

# HARRIER

## Aircraft Detection Lighting System (ADLS)

Many stakeholders recognize the environmental and social impacts of aviation obstruction lights at wind farms and similar project sites and are exploring strategies to mitigate the impacts on surrounding communities.

In response, DeTect developed the HARRIER™ Aircraft Detection Lighting System (ADLS), an advanced radar-based ADLS using high-resolution ground-based airspace surveillance with automated activation of wind farm's aviation obstruction lights when aircraft are detected within a defined perimeter. DeTect HARRIER ADLS systems are currently operating in the US, Canada, and Europe.



### Model: HARRIER ADLS 200d

**Application:** Aircraft Detection Lighting System. High resolution, airspace surveillance system for aviation obstruction light activation onshore and offshore

**Configuration:** Fully self-contained fixed system for obstruction light activation for wind farm, power transmission, communication tower, and other projects that require automated aviation obstruction lights.

**Sensors:** Solid state S- or X-band radar sensors with Doppler processing; and Automatic Dependent Surveillance - Broadcast (ADS-B) secondary surveillance for cooperative aircraft

**Operation:** Extended range detection of cooperative (transponder equipped) & non-cooperative aircraft with automatic activation of obstruction warning lights at user-defined perimeters.

**Operating Range:** Full 360 degree range up to 18 nm (33km).

**Power:** Single phase 120-240 VAC, with UPS back-up & power conditioning & optional auto-start propane or diesel generator.

**Network:** TCP/IP connection supports multi-user web remote real-time system display, control & data access via fiber optic, wireless or mobile broadband.



The HARRIER ADLS provides extended-range detection of cooperative and noncooperative aircraft, with a coverage range of up to 18 nautical miles. Aircraft entering a custom configured exclusion zone will trigger the activation of the obstruction lights.

The HARRIER ADLS is multi-function capable and can provide site security for aircraft, drones, and bird detection for environmental monitoring and collision risk mitigation.

The system is fully networkable and remotely controllable with real-time data display, data transmission, diagnostics, and Health and Status Monitoring (HSM).





### Advantages of the HARRIER ADLS

- Longer range detection provides greater safety margin
- Fewer sensors required for complete coverage
- ADS-B integration minimizes obstruction light activation from high altitude aircraft and provides secondary sensor for redundant detection
- Ground-based sensors with lower installation and O&M costs
- Based on FAA tested, commercially available technology
- Advanced solid-state Doppler radar processor
- Meets or exceeds US FAA, Transport Canada, European, and Australian requirements
- Multi-function capable for ADLS, site security & bird detection from a single sensor
- Integrated with all ADLS compatible obstruction lights.

**DeTect's ADLS** uses Operational Risk Management (ORM) algorithms and operates in a failsafe manner where the lights are held in an 'ON' state by the system unless no aircraft are detected within the defined risk zone. When the sensors detect an aircraft, the obstruction lights are activated. A "heartbeat" indicator provides constant system status reading of the ADLS and its network. Should the ADLS go offline, or heartbeat indicator lost, the lights will automatically activate and remain illuminated until the system returns online and confirms no aircraft in the risk zone.

**HARRIER** uses an advanced solid-state S- or X-Band Doppler surveillance radar that has the ability to penetrate into moderate rain. The HARRIER ADLS logic is designed to err on the side of caution. If precipitation is detected, which may mask aircraft, the system will automatically activate the lights. The HARRIER ADLS also incorporates secondary surveillance using an Automatic Dependent Surveillance – Broadcast (ADS-B) receiver. The radar sensors, and ADS-B antennas are ground-based resulting in lower installation and O&M cost over the life of the project. The system electronics can be collocated with the radars at the project site or can be remotely located at a central facility, such as a substation or O&M building up to 50 miles (80 km) away for ease of O&M and for security (requires dedicated fiber network).

**DeTect's HARRIER** radar processing software is user customizable and software definable to 'tune' the system to detect, track, and display only targets within the user desired target class based on a variety of parameters that include size, speed, and track characteristics. Additionally, the HARRIER ADLS has user selectable channels to operate with both the X and S band variants. This allows several radars to work in conjunction with one another without interfering with each other and/or other nearby radar systems such as air traffic control, weather, and communications networks.

