

LiAirXmini

Lightweight UAV LiDAR Scanning System

GNSS-INS / SLAM Dual Modes

DJI Matrice 4 Series

20 min Flight Time



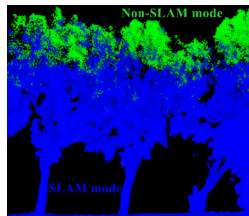
A plug-and-play, lightweight UAV LiDAR acquisition system that integrates a compact ring-scanning LiDAR, a high-precision INS, and a high-performance edge-computing platform. In SLAM mode, the system operates without GNSS and uses a proprietary algorithm to provide real-time positioning and mapping in confined environments such as tunnels, utility tunnels, and other underground spaces. Its lightweight design enables access to hard-to-reach areas and rapidly generates high-precision 3D point clouds for accurate measurement.

Key Advantages



I Ultralight Payload, True Plug-and-Play

Weighing just 405 g, the all-in-one system is ready to fly right out of the box. It attaches using a quick-release mount, allowing users to switch between platforms in one step. Compatible with the dock-based DJI Matrice 4D/4TD and the portable DJI Matrice 4E/4T, it supports both manual inspections and unattended automated operations. Existing equipment can be fully reused.



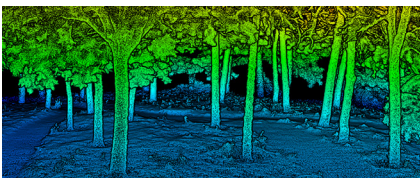
I Two Operating Modes, One-Touch Switching

An integrated high-precision GNSS-INS and GNSS module enables one-touch switching between INS-aided and SLAM modes. SLAM mode is designed for GNSS-denied environments, including indoor spaces, mines, and areas beneath dense canopies, while INS-aided mode is suitable for open outdoor environments. The survey-grade SLAM algorithm achieves 1 cm relative accuracy and 5 cm absolute accuracy.

Industry Applications

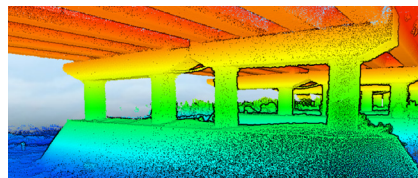
I FORESTRY INVENTORY

Whether flying above a dense canopy or between trees, the system captures complete point clouds of the canopy and trunks in a single pass. Under-canopy flights require no trail clearing or ground-based surveying, making operations more flexible. Above-canopy flights enable full-area inventories and capture key forestry metrics, such as tree height and crown width, that may be difficult to obtain with a handheld unit's upward-looking perspective.



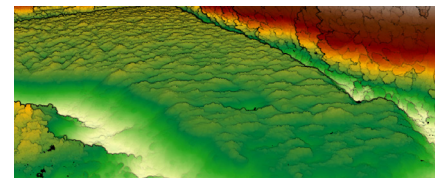
I BRIDGE UNDERSIDE INSPECTION

For bridge areas that are difficult to access manually—beneath decks, between cap beams, and near bearings—LiAirXmini flies close to the surface to scan the structure. Without road closures or scissor lifts, it captures a high-density 3D point cloud of the bridge underside in a single pass, supporting routine inspections and post-disaster assessments.



I MINING & STOCKPILE

For pits, yards, and slopes, LiAirXmini performs top-down scans using orbital flight paths that fully cover stockpile peaks and steep slopes. It delivers complete volumetric data in a single sortie, eliminating the need to walk on stockpiles, reducing dust exposure, and avoiding repeated survey runs.



Specification

System Parameters

Detection Range	40 m @ 10% reflectivity / 70 m @ 80% reflectivity	Typical Flight Time	20 min
Weight	405 g	Dimensions	117 × 92 × 174 mm
Voltage	12~26 V	Power Consumption	20 W
Operating Temperature	-20~50 °C	Storage Temperature	-30~60 °C
Storage	256 GB TF + 512 GB SSD		

LiDAR Sensor Parameters · Inertial Navigation System · Software

Laser	Livox Mid-360 (ring-scanning)	Wavelength	905 nm
Laser Class	Class 1 (eye-safe)	FOV	360° × 59°
Scan Rate	200,000 pts/s	GNSS	GPS, GLONASS, Galileo, BDS
Azimuth Accuracy / Attitude Accuracy	0.05° / 0.02°	IMU Data Frequency	500 Hz
Post-Processing	LiDAR360 / LiPowerline	Operation Modes	INS / SLAM (switchable)