

## 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

#### HIGH RESOLUTION

300,000 points per second (single return mode)

## CONSISTENT

Reliable low-reflectivity target detection in real-world scenarios

### **LONG RANGE**

Superior range performance up to 1,000 m

#### **USER FRIENDLY**

Intuitive 3DRi™ software tools for rapid application development



## **RUGGED**

-40°C to +55°C operating temperature, resistant to shock and vibration, in an IP67-certified enclosure

## **OBSCURANT PENETRATING**

Unparalleled performance in dust, smoke, rain and fog

### CONNECTIVITY

Integrated GigE switch and port for GPS/INS

#### **INNOVATIVE**

Advanced laser optics and 3D processing in a size, weight and power optimized package

















**CONSTRUCTION TRANSPORT** 

OIL 8 CAS

SECURITY



## **Performance Series with Panoramic Field of View**

	UPAL-P500	OPAL-P1000	
Sensor			
Technology Type <sup>1</sup>	Time of Flight (TOF) 3D Laser Scanner with OPAL™ Obscurant-Penetrating LiDAR Technology		
Scanning Mechanism	Risley Prisms		
Range <sup>2</sup>	Up to 500 m	Up to 1000 m	
Multi-return	Up to 7 returns		
Accuracy³,⁴	<3.5 cm (typical)		
Precision⁵	<2.0 cm (typical)		
Field of View	Panoramic 360° horizontal FOV, 45° (+5°/-40°) vertical FOV		
Scan Pattern	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 45.6 cm (	17.8 x 17.8 x 45.6 cm ( 7.0 x 7.0 x 18.0 inches)	
Weight (without cables)	13.2 kg (29.1 lbs)		
Operating Voltage	18–36 VDC		
Power Consumption <sup>6</sup>	110 W (typical), 220 W maximum		
Ingress Protection Rating	Certified to IP66/IP67		
Operating temperature <sup>7</sup>	-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 € cN <sub>e1010-1</sub> us		

- 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.
- <sup>2</sup> Achievable maximum range is dependent on target size, reflectivity, angle of incidence, and PRF, in clear atmospheric conditions.
- <sup>3</sup> Accuracy is the degree of conformity of a measured quantity compared to its actual (true) value.
- <sup>4</sup> One sigma at 12 m range as measured under Neptec test conditions.
- <sup>5</sup> 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.
- Typical power consumption considers the OPAL scanner 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.
- 7 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





