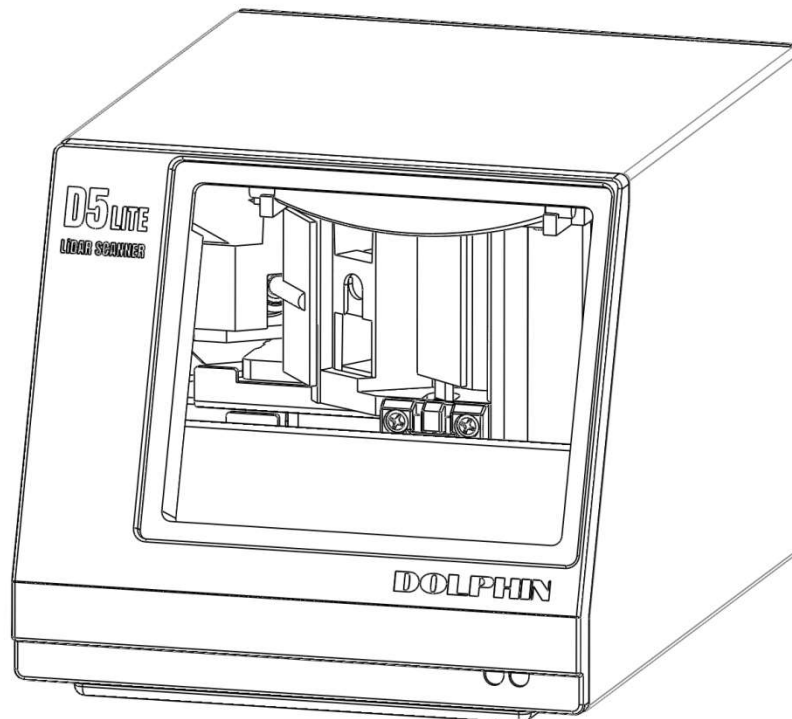


Dolphin D5 lite

Technical specifications



Product Introduction

Dolphin D5 lite is a 3D-LiDAR to perform environment scanning in real-time. D5 lite is based on our invention of magnetically resonant actuator for high-speed scanning with low power. D5 lite can scan horizontal views up to 60 degrees and vertical views up to 34 degrees. D5 lite can build depth image up to 25 meters wherever indoor or outdoor, and can sense depth up to 76 meters.

D5 lite has lightweight design suitable for both handheld and fixed-mounted purpose. D5's typical power consumption is 2.5W which can be powered by a general USB charger (except USB PD) or USB3.1 port or later.

The potential applications are listed as follows:

- Large-scale human flow control
- Public surveillance with facial privacy protection
- Warehouse and stock management
- Robotic collision avoidance
- Real-time 3D-contents creation
- Interactive game development
- Mixed-reality development

Note: LiDAR: Light Detection And Ranging

Physical characteristics

Model name	D5 lite
Dimensions	W88.1mm×H79.5mm×D120.0mm
Weight	457g (without cables)
Power supply	USB3.1 (Gen2) port / USB charger port with 0.95A output capacity (USB power delivery is not supported)
Interface port	RJ45 LAN Jack with 10/100 Base-T Ethernet UDP Unicast mode
Power consumption	Typ.: 2.5W

Scanning characteristics

Scanning technology	Bi-directional laser scan based on Dolphin's magnetically resonant actuator coupled with a Galvano actuator.
Scanning field of view (FOV)	Horizontal: ±30 degrees Vertical: Upper angle: +14 degrees Lower angle: -20 degrees
Accuracy of scanning FOV	Horizontal: ±2.5 degrees (Typ.) Vertical: ±1.1 degrees (Typ.)
Horizontal scanning speed	Typ. 300-360 reciprocal scans / second
Vertical layers	Adjustable: Default 64 layers Min 1 layer Max 256 layers
Horizontal angular resolution	0.18 degree
Vertical angular resolution	0.53 degree @ 64 layers
Scanning frame rate	Dependent on setting of vertical layers Typ. 4 FPS @ 64 layers
Scanning startup time	Typ.130ms

Laser characteristics

Laser type	Single chip pulsed laser diode
Wavelength	Typ. 905nm
Repetitive pulse frequency	135KHz
Pulsed power for measurement	0.076 μ J
Eye-safety regulations	Class 1 laser product complied with IEC 60825-1:2014 / FDA 21CFR Part 1040.10 (CDRH) /

	EN-60825-1-2014-A11-2021 AEL criterion is at the condition of C6=1.
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Depth characteristics

Depth sensing principle	<u>D</u> irect <u>T</u> ime of <u>F</u> light (dTOF)
Depth fidelity	Typ. >99.95% * * The false detection rate is less than 5/10,000 in 100Klux sunlight environment.
Depth range	Depth imaging: 1.5-25m (Human outline detectable) Depth sensing: 0.3-76m (Single photon sensitivity)
Depth resolution	Typ. 1.0cm
Depth accuracy	2%~5% of measured distance * * Dependent on reflectivity of target surface, orientation, texture and roughness.
Detectable reflectance	Hemispherical reflectance $\approx 0.7\%$ * * Scattered black surface at 5 meters.
Ambient light immunity	Typically working in 108,000lux * * Imaging quality is kept more than 70% successful rate based on Dolphin's specific target.

User Environment

Operating temperature	0°C~40°C
Storage temperature	-20°C~70°C
Operating humidity	RH 95% without condensation
EMC regulations	CISPR32: Ed2.0 (2015) Class B EN55032 FCC Part15 Subpart B Class B

APP List

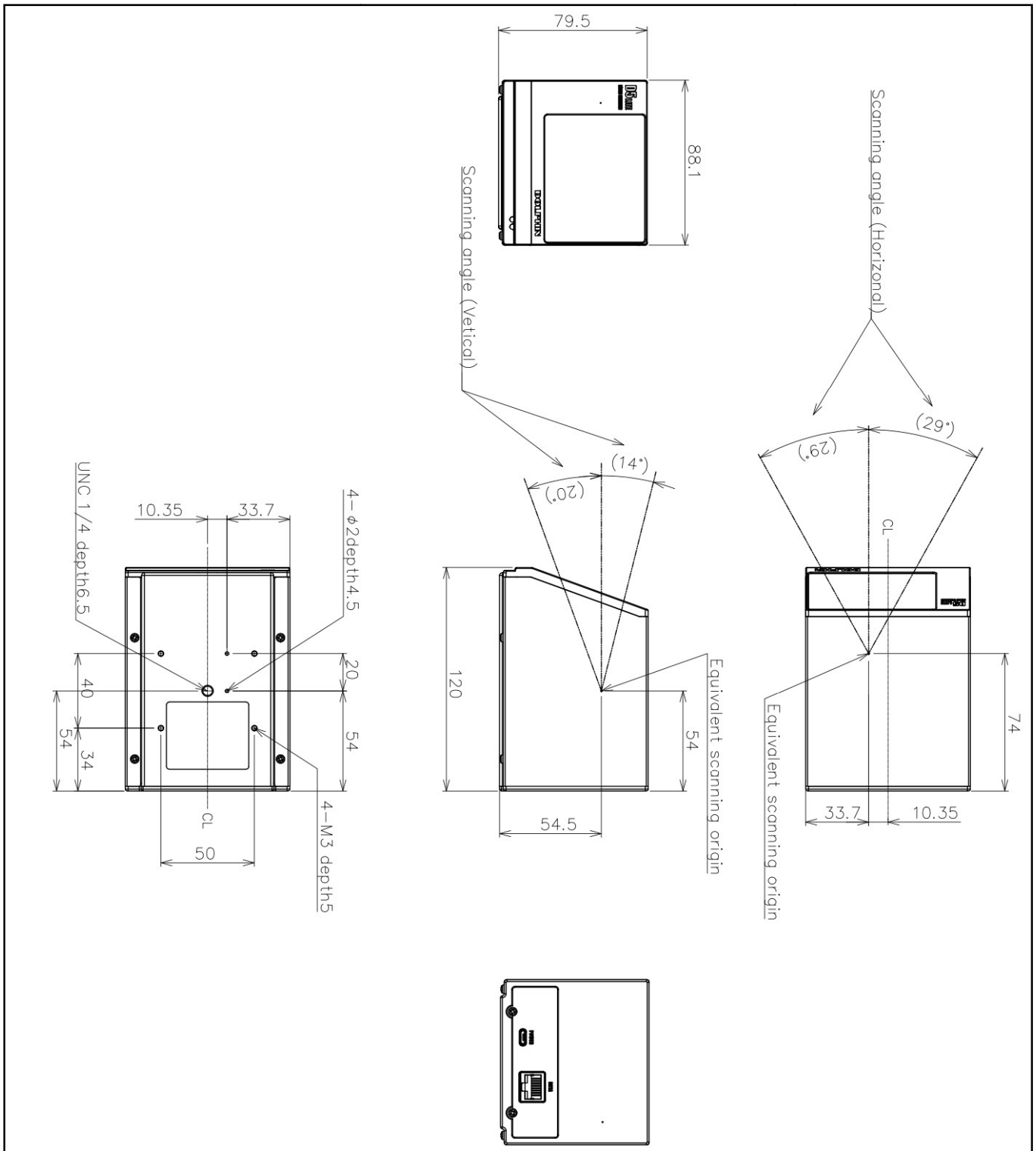
Unity Package	Editor Version	Note
Dolphin Lab Unity package	2021.3.4f1	For Unity project

APP	Windows	MacOS	iOS	Android	Note
Dolphin Lab OSC converter	✓	✓			OSC data output
Dolphin Lab	✓	✓	✓	✓	Point Cloud viewer
Dolphin Lab Tools	✓	✓			Firmware update

Data interface

Output protocol	UDP unicast mode with binary data OSC format is supported via Dolphin lab OSC converter
Saved format	.stl / .ply / .csv / .xyz

Mechanical drawings



Note: The design, specifications and appearance of the product are subject to change without notice.

Version management

No.	Issued date	Note
Ver1.0	Oct. 21, 2023	Official distribution