TELEDYNE | FLIR Defense

BORDERS, COASTAL, & CRITICAL INFRASTRUCTURE

ISRT, C-UAS

COASTAL SURVEILLANCE

Coastal radar and long-range sensors combine to cover large areas of open water and create virtual perimeters that detect and track anything entering the border zone, and assess the threat level instantly.

INTELLIGENT SURVEILLANCE

Border security, coastal surveillance and critical infrastructure protection are 24/7 operations that can't afford downtime or periods of reduced readiness. Guarding against illegal immigration, smuggling, and terrorism demands reliable long-range threat detection and positive identification of potential threats all day, all night, and in all conditions.

Inbound threats come from land, on the sea, and in the air. With Teledyne FLIR's powerful border surveillance solutions, earlier detection and intelligent threat assessment mean greater coverage and faster response without increasing workload.

Whether your primary targets are small boats on the water, people crossing borders on foot, or threats from the air, Teledyne FLIR's high performance solutions, cameras and radars can give you the early warning and threat assessment you need to respond efficiently and effectively. With industry standard interfaces, Teledyne FLIR components are easy to integrate with the command and control solution you desire to create the rapid deployment solution you need.

CRITICAL INFRASTRUCTURE PROTECTION

By integrating radar, sonar and multispectral imaging, see beyond the perimeter of critical infrastructure facilities to stop suspicious activity before it gets close.

MOUNTAINOUS BORDER SURVEILLANCE

Overcome challenging terrain and provide persistent surveillance using a combination of tactical vehicles and networked ground surveillance assets.

DESERT SURVEILLANCE

Land-based radars, mobile surveillance vehicles, and networked multispectral surveillance systems provide total situational awareness and early detection in the most challenging environments.

INTEGRATED SOLUTIONS

Whether protecting critical infrastructure, securing borders, or offering force protection in hostile and remote areas, customers turn to Teledyne FLIR Defense for integrated solutions that bring together surveillance and detection sensors, multi-domain platforms, and the Cameleon command and control software – all in one package. Teledyne FLIR Defense integrated solutions utilize Cameleon command and control software which blends together the output of multiple sensors, providing slew-to-cue of camera to radar, mapping functionality, and much more.

CAMELEON

All the long-range imagers and radars won't help keep sites secure unless software is assisting field operators and commanders with identifying targets, classifying threats, cueing RF sensors, and streamlining the decision cycle.

Cameleon software provides advanced command and control capabilities allowing Teledyne FLIR radar, imagers and third-party devices to enable personnel to see beyond line-of-sight for land, air, and sea.


LVSS C-UAS

COUNTER-UNMANNED AERIAL SYSTEMS (C-UAS)

Teledyne FLIR C-UAS for fixed and mobile platforms provide full C-UAS kill chain capabilities by utilizing 3D Radars, EO/IR Cameras, and RF detection and mitigation sensors.

Understanding the nature of a threat is critical to intercepting and defeating it. Teledyne FLIR's radars detect and track multiple threats simultaneously, providing precise location, heading and speed details. Covering areas beyond the fence line, security personnel can monitor and control their security zone by intercepting threats before they can cause harm. With next-generation FMCW technology in a ruggedized, MIL-spec design, Teledyne FLIR radars deliver exceptionally fast class leading target detection and acquisition performance.

LVSS C-UAS

LVSS C-UAS adds proven Air Domain Awareness and Counter-UAS capabilities to the market-leading LVSS platform. LVSS C-UAS utilizes 3D Radar, EO/IR Camera, and RF detection and mitigation sensors to provide early warning alerts, detection, and non-kinetic countermeasures for various UAS systems. Threats are detected and displayed simultaneously, with position and elevation available for all radar tracks. The system is standalone, relocatable, and rapidly deployable.

ARGUS XL C-UAS

Argus XL C-UAS detects UAVs out to 3km and provides effective, non-kinetic countermeasures at distances up to 1.5km (horizontal) and heights up to 0.5km (vertical). These measures are safe for adjacent friendly electronics and provide complete hemispherical detection of most land and aerial UAS targets, including micro UASs.

SELF-CONTAINED MOBILE SYSTEMS

Quickly deployable to protect vast, remote borders, shorelines, and forward-operating bases, Teledyne FLIR Defense self-contained mobile systems gives operators the ability to access remote, high-risk areas or effectively cover multiple waypoints in quick succession. Conduct fully self-contained surveillance missions using advanced radar, electro-optical and thermal imaging systems.

LVSS™

Protecting vast, remote borders, shorelines, critical infrastructure, and forward-operating bases require speed, mobility and flexibility. Maximizing the power of limited personnel is also critical. The skid-based LVSS is the solution. It converts a Ford F-250 into a rapidly deployable command and control center. With radar and EO/IR cameras mounted to its 16-foot mast, LVSS provides effcient surveillance coverage throughout your mission. Optional Air Domain Awareness and Counter-UAS capabilities available, which provide early warning alerts, detction, and non-kinetic countermeasures for various UAS systems.

Radar Options	R20SS Long Range Ground Surveillance Radar
	Non-Standard Options: R6SS, R8SS, R6SS-3D, R8SS-3D, and R20SS-3D
Camera Options	TacFLIR-380HD
	Non-Standard Options: TacFLIR-230 and TacFLIR-280HD
Camera Wavelength Options	High Definition (HD) Mid-Wave Infrared (MWIR), Short Wave Infrared (SWIR), HD Color Zoom
Payload Options	Laser Rangefinder
	Laser Pointer (NIR wavelength)
	NIR Wavelength Illuminators
Other Sensors	Differential GPS, Weather Station, Inclinometers
Command & Control	Cameleon™ Tactical: Track blending of multiple sensors, slew-to-cue of camera to radar, mapping functionality, zone management, video archiving and distribution, and alarm notification and management
Simultaneous Tracking	>500 Targets
Counter Drone	Detection Range up to 3 km horizontal; 457 m vertical (variable with noise floor & environment)
	Defeat Range up to 1.5 km horizontal; 457 m vertical (variable with noise floor & environment)

LTV-X™

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

Radar Options	Option 1:R6SS - FMCW X-Band Option 2: R20SS - FMCW X-Band
Camera Options	Option 1: TacFLIR-230 Option 2: TacFLIR-280HD
Camera Wavelength Options	High Definition (HD) Mid-Wave Infrared (MWIR), Short Wave Infrared (SWIR), HD Color Zoom
Payload Options	Laser Rangefinder Laser Pointer (NIR wavelength) NIR Wavelength Illuminators
Command & Control	Cameleon™ Tactical: Track blending of multiple sensors, slew-to-cue of camera to radar, mapping functionality, zone management, video archiving and distribution, and alarm notification and management
Simultaneous Tracking	>500 Targets

TRAILER-BASED RELOCATABLE SYSTEMS

Towable practically anywhere, Teledyne FLIR Defense offer custom integrated systems composed of several configurable modules that maximize flexibility. They are built for a small team to easily transport and quickly deploy. Within minutes, the team receives immediate, actionable situational awareness.

SKYWATCH®

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. The rugged, highly-reinforced SkyWatch is a proven mobile surveillance platform that can withstand 60 mph winds while keeping the operator safe, comfortable, and focused. Portable and rapidly deployable, it provides a strategic perspective and symbolic deterrent. When SkyWatch goes up, crime comes down.

Height – Cab Deployed	30'6"
Height – Operator Eye Level	30'0"
Standard Generator	Diesel 120 V with 78 Gallon Fuel Tank
Additional Options	Available as a two-man cab
	Fixed EO/IR (Thermal) and PTZ visible light imaging sensors, with in-cab joystick control, monitor and NVR
	Wireless video streaming and remote control
	Ground surveillance radar
	Public address system with 100-watt speakers and full-function siren
	Roof-mounted, high-powered searchlights with internal pan/tilt control

CERBERUS™

The Cerberus long-range mobile surveillance system rapidly deploys in austere and environmentally challenging environments to provide unmanned remote perimeter surveillance for weeks at a time.

Radar Options	FMCW and Doppler options, Ka and X band, ranging from 700 m to 60 km
Camera Options	Field of View (FOV) 0.5 degrees to 40 degrees
Camera Wavelength Options	High Definition (HD) Mid-Wave Infrared (MWIR)
	HD Long Wave Infrared (LWIR)
	Short Wave Infrared (SWIR)
	HD Color Zoom and Color Night Vision (CNV)
Payload Options	Laser Designator
	Laser Rangefinder
	Laser Pointer (NIR & SWIRwavelength)
	NIR & SWIR Wavelength Illuminators
Command & Control	Cameleon™ Tactical: Track fusion of multiple sensors, slew-to-cue of radar to camera, mapping functionality, zone management, video archiving and distribution, and alarm notification and management
Simultaneous Tracking	>500 Targets

FIXED SYSTEMS

Designed for easy installation with minimal infrastructure requirements, detect and track multiple threats both near and far in the most demanding weather conditions 24 /7. Covers up to four spectral bands including visible, NIR, SWIR, and MWIR with slew-to-cue of cameras to radar.

ARGUS™

Argus is a fixed, rugged, integrated 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. When compared to other perimeter security solutions, Argus has the lowest initial cost per kilometer of secured space as well as the lowest lifetime cost.

Radar Options	FMCW and Doppler options, Ka and X band, ranging from 700 m to 60 km
Camera Options	Field of View (FOV) 0.5 degrees to 40 degrees
	Focal Length 13 mm to 1200 mm
Camera Wavelength Options	High Definition (HD) Mid-Wave Infrared (MWIR)
	HD Long Wave Infrared (LWIR)
	Short Wave Infrared (SWIR)
	HD Color Zoom and Color Night Vision (CNV
Payload Options	Laser Designator
	Laser Rangefinder
	Laser Pointer (NIR & SWIR wavelength)
	NIR &SWIR Wavelength Illuminators
Command & Control	Cameleon™ Tactical: Track fusion of multiple sensors, slew-to-cue of camera to radar, mapping functionality, zone management, video archiving and distribution, and alarm notification and management
Simultaneous Tracking	>500 Targets

KRAKEN™

Mid to long range surveillance for base, facility, and infrastructure surveillance. Self-powered and stored in a single ISU-90.

Command & Control	Track blending of multiple sensors Slew-to-cue of camera to radar Mapping functionality Zone management Video archiving and distribution Alarm notifcation and management
Standard Features	Surge suppression Temperature monitoring AC Power and communications monitoring Fiber and wire ethernet communications server Weather Station and Differential GPS
Simultaneously Tracking	>500 Targets
Power Options	120/240 VAC, Generator Solar Power Battery
Maximum Gross Weight:	11,720 lbs (4,536 kg)
Dimensions	108" (274cm) W X 88" (224cm) L X 91.35" (232cm) H
Portability	Sling-load, PLS and 4-way forklift and/or airlift

AGENT PORTABLE SYSTEM

Maximize flexibility and changes in the CONOPS for the dismounted operator. Teledyne FLIR Defense provides detection, tracking and identification of individual and multiple targets at various ranges in a completely self-contained and self-powered package.

APSS™

The Agent Portable Surveillance System (APSS) is a lightweight, backpackable, short-medium range, integrated kit composed of several configurable modules that maximize flexibility and changes in the CONOPS for the dismounted operator.

The APSS provides detection, tracking, and identification of individual and multiple targets at various ranges in a completely self-contained and self-powered package.

The APSS Kit is configurable to mission set and includes an electro optical infrared component, radar, pant tilt mechanism, stand alone power source all integrated with Cameleon Tactical Command and Control Software running on a Toughbook computer.

Cameleon Tactical Command and Control provides full control of the EO/IR and radar with Friend/Foe target management, tactical map, zone management, automatic slew-to-cue camera tracking and video archiving.

RADARS

Understanding the nature of a threat is critical to intercepting and defeating it. Teledyne FLIR's ground surveillance radars detect and track multiple threats simultaneously, providing precise location, heading and speed details. Covering areas beyond the fence line, security personnel can monitor and control their security zone by intercepting threats before they can cause harm. With next-generation FMCW technology in a ruggedized, MIL-spec design, Teledyne FLIR radars deliver exceptionally fast class leading target detection and acquisition performance.

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 tilt mount, the Ranger panel radars can scan a full 360° every second for complete perimeter security.

RANGER® R8-3DX & R8-3DXS

The man-portable Teledyne FLIR Ranger R8-3DX 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 or 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. The R8-3DXS variant provides increased vertical coverage, detection ranges, and enhanced elevation accuracy compared to the R8-3DX.

RANGER® R20SS & R20-3DX

The Ranger R20SS is an advanced electronic scanning surveillance Radar specifically designed to detect and track surface as well as low-altitude targets. Instrumented to a range of 30 km for land applications and 60 km for coastal, the R20SS has one of the fastest scan rates available while offering one of the lowest MDV (Minimum Detectable Velocity). With the ability to simultaneously track hundreds of targets moving in any direction and virtually any speed, the R20SS provides unequalled 24/7 persistent surveillance. The R20-3DX with its larger vertical coverage and elevation measurement capability is specifically optimized for small UAS detection. It can detect micro UAS targets at more than 3km out, pedestrians up to 8km out, and light vehicles up to 15km out. Its automatic target classification greatly filters out unwanted targets and focuses on potential threats. Multiple scan mode options include fixed sector, alternating sectors, 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, R2, 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 Staring mode, which significantly increases detection range. Multiple units can be installed with overlapping coverage to protect the larger areas required for 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.

GIMBALS

Detecting a potential threat is just the first step. Once an object of interest is detected, it must be identified, and its threat level assessed. Without clear, long-range visual analysis of detected threats on land or water, operators can't discern between false or nuisance alarms and alerts that require interdiction. As the world leader in thermal imaging, Teledyne FLIR extends your vision with crisp, clear thermal and visible imagery to give you the information you need to respond.

TACFLIR® 380X-HD / 380-HD

The world's most capable all-digital, fully high definition system under 100 lbs, providing thermal, visible, and SWIR imagery along with superior image stabilization, ultra long range imaging performance, and true metadata embedded in the digital video. A single LRU system, the 380-HD is easy to integrate into a variety of towers and vehicles, providing persistent surveillance over the largest patrol areas. The TacFLIR 380-HD is also available as a 380X-HD upgrade or standalone new system, giving operators advanced imaging capabilities to help achieve their missions.

TACFLIR® 280-HDEP

The TacFLIR 280-HDEP is an essential system for ground vehicle surveillance and fixed installations, designed to meet the rigorous demands of military and security operations With improved high-performance electronics to enhance durability, pointing accuracy, whether stationary or on-the-move, the system delivers best-in-class EO/IR imagery for a variety of land missions, and provides essential capabilities for nearly any scenario.

TACFLIR® 240

TacFLIR 240 has best in class EO/IR imagery, including HD MWIR thermal camera, HD CMOS viable and low light camera options, a lightweight turret, superior image processing, and stabilization. The system also brings a new onscreen user interface (UI) that is customizable based on mission or operator preferences, minimizes distraction and eliminates clutter in the active screen.

TACFLIR® 240-EP

TacFLIR 240-EP is an advanced land-based sensor designed to meet a variety of applications for military and federal law enforcement. Containing the same HD payload options within its lightweight stabilized turret as the TacFLIR 240, but also Extensible Processing (EP) capabilities which are hosted by the Control Electronics Unit (CEU). The system offers an optional removable 1 Terabyte Solid State Drive DVR, useful for video recording, still image capture and post mission analysis.

TACFLIR® 230

The TacFLIR 230 provides maximum sensor range performance including a high-resolution color zoom TV camera with low light capability, a powerful 640 x 480 cooled MWIR thermal camera with 18x total magnification, and optional laser pointer and range finder. At 41 pounds and with a nine-inch diameter, the TacFLIR 230 is optimized for mobility and easily deployed with extendable masts and gyro-stabilized for on-the-move operations.

IMAGERS

Our reliable and mission-proven imagers enable operators to quickly distinguish between true threats and false alarms regardless of environment. Our systems can give the early warning and threat assessment needed to respond efficiently and effectively. With industry standard interfaces, our components are easy to integrate with a command and control solution to create the rapid deployment solution essential to mission success. Teledyne FLIR systems combine performance, coverage, and reliability to create the most efficient solutions for border or force protection on the market today.

PAN/TILT LONG-RANGE MULTI-SENSORS

Ranger® HDC and HRC thermal imaging systems offer extended range performance with HD (1280x720) or high-resolution (640x480) midwave sensors and powerful continuous-zoom telescopes. Available standalone or integrated with visible cameras, laser rangefinder, digital magnetic compass, and robust pan/tilt platform, the Ranger family of sensors provides precision geo-location and superior reliability. The HDC-MS also provides a pole configuration option to support integration with a radar system.

PAN/TILT MEDIUM-RANGE MULTI-SENSOR

The Ranger® MS-UC DefendIR is an industry leading mid-range thermal imager utilizing continuous zoom thermal and optical lenses, a 640 x 480 array uncooled VOx detector, 26x zoom CCD color camera and an optional 12 million-candlepower (MCP) spotlight. Innovative VisionSense™ technology offers user-controlled blending of the visible and infrared cameras, providing greater threat detail. Easily integrated into existing fiber, wireless or IP networks, and with VMD, radar, UGS or other trigger sensors, DefendIR delivers a powerful, flexible "slew to cue" solution.

RANGER® HDC MR COOLED/UNCOOLED

The Ranger HDC MR sets a new standard for perimeter security applications, border surveillance and force protection. The system has a unique ability to mitigate degraded weather conditions with fog and turbulence filters, and can provide increased uptime and reduce cyber risks. Includes an HD thermal imager with either a 1280 x 720 cooled detector or a 1024 x 576 uncooled detector along with a 1920 x 1080 HD Color TV camera, and is designed for slew to cue integration with other sensors such as radars, making it ideal for C-UAS.

HANDHELDS

Teledyne FLIR's handheld imagers are lightweight, powerful, and easy to use, making those responsible for border surveillance more capable and more agile on their frontiers than ever before. The Recon® series of thermal binoculars and monoculars can combine longer range imaging with enhanced features like hot-swappable batteries, laser rangefinders, a digital magnetic compass, and up to 10x optical zoom for target identification at greater standoff range.

RECON® V

The Recon V is a compact, rugged, easy to use, lightweight multi-sensor thermal binocular designed for 24/7 field operations that require enhanced imagery and long standoff range performance. Its internal GPS, DMC, and long-range laser rangefinder provide accurate range to target as well as precise target location. The 10x continuous zoom optic, MEMS-based electronic stabilization, and high definition color video display combine to provide unmatched image quality and flexibility.

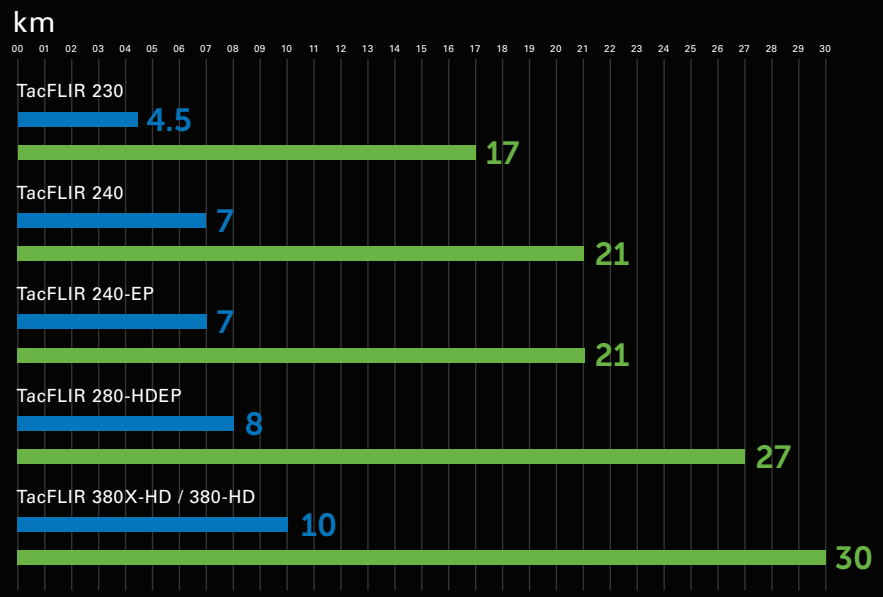
RECON® V ULTRA LITE

Fully operational at less than three pounds, the Recon V Ultra Lite provides mid-range target detection, recognition, recording and geo-location with an HD color camera and digitally zoomed multiple FOV thermal channels. Powered by commercially available AA batteries, the unit has a run time greater than four hours with smart power management. With day and night capabilities, a quick-shot laser range finder instantly generates target geo-location data to accompany imagery that can be shared with ground forces through Bluetooth, WiFi or hardwired USB connections to peripheral device for acute situational awareness.

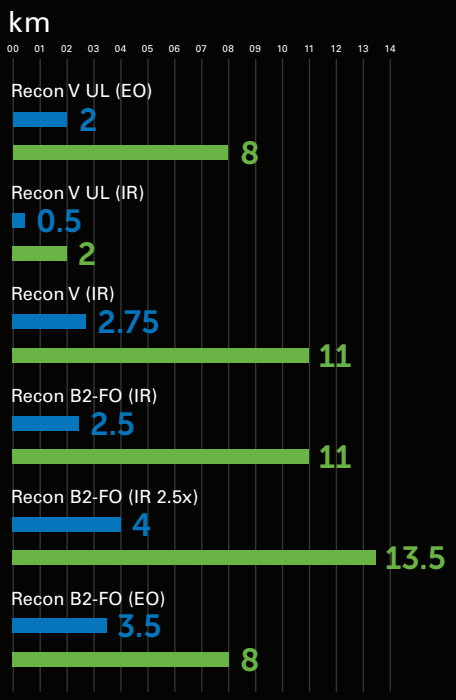
RECON® B2-F0

The Recon B2-FO offers long range reconnaissance and target geo-location capability with options for up to three fields of view, mid-wave and long-wave IR sensors, 4x continuous zoom, GPS, DMC, laser rangefinder, laser pointer and on-screen mapping, image storage and download capability, color CCD video day channel, tripod base, remote control, power and video options. Weighs 8 lbs (3.6 kg) or less.

GIMBALS



HANDHELDS



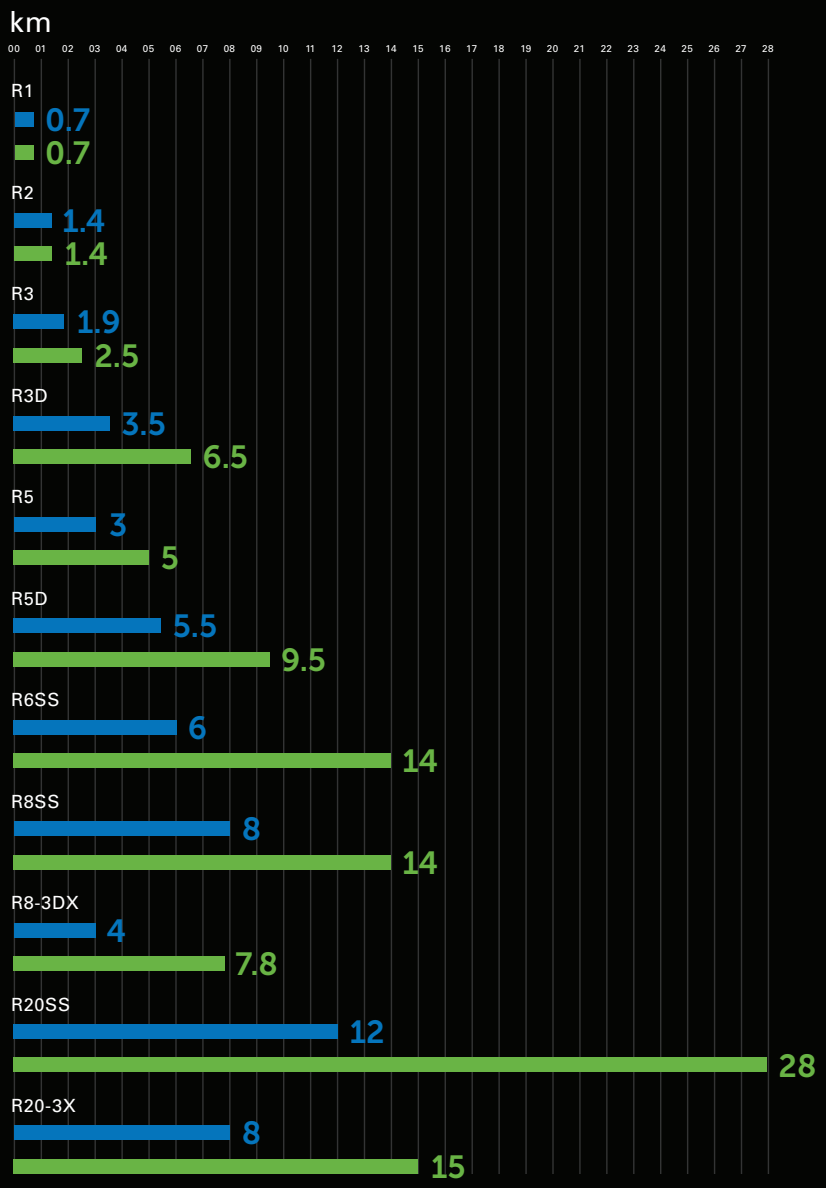
RANGE PERFORMANCE

System calculations in kilometers*

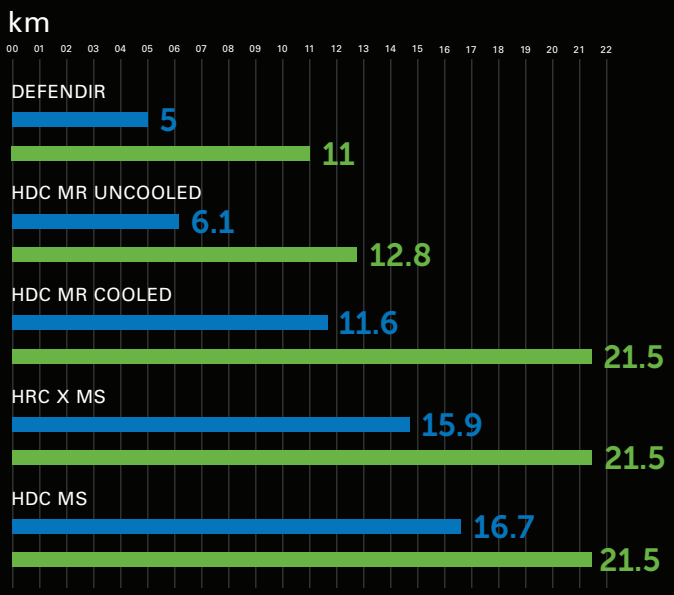
PERSON LARGE VEHICLE

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

RADARS



SENSORS



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