

LiAIR X3

Intelligent Autonomous Transmission line Inspection System



LiAir X3 is the newest smart mobile scanning unit in the LiAir series by GreenValley International featuring automated transmission line inspection functioning. It adopts a new integrated design style and integrates lightweight LiDAR, self-developed inertial navigation, high-resolution mapping camera and cutting-edge computing and autonomous systems. The LiAir X3 can carry out autonomous line patrol operations in specific environments, without route planning, simplifying the operation process and greatly improving the operation efficiency.

Advantages

Lightweight & Simple

Integrated simple yet rugged design, allowing for protection against the elements with an IP54 rating. The operation interface is straightforward, allowing one touch operation for maximum efficiency.

New Camera, providing ultra-clear picture quality

Built-in new high-resolution custom mapping camera, the image resolution is upgraded from 24 Megapixels to 26 Megapixels, allowing for high-quality true-color point clouds as well as orthophotos for Photogrammetry.

Cutting-edge Computing Power, for collision avoidance

With powerful computing capabilities, the system supports real-time vegetation and obstacle detection, and can display vegetation encroachment danger points and distances in real-time on LiPlan.

LiPlan Flight Assistance Software, making field work easy

LiPlan supports real-time point cloud display, parameter adjustment, and status monitoring. It can be directly installed on the M300 RTK remote controller and used in conjunction with the X3 to help operators control the site conditions in real time.

L3 Autonomous Powerline Inspection

Newly developed AirPilot intelligent L3 autonomous flight algorithm of GreenValley International achieving automated powerline inspection with automatic identification of bifurcated lines, interactive selection of flight lines and automatic turns.

Handheld Accessories

Lightweight and quick-release design, one-button operation for efficient work. 3 hours of extra-long battery life. GNSS module with SLAM technology for signal-blocking resistance, enabling operation in indoor and outdoor spaces. Compatible with multiple fields such as forestry, mining surveying, power monitoring, and building facade surveying.



Lightweight and easy to disassemble

The overall weight of the handheld part is 0.68kg, and the ergonomic design allows for easy grip. The single battery has a battery life of 3 hours, and with one-button operation and installation, it can be used immediately after installation.

High-precision fusion

From aerial (with GNSS signal) to indoor (without GNSS signal) operation in all spaces, with a flying platform and handheld kit, directly obtain ground point cloud data with absolute coordinates and airborne point cloud data, meeting the needs of multiple scenarios. The point cloud fusion accuracy can reach centimeter level.

High-efficiency operation

3-5cm super high accuracy, point density better than 10,000 points/m², effective measurement range of 190m (10% reflectivity), and an operation efficiency of up to 100,000m² per hour.

Multi-scene operation

With SLAM technology and GNSS module for accurate positioning, it can be used in areas without GNSS signal to generate accurate 3D point cloud models and rich features. It is suitable for multiple applications such as forestry, mining surveying, power monitoring, building scanning, and more.

Specifications

System Specifications					
Detection Range	190 m @10% reflectance 450m @ 80% reflectance	System Accuracy (Vertical)	5cm @ 70m		
Suggested Detection Height	15m (Above transmission tower)	Typical Flight Speed	2-6 m/s		
Weight	1.25kg	Internal Storage	256GB TF Card		
Voltage	12~24V, 0.9A @ 24VDC	Power Consumption	22 W		
Operating Temperature	-20~50°C	Storage Temperature	-30~60°C		
Dimensions	136×106×138mm				
LiDAR Sensor Technical Parameters					
Wavelength	905nm	Laser Class	Class1		
Range Accuracy	2cm (1σ@20m)	FOV	70.4°(Horizontal) ×77.2°(Vertical) 70.4°(Horizontal) ×4.5°(Vertical)		
Point Rate	720,000 points/s (Triple return)	Returns	3		
Scan Method	Non-repetitive Scan (Automated Powerline Inspection) Repetitive Scan (Normal Operation)				
Inertial Navigation System					
GNSS	GPS, GLONASS, Galileo, BD	Azimuth Accuracy	0.038°		
Attitude Accuracy	0.008°	IMU Data Frequency	200HZ		
Camera					
Image Sensor	APS-C	Pixels	26 Megapixels		
Focal Length	16mm	Image Size	6252×4168		
Software					
Post-Processing	LiDAR360/LiPowerline	Pre-Processing	LiGeoreference		
Flight Planning and Control Software	LiPlan				
Handheld Accessories					
System Parameters					
Handheld Size	L181.8×W108×H88 (mm)	Handheld Weight	0.68kg (Including Base)	Voltage	15.2V
Battery Box Size	L146×W57×H148 (mm)	Battery Capacity	5870mAh	Antenna	AT-106
Protection Level	IP54	Battery Box Weight	0.81kg	Working Time of One Battery Block	3h
Single-Flight Continuous Operation Time	Maximum 55min	Applicable Environment	Applicable to multiple scenarios both indoors and outdoors		
Mapping Method					
Mapping Principle	SLAM、PPK-SLAM	Real-Time Calculation	Not Supported		
Data Results					
Absolute Accuracy	≤5cm	Point Cloud Format	Las, LiData		