

# PHAROVISION

*Making the  
Invisible Visual*



**Client Guide**

# INTERCEPTOR™



Pharovision's "INTERCEPTOR" bird detection system automatically detects individual birds and flocks of birds, day or night, using an infrared and electro-optical scanning payload, and advanced proprietary image-processing algorithms. The auto-detection system is also capable of manual user control, allowing for enhanced observation, target tracking, and study of specific targets on a real-time basis.

## System Features

**Automated Detection** | No other system in the world allows for automated scanning and target acquisition. Only Interceptor does not require user interaction in order to scan and detect targets.

**Real-time Warnings** | The physics of bird-detecting radars and the extreme limitations of their technology have prevented them from being utilized in a real-time manner. Interceptor is the only real-time warning system.

**Manual Control** | The automated scanning can be interrupted at any time and the system can be manually controlled (by a joystick or game controller) in order to investigate any detected targets or other areas of interest.

**WYSIWYG** | "What You See is What You Get". Because Interceptor's output is primarily an enhanced visual view of targets, no formal training in system operation or a detailed background in data interpretation is necessary.

**User Configurable** | Scan parameters are flexible and controlled by the user and can be modified at will. Scans configurations can be changed for day/night, monthly, or seasonal variations as desired.

**Passive System** | Because Interceptor is completely passive, it causes no electromagnetic interference with other systems and does not require special certification or testing for use on an airfield environment.

**Capable of Scanning Ground and Aerial Targets** | Interceptor automatically detects birds utilizing the airspace around an airport, as well as birds and other wildlife (like deer, foxes, etc.) that may be on the airfield itself, whether on the ground or in the air.

**Permanent Digital Recording** | Interceptor's output is recorded digitally and can be replayed at any time like a home DVR or security system, allowing for viewing of the system's output exactly as if the user had been observing the images in real-time. Video clips or still images can be extracted for use by the end user.

*Automated Wildlife Detection System*



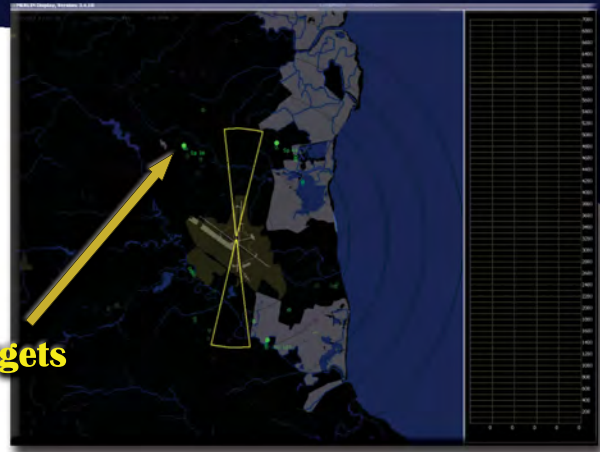
# All Payloads Are AIP Funding Eligible

## Infrared Detections

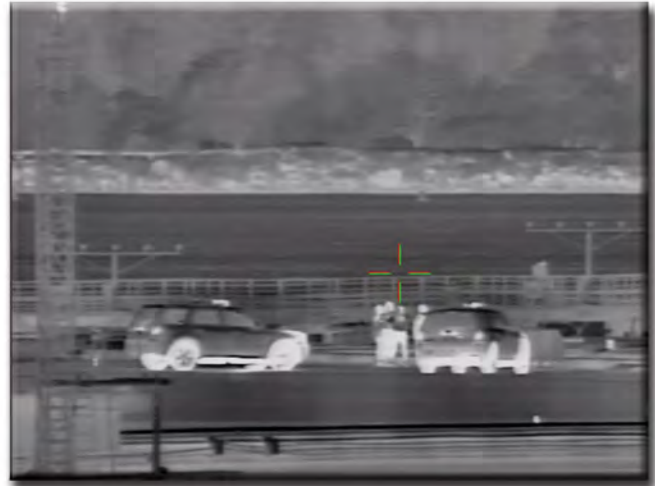


vs.

## Radar Detections



The extraordinary advantage of the INTERCEPTOR system is that all detections are displayed as true visual images of the targets themselves, not simply a dot on a screen. An operator can easily assess the types, numbers, and locations (especially altitude) of detected targets without the need for extensive training or understanding of a complex representative system, like radar systems require.



ATC has discovered the benefits of a system that allows them to see everything on the airfield, basically turning the dark of night into day, allowing them to view situations such as wingtip clearances, vehicular traffic, aircraft on the ground and in departure/arrival corridors, and even personnel moving about on the ramp.



Every Pharovision system can be accessed remotely from any Internet-connected device and can be displayed on tablets, cell phones or similar devices in the field. Payloads can even be operated remotely with an Xbox or PS game controller from the comfort of your couch at home.



# SENTINEL™



Pharovision's "SENTINEL" FOD detection system provides continuous scanning of airfield runway, taxiway, and other tarmac surfaces. Integrated multiple units can provide complete coverage of an entire airfield. Detected potential targets are displayed instantly at a remote station, for direct analysis and investigation. The system is capable of detecting any object on a runway or taxiway surface from more than 800 meters away, day or night, and instantaneously displaying the geo-location of the object on an aerial map of the airfield.



**Unlike any other FOD system, the SENTINEL system can also be used for multiple functions in addition to FOD, including: security scans, enhanced visualizations, and wildlife detections.**

SENTINEL exceeds all requirements of the FAA's Advisory Circular for FOD detection systems, and as such, is eligible for AIP funding. As a multi-functional system, it is a game-changer in the industry, providing an airfield with a more cost-effective utilization of its limited resources, enhancing procurement possibilities for the wide variety of uses. The integrated and comprehensive system is capable of simultaneously scanning for debris on all tarmac surfaces within the vicinity, and between aircraft movements, the system is capable of automatically scanning for other types of targets. The system can transmit warnings when a pre-defined level of target size or numbers is reached or a target is in close proximity to an area that could potentially impinge on safety or security (for example, aircraft flight corridors, secured areas, restricted zones, etc).

*Comprehensive  
F.O.D. Detection System*





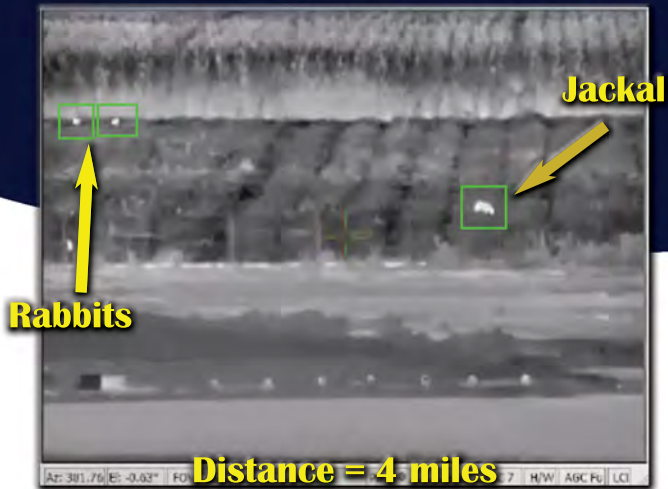
# DRAGONFLY™

Pharovision's Dragonfly UAV and Drone detection system is based on hardware and algorithms that have been proven in operational use in both military and civilian applications, including both aerial and ground-based observations. The original hardware and algorithms were initially developed more than 20 years ago to detect incoming gliders, rockets, and small aircraft coming over the Israeli national borders from neighboring countries. Modified hardware and complementary software enhancements have allowed Pharovision to accurately auto-detect and identify small drones to assist in the assessment of potential threats within a 4-5 nm radius of any location.



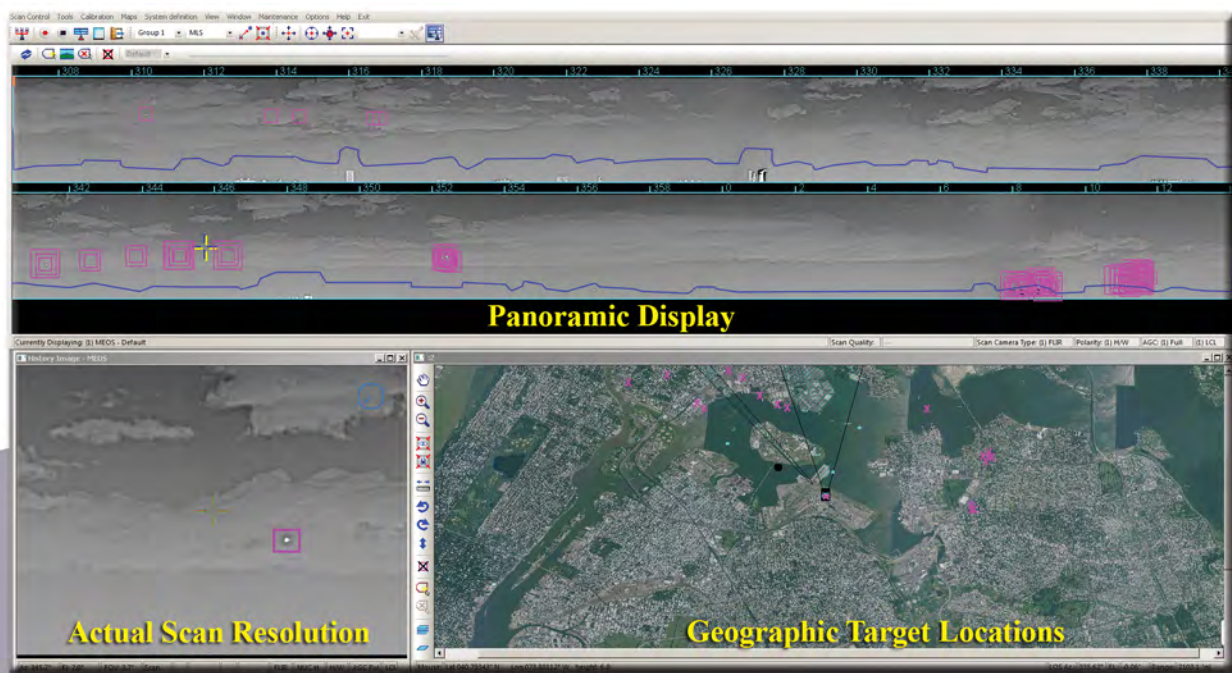
*UAV and Drone Detection System*

# Ground Detections and Electro-Optics



All of Pharovision's detection systems can automatically detect aerial or ground targets. Additionally, each system is equipped with a modular high-powered CCD sensor, as well as the infrared payload, allowing for detection or observation in either mode. In automated scanning mode, all systems are capable of inspection of an infinite variety of areas located around the environment, including areas of dense vegetation and ground surfaces. Flexible configuration and zoom lenses enable optimization of the system to each location. Areas with excessive false alarm potential can be masked from automated detections.

Custom scanning regions can be established on-the-fly and can be modified and manipulated at the discretion of the user. All systems can also be used to scan 360° at customizable focal lengths. Each system ultimately allows the user to determine the altitude, range, number, behavior, and even type of targets detected. As all displays are modular, system output can be processed on a singular display or over multiple monitors.



# Other Uses and Payloads



**GALAXY 3D**

## ***Runway Surface Contamination Measurements |***

Pharovision offers automated runway surface contamination measurements. Remote and automated determination of runway surface conditions without the need to physically check or measure runway conditions during operations.

## ***Border and Perimeter Fence Security |***

Automated intruder security scanning. Remote detection of targets along perimeter fencing or even the creation of a virtual fence. Currently in use by the US Armed Forces and the Israeli Department of Defense.

## ***Target Tracking |***

Automated tracking of an individual or group of targets in real time, until the system is taken out of target tracking mode or the target moves out of the line of sight

## ***Airspace Infringement Monitoring |***

Automatic scanning of airspace for new infringements without the need for expensive and time-consuming surveys.

## ***Enhanced Visuals |***

Enhanced visuals provided by our systems allow users to view situations such as wingtip clearances, vehicular traffic, aircraft on the ground and in departure/arrival corridors, or personnel moving about restricted areas.

## ***Wind Farm Monitoring |***

Pharovision's line of wind farm monitoring systems allow for detection and measurement of avian presence near active turbines, as well as the ability to autonomously disengage turbine operation to prevent avian mortalities.

## ***Mining Operations |***

Automated scanning of mining and effluent operations for intruders or wildlife. The system is also capable of initiating wildlife harassment or deterrent measures that are easily integrated into the system.

## ***Lighting Monitoring |***

Lighting operations can remotely be monitored with any of Pharovision's payloads. Electro-optical or infrared cameras can be set to scan through a sequence of pre-defined locations in order to determine the functionality of lights.



**HORIZON**



**SHEPHERD**



**ECHELON**

**Automated Bird Detection Systems**  
**F.O.D. Detection Systems**  
**Security Systems**  
**Runway Surface Contamination**  
**Enhanced Visuals**  
**Drone and UAV Detection**  
**Automated Surveillance Systems**  
**Aerial Surveillance Systems**  
**Marine Surveillance Systems**  
**Automatic Intruder Detection**  
**Homeland and Airport Security**  
**Border Protection**  
**Target Tracking**  
**Airspace Infringement**  
**Lighting Operation Monitoring**  
**Mining Intruder/Wildlife Detection**

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