SPECIFICATIONS

GNSS Features

Channels…………………...................…………………..…………1698
GPS…………………………………………..…. L1, L1C, L2C, L2P, L5
GLONASS…………………………………………………. G1,G2,G3
BDS……………………..……………B1I,B2I,B3L,B1C,B2A,B2B,ACEBOC
GALILEO……………………………………………………. E1,E5A,E5B,E6
SBAS……………………..…………………………………………L1C,L1A*
NavIC/ IRNSS………………………………………………………… L5
QZSS………………………………………………................ L1,L2C,L5
MSSL - Band(Reserve)
Positioning output rate…………………………………………… 1Hz~20Hz
Initialization time………………………………………………….< 10s
Initialization reliability……………………………………….. >99.99%

Positioning Precision

Code differential GNSS……………. Horizontal: 0.25 m + 1 ppm RMS
Vertical: 0.50 m + 1 ppm RMS
Static(long observations)…………..Horizontal: 2.5 mm + 0.1 ppm RMS
Vertical: 3 mm + 0.4 ppm RMS
Static…………………..……………Horizontal: 2.5 mm + 0.1 ppm RMS
Vertical: 3.5 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
RTK initialization time……………………………………….……… 2 ~ 8s
SBAS positioning…………………………………. Typically < 5m 3DRMS
BANDA-L………………………………….…… Horizontal: 5-10cm (5-30min)
Vertical: 10-30cm (5-30min)
IMU…………………………………. Less than 10mm + 0.7 mm/° tilt to 30°
IMU tilt angle…………………………………………………………… 0° ~ 60°

Hardware Performance

Dimension……………………………135mm(W)×135mm(L)×84.75mm(H)
Weight………………………………………………. 890g(battery included)
Material…………………………………… Magnesium aluminum alloy shell
Operating temperature………………………………………… -40℃~+65℃
Storage temperature…………………………………………… -35℃~+80℃
Humidity………………………………………… 100% Non-condensing
Waterproof/Dustproof……………………………………........………… IP68

Shock/Vibration………………….MIL-STD-810G(withstand 2meters pole
drop onto the cement ground naturally)
Power supply…………………………….6-28V DC, over voltage protection
Battery………………….…………………… Inbuilt 7.4V 6800mAh rechargeable
Li-ion battery
Battery life…………………………Typically 20h(static), 7h (Base+UHF)
19h (Rover+UHF), 20h (Rover+Bluetooth)
19h (Rover+Cellular Network)

Communications

I/O Port……………………….5-PIN LEMO external power port + RS232
Type-C(charge+USB+OTG+Ethernet)
1 UHF antenna interface
Internal UHF…………………………2W Radio receiver and transmitter
Frequency range…………………………………………… 410-470MHz
Communication protocol…..………………… Farlink, Trimtalk, SOUTH,
HUACE,Hi-target,Satel
Communication range……………… Typically 5km with Farlink protocol,
up to 12km
Bluetooth………………..……..Bluetooth5.0 standard,Bluetooth2.1+EDR
NFC Communication……….Realizing close range (shorter than 10cm)
automatic pair between receiver and
controller(controller requires NFC
wireless communication module else)
Cellular.. 4G

WIFI

Modem…………………………………………………… 802.11 b/g standard
WIFI hot spot…………….Receiver broadcasts its hot spot form web UI
accessing with any mobile terminals
WIFI datalink…………….Receiver can transmit and receive correction
data stream via WiFi datalink

Data Storage/Transmission

Storage…………………………….. 4GB SSD internal storage standard,
extendable up to 128GB
Automatic cycle storage(The earliest data
Files will be removed automatically while the
Memory is not enough)
Support external USB storage
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,etc.
Differential data format:CMR,RTCM2.1,
RTCM2.3,RTCM3.0,RTCM3.1,RTCM3.2(recommended)
GPS out put data format:NMEA0183,PJK plane
coordinate,Binary code
Network model support:VRS,FKP,MAC,
Fully support NTRIP protocol

Sensors

Electronic bubble……………. Controller software can display electronic
bubble, checking leveling status of the
carbon pole in real-time
IMU…………………………………… Built-in IMU module, calibration-free
and immue to magnetic interference
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………………………………………………… 4LED indicators
Web interaction……………With the access of the internal web interface
management via WiFi or USB connection, users
are able to monitor the receiver status and
change the configurations freely
Voice guidance……… It provides status and operation voice guidance,
And supports Chinese/English/
Korean/Spanish/Portuguese/Russian/Turkish
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 manage, firmware update,
online register and 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, correction format used and number of tracked satellites. Specifications subject to change without prior notice

CE FC MIL-STD 810G

SOUTH
Target your success

SOUTH
Target your success

Powered By
S805

G4
Stay Powerful
## Anytime
Anywhere

✓ S805
1698 channels
✓ Farlink 2.0
✓ 4th generation IMU

S805, the New Pop Star

Save Weak Signal

SOUTH always spares no efforts to invest in innovations. Through unremitting research and improvement of the multi-satellite positioning algorithm, we have developed—the S805 GNSS engine.

It has 1698 channels to track more satellites and weak signals.

The more important improvement is about the success rate and speed of obtaining a fixed solution. Previously, under the dense forest and surrounded by buildings, it was impossible to get a fixed solution. Now with G4, you don't have to wait a long time to get fixed. It used to take minutes, but now it takes tens of seconds.
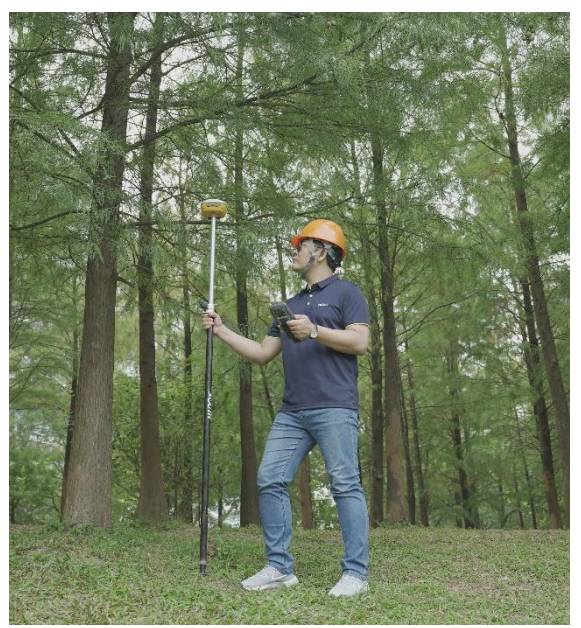
Farlink 2.0

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.

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℃.

The 4th Generation IMU

Almost All-time Usable

In 2023, two major updates were launched: Calibrate-free Initialization & Stability Improvement.
For 2024, we have a new update again: when you rotate the pole, IMU sensor remains 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 new update eliminates the loss of Inertial-Measurement-Usable Status in most scenarios to improve the availability and productivity of IMU.

Material

More Robustness & Durability

The body of the G4 is made of AZ91D magnesium alloy, which has high strength and excellent heat dissipation. The surface is sprayed with metallic paint, which makes the G4's body resistant to scratches, impacts, and rust.

The top cover of the G4 is made of polycarbonate by one-piece molding. It has good fire resistance and anti-deformation properties. GNSS signal will be received evenly from all directions.

Appearance

By Surveyors, For Surveyors

Based on the opinions and suggestions of old users, we redesigned the color and indicator light of the receiver.

The yellow bodywork makes surveyors and the instrument more conspicuous. On the construction site, in the dense forest, others will easily notice the users of G4 and protect their safety.

Now surveyors can check the receiver's working status more clearly in complicated environments such as forests or at night. At the same time, it can be better seen from a long distance.

Complete Set of Modules

Prepare for All Conditions

G4 is equipped with every basic module like network, 2W radio, WiFi, IMU and extendable SSD (up to 128GB).

With all these modules installed, G4 is a utility player in the field. No matter what environments it encounters, neither for now nor in the future, G4 can always start to work with appropriate modules.

Complete Set of Modules

Unique SOUTH Algorithm, Reliable Working Power

SOUTH research team has a number of core technologies and unique algorithms, such as the SOUTH algorithm. It can correct data from harsh environments to obtain better accuracy.
Fixed-keep allows continuing to measure for a few minutes after losing the fixed solution.
Beidou PPP and Galileo HAS help you achieve precise point positioning through satellite broadcasted signals, so you can even work in areas without CORS corrections. Your success is our target.

121.5 *kNm/kg
Anti-compression Ability

43.4 *J
Anti-impact Ability

150 Mbps
Downlink Data Rate

128 GB
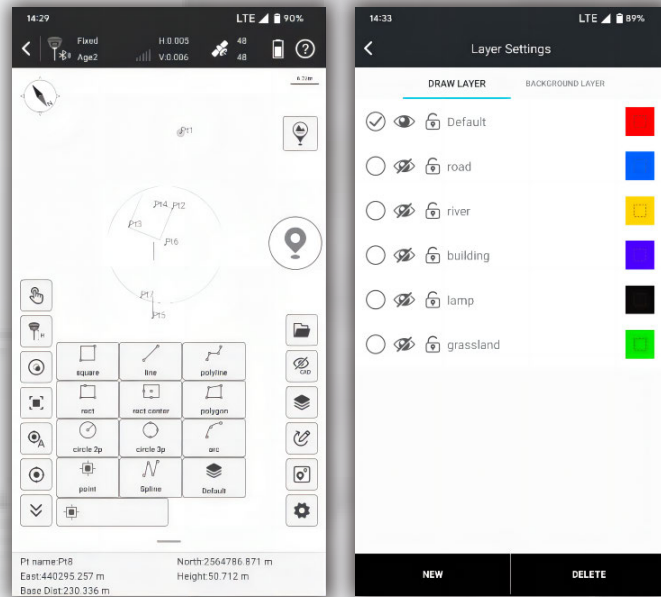Extendable Storage

G4
Stay Powerful Anytime Anywhere

* It refers to specific strength.
* 23℃ in ASTM D3029 standard.

SurvStar APP

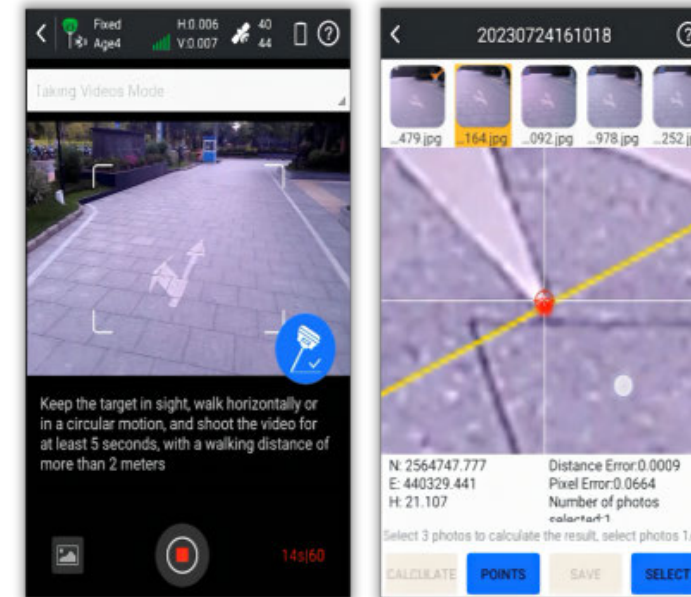## Field Data Collection & Mapping: The Most Advanced is Here

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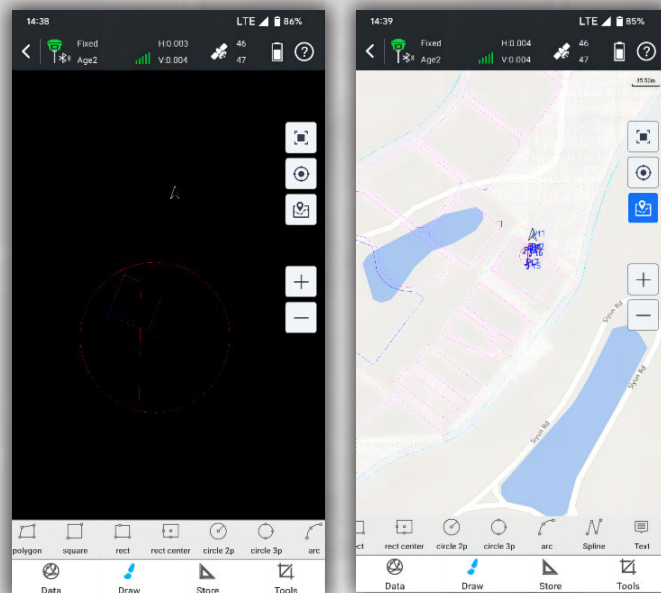
Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• 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
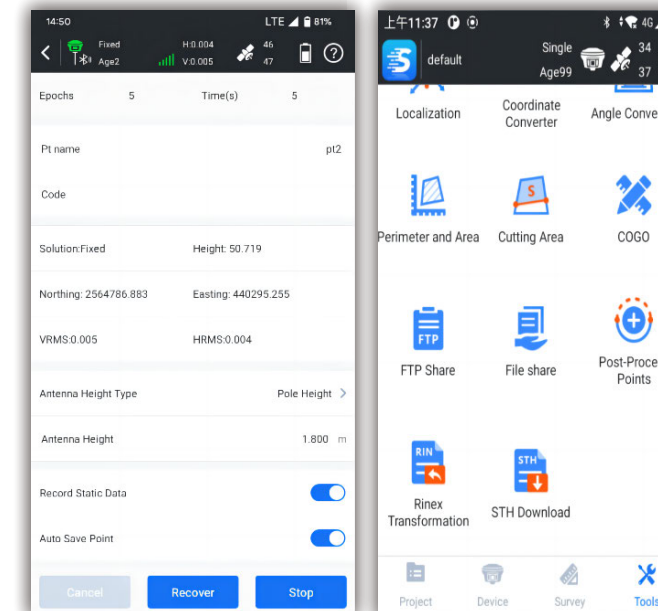
The software provides both static and PPK data collection capabilities.

• 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

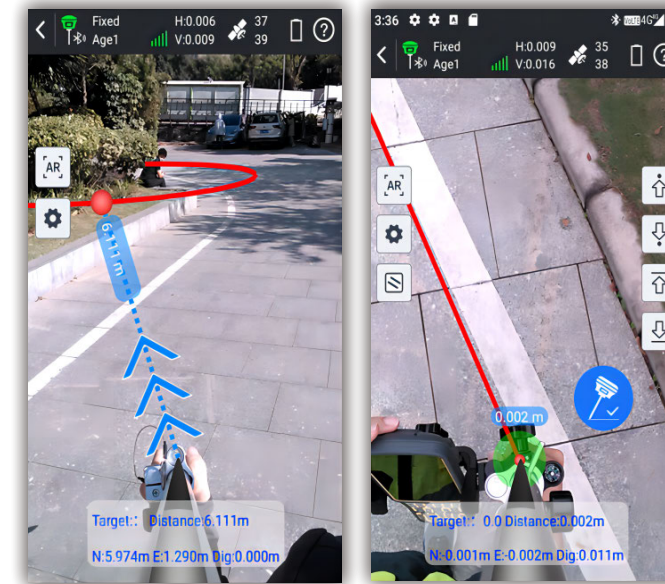### CAD Stake-Out : Save Labor Cost and Reduce Errors
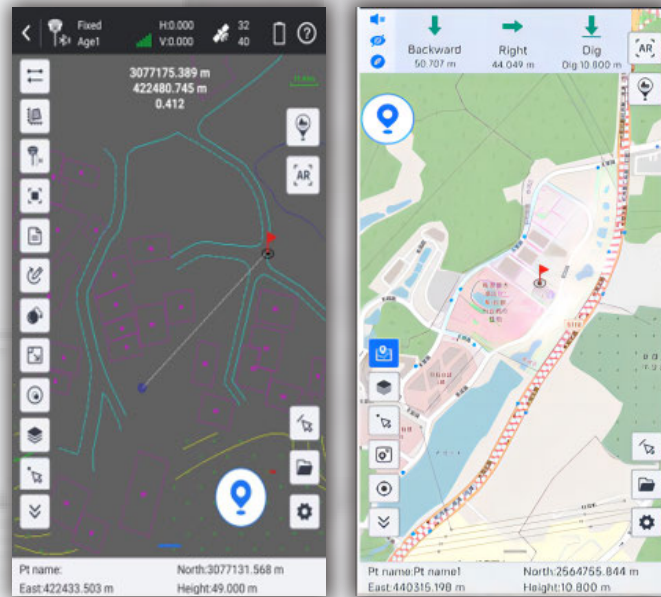
Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

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.

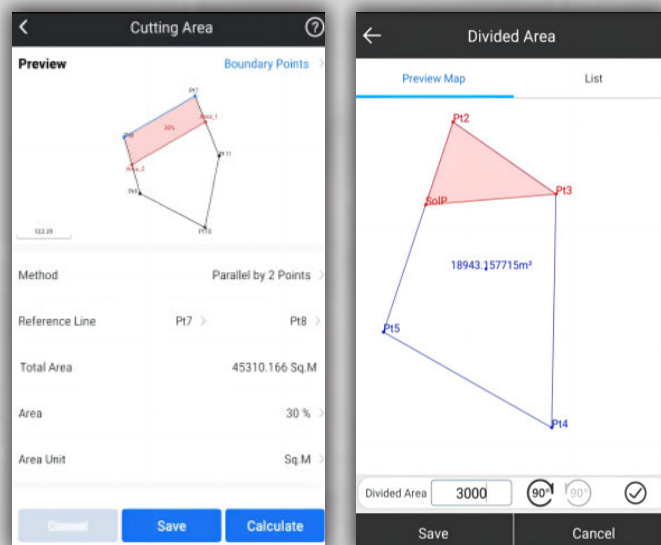### Live-View Stake-Out : Faster, More Accurate, More Intelligent

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

Compatiblewith Multiple Devices
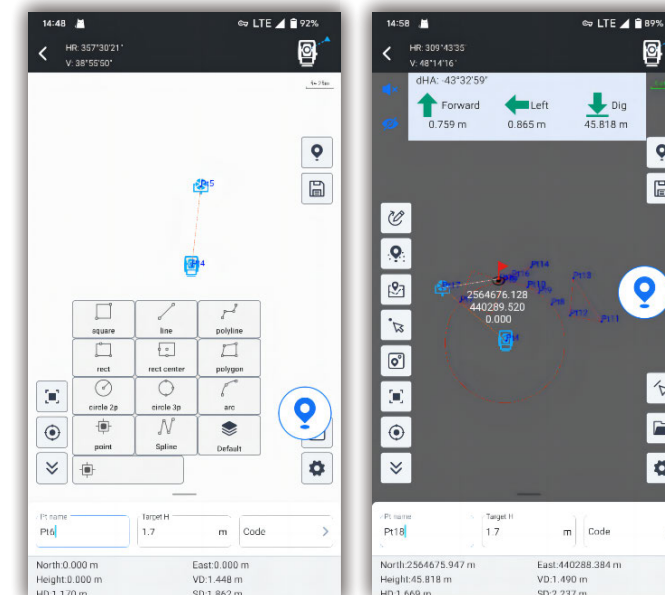
The App Now works with GNSS, Total Station, Echo Sounder, GIS Tablet, in future it will work with SLAM Scanner, Terrestrial Lidar Scanner.
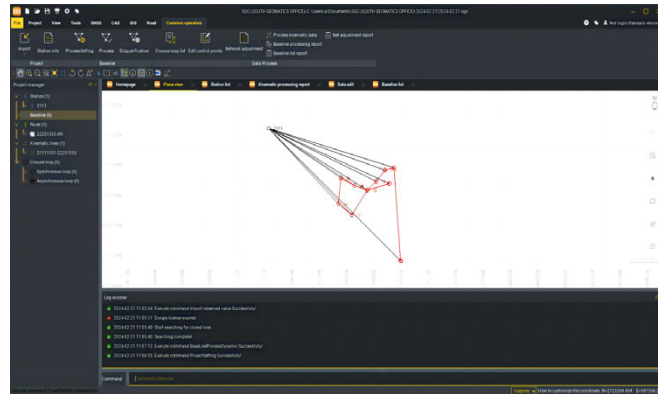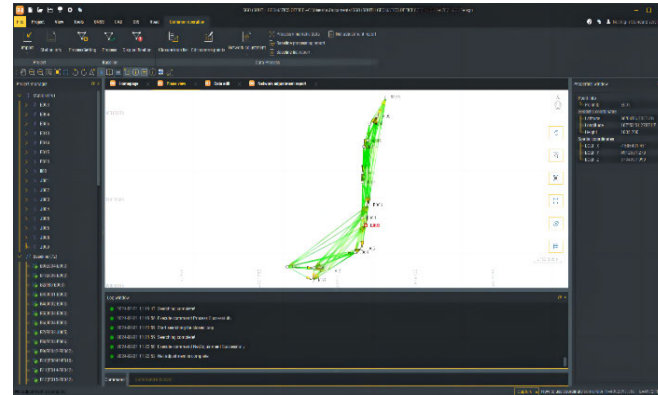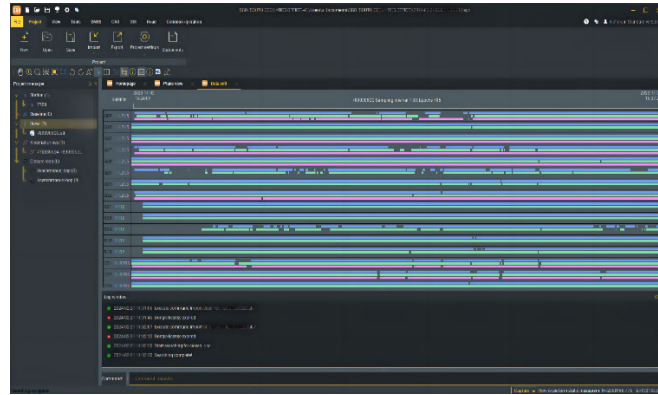
Innovations for Better User Experience

■ 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.