

- Designed for real-time 3D applications in low reflectivity environments
- Penetrates obscurants
- 240m range @ low reflectivity
- 200kHz acquisition rate
- 1540nm 3D LiDAR scanner
- No data gaps when stationary
- 90° or 120° conical field-of-view
- Packaged for harsh environments

## OPAL-ECR

### Obscurant-penetrating 3D LiDAR for harsh environments

[www.neptec.com](http://www.neptec.com)

**The OPAL-ECR is a rugged, multi-purpose 3D laser scanner specifically designed for automation applications with low reflectivity targets and obscurants.**

Based on Neptec Technologies' innovative scanner design and patented obscurant-penetrating OPAL™ LiDAR technology, the OPAL-ECR is a versatile and powerful situational awareness scanner for real-time 3D automation solutions in harsh environments. It is specifically designed for applications that require consistent detection ranges of up to 240m of low reflectivity targets (e.g. coal) and operate in harsh environments with obscurants.

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 (e.g. haul trucks, excavators, bulk material handling systems) and do not require any special enclosures, heaters or air-conditioning. The OPAL-ECR delivers an unprecedented combination of range, data density, acquisition speed, and obscurant-penetrating capability and is optimized for low reflectivity environments – all packaged for the punishing conditions typical of applications in the mining, oil and gas, marine, 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**

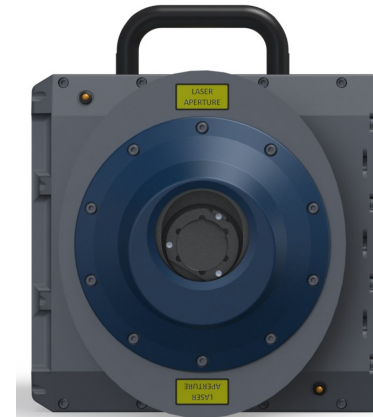
## SPECIFICATIONS

OPAL-ECR	Enhanced Close Range
Laser product classification (NOHD) according to IEC 60825-1:2007 <sup>1</sup>	Class 1
Laser wavelength	1540nm
Laser PRR	200,000 points per second
Scan pattern	Rosette pattern, non-overlapping
Field of View	90° or 120°
Range	240m @ low reflectivity
Beam divergence (mrad)	0.6
Accuracy <sup>3</sup>	<15mm
Precision <sup>3</sup>	<10mm
Real-time obscurant penetration <sup>4</sup>	Yes
Typical performance in obscurants (@<50m)	~2x range of naked eye
Size (cm)	48(H) x 25(W) x 25(D)
Weight	20 kg (44 lbs)
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 <sup>2</sup> /Hz, 4Hz - 200Hz
Power (at the unit)	150W <sup>5</sup> TYP, 18-36 VDC
Interfaces	100Mbs Ethernet, PPS input (time sync)
Data Output	Time-stamped position (x,y,z) with intensity
Software (included)	3DRi System Manager, 3DRi Viewer, 3DRi Web Engine, and API

# OPAL-ECR



OPAL-Enhanced Close Range - SIDE-VIEW



OPAL-Enhanced Close Range - FRONT-VIEW

<sup>1</sup>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. <sup>2</sup>Center beam <sup>3</sup>Measured@12m, 1 sigma

<sup>4</sup>Requires software plug-in. <sup>5</sup> 240W MAX