

# OPAL-360 3D Lidar Sensor for Robotics Applications



Neptec Technologies has announced it will be exhibiting its new OPAL-360 series of obscurant-penetrating 3D laser scanners at SPIE Defence, Security + Sensing in Baltimore, Maryland, USA, from 29 April to 3 May 2013. The OPAL-360 is a rugged, multi-purpose 360-degree 3D Lidar sensor specifically designed for autonomous off-road vehicles and robotics applications in harsh environments.

Packaged for off-road vehicles used in the mining, oil and gas, and construction industries and for defence and security applications in harsh environments, the sensor is environmentally sealed (IP67) with no externally moving parts, has a -40° to +65°C operating temperature range achieved without fans or heaters for improved reliability, and is ruggedised to withstand significant vibration and shock levels.

It delivers an unprecedented combination of range, data density, acquisition speed and obscurant penetrating capability. Different versions in the OPAL-360 series support ranges of 400m out to 3km at accuracies of one centimetre and data acquisition rates of up to 200,000 points per second.

In real-time applications like surveillance or autonomous navigation, it is not about collecting and, more importantly, having to process millions of data points per second; instead, it is about collecting the right amount of 3D data that contains the actionable information that is really needed.

OPAL collects 3D data in 360 degrees in seconds using a non-overlapping scan pattern and can adjust the amount of data being collected in real time under software control - from sparse to high resolution - without relying on vehicle movement to fill in those 'data gaps'. Neptec's 3DRi software performs real-time change detection and object recognition.

Now it is possible to collect sparse 3D data and look for interesting changes in real time, and then dynamically increase the data density to inspect something of interest - the 'needle in the haystack', said Mike Sekerka, chief operating officer at Neptec Technologies. That makes for optimised 'smart scanning' in surveillance and security-type applications, even in difficult weather conditions, he added.

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