OPAL-360

Neptec Technologies Corp

- 1540nm 3D LiDAR sensor
- Real-time
- Penetrates obscurants
- No data gaps when stationary
- Up to 360° x 60° field-of-view
- 25kHz to 200kHz acquisition rate
- Up to 2,500m range options
- Rugged cast aluminum housing

OPAL-360 series

Obscurant-penetrating 3D LiDAR for harsh environments

www.neptec.com

The OPAL-360 is a rugged, multi-purpose 3D laser sensor specifically designed for real-time applications in harsh environments.

Based on an innovative sensor design and Neptec's patented obscurant-penetrating OPAL™ LiDAR technology, the OPAL-360 is a versatile and powerful situational awareness sensor for real-time 3D automation solutions, as well as more traditional survey, monitoring and mapping applications.

OPAL™ 3D sensors are specifically designed to operate in harsh environments where they may be subjected to significant amounts of dust, vibration and shock, and wide operating temperature ranges. They can be mounted outdoors on permanent structures (e.g. towers, poles) or mobile machines (like haul trucks, excavators, bulk material handling systems) and do not require any special enclosures, heaters or air-conditioning. OPAL-360 delivers an unprecedented combination of range, data density, acquisition speed, and obscurant-penetrating capability – all packaged for the punishing conditions typical of applications in the mining, oil and gas, bulk material handling, and construction industries.

OPAL™ 3D sensors are part of Neptec's 3DRi™ Development Platform and are fully compatible with the 3DRi™ Software Development Kit (SDK), a library of proprietary software algorithms that extract actionable information from 3D sensors in real-time.

Powered by 3DRi

	OPAL-360SP	OPAL-360HP	OPAL-360XP
OPAL-360 model	Standard Performance	High Performance	Extreme Performance
Laser product classification according to IEC 60825-1:2007[1]	Class 1	Class 1	Class 1
Laser wavelength	1540nm	1540nm	1540nm
Laser PRR (Peak)	200kHz	200kHz	200kHz
Scan pattern	non-overlapping	non-overlapping	non-overlapping
FOV - Azimuth (degrees)	360	360	360
FOV - Elevation (degrees)	40 (-20,+20) 45 (-35,+10)	40 (-20,+20) 45 (-35,+10) 60 (-30/+30)[2]	40 (-20,+20) 45 (-35,+10) 60 (-30/+30)[2]
Effective PRR (pts/sec) at maximum range	25kHz @ 500m	25kHz @1,200m	25kHz @ 2,500m
Effective PRR (pts/sec) at medium range	200kHz @130m	200kHz @ 200m	200kHz @ 200m
Max measurement range @ 90% (20%) reflectivity[3]	500m (230m)	1,200m (600m)	2,500m (1,200m)
Beam divergence (mrad)	0.6	0.6	0.85
Accuracy[4]	<15mm	<15mm	<15mm
Precision[4]	<10mm	<10mm	<10mm
Real-time obscurant penetration[5]	Yes	Yes	Yes
Typical performance in obscurants (@<100m)	~2x range of naked eye	~3x range of naked eye	~3x range of naked eye
Size (cm)	61x23x36	61x23x36	61x23x36
Weight (kg)	24 (cast aluminum housing)		
Operating temperature (Storage temperature)	-40° to +65° C (-40° to +85°C)		
Protection class	Designed to IP67, MIL-STD-810, DO-160G		
Shock and vibration	5g & 0.04g^2/Hz, 4Hz - 200Hz		
Power (at the unit)	<120W, 12-32V		
Interfaces	100Mbs Ethernet, PPS input (time sync)		
Internal Attitude Heading Reference System	Optional MEMS-based AHRS/IMU		
Data Output	Time-stamped position (x,y,z) with intensity (14 bits)		
Software (included)	3DRi System Manager, 3DRi Viewer, 3DRi Web Engine, and API		

[1]The following clause applies for instruments delivered into the United States: Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. [2]Special order [3]Center beam
[4]Measured @12m, 1 sigma [5]Requires software plug-in