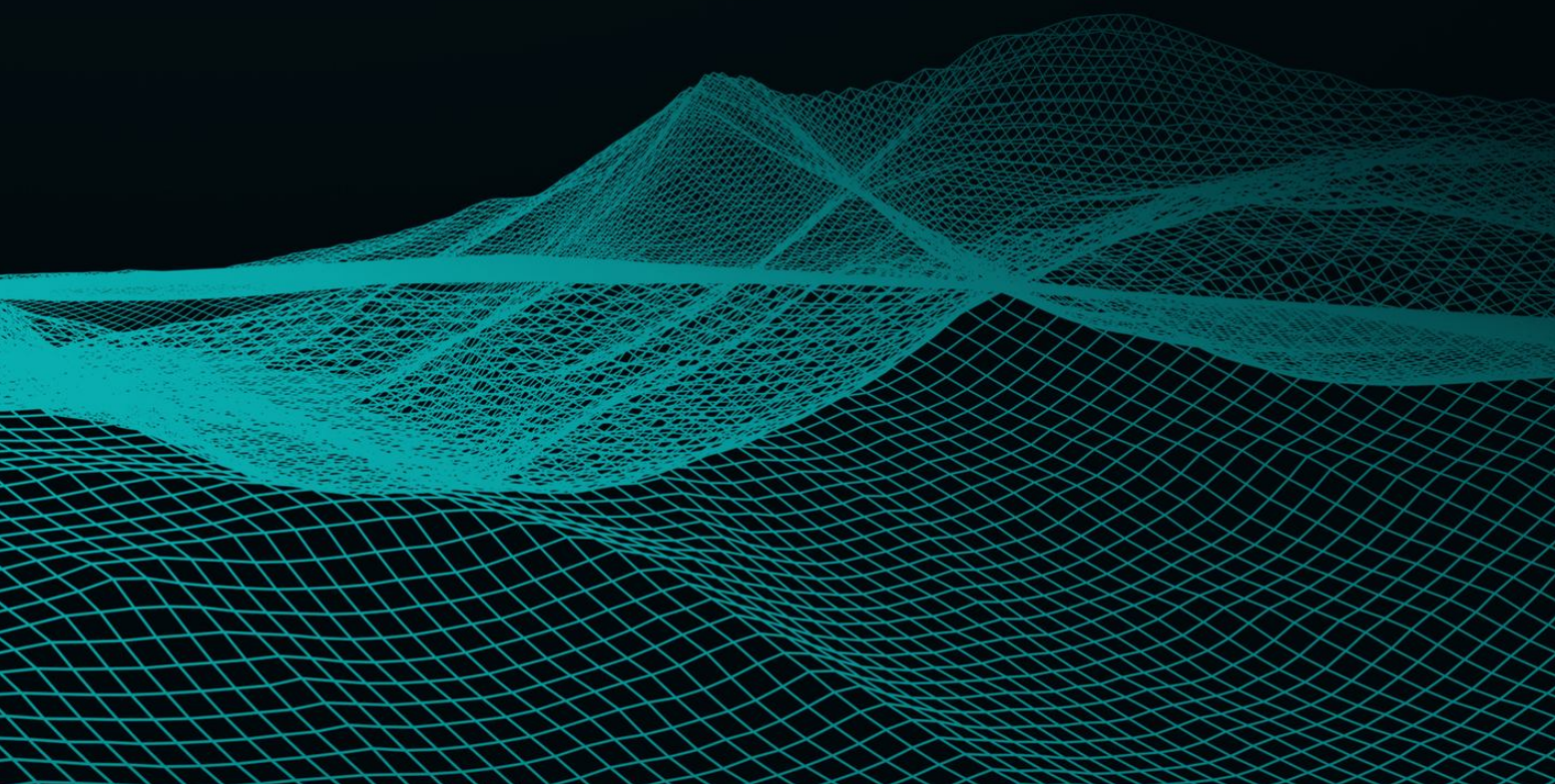
GreenValley INTL

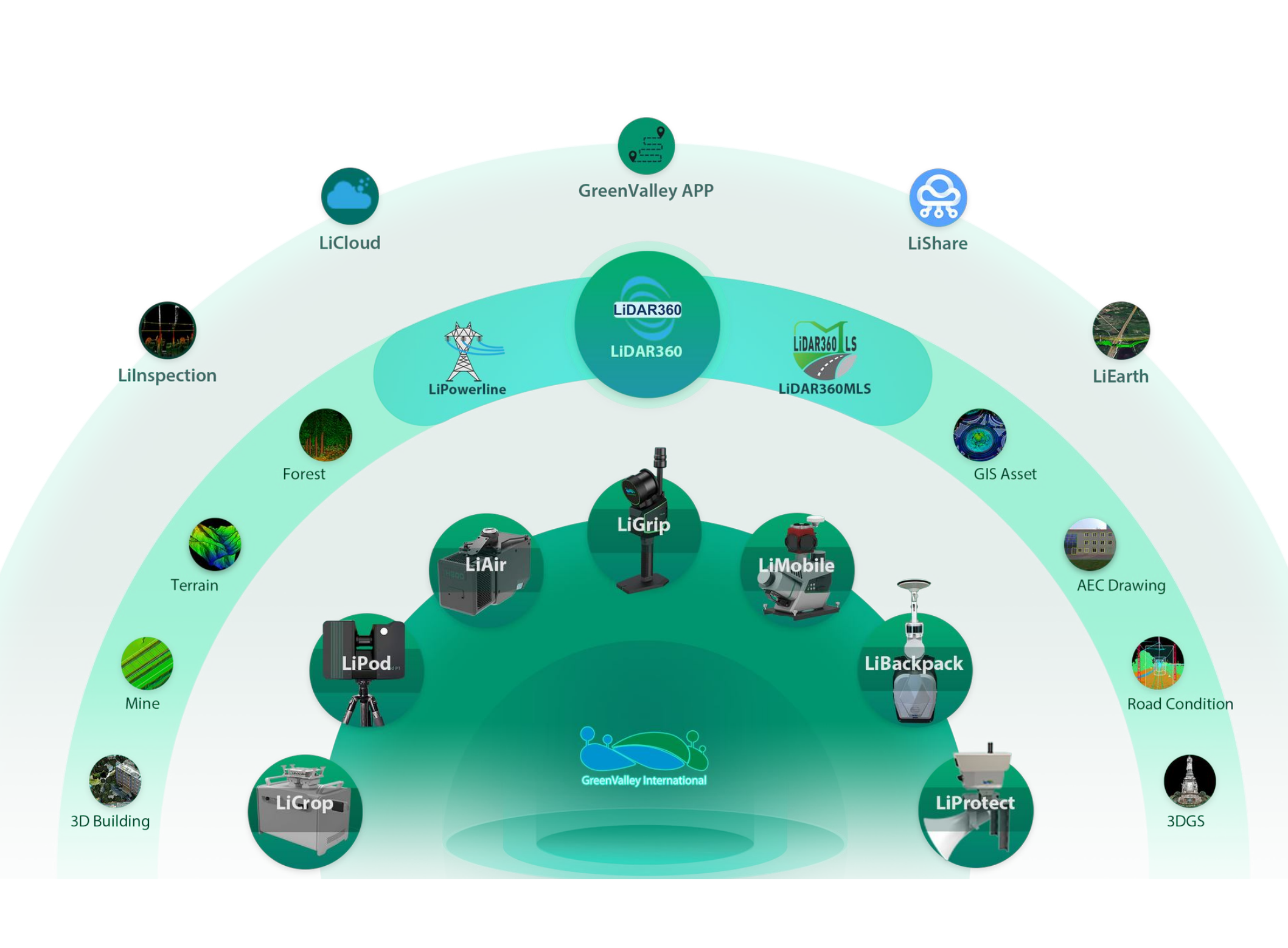
PRODUCT BROCHURE



01 About GreenValley International (GVI)

GreenValley International (GVI) is a cutting-edge technology company headquartered in Berkeley, California, specializing in intelligent 3D mapping and surveying. GVI offers a comprehensive range of aerial, terrestrial, and mobile LiDAR scanning systems, supported by state-of-the-art software and service solutions.

GVI's mission is to revolutionize the geospatial industry by providing best-in-class products that deliver accurate, high-resolution data to our partners. To accomplish this, GVI collaborates with leading innovators in the field, including Riegl , Velodyne, HESAI, and DJI. By leveraging these partnerships, GVI continually expands its product offerings and integrates the latest advancements in remote sensing technology.


GreenValley APP
LiCloud
LiShare
LiInspection
LiEarth
LiDAR360
LiPowerline
LiDAR360
LiDAR360MLS
Forest
GIS Asset
Terrain
LiGrip
LiAir
LiMobile
AEC Drawing
LiPod
LiBackpack
Mine
Road Condition
GreenValley International
3D Building
LiCrop
LiProtect
3DGS

02 Hardware
LiAir Series

LiAir X3-H



LiAirX3-H is the third generation of UAV LiDAR system system developed by GreenValley International. It adopts a new integrated design style and integrates lightweight LiDAR, self-developed inertial navigation, a high-resolution mapping camera and on-board computer systems providing new levels of efficiency.Through the self-developed AirPilot autonomous flight algorithm, it can realize real-time terrain following flight. Equipped with LiGeoreference/LIDAR360 software independently developed by GreenValley International, it can provide one-stop mapping solutions for customers.

Real-time Terrain Following Flight

Real-time DSM construction for terrain-following flight, meet the demand of large height difference terrain data collection for short-range LIDAR system.

Support GNSS antenna-free solution, simplifying the installation process

When mounting the system on DJI M300/M350RTK aircraft, there is no need to install external antennas, yet it can still acquire high-precision GNSS information. Post-processing can then generate a centimeter-level high-precision point cloud.

26MP mapping camera upgraded , supporting real-time video stream transmission

The camera supports 720P/30FPS video real-time transmission to the GreenValley flight control software. This allows the flight personnel to clearly view the trend of the powerlines and the surrounding environment through the flight control software, which better assists them in inspecting and assessing the powerline route.

GreenValley new design, focusing on work quality

The system has adopted a brand-new interface design and layout, which supports real-time playback of the point cloud data according to the project. After landing, users can instantly review the operational situation and confirm the completeness of the data. The system has also added support for real-time true-color point cloud display, allowing users to switch between three display modes: intensity, height, and true color. This better assists the inspection personnel in on-site evaluation of the point cloud quality.

System Parameters

Detection Range (@ 0 klx)	190 m @ 10% reflectivity 450 m @ 80% reflectivity	System Accuracy (Vertical)	5 cm @ 70 m
Dimensions	136 ×106×131 mm	Typical Flight Speed	5-10 m/s
Weight	1.2 kg	Storage	256 GB TF Card
Power Consumption	28 W	Voltage	12~24 V, 0.75 A @ 24 VDC
Operating Temperature	-20~50 ℃	Storage Temperature	-30~60 ℃

LiDAR Sensor Parameters

Wavelength	905 nm	Laser Class	Class1
Range Accuracy	2 cm (1020m)	FOV	70.4° (Horizontal) ×4.5° (Vertical)
Scan Rate	720,000 pts/s (Triple Return)	Number of Returns	Triple Return
Scan Method	Repetitive Scan		

Inertial Navigation System

GNSS	GPS, GLONASS, Galileo, BeiDou	Azimuth Accuracy	0.038°
Attitude Accuracy	0.008°	IMU Data Frequency	200 Hz

Camera Parameters

Image Sensor	APS-C	Pixels	26 MP
Focal Length	16 mm / 24 mm (Equiv. Focal Length)	Image Resolution	6252×4168

Software

Control Software	GreenValley	Pre-Processing	LiGeoreference
Post-Processing	LiDAR360 / LiPowerline (Optional)		

02 | Hardware
LiAir Series

LiAir X3C-H



The LiAir X3C-H is a new compact high-performance UAV LiDAR system. It adopts a new integrated design style and a built-in high-resolution mapping camera, providing higher performance and convenient operation for power-line inspection, topographic surveying, agricultural and forest monitoring, and more.

Integrated Design

The operation interface is compact and convenient, with an unpluggable TF Card and engineered data storage model that allows for one-touch operation and copying of laser and camera data.

New Camera, providing ultra-clear picture quality

The built-in high-resolution mapping camera has been upgraded to 26 megapixels, providing ultra-clear picture quality and enabling the creation of high-quality true-color point clouds and orthophotos for Photogrammetry. Additionally, the external camera interface allows for simultaneous mounting of infrared cameras and other camera types, making the LiAir X3C-H a versatile tool for a wide range of applications.

System Parameters

Detection Range	80 m @ 10% reflectivity 200 m @ 54% reflectivity 300 m @ 90% reflectivity	System Accuracy (Vertical)	5 cm @ 70 m
		Typical Flight Speed	5-10 m/s
Weight	1.12 kg	Storage	256 GB TF Card
Voltage	12~24 V	Power Consumption	24 W
Operating Temperature	-20~50 ℃	Storage Temperature	-30~60 ℃
Communication	WiFi		

LiDAR Sensor Parameters

Wavelength	905 nm	Number of Channels	32
Scan Rate	Single Return: 640,000 pts/s Dual Return: 1,280,000 pts/s Triple Return: 1,920,000 pts/s	FOV	360° (Horizontal)×40.3° (Vertical)
		Number of Returns	3

Inertial Navigation System

GNSS	GPS, GLONASS, Galileo, BDS	Azimuth Accuracy	0.038°
Attitude Accuracy	0.008°	IMU Data Frequency	200 Hz

Camera Parameters

Pixels	26 MP	Image Resolution	6252×4168
Focal Length	16 mm / 24 mm (Equiv. Focal Length)		

Software

Control Software	GreenValley	Pre-Processing	LiGeoreference
Post-Processing	LiDAR360 / LiPowerline (Optional)		

Compatible Platforms

DJI, Freefly, etc.

LiAir X4 Plus

LiAir X4 Plus is a highly intelligent autonomous airborne LiDAR system developed by GVI. As a comprehensive upgrade to the LiAir X4, it retains autonomous flight capabilities and integrates the panoramic camera module internally for a more compact design and faster airborne/handheld switching. The system combines a lightweight 32-line LiDAR, high-precision INS, a 26- megapixel mapping camera, dual 12-megapixel panoramic cameras, and a high-performance edge computing platform. In handheld mode, the built-in SLAM algorithm captures high-precision 3D point clouds, achieving centimeter-level integration of airborne and handheld data for comprehensive 3D mapping.



Autonomous Flight Function



- Above Powerline Following Flight

Automatic line intersection identification, autonomous crossing of intersections, real-time tree obstacle reporting and pole/tower log generation, and automated pole/tower identification and photography.



- Side Powerline Following Flight

Capture RGB photos of conductors, autonomous tower crossing and line switching.



- Real-time Terrain Following Flight

Real-time DSM construction for terrain-following flight, meet the demand of large height difference terrain data collection for short-range LiDAR system.

Multi-Mode Operation, Adapting Flexibly to Diverse Scenarios

The system supports handheld, backpack, and airborne modes with modular kits for rapid switching, and integrates GNSS with LiDAR SLAM fusion algorithms to capture high-precision point cloud data in handheld mode(thickness<2 cm,elevation accuracy<5 cm)

Intelligent Inspection Flights with Omnidirectional Autonomous Obstacle Avoidance

Equipped with a high-precision integrated motor, the system performs 360°×270° omnidirectional scanning, detecting obstacles in real time and intelligently chooses climbing or bypass strategies based on the environment to ensure safety with minimal manual intervention.

Integrated Aerial-Terrestrial Workflow with Multi-Source Data Fusion

With dual 12-megapixel panoramic cameras, LiAirX4 Plus achieves full scene coverage on airborne or handheld platforms. By fusing airborne and handheld point clouds with high-resolution panoramic images, it enables seamless multi-platform data integration and supports large-scale, high-fidelity 3D Gaussian Splatting models for more complete and detailed scene reconstruction.

Support GNSS Antenna-Free Solution, Simplifying the Installation Process

When mounting the system on DJI M300/M350RTK aircraft, there is no need to install external antennas, yet it can still acquire high-precision GNSS information. Post-processing can then generate a centimeter-level high-precision point cloud.

GreenValley APP: Intelligent Assistance for Real-Time Quality Control

In airborne or handheld/backpack mode, the APP provides real-time true-color point cloud display and RTK data acquisition, delivering absolute coordinate point clouds for timely surveys. Additionally, 720p/30fps video streaming enables clear field monitoring, enhancing control and safety.

System Parameters

Detection Range	80 m @ 10% reflectance 200 m @ 54% reflectance 300 m @ 90% reflectance	System Accuracy (Vertical)	<5 cm @ 100 m
Typical Flight Speed	8 m/s	FOV	360°(Horizontal)×270°(Vertical)
Internal Storage	256 GB TF Card + 512 GB Internal SSD	Weight	1.52 kg
Dimensions	210×110×185.5 mm	Voltage	12-28 V
Power Consumption	36 W	Operating Temperature	-20~50 ℃
Storage Temperature	-30~60 ℃		
Laser Sensor Parameters			
Wavelength	905 nm	Number of Channels	32
Laser Class	Class1	Scan Frequency	5 Hz~20 Hz
Returns	3	Point Rate	1920 kHz(Triple Return)
Inertial Navigation System			
GNSS	GPS, GLONASS, Galileo, BeiDou	Azimuth Accuracy	0.038°
Attitude Accuracy	0.008°	IMU Data Frequency	200 Hz
Camera Parameters			
Pixels	26 MP	Focal Length	16 mm / 24 mm (Equiv. Focal Length)
Image Resolution	6252×4168		
Panoramic Camera Parameters			
Pixels	12MP×2	FOV	H190°×V190°
Software			
Control Software	GreenValley	Pre-Processing	LiGeoreference
Post-Processing	LiDAR360 / LiPowerline (Optional)		

Handheld Mode Specifications

Handheld Size	243×124×377 mm	Handheld Kit Weight	2 kg(Including device and handle)
Protection Level	IP54	Working Time of One Battery Block	1.5 h
Accessory Specifications			
Frontpack Kit Weight	2.1 kg	Frontpack Kit Outer Packaging Dimensions	560×340×160 mm
Backpack Kit Weight	3.9 kg	Backpack Kit Dimensions	580×303×145 mm
Mapping Method			
Mapping Principle	SLAM, PPK-SLAM	Real-Time Calculation	Supported
Data Results			
Absolute Accuracy	<5cm	Point cloud thickness	<2cm
Point Cloud Format	LAS, LiData	3DGS Format	Lisplat, ply

02 Hardware
LiAir Series

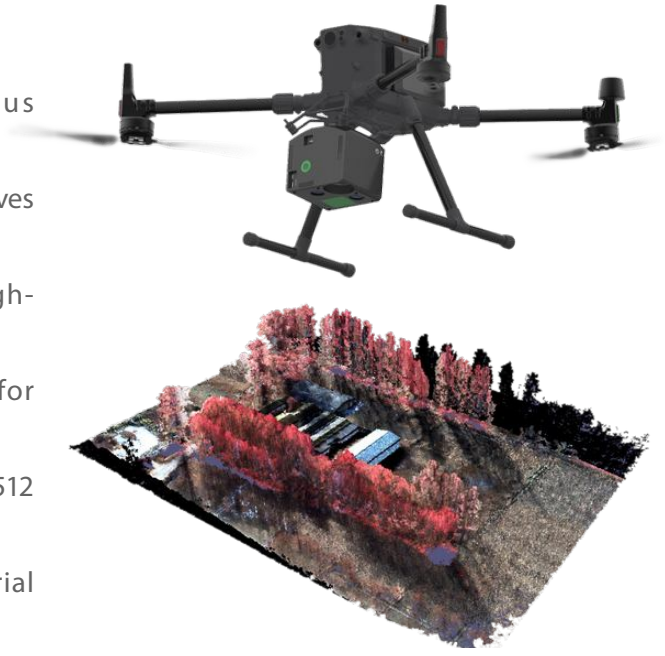
LiAirX3-LIR

An excellent integrated system of LiDAR, infrared, and hyperspectral imaging, a powerful tool for multi-source remote sensing of unmanned aerial vehicles (UAVs)!

The LiAirX3-LIR airborne LiDAR infrared hyperspectral imaging system is a multi-functional UAV remote sensing equipment that integrates LiDAR, thermal infrared and hyperspectral imaging. It captures LiDAR, infrared and hyperspectral image data simultaneously. Its main features include high-resolution hyperspectral imaging based on light field technology, a spectral range of 350-1000 nm, a 3.5 MP high-definition panchromatic camera, a solid-state LiDAR with a range of up to 450 m (@ 80% Ref), and a large-array high-precision thermal infrared imaging capability. The system includes a built-in control system, high-precision inertial navigation, and solid-state storage, making it suitable for various unmanned aerial vehicles.

Advantage

- 350~1000 nm, 164-channel instantaneous synchronous imaging.
- By utilizing light field imaging technology, it achieves fast imaging without distortion.
- 1886×1886 large-array spatial dimension high-definition image.
- Integrated high-precision solid-state LiDAR for synchronous measurements.
- Thermal infrared simultaneous imaging, 640×512 pixel full-screen temperature measurement.
- It can be mounted on various unmanned aerial vehicles to measure large-area data images.
- High integration, total weight <2 kg.



LiAirX3-LIR Hyperspectral CIR and LiDAR Point Cloud Fusion Image (partial)

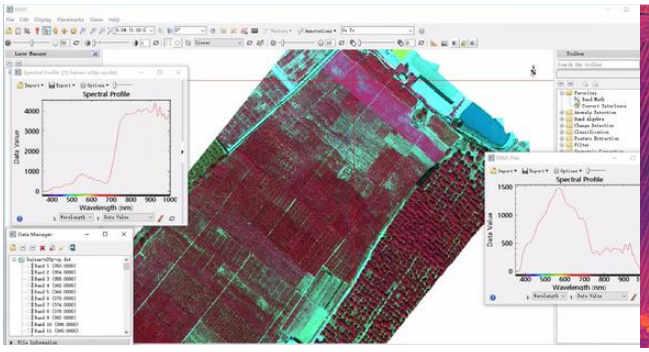
LiAirX3-LIR— an integrated LiDAR infrared hyperspectral imaging system

Spectral Range	350~1000nm+905nm-LiDAR+7.5~13.5μm-IR	Hyperspectral Image	1886×1886 pixels / frame
Number of Spectral Channels	>160	Sensor	20 MP hyperspectral CMOS + LiDAR + Vox IR + 3.5 MP panchromatic integrated design
Imaging Mode	Frame-based hyperspectral and thermal infrared imaging, synchronized measurement with solid-state LiDAR and panchromatic camera	Hyperspectral Imaging Speed	≥2 Cubes/s (1886×1886 pixels/Cube)
Panchromatic Camera	3.5 million pixels, real-time simultaneous imaging of hyperspectral data	Thermal Infrared Resolution	Full-screen temperature measurement with 640×512 pixels
Temperature Measurement Accuracy	±2°C	Laser Radar	905 nm solid-state LiDAR, Class 1 eye-safe
Detection Range	450 m @ 80% reflectance	Range Measurement Accuracy	2 cm （1 σ @ 20 m）
Inertial Navigation System	GNSS: GPS, GLONASS, BeiDou	Azimuth Accuracy	0.038°
Attitude Accuracy	0.008°	External Interfaces	2×GigE、2×USB、HDMI、Micro-SD
Storage Memory	Built-in solid-state drive 512 GB / 8 GB	Trigger Control	The flight controller provides trigger signals to synchronize the acquisition of GPS data

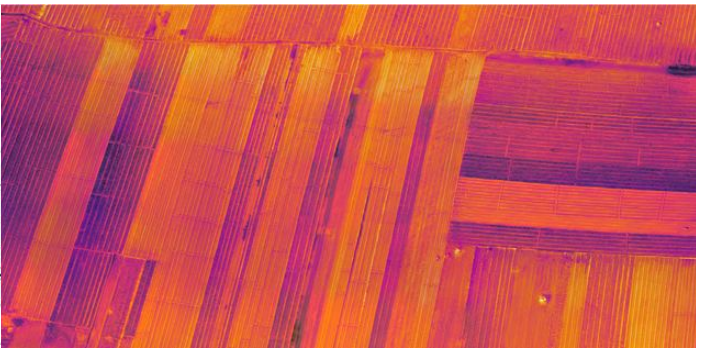
Recommended UAV:

M300 RTK or A6 series and other multi-rotor unmanned aerial vehicles (UAVs) with a payload capacity greater than 2kg





LiAirX3-LIR Hyperspectral CIR Image Map



LiAirX3-LIR Large-area Thermal Infrared Imaging Operation Data Map

02 | Hardware
LiAir Series

LiAir H600



The LiAir H600 is a next-generation lightweight, medium-range LiDAR scanning system developed by GVI. It integrates compact mapping-grade LiDAR, proprietary high-precision inertial navigation, and a high-resolution mapping camera. The lightweight system, weighing just 1.3 kg, offers a measurement range of up to 750 meters.It is easily adaptable to small rotorcraft and fixed-wing aircraft, significantly enhancing endurance and operational efficiency. Paired with flight control APP GreenValley and data post-processing software LiDAR360/LiPowerline, it provides an efficient one-stop solution for powerline inspection, forestry resource surveys, and emergency disaster assessment.

High-precision mapping LiDAR, excellent point cloud quality performance

Integrated with mapping-grade single-line LiDAR, it achieves an elevation accuracy better than 5 cm and a point cloud thickness better than 3 cm at an operating altitude of 200 meters.

Small spot size, concentrated laser pulse energy, supporting up to seven returns, effectively penetrating densely vegetated areas to capture complete terrain data beneath the canopy.

Maximum 550 KHz laser point frequency, 80° horizontal field of view, and an effective swath width greater than 350 m at a working height of 200 meters.

Adaptive configuration of operational parameters for a more uniform distribution of point clouds

Offer 7 different configurations for flight height, data frequency, and energy settings, the device can adaptively adjust the scan speed to ensure consistent line spacing and point spacing in different survey areas, ensuring uniform distribution of point clouds and preserving the 3D spatial characteristics of objects with greater accuracy.

Intelligent Flight Control Mode

Intelligent judgment of flight altitude, automatic start of data collection in the air, and automatic stop of collection on the ground, ensure the integrity of the surveyed area while minimizing data redundancy to the maximum extent possible.

26 MP mapping camera upgraded, supporting real-time video stream transmission

Built-in 26 MP high-resolution mapping camera, capable of capturing images with a resolution of 4.7 cm from an altitude of 200 meters. The camera supports real-time feedback of 720P/30FPS video streams, allowing operators to observe the working environment below in real-time for better control of onsite operations.

Supports GNSS antenna-free solution, simplifying the installation process

When mounting the system on DJI M300/M350RTK aircraft, there is no need to install external antennas, yet it can still acquire high-precision GNSS information. Post-processing can then generate a centimeter-level high-precision point cloud.

Support of GreenValley Flight Assistant

Supports operational status monitoring, device parameter configuration, real-time display of 3D point clouds, and camera video streams. This allows for real-time verification of data integrity and the operational status of equipment, enabling prompt identification of issues to avoid ineffective operations and data rework, making field operations safer and more controllable.

System Parameters			
System Accuracy (Vertical)	±5 cm @ 200 m	Weight	1.3 kg
Dimensions	179×114×127.2 mm	Storage	256 GB TF Card
Power Consumption	About 50 W	Voltage	14~24 V, 2.34 A @ 24 V DC
Communication	WiFi / USB-C	Operating Temperature	-20~60 °C
IP Rating	IP64	Storage Temperature	-20~50°C
LiDAR Sensor Parameters			
Wavelength	1535 nm	Detection Range	267 m @ 10% reflectivity 750 m @ 80% reflectivity
FOV	80°	Repeatability Accuracy	5 mm @ 100 m
Number of Returns	Unlimited Waveform Returns[1]	Scan Rate	100,000~550,000 pts/s
Inertial Navigation System			
GNSS	GPS, GLONASS, Galileo, BDS	Azimuth Accuracy	0.019°
IMU Data Frequency	500 Hz	Attitude Accuracy	0.006°
Camera Parameters			
Pixels	26 MP	Focal Length	16 mm / 24 mm (Equiv. Focal Length)
Image Resolution	6252×4168		
Software			
Control Software	GreenValley APP	Pre-Processing	LiGeoreference
Post-Processing	LiDAR360 / LiPowerline (Optional)		
Compatible Platforms			
DJI M300/350 RTK, DJI M400, GDU S400E			

[1] The theoretical maximum number of returns can only be achieved under specific conditions and is constrained by the actual test scenario.

LiAir H800



LiAir H800 is a next-generation medium-to-long-range UAV LiDAR system developed by GVI. It integrates lightweight LiDAR, a self-developed inertial navigation system, and a built-in high-resolution mapping camera, combining the advantages of lightweight and long-range capabilities. With the support of flight control software GreenValley App and data processing software LiGeoreference, provides more efficient all-in-one solution tasks for power line inspection, forest monitoring, emergency disaster assessment, and more.

Lightweight & Long-range

Integrated with lightweight LiDAR, the total weight of the device is 2.25 kg, and it can be equipped with M300/M350 RTK for operations. With a data frequency of 2000 kHz, it can achieve a maximum range of 1000 m. It supports unlimited waveform returns for data collection, enabling complete terrain data acquisition even in vegetated areas.

High Efficiency & High Accuracy

With a horizontal field of view of 100 degrees, at a flight height of 200 m, the effective swath width of a single pass is greater than 450 m. The system has a repeat ranging accuracy of 3 mm, and the vertical positioning error at a flight height of 200 m is less than 5 cm.

Adaptive Scan Speed, Point Cloud Distribution More Evenly

Offering 9 different configurations for flight height, data frequency, and energy settings, the device can adaptively adjust the scan speed to ensure consistent line spacing and point spacing in different survey areas, ensuring uniform distribution of point clouds and preserving the 3D spatial characteristics of objects with greater accuracy.

Built-in Camera, Ultra-clear Picture Quality

Built-in 26-megapixel high-resolution mapping camera, 200 m altitude can obtain 4.7 cm resolution images, and can generate high-quality color point clouds, meeting the production requirements for mapping products.

Intelligent Flight Control Mode

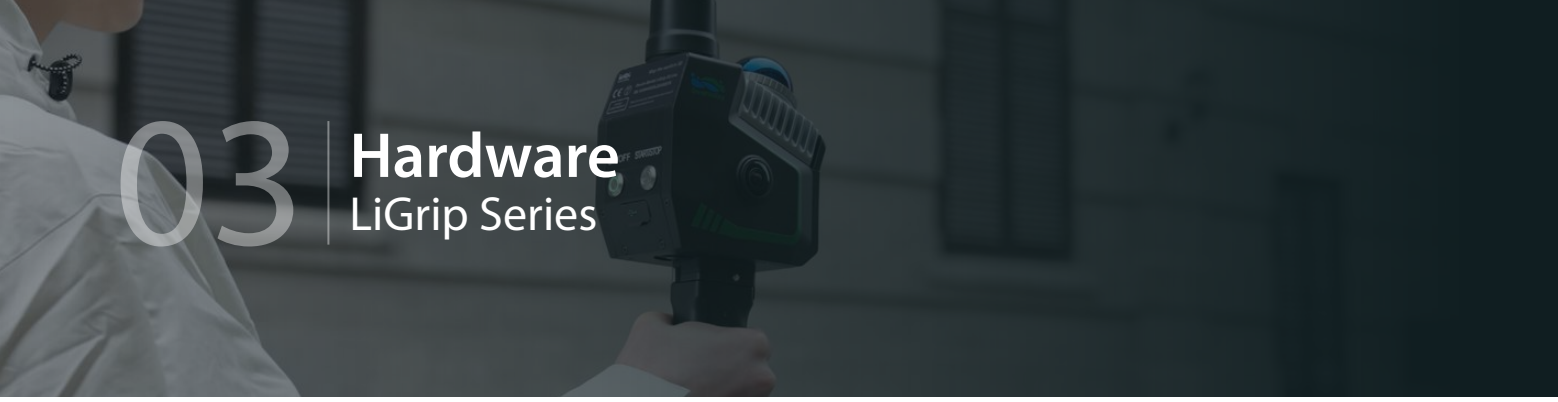
Intelligent judgment of flight altitude, automatic start of data collection in the air, and automatic stop of collection on the ground, ensure the integrity of the surveyed area while minimizing data redundancy to the maximum extent possible.

Support of GreenValley Flight Assistant

GreenValley App supports status monitoring, parameter adjustment and 3D real-time point cloud display. The simpler and clearer design of the interface provides a more convenient flight experience.

System Parameters			
Detection Range	350 m @ 10% reflectivity 790 m @ 50% reflectivity 1000 m @ 80% reflectivity	Dimensions	249×102×163.3 mm
Weight	2.25 kg	System Accuracy (Vertical)	±5 cm
Voltage	18~24 V	Storage	512 GB TF Card
Power Consumption	61 W	Communication	WiFi
Storage Temperature	-30~60 °C	Operating Temperature	-20~50 °C
LiDAR Sensor Parameters			
Wavelength	1535 nm	Repeatability Accuracy	3 mm @ 100 m
FOV	100°	Scan Rate	100,000~2,000,000 pts/s
Number of Returns	Unlimited Waveform Returns [1]		
Inertial Navigation System			
GNSS	GPS, GLONASS, Galileo, BDS	Azimuth Accuracy	0.019°
IMU Data Frequency	1000 Hz	Attitude Accuracy	0.006°
Camera Parameters			
Pixels	26 MP	Focal Length	16 mm / 24 mm (Equiv. Focal Length)
Image Resolution	6252×4168		
Software			
Control Software	GreenValley	Pre-Processing	LiGeoreference
Post-Processing	LiDAR360 / LiPowerline (Optional)		
Compatible Platforms			
DJI M300/350 RTK, DJI M400, GDU S400E, CW15, Autel Alpha, FOXTECH, VILVERIN VL340			

[1] The theoretical maximum number of returns can only be achieved under specific conditions and is constrained by the actual test scenario.



03 Hardware
LiGrip Series

LiGrip O1 Lite



The LiGrip O1 Lite is the latest generation of lightweight products in GVI's LiGrip handheld series. It features an integrated design and supports various mapping methods, including RTK-SLAM, PPK-SLAM, and SLAM. It can output real-time, high precision, true-color LAZ point cloud data with absolute coordinates.

The LiGrip O1 Lite can be equipped with an RTK module and a telescopic pole, making it suitable for applications such as floor plan measurement, mine surveying, stockpile measurement, and facade measurement. Combined with LiDAR360 and LiDAR360MLS software, it provides customers with a more efficient turnkey solution.

Integration

The product is highly integrated, with the camera, LiDAR and power supply system in one hand, which makes the user's operation more convenient.

Real-time Mapping and Real-time Colorization

Multi-source sensors synchronized in time and space, real-time processing, real-time colorization,to generate high-precision, true-color LAZ point cloud data, the results are exported for immediate use. When RTK is available, point cloud data with absolute coordinates can be obtained.

Specialized Accessories

The product can be equipped with accessories such as RTK module, telescopic pole adapter and LiGrip frontpack. The rich accessories can be flexibly matched according to the collection scenarios to meet various collection needs such as multi-directional pointing, instant collection, freeing hands, etc., further improving the operational efficiency.

Lightweight Equipment

A weight of 1 kilogram makes measurement more comfortable and unrestricted.

Turnkey Solution

With the LiDAR360 and LiDAR360MLS software developed by GVI, it can provide users with a turnkey solution.

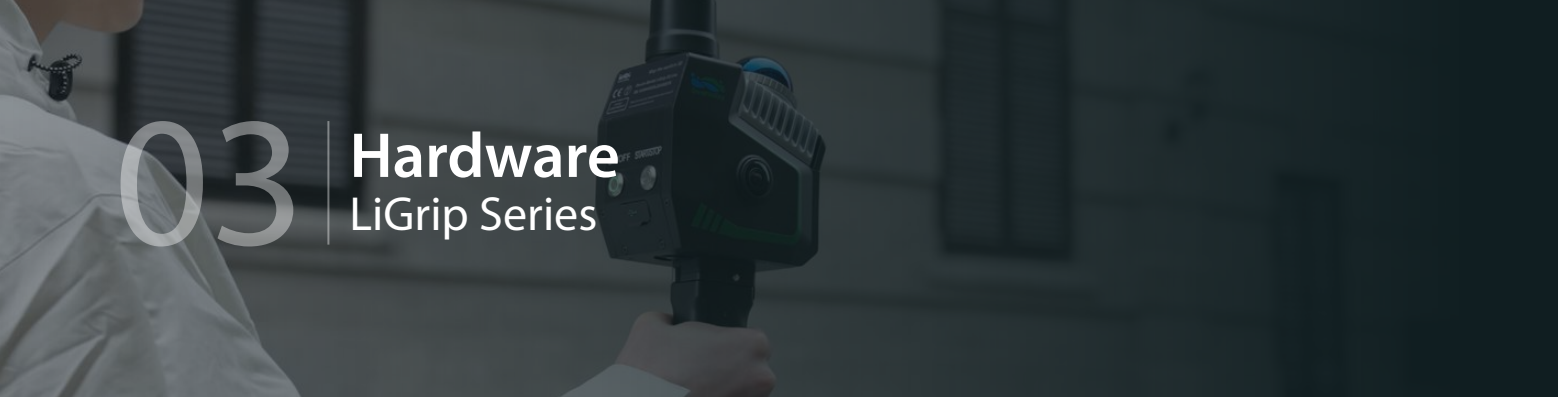
System Parameters			
Dimensions	184×115×304 mm	Handheld Weight	1.0 kg (including GCP base and battery)
Battery Capacity	3450 mAh	Voltage	14.4 V
Storage	256 GB[1]	IP Rating	IP54
Port	Type-C, TF Card	Single Battery Life	180 mins[2]
Controls	App / Button	Firmware Upgrade	OTA / Offline
Operating Temperature	-20℃ ~40 ℃	Equipment Storage Temperature	-40℃ ~70 ℃
Battery Storage Temperature	Recommended storage temperature: 22℃ ~30℃ [3]		
LiDAR Sensor Parameters			
Laser	Mid360	Wavelength	905 nm
Scan Rate	200,000 pts/s	Detection Range	40 m @ 10% reflectivity 70 m @ 80% reflectivity
Range Accuracy	2 cm	FOV	Horizontal 360°, Vertical -7°~52°
Camera Parameters			
Camera Type	LiCam	Image Resolution	3840×2160
FOV	240°×143°	Image Format	bin (before parsing)/JPG (after parsing)
Capturing Frame Rate	0~5 frames/sec (adjustable)		
Mapping Method			
Mapping Principles	RTK-SLAM, PPK-SLAM, SLAM	Real-time Processing	Support
Real-time Coloring	Support		
Data Results			
Relative Accuracy	≤2 cm	Absolute accuracy	≤5 cm[4]
Point Cloud Data Format	LAZ (real-time processing), LiData (post-processing)		

[1] 256 GB (standard), supports up to 1 TB expansion;
[2] No GNSS, no camera recording;
[3] Battery Storage Temperature, -20℃ ~45℃ Less than 1 month; -20℃ ~35℃ Greater than 1 month;
[4] Standard precision field, strictly standardized operation; the more feature points in the scanned scene and the better the quality of the features, the higher the point cloud accuracy, and it is recommended to obtain high-precision point cloud results according to the recommended operation method.

Optional Accessories Parameters

RTK Module			
GNSS System	Supports 5 constellations and 14 frequencies	RTK Accuracy	Horizontal 0.8 cm+1 ppm; Vertical 1.5 cm+1 ppm
	GPS: L1/L2/L5	RTK Protocal	NTRIP
	GLO: L1/L2	Network Communication	4G Global Pass[5]
	BDS: B1I/B2I/B3I	Dimensions	45×45×95 mm
	GAL: E1/E5a/E5b	Weight	119 g
	QZSS: L1/L2/L5	GNSS Raw Data Format	.log
Compatible with	LiGrip O1 Lite and LiGrip O1	RTK Data Format	rtk
Pole Adapter			
Weight	300 g	Support Telescopic Pole Diameter	25-25.5 mm[6]
LiGrip Frontpack			
Weight	2.1 kg	Outer Package Size	560×340×160 mm

[5] Support frequency bands: LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28
LTE-TDD: B38/B39/B40/B41; UMTS: B1/B2/B4/B5/B6/B8/B19; GSM: B2/B3/B5/B8
[6] The adapter only supports the RTK telescopic rod with an outer diameter of 25-25.5 mm of the telescopic part, and the locking device does not support the telescopic rod with a protruding ring on the top contact surface of the RTK telescopic rod.



03 Hardware
LiGrip Series

LiGrip O2 Lite



LiGrip O2 Lite is the latest-generation handheld SLAM product from GVI, utilizing MLF-SLAM (Multiple Localization Fusion-SLAM) multi-sensor fusion positioning technology. It overcomes mapping challenges in featureless environments such as airports, beaches, and rivers, achieving centimeter-level data collection in all scenarios.

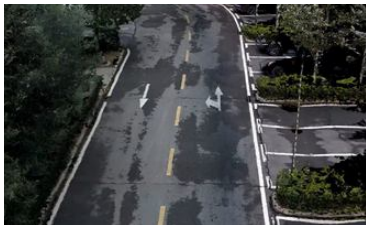
Featureless Data Acquisition

Innovatively developed the MLF-SLAM algorithm: A breakthrough LiDAR SLAM algorithm that overcomes mapping challenges in weak or featureless environments (e.g., airports, beaches, water areas) , enabling high-precision data acquisition across all scenarios.



Precision Data, Outstanding Performance

Compact and Mighty: 3 cm absolute accuracy, high-fidelity point cloud with precise horizontal and vertical alignment, meeting surveying-grade standards and streamlining surveying tasks.



High-definition Panoramic + Visual SLAM Camera

Dual 12 MP panoramic cameras: Microsecond-level synchronization to realistically restore scenes.
Visual SLAM (VSLAM) & LiDAR-SLAM Deep Fusion: Enables precise mapping in complex environments.



One-time Data Collection, Multi-dimensional Output

Integrated solution for multi-source data collection: Simultaneous output of 3D point clouds, panoramic images, 3DGS, MESH, and other data in one collection, breaking the limitations of traditional sequential operations and improving cost-efficiency.



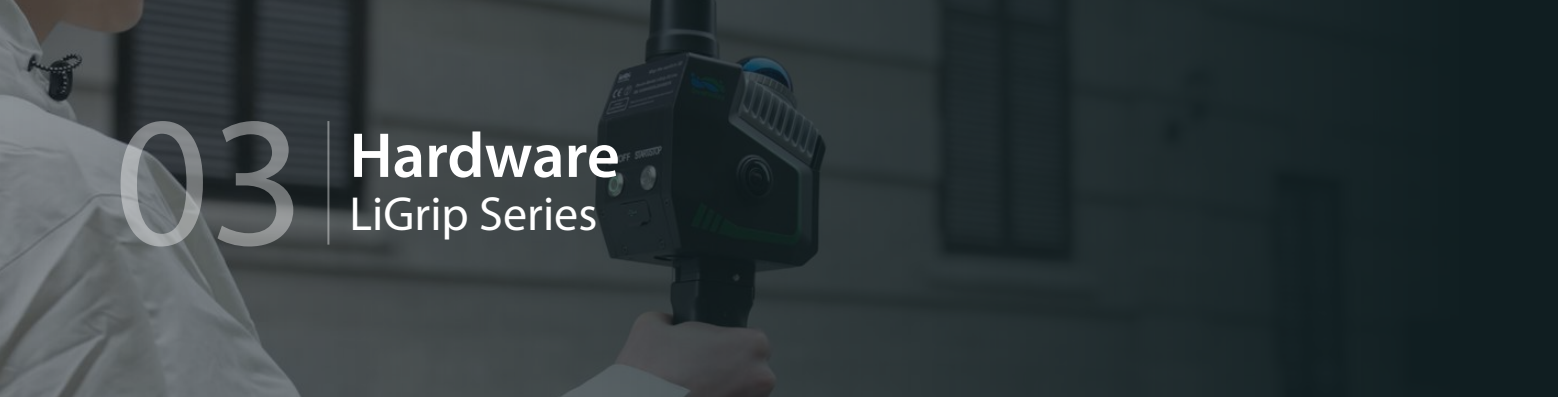
System Specifications			
Absolute Accuracy	<3 cm[1]	Protection Level	IP64
Relative Accuracy	<2 cm[2]	Storage Capacity	512 GB SSD
Repeat Accuracy	<2 cm[3]	Port	TYPE-C
Horizontality/Verticality	<0.025°[4]	Control Method	APP, Button
Scan Rate	200,000 pts/s	Detection Range	40 m @ 10% reflectivity; 70 m @ 80% reflectivity
Weight	1.3 kg (with base, battery, and RTK module)	Firmware Upgrade Method	OTA, Offline
Battery Capacity	2 h[5]	Operating Temperature	-20°C ~ 40°C
Number of Cameras	4	Panoramic Camera	12 MP×2
Visual Camera	1.3 MP×2	Frame Rate	Adjustable
IMU Parameters			
Output Frequency	200 Hz	Post-Processing Position Accuracy	Horizontal: 0.01 m, Vertical: 0.02 m
Post-Processing Attitude Accuracy	Roll/Pitch: 0.005°, 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 Image	imglist + JPG
MESH	LOD-OSGB	Gaussian Splatting	lisplat, ply
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
Channels	1408	Differential Data	RTCM V3.X
RTK Differential Protocol	NTRIP	RTK Data Format	.rtk

[1] [2]: Measured in GreenValley's precision field; 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]: Battery life tested at 20°C without camera recording or RTK connection.



03 Hardware
LiGrip Series

LiGrip O2



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, PPK-SLAM, MLF-SLAM, SLAM

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

LiBackpack DGC50H



The LiBackpack DGC50H backpack LiDAR scanning system is an upgraded version of the LiBackpack Product Series. This system integrates a longer-range LiDAR sensor in the horizontal and vertical directions, with better inertial navigation systems and self-developed batteries; The GNSS and SLAM technology, regardless of whether there is GNSS information in the scanning environment, can obtain high-precision 3D point clouds within the scanning range; Exquisite, double the efficiency! It can be used in the fields of power line inspection, forestry survey, mining measurement, underground space information acquisition, building facade measurement, BIM, and other fields.

5.7K Delayed Photography, Fine into Micro, Double Efficiency

Adopt a high-resolution panoramic camera, and support 5.7K delay photography, the panoramic view is clearer and more realistic. The video size is reduced by 30-40 times compared to the previous generation backpack, shortening the video copy and transcoding time by 20 times.

High Point Frequency, More Detailed Portrayal

Dual laser heads with scanning frequencies of up to 640,000 dots per second.

High Precision, High Efficiency

The LiBackpack DGC50H, when paired with a virtual base station or a self-built base station, can directly acquire point cloud data with absolute coordinates. With a laser range of up to 120 meters and a battery life of 2.5 hours, it can measure a 20,000-square-meter area in just 30 minutes. It is capable of outputting laser point cloud data with absolute precision within 5 cm, meeting high-precision surveying and mapping requirements.

Carry Light

Ergonomically Designed for Portability The ergonomically designed structure weighs only 8.6 kg, making it lightweight and easy to carry, allowing for more flexible operation.

Real-Time Processing, Ready-to-Use Export

The collected target point cloud data supports the real-time synchronous display of mobile terminals such as mobile phones/tablets, supports online closed-loop and closed-loop optimization, and exports real-time point cloud data and motion tracks after scanning.

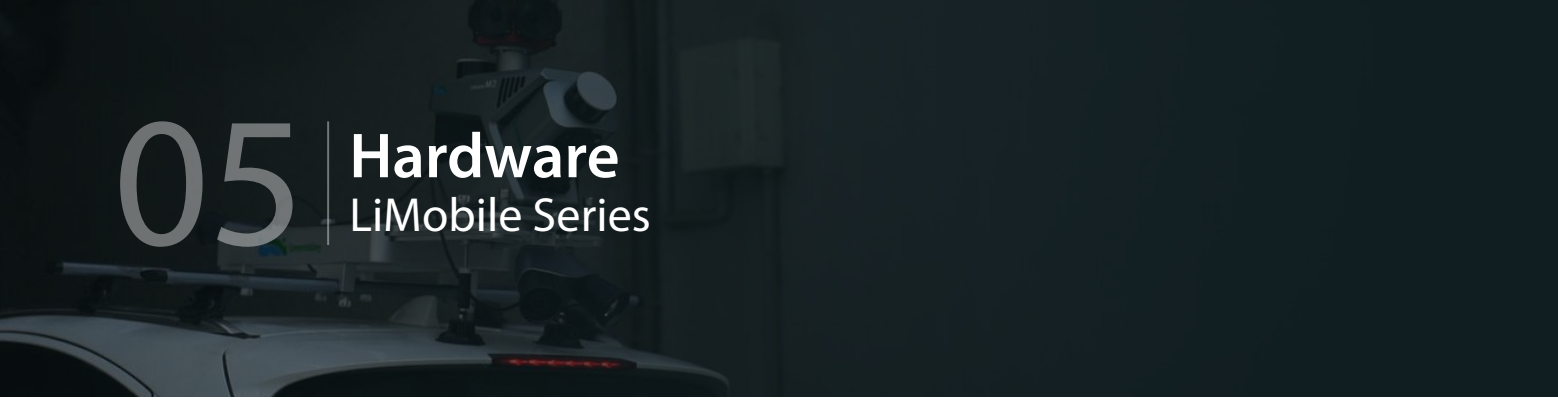
Simple to Handle

With LiDAR360MLS post-processing software, high-precision color point cloud data and panoramic images can be generated with one click.

The Results can be Directly Imported into LiDAR360MLS, LiDAR360

Combined with LiDAR360MLS and LiDAR 360 software, it can realize urban road component census, floor plan drawing, elevation measurement, individual tree segmentation, mine and cave surveying, and other applications.

System Parameters			
Dimensions	1135×318×315 mm (extended) 960×318×315 mm (closed)	Scan Rate	640,000 pts/s (Single Return)
Accuracy	1 cm	Storage	512 GB
Weight (without battery)	8.6 kg	Power Consumption	50 W
Work Mode	Backpack Scanner		
LiDAR Sensor Parameters			
Number of Channels	16	FOV	Horizontal: 360°, Vertical: 180° (-90°~90°)
Number of Returns	2	Range Accuracy	±1 cm
Number of Sensors	2		
GNSS			
Satellites	GPS: L1 C/A, L1C, L2C, L2P, L5 GLONASS: L1 C/A, L2C, L2P, L3, L5 Galileo: E1, E5a, E5b, E5 AltBOC, E6 BeiDou: B1, B2	Positioning	1 cm+1 ppm
Camera Parameters			
Video Resolution	5760×2880	Video Recording Method	Time-lapse: 2 s/frame
FOV	360° panorama	Pixels	18 MP



05 | Hardware
LiMobile Series

LiMobile M2



The LiMobile M2 affordable mobile laser scanning (MLS) system is equipped with two LiDAR sensors (one tilted at a 30-degree angle and one positioned horizontally) and a Ladybug5+ panoramic camera, enabling efficient 3D mapping of roads and surrounding environments. Even in GPS-denied areas, high-precision scanning can be achieved with the help of laser SLAM. It also provides multiple expansion interfaces and can be installed on various types of vehicles. Paired with GVI's self-developed LiDAR360MLS software, it enables one-stop data processing to deliver industry results, supporting applications such as road asset extraction, urban power distribution line analysis, urban forestry management, smart transportation, and more.

Easily Handles Complex Scenarios

The M2 system integrates GNSS, IMU, DMI, and LiDAR SLAM technologies, enabling it to effortlessly handle a wide range of complex scenarios. It can also achieve precise 3D reconstruction of real-world environments, even in areas where GNSS signals are unavailable.

Highly Integrated, Flexible Installation

Integrated equipment with a quick-release design allows for rapid installation and removal. Seven predefined mounting angles (0°, ±15°, ±30°, ±45°) can be flexibly selected to meet the needs of different projects.

Instant Insight, Total Control

The newly designed data collection APP features a guided operational process, enabling real-time monitoring of data and location, and ensuring convenient access to all critical information.

Long-lasting Power, Continuous Operation

It supports an external power supply, enabling efficient and uninterrupted operation.

Abundant Expansion

The M2 system is compatible with optional pavement camera, front camera, DMI, and other external sensors. The pavement camera focuses on the road surface for a detailed pavement analysis. The front camera captures traffic signs at high resolution. The DMI provides assistance when satellite signals are blocked or unavailable, improving system stability.

Multi-Industry Applications

Paired with LiDAR360MLS software, M2 achieves one-stop result delivery and is widely applied in road asset extraction, urban power distribution line analysis, urban forestry management, smart transportation, and more.

System Parameters

Dimensions	508.5×263×531.5 mm	Weight	14 kg
Roof Rock Dimensions	730×350×95 mm	Roof Rock Weight	17.5 kg
Operating Time	≥6 h	Port	LAN, ODO
Storage	1 TB×2	Battery Capacity	6000 mAh×6
Operating Temperature	-10°C ~ 50°C	IP Rating	IP65
Power Consumption (Typical)	75 W	Power Supply Input Voltage	24 V DC
Power Consumption (Max)	125 W	Interface Connection	Wi-Fi / Ethernet

LiDAR Sensor Parameters

Laser	XT32M2X	Range Accuracy	±1 cm
FOV (Vertical)	40.3° (-20.8° to +19.5°)	FOV (Horizontal)	360°
Scan Rate	1,280,000 pts/s (Dual Return)	Detection Range	0.5 to 300 m

Camera Parameters

	Ladybug5+	Ladybug6 (Optional)	Pavement / Front (Optional)
Pixels	30 MP (5 MP×6 Sensors)	72 MP (12 MP×6 Sensors)	24 MP (12 MP×2 Sensors)
Maximum Frame Rate	10 FPS	5 FPS	12 FPS (4096×2160) 5 FPS (4096×3000)
Image Resolution	8192×4096	12288×6144	4096×3000
Sensor Type	CMOS	CMOS	CMOS
Trigger Mode	Time / Distance Trigger	Time / Distance Trigger	Time / Distance Trigger
Power Consumption	Maximum 13 W	Maximum 13 W	3.0 W @ 12 VDC

Positioning and Orientation System Parameters

GNSS System	GPS; GLONASS; GALILEO; BEIDOU; QZSS; SBAS	IMU Update Frequency	100 Hz
Mechanical DMI (Optional)	Mechanical wheel odometer for road applications.		
Position Accuracy (RMS 1σ)[1]	Horizontal: 0.01 m	Roll / Pitch Accuracy (RMS 1σ)[1]	0.01°
	Vertical: 0.02 m	Heading Accuracy (RMS 1σ)[1]	0.04°

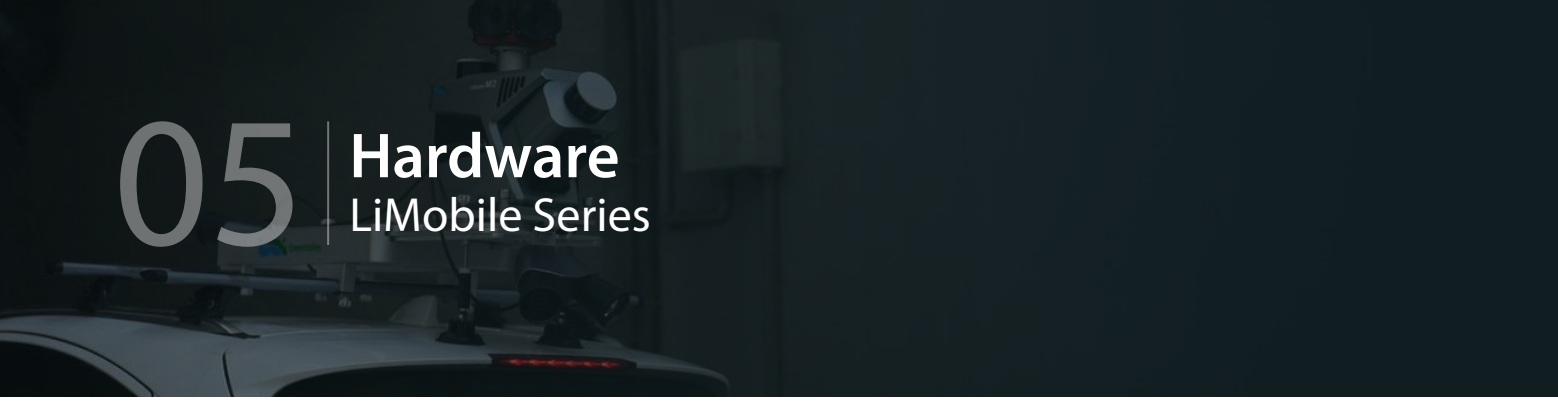
Data Results

Relative Accuracy[2]	≤2 cm	Absolute Accuracy[2]	≤5 cm
Point Cloud Data Format	LAS, LAZ, LiData		

Software

Data Collection	GreenValley APP		
Pre-Processing	LiDAR360MLS-Geo Module	Post-Processing	LiDAR360MLS (Optional)

[1] PPK performance in open-sky GNSS environment.
[2] The accuracy is measured in a specific calibration field of GVI, with a vehicle speed of 40 km/h and LiDAR360MLS software. The accuracy may vary in different operating environments, so please refer to actual use.



05 | Hardware
LiMobile Series

LiMobile M2 Pro



The LiMobile M2 Pro mobile laser scanning system, developed by GreenValley International (GVI), a highly practical survey-grade mobile measurement system. The system integrates a long-range, high-precision LiDAR, GNSS/INS integrated navigation system, multi-channel SLAM LiDAR, and a high-resolution panoramic camera. It also provides multiple expansion interfaces and can be installed on different vehicle models. Paired with GVI's self-developed LiDAR360MLS software, it enables one-stop data processing to deliver industry results in applications like road maintenance, road reconstruction and expansion, road asset census, intelligent transportation, high-precision maps, digital twins, and more.

High Precision

The system employs GNSS, IMU, DMI, and LiDAR SLAM technologies to easily handle various complex working conditions, accurately recreating 3D reality even in GPS-denied areas. Integrated with a LiDAR offering millimeter-level accuracy, the system can achieve centimeter-level precision.

Abundant Expansion

The M2 Pro system is compatible with optional pavement camera, front camera, DMI, and other external sensors. The pavement camera focuses on the road surface for a detailed pavement analysis. The front camera captures traffic signs at high resolution. The DMI provides assistance when satellite signals are blocked or missing, improving system stability.

Instant Insight, Total Control

The newly designed data collection APP features a guided operational process, enabling real-time monitoring of data and location, and ensuring convenient access to all critical information.

Long-lasting Power, Continuous Operation

It supports an external power supply, enabling efficient and uninterrupted operation.

Highly Integrated, Flexible Installation

Integrated equipment with a quick-release design allows for rapid installation and removal. Seven predefined mounting angles (0°, ±15°, ±30°, ±45°) can be flexibly selected to meet the needs of different projects.

Multi-Industry Applications

It is widely used in various fields, including road maintenance, road reconstruction and expansion, road asset extraction, intelligent transportation, high-precision maps, digital twins, and more.

System Parameters

Dimensions	508.5×263×573.3 mm	Weight	15 kg
Roof Rock Dimensions	740×350×95 mm	Roof Rock Weight	17.5 kg
Operating Time	≥3 h	Port	LAN, ODO
Storage	1 TB×2	Battery Capacity	6000 mAh×6
Operating Temperature	-10 °C ~ 50 °C	IP Rating	IP65
Power Consumption (Typical)	125 W	Power Supply Input Voltage	24 V DC
Power Consumption (Max)	155 W	Interface Connection	Wi-Fi / Ethernet

LiDAR Parameters

Accuracy	1 mm @ 30 m (1σ)			Scan Rate		25-200 Scans/Sec		
	3 mm @ 100 m (1σ)			FOV		360°		
Laser Pulse Repetition Rate	2000 kHz	1500 kHz	1000 kHz	750 kHz	500 kHz	300 kHz	150 kHz	100 kHz
Maximum range, target reflectivity ≥ 80%	75 m	100 m	150 m	200 m	300 m	500 m	1000 m	1500 m

Camera Parameters

	DuxCam G2S	Ladybug5+ (Optional)	Ladybug6 (Optional)	Pavement / Front (Optional)
Pixels	72 MP(12 MP×6 Sensors)	30 MP (5 MP×6 Sensors)	72 MP (12 MP×6 Sensors)	24 MP (12 MP×2 Sensors)
Maximum Frame Rate	5 FPS	10 FPS	5 FPS	12 FPS (4096×2160) 5 FPS (4096×3000)
Image Resolution	12000×6000	8192×4096	12288×6144	4096×3000
Sensor Type	CMOS	CMOS	CMOS	CMOS
Trigger Mode	Time / Distance Trigger	Time / Distance Trigger	Time / Distance Trigger	Time / Distance Trigger
Power Consumption	Maximum 36 W	Maximum 13 W	Maximum 13 W	3.0 W @ 12 V DC

Positioning and Orientation System Parameters

GNSS System	GPS; GLONASS; GALILEO; BEIDOU; QZSS; SBAS	IMU Data Frequency	500 Hz
Mechanical DMI (Optional)	Mechanical wheel odometer for road applications.		
Position Accuracy (RMS 1σ)[1]	Horizontal: 0.01 m	Roll / Pitch Accuracy (RMS 1σ)[1]	0.005°
	Vertical: 0.02 m	Heading Accuracy (RMS 1σ)[1]	0.01°

Data Output

Absolute Accuracy[2]	≤3 cm	Point Cloud Data Format	LAS, LAZ, LiData

Software

Data Collection	GreenValley APP		
Pre-Processing	LiDAR360MLS-Geo Module	Post-Processing	LiDAR360MLS (Optional)

[1] PPK performance in open-sky GNSS environment.

[2] The accuracy is measured in a specific calibration field of GVI, with a vehicle speed of 40 km/h and LiDAR360MLS software. The accuracy may vary in different operating environments, so please refer to actual use.

LiMobile M2 Ultra



The LiMobile M2 Ultra mobile laser scanning system, developed by GreenValley International (GVI), is a high-precision survey-grade mobile mapping system. The system integrates long-range high-precision LiDAR, GNSS/INS integrated navigation system, multi-channel SLAM LiDAR, and a high-resolution panoramic camera. It also provides multiple expansion interfaces and can be installed on different vehicle models. Paired with GVI's self-developed LiDAR360MLS software, it enables one-stop data processing to deliver industry results in applications like road maintenance, road reconstruction and expansion, road asset extraction, intelligent transportation, high-precision maps, digital twins, and more.

High Precision

The system employs GNSS, IMU, DMI, and LiDAR SLAM technologies to easily handle various complex working conditions, accurately recreating 3D reality even in GPS-denied areas. Integrated with a LiDAR offering millimeter-level accuracy, the system can achieve centimeter-level precision.

Abundant Expansion

The M2 Ultra system is compatible with optional pavement camera, front camera, DMI, and other external sensors. The pavement camera focuses on the road surface for a detailed pavement analysis. The front camera captures traffic signs at high resolution. The DMI provides assistance when satellite signals are blocked or missing, improving system stability.

Long-lasting Power, Continuous Operation

It supports an external power supply, enabling efficient and uninterrupted operation.

Instant Insight, Total Control

The newly designed data collection APP features a guided operational process, enabling real-time monitoring of data and location, and ensuring convenient access to all critical information.

Highly Integrated, Flexible Installation

Integrated equipment with a quick-release design allows for rapid installation and removal. Seven predefined mounting angles (0°, ±15°, ±30°, ±45°) can be flexibly selected to meet the needs of different projects.

Multi-Industry Applications

It is widely used in various fields, including road maintenance, road reconstruction and expansion, road asset extraction, intelligent transportation, high-precision maps, digital twins, and more.

System Parameters

Dimensions	554×230×547 mm	Weight	18 kg
Roof Rock Dimensions	730×350×95 mm	Roof Rock Weight	17.5 kg
Storage	1 TB×2	Battery Capacity	6000 mAh×6
Operating Time	≥3 h	Port	LAN, ODO
Operating Temperature	-10 °C ~ 40 °C	IP Rating	IP65
Power Consumption (Typical)	120 W	Power Supply Input Voltage	24 V DC
Power Consumption (Max)	150 W	Interface Connection	Wi-Fi / Ethernet

LiDAR Sensor Parameters

Accuracy	5 mm		Precision		3 mm	
Scan Rate	10 - 250 revolutions per second, equivalent to 10 - 250 scans/sec		FOV		360°	
Laser Pulse Repetition Rate	300 kHz	500 kHz	1000 kHz	1250 kHz	1500 kHz	1800 kHz
Maximum range, target reflectivity ≥ 10%	170 m	130 m	85 m	85 m	85 m	85 m
Maximum range, target reflectivity ≥ 80%	475 m	370 m	235 m	235 m	235 m	235 m

Camera Parameters

	Ladybug6	Ladybug5+ (Optional)	Pavement / Front (Optional)
Pixels	72 MP (12 MP×6 Sensors)	30 MP (5 MP×6 Sensors)	24 MP (12 MP×2 Sensors)
Maximum Frame Rate	5 FPS	10 FPS	12 FPS (4096×2160) 5 FPS (4096×3000)
Image Resolution	12288×6144	8192×4096	4096×3000
Sensor Type	CMOS	CMOS	CMOS
Trigger Mode	Time / Distance Trigger	Time / Distance Trigger	Time / Distance Trigger
Power Consumption	Maximum 13 W	Maximum 13 W	3.0 W @ 12 V DC

Positioning and Orientation System Parameters

GNSS System	GPS; GLONASS; GALILEO; BEIDOU; QZSS; SBAS	IMU Data Frequency	100 Hz
Mechanical DMI (Optional)	Mechanical wheel odometer for road applications.		
Position Accuracy (RMS 1σ)[1]	Horizontal: 0.01 m	Roll / Pitch Accuracy (RMS 1σ)[1]	0.005°
	Vertical: 0.02 m	Heading Accuracy (RMS 1σ)[1]	0.01°

Data Output

Absolute Accuracy[2]	≤3 cm	Point Cloud Data Format	LAS, LAZ, LiData

Software

Data Collection	GreenValley APP		
Pre-Processing	LiDAR360MLS-Geo Module	Post-Processing	LiDAR360MLS (Optional)

[1] PPK performance in open-sky GNSS environment.
[2] The accuracy is measured in a specific calibration field of GVI, with a vehicle speed of 40 km/h and LiDAR360MLS software. The accuracy may vary in different operating environments, so please refer to actual use.

06 Hardware
LiPod Series

LiPod P1



3D LiDAR Scanner

The LiPod P1 3D Laser Scanner is a high-precision long-range scanner released by GreenValley International (GVI), which is easily capable of highprecision point cloud data acquisition tasks in various complex environments. The scanner combines fully automatic and semi-automatic registration algorithms to achieve fast data scanning and registration into a map, bringing users a new experience of using a scanner.

Features

- Long Measurement Range: 600 m
- High Precision: 5 mm @ 100 m
- Fast Speed: 6 mm point interval at 10 m per station, point cloud colorization in just 100 s
- Intelligent Registration: 0 targets, 75 stations, automatic registration success in 58 minutes
- Versatile Application: Paired with LiDAR360/LiDAR360MLS software, the industry applications are beyond imagination.

Specifications			
Weight	5.3 kg (including battery)	Type	Pulsed Precise Scan Technology
Laser Class	1	Range	600 m (90% reflectivity)
Range Accuracy	5 mm @ 100 m	Scan Rate	1,200,000 pts/sec
Angular Resolution	0.001° (H./V.)	Scanning FOV	360° (H.) & 300° (V.)
Laser Beam Divergence	0.3 mrad	Data Storage	256 GB USB Drive
Photo Resolution	Inbuilt (24.6 MP in total, 2x12.3 MP)	Total Capture Pixels	>100 MP
Compensation	Compensating Range ± 10°	Power Supply	25 W
	Resolution 0.001°	Battery Life	>4 h
Working Temperature	-20°C ~60°C	Storage Temperature	-35°C ~70°C
Protection Level	IP54	Screen	5 Inch 720×1280 Touch Screen

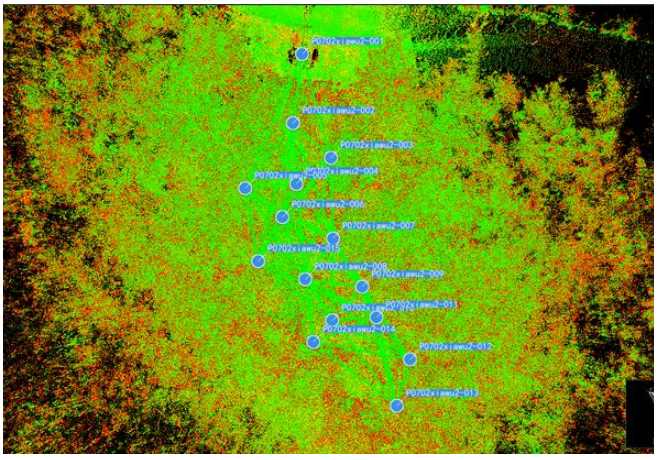
Applications



Fine scanning of power transmission no-fly zones



High-precision modeling and scanning of substations



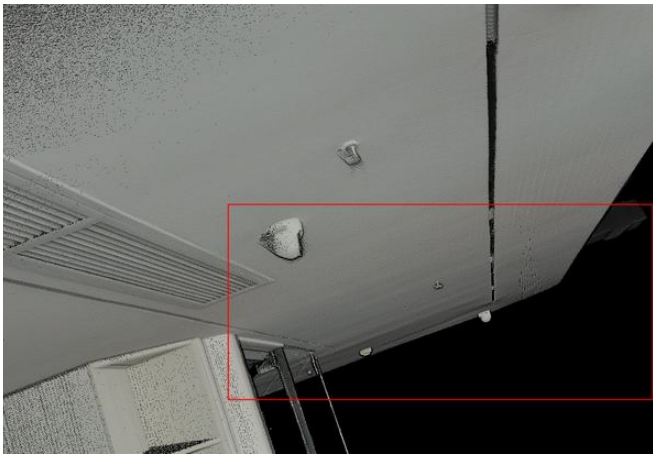
Fully automatic registration of forest land



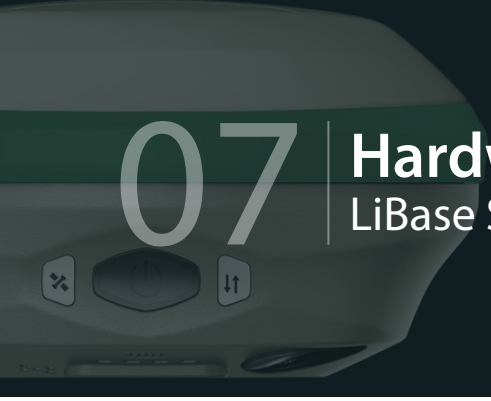
Tree scanning effect



Indoor scanning and modeling



Wall flatness scanning and inspection



07 Hardware
LiBase Series

LiBase RTK



Intelligent Inertial Navigation Ready to Use

No leveling is needed at less than 60° inclination, points can be measured immediately, and the centimeter-level accuracy is maintained, and the measurement efficiency increases drastically.

Full constellation, full frequency, fast locking

Equipped with high-performance and high-precision GNSS SoC chips, it ensures signal reception quality and supports satellite signals from all over the galaxy, including GPS, GLONASS, Beidou, Galileo, QZSS, SBAS, etc.
Full constellation and full frequency signal tracking, fully supporting Beidou-3, quickly locking in satellite signals.

Sensorless Inertial Navigation Technology and Worry-free Tilting.

The fourth-generation inertial navigation tilt measurement technology is free from electromagnetic interference and does not require bubbles to measure the center pole, achieving walking layout and ensuring reliable measurement accuracy.

Realistic layout and One step completion

Satellite navigation+inertial navigation+visual fusion algorithm, not affected by electromagnetic interference, precise layout.
Handbook and host dual AR, immersive real-life layout, seamless switching, fast and accurate.

Hardcore technology

Signal stability: High-performance and high-precision positioning chip board, supporting narrowband anti-interference technology, can automatically achieve ionospheric optimisation, actively detect and effectively suppress internal and external interference signals.

Engineering Surveying and Efficiency Assurance

The professional surveying software LiSurvey2.0 can meet the needs of various layout operations, such as road construction, power line survey, site leveling control, CAD application, railway layout, etc., effectively improving the efficiency of engineering surveying.

LiBase 2

Board card	UM980	Integrated Antenna	Integrated antenna
Network Communication	4G	Radio	1 W, integrated transceiver
Bluetooth	BT 5.0 backwards compatible, BLE	WIFI	802.11 a/ac/b/g/n
MEMS	30 ° rod tip positioning accuracy within 2.5 cm, 60 ° rod tip positioning accuracy within 5cm Note: 1.8 m pole height	Image	2MP pixels

GNSS

Tracking Characteristics	BDS: B1I/B2I/B3I/B1C/B2a/B2b GPS: L1C/A/L2P (Y)/L2C/L5 GLONASS: L1/L2 Galileo: E1/E5a/E5b/E6 QZSS: L1/L2/L5 SBAS	Number of Channels	1408
		Update Rate	10 Hz, 20 Hz standard, 50 Hz (supported by specific authorized users)
RTK Accuracy	Level: ± (8 + 1 × 10 -6 D) mm Elevation: ± (15 + 1 × 10 -6 D) mm	Static Accuracy	Level: ± (2.5 + 0.5 × 10 -6 D) mm Elevation: ± (5 + 0.5 × 10 -6 D) mm

Electrical

Battery Characteristics	Internal battery, 3.65 V DC/12000 mAh 43.8 Wh	Input Voltage	9~28 V DC

Image

Pixel	2 MP	Frame Element	25 Hz
Perspective	FOV 88 degrees	Sensitivity	Low light level and high sensitivity
Lofting Accuracy	3 cm		

System Configuration

Operating System	Linux	Built-in Storage	Onboard 8G
Bluetooth	V5.0 + EDR backwards compatible/BLE	WIFI	802.11 a/ac/b/g/n
Network Communication	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B18/B19/B20/B25/B26/B28 LTE TDD: B34/B38/B39/B40/B41 GSM: 850/900/1800/1900	Radio	Transceiver, 1 W Frequency range: 410 MHz – 470 MHz
		TNC Interface	For connection to the radio antenna
		Type-C Interface	For fast charging and data transfer
SIM Card Slot	Insert the SIM card for use.	MEMS	30 ° rod tip positioning accuracy within 2.5 cm, 60 ° rod tip positioning accuracy within 5 cm Note: 1.8 m pole height

Human-Computer Interaction

Press the Key	Power button, used to turn on and off the main unit. Short press once to broadcast the current working mode and status	
Indicator Light	Satellite indicator light (Red and green)	Off: Not located Flashing green light: located Steady green: fixed solution Flashing traffic lights alternately: GNSS mainboard is abnormal
	Data link indicator	Green means Bluetooth is not connected, and blue means Bluetooth is connected Green/blue solid: no differential received/no static recorded Flashing green/blue: Differential received/static recorded (high priority)
	Battery indicator (Green monochrome)	Uniform on/off status of battery indicator Off: indicates that the charger is not connected. At this time, press the power button once, the battery indicator will display for 3 seconds, and the percentage of battery power will be displayed according to the number of battery lamps, and 1 grid represents 25%. Flashing green light: the charger has been connected, indicating that the charging is in progress. Green is always on: the charger is connected, indicating that the charging is completed.

Physical Indicators

Size	Φ134 ×75.5 mm	Weight	About 0.8 kg

Environmental Performance

Operating Temperature	-30°C ~ +60 °C	Storage Temperature	-40 °C ~ +80 °C
Fall	Normal temperature resistance to a 2 m drop with pole (hardwood floor), 1.2 m free drop.		

LiPOS

LiPOS (Position and Orientation System) is an integrated hardware and software solution independently developed by GreenValley International (GVI). The system combines a high-performance MEMS IMU, GNSS OEM module, and advanced sensor fusion algorithms, supporting both real-time embedded navigation and high-precision post-processing. It is distinguished by its high integration, low cost, and customizable configurations. As a motion compensation module for LiDAR systems, LiPOS accurately provides trajectory and attitude information of the platform, ensuring the geometric accuracy of LiDAR point clouds. It has been successfully integrated into a wide range of LiDAR systems developed by GVI and its partners, supporting airborne, vehicle-mounted, and handheld/backpack applications. The solution has been extensively field-tested across diverse terrains and use cases, and is trusted by users in more than 50 countries and regions worldwide.

Key Advantages

Deep Hardware-Software Integration

Seamless integration of IMU hardware and navigation algorithms improves stability and deployment efficiency.

Plug-and-Play Operation

No mandatory initialization required; start operation immediately upon power-on, ideal for frequent missions.

Robust Outlier Rejection

Intelligent filtering and rejection of multipath and other harmful measurements.

Fully Customizable

Independently developed by GVI, supporting various sensor combinations and functional customization.

High-Precision PPK Processing

Advanced error modeling for RTK and IMU enhances ambiguity resolution accuracy and speed.

Multi-Platform Compatibility

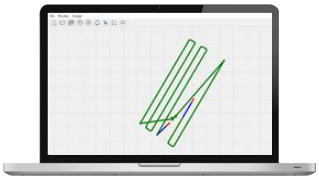
Supports multiple IMUs (e.g., STIM300, CPT7, EPSON G-series), making it easy to integrate into different systems.

LiPOS Architecture: Hardware-Software Integration



POS Hardware

- Mems IMU
- GNSS OEM
- PCS OEM
- Real-Time Integrated Navigation Software



Post-Processing Software：LiNav

The LiPOS post-processing software LiNav has been under continuous development since 2007, with over 200 versions released. Rigorously validated with extensive datasets, the system matured into a high-precision solution with fully independent intellectual property by 2025.

LiNav Software Features & Core Technologies

Dynamic Alignment: No mandatory initialization required

Multi-dimensional Filtering: Deep modeling of IMU, RTK sensors to estimate dozens of errors

Enhanced PPK: Improved ambiguity resolution speed and accuracy

PPK Autonomous Noise Removal: Eliminates harmful measurements (e.g., multipath)

Loose/Tight Coupling: Supports multiple integration modes smoothing modes

Multiple Smoothing Modes: Supports multiple smoothing modes

Hardware Specifications

1.LiPOS-G1

IMU Performance

Gyroscope			Accelerometer		
Measurement Range (°/s)	Bias Instability (°/h)	Angle/Velocity Random Walk (°/√s)	Measurement Range (g)	Bias Instability (ug)	Velocity Random Walk (（m/s）/√h)
±450	1.2	0.08	±4	14	0.02

Navigation Performance

Positioning Mode	Position Accuracy (m)		Velocity Accuracy(m/s)		Attitude Accuracy (°)		
	Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
Post-processing	0.01	0.02	0.015	0.010	0.008	0.008	0.008

2.LiPOS-S1

IMU Performance

Gyroscope			Accelerometer		
Measurement Range (°/s)	Bias Instability (°/h)	Angle/Velocity Random Walk (°/√s)	Measurement Range (g)	Bias Instability (ug)	Velocity Random Walk (（m/s）/√h)
±300	0.5	0.1	±6	20	0.035

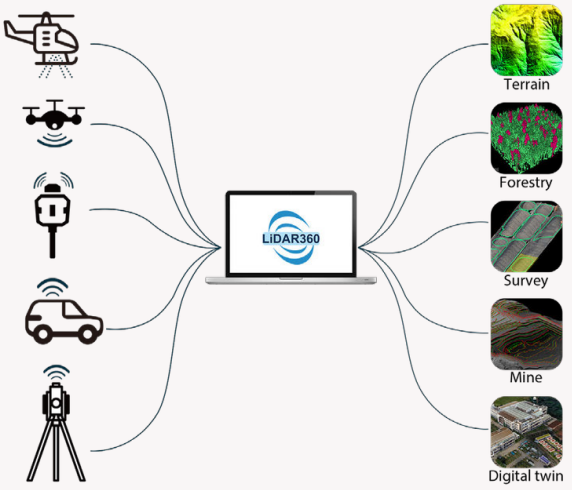
Navigation Performance

Positioning Mode	Position Accuracy (m)		Velocity Accuracy(m/s)		Attitude Accuracy (°)		
	Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
Post-processing	0.01	0.02	0.015	0.010	0.006	0.006	0.019

LiDAR360

LiDAR360 is an industry-leading, easy-to-use point cloud and imagery post-processing software, independently developed by GVI. With over 700 intelligent tools, it supports diverse applications including terrain mapping, forestry surveys, engineering surveying, mining safety, geological hazard analysis, 3D real-scene modeling, digital twins, and powerline inspection. Efficient, smart, and user-friendly, it maximizes the value of your data across industries.

ALL in LiDAR360



- Massive Data Processing
- Multi-source Data Fusion
- One-click Processing
- One-stop Solution
- Extensive Applications
- High-performance Computing with CPU & GPU
- 60+ Data Formats Supported
- AI Q&A Assistant
- Cloud-Based Data Sharing

AI-Powered Assistant

Built-in intelligent Q&A assistant provides real-time help, workflow guidance, and smart recommendations, greatly improving user experience and efficiency.

Model Builder & Distributed Computing

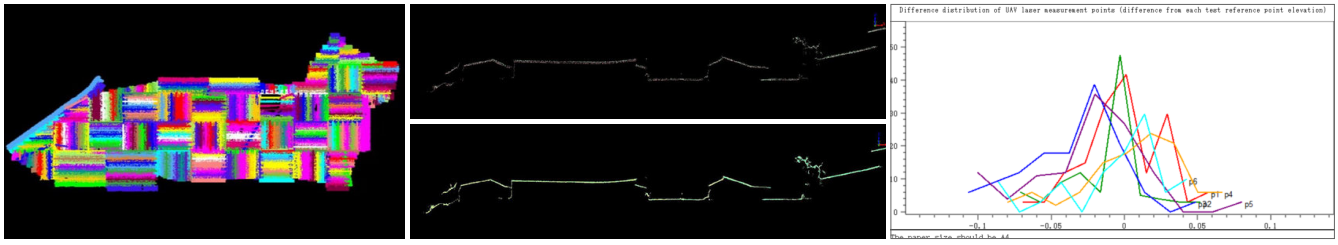
- **Custom Workflows** — Organize functions to create custom workflows and process data in bulk.
- **Script Execution** — Run workflows via scripts without launching the software.
- **Flexible Combination** — Freely combine 200+ modules to build efficient workflows.
- **High-Performance Distributed Computing** — Processes point clouds and imagery across multiple devices for massive datasets.

Distributed Computing Reference Efficiency Table

Device Configuration	Function	Data Size	Compute Nodes Number	Efficiency Improvement
System: Windows 10 **CPU:** 11th Gen Inter® i7 **GPU:** NVIDIA RTX 3050	Classify Air Points	15GB	3	123%
			4	137%
	Smooth+ Subsampling+ Remove Outliers+ Classify Ground Points	30GB	4	168%
			5	278%
			6	375%

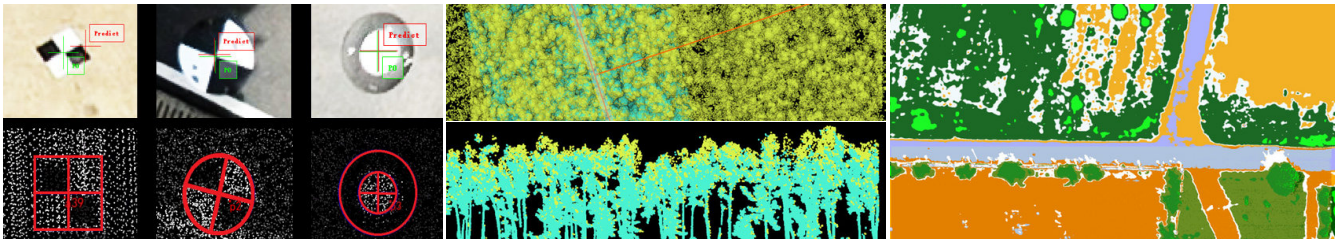
QC&QA , Improve Your Data Quality

- **Accuracy Inspection** — Comprehensive evaluation of acquisition device precision with professional reporting.
- **Data Quality Check** — Automatically assess strip overlap, density, and trajectory compliance to ensure reliable data.
- **Accuracy Optimization** — Align hundreds of strips simultaneously to mitigate device, trajectory, and LiDAR sensor errors, achieving high-precision data alignment.



Multi-Source Data Fusion & Reprojection

- **Multi-Source Data Fusion** — Supports automatic registration of point clouds and oblique data with GCPs and multiple targets for high-precision alignment.
- **Extensive Coordinate System** — Covers reprojection of multiple data sources with flexible datum transformations (including grid).



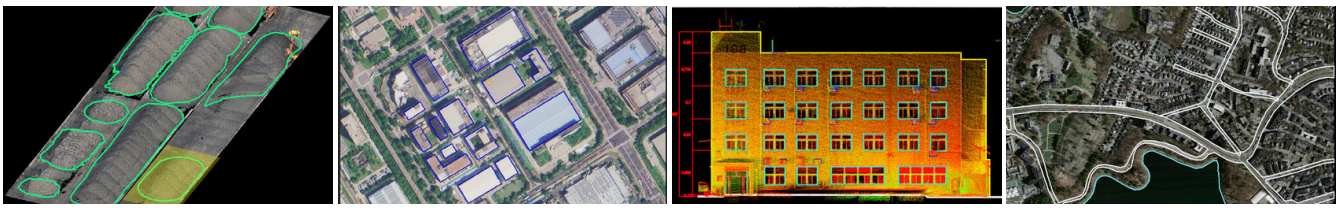
AI-Driven Multi-Source Feature Extraction& Classification

- **One-Click Point Cloud Classification** — Automatically detects and classifies 32 object types, including ground, vegetation, buildings, powerlines, towers, vehicles, and mines.
- **One-Click Image Classification** — Rapidly generates contours and masks for buildings, roads, and other features.
- **Foundation Model Joint Recognition** —Provides semi-automatic object recognition and classification for point clouds and **imagery, with joint point cloud** — image processing for more efficient and accurate results.
- **Industry-Customized Model Training** — A full workflow from labeling and training to deployment, tailored to professional applications.
- **Spectral Classification & Analysis** — Spectral angle classification with spectral library support, plus 113 spectral indices (e.g., NDVI, NDWI).



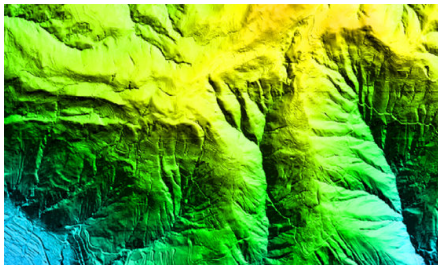
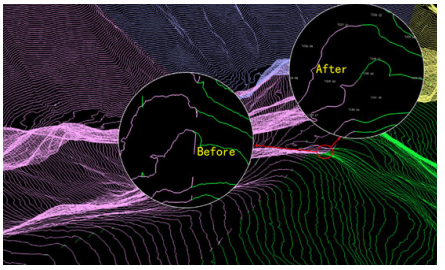
Vector Data Creation,Editing&Application

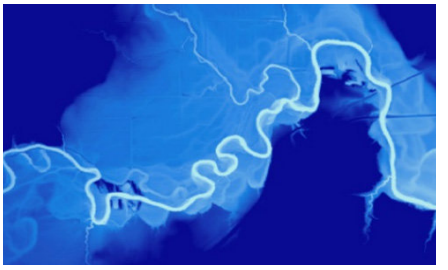
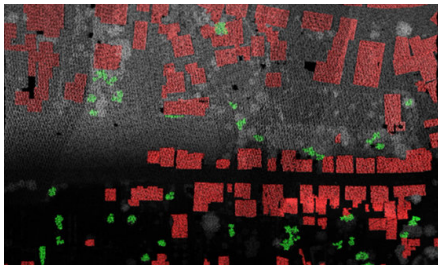
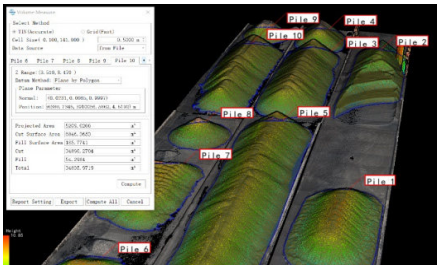
- **50+ Professional Tools** — 2D/3D vector drafting and GIS analysis with topology and attribute editing, for efficient mapping.
- **One-Click Vector Extraction** — Powered by visible & spectral data and the SAM model, enabling outline vectorization with 300%+ efficiency boost.
- **Industry-Grade Automation** — Generate 1000+ building footprints, continuous road curbs, and bulk stockpile toe lines, with direct export to AutoCAD/ArcGIS.

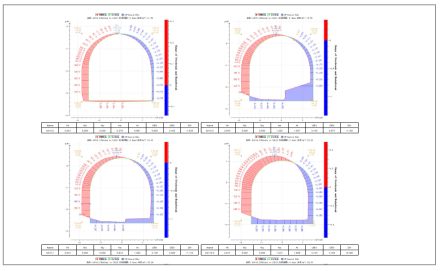


Terrain Modeling & Intelligent Analysis

- **Automated Terrain modeling** — DEM, contours, DOM automatically generated with built-in quality checks.
- **Editing & Correction** — Semi-automatic contour & breakline editing with seamless DEM merging.
- **Accuracy Assurance** — Contour consistency check, DEM accuracy assessment.
- **Smart Terrain Analysis** — Flooding, REM, SVF, multi-period change detection, etc.
- **Engineering Applications** — Road cross-sections, earthwork calculation, construction progress monitoring, etc.

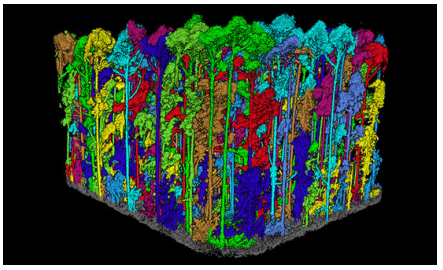
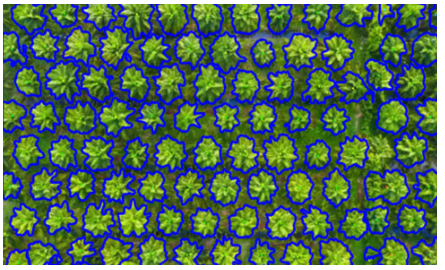
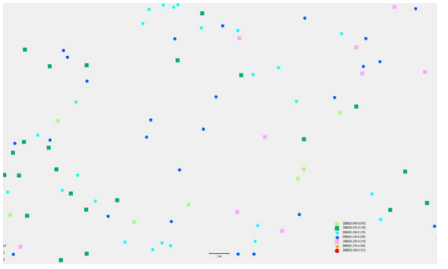
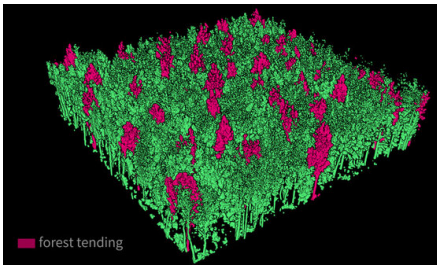



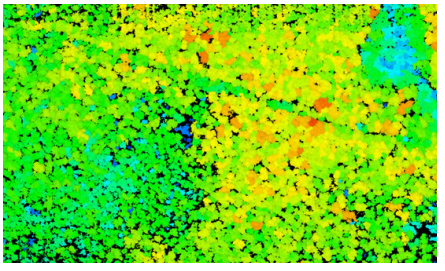
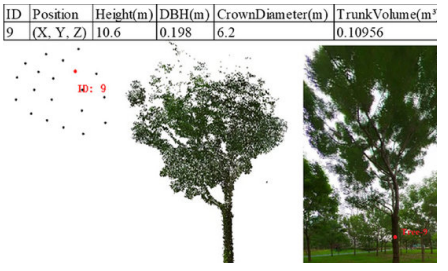






Forest Inventory & Management

- **7+ Data Sources Supported** — Industry-leading AI single-tree segmentation across ALS, ULS, MLS, BLS, HLS, TLS, and orthophoto, with seamless multi-source fusion and registration.
- **18+ individual tree attributes** — Automatically extracted with high precision, including tree height, DBH, crown area, CBH, biomass, and trunck volume.
- **Comprehensive Stand Analysis** — With thinning simulation, trunck volume assessment, and automated individual-tree reports.
- **90+ Stand-level Parameters** — Available, from LAI to canopy cover and gap fraction, with large-scale extrapolation powered by sample plot data.
- **70+ Species Models** — Built-in, with instant cloud publishing for results and insights.

ID	Position	Height(m)	DBH(m)	CrownDiameter(m)	TrunkVolume(m³
9	(X, Y, Z)	10.6	0.198	6.2	0.10956

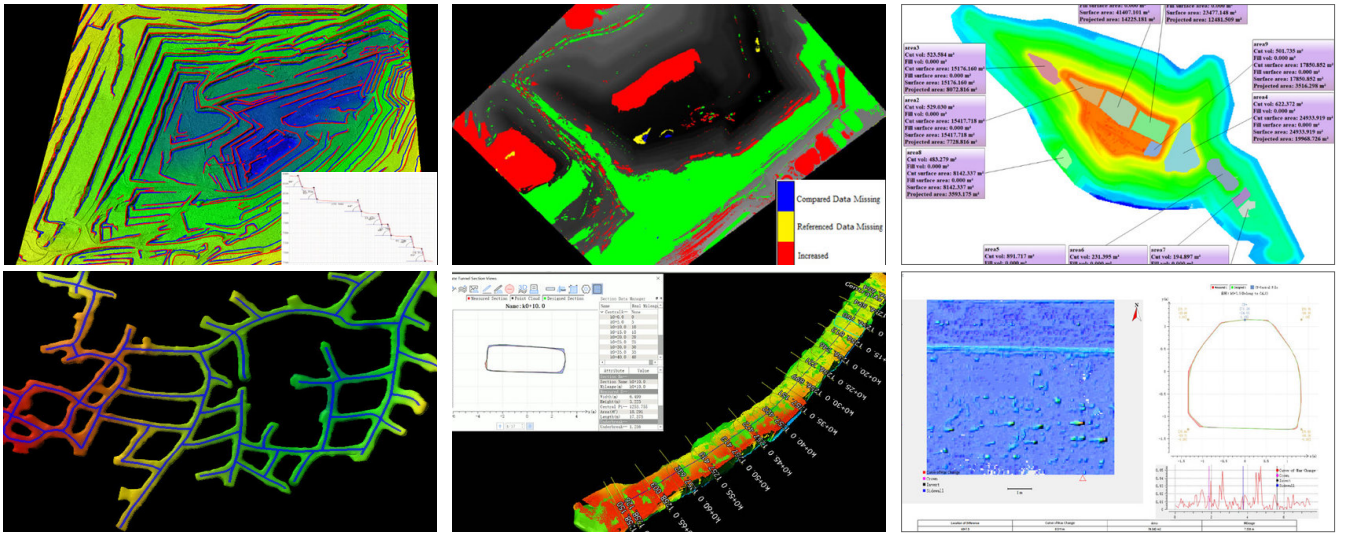
High-Precision Imagery & DOM Generation

- **3+ Data Types Supported** — Generate high-quality orthomosaics (DOM) from visible, multispectral, and hyperspectral data.
- **Dual-Accuracy Enhancement** — Control point correction combined with automatic target recognition and matching ensures superior image quality and geometric precision.
- **End-to-End Editing Tools** — Photo selection, control point editing, and DOM editing for efficient, reliable results.
- **Wide-Ranging Applications** — High-precision point cloud and imagery fusion for vector feature extraction, point cloud classification, texture mapping, and 3D model rendering.



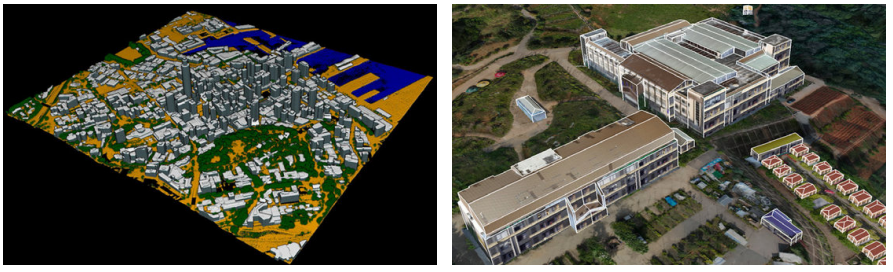
Mining Safety & Extraction Monitoring

- **Open-Pit Modeling & Slope Analysis** — Automatically extracts toes and crests, and analyzes slope stability to enhance safety and construction efficiency.
- **High-Precision Underground Mine Modeling** — Precisely calculates tunnel volume, backfill, and structural changes.
- **Tunnel Design & Analysis** — Automatically extracts centerlines, generates cross-sections, and calculates excavation volumes and variations.



Digital Twin & Smart City Modeling

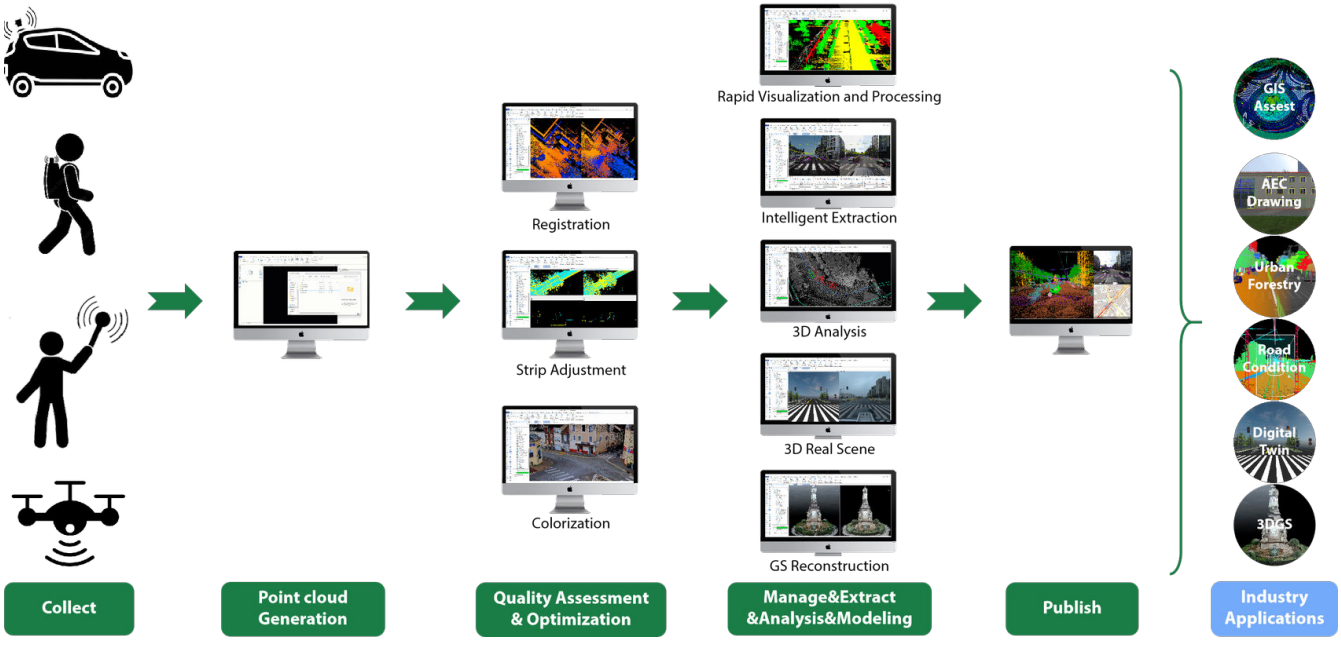
- **City-scale Building Modeling** — Generate 10,000+ LOD2.2 individual building models in just 20 minutes, dramatically accelerating large-scale scene creation.
- **Diverse Texture Mapping** — Supports oblique imagery, orthophotos, material and custom textures, along with texture editing.
- **Automatic Attribute Calculation** — In addition to inheriting 2D footprint attributes, automatically computes 8 key attributes (e.g., area, base elevation).



	BLDG HEIGHT	EAVE HEIGHT	BASE ELEV	ROOF DIR ^	ROOF AREA	ROOF PERIMET
1	29.553	22.118	-26.893	17.839	2172.68…	214.488
2	6.997	0.989	-4.547	18.449	511.471…	103.066
3	7.592	5.531	-4.582	19.153	444.500…	97.706
4	16.188	9.668	-13.548	19.367	3177.89…	248.167
5	9.970	5.060	17.950	20.694	703.675…	138.245
6	6.077	4.891	35.403	22.244	72.0405…	31.415
7	14.179	3.620	16.291	45.930	1013.85…	144.576
8	4.250	2.902	27.140	58.066	114.831…	43.122
9	44.876	32.429	-35.186	60.834	697.885…	100.971
10	9.246	6.344	-6.276	109.136	1354.19…	175.665

LiDAR360MLS

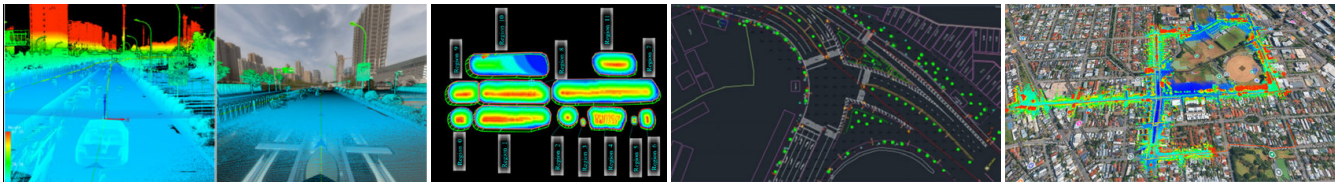
LiDAR360MLS is a feature intelligent extraction and analysis software independently developed by GVI, which supports the processing and analysis of LiDAR point cloud and image data obtained by mainstream vehicle-mounted, backpack, or handheld mobile mapping systems on the market. It has a complete processing chain from point cloud data processing to GIS asset survey, architectural drawings, 3D vector mapping, road condition assessment, railway inspection, urban forestry inventory, digital twin, virtual reality, high definition map and other industry results delivery. LiDAR360MLS ushers in the era of Intelligent 3D Data Processing 2.0.



Product Advantages

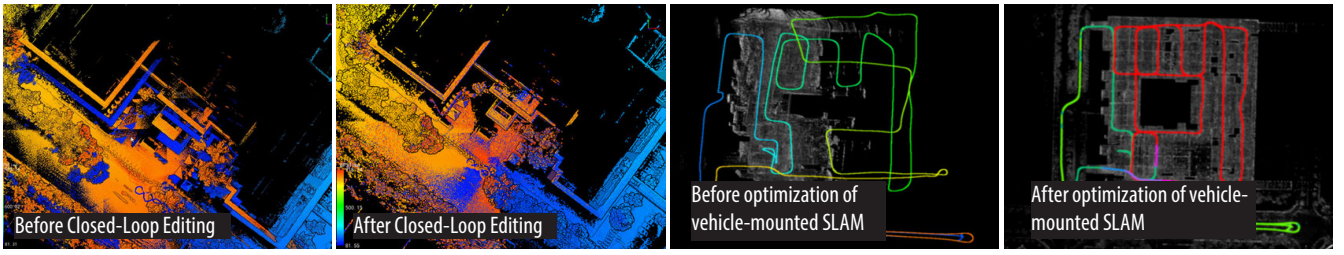
All-powerful

- Expert in processing point cloud and image data from various mobile mapping systems.
- Full-featured toolbox with 500+ tools for point cloud, vector, raster and model processing.
- Multi-source data fusion for mapping, analysis and modeling.
- Multiple block modes and collaborative operation to improve efficiency.
- Compatible with CAD and Revit plugins, enabling seamless data export to other platforms.
- Seamlessly overlaying point clouds, rasters, 3DGS, and various 3D models onto Basemap.
- New AI Assistant. Built-in Q&A and user guide. Ask and get answers instantly — easier to learn, smarter to use.



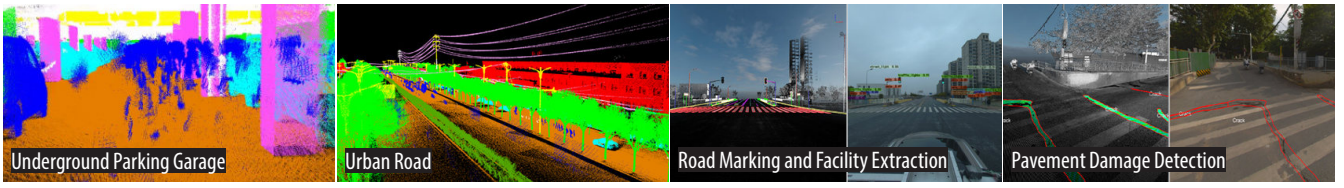
Precise

- Point cloud generation for LiGrip, LiBackpack and LiMobile.
- Vehicle-mounted SLAM calculation, fearless of GPS blind zones.
- Multi-source data registration, GCP and strip adjustment, quality inspection, accuracy improvement.



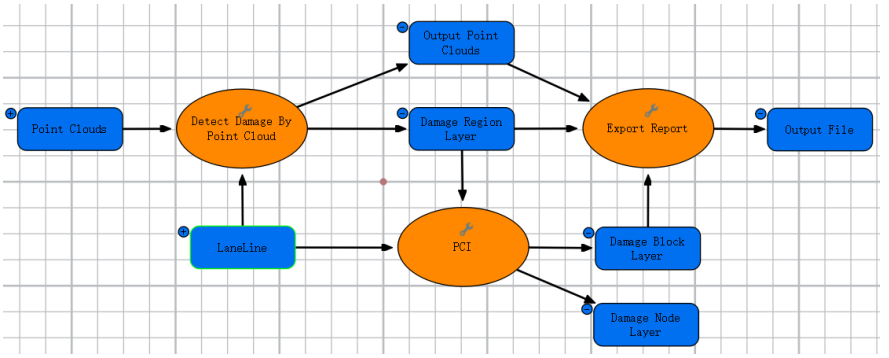
Intelligent

- AI-based point cloud intelligent classification (built-in pre-trained models for various scenarios).
- AI-based road marking and facility extraction.
- AI-based pavement damage detection and plates and faces blurring.
- Complete AI pipeline for point cloud and image data from annotation, training to inference.

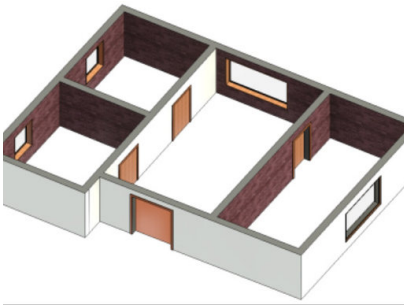


Efficient

- Customizable workflows for point cloud, vector, and raster processing.
- Predefined workflow templates (e.g., road marking extraction, damage analysis, forestry tree segmentation & parameter calculation) for one-click deliverables.
- Fully open cluster computing capabilities to boost efficiency in data processing, model reconstruction, and point cloud analysis.

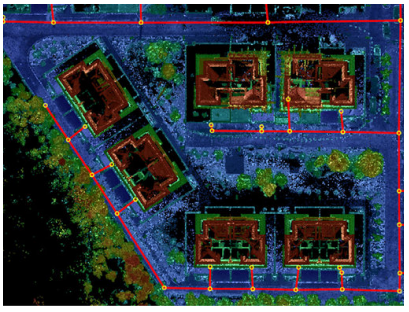


Industry Applications



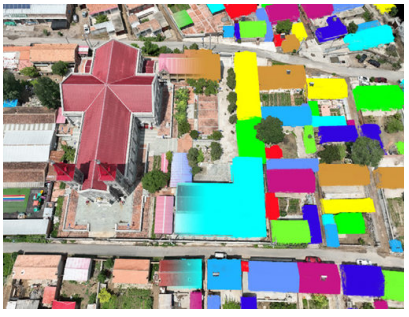
Architectural Drawing(Plan,Elevation,BIM)

- **Integrated Intelligent Surveying & Modeling:** Features a fully automated workflow with one-click vectorization and intelligent drafting for plans, elevations, and BIM.
- **Multi-Source Data Fusion & Analysis:** Seamlessly compatible with various point cloud and image data, supporting multi-mode acquisition and panoramic image assistance to meet the demands of complex scenarios.
- **Efficient, Cross-Platform Output:** Export results in multiple formats (e.g., DXF, Orthophoto,Blue Print) ready for direct use in CAD, GIS, and BIM platforms.



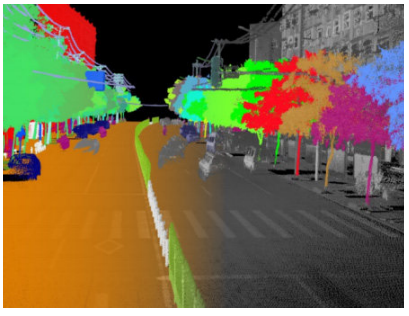
Trench and Pipeline

- **Intelligent Extraction:** Automatically identifies pipeline alignment and 3D trench geometry from LiDAR point cloud data.
- **Key Point Annotation:** Supports manual annotation of pipeline features (e.g., elbows, tees) to enhance pipeline network information.
- **Precise Parameter Calculation:** One-click calculation of key engineering parameters including trench width, depth, earthwork volume, and over-excavation/under-excavation metrics.



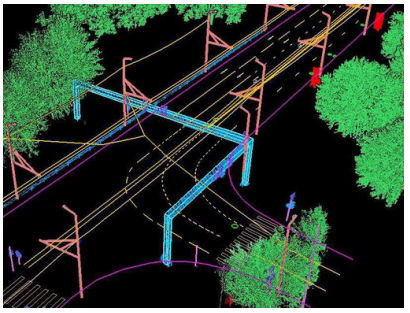
3DGS Reconstruction

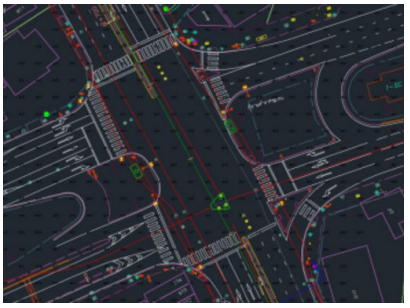
- **Reconstruction:** Integrates LiDAR and camera data with cluster-based reconstruction to efficiently build large-scale, highly realistic centimeter-level 3D models with seamless indoor-outdoor fusion and photo-like fidelity.
- **Visualization:** Features seamless Level-of-Detail (LOD) Gaussian rendering for massive, billion-point point cloud datasets.
- **Editing:** Offers precise editing tools for Gaussian models, including clipping and profile editing capabilities.
- **Application:** Supports classification labeling, individualized model analysis, and 3D measurement/mapping, with export functionality for Gaussian assets in multiple formats.



Forestry

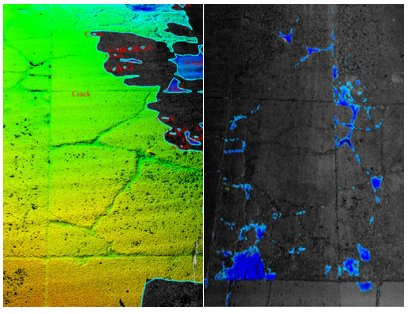
- **AI-Powered Forestry Survey:** Automatically classifies point clouds without manual segmentation to precisely measure 10+ tree parameters (DBH, height, crown width, etc.), supporting individual tree management.
- **Intelligent Ecological Analysis:** Calculates ecological indicators (green view index, green volume, etc.) with one click, automatically generates ecological landscape thematic maps, and supports batch processing of large-scale scenes.
- **End-to-End Digitization:** Provides dynamically updatable forestry databases covering single-tree measurements to ecological landscape analysis, delivering standardized analytical reports.





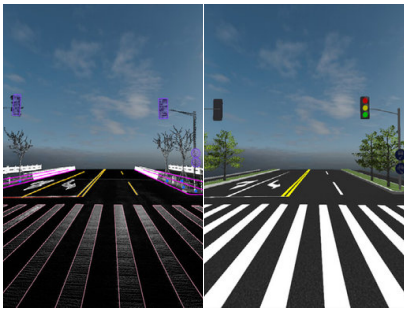
Asset Extraction

- **AI-Powered One-Click Extraction:** Fully automated recognition of over 100 types of elements, including traffic markings and road facilities. Supports building footprint extraction and pole-like object instance segmentation for efficient and precise surveying.
- **Flexible Customized Training:** Train specialized models locally using synthetic samples. Provides an extensible symbol library and marking templates to meet personalized project requirements.
- **Professional Efficiency Tools:** Integrates semi-automatic interactive detection and over 100 editing tools. Supports multi-format sample import, significantly improving workflow efficiency.
- **Ensuring Data Accuracy:** It supports symbol storage and flexible annotation management, while providing dual guarantees—comprehensive attribute validation and rigorous geometric spatial relationship checks—to ensure absolutely reliable data outcomes.
- **End-to-End Workflow Solution:** Covers the entire process from element extraction to data management. Delivers diverse standardized outputs for applications such as component surveying, holographic mapping, topographic measurement, and digital twin development.



Road Condition

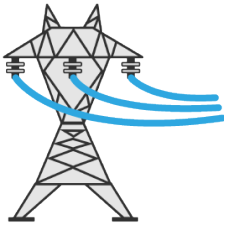
- **AI based Pavement Analysis:** Automatically detects road distress, calculates Pavement Condition Index (PCI), enables multi-temporal data comparison and comprehensive 3D element analysis to support scientific maintenance decisions.
- **Intelligent 3D Analysis:** Delivers one-click solutions for section analysis, clearance analysis, visibility assessment, height limit analysis, and vehicle collision simulation analysis, empowering smart transportation, railway inspection, power infrastructure, and urban security applications.
- **Accurate Terrain Modeling:** Generates DEM/DSM and other terrain products from point cloud/section data with single-click processing, ensuring seamless integration with GIS and engineering platforms.



Road Scene

- **One-Click Intelligent Modeling:** Rapidly generates component-level 3D road models, meeting high-precision production requirements for realistic 3D modeling.
- **Flexible Customization & Expansion:** Offers open texture configuration and model library expansion to adapt to diverse project standards, supporting export in multiple formats including OBJ and OSGB.
- **Precision Editing & Optimization:** Provides professional model processing tools for detailed adjustments and scene-level optimization of 3D models.

LiPowerline



LiPowerline is a LiDAR-based power application analysis software independently developed by GVI. It is designed for integrated scenarios of transmission, transformation, and distribution. By processing and analyzing massive point cloud data, LiPowerline can swiftly and accurately extract potential danger target information in power channels. It offers functionalities such as simulated working condition early warning analysis, powerline completion acceptance, fine inspection route planning, and substation inspection route planning, all aimed at ensuring the safe operation of power systems.

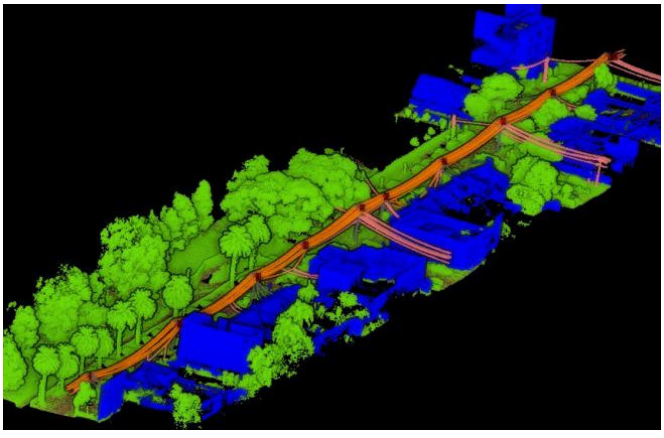
Product Advantages

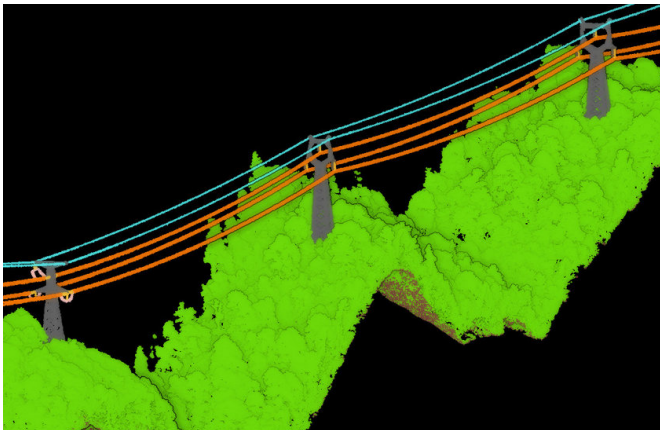
TB-level LiDAR Point Cloud Data Processing and Analysis

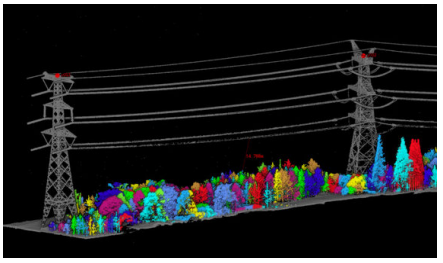
- Supports loading of greater than 1000 tower raw point cloud data without sparse extraction.
- High processing and analysis efficiency, capable of achieving 300 km of data per person per day on the main grid.

AI-based Point Cloud Classification

- One-click automatic classification of categories including towers, conductors, shield lines, insulators, drainage threads, scissors crossing lines, ground points, vegetation, buildings, roads, and water.
- High classification efficiency with accuracy up to 95%.

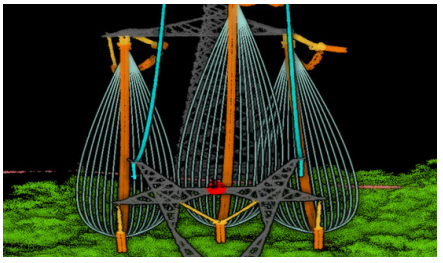






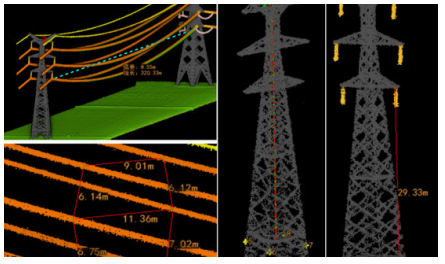
Comprehensive Analysis of Trees in Power Channels

- Supports individual tree segmentation within power channels, accurately calculating deforestation areas.
- Quickly detect the number, location, height, crown width, and other information of dangerous trees.
- Generates reports on tree height and density distribution within channels.



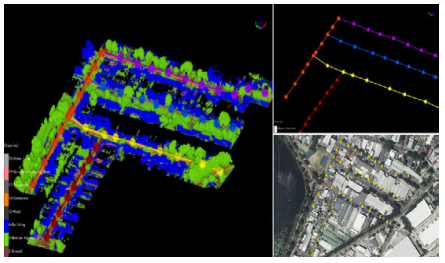
Simulated Working Conditions and Scientific Warning

- Batch vectorization of power lines.
- Simulation analysis of tree fall and growth.
- Comprehensive simulation of high temperatures, ice covering, and strong winds.



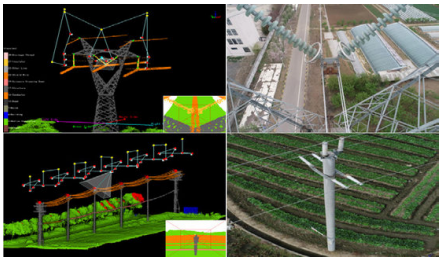
Completion Acceptance of Power Lines

- Provides analysis functions including sag, phase spacing, electrical clearance of drainage threads, spacing between conductors and shield lines, tower inclination, cross-arm height difference, nominal height, and tower diaphragm of towers.
- Automatically generates analysis reports.



Distribution Network Tower Management

- Manage distribution network towers by hierarchy.
- Automatic extraction of tower points.
- Batch generation of tower information ledger (KML) , with support for importing into Google Earth.



Fine Inspection

- AI automatically recognizes component points.
- Batch generation of main and distribution network tower inspections, powerline inspections, and channel inspections and other types of routes.
- Automatic safety optimization of routes.



Substation Inspection

- Support import or create component ledger.
- Automatically generate safe obstacle avoidance routes.
- Supports route planning based on 3DGS data.

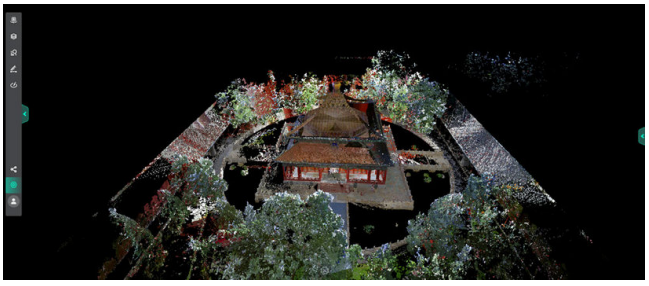
11 Cloud Service
LiShare Series

LiShare

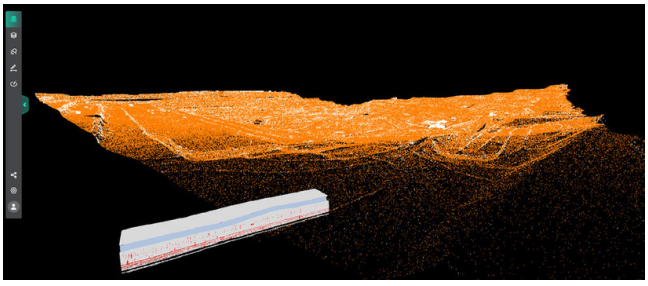
Manage Assets Anytime, Anywhere

LiShare Cloud Service is a cloud-based 3D data management, analysis and visualization platform designed for architecture, engineering, surveying and mapping, cultural heritage protection and other fields. Through the platform, users can easily upload, manage, analyze, and share data such as point clouds, models, and panoramas to achieve efficient 3D scene display and collaboration.

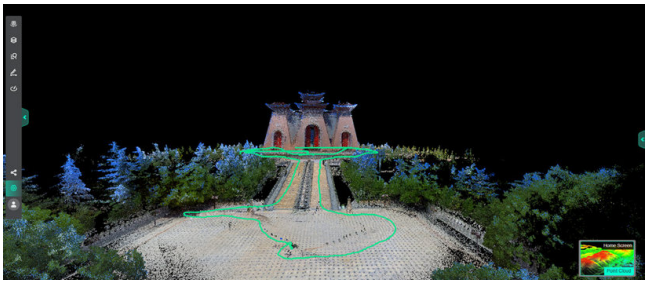
Application



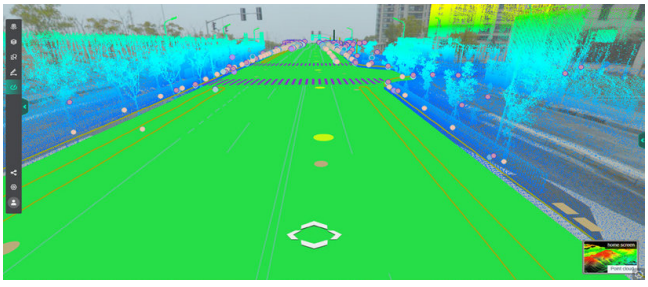
Surveying and Mapping and Geographic Information
Support topographic mapping, urban modeling and other applications to generate high-precision 3D maps.



Construction & Engineering
Construction & Engineering is used for 3D modeling and schedule management of construction sites, bridges, tunnels and other engineering projects.



Preservation of Cultural Heritage
3D scanning and modeling of historical buildings and cultural relics for protection and restoration.



Smart Cities
Provide 3D data support for urban planning, traffic management, environmental monitoring, etc.

Technical Highlights

High-end has no Shortcomings

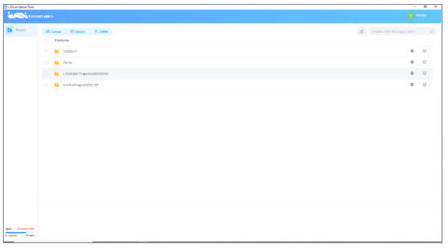
Advanced point cloud rendering technology is used to realize real-time loading and smooth interaction of large-scale data.

Somatosensory Leading

It accesses PCs, tablets, and mobile phones, supports all dataformats from GreenValleyPC software, and features built-inmulti-user collaboration.

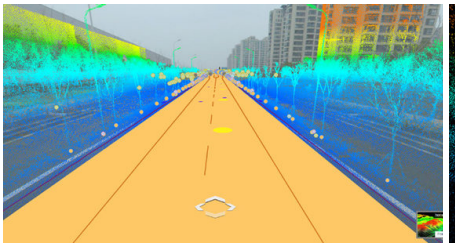
Safety and Security

End-to-end encryption ensures strict data privacy and system security.



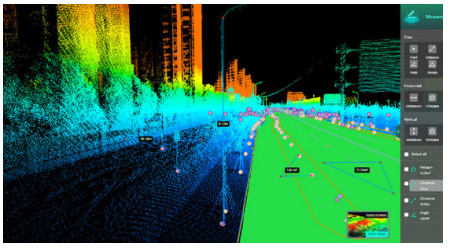
Step1: Data Upload and Storage

- Cloud storage with batch upload support
- Automatic processing of point cloud, vector, and model data



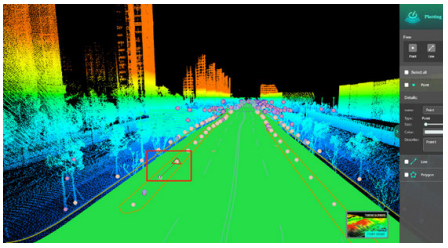
Step2: Online Point Cloud Browsing

- Support LAS, Lidata, PLY, gpkg, OBJ, JPG/PNG
- High-precision 3D browsing with smooth visualization of large-scale point clouds, no download required



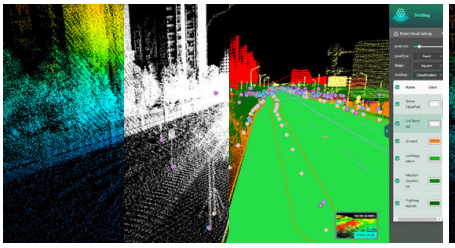
Step3: Measurement Tools

- Provide 3D measurement tools for distance, area, and angle analysis



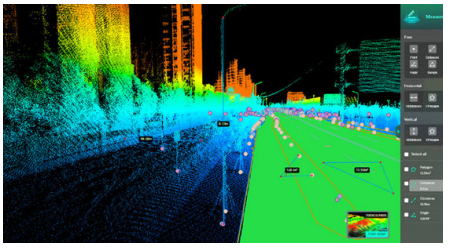
Step4: Custom Annotations

- Add annotations, layers, and attribute information
- Right-side panel generates lists for management, analysis, and report generation



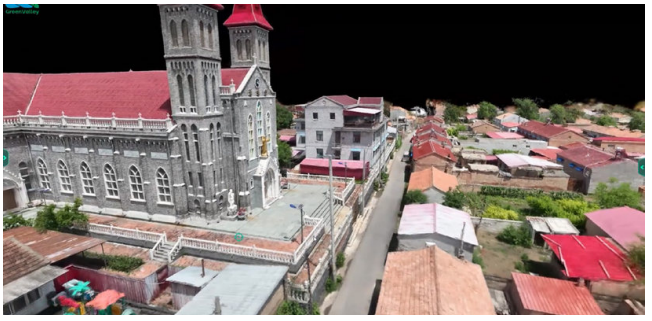
Step5: Rendering Settings

- Adjust point cloud size, color, fill, rendering (height, type, intensity, RGB, tree ID, echo, etc.)
- Support EDL, background color, and custom window settingswindow settings

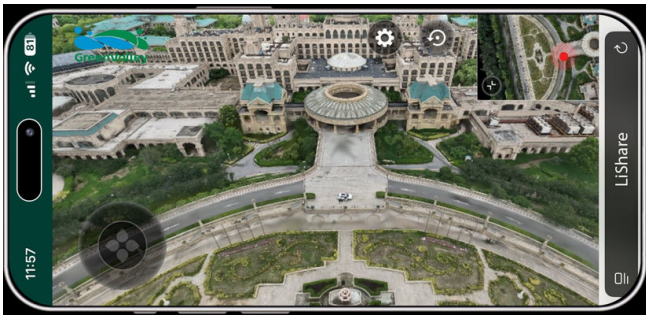


Step6: Data Sharing and Collaboration

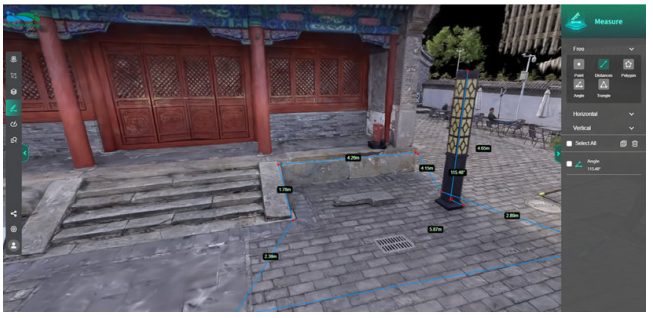
- Generate encrypted sharing links
- Support multi-user collaborative viewing and analysis



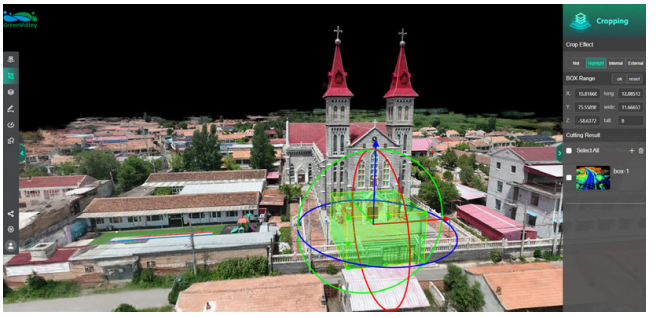
Optimized for ultra-large-scale scenes, supporting real-time loading and rendering of billion-level Gaussian model data.
Dynamic LOD strategy for intelligent data detail scheduling.
Ensures smooth and lag-free browsing from global overview to local details.



Immersive 3D Browsing: Load high-quality 3DGS scenes for a photorealistic visual experience
Realistic Physical Collisions: Built-in collision detection for authentic, immersive movement exploration
One-Click Return to Spawn: Lost or want to restart? Instantly return to the initial viewpoint with one click



A powerful 3DGS measurement tool. It allows accurate distance, area, and angle measurements within photorealistic real-world 3D scene models, enabling users to obtain real-world spatial data directly in the browser—intuitive and efficient.



Easily clip point clouds and 3DGS models using intuitive bounding box selection or cross-section drawing, precisely excluding irrelevant areas to quickly reveal internal structures or isolate specific targets. This provides robust support for subsequent measurement, analysis, and presentation.



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