INFINITI
ELECTRO-OPTICS

Aegis Radar & Perimeter Security Solutions

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Aegis Radars

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Infiniti's Aegis series radars offer a comprehensive product line with solutions for short, medium, and long range detection applications. Various configurations include full 360° rotating and wide-angle fixed panel radars, with X-Band, S-Band, C-Band, and 24GHz frequencies suitable for a variety of applications.

With land, marine, and aerial radars, Infiniti provides the best perimeter security solutions regardless of the domain. By pairing radar with market-leading electro-optics systems it is possible to create high-performance security solutions for perimeters or wide-area coverage.

The Aegis line-up ranges from our small 24GHz panel radar that provide 500m of human detection, to our largest X-band radars which can deliver detection ranges of up to 25km for humans and up to 50km for vehicles. Aegis 3D aerial radars can provide detection of DJI Phantom drones (0.01 m² RCS) at distances up to 3km as a part of Infiniti's ADDS C-UAS system, making the Aegis an extremely versatile security solution.

Applications

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Wide Area Surveillance

Long-Range Threat Detection

Border & Perimeter Security

Critical Infrastructure Protection

Coastal Surveillance & Maritime

CUAS, Anti-Drone, Aviation

Fish Farms / Aquaculture

KEY BENEFITS:

› 360° long-range 24/7 detection

› Operation in bad weather

› Low false alarm rates

› Day/night auto-tracking cameras

› GPS position of targets

› Programmable zones & rules

Processing & Software

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Integrated Radar Processor

Aegis radars feature an integrated radar processor for detection and tracking and extraction of targets. This reduces costs and provides simpler installations when compared with traditional radars that often require on-site radar processors for target extraction.

The processed radar targets greatly reduce the communication bandwidth required for client workstations, with a single radar requiring <1Mbps. The Aegis' future-friendly design streamlines the integration and installation process with C2 softwares, PTZ cameras, and other third-party solutions.

Intelligent Radar Software

Not only does the Aegis boast long-range detection, our radar client software suites feature high-performance processing for detailed information on the target, such as size, speed, bearing, and GPS position. User-defined geofence zones for areas of interest and exclusion allow for automated monitoring or customized event triggers. Optional AIS and GPS integration can provide blue force tracking and VTMS applications. The Aegis' powerful fusion of hardware and software delivers 24/7 intelligent situational awareness for ground, marine, and airborne applications.
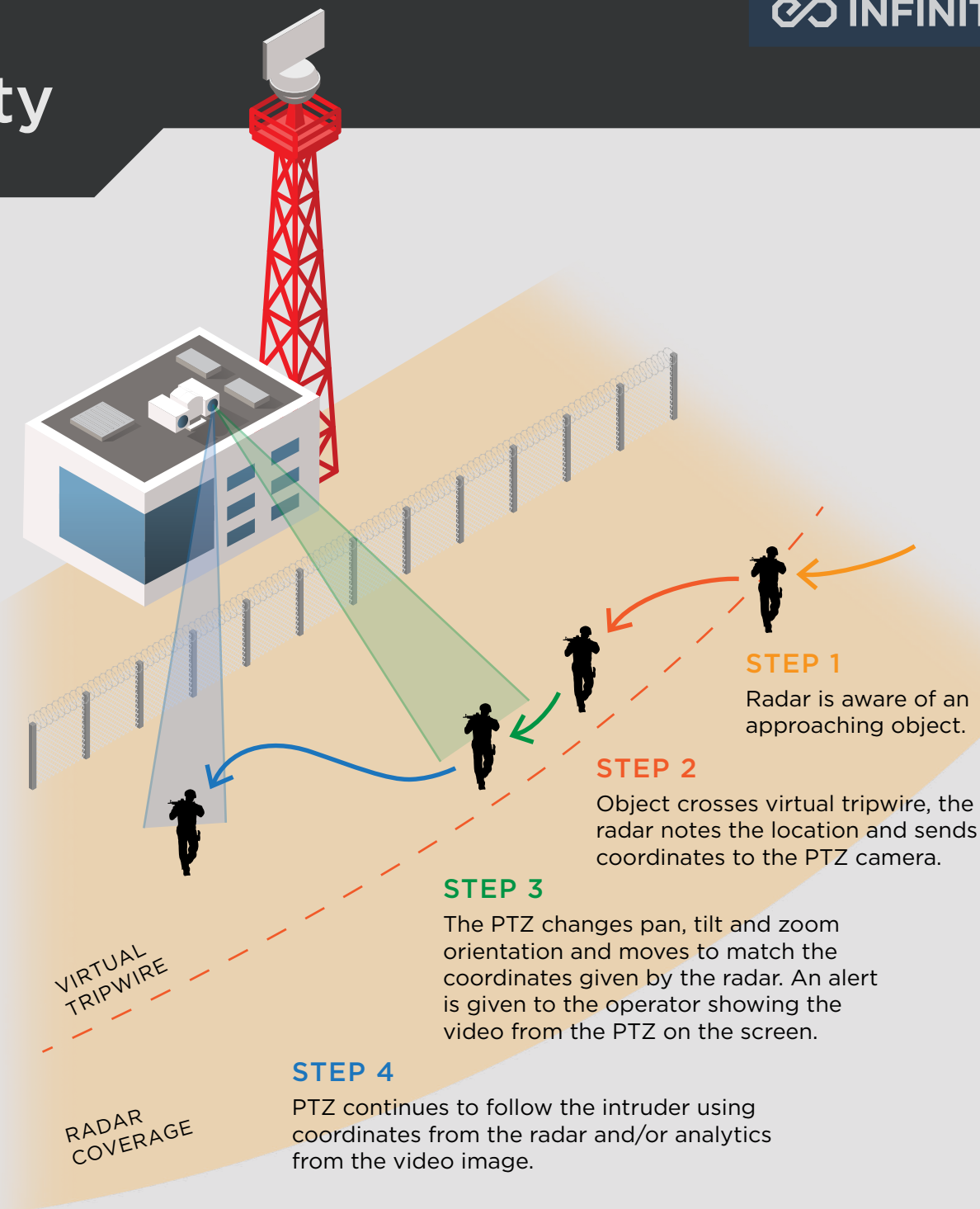
Perimeter Security

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Wide-Area & Perimeter Security

When covering a wide horizon or a long perimeter, thermal, SWIR, and visible cameras are limited by their narrow field of view. While this is excellent for identifying threats, it is not always effective at detecting them. The wide-angle panoramic or 360° coverage produced by radar solves this issue and provides excellent situational awareness at long distances. Electro-optics and radar paired with a C2 or VMS software delivers a high-performance security solution for mission-critical applications where quickly detecting, identifying, and responding to threats is of utmost importance.

Slew-to-Cue & Auto-Tracking

The Aegis can either be used as a standalone solution or can be integrated with long-range EO/IR thermal or visible zoom PTZ cameras with ZLID illumination. When a target is detected by the radar in a zone of interest, the radar forwards positioning coordinates to the PTZ cameras for fully-automated real-time tracking of targets. In larger deployments when a target moves out of range of one camera, it can be picked up by the next camera, providing seamless target recognition and identification during day or night. When an intrusion is detected the C2/VMS software will provide visual and audible alerts to notify security operators who can then intervene if required.

Optional add-ons such as LRADs and long-range visible spotlights can achieve full color images at night, and serve as active deterrents as intruders know they are being watched by an operator.

STEP 1
Radar is aware of an approaching object.

STEP 2
Object crosses virtual tripwire, the radar notes the location and sends coordinates to the PTZ camera.

STEP 3
The PTZ changes pan, tilt and zoom orientation and moves to match the coordinates given by the radar. An alert is given to the operator showing the video from the PTZ on the screen.

STEP 4
PTZ continues to follow the intruder using coordinates from the radar and/or analytics from the video image.

VIRTUAL TRIPWIRE

RADAR COVERAGE

UAS/UAV Detection & Defense

Counter UAS/UAV

With easy access to consumer, commercial, and military-grade drones/UAVs becoming common place, counter UAV solutions have become a necessity in many applications.

UAVs are a major security concern as anyone can now purchase a drone/UAV and weaponize it or compromise sensitive information or privacy through unauthorized intrusions. Political and military figures have been targeted by UAV attacks, and false alarms at international airports have cost millions of dollars in lost revenue.

Infiniti has identified this as a key concern to our clients and alongside key third-party partners have designed counter UAV solutions to detect, identify, and neutralize threats from UAVs.

Detection

Radar provides active scanning that negates the advantage of "dark-drones" which are programmed to follow a set path to their target and don't rely on RF communication making them invisible to traditional RF detection devices.

Identification/Classification

Once a UAV has been inspected using the EO/IR cameras by an operator, AI, or preset rules to verify it is a threat there are a variety of ways to counter.

Mitigation/Elimination

UAV mitigation and elimination can be accomplished by a variety of methods; RF jamming, capturing the UAV, or actively targeting and destroying the UAV.

RF jamming similarly to RF detection is only useful if there is an RF signal controlling the UAV. Most UAVs have a landing protocol that takes over in case of the RF signal being jammed, or in some cases may crash.

Capturing the UAV can be accomplished by deploying a counter-UAV drone which seeks out the target UAV and deploys a netgun to capture neutralize it. The captured UAV may then be inspected for identification of the operator and any weaponization.

Actively targeting the UAV can be accomplished through traditional projectile weapons or laser energy weapons. Infiniti can partner with providers to offer these type of solutions for military and border-security applications.

Other

Third-Party Radars

For some applications that require ranges and capabilities beyond the Aegis Infiniti partners with some of the top military and defense radar providers such Terma, Kelvin-Hughes (Hensoldt), Rada, Raytheon, Blighter, Fortem, Echodyne for extreme accuracy, performance and range solutions. Our EO/IR cameras have also been integrated with host of C2 and VMS softwares for slew-to-cue auto-tracking.

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Infiniti's EO/IR PTZ Systems

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Infiniti's EO/IR systems are a perfect match for the Aegis series radars. By offering the longest range visible, SWIR, LWIR and MWIR thermal, and our innovative ZLID technology, clients are given best-in-class identification of intruders in addition to the long-range high-performance detection of Aegis radars.

Sentry

The Sentry series offers larger lenses and longer range illumination options in rugged housings and features self-locking gearing systems suitable for marine and vehicle deployments in harsh conditions. Visible options range from our 8MP 49X 5.6-272mm camera modules up to the 2MP 33X 30-1000mm which can be paired with 3km ZLID illumination as well as uncooled thermal modules up to 230mm, and HD cooled thermal up to 415mm.

Eclipse

Eclipse series PTZs encompass our midrange options and offer a range of customized options. These include 8 Megapixel 49X visible lenses with up to 5.6-272mm focal lengths for incredible visible detail in a small package. ZLID laser illumination up to 2km can often negate the need for more expensive thermal camera modules and provide true identification level details. When thermal is preferred, our uncooled 26-75mm, 120mm, and cooled 19-275mm offer high quality thermal imaging for low visible environments.

Vega

The Vega offers the highest level of customization with the ability to integrate various technologies and sensors including ZLID illumination up to 5km, LRFs (Laser Range Finders) rated up to 39km, and GPS telemetry. Infiniti's longest range 135X zoom 2075mm visible camera and 1400mm SD or 1200mm HD cooled thermal, and 4800mm SWIR camera modules are available on the Vega platform for industry-leading long range imaging in any wavelength.