Specifications

GNSS Features	
Channels	1898
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
Laser measurement	1cm+5mm/m
SBAS Positioning	Typically<5m 3DRMS
RTK Initialization	2~8s
IMU Tilt Angle	0°~ 120°
IMU accuracy	8mm+0.7mm/° tiltlt
Hardware performance	
Dimension	134mm(φ)×90mm(H)
Weight	977g (battery included)
Material	Magnesium aluminum alloy shell
Operating Temperature	-45℃~+75℃
Storage Temperature	-55℃~+85℃
Humidity	100% Non-condensing
Waterproof/ Dustproof	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 7.4v 6800mAh rechargeable Lithium-ion battery
Battery Life	25h (static) , 20h (rover mode optimal)
Communications	
I/O Port	5-PIN LEMO interface (external power port + RS232)
	Type-C interface (Charge+OTG+Ethernet)
	UHF antenna interface
	SIM card slot (Live tracking GNSS Anti Theft 24/7)
Internal UHF	2W Radio receiver and transmitter
Frequency Range	410-470MHz
Communication Protocol	Farlink, Trimtalk, SOUTH, HUACE, Hi-target
Communication Range	Typically 8-10km with Farlink protocol (12-15km in optimal condition)
Cellular Mobile Network	4G network module, downward compatible with 4G/3G/2.5G/2G
Bluetooth	Bluetooth 5.0, 3.0/4.2 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:CMR, 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	calibration-free, up to 120°, refresh rate 400 Hz, pitch & roll accuracy 0.05 °,heading accuracy 0.15°
Camera	Video shooting camera: 8MP Laser aiding telephoto camera: 8MP AR stakeout camera: 5MP
Laser	3R green laser, 150m range (200m in optimal condition)
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' LED, 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

SOUTH
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INNO3

Craftsmanship and Quality, Designed To Be Your Best.

Progress Knows No Bounds! The SOUTH INNO3 elevates non-contact measurement technology for GNSS receivers to new heights.

Its hardware configuration is engineered for superior field performance: it features a long-range laser module with a maximum range of up to 200 meters, enabling unprecedented distance measurements. Furthermore, it integrates three HD cameras that provide clear and detailed visual sensing data, significantly accelerating workflow during surveying and stakeout.

Additionally, it incorporates a next-generation Inertial Measurement Unit (IMU) with a refresh rate of up to 400Hz, ensuring more stable tilt compensation and highly consistent positioning results.

Relying solely on conventional and laser measurement can be limiting in challenging environments. The INNO3's photogrammetry capabilities offer a more flexible and versatile alternative, ensuring high-quality imagery that meets professional standards while eliminating the need for additional specialized equipment.

S805 Pro, Improving Never Stop

SOUTH S805 Pro 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.

PPP/ HAS is available for now. Real-time positioning with centimeter-level accuracy via satellite is upcoming.



The 6th Gen. IMU

400 Hz / 0.05°/ 0.15°

The latest update of IMU features 400 Hz refresh rate, 0.05/ 0.15°accuracy, effectively eliminates the loss of Inertial-Measurement-Usable Status in the majority of scenarios, enhancing IMU availability and productivity.

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

Enhanced Positioning

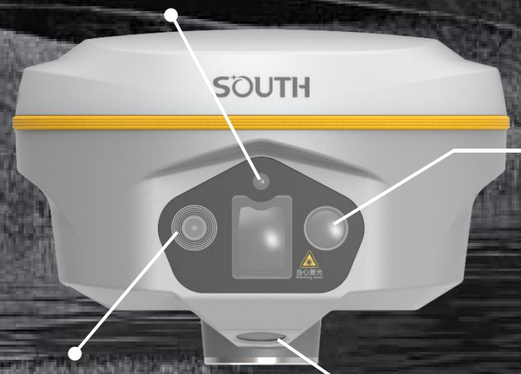
Backup for Better Accuracy

Unlike traditional GNSS receivers, INNO3 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 **Strict Mode** in the **SurvStar 2026** app.)

Ultra Long Range Laser Module

200m range under optimal conditions,
5Hz high-speed measurement rate,
highly visible 520nm green laser (Class 3R),
3 to 5mm ± 100 ppm for distances up to 100 meters



8MP Main Camera

Featuring a 72° FOV and 800MP HD camera at 30 fps frame rate, it is optimized for crystal-clear video measurement and high-efficiency stakeout operations.

8MP Laser Aiding Camera

Boasting a 25mm telephoto lens—more than 8 times the power of ordinary cameras—it allows you to aim with surgical precision at targets 10 to 20 meters away, maintaining a smooth 30 fps feed for real-time accuracy.

Starlight Stakeout Camera

Featuring a Starlight-grade sensor with an 110°ultra-wide FOV, this camera ensures clear visibility even in low-light environments. With a smooth 30 fps frame rate and 960 x 640 resolution, it provides an intuitive, high-speed AR experience for precise ground-level stakeout.



1.14 inches Color Screen Display

All Information in Control

The combination of color screen and two physical buttons will give the maximum convenience to users to operate.

Farlink 2.0 Pro Radio

Even Further!

When compared with the last generation Farlink, INNO3's Farlink 2.0 Pro radio can undertake larger data and provide more stable transmission, working range is as far as 8-15 km in ideal condition.

With the "lock-base" function, INNO3 can keep receiving data from one specific base. Even though several bases are transmitting with the same frequency

INNO3 Five Enhancement on Laser Measurement to Lift Your Efficiency to A New Level



Superior Long-Range Targeting

The next-generation laser module boasts a maximum range of 150m (standard conditions) and up to 200m (optimal conditions). Paired with a 25mm telephoto lens, the INNO3 enables clear targeting and precise coordinate measurement even at distances of **15–20** meters, making distant objects feel within reach.



Precision Edge Capture: Efficiency Meets Safety

The INNO3's high-precision ±3 to 5 mm + 100 ppm laser beam can capture extrema (minimum/maximum values) while scanning across an object. Whether measuring utility pole edges, tree diameters, or irregular structures, the results are faster and more accurate than previous generations. This capability dramatically boosts efficiency and ensures the surveyor's safety when working in complex or hazardous areas.



Seamless Laser & AR Integration / Enhanced Night Operations

The 5Hz high-frequency laser module works in perfect synchronization with the 8MP/ 30fps main camera. This enables the laser point and the crosshair on the controller screen to remain perfectly aligned during laser measurement and stakeout, providing a silky-smooth user experience. Additionally, thanks to the starlight-grade camera at the bottom of the INNO3, night-time stakeout is now more effortless and clearer than ever before



Unrivaled Tilt Reliability

Equipped with a next-generation IMU, the INNO3 features pitch and roll accuracy of 0.05 °, ensuring rock-solid ground coordinates even with extreme pole tilts. Furthermore, the 0.15°heading accuracy guarantees that the compensation direction remains consistent while rotating the range pole. This provides ultimate reliability in challenging environments like wall corners, tree canopies, or deep pits where vertical leveling is impossible.



Anti-Shake Algorithm Filtering

With a high-speed sampling frequency of 5Hz, the INNO3 laser module allows the software to perform rapid weighted averaging in the background. The moment the surveyor clicks "Record," the system extracts the most stable data point from the high-frequency stream. This effectively filters out instantaneous deviations caused by breathing or hand tremors, significantly enhancing measurement precision.

INNO3 Video Shooting & Laser Measuring & 3D Modeling, Add Them Together to Multiply Your Power

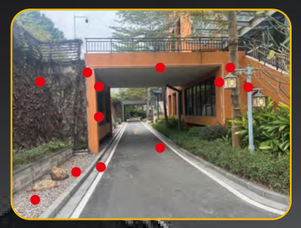
Video Shooting: Collect Mass Data in Real Time

INNO3 can process a set of photos or a video, acquiring coordinates for hundreds of points within minutes. It boasts a wider working range and fewer blind spots through remote measurements with the camera. Locations that were once challenging, such as spaces under rooftops and areas with obstacles, are now easily measurable.

(* This function is optional.)









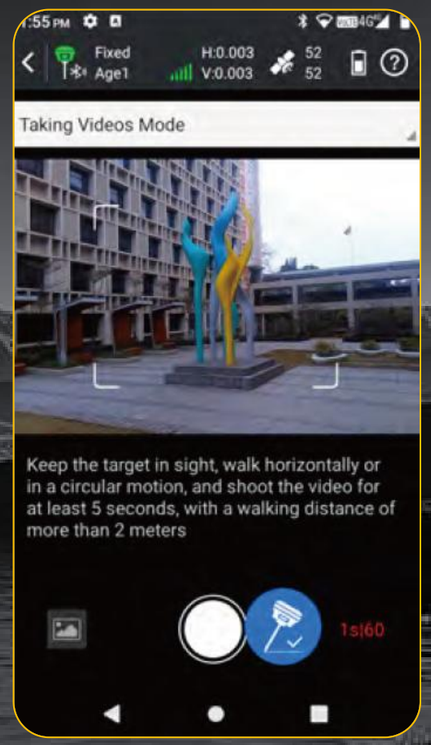


Utilizing visual positioning, surveyors can collect field data in a short time. The data can preserve safely in the device and is reusable at any time. These capabilities are particularly well-suited for distinctive GNSS measurement tasks, including documenting accident scenes and excavation sites for urban public facilities

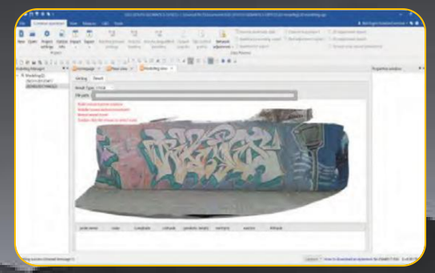
3D Modeling: for Professionals' need

INNO3 enables single-user 3D modeling, on the models visually displaying geographic information like coordinates, areas, and volumes. It supports transforming model data into different formats and customize coordinate parameters for diverse applications.

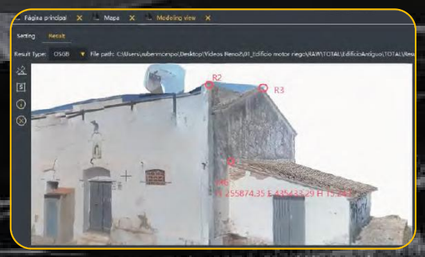
(* This function is optional.)



Taking Video



Generating Model



Measuring on Model

Designed for Urban Surveying --Cloud Server Online Processing

Surveyors, with a strong internet connection in urban areas, can process image data online using network and cloud servers. INNO3 achieves 2cm accurate coordinate data for image measurements within minutes, balancing precision and speed.

Designed for Field Surveying --Controller Offline Processing

Without internet coverage, surveyors can perform offline image data processing using the data controller app. This mode offers the fastest processing speed, saving time on data uploads and delivering 2cm accuracy results within a few seconds.

Work in Your Preferred Way

Surveyors can import INNO3 data into SOUTH GEO Office (on PC) or third-party software for 3D modeling. Future updates to SurvStar (Android App) will also include 3D modeling functions, allowing users to select the most suitable software for optimal work efficiency based on scenario and task requirements.

Ensuring a Smooth Journey

INNO3 harnesses SOUTH 's 3D modeling tech, seamlessly integrating image measurements with UAV data, including DJI and other brands. Overcoming data gaps in UAV surveys, INNO3 supplements incomplete models by collecting ground image data, improving overall survey outcomes.