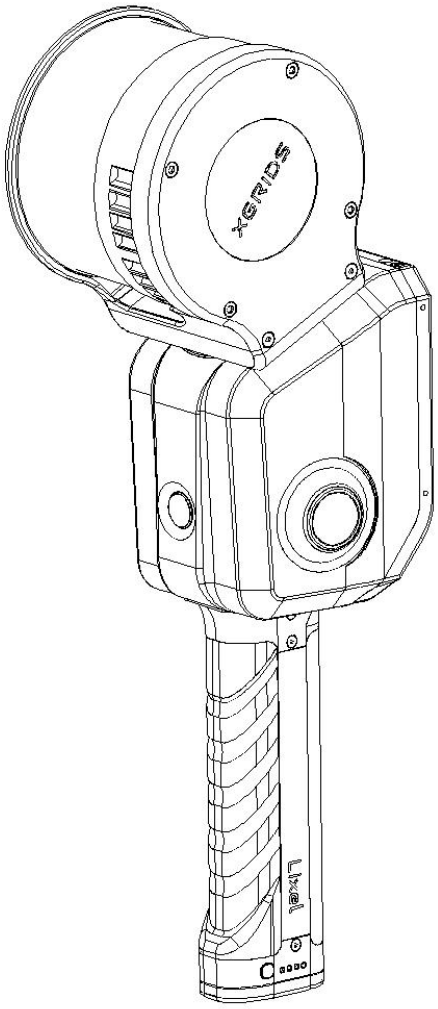
XGRIDS

Lixel L2 Pro

User Manual(V1.0)



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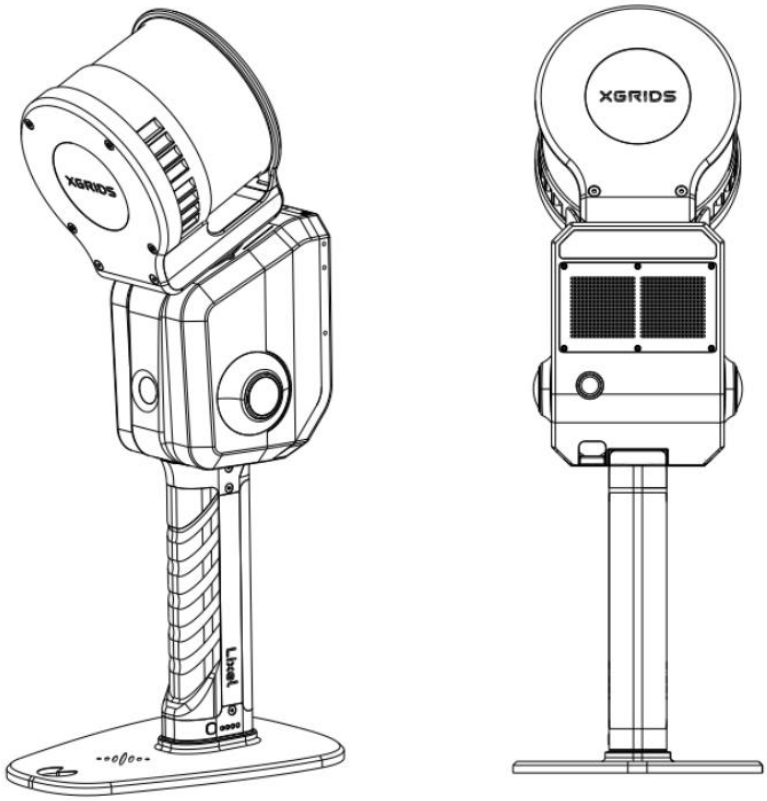
Product Overview

The Lixel L2 Pro is a highly integrated, high-precision handheld 3D reconstruction device featuring an all-in-one design and simple one-touch operation developed by XGRIDS. Utilizing self-developed 3D real-time reconstruction algorithms, it captures high-precision colorized point clouds. The device supports real-time viewing, enabling instant data collection and reconstruction, with export-ready results.

Discover the Lixel L2 Pro



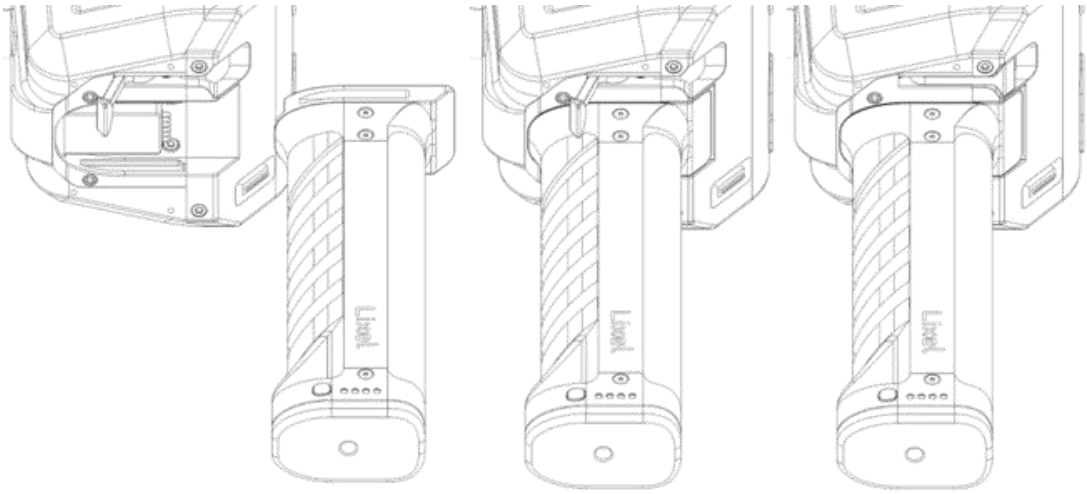
Basic Operation

Battery Installation

1. Open the battery lock lever.

2. Insert the battery into the bottom of the device along the guiding slot, ensuring it is fully inserted.

3. Press the lever back to lock the battery in place.



Note: Failure to lock the battery securely may result in the device slipping.

Function Key Operation

Function	Button Operation	Device Status
Power On	Press and hold for 4 seconds	The indicator light will change from slow flashing blue to solid green, indicating the device has entered standby mode.

Power Off	Press and hold for 4 seconds	While in standby mode, long press for 4 seconds. The indicator light will change from solid green to flashing white, indicating that the system is saving data. The device powers off once the indicator turns off.
Start Scanning	In standby mode, double-click the button.	The indicator light will switch from solid green to fast-flashing green, then slow-flashing green. The LiDAR will begin to rotate, indicating that scanning has successfully started, and the device has entered scanning mode.
Stop Scanning	In scanning mode, double-click the button.	The indicator light will change from slow-flashing green to fast-flashing green, then solid green. The LiDAR will stop rotating, indicating that scanning has successfully stopped, and the device has returned to standby mode.
Control Point Collection	In scanning mode, single-click the button.	The indicator light will stay on for about 1 second, then return to slow-flashing green. This indicates successful control point recording.
Switch to USB Mode	In standby mode, single-click + indicator light turns white +	The indicator light will turn white and remain for up to 3 seconds. During this white light period, single-click the button again to switch

	single-click	to USB mode. If no further action is taken within 3 seconds, the device will remain in its original mode.
Switch back to standby mode (from USB Mode)	While in USB mode, single-click the button + indicator light turns white + single-click	The indicator light will turn white and last for 3 seconds. During this white light period, single-click the button again to switch to standby mode. If no further action is taken within 3 seconds, the device will remain in its current mode.

1. Before starting the scan, ensure the device is placed on a flat surface. Once the LiDAR begins rotating after initiating the scan, you can move the device to begin scanning.

2. During the stop-scanning process, a fast-flashing green light indicates that the device is saving the scan files. Powering off during this time may result in file loss or incomplete file saving.

3. The length of time the green light flashes quickly (saving time) after stopping the scan may vary based on the size of the scanned environment.

Indicator Light Descriptions

Indicator Light Status	Meaning
No light	Device not started
Slow-flashing green light	Scanning mode
Solid green light	Standby mode
Solid blue light	USB mode
Solid yellow light	Device not activated
Solid red light	System error
Slow-flashing blue light (~30s)	Powering on
Solid white light	Switching between standby and USB mode
Fast-flashing green light	During scan start/stop process

Data Transfer Instructions

To transfer data, connect the device to a computer using the provided USB 3.1 cable while the device is in standby mode. Use the app or the shortcut key to switch to USB mode. Once the device is recognized, you can proceed with data copying.

Notes:

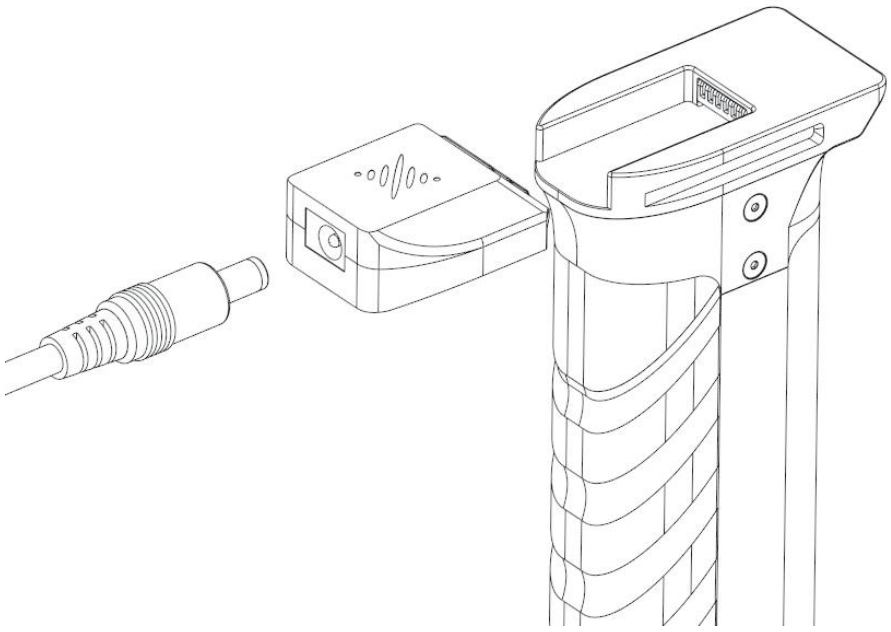
The USB mode will automatically disable after a device restart.

If you want to continue scanning after enabling USB mode without powering off or

disconnecting the device, you must manually exit USB mode.

Using other USB cables may result in slower transfer speeds or issues, such as only being able to transfer data in one direction (forward works, but reverse fails).

Battery Charging Instructions



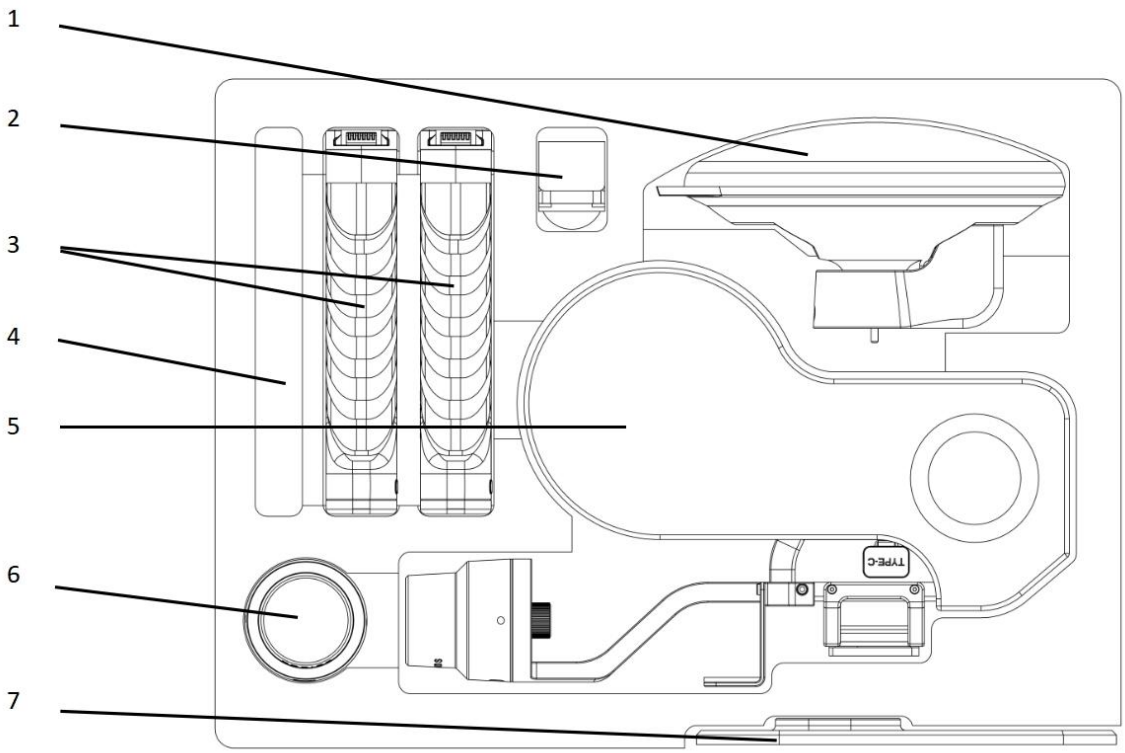
To charge the battery, use the provided charging cable to connect the charging port to the battery. Press the button on the battery to display the current battery level.

Charging Time: Approximately 2 hours. During charging, the indicator light will show the current battery level as described below:

Flashing Pattern	Battery Level
■ □ □ □	0-24%
■ ■ □ □	25%-49%
■ ■ ■ □	50%-74%
■ ■ ■ ■	75%-99%

Maintenance and Care

Protective case slots



1 Survey Grade RTK Module .2Mobile Phone Mount. 3 Battery. 4User Manual and USB Data Cable. 5 Device Body. 6 Standard RTK Module. 7 GCP Collection Base.

Usage Precautions

1. The Lixel L2 Pro is a precision surveying device. Dropping or subjecting it to impacts may cause damage, leading to malfunctions or inaccurate measurements.

2. Ensure that the LiDAR rotates freely when the device is powered on, without any external obstructions. At the same time, avoid obstructing the radar and camera's field of view, as this may cause mapping failures or color anomalies.。

3. Avoid using a tripod for device initialization. The metal base ensures optimal accuracy. Also, avoid initializing on uneven surfaces, as this may cause initialization failure or thicker mapping layers.

4. When using the device, try to avoid rapid rotations or significant shaking, as excessive movement may lead to mapping failures or reduced mapping accuracy. Additionally, when using other vehicles like cars for mapping, ensure proper shock absorption to prevent operation in a high-frequency vibration environment.

5. The Lixel L2 Pro is rated IP54 for water resistance. Do not use the device in conditions exceeding this protection level. Clean the device with a soft, dry cloth or the provided cloth.

6. Keep the LiDAR and lens clean, and avoid touching them directly with your hands.

7. The device may generate heat during use. Avoid touching the body to prevent burns。

8. Do not block the ventilation areas during operation. Significant obstruction can

reduce cooling efficiency, causing the device to overheat and shut down automatically.

Appendix

Specifications

Category	Subcategory	L2 Pro
System Parameter	Handheld Unit Weight	1.7kg(without battery)
	Dimensions	180mm×130mm×400mm
	Outer Casing	Industrial-grade Aluminium
	Power Consumption	<30W
	Data Interface	USB 3.1 Gen2
	Storage	1T SSD
	Operating Time	1.5h
	Wireless Module	Supports WiFi, Bluetooth: 802.11a/b/g/n/ac, 2.4~2.4835GHz and 5.15~5.85GHz
Working environment	Operating Temperature	-20℃~50℃
	IP Rating	IP54

Functions	Visual SLAM Positioning	Supported
	Real-time Colored Point Cloud	Supported
	Real-time RTK fusion	Supported
Output	Point Cloud Format	.las .ply
	Image Formats	.jpg
Real-time Accurac	Absolute Accuracy - Elevation (RMSE)[1]	3cm
	Absolute Accuracy - Horizontal (RMSE)[2]	3cm
	Relative Accuracy (RMSE)[3]	2cm
Post-Processed Accuracy	Absolute Accuracy - Elevation (RMSE)[4]	3cm
	Absolute Accuracy - Horizontal (RMSE)[5]	3cm
	Relative Accuracy (RMSE)[6]	1cm
	Repeatability (max)	2cm
	Point Cloud Thickness[7]	0.5cm
	Horizontal Accuracy (with RTK)[8]	0.015°
	Horizontal Accuracy (without RTK)	0.03°
	LixelUpSample	Supported

[1] RTK disconnection <100m.
[2] RTK disconnection <100m.
[3] Measurement accuracy within 100m.
[4] RTK disconnection <100m.
[5] RTK disconnection <100m.
[6] Measurement accuracy within 100m.
[7] Horizontal point cloud thickness within 10m of the walking path.
[8] Two scans with RTK under identical conditions.

Lidar	Scanning Range	0.5m~120m 0.5m~300m
	Laser Class	Class 1 / 905nm
	Field of View (FOV)	360°×270°
	Scan Rate	320,000 points/s 640,000 points/s
Camera for Panoramic Images	Resolution	2×48MP
	Focal Length	2mm
	Aperture	F/2.0
	CMOS	1/2”
	Shutter type	Rolling shutter
	Field of View (FOV)	190°×190°
Camera for Visual Positioning	Resolution	1×1MP
	Shutter	Global shutter
	FOV	190°×119°
Battery	Voltage	14.4V
	Capacity	46.8wh
Charging	Input	100V~240V,100V~240V,50 ~ 60 HZ 1.5A 80VA 50 ~ 60 HZ 1.5A 80VA
	Output	16.816.8V 2.0A V 2.0A
	Power	34W

Accessories	Backpack Scanning System	Dimensions：60cm×60cm×15cm Weight：2.5KG
	Backpack	Dimensions：55cm×35cm×25cm Weight：2.7KG
	Standard RTK[9]	Supported Channels： GPS L1/L2/L5 GLONASS L1/L2 BDS B1/B2/B3 Galileo E1/E5a/E5b/E6b Accuracy： Horizontal: 0.8 cm+1 ppm Vertical: 1.5 cm+1 ppm
	Survey Grade[10] RTK	Supported Channels： GPS L1/L2/L5 GLONASS L1/L2 BDS B1/B2/B3 Galileo E1/E5a/E5b/E6b Accuracy： Horizontal: 0.8 cm+1 ppm Vertical: 1.5 cm+1 ppm[11]
	2m Extension Pole	Supported
	Phone Mount	Supported
	GCP Collection Base	Supported
	Shipping case	Dimension: 42cm×34cm×18cm Weight with System: 6.6kg

[11] The test results may be affected by atmospheric conditions, baseline length, GNSS antenna type, multipath effects, the number of visible satellites, and satellite geometry, which could cause deviations. The measurement was conducted using a 1km baseline and receivers with good antenna performance, without accounting for potential antenna phase center offset errors.

After-Sales Warranty Information

For the latest details on after-sales service and warranty, please visit our official website at www.xgrids.com.