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Multi-Domain Falcon Shield C-UAS solution

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Multi-Domain Falcon Shield Counter UAS (C-UAS) solution comprises a set of customisable and scalable multi-domain systems that provide civil and military end-users with cutting-edge, field-proven capabilities to counter UAS across multiple operational scenarios. These include border/point defence, protection of “No-Fly Zones” within civil and military Air Traffic Zones, and critical infrastructure protection.

In today's rapidly evolving battlespace, drones have transformed the way threats operate.

Affordable, agile and increasingly sophisticated, they conduct reconnaissance, disrupt operations, and deliver targeted strikes with precision. Without robust counter-drone defences, critical facilities—energy networks, transport hubs, and logistics centres—remain highly vulnerable, making protecting forces and critical assets evermore crucial.

To ensure security, resilience, and operational success, Leonardo has developed Multi-domain Falcon Shield C-UAS, delivering real-time situational awareness and enabling a broad range of countermeasures with varying levels of lethality (escalation-of-force).

Designed to operate across the full spectrum of modern conflict, Multi-domain Falcon Shield C-UAS is not only suited to traditional, symmetric warfare but also provides a decisive advantage in complex hybrid and asymmetric theatres of conflict. It delivers effective defence against a wide range of unconventional aerial threats, preventing adversaries from gaining tactical or strategic advantage and safeguarding intelligence, communications, and operational superiority.

This solution can be deployed in multiple configurations according to customer requirements.

These include:

- → **Fixed-site** for military or civil infrastructure protection and border surveillance
- → **On-the-move land vehicle configurations** for fast deployment scenarios
- → **Naval configurations** for ship and shore protection
- → **Man-portable configurations** for tactical battlefield use (e.g. convoy protection) or civil applications

Multi-domain Falcon Shield C-UAS solution can be inserted into typical defence scenarios requiring fixed, mobile, transportable and rapidly deployable systems. Its modular, scalable, interoperable and configurable architecture enables straightforward integration with existing defence infrastructure.

Leonardo solution can cover the full C-UAS workflow, but can also integrate legacy components, depending on Customer requirements.

Detect
Multifunction AESA Radars

A wide range of multi-mission multifunction AESA radars covering short, medium, and long ranges

Identify
Day-Night E/O system

Stabilised Electro-Optical (EO) surveillance system comprising a daylight camera, an IR camera, and a LASER Range Finder, also offering video auto-tracking functionality

Track
Radio Frequency (RF) Direction Finders

Radio Frequency (RF) Direction Finders that determine the Angle of Arrival of signals emitted by UAVs and their Control Stations, using Correlative Vector Interferometry technique - effective even against weak and agile signals.

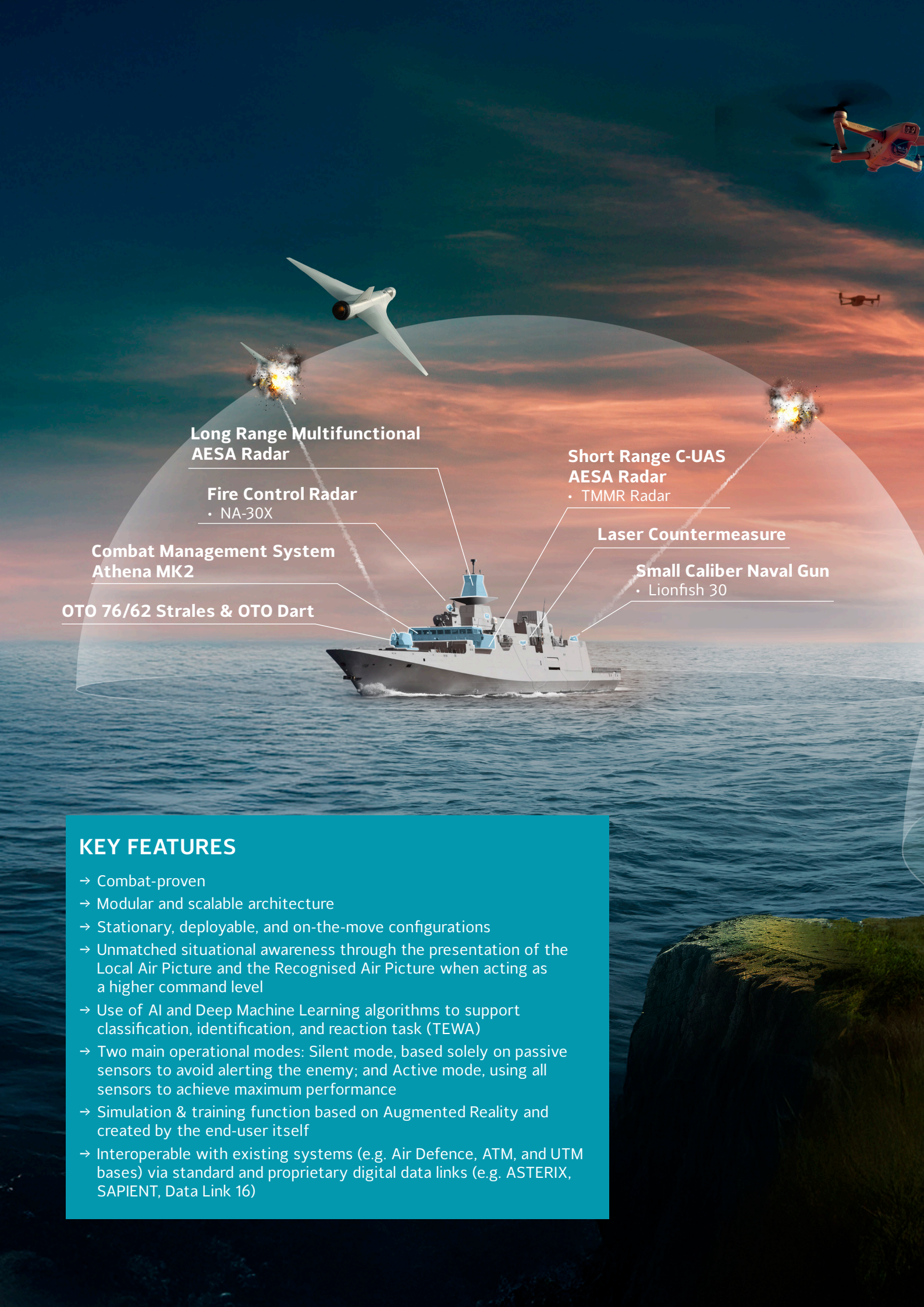
Mitigate
Jammer, Laser, Gun systems

Threat Mitigation Systems: Hard and Soft kill, including directive and reactive jammer delivering denial of UAS control, video datalink & GNSS. Laser Effector or Gun system may be included depending on the application.

Command & Control

Integrated Command, Control and Situational Awareness Solution powered by an AI fusion decision engine.

Planning & Simulation



KEY FEATURES

- → Combat-proven
- → Modular and scalable architecture
- → Stationary, deployable, and on-the-move configurations
- → Unmatched situational awareness through the presentation of the Local Air Picture and the Recognised Air Picture when acting as a higher command level
- → Use of AI and Deep Machine Learning algorithms to support classification, identification, and reaction task (TEWA)
- → Two main operational modes: Silent mode, based solely on passive sensors to avoid alerting the enemy; and Active mode, using all sensors to achieve maximum performance
- → Simulation & training function based on Augmented Reality and created by the end-user itself
- → Interoperable with existing systems (e.g. Air Defence, ATM, and UTM bases) via standard and proprietary digital data links (e.g. ASTERIX, SAPIENT, Data Link 16)


MSS
Mobile Surveillance
System for C-UAS
• TMMR Radar
• Nerio E/O
• Command & Control
Man
Portable
C-UAS
On-The-Move Vehicle
• Hitfist 30UL
• TMMR Radar
• RF Detector
• Omni Directional Jammer
• E/O & Directional Jammer
• LDEW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The System

Detection

TMMR (Tactical Multi-Mission Radar)
An extremely compact, Software-Defined AESA C-Band Radar designed to detect, classify, and track small, highly manoeuvring targets. TMMR is equipped to perform C-UAS operations as well as counter-rocket, artillery, and mortar missions.

It is highly effective in providing support. It delivers best-in-class multi-mission target detection performance across a variety of targets, including airborne assets (e.g. helicopters, small fixed-wing aircraft, and drones), ground assets (e.g. vehicles and single persons), and vessels. Developed primarily for short-range surveillance, TMMR can also be easily integrated into higher-level Air Defence Systems, including medium- and long-range surveillance radars for Early Warning.

Identification

NERIO System
A state-of-the-art modular Electro-Optical (EO) Surveillance, Target Acquisition, and Reconnaissance system, integrating world-class EO sensors within a fully flexible payload configuration, alongside a gyro-stabilised director mechanism.

Tracking

A Radio Frequency Direction Finder system can be integrated into the C-UAS solution.

It is a passive radio frequency (RF) UAS detection capability able to:

→ Detect, Track, and Identify UAS and their pilots using Angle of Arrival technique
→ Provide advance warning with a low false-alarm rate
→ Enable rapid deployment and ease of use
→ Operate in mobile or static configurations across urban and rural environments
→ Be scalable and modular to suit any requirement
→ Incorporate an autonomous alert system.

Mitigation

Leonardo's C-UAS solution includes threat mitigation systems that can be Hard and Soft Kill, tailored to Customer requirements.

SOFT KILL

→ **Guardian Electronic Attack:** a Directional Jammer that utilises information from an ESM system that applies specific effects to the target. It delivers a "surgical" effect to the targeted UAS using multiple techniques.

HARD KILL – KINETIC NEUTRALISATION

→ **HITFIST® 30 UL (Unmanned Light)** is an unmanned medium-calibre land turret, developed from the experience of the combat-proven two-man HITFIST® turret, with a focus on reduced dimensions and weight.

The HITFIST® UL integrates state-of-the-art technologies for the main armament, electro-optical sights and Fire Control System, through solutions developed and produced in-house by Leonardo to ensure complete supply chain control.

Key features include its lightness and compact size, facilitating easy integration even on very light or amphibious vehicles while maintaining high mobility whilst navigation ability. The turret is armed with a 30 mm automatic cannon with Air Burst Munitions capability, and a coaxially mounted 7.62mm machine gun.

→ **LIONFISH®:** is a family of Small-Calibre Naval turrets, ranging from 12.7mm to 30mm calibre. They are designed to counter modern maritime threats, including fast attack craft, drones, and asymmetric surface targets.

The LIONFISH® family's common features include:

- Modular and compact design
- Easy installation on both small and large vessels using no-deck-penetration solutions
- Electro-optical suite including daylight cameras, cooled/uncooled infrared sensors, and laser rangefinders
- Two-axis stabilisation and automatic target tracking for high-precision engagement

→ **LDEW (Laser Directed Energy Weapon):** is a Laser Gun developed to neutralise mini and micro UAVs at ranges beyond 1 km, utilising a 150 mm-wide Laser beam with a maximum pointing error of 15 micro-radians.

The Laser beam's power is adjustable (escalation levels) to inflict minor damage, e.g. by dazzling its sensors, or to fully neutralise the threat.

Command and Control

C-UAS C2

Intuitive and developed in close collaboration with operators to ensure accurate, clear information that facilitates appropriate actions to meet mission requirements.

Key features of the C2 system include:

- → High-accuracy active and passive tracking data, correlated and fused to deliver a high probability of target declaration versus false alarms
- → Provision of audible and/or visual alerts
- → Enabled threat prioritisation and sequential assessment and engagement based on the threat list
- → Automation of slew-to-cue EO and EA sensors based on Mission parameters
- → Presentation of effector options based on target UAS threat characterisation
- → Open architecture supporting integration of third-party sensors and effectors via a layered system approach
- → 2D/3D Mapping engine that identifies high-threat areas and defines clear no-fly and critical boundaries
- → SAPIENT/JREAP C compliant for interoperability with other air defence C2 systems

The C2 system within the C-UAS solution is AI-powered, delivering advanced capabilities across multiple operational layers.
AI enhances surveillance by improving detection and identification of aerial threats, and optimises electro-optical (EO) data processing by enabling real-time classification and prioritisation of video feeds.

AI also plays a pivotal role in C2 decision-making by supporting the TEWA (Threat Evaluation and Weapon Assignment) process with rapid, automated threat assessment and optimised weapon system allocation. This approach ensures faster response times, enhanced situational awareness, and highly efficient engagement strategies in complex, multi-threat environments.

Planning & Simulation

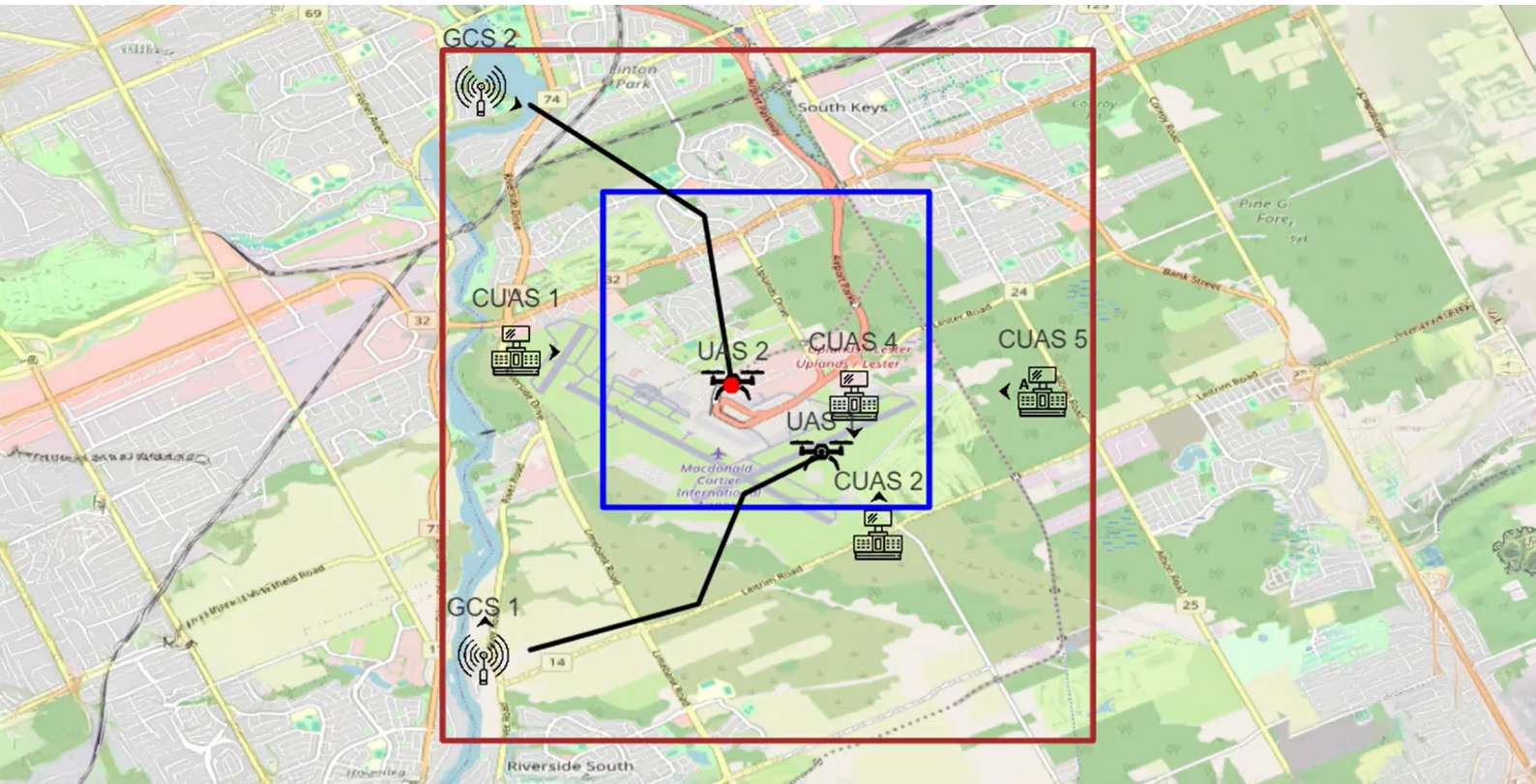
SKYTENDER

SkyTender is an operational planning and assessment software tool that enables users to optimise the effectiveness of deployed C-UAS systems.
SkyTender supports evaluation, pre-mission planning and optimal deployment of C-UAS sensors and effectors. The Tool can be used to evaluate spectral environments and topography, as well as to simulate threats, sensors, platforms, cyber, electronic warfare (EW), and kinetic effectors.
Operators can optimise the Detect, Track, and Identify functions of their C-UAS solutions, enabling them to effectively plan, test, evaluate, rehearse, and refine C-UAS mitigation options.

KEY BENEFITS

- → **COMPREHENSIVE THREAT COVERAGE:** Detects, tracks, and identifies drones across multiple domains: radar, EO/IR, acoustic, and RF
- → **RAPID RESPONSE:** Enables fast decision-making and neutralisation of hostile UAS with layered countermeasures
- → **ENHANCED SITUATIONAL AWARENESS:** AI-driven data fusion reduces false alarms and provides actionable intelligence
- → **FLEXIBLE AND SCALABLE DEPLOYMENT:** Adaptable for fixed sites, mobile platforms, or integrated military operations
- → **FUTURE-PROOF AND UPGRADABLE:** Modular design allows integration of new sensors, effectors, and capabilities as threats evolve
- → **PROVEN EXPERTISE:** Leverages decades of Leonardo experience in radar, electronic warfare, and defence systems
- → **OPERATIONAL CONTINUITY:** Ensures uninterrupted protection of critical infrastructure, personnel, and missions.

Leonardo Counter-UAS combines advanced technology, proven expertise, and operational reliability to safeguard critical assets and ensure mission success against evolving aerial threats.



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