Raytheon

Scorpion Aircraft Protection System

Lightweight, Cost-Effective Missile Protection for Tactical Aircraft

Scorpion Aircraft Protection System
A lightweight, low-cost and reliable directed infrared countermeasure system, protecting tactical aircraft from man-portable missiles

Benefits

- Defeats all fielded man-portable missiles, including multiple and short shots
- Uses small, reliable and proven AIM-9X laser pointer
- Advanced laser options
- Designed for high-rate, quality production
- Lowest cost DIRCM system for tactical aircraft

As the world's leading developer and producer of tactical missiles, Raytheon has leveraged its AIM-9X missile seeker and domain experience and teamed with the U.S. Navy to design, develop and demonstrate a fourth-generation directed infrared countermeasure (DIRCM) system for tactical aircraft and other light platforms.

Current DIRCM systems, hampered by commonality requirements with large and heavy first-generation components, suffer from high cost, complexity and low reliability. Earlier generation flares, lamps and single-band lasers are unsuitable for light helicopters and aircraft that require low cost, lightweight and tactically reliable protection from the large and growing threat of man-portable air defense systems (MANPADS).

The Scorpion DIRCM system offers a cost-effective way to protect U.S. Army, Navy, Marine Corps and Air Force special operations helicopters, as well as tactical aircraft in high-threat environments. The Scorpion aircraft protection system incorporates proven, fielded components, advanced multiband lasers and two-color missile warning sensors into a DIRCM network that provides unparalleled missile protection from U.S. tactical aircraft.

This carefully designed blend of proven and cutting-edge counter-missile technologies networked with advanced software and missile defense algorithms provides the most cost-effective and reliable aircraft defense suite available to modern tactical aircraft.

Platforms that are constrained by allowable payload size, life-cycle cost and combat reliability should realize the most benefit from the Scorpion Aircraft Protection System. Its modular, open architecture electronics design is able to control multiple countermeasure components and provides unsurpassed upgrade capability to defeat emerging threats.

Scorpion Laser pointer

The Scorpion laser-pointer system leverages four decades of successful development and production of AIM-9 — one of the oldest, least expensive and most successful missiles in the entire U.S. weapons inventory — by using the AIM-9X air-to-air missile seeker gimbal, modified as a laser pointer, to direct laser energy into the attacking missile's seeker, thus diverting it away from the aircraft in seconds. The Scorpion slew rate and pointing accuracy provides greatly improved protection from multiple and short-shot engagements.

Scorpion has demonstrated the ability to project a missile-defeating laser beam through fiber-optic cable, allowing maximum flexibility of design in locating component

Laser Pointer

Controller/Processor

Two-Color Missile Warning Sensors

Advanced Solid-State Laser

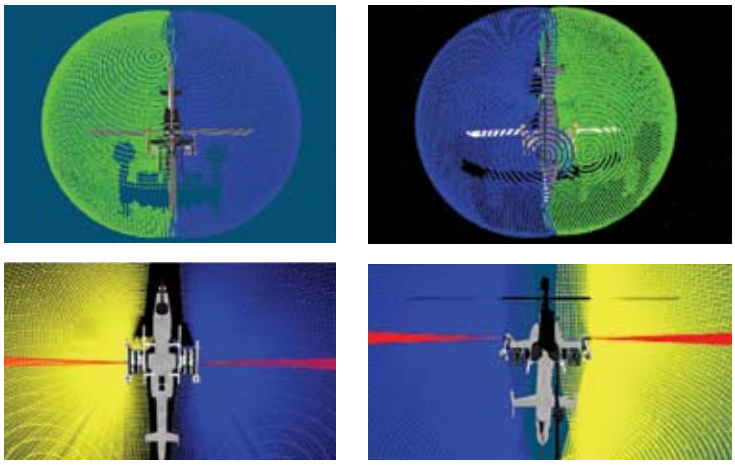
subsystems on future platforms. Scorpion can also provide a very streamlined laser pointer for high-pixel sensor platforms that require only responsive, low-cost, high-reliability laser pointing.

Used on U.S. Air Force and Navy first-line fighters, the AIM-9X missile is in high-rate production, allowing Scorpion to be rapidly produced and fielded to host aircraft as the threat requires. The Scorpion laser pointer has almost twice the slew rate, is half as expensive, one-third as large as and 17 times more reliable than currently deployed systems.

Scorpion Controller/Processor
The Scorpion controller/processor is identical to the flight-proven 755(3) processor in the AIM-9X. With its small size, state-of-the-art power and large throughput margin, the Scorpion controller/processor provides ultra-responsive, accurate system reaction to MANPADS threats from all directions. Advanced handoff and tracking algorithms and missile warfare domain experience from Raytheon Missile Systems greatly improves system performance over current DIRCM systems to stay ahead of emerging threats.

Scorpion Advanced Laser Options
Scorpion solid-state, multiband, mid-infrared lasers are specifically developed to provide a more affordable laser transmitter compared with currently fielded lasers. Cost reductions were achieved though the use of novel opto-mechanical design and manufacturing methods and the use of a simplified optical architecture. Scorpion lasers provide low-cost solutions that can provide countermeasures against state-of-the-art missile threats. Scorpion countermissile capability is greatly improved by using the latest waveforms and missile seeker countermeasures, while retaining very high performance against older threats in the inventory of MANPADS.

Scorpion Missile Warning System
Scorpion incorporates an advanced two-color missile warning system that provides an accurate and responsive missile warning with a dramatic increase in effective range and reduction in the false-alarm rate. Developed from systems fielded on F-16 aircraft, Raytheon's sensor is the best missile warning sensor available today. The system also provides laser warning for other threats with high reliability. Raytheon's superior knowledge of aircraft protection and threat missile performance allows for platform system designs that maximize protection in all environments and combat situations.



Lightweight, low-cost, reliable protection for rotary and fixed-wing platforms

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