GreenValley International

LiGrip O2

Flagship Handheld SLAM LiDAR Scanner

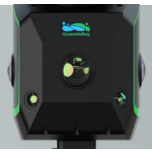
LiGrip O2 is the next-generation flagship handheld SLAM LiDAR scanner developed by GreenValley International. This all-in-one device integrates a laser scanner, three panoramic cameras, dual visual SLAM cameras, and a GNSS antenna, enabling high-precision, all-directional data acquisition without constraints of time or environment.

Triple-Camera Coverage for Easier and Better Capture

Front, left, and right panoramic cameras offer full 3D coverage, simplifying data capture and enhancing coloring and 3DGS quality.

Dual-Camera VSLAM for Wider and More Stable Mapping

Dual 1.3MP cameras cover the full LiDAR range, improving stability in low-feature areas like tunnels and underground spaces.



Survey-Grade Accuracy

Powered by GVI's self-developed multi-sensor fusion SLAM technology, the system ensures 3 cm absolute accuracy and 2 cm repeatability—regardless of operator, environment, path, or time.

Millimeter-Level Point Clouds, High-Fidelity Reality Capture

Supports point cloud outputs with 2 mm spacing, delivering results comparable to terrestrial laser scanning.

Multiple Positioning Modes for Versatile Applications

LiGrip O2 supports various positioning modes to suit different working environments:

RTK-SLAM: Ideal for areas with RTK signal

PPK-SLAM: Suitable for environments without RTK signal

MLF-SLAM: Designed for low- or no-feature environments

SLAM: Best for GNSS-denied environments

RTK-SLAM
PPK-SLAM
MLF-SLAM
SLAM

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Specification

System Parameter			
Absolute Accuracy	< 3cm[1]	Protection Level	IP64
Relative Accuracy	< 1cm[2]	Storage Capacity	512GB SSD
Repeat Accuracy	< 2cm[3]	Port	TYPE-C
Horizontality / Verticality	< 0.015°[4]	Control Method	APP/Button
Scan Rate	Up to 640,000 pts/s[5]	Range	Up to 300 m[6]
Weight	As light as 2.2 kg[7] (with base and battery)	Firmware Upgrade Method	Offline
Single Battery Life	120 min[8]	Operating Temperature	-20°C ~40°C
Device Storage Temperature	-40°C ~70°C	Power Supply Method	Lithium Battery Powered
Battery Storage Temperature	Recommended Storage Temperature: 22°C ~30°C [9]		
LiDAR Sensor Parameters			
Supported Laser Models	XT16 XT32 XT32M2X	Laser Wavelength	905 nm
Scan Rate	320,000 pts/s, 640,000 pts/s	Detection Range	120 m, 300 m
FOV	280° (horizontal)×360° (vertical)	LiDAR Accuracy	0.5 cm
Safety Level	Class 1 (eye-safe)		
Camera Parameters			
Number of Cameras	5	Panoramic Cameras	12 MP ×3
Visual Cameras	1.3 MP ×2	Frame Rate	Adjustable
IMU Parameters			
Output Frequency	200HZ	Post-processing Position Accuracy	Horizontal 0.005 m，Vertical 0.01 m
Post-Processing Attitude Accuracy	Roll/Pitch: 0.003°, Heading: 0.01°		
Mapping Method			
Mapping Principles	MLF-SLAM, PPK-SLAM, RTK-SLAM, SLAM	Real-Time Processing	Supported
Real-Time Colorization	Supported		
Output Specifications			
Colored Point Cloud	LAS, LiDATA	Panoramic Images	Imglist+jpg
MESH	LOD-OSGB	Gaussian Splatting	lisplat, ply
Telescopic Pole Adapter			
Weight	300 g	Supported Telescopic Pole Diameter	25-25.5 mm
Compatibility	LiGrip O Series (includes O1 Lite and O2 Lite)		
Frontpack Kit Parameters			
Weight	2.1 kg	Outer Packaging Dimensions	560×340×160 mm
Compatibility	LiGrip O Series (includes O1 Lite and O2 Lite)		
Backpack Kit Parameters			
Weight	3.9 kg	Dimensions	580×303×145 mm
Dual Battery Power Display	Supported	Hot Swap	Supported
Compatibility	LiGrip O2 Series		

[1] [2]: Measured in GreenValley's precision feld; deviations may occur in some scenarios.
[3]: Two scans with GNSS, with GNSS disconnection not exceeding 100 meters.
[4]: Requires measurement of absolutely horizontal and vertical objects such as building walls and interiors.
[5] XT16: 320,000 pts/s; XT32/XT32M2X: 640,000 pts/s
[6] XT16/XT32: Max range 120 m; XT32M2X: Max range 300 m
[7] XT16/XT32: 2.5 kg (without GNSS); XT32M2X: 2.2 kg (without GNSS)
[8] Measured at 20 ° C, without camera recording or RTK connection
[9] Storage at -20 ° C to 45 ° C for less than 1 month; -20 ° C to 35 ° C for more than 1 month