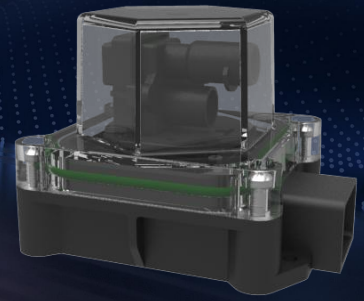


Benewake VLS-H5

Datasheet



Benewake VLS-H5 is a 360 ° scanning single line LiDAR designed specifically for underwater ranging applications. Adopting a single photon (SPAD) time-of-flight (dToF) ranging scheme, combined with mechanical rotation system, wireless data communication, and wireless power supply technology, 360 ° 2D laser scanning ranging is achieved. A dedicated algorithm has been designed specifically for underwater application scenarios, achieving ranging accuracy and data stability in strong outdoor light and even in water with certain turbidity. IPX8 waterproof rating ensures safe and stable long-term operation at a depth of 4m underwater. Especially suitable for underwater SLAM mapping and positioning applications.

Technical Specifications

Performance Parameters	
Model	VLS-H5
Detection range ^①	5 m @ (30% reflectivity, 0 KLux, < 0.5NTU)
Blind zone	≤ 0.1 m
Accuracy ^①	< 3 cm @ (0.1 ~ 2m, 10% reflectivity, 0 KLux, < 0.5NTU)
Repeatability accuracy ^①	< 2 cm @ (1 σ, 0.1 ~ 2m, 10% reflectivity, 0 KLux, < 0.5NTU)
Range resolution	1 mm
Scan angle	360° (including intentionally removed angles at edges)
Angular resolution	≤ 1°
Scanning frame rate	6 Hz
Ambient light resistance	100 KLux
Optical Parameters	
Light source	Red Laser
Eye safety	Class1 (IEC 60825-1:2014; EN 60825-1:2014+A11:2021)
Mechanical and Electrical Parameters	
Average power consumption ^②	< 450 mA @ 5.4 V

Peak current②	< 750 mA
Power supply	DC 5.4 V ± 5%
Operating temperature	0 °C ~ + 50 °C
Storage temperature	- 20 °C ~ + 70 °C
Protection level	IPX8, underwater 4m
Cable length③	350± 20 mm
Connector	Aviation plug socket M14-4P female head punch pin gold plated 1.0 PA66 black
Typ. Dimensions③	52.0 mm × 75.0 mm × 53.1 mm (cable excluded)
Communication Protocol	
Communication Interface	UART
Serial port output	3.3 V TTL
Baud rate	230400
Dimensions (Unit: mm)	
<p>The technical drawings show the device from multiple perspectives. The top view is a hexagonal shape with a width of 61 ± 0.3 mm and a height of 52 ± 0.3 mm. It features four mounting holes, each with a diameter of 3.2 ± 0.2 mm. The distance between the center of two opposite mounting holes is 25 ± 0.2 mm. The distance from the center of a mounting hole to the edge of the device is 28 ± 0.20 mm. The side view shows a total length of 328 ± 30 mm and a height of 53.1 ± 0.3 mm. The front view shows a similar height of 53.1 ± 0.3 mm. The device is connected to an aviation plug socket.</p>	

Notes:

1. Measured when all the light spots fall on the target object;
2. Measured at 0 KLux and 25 °C indoors, for reference only. Parameters may change when the environment changes;
3. The size is typical values for reference only.