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Infrared Search And Track (IRST) System First to See, First to Shoot



IRST (Infrared Search and Track)

IRST is a passive, long-wave infrared sensor system that enables long-range detection and track of enemy airborne threats and targets under normal and electronic attack environments. The IRST can be installed in a Shadow Pod (a modified LANTIRN Pathfinder Pod) on an F-16 LANTIRN Navigation Pod Station. IRST ensures immunity to electronic detection and RF countermeasures. Additionally, it enhances survivability by permitting passive operation (no radar) in the face of anti-radiation missile threats. High-resolution IRST provides dramatically improved raid cell count (40 times more accurate than radar) at maximum declaration ranges - information that can stand alone or be fused with other sensor data to enhance situational awareness, ensuring first to see, first to shoot capability.

The IRST provides the platform's mission computer with track file data on all targets and infrared imagery to video displays. The IRST can operate in either track-while-scan or single target track modes with selectable scan volumes in azimuth and elevation. The interface enables IRST target symbology (similar to radar) and infrared imagery to be displayed either separately, or overlaid on a single display to reduce the warfighter's workload.

This flexible installation provides numerous operational advantages; platform adaptability, sensor commonality, and joint interoperability. The subsystems are: (a) sensor head with a three-axis inertially stabilized gimbal unit that scans the optics and detector assembly; and (b) COTS processor that hosts the algorithms and a high density digital recorder. The IRST can be mounted in various locations on aircraft, ships, or ground-based platforms.

Currently, Lockheed Martin Missiles and Fire Control plans to provide 150 F/A-18E/F IRST systems to the U.S. Navy. The IRST system enhances the capabilities of the F-14D AN/AAS-42 IRST that had been operational aboard U.S. aircraft carriers and accumulated over 200,000 flight hours.



PD079-114

Shadow Pod configured for F-16 LANTIRN Navigation Pod Station



PD079-091

IRST processor



PD079-080

Sensor head with IMU



Specifications (Less Pod)

Field-of-Regard

Azimuth	±70 degrees
Elevation	±70 degrees

Sensor Head

Diameter	9.2 in (23.4 cm)
Length	38 in (96.5 cm)
Weight	115 lb (52.2 kg)

Processor

Height	7.6 in (19.3 cm)
Length	18.5 in (47 cm)
Width	9.3 in (23.6 cm)
Weight	42 lb (19.1 kg)

Features

- Long-range IR detection of airborne threats
- Passive operation
- Immune to electronic detection and RF countermeasures
- Longwave, track-while-scan sensor
- Inertial tracking of air threats
- Large field-of-regard
- Self-contained system
- Programmable scan modes
- Automatic target declaration algorithms
- Multiple display modes

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