



L3Harris C4ISR Network Gateway Ground Surveillance Option Package

L3Harris Technologies

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L3Harris C4ISR Network Gateway Ground Surveillance Option Package

Augment L3Harris C4ISR Network Gateways with Ground Radar, Long-Range Cameras and Ground Multi-Sensors for Modernized Threat Detection, Identification and Validation

The Ground Surveillance Option Package (GSOP) configures any L3Harris Network Gateway into a ground surveillance data collection and distribution center. It includes radar, long-range cameras and ground sensors that enable users to detect, view and react to land-based human, vehicular and weapons threats in a defined operational area. The additional data collected by the option's integrated technologies deliver the real-time battlefield "current state" edge warfighters need to succeed, enhancing the Common Operational Picture (COP) and improving Centralized Command's decision-making quality and speed.

About the Ground Surveillance Option Package

The Ground Surveillance Option Package, when combined with baseline L3Harris Network Gateway technologies, offers both long-range detection and perimeter security capabilities.

The GSOP is composed of several field-proven ISR and communications technologies developed or curated by L3Harris to function together seamlessly in a Network Gateway setting. As a pre-tested, pre-configured solution, the GSOP can be deployed fast—there is no need for extensive custom development and testing typically required by other prime manufacturers.

The same factors that drive rapid deployment also play into the overall flexibility of the solution—namely, that L3Harris is able to quickly package both detection hardware and communications solutions together with a software package to foster reliable, secure and effective information exchange.



Figure 1: The L3Harris C4ISR Network Gateway with the Ground Surveillance Option Package

Ground Surveillance Option Package Capabilities and Benefits

The GSOP system architecture provides multiple turnkey capabilities that modernize the detection, observation and identification of potential threats, thereby accelerating a military's strategic advantage. This integrated system:

- Conducts wide-area search, detection and target tracking via **long-range ground surveillance radar**
- Provides visual confirmation, identification and tracking of targets via **electro-optical and infrared (EO/IR) cameras**
- Detects friendly and hostile moving objects such as personnel or vehicles on the ground with **sensitive long- and short-range seismic sensing**
- Observes and evaluates targets of interest via radar and a surveillance terminal/display that intelligently integrates data from multiple sources into a **Common Operational Picture (COP)**

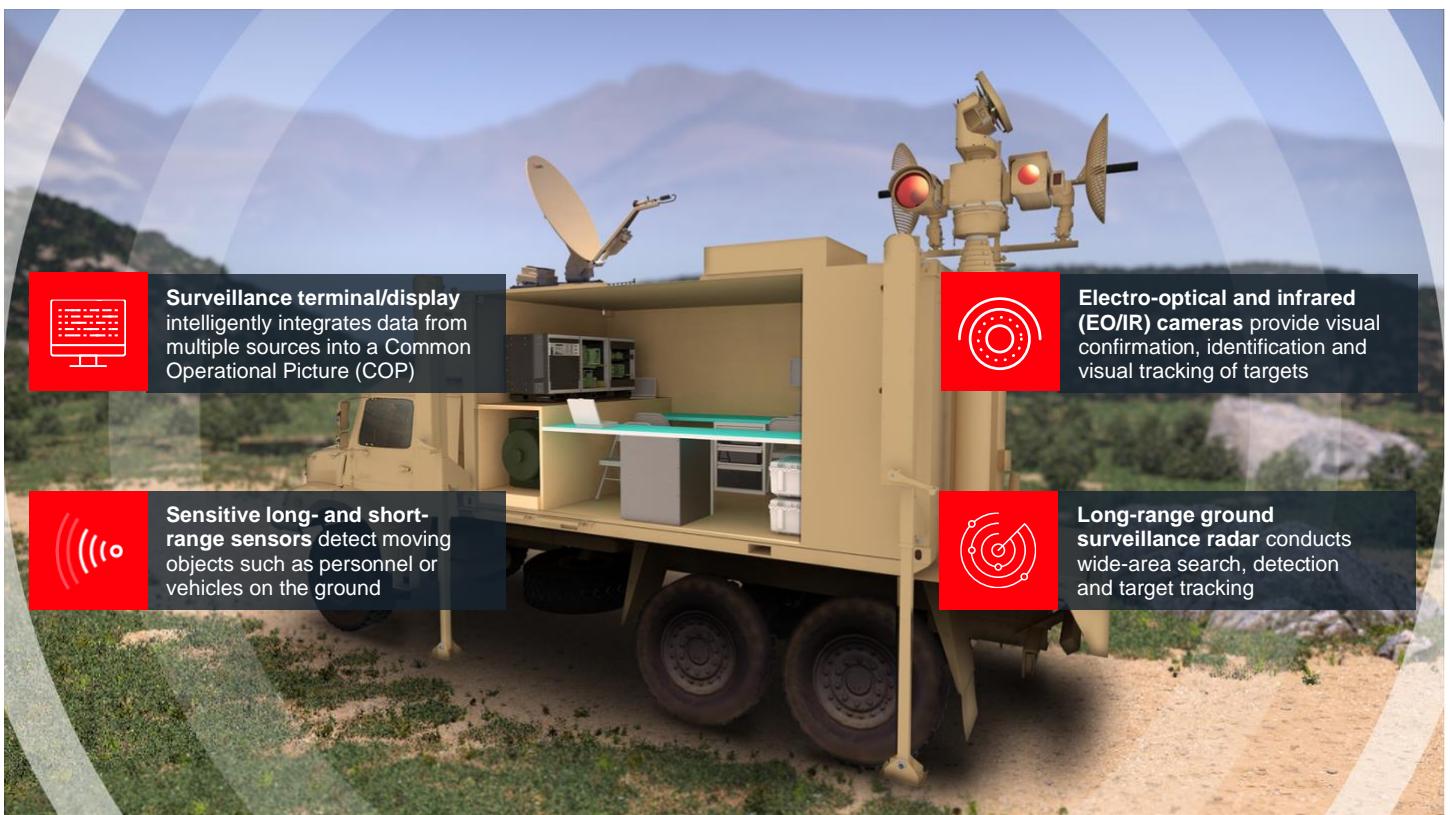
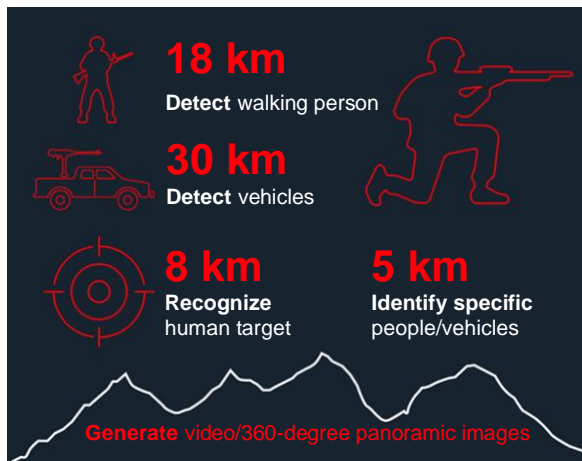


Figure 2: The Ground Surveillance Option Package provides multiple turnkey capabilities

Long-Range Ground Radar and EO/IR Surveillance

Detection, recognition and identification of potential threats is achieved through the combination of both radar and imaging technologies—each lending its strengths to a fully realized target detection and validation solution.

Field-proven, solid-state pulse Doppler ground surveillance radar is rugged and lightweight, with low power requirements. It is extraordinarily versatile in its ability to detect/track vehicles and even single walking persons at long range. A heavy-duty rotator allows the unit to remain mounted during transport, minimizing the time required to commence operations at the halt.



The radar is capable of detecting and tracking a walking person at up to 12 km and vehicles at over 30 km.

The radar is fully integrated with electro-optical/infrared camera system capabilities, adding the ability to visualize and image threats for evaluation and validation.

With a powerful combination of daylight and middle-wavelength infrared, the GSOP surveillance cameras add the ability to detect a

walking person at up to 18 km, recognize a human target at up to 8 km and identify specific individuals/vehicles at up to 5 km. Both daylight and infrared cameras are equipped with continuous zoom, auto-focus, stabilization and automatic or manual slew-to-cue. The cameras can also generate video and 360-degree panoramic images.

The entire radar/EO/IR system deploys in less than 30 minutes.

Unattended Ground Multi-Sensors

The Ground Surveillance Option Package supports the deployment of Unattended Ground Sensors (UGS) as an add-on option. Unattended Ground Sensors are ideal for areas where Line-Of-Sight (LOS) sensors—like cameras and radar—are ineffective due to natural obstructions such as dense woods or deep ravines.

The system includes five ground multi-sensors, each able to detect people and vehicles seismically, human speech acoustically and direction of travel magnetically. They transmit their data via a 902–928 MHz spread-spectrum transceiver and an internal antenna to a distance of 10–15 km and can be monitored locally over VSAT and Iridium networks—making them ideal for both immediate perimeter and long-distance detection.

The sensors can operate in the field for up to 30 days before inductive recharge is necessary, and they include anti-tamper detection. They weigh just 4.5 oz each.



Figure 3: *Unattended Ground Sensors (UGS) may be added to extend capabilities*

Bringing It All Together for an Enhanced Common Operational Picture (COP)

Just as critical as the hardware and networking components of the complete GSOP system, L3Harris Battle Management System (BMS) and threat identification software work together to monitor and visualize data gathered from multiple sensors and systems, enabling the insights that contribute to an enhanced COP.

The software—provided on a workstation in the L3Harris C4ISR Network Gateway—allows operators to respond quickly to threats by monitoring and controlling all GSOP sensors in real time.

Additional monitor and control features include:

- **A 360° static panoramic image** for point-and-click “go-to” camera positioning
- **Embedded EO and IR video**
- **Geo-referenced map** displaying geo-located targets
- **Ability to slave camera to a radar track**
- **Ability to slew camera to a cue** from unattended multi-sensors or other peripheral alarms

Together, these features assure effective and continuous ground-based short- and long-range ISR, enabling the gathering, interpretation and sharing of multi-echelon, COP-informing data in real time.

The integrated GSOP system is ready to enhance diverse operations—such as border security—as seen in the high-level concept of operations below:



1

Detect intrusions: Suspicious activity is detected close to the border by the L3Harris Network Gateway with GSOP.



2

Alert users: Sensor data is sent via microwave links to feed the Common Operational Picture (COP) at Headquarter (HQ) Site locations.



3

Confirm threats: Using V/UHF link, HQ site directs Border Reconnaissance Unit (BRU) to investigate target(s).



4

Inform COP: BRU sends situation update to HQ. Voice/COP update is sent via V/UHF link and video via mobile microwave.



5

Track target: HQ Site monitors and determines threat is illegally approaching the border.



6

Confirm target apprehension: All sites maintain eyes on targets as they are apprehended. Mission success reported by BRU via handheld UHF Link.

Figure 4: High-level concept of operations—enhanced border security

Additional robust, pre-defined options are available today that extend the capability of base L3Harris C4ISR Network Gateways, along with the Ground Surveillance Option Package:

- **UAS/UAV Detect and Mitigate:** Class-3 detection and mitigation systems for enhanced battlefield awareness and mitigation of flying objects via kinetic weapons and/or RF jamming
- **Maritime Surveillance:** Integration and land-based analysis of maritime sensor data for hostile target interdiction and apprehension
- **Spectrum Dominance:** Real-time spectrum analysis with both passive and active capabilities for spectrum dominance—from direction-finding to automatic signal jamming

These options—along with localized customizations—can be combined to create a virtually unlimited number of mission-specific, ready-to-deploy solutions.

For a deeper discussion of the L3Harris C4ISR Network Gateway and its flexible option packages, contact Tony Full: Tony.Full@L3Harris.com