

YDLIDAR X4 Pro

360° 2D Scanning LiDAR Sensor

Compact 10 m-class laser ranging module for navigation, mapping and obstacle avoidance



Parameter	Specification
Scanning angle	360°
Ranging frequency	5000 Hz
Measurement range	0.12-10 m @ 80% reflectivity
Scan frequency	6-12 Hz
Angular resolution	0.5° @ 7 Hz
Product family / model reference	X4 / X4-Pro

1. Product Overview

The YDLIDAR X4 Pro is a compact 2D laser-scanning distance sensor intended for real-time environmental perception. The supplied package describes full 360° scanning, a 10 m-class measurement radius, 5000 Hz ranging frequency and adjustable rotational scanning. It is positioned for mobile-robot navigation, mapping, obstacle avoidance and spatial reconstruction applications.

2. Key Selling Points & Features

- Full 360° omnidirectional environmental scanning.
- Up to 10 m measurement radius under the stated 80% reflectivity condition.
- 5000 Hz ranging frequency for dense real-time point acquisition.
- Adjustable 6-12 Hz scan frequency.
- Angular resolution specified as 0.5° at 7 Hz.
- Compact integrated rotating LiDAR module suitable for mobile platforms.
- Designed for simultaneous environmental perception and robot navigation.
- Supports mapping and obstacle-avoidance use cases.
- Suitable for 2D spatial scanning and as a sensing source for 3D reconstruction workflows.

3. Core Performance Specifications

Parameter	Specification
Ranging frequency	5000 Hz
Measurement range	0.12-10 m @ 80% reflectivity
Scan frequency	6-12 Hz
Scanning angle	360°
Angular resolution	0.5° @ 7 Hz

4. Scanning & Ranging Characteristics

The rotating optical assembly scans the surrounding environment through a complete 360° field. The source material states a maximum ranging radius of 10 m and describes the sensor as capable of continuous environmental scanning for robot navigation and obstacle detection. The 5000 Hz ranging frequency provides repeated distance samples while the mechanical scanner rotates at a configurable 6-12 Hz.

5. Product Construction



The supplied clean product photographs show an integrated cylindrical optical scanner mounted above the drive/electronics assembly. Multiple optical windows are distributed around the rotating head, while the lower structure provides mechanical support and the scanning drive mechanism.

6. Typical Applications

- Autonomous mobile robot navigation
- Robot obstacle avoidance
- 2D environmental mapping / SLAM sensing
- Floor-cleaning and service robots
- Indoor spatial scanning
- Interactive large-screen / spatial interaction systems
- 3D reconstruction workflows using 2D scan data

7. Integration Considerations

- Mount the LiDAR with an unobstructed 360° horizontal view wherever possible.
- Keep surrounding mechanical structures outside the optical scanning plane to reduce self-occlusion.
- Select the scan frequency according to required angular density and system response time.
- Account for target reflectivity when estimating practical maximum detection range.
- Use vibration-resistant mechanical mounting on mobile robots.
- Validate performance in the final enclosure and lighting/environmental conditions.

8. Parameters Not Confirmed in the Supplied Package

The supplied images and saved product page do not provide a sufficiently reliable complete electrical/mechanical specification table for supply voltage, current consumption, communication interface, wavelength, laser-safety classification, dimensional envelope, mass, operating temperature or storage temperature. These values are intentionally not invented in this datasheet and should be confirmed against the exact X4/X4-Pro production documentation before electrical or mechanical design release.

9. Source Notes

This datasheet was generated exclusively from the supplied product package. Chinese-language feature and application images were used only to extract technical information and are not reproduced in the final PDF. Only clean product photographs without Chinese annotations are included.