

# LiAIR X3-H

## Enhanced Lightweight UAV LiDAR System



LiAir X3-H is the newest compact, high-performance unit in the LiAir series by GVI. 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.

### Advantages

#### I Lightweight & Simple

Integrated simple yet rugged design, allowing for protection against various environmental elements. The operation interface is straightforward, allowing one-touch operation for maximum efficiency.

#### I 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.

#### I GreenValley Flight Assistance Software makes field work easy

GreenValley software supports real-time point cloud display, parameter adjustment, and status monitoring. It can be directly installed on the M300/M350 RTK remote controller and used in conjunction with the X3-H to help operators control the site conditions in real time.

### 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.



#### I Lightweight and easy to disassemble

The overall weight of the handheld part is 0.68 kg, 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.

#### I 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.

#### I High-efficiency operation

3-5c m super high accuracy, point density better than 10,000 points/m<sup>2</sup>, effective measurement range of 190 m (10% reflectivity), and an operation efficiency of up to 100,000 m<sup>2</sup> per hour.

#### I 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% reflectivity<br>450 m @ 80% reflectivity | System Accuracy (Vertical) | 5 cm @ 70m              |
| Dimensions            | 136×106×129 mm                                       | Typical Flight Speed       | 5-10 m/s                |
| Weight                | 1.25 kg  | Voltage                    | 12~24 V, 0.9 A @ 24 VDC |
| Power Consumption     | 22 W   | Internal Storage           | 256 GB TF Card          |
| Operating Temperature | -20~50 °C  | Storage Temperature        | -30~60 °C               |

## LiDAR Sensor Technical Parameters

|                |                                  |             |                                    |
|----------------|----------------------------------|-------------|------------------------------------|
| Wavelength     | 905 nm                           | Laser Class | Class1                             |
| Range Accuracy | 2 cm (1σ @ 20m)                  | FOV         | 70.4° (Horizontal)×4.5° (Vertical) |
| Point Rate     | 720,000 points/s (Triple return) | Returns     | 3                                  |
| Scan Method    | Repetitive Scan                  |             |                                    |

## Inertial Navigation System

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

## Camera

|              |               |            |               |
|--------------|---------------|------------|---------------|
| Image Sensor | APS-C         | Pixels     | 26 Megapixels |
| Focal Length | 16 mm / 24 mm | Image Size | 6252×4168     |

## Software

|                                      |                    |                |                |
|--------------------------------------|--------------------|----------------|----------------|
| Post-Processing                      | LiDAR360(Optional) | Pre-Processing | LiGeoreference |
| Flight Planning and Control Software | GreenValley        |                |                |

## Handheld Accessories

### System Parameters

|                              |  |                    |                          |                                   |        |
|------------------------------|--|--------------------|--------------------------|-----------------------------------|--------|
| Handheld Size                | L181.8×W108×H88 (mm)                                       | Handheld Weight    | 0.68 kg (Including Base) | Voltage                           | 15.2 V |
| Battery Box Size             | L146×W57×H148 (mm)   | Battery Capacity   | 5870 mAh                 | Antenna                           | AT-106 |
| Single-Flight Operation Time | Maximum 55 min   | Battery Box Weight | 0.81 kg                  | Working Time of One Battery Block | 3 h    |
| 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 | ≤5 cm | Point Cloud Format | LAS, LiData |
|-------------------|-------|--------------------|-------------|