Optronics Systems

LONG RANGE ELECTRO-OPTICAL SURVEILLANCE SYSTEM (LEOSS)

LEOSS is the latest multi-sensor, high accuracy, 4 axes gyro-stabilised turret system designed for airborne surveillance applications.

Designed to be compliant with demanding vibration profiles and multirole, it combines high performance sensors with a high performance turret to meet the operational needs of today's airborne rotary and fixed wing platforms as well as land vehicles and naval vessels. LEOSS turret is a 15" system based on a modular payload, containing up to six Electro-Optical (EO) sensors.

PAYLOAD CONFIGURATION

Up to 8 imaging and laser sensors can be selected:

- Medium Wave Infrared Camera (MWIR)
- Full HD TV Camera (FHTV) with Continuous Zoom and Spotter capability
- Low Light Level TV Camera (LLLTV)
- Short Wave Infrared Camera (SWIR)
- Eye-safe Laser Range Finder (LRF)
- Laser Illuminator (LI)
- Laser Pointer (LP)

LEOSS features a single LRU turret with embedded computer and IMU/GPS for state-of-the-art performance. It is designed to be integrated onto both helicopters and turboprop aircrafts for surveillance, patrol, Search & Rescue (SAR), environmental control and law enforcement operations.

KEY FEATURES

- Automatic Video Tracking (AVT)
- Car Speed Tracking
- Advanced Image Enhancement Features (Haze penetration)
- Contrast Stretching
- De-noise
- Local Area Contrast Enhancement
- Sharpening, electronic stabilisation
- Image Fusion (TV-IR)
- Moving Target Indicator Mode (MTI)
- GEO-Pointing, GEO-Tracking, GEO-Steering, GEO-Scan
- Map and waypoint management on MFD
- Video HD recorder
- Autoscan mode

LEOSS

TECHNICAL SPECIFICATION

THERMAL CAMERA OPTION A	
IR Bandwidth	3µm to 5µm (MWIR)
Detector SD	FPA (3µm to 5µm) 640 x 512 Progressive scan
Optics SD	3 horizontal FOVs (24°, 4°, 1.2°) 4X digital zoom

THERMAL CAMERA OPTION B	
IR Bandwidth	3µm to 5µm (MWIR)
Detector HD	FPA (3µm to 5µm) 1280 x 720 progressive scan
Optics HD	3 horizontal FOVs (30°, 5°, 1.5°) 4X digital zoom

DAYLIGHT CAMERA (SPOTTER TVHD)	
Detector	Full HD (1920 x 1080) 1/3" progressive scan CMOS Removable IR cut filter for low light visibility
Zoom	40X optical zoom up to NFOV 0.5° 4X digital zoom

LOW LIGHT LEVEL TELEVISION (LLLTV) CAMERA (OPTION)	
Detector	HD (1280 x 1024) CMOS Detector High sensitivity for very low light visibility

SHORT WAVE INFRARED (SWIR) CAMERA (OPTION)	
Detector	SD (640 x 512) InGaAs Detector
Zoom	40X optical zoom up to NFOV 0.68° 4X digital zoom

LASER RANGE FINDER (LRF) (OPTION)	
Laser	Eyesafe 1.57µm Class I

LASER ILLUMINATOR (OPTIONAL)	
Power	Adjustable from 0.5W to 10W pulsed/continuous 808nm Class 4
Divergence	Wide, medium and narrow

LASER POINTER (OPTIONAL)	
Power	100mW (nominal) 915nm Class 3b
Divergence	Ultra narrow divergence

PLATFORM TURRET		
Stabilisation		4 axes gyro-stabilised gimbal
Steering Range	Azimuth	360° continuous
	Elevation	-30° to +120° (ball up) +30° to -120° (ball down)
Maximum slew rates		≥ 60°/s azimuth and elevation
Total mass		45.5kg
Dimensions	Diameter	381mm
	Height	519mm
Power		28VDC 250W (typical)
Operating temperature		-40° to +55°
IMU/GPS		Embedded
User console		One Multi-Function Display (MFD) Dual Hand Control Grip (DHCU) or Single Hand Control Grip (SHCU)
Interface comms/video		RS422, ETH, USB, HD-SDI,CVBS (PAL,NTSC)
Optional links		2x ARINC429, 1x MIL-STD-1553B (redundant)
Multirole capability		Suitable for Land and Naval platforms
ITAR		ITAR free

LEONARDO
LAND & NAVAL DEFENCE ELECTRONICS

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