

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
Ingress protection	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 CHCNAV 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.

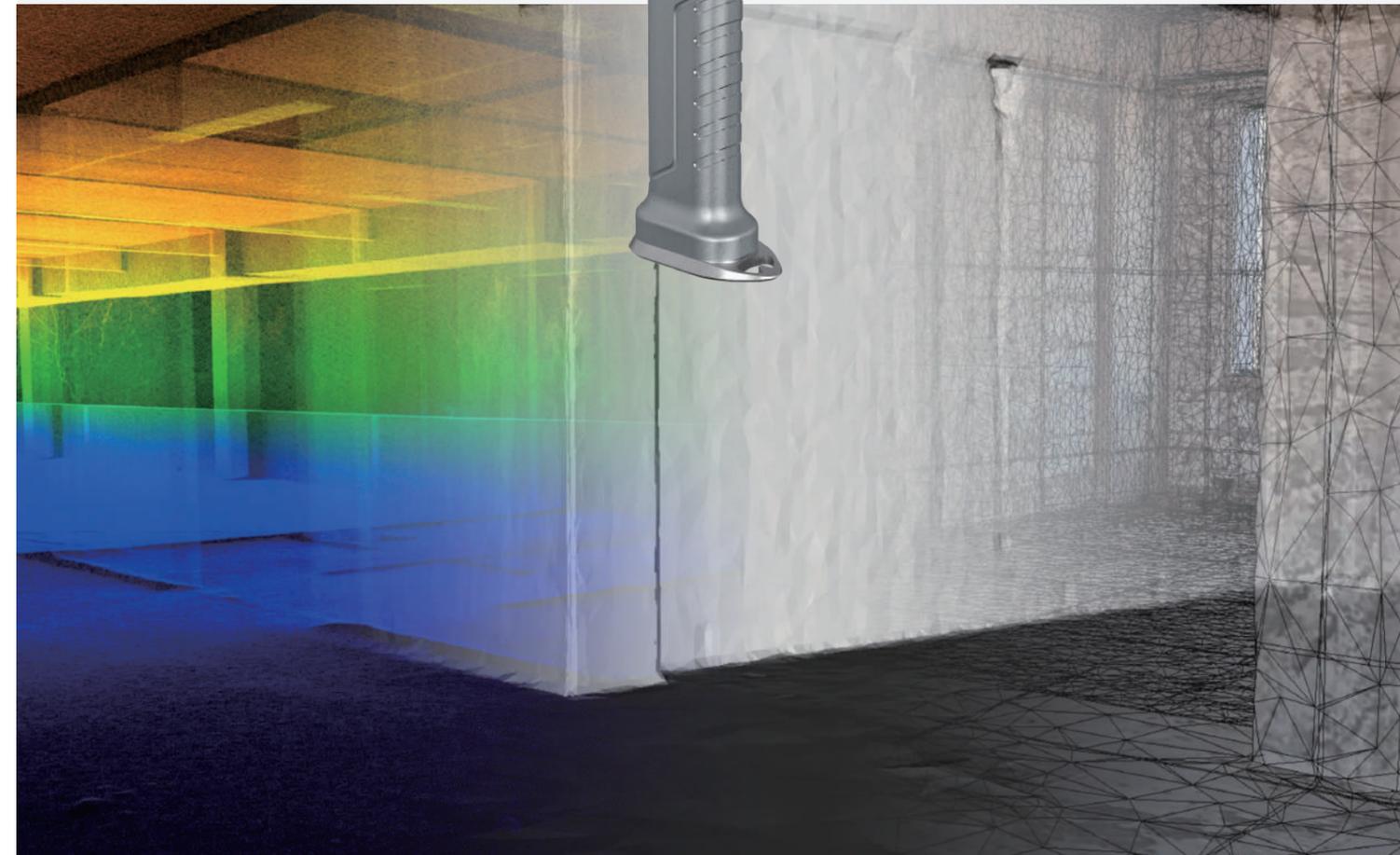
CHCNAV



CHCNAV RS7

Handheld Real-Time 3D LiDAR Scanner

Deep INS + SLAM Fusion for Reliable Mapping



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► Highlights

The RS7 is CHCNAV'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, RS7 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 RS7 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 RS7 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.
- ◆ CHCNAV 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



RS7 features an expandable design with an open hardware interface and SDK support.



Integrated with CHCNAV CoCloud, RS7 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