OPAL

Obscurant penetrating LiDAR for harsh environments

The new OPAL™ Performance Series 3D LiDAR

Introducing the completely redesigned OPAL™ 3D LiDAR scanner from Neptec Technologies. Based on the latest innovations in laser optics and intelligent 3D processing, the OPAL™ delivers an unprecedented combination of range, data density, acquisition speed, and obscurant-penetration capability in a smaller, lighter package.

The result is one of the most powerful and versatile 3D LiDAR scanners for real-time robotics and autonomous systems specifically designed for harsh environments. The OPAL is available in a number of range models, with conical or panoramic fields-of-view.

OPAL™ scanners are fully compatible with the 3DRi™ Software Development Kit (SDK), a library of proprietary algorithms to extract actionable information from the scanners in real-time.

Designed for real-world, mission-critical autonomy applications

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

OBSCURANT PENETRATING
Unparalleled performance in dust, smoke, rain and fog

HIGH RESOLUTION
300,000 points per second, up to 2.1 million returns

CONSISTENT
Reliable low-reflectivity target detection for real-world scenarios

LONG RANGE
Superior range performance up to 4,000m

RUGGED
-40°C to +65°C operating temperature and resistant to shock and vibration

USER FRIENDLY
Intuitive 3DRi™ software tools for rapid application development

INTELLIGENT
Integrated multi-core CPU with PoE and USB ports for GPS/INS and peripherals

neptec Technologies Corp

MARINE · AEROSPACE · MINING · CONSTRUCTION · TRANSPORT · OIL & GAS · SECURITY

OPAL

Performance Series with Conical Field of View

	OPAL-P500	OPAL-P1000	OPAL-P4000
Sensor			
Technology Type	Time of Flight (TOF) 3D Laser Scanner with OPAL™ Obscurant-Penetrating LiDAR Technology		
Scanning Mechanism	Risley Prisms	Risley Prisms	Risley Prisms
Range (Typical)	500m @ 20% reflectivity	1000m @ 20% reflectivity	4000m @ 90% reflectivity 2000m @ 20% reflectivity
Accuracy	<15 mm[1]	<15 mm[1]	<15 mm[1]
Precision	<10 mm[1]	<10 mm[1]	<10 mm[1]
Number of Return Peaks Detected / Pulse	Up to 3	Up to 5	Up to 7
Field of View	60° or 120° (custom FOV available on special order)		
Scan Pattern	Rosette type, non-overlapping		
Networking	Integrated GigE switch with POE and USB ports for peripheral devices (IP cameras, wireless radios, etc.)		
Integrated 3DRi Processor (optional)	Multi-core 4 + 1 Tegra™ System On Chip (SOC)		
Laser			
Product Classification	Class 1 - Eye safe	Class 1 - Eye safe	Class 1 - Eye safe
Wavelength	1550 nm	1550 nm	1550 nm
Beam Divergence	0.6mrad	0.6mrad	0.6mrad
Output			
Acquisition Rate (points-per-sec)	up to 300,000 (single return) up to 900,000 (3 returns)	up to 300,000 (single return) up 1.5 Million (5 returns)	up to 300,000 (single return) up to 2.1 Million (7 returns)
Data Stream Format	IPv4 Multi-cast UDP packets		
Data Format	Time-stamped position (x,y,z) plus intensity		
Interfaces			
PoE GigE per IEE 802.3at	4	4	4
USB 2.0 Ports	2	2	2
COM Ports - SCI	1	1	1
PPS - Navigation Time Synchronization	1	1	1
Physical			
Dimensions - W x D x L inches (cm)	7.0 x 7.0 x 13.3 inches (17.8 x 17.8 x 33.8 cm)		
Weight (without cables)	<28 lbs (<12.7 kg)	<28 lbs (<12.7 kg)	<28 lbs (<12.7 kg)
Operating Voltage	18-36 VDC	18-36 VDC	18-36 VDC
Power Consumption	110W TYP[2] (150W MAX[3])	110W TYP[2] (150W MAX[3])	110W TYP[2] (150W MAX[3])
Humidity	100% (non condensing)	100% (non condensing)	100% (non condensing)
Protection Class	IP67	IP67	IP67
Operating temperature	-40 to +65 ºC	-40 to +65 ºC	-40 to +65 ºC
Storage temperature	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
Shock	5 G's	5 G's	5 G's
Vibration	15Hz - 2KHz, 0.04g²/Hz	15Hz - 2KHz, 0.04g²/Hz	15Hz - 2KHz, 0.04g²/Hz
Regulatory Compliance	CE (additional as req.)	CE (additional as req.)	CE (additional as req.)

[1] Measured @12m, 1 sigma

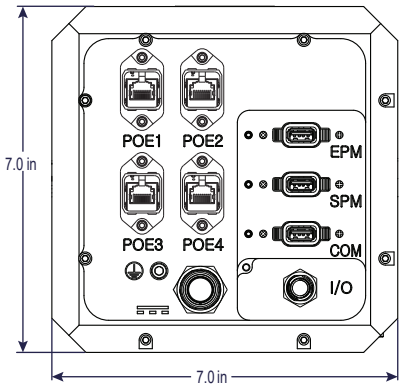
[2] TYP power consumption considers the OPAL scanner operating at typical processing demands, with no external peripherals connected to available PoE ports.

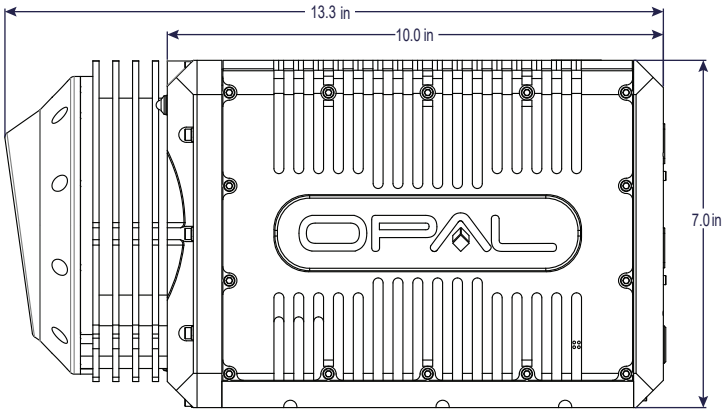
[3] MAX power consumption considers the OPAL scanner operating at maximum speed and processing demands, with no external peripherals connected to available PoE ports. MAX power available for peripherals connected to the PoE ports is 100W total.

* Specifications are subject to change without notice.

Easy to integrate with IP connectivity

- 4 x PoE Ports
- 2 x USB Ports
- Integrated 4-Port GigE Switch
- Navigation Time Synchronization
- 1 x COM Port





Neptec Technologies Corp

For more information please contact **NTCSales@neptec.com** or visit our website.