



LASER OBSTACLE AVOIDANCE SYSTEM

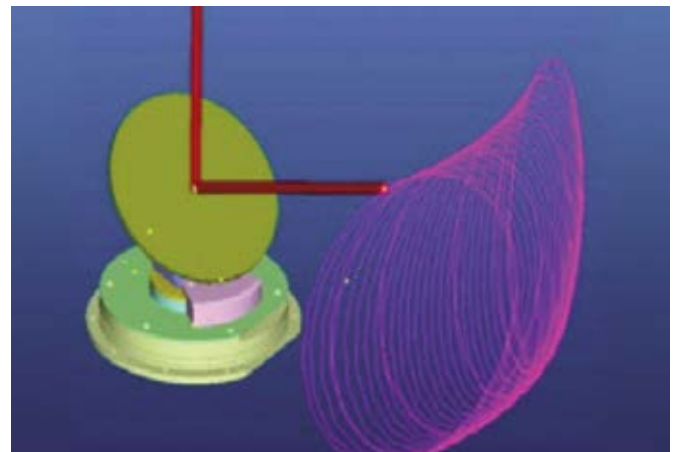
The LOAM is a laser-based system designed to provide a navigation aid to helicopters during low-level flight. It is able to detect thin obstacles like wires and to provide terrain mapping along the flight path.

TECHNOLOGY OVERVIEW

The laser technology offers significant advantages compared to a radar RF emission, in terms of resolution and detection of wires not perpendicular to the incident laser beam. The equipment uses an eye-safe 1.55 μm Erbium laser source, with high peak power levels at very high pulse repetition frequency. A scanning system based on a “swashing mirror” performs a “Palmer Scan” pattern, achieving very high probability of detection of wires or small/thin objects.

The scanner architecture offers easy azimuth and elevation Line of Sight (LoS) steering capabilities (20° in both directions). These are performed inside the sensor unit, without the weight and complexity drawbacks of classical mechanical steered solutions.

A proprietary software algorithm identifies possible obstacles on the basis of the returned echo analysis, and provides the crew with the relevant information and warnings. The LOAM full system configuration includes a Sensor Head Unit, a Control Panel and an optional Warning Unit and provides the capability to drive a standard Multi-Function Display (MFD).



LOAM

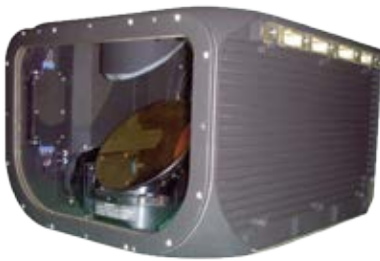
TECHNICAL SPECIFICATION

GENERAL	
Field of View (FoV)	40° x 30° (Azimuth x Elevation)
FoV Steering	±20° (Azimuth and Elevation)
Detection Range	Ø 5mm cable: 620m at 10km visibility, 500m at 1km visibility
Max detection range:	2km
Interfaces	ARINC 429, MIL-STD-1553B, RS 422, STANAG 3350B Video input and out

DIMENSIONS (W X H X D)	
SHU	320mm x 239mm x 419mm
CP	146mm x 38.1mm x 100mm
WU	110.2mm x 25.4mm x 75mm

WEIGHT	
SHU	21.5Kg
CP	0.45Kg
WU	0.25Kg

POWER SUPPLY	
Input Voltage	28VDC
Power consumption	160W



Sensor Head



Control Panel



Warning Unit

SYSTEM CAPABILITIES

The Control Panel allows the pilot to give commands and to select the LOAM operation. Minimum control is required in order to limit the crew workload.

The Warning Unit can be optionally used on stand-alone configurations to provide to the crew obstacle warning information to allow proper evasive maneuvers. The LOAM can provide a video output to drive a standard Multi-Function Display (MFD) to support.

INSTALLATIONS

LOAM is currently in production and installed since 2006 on the Royal Danish Air Force Tactical Transportation EH-101. Further orders have been awarded for the Italian variant of NH90-TTH, ICH-47F and AW-101 CSAR.

The LOAM system has also been flight-tested on UH-101, Lynx, AB-212 and EC-130 full integrated system configurations: the system is able to superimpose obstacle symbols over a camera or FLIR image to provide the pilot with an extraordinary tool to enhance the situational awareness. The LOAM also is able to perform a 3D mapping of the terrain (wireframe) where the symbols of the detected obstacles can be superimposed.