PRECISE

PRECISE S7

Enjoy a

PRECISE, RELIABLE, and EASY

experience!

Lightweight. Limitless. Survey-Grade Precision.

Super-high Fix Rate
99.9%

MATRIX
Enhanced by
the MATRIX ALGORITHM

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PRECISE S7

Lightweight. Limitless. Survey-Grade Precision.

PRECISE S7 is PRECISE's next-generation lightweight handheld spatial data capture solution—built for professionals who demand reliable results in the most challenging environments.
Powered by PRECISE's proprietary MLF-SLAM (Multiple Localization Fusion-SLAM) technology, S7 eliminates the traditional dependence on environmental features, enabling stable, high-accuracy mapping where conventional SLAM systems fail—from airports and beaches to rivers, open fields, and low-texture spaces.
One device. One scan. All the data you need.

Breakthrough MLF-SLAM Technology

MLF-SLAM (Multiple Localization Fusion-SLAM) is PRECISE's self-developed next-generation SLAM framework.
By fusing data from multiple sensors, the system significantly reduces reliance on environmental features, ensuring stable positioning and accurate mapping across complex and challenging scenarios.

- Multi-sensor fusion localization
- Reliable performance in weak-feature and featureless environments
- High precision combined with high efficiency
- Consistent results across diverse operating conditions

Dual High-Definition Panoramic + Dual Vision Cameras

Dual 12 MP panoramic cameras

- 12-megapixel resolution ×2
- Scene reconstruction fidelity improved by 11%

Dual 1.3 MP visual SLAM cameras

- Enhanced mapping stability by 9%
- Reduced Environmental Interference
- Mapping accuracy improved by 20%

Real-Time Processing & Colorization

- Real-time computation with true-color point cloud rendering
- Data is ready for immediate export and use

Accuracy Performance

- Absolute accuracy: 5 cm (real-time)
- Absolute accuracy: 3 cm (post-processing)
- Repeat accuracy: 2 cm
- Relative accuracy: 2 cm
- Horizontality / Verticality: 0.025°

One-time Data Collection, Multi-dimensional Output

Single capture deliveries

- Colored point cloud
- Panoramic imagery
- 3D Gaussian Splatting (3DGS)
- MESH models

Core Benefits

- MLF multi-sensor fusion localization
- Breaks traditional SLAM's dependence on environmental features
- High precision with high efficiency
- Optimized workflow for professional applications

Point Cloud

Panoramic

3DGS

MESH

Multi-Mode Operation Support

PRECISE S7 supports multiple positioning and processing modes to meet diverse project requirements:

- CORS mode
- Network RTK base station mode
- PPK mode

This flexibility ensures reliable data acquisition across different infrastructures and operating environments.

5-star 14-frequency high-precision RTK module

200,000 point frequency, maximum detection range 70 meters

Dual 12MP panoramic cameras+Dual 1.3MP VSLAM cameras

Quick-release and locking battery mechanism to ensure stable power supply

Large-capacity lithium battery with a 2-hour runtime

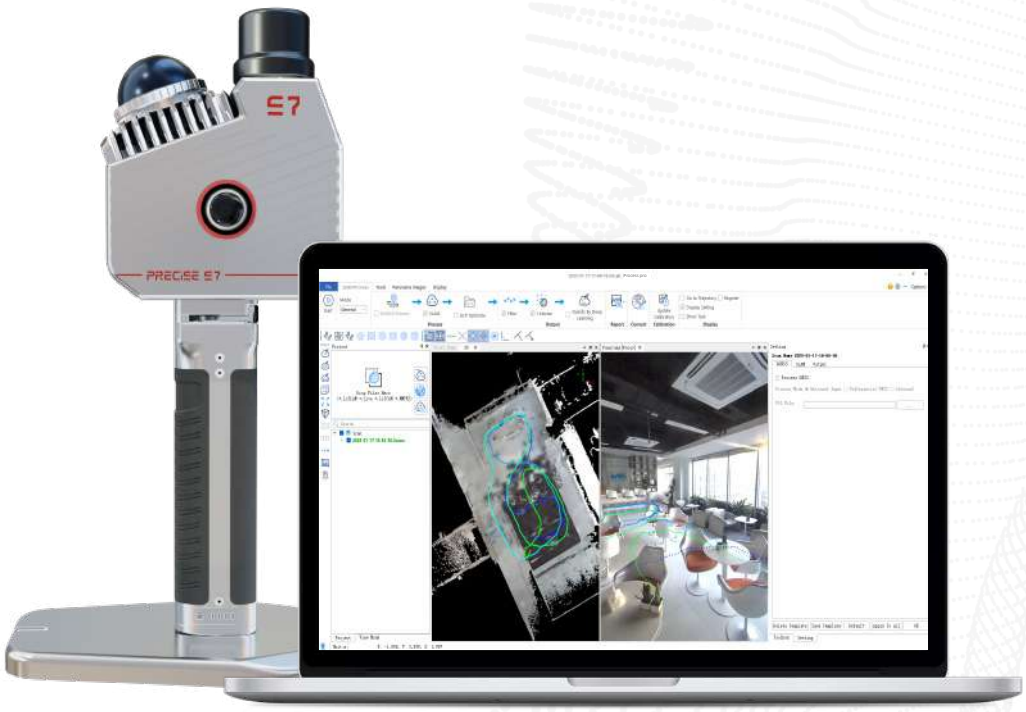
Advanced base stand for easier GCP collection

Supporting Software

Process pro (PC)

Process Pro is an office data processing software specifically designed for the S7 handheld 3D laser scanner. It provides versatile processing capabilities, including support for integrated PPK/RTK/GCP solutions. The software features point cloud registration and accuracy verification functions, and supports exporting orthophotos, panoramic images, and standard formats such as LAS, LAZ, and E57.

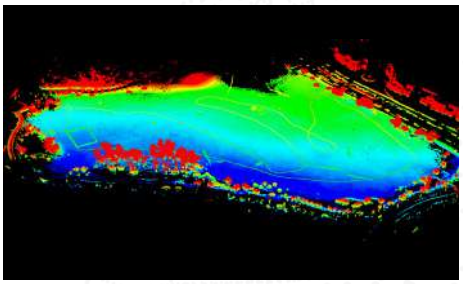
Equipped with a comprehensive set of built-in tools, Process Pro enables distance, area, and volume measurements, as well as cross-section analysis. When used in combination with PRECISE handheld LiDAR products, it delivers a complete workflow from data acquisition to data processing and analysis, fully supporting a wide range of 3D point cloud applications.



Application Scenarios

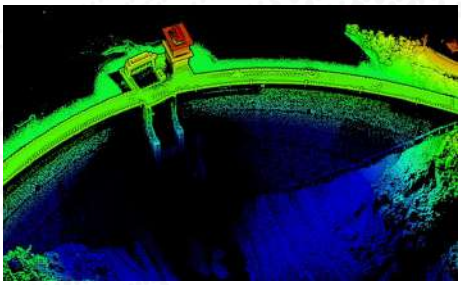
Open Scene Measurement

Data collection in weak/ featureless areas such as highway surveys, no-fly zones, reclamation areas, shoals, mines, and riverbank measurements.



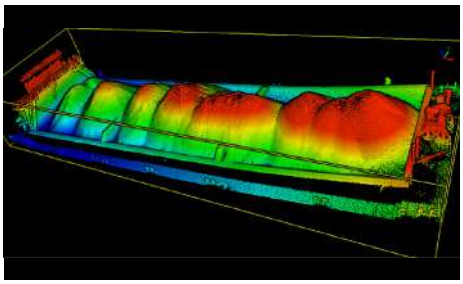
Topographic Surveying

Meets the demand for high-precision point clouds in topographic map revision, with final results (point cloud and MESH) meeting 1:500 topographic map requirements.



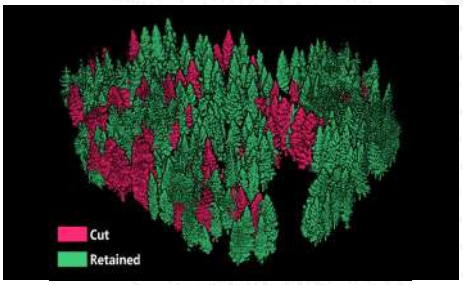
Stockpile Measurement

The real-time point cloud generated by the device can directly achieve high-precision volume measurement of stockpiles, with an accuracy of up to 1%. When used with an extendable pole, it can fully capture the 3D spatial data of stockpiles over 5 meters in height.



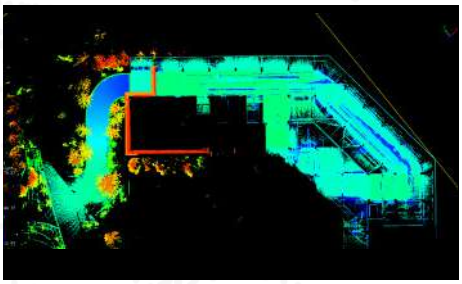
Forestry Survey

Handheld scanning of forest stands/ large forest areas is possible. Based on the LiDAR360 forestry module, it can quickly count the number of trees in forest stands/ large forest areas, as well as the position of individual trees, tree height, crown width, diameter at breast height, and tree species.



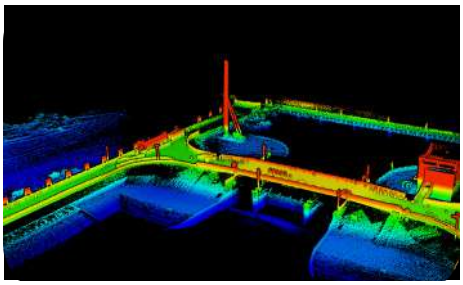
Underground Space Information Collection

Can be applied to the measurement of enclosed areas such as underground parking lots, power utility tunnels, air-raid shelters, shopping malls, caves, etc., providing accurate 3D spatial information for subsequent design and planning.



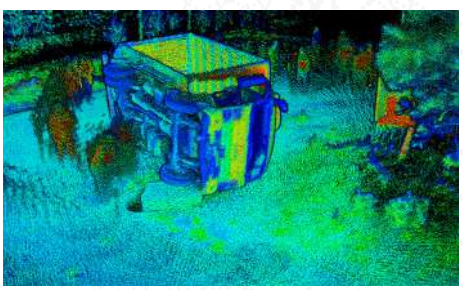
Construction Surveying

Pre-construction: site investigation, design review, construction plan optimization, etc.
During construction: project progress monitoring, quality control, safety management, etc.
Post-construction: completion acceptance, maintenance, asset management, etc.



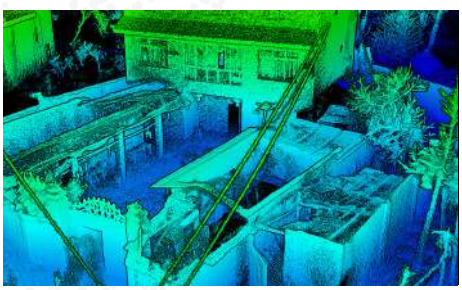
Traffic Accident Investigation

Can quickly and comprehensively acquire point cloud and photo data from the scene and generate realistic colored point cloud and 3DGS data to facilitate accident investigation and responsibility determination.



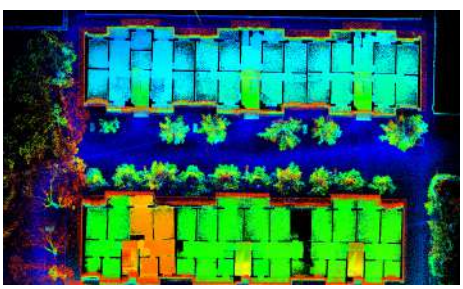
Emergency Firefighting

Fully utilize the advantages of S7's rapid mapping capabilities, allowing firefighters to quickly understand the site layout. The collected data can also assist disaster investigators in qualitative and quantitative analysis.



Real Estate Surveying

With its rapid and high-precision characteristics, S7 can quickly construct a 3D structure of the property, generating the original data needed for real estate surveying, providing reliable data support for real estate surveying, engineering audit settlement, renovation, and design.



Technical Specifications

System Parameters

Absolute Accuracy	<3 cm [1]
Relative Accuracy	<2 cm [2]
Repeat Accuracy	<2 cm [3]
Horizontality/Verticality°	<0.025° [4]
Power Supply Method	Lithium Battery Powered
Battery Capacity	3450 mAh
Single Battery Life	2.5 h [5]
Weight	1.3 kg (with base, battery, and RTK module)
Dimensions	345×187×120 mm
Protection Level	IP64
Storage Capacity	512 GB SSD
Port	Type-C
Control Method	APP, Button
Firmware Upgrade Method	OTA, Offline
Operating Temperature	-30℃~65℃
Device Storage Temperature	-40℃~70℃
Battery Storage Temperature	Recommended Storage Temperature: 22℃ ~ 30 ℃[6]

RTK Parameters

Satellite Systems	BDS B1I, B2I, B3I,B1C,B2b; GPS L1C/A, L2C, L2P(Y), L5; GLONASS G1, G2 Galileo E1, E5a, E5b,E6*; QZSS L1C/A, L2C, L5 ; SBAS L1C/A
RTK Accuracy	Horizontal: 0.8 cm + 1 ppm Vertical: 1.5 cm + 1 ppm
Differential Data	RTCM V3.X
RTK Data Format	.rtk
Channels	1408
RTK Differential Protocol	NTRIP

IMU Parameters

Output Frequency	200 Hz
Post-Processing Attitude Accuracy	roll/pitch: 0.005°, Heading: 0.01°
Post-Processing Position Accuracy	Horizontal: 0.01 m, Vertical: 0.02 m

LiDAR Sensor Parameters

Laser	Mid360
Scan Rate	200,000 pts/s
LiDAR Accuracy	2 cm
Safety Level	Class 1 (Eye-safe)
Laser Wavelength	905 nm
Detection Range	40 m @ 10% reflectivity; 70 m @ 80% reflectivity
FOV	Horizontal 360 ° , Vertical -7 ° ~ 52 °

Camera Parameters

Number of Cameras	4
Visual Camera	1.3MP x 2
Panoramic Camera	12MP x 2
Frame Rate	Adjustable

Telescopic Pole Adapter

Weight	300 g
Supported Telescopic Pole Diameter	25-25.5 mm[7]

Mapping Method

Mapping Principles	MLF-SLAM, PPK-SLAM, RTK-SLAM, SLAM
Real-Time Colorization	Supported
Real-Time Processing	Supported

Output Specifications

Colored Point Cloud	LAS, LiDATA
MESH	LOD-OSGB
Panoramic Image	imglist+jpg
Gaussian Splatting	lisplat, ply

Frontpack Kit Parameters

Weight	2.1 kg
Outer Packaging Dimensions	560 x 340 x 160 mm

- Deviations may occur in some scenarios.
- Two scans with GNSS, with GNSS disconnection not exceeding 100 meters.
- Requires measurement of absolutely horizontal and vertical objects such as building walls and interiors;
- Battery life tested at 20°C without camera recording or RTK connection.
- -20°C to 45°C for <1 month; -20°C to 35°C for >1 month.
- Only supports the outer diameter of the telescopic part in the range of 25-25.5 mm for RTK telescopic poles; The locking device does not support RTK telescopic poles with a protruding circular ring on the top contact surface.

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