

Scan and Discover



The multi-domain battlefield has become increasingly complex, requiring sophisticated and technologically advanced networked management, ISR and communication systems. Drones play a significant role in the ability to identify threats, capable of searching areas of interest to enable early detection and effective gathering of intelligence data for targeting. Improving situational awareness for effective force and asset protection and target acquisition is critical for mission success in all forms of combats

Using robotic solutions to cover wide areas and multiple targets simultaneously in scan and discover operations requires sophisticated technologies and/or a lot of human resources to deploy, manage and coordinate highly autonomous UAS in complex environments.

Effective planning, control and execution of autonomous swarm missions requires integrated flight control and payload management capabilities that enable day and night operations in congested and contested near-peer battle environments, with the ability to detect targets, accurately map threats, and process vast amounts of real-time data from multiple sensors.

The solution: Legion-X

The Legion-X robotic and autonomous system enables control and coordination of a networked group of heterogeneous autonomous systems that can act as a cohesive unit and individually, as part of an overall combat network system. Modular, flexible and scalable, the advanced control solution enables combat teams and expeditionary units to deploy, operate and manage connected human-machine formations, leveraging advanced technologies to gain a tactical advantage.

A comprehensive, all-in-one system for planning, operation and management of unmanned platforms, Legion-X meets the evolving challenges of force protection in the modern battlefield, with core capabilities that increase survivability and mission success.

Scan and Discover



Legion-X offers an integrated solution for autonomous scan and discover missions, with advanced mission planning and execution capabilities for optimal task performance and asset management. The system controls autonomous swarms of UAS with different roles that can automatically search designated areas of interest for threats, enabling continual watch and real-time 2D and 3D mapping with automatic target recognition (ATR) capabilities, capable of designating CAT 2 targets and operating in a congested and contested near-peer battle environment. A base station enables automatic planning for swarm missions and monitors execution.

Area of interest overwatch: The system can send multiple UAS to search a designated area, autonomously launch and calculate optimal search patterns, provide alerts and highlight points of interest (POI).

Sustained overwatch: The system autonomously calculates the optimal number of UAS to launch initially to achieve maximum

coverage. Assets with low power are automatically replaced as needed to ensure constant uninterrupted overwatch on the designated area of interest.

Digital mapping: 2D mapping and 3D model of open areas or buildings. The system launches a fleet of drones and autonomously calculates optimal task performance, maps the selected area. The solution includes an offline mapping tool to compare and identify changes between 2D maps and 3D models.

Systems and products:

Scan and discover kit (AKA terrain dominance and target acquisition) is designed to cover an area of 1km X 1km. The area can be easily extended by adding additional platforms or by changing the scan pattern and intervals. The area of interest can be up to 15km from the swarm takeoff and landing zone.

The kit includes:

- 8 scanners (observers) - UAVs (e.g., Magni/Thor/Osprey/Falcon) with EO/IR cameras - 4x2 shifts to allow for hot-swap for maintaining constant operation
- 2 target acquisition - UAVs (e.g., Magni/Thor/Osprey/Falcon) with EO/IR payload with/without laser designator - 1x2 shifts to allow for hot-swap for maintaining constant operation
- Legion-X Comms kit
- Legion-X AM-PM autonomous mission management application
- End user devices (2x tactical tablets)

Scanner (observer): UAVs (e.g., Magni/Thor/Osprey/Falcon) with EO/IR payload (e.g., Nighthawk/Chimera/Sony)- Area of interest coverage, detects, classifies and tracks aerial objects.

Target acquisition: UAVs (e.g., Magni/Thor/Osprey/Falcon) with EO/IR (e.g., Controp's payloads or similar payload) - Automatic target tracking (ATR) and target acquisition (CAT2).

Legion-X AM-PM HMI: Autonomous mission planning and execution, displays all system components including detections, map location, swarm status, mission status and control. Legion-X AM-PM allows a single user to plan and monitor the automatic execution of the scan and discover mission.

Legion-X Comms: A secure (AES 256) communication that allows BVLOS operation of the force protection swarm on the move.