



LaserScope

3D Subsea Laser Scanning System

Description

The LaserScope 3D Subsea Laser Scanning system developed by Ocean Physics is based on the principle of structured light 3D imaging, and can be used to scan seafloor topography or underwater structures at close range by using a tripod for bottom observation or an integrated ROV.

The system can acquire video images carrying 3D information of the target, pre-process the video images, and perform algorithms such as light bar extraction, processing and point cloud conversion to obtain 3D point cloud data of the target surface. At present, it has been applied to a number of users, and has completed the underwater field scanning of different landforms such as underwater flat sandy slope area, large carbonate crusted rocky area and flat sedimentation area.

Application

- ▶ Pipeline Survey and Measurement
- ▶ Wind farm monitoring and maintenance
- ▶ High-precision scanning and mapping of topography and geomorphology
- ▶ Underwater archaeological survey
- ▶ Oil and gas underwater structure inspection
- ▶ Inspection of harbours, dams, wharves, etc.
- ▶ MCM mine detection
- ▶ Large ship hull inspection

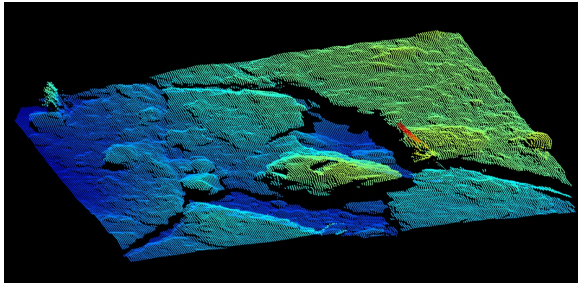
Features

- ▶ High accuracy and long range
- ▶ Depth rating of 400m, 3000m or 6000m available
- ▶ 5m or 10m range available
- ▶ Compact and can be integrated into a wide range of underwater platforms
- ▶ P&T as standard, various depth rating available, can be integrated for different projects
- ▶ Real-time imaging and xyz cloud for timely decision-making

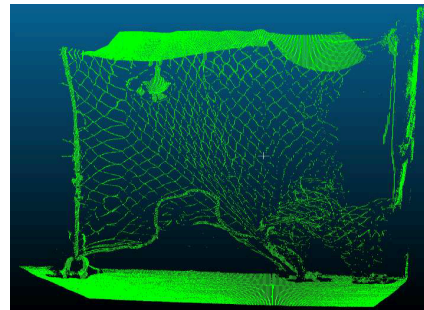
Technical Specifications of LaserScope

Specifications	LS-5	LS-10
Scan Range	0.5-5m	1.5-10m
Points per line	2048	2048
Angle of laser line	50 °	50 °
X-axis Resolution(AlongTrack)	1.7mm@0.25 knots、4mm@0.5 knots、15mm@1knot	
Y-axis Resolution(AcrossTrack)	0.5mm@0.5m 1mm@1.5m 2mm@2.5m	2mm@3m 3mm@5m 5mm@10m
Z-axis(Vertical)	0.7mm@0.5m 3mm@1.5m 5mm@2.5m	0.5mm@3m 1mm@5m 2mm@10m
Laser	0-700mW adjustable	
Wavelength	450nm	
Laser Class	3B	
Power Input	9~36VDC/24W	
Power Consumption	Less than 35W	
Communication	Gigabit Ethernet, TCP/IP	
Depth Rating	400m	3000m (6000m optional)
Weight	5.5 kg in air 2.5kg in water	12 kg in air 7.5 kg in water
Data output	Real-time video image & xyz point cloud	
Adjustable parameters	The system provides 8 adjustable parameters to fully adapt to different underwater working conditions.	
System Configuration	The system includes camera, laser, underwater Pan & Tilt, access to external calls to C++ API to raw data	
Pan & Tilt	Torque: 40Nm, Rotation Angle: 360 ° , Angular Resolution: 0.045 ° , Power Consumption: 7W, Depth Rating: 400/3000/6000 metres	

Data Examples of LaserScope



Seabed Survey



Fishing Net Monitoring

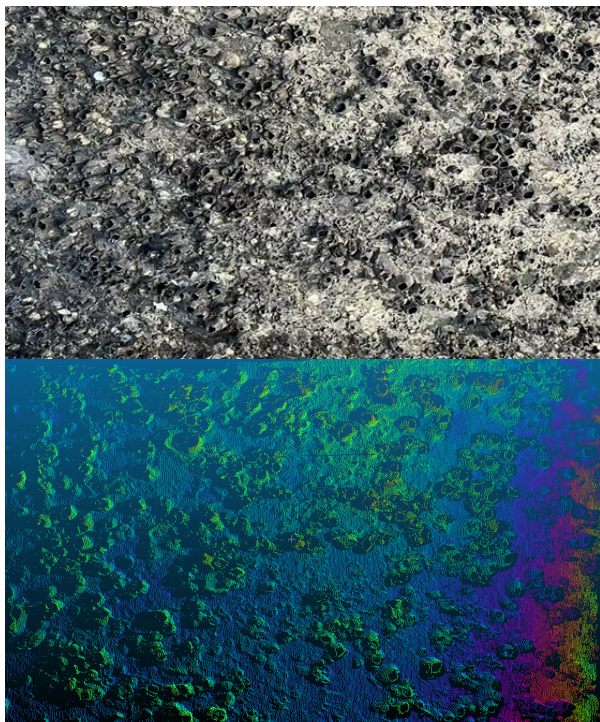
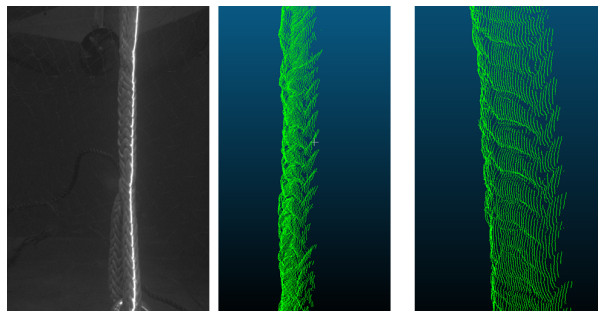
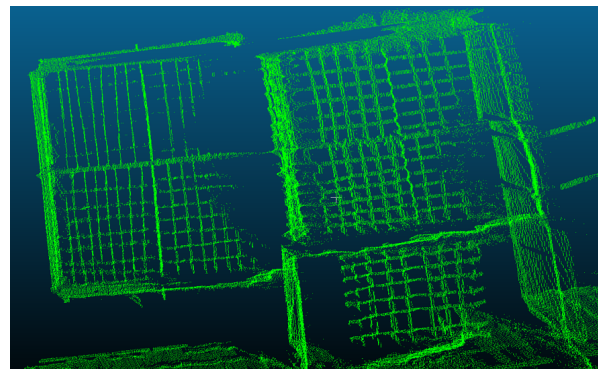
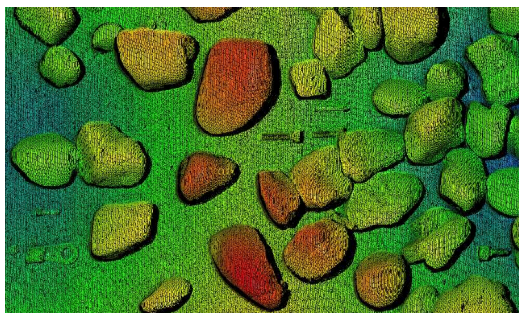


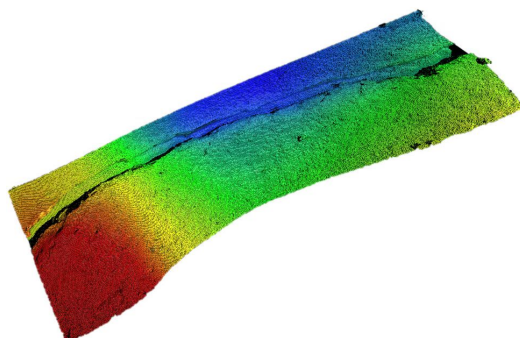
Photo vs. 3D imagery of
bioattachment on wind turbine



3D Details of Fishing Netbox



Details of Seabed



Pipeline Inspection