

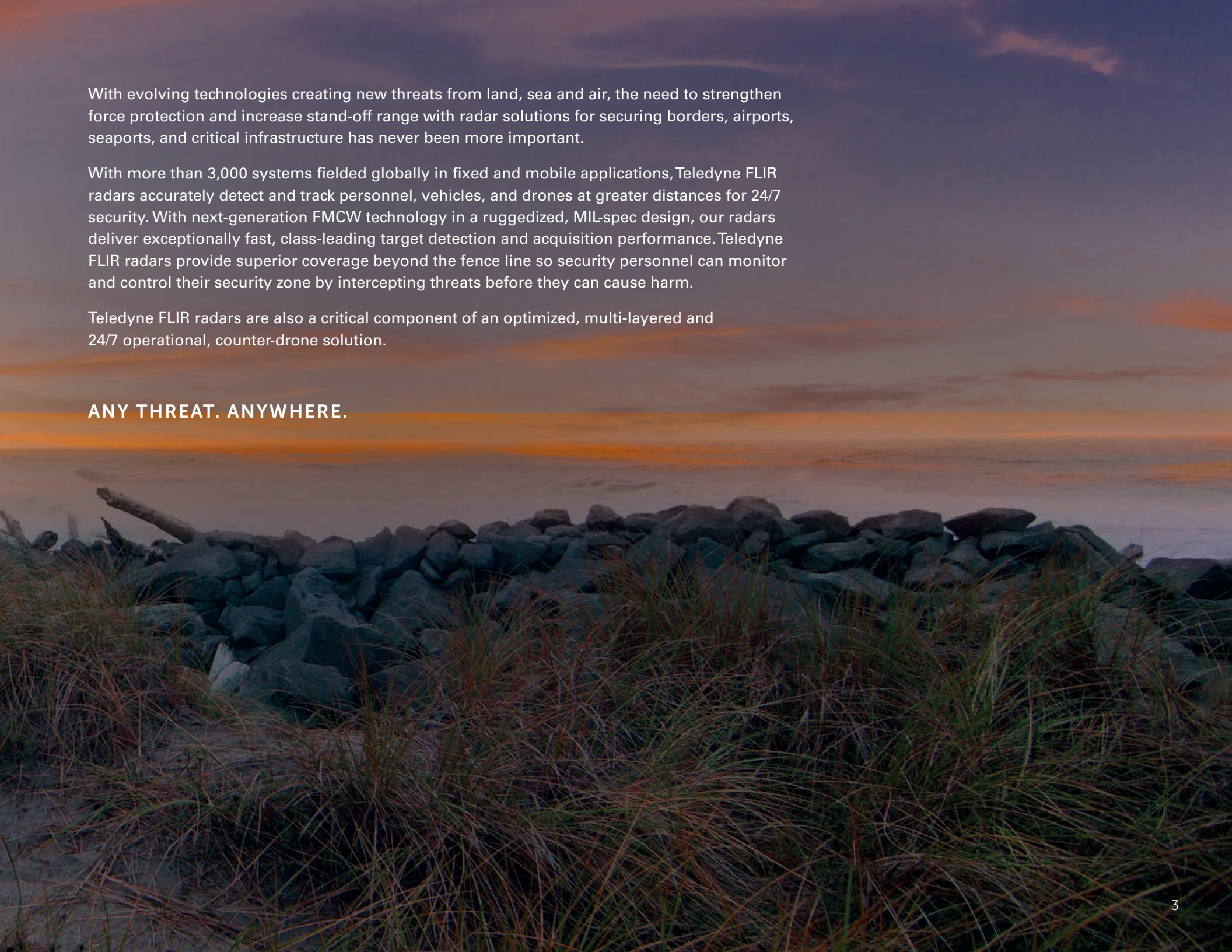


Teledyne FLIR  
Defense

# RADAR SOLUTIONS

Surveillance, Detection, Security, Protection





With evolving technologies creating new threats from land, sea and air, the need to strengthen force protection and increase stand-off range with radar solutions for securing borders, airports, seaports, and critical infrastructure has never been more important.

With more than 3,000 systems fielded globally in fixed and mobile applications, Teledyne FLIR radars accurately detect and track personnel, vehicles, and drones at greater distances for 24/7 security. With next-generation FMCW technology in a ruggedized, MIL-spec design, our radars deliver exceptionally fast, class-leading target detection and acquisition performance. Teledyne FLIR radars provide superior coverage beyond the fence line so security personnel can monitor and control their security zone by intercepting threats before they can cause harm.

Teledyne FLIR radars are also a critical component of an optimized, multi-layered and 24/7 operational, counter-drone solution.

**ANY THREAT. ANYWHERE.**



### **RANGER® R6SS & R8SS**

The mid-range, man-portable Teledyne FLIR Ranger® R6SS and R8SS radars detect and track personnel and vehicles within 15km ranges, and detect up to 512 threats simultaneously. Light and small, the R6SS and R8SS fit in a backpack or are easily mounted to a vehicle or permanent structure as part of an integrated solution. With a pan only mount, the Ranger panel radars can scan a full 360° every second for complete perimeter security.

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### **RANGER® R8SS-3D**

The man-portable Teledyne FLIR Ranger® R8SS-3D has the vertical coverage, low minimum detection velocity, and algorithms to detect and track up to 512 threats simultaneously, including drones, while mitigating bird detections. The system can monitor the coverage area 4x per second, running 24/7, detecting all ground and aerial threats in virtually any climate, day and night. Compact and lightweight, it fits in a backpack, draws 135W, and can integrate with other sensors, while costing much less than its vehicle-sized counterparts



### **RANGER® R20SS & R20SS-3D & R20SS-3D-XR**

The Ranger® R20SS is a ground and coastal surveillance radar specifically designed to detect and track personnel and vehicles at distances up to 28 kilometers. The Ranger R20SS utilizes advanced tracking algorithms which enable fast detection and track initiation resulting in highly accurate target location with a low false alarm rate. The system operates in the X-band for all weather operation and can be vehicle-mounted or stationary. The R20SS-3D has greater vertical coverage, low minimum detection velocity and can monitor the coverage area two times per second, running 24/7. Its automatic target classification greatly filters out unwanted targets and focuses on potential threats. The new R20SS-3D-XR detects micro UAS targets at more than 3km out, pedestrians up to 8km out, and light vehicles up to 15km out. Multiple scan mode options include fixed sector, alternating sector, and continuous scan. For optimal performance, a 4-panel option is offered that can provide 2-Hz refresh rate on a full 360-degree azimuth coverage.



### **RANGER® R1, R3, R5, R3D, R5D**

The Ranger perimeter surveillance radars provide accurate, high resolution detection of vehicles and personnel. Designed to perform in the most demanding environments, they provide 24/7 security to ranges of up to 5km. Scanning as much as a full 360 degrees every second they can effectively monitor up to 78 square kilometers (30 square miles). These radars also feature Doppler mode, which significantly increases detection range. Multiple units can be installed with overlapping coverage to protect the larger areas required for base protection and border security missions, and are easily networked to form a single integrated system with other sensors and command and control systems. By leveraging the radar's advantage in detecting intruders, pan-tilt-zoom (PTZ) cameras can focus on their strength – identifying and assessing those threats – for a more efficient and cost-effective solution.

# MULTI-MISSION APPLICATIONS

## C-UAS SOLUTIONS


Perimeter security threats do not only include intruders who linger in the shadows with wire cutters. Lightweight, unmanned aerial systems (UAS) that can fly straight over perimeter fences carrying any number of payloads, in or out, have changed the game completely.

Many C-UAS solutions in the market make use of Radio Frequency (RF) technologies, microphones, and cameras to detect, classify, and identify potential incoming threats. Some are even able to track incoming threats and provide real-time updates to security personnel. However, these systems often perform poorly in dark, foggy, noisy, and long-range environments.

Teledyne FLIR radar technology, working alongside long-range, multi-sensor EO/IR cameras, mitigate these limitations by taking advantage of the best-in-class technologies Teledyne FLIR has to offer. Not only can radars detect customized and pre-programmed aerial intrusions at extremely long detection ranges, they also integrate with dual thermal/visible sensors, 3rd party RF and effectors, delivering end users a robust multilayered UAS classification and target identification in even the most extreme conditions, 24/7.



# COMMAND AND CONTROL



All of the radars and long-range imagers won't help keep borders secure if field operators and sector commanders can't view the information they provide and coordinate the movement of forces accordingly. Our C2 software allows operators to control and network multiple cameras and radars to operate efficiently and effectively over wide areas.

## PERIMETER INTRUSION DETECTION SOFTWARE

The Cameleon™ Tactical advanced camera control system is designed to provide a highly-customizable, user-friendly environment for security and surveillance applications. Its strength is its ability to control virtually any number and combination of analog and IP devices from different manufacturers with point and click simplicity. Cameleon Tactical seamlessly integrates cameras, monitors, switchers, DVRs and a host of other types of devices. Custom-developed drivers provide easy integration of legacy equipment with new systems, helping ensure cost-effectiveness.

# RADARS AND INTEGRATED SOLUTIONS

Whether protecting critical infrastructure, securing borders, or offering force protection in hostile and remote areas, customers turn to Teledyne FLIR for integrated solutions that bring together surveillance and detection sensors, multi-domain platforms, and command and control software – all in one package. This allows operators to track multiple threats both near and far from a fixed position or maintain persistent ISR from the sky by integrating our unmanned aerial systems (UAS) into overwatch systems. All of which are crucial for securing forward operator bases, patrolling a border or monitoring other critical infrastructure.





# RADARS AND INTEGRATED SOLUTIONS



## **ARGUS, FIXED SURVEILLANCE SYSTEM FOR PERIMETER SECURITY**

Argus is a fixed, rugged, preconfigured wide area surveillance system. Combining a best-in-class radar and thermal camera with Command and Control software, Argus is designed to detect and track multiple threats both near and far in the most demanding weather conditions 24/7.



## **LVSS, MOBILE SURVEILLANCE SYSTEM FOR PERIMETER SECURITY**

The LVSS converts a full-sized commercial pickup into a rapidly deployable command and control center featuring both radar and EO/IR cameras which provides efficient surveillance coverage for your mission. Also available with Air Domain Awareness and Counter- UAS capabilities.



## **CERBERUS, TRAILER-BASED MOBILE SURVEILLANCE SYSTEM**

Built to support force protection, border surveillance, ISR, and target tracking as well as long-range perimeter security, Cerberus is a rugged, trailer based integrated long range mobile surveillance system which integrates radar and visible/thermal camera payloads ranging up to 30 km with slew-to-cue of cameras to radar tracks.



## **SKYWATCH®, MOBILE SURVEILLANCE AND DETERRENCE TOWER**

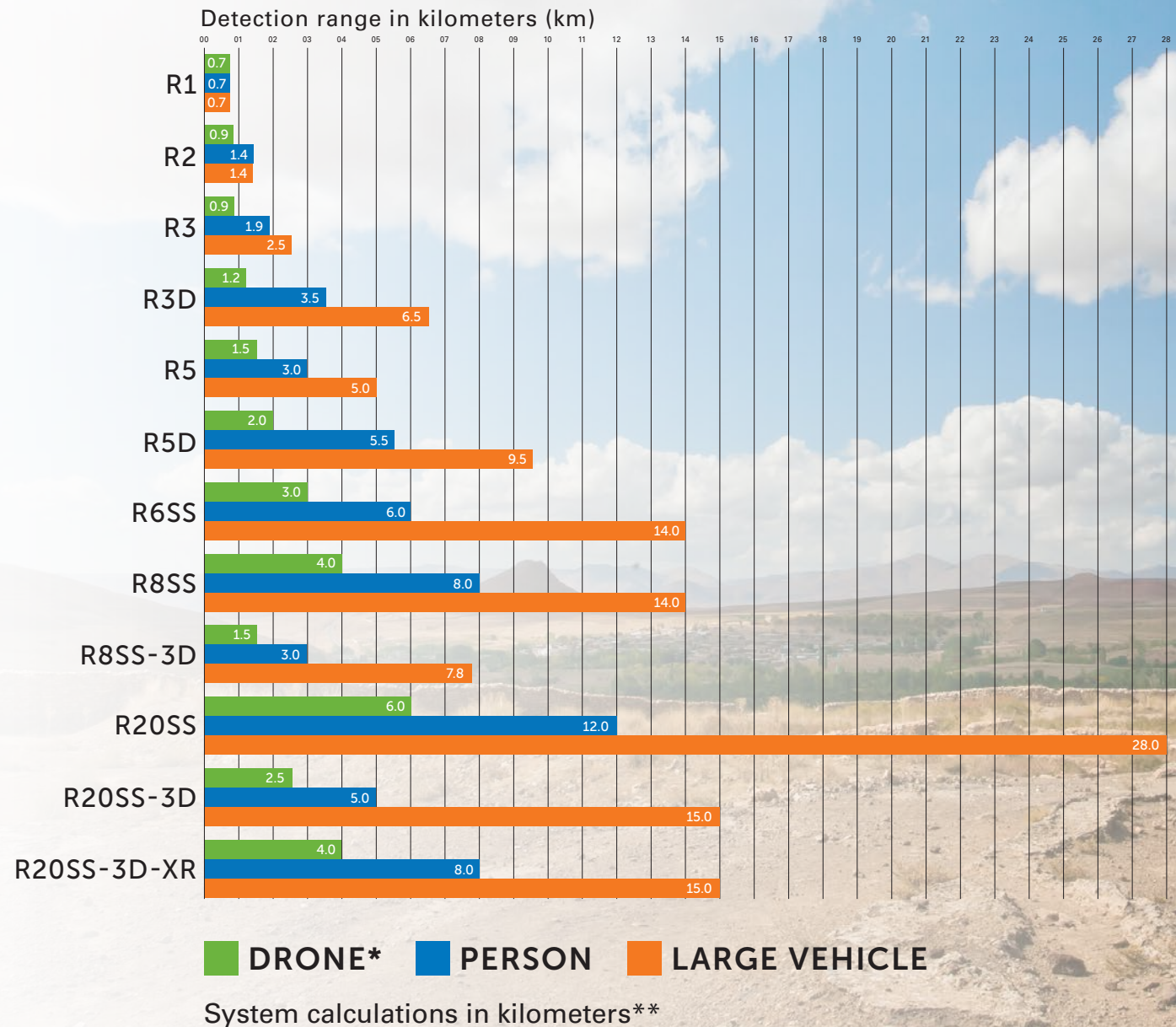
Rising over two stories, SkyWatch gives you the upper hand. See more and respond faster, whether you're protecting large crowds, guarding parking lots, monitoring for criminal behavior, or assisting search efforts.



## **LTV-X, ALL-TERRAIN SELF-CONTAINED MOBILE SURVEILLANCE SYSTEM**

Features a 4-passenger design, a removable sensor/mast skid, and is V-22 Osprey transportable. Quickly deployable, LTV-X gives operators the ability to go almost anywhere and conduct fully self-contained surveillance missions using advanced radar, electro-optical and thermal imaging systems.

# DETECTION RANGES



\*Ranges are for micro drones

\*\*Range values represent optimal performance, which will vary depending on target size, clutter environment, atmospheric conditions and sensor operational settings.

# BENEFITS TO INTEGRATORS

- Unique experience in surveillance radars
- All-weather, all-light performance
- Technology advantages, Digital Beam Forming
- Multi-target tracking capability
- Breadth and depth of our radar portfolio
- Product line spans ground radars, mid-range, air and ground and long range
- Fixed and mobile applications

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