EOS

TITANIS

Counter Drone Defense System

OVERVIEW

TITANIS, FULLY INTEGRATED COUNTER UAS SYSTEM WITH SOFT AND HARD KILL CAPABILITIES

Countering the threat caused by drones is now a global issue and an increasing concern for the military, government and homeland security forces across every continent. It is expected that unmanned aerial systems (UAS) will be used increasingly for malicious purposes as they can carry cameras, weapons, toxic chemicals and explosives and are being used increasingly for terrorism, espionage and smuggling purposes.

The Titanis Counter UAS (C-UAS) system was developed by EOS to address the growing threat from malicious and threatening unmanned aircraft systems.

Using robust battle proven technology from best in class sensor and defeat system providers, the Titanis C-UAS capability can counter single drones within 8 seconds of detection out to a range of up to 10 km (6 miles).

The Titanis system is designed to not only defeat single drone threats but also swarm drone tactics recently observed in operational theaters across the Middle East.

The Titanis system detects the drone using state-of-the-art software defined, multi-mission, 4D AESA pulse Doppler radar. It tracks the threat using high precision infrared and daylight cameras and advanced video tracking software, before using a non-kinetic radio frequency (RF) inhibitor to defeat the drone. Should the RF inhibitor not be effective, Titanis switches to hard kill to destroy the drone.

Titanis is built upon field proven sub-systems to detect all types of drones including fixed wing and quadcopters up to 600kg or less (Group 3). EOS is committed to constantly evolving the Titanis capability to respond to new threats and stay ahead in the dynamic UAS countermeasures market. Titanis is a tactical system designed for use by the military, police, other government and non-government agencies for protecting high value critical national infrastructure and personnel.

THREAT ENVIRONMENT

TITANIS IS SPECIFICALLY DESIGNED TO MITIGATE THE RISKS CAUSED BY WEAPONIZED DRONES

The rise of the commercial drone markets, combined with the proliferation of military drones has demonstrated the wide range of existing and new potential threats within the C-UAS threat landscape.

These threats include:

- Malicious intent
- Militant groups exploiting consumer drones for:
  - Battlefield reconnaissance
  - Dropping small bombs/IEDs
  - Propaganda footage for recruitment videos
- Acts of terrorism:
  - Flying drone into the flight path of commercial airliner
  - Creating fear by causing temporary closure of airports, stadiums or disruption of national public events
- Drug smuggling:
  - Prosumer and custom-built drones are being used for international cross border smuggling of narcotics
- Industrial espionage:
  - Hostile surveillance by rival manufacturers for reasons of IP theft (vehicle proving grounds and test tracks)
  - Breaching secure perimeters for cyber hacking and covert information gathering misbehaving operation
- Untrained users around sensitive areas
  - Airports
  - Key national sites (administrative buildings: courts, parliaments, etc.)
  - Power stations
  - Incursions by inquisitive operators
  - Unwanted surveillance by Paparazzi
  - VIP privacy intrusion
  - Borders
  - Prisons

Titanis is designed to help mitigate all of the above threats

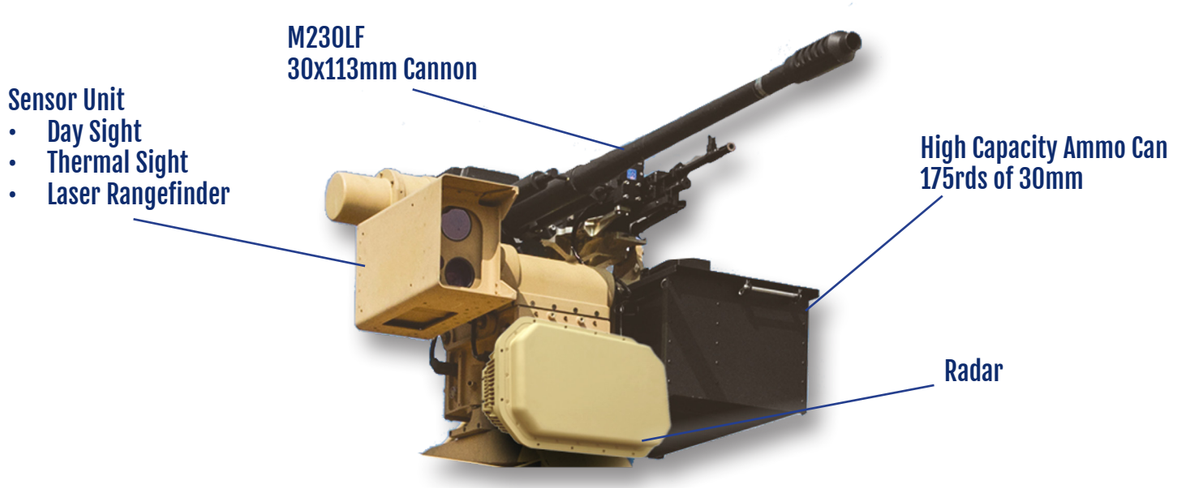
LESS THAN 8 SECONDS FROM THREAT DETECTION TO THREAT DEFEAT EVEN IF THE DRONE IS NOT RF DEPENDENT

THE LAYERED SOLUTION TO COUNTER UAS

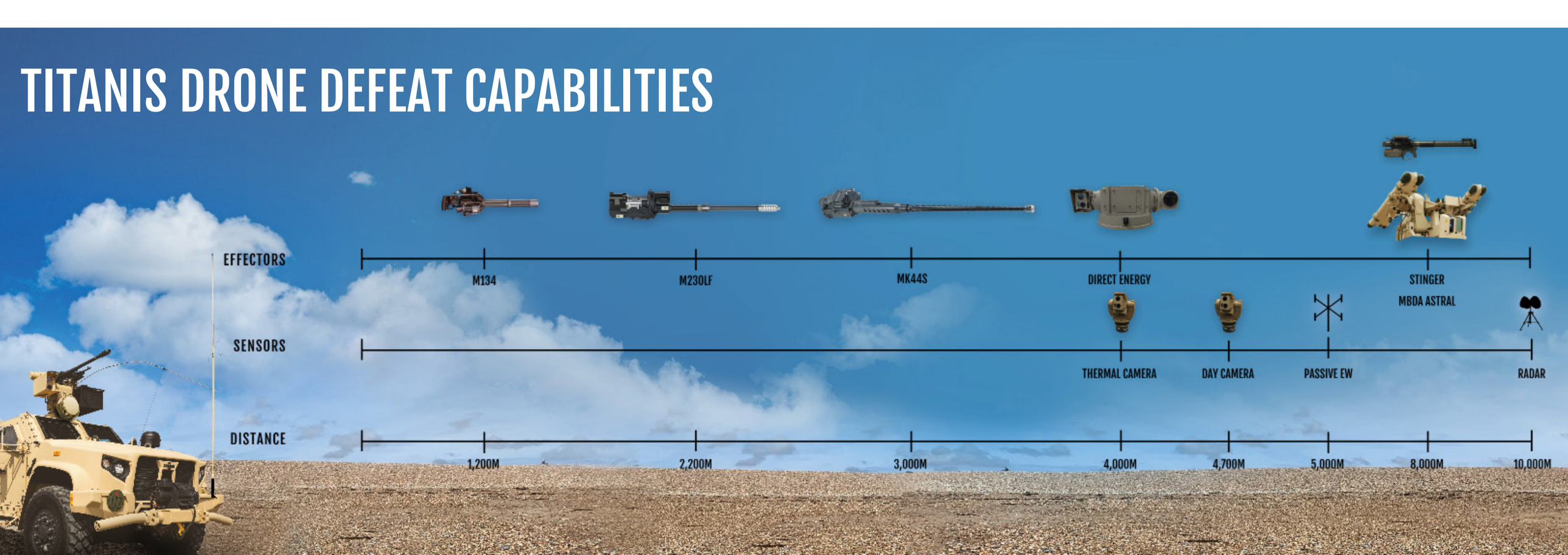
C-UAS capability is based upon the proven EOS R-Series Remote Weapon Stations, with direct energy and soft kill capabilities, to provide a layered protection to UAS threats.

The solution enables identification and defeat against UAS targets; with both soft and hard kill capabilities, while providing the ability to operate under protection.

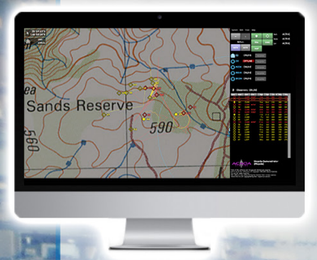
C-UAS capability is based upon the in-service R400. Through the use of this approach, the cost of introducing the C-UAS capability is reduced, as the training, support and operation are all based upon the legacy RWS.



TITANIS DRONE DEFEAT CAPABILITIES



EOS TITANIS DRONE DEFEAT



- Integrated command and control
- Integrated soft/hard kill and directed energy effectors
- Swarm defeat capable
- Layered sensor fusion and integration
- Very low false alarm rate
- Fixed and mobile installations
- Protection for facilities, key personnel and mobile forces
- Technology transfer and local production possible
- Locally supportable

KEY

- Command
- Sensors
- Effectors
- Threats

7.62mm, M240B &
30x113mm Proximity
Fused Airburst

Directed
Energy

30x173mm &
30x113mm Cannon

The EOS Titanis Drone Defeat system is a scalable layered drone defeat system. The base system sensors include radar, camera and radio frequency detection to complement existing security systems.

Soft/hard kill and directed energy effectors steered by the command and control system offer the full spectrum of defeat solutions to counter threat drone use.

Radar

- Pulse Doppler, software-defined radars
- AESA (Active electronically scanned array) antenna, GaN technology
- Extremely high elevation coverage
- Non-rotating, solid state radars
- Digital: beam forming, receivers, pulse compression
- Compact and mobile
- High reliability

RF Detection

- Fully compatible with dense urban environments
- High accuracy and long range detection
- Passive detection
- High probability on intercept and zero false alarm rates
- Small footprint and form factor
- Fixed and portable deployments
- Large area coverage
- Swarm target tracking
- Identify UAS operator location

Hard Kill Effector

- Concentrated point defence R400 mounting 7.62mm Dillon Aero mini-gun
- R400 mounting M230LF with programmable proximity air bursts
- R800 mounting MK44S with programmable air bursts munitions
- Effective range out to 3000m
- Low collateral damage ammunition options
- Defeat drone swarm tactics

Directed Energy Effector

- 26Kw high power laser
- Minimal collateral damage
- Effective range out to 4000m against Group 1,2,3 drone threats
- Swarm defeat capable with high rates of target engagement
- Transferable technology

Soft Kill Effector

- Defeats – C2, video and / or navigation system
- Effect - land immediately or return to launch point

Camera

- Powerful optic and thermal drone detection and tracking
- Swarm target detection and tracking
- Passive system

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