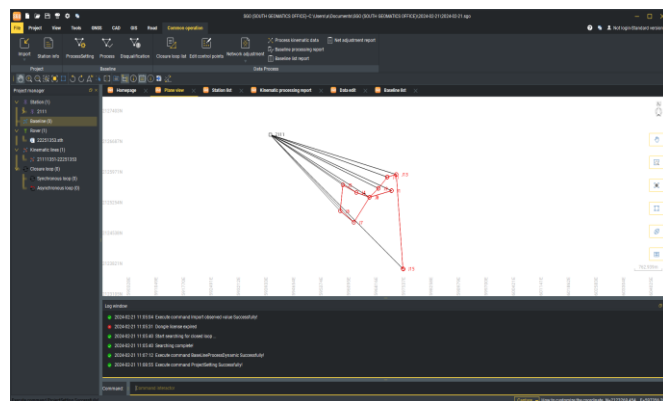
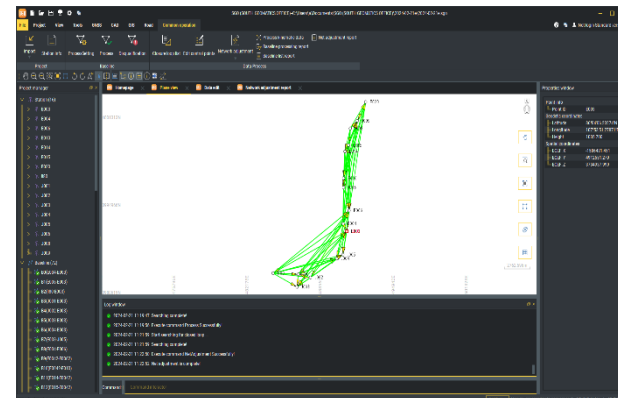
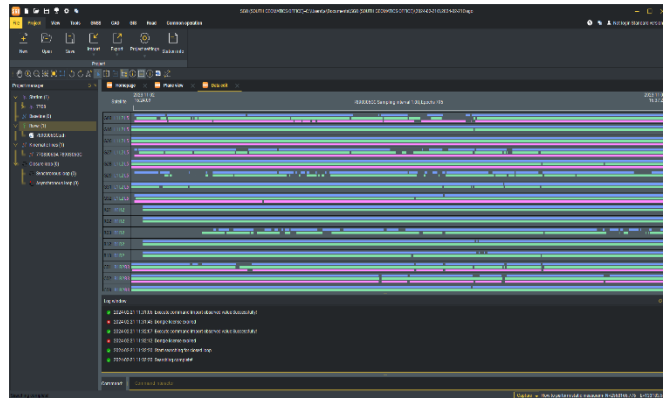
The App Now works with GNSS, Total Station, Echo Sounder, GIS Tablet, in future it will work with SLAM Scanner, Terrestrial Lidar Scanner.

### Innovations for Better User Experience

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

# GEO DATA LAB

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.

