

The new OPAL™ Performance Series 3D LiDAR

Introducing the completely redesigned OPAL™ 3D LiDAR scanner from Neptec Technologies.

The OPAL™ is one of the most powerful and versatile 3D LiDAR sensors, and features optimized perception capabilities for detecting small targets at range. OPAL™ scanners are fully compatible with the 3DRi™ Software Development Kit (SDK), a library of proprietary algorithms for developing applications for Object Detection, Tracking, and Classification.

OPAL™ incorporates the latest innovations in laser optics and intelligent 3D processing to deliver an unprecedented combination of range, data density, and acquisition speed in a rugged, all-weather package.

Designed for real-world, mission-critical autonomy applications



















TRANSPORT OIL & GAS

CONSTRUCTION



OPAL-P500

OPAL-P1000

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Sensor		
Technology Type ¹	Time of Flight (TOF) 3D Laser Scanner with OPAL™ Obscurant-Penetrating LiDAR Technology	
Scanning Mechanism	Risley Prisms	
Range²	Up to 500 m	Up to 1000 m
Multi-return	Up to 7 returns	
Accuracy ^{3,4}	<2.5 cm (typical)	
Precision⁵	<2.0 cm (typical)	
Field of View ⁶	Conical 45°, 60°, 90°, and 120°	
Scan Pattern	Rosette type, non-overlapping	
Laser		
Product Classification	Class 1 - Eye safe	
Wavelength	1550 nm	
Output		
Pulse Repetition Frequency	25 kHz, 50 kHz, 100 kHz, 200 kHz, 300 kHz	
Data Stream Format	IPv4 Multi-cast UDP packets	
Data Format	Time-stamped position (x,y,z) plus intensity	
Interfaces		
Ethernet (Integrated GigE switch with PoE)	4	
PPS (Time Synchronization)	1	
Physical		
Dimensions	17.8 x 17.8 x 33.8 cm (7.0 x 7.0 x 13.3 inches)	
Weight (without cables)	11.8 kg (26.0 lbs)	
Operating Voltage	18–36 VDC	
Power Consumption ⁷	110 W (typical), 220 W maximum	
Ingress Protection Rating	Certified to IP66/IP67	
Operating temperature ⁸	-40°C to +55°C	
Storage temperature	-40°C to +85°C	
Shock	Designed to 5 G's	
Vibration	Designed to 20 Hz - 2 kHz, 0.04 g² / Hz	
Regulatory Compliance	C € cNous	

- Performance in obscurants is dependent on obscurant type and density, laser pulse energy, and target characteristics. Please contact NTCSupport@neptec.com to discuss your specific requirements.
- ² Achievable maximum range is dependent on target size, reflectivity, angle of incidence, and PRF, measured at the centre of the FOV in clear atmospheric conditions.
- ³ Accuracy is the degree of conformity of a measured quantity compared to its actual (true) value.
- ⁴ Some distortion effects at the edge of the FOV may impact accuracy as follows: <2.5 cm within 100°, <3.5 cm between 100° FOV and 120° FOV. One sigma at 12 m range as measured under Neptec test conditions.
- ⁵ Precision, or repeatability, is the degree to which further measurements provide the same result. One sigma at 12 m range as measured under Neptec test conditions.
- OPAL Conical LiDARs exhibit a small (1° circular) area of distortion at 8° from the centre of the FOV. Data within this area may be excluded via a software feature.
- ⁷ Typical power consumption considers the OPAL LiDAR operating at typical processing demands, with no external peripherals connected to available PoE ports. Power available for peripherals connected to the PoE ports is 100 W total.
- * Assumes adequate convection airflow over the unit. For applications in environments exceeding +40°C, please contact NTCSupport@neptec.com to discuss mounting options.
- * Specifications are subject to change without notice

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Easy to integrate with IP connectivity









