

CARVING THE REAL WORLD ACCURATELY

OmniSLAM

# Mobile SLAM

## COLOR

### 3D Laser Scanner



Accuracy Report &  
GCP Instruction



Full Lifecycle  
Auto-Calibration

2 cm  
Repeatability Accuracy



Leveling & Vertical  
Angular Accuracy



The OmniSLAM R8 is a high-performance mobile SLAM device designed for surveying and mapping. Featuring world-realistic color capture and centimeter-level precision, it delivers reliable, detailed 3D data for professional mapping, construction, and digital twin applications.

[www.omni-slam.com](http://www.omni-slam.com)

# SPECIFICATIONS (R8)

## General System Performance

Batteries	2
Battery Life	3 h
Data Storage	1 T
FOV	360°*280°
Weight	Wear: 8.7 kg Hand: 2.1 kg
Operation Mode	Handheld, Backpack Vehicle-mounted
Real-time Display	Yes
Accuracy Evaluation	Yes
Max Scan Time	>2 hrs
Loop-free	Yes
Agile Movement	Yes

## Point Cloud Quality Parameters

Point Cloud Thickness	1 cm
Absolute Accuracy (GNSS)	H: 1.8 cm V: 2.5 cm
Relative Accuracy	1 cm
Repeatability Accuracy	2 cm
Point Cloud Density	10, 000 pts/m <sup>2</sup>
Leveling/Vertical Angular Accuracy	0.015°

## IMU Specifications

Operating Temperature	-40°C to +85°C
IMU Update Rate	200 Hz
Initial Bias	Accelerometer: $\pm 0.004$ g/ Gyroscope: $\pm 0.01^\circ/\text{sec}$
Alignment Error	Accelerometer: $\pm 0.05^\circ$ / Gyroscope: $\pm 0.08^\circ$

## Electrical Specifications

Input Voltage	12-16.8 V
Power Consumption	120 Wh
Battery Capacity	6875 mAh

## GNSS Positioning Accuracy

Real Time Kinematic (RTK)	H: 8 mm + 1 ppm RMS V: 15 mm + 1 ppm RMS
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## GNSS Performance

GPS	L1/L2/L5
BDS	B1I/B2I/B3I/B1C/B2a/B2b
GLONASS	G1/G2/G3
Frequency	GALILEO E1/E5a/E5b/E6
Range	QZSS L1/L2/L5/L6
SBAS	L1/L5
IRNSS	L5
L-band	
Operating Temperature	-40°C~+85°C
Storage Temperature	-55°C~+85°C
Humidity	Up to 95% RH, non-condensing

## LiDAR Hardware Specifications

Laser Classification	Class 1 Eye Safe
Range	0.05 to 120 m
Channels	32
Horizontal FOV	360°
Vertical FOV	31° (-16°~+15°)
Points per second	640, 000
Wavelength	905 nm
Horizontal Angle Resolution	0.18° (10 Hz)
Range Capability	80 m @ 10% Reflectivity

## Camera Specifications

Resolution	6528 × 3264 px
Effective Pixels	21 MP
Sensor Size	1"
Aperture	F2.2
FOV	360°*360°

## Equipped Software

OmniSLAM Capture	Data Collection Software
OmniSLAM Viewer	Point Cloud Data/3DGS Display Software
OmniSLAM Mapper	Point Cloud Data/3DGS Solution Software
OmniSLAM Modeler	Automatic Modeling Software

## Environments Temperature

Operating	-25 °C~+65 °C
Storage	-25 °C~+65 °C

\*The data on this catalog is reflecting typical test conditions. For measurement details, please contact us.