GEOMATE

Geospatial

GEOMATE GS60

Handheld Real-Time 3D LiDAR Scanner

Deep INS + SLAM Fusion for Reliable Mapping



Highlights

The GS60 is GEOMATE's high-performance, tool-grade handheld LiDAR SLAM scanner for building and interior applications. By fusing high-precision INS and SLAM, and featuring an IMU with bias instability better than 0.5°/h, it ensures stable motion tracking in feature-poor environments. With 1.15M pts/s LiDAR, a 360° × 189° ultra-wide FOV, HD imaging, 3D Gaussian Splatting, and device-to-cloud workflows, GS60 enables efficient and cost-effective 3D data capture.



Main Features



High-Rate LiDAR

Up to 1.15 million pts/s
360° × 189° ultra-wide FOV

High-precision IMU

IMU bias instability better than 0.5°/h

HD Imaging System

Dual 12 MP HD cameras for sharper images in low-light conditions

Expansion Interfaces

Expandable design with an open hardware interface and SDK

Deep INS + SLAM Fusion for Reliable Mapping

- Equipped with a high-precision IMU with 0.5°/h bias instability, the GS60 accurately tracks motion in feature-poor environments such as corridors and multi-level staircases.
- Its powerful inertial performance ensures stable and complete SLAM results even where geometric features are limited.



High-rate Scanning & Ultra-Wide FOV for Complete Coverage



The GS60 features a new-generation LiDAR scanner with a point rate of up to 1.15 million points per second, capturing fine objects and surface textures with high precision.



With an ultra-wide field of view of 360° × 189°, it captures ceilings and corners without manual angle adjustments, obtaining complete and accurate scans.

HD Colorization and Pixel-Level Reality Rendering



- Dual 12 MP HD cameras with Sony binning technology deliver sharper images in low-light conditions.
- GEOMATE HPGS 2.0 engine generates 3D Gaussian Splatting models for real-color scene reconstruction, combining visual realism with precise geometric details.

Expandable Architecture with Cloud-Based Processing



GS60 features an expandable design with an open hardware interface and SDK support.



Integrated with GEOMATE CoCloud, GS60 delivers a unified device-to-cloud workflow. Field data is uploaded with a single click, and processing runs automatically.
Point clouds, mesh models, and 3D Gaussian Splatting results are ready for use.

Application



Architectural Surveying



Interior Design and Renovation



Public Safety and Forensic Investigation



Cultural Tourism and Heritage Preservation

SPECIFICATIONS

General System Performance

Absolute accuracy	H: < 3 cm RMS [1] V: < 3 cm RMS [1]
Relative accuracy	<1 cm [2]
Repeatability	<2 cm [2]
Power supply mode	Battery integrated in handle
Battery capacity	47.5 Wh
Working time from a single battery	150 mins [3]
Power consumption	16 W
Data storage	512 GB
Weight(with Battery Handle)	1200 g
Operating temperature	-20 °C to +50 °C
Update rate	IP64 [4] (according to IEC 60529)

Laser Scanner

Laser product classification	Class 1 Eye Safe
Range	40 m @10% Reflectivity
Channel	64
Max. effective measurement rate	Single Return: 576 000 pts/sec Dual Return: 1152 000 pts/sec
Field of view	360° × 189°
Wavelength	905 nm

Positioning and orientation system

GNSS system	GPS: L1,L2,L5 GLONASS: L1,L2 BEIDOU: B1,B2,B3 GALILEO: E1,E5a,E5b
IMU update rate	500 Hz
Gyro zero bias instability	0.5°/hr
Gyro random walk	0.01°/√hr
Acc zero bias instability	10 ug
Acc random walk	0.017 m/s/√hr

Camera

Number of cameras	2
Resolution	48 MP
Sensor size	1/2 inch
FOV	340°(H) × 360°(V)

Communication

Wi-Fi	2.4GHz & 5GHz IEEE 802.11n/ac (U-NII-1/3)
Bluetooth	V5.3 (BR+EDR+BLE)
Ports	1 x USB V3.0 Type-C port (data download) 1/4″ mounting thread

Optional Software

SmartGo software	Data acquisition control, Real-time point cloud display,etc.
CoPre intelligent processing software	POS Processing, Adjustment & Refinement, Point Cloud Generation, 3D Modeling. Supports Colorized Point Clouds, 3D Mesh Models, and 3D Gaussian Splatting (3DGS) Outputs.
CoProcess 2025	point cloud processing with built-in CAD tools

***All specifications are subject to change without notice.**

(1) According to GEOMATE test condition.Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. Performances assume minimum of 5 satellites, follow up of recommended general GPS practices.
(2) Measured under laboratory conditions; actual performance may vary.
(3) Tested and obtained in a standard laboratory environment at 25°C.
(4) Splash, water, and dust resistant and were tested under controlled laboratory conditions with a rating of IP64 under IEC standard 60529.

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