



**indra**

DEFENSE AND SECURITY

# **MODULAR OPTRONIC SYSTEM**

Defense and security in five continents

[indracompany.com](http://indracompany.com)



# MODULAR OPTRONIC SYSTEM



Family of products developed by Indra in the field of security and defence providing search, follow up, classification and tracking of long distance targets

## ALPHARD-M

ALPHARD is a family of products developed by Indra in the field of security and defence providing search, follow up, classification and tracking of long distance targets during 24 hours, 365 days a year.

ALPHARD combines an optimum selection of last generation electro-optical sensors over a high mobility gyro-stabilized platform. The system can be fully integrated with local or remote radar data through friendly HMI software, providing identification and location of a mapping target.

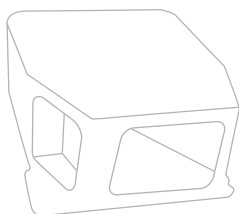
Additionally the system incorporates a series of image processing modes that improve the capacities of the acquired images, elaborating and classifying collected data as well.

ALPHARD is easily adaptable to the specific requirements of a given application; its modularity allows a simple on-board maintenance as well as a direct upgrade path for new sensors and available technologies. ALPHARD configuration increases the time of operability, reduces the cost of maintenance, and increases the life cycle of the system.

## Applications

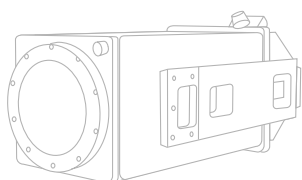
Naval surveillance and coast guard  
Naval fire control system  
Homeland security / long range observation  
Intelligence, reconnaissance and tactical operations  
Navigational aid  
Operational status: in service

## ALPHARD components



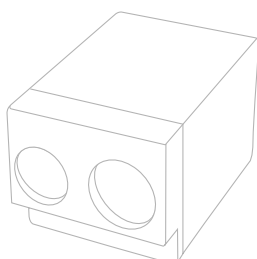
### MWIR thermal camera Indra MVT-640

<b>Spectral wavelength</b>	3-5 microns
<b>Resolution</b>	640x512 pixels
<b>Ranges</b> (small boat; good visibility)	DET=27 Km; REC=15 Km; ID=8 Km



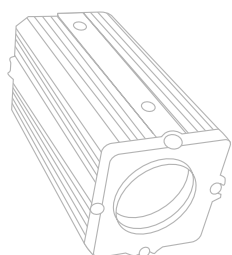
### Long range TV camera

<b>Resolution</b>	768x494 pixels
<b>Zoom</b>	60X (optical)
<b>Ranges</b> (small boat; good visibility)	DET=24 Km; REC=12 Km; ID=6 Km



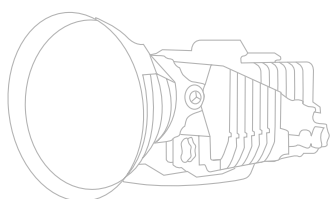
### Laser rangefinder

<b>Wavelength</b>	1,5 micrometers
<b>Classification</b>	Class 1 (Eye-safe)
<b>Max repetition rate</b>	1 Hz
<b>Resolution</b>	5 m
<b>Min range</b>	50 m
<b>Max range</b>	20 Km



### Wide field of view TV camera

<b>Resolution</b>	760x570 pixels
<b>Zoom</b>	25X (optical), 8X (digital), 200X (combined)
<b>Min. illumination</b>	0.1 lx
<b>Ranges</b> (small boat; good visibility)	DET=10 Km; REC=8 Km; ID=4 Km



### LWIR thermal camera Indra SVT-2M3X

<b>Spectral wavelength</b>	8-12 microns
<b>Type of sensor</b>	2nd generation IR FPA
<b>Resolution</b>	480 lines IR x 500 pixels
<b>Ranges</b> (small boat; good visibility)	DET=20 Km; REC=9 Km; ID=5 Km

## Specifications

<b>Stabilized platform</b>	Direct drive motors, full digital servo, high accuracy digital position feedback.
<b>Seals</b>	Low friction extensively tested in naval environment.
<b>Inertial reference</b>	Solid state gyro or low drift laser gyro, conventional IMU optional.
<b>Dynamics</b>	Acceleration up to 400°/s <sup>2</sup> , velocity up to 200°/s.
<b>Weight</b>	75 Kg (depends on sensor weight)
<b>Servo unit</b>	Rack mounted or external (environmentally proved sealed box)
<b>Control</b>	Full remote control via RS 422 /RS 485 serial link
<b>Power</b>	24 V DC or 115 V AC power (optional)
<b>Sensors</b>	<ul style="list-style-type: none"> <li>• 8-12 micrometers long range thermal camera, 50 Hz scanning (Indra SVT-2M 3X).</li> <li>• 3-5 micrometers full TV (640x512) thermal camera (Indra MVT-640)</li> <li>• Long range colour TV</li> <li>• Wide field zoom (x10) colour TV</li> <li>• ICCD (optional)</li> <li>• Eye safe laser rangefinder (20 Km range, 1 Hz rep rate)</li> <li>• Other available sensors</li> </ul>

## General description

The Indra ALPHARD stabilized platform is a family of modular electro-optical systems designed to fulfill the present and future needs of modern surface ships, surveillance and tactical vehicles as well as static border control locations.

It is based on a high-performance stabilized platform that can be fitted with up to 5 electro-optical sensors including but not limited to:

- Long range thermal imager (both 3-5 and 8-12 wavebands)
- Long range TV
- Wide field zoom TV with IR sensitivity
- Image intensified CCD
- Eye safe laser rangefinder
- Laser illuminated gated imager
- Other (IFF...)

The platform covers can be removed by the operators and sensors can be easily replaced or exchanged into preset locations to adapt the ALPHARD configuration to different missions.

The system automatically recognizes the sensors attached and adapts the man-machine interface and the tracking parameters to the new configuration.

Different inertial references can be selected for optimum cost/performance trade off.

Upgrade of the platform to future sensors is as simple as a software upgrade and a replacement of sensors and counterweight. The different integrated sensors in the platform support individually the weather conditions and required EMC.

## Notes

Variety of ALPHARD configurations (different sizes and number/type of sensors).

Upgradeable and reconfigurable: capacity to be upgraded to new sensors and available technologies.

Maintenance: sensors may be changed by operators on-board.

Multi-role system: surveillance, border protection, reconnaissance, intelligence, fire control.

Multisensor images: different sensors available for the variety of conditions day/night and weather conditions as well.



Application of ALPHARD optronic platform on a vehicle



Naval application of ALPHARD optronic platform



ISO 9001:2000



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