SENTRY

Rugged, Dual-Sensor PTZ System

The Sentry is a customizable multi-sensor PTZ system that boasts a high-resolution long-range visible camera paired with a long-range thermal imaging camera for true 24/7 performance in any lighting conditions. An optional ZLID illuminator can also be added for long-range identification in complete darkness. Combining these multiple sensors allows for accurate detection, recognition, and identification of potential threats. The housing is a rugged IP66 housing constructed of strengthened aluminum alloy with anti-corrosive coating, allowing it to withstand the harshest climates for dependable perimeter security, homeland defense, and coastal protection.

Key Features:

- Multi-Sensor Visible and Thermal Integrated PTZ System
- HD or UHD Progressive Scan CMOS Day/Night IP Camera
- Long-Range Visible Zoom Options from 33X to 95X
- Visible/NIR Field of View Options from 62° to 0.32°
- 12µm 640×512 VOx Uncooled Thermal Imager or Optional SD or HD Cooled Thermal Imager
- 105mm, 155mm or 230mm Germanium Zoom Lens Options or optional 435mm SD or 410mm HD Cooled Thermal
- Dynamic Image Contrast Enhancement (DICE) for a Clear Thermal Image
- Up to 16km Human Detection and 27km Vehicle Detection with Thermal (using Johnson Criteria DRI standards)*
- Endless 360° Pan and ±90° Tilt, with pan speeds up to 60°/s
- Micro-Step Technology for Quick, Accurate Pan/Tilt Control
- IP66 Military-Grade Design with Military Cable Connectors
- Designed for Fixed, Marine or Mobile Applications

*DRI detection ratings are based on industry-wide standards (Johnson's Criteria) that can be misleading if not properly understood. For more information, please see our whitepaper about understanding DRI measurements at: www.infinitioptics.com/dri

THE SENTRY'S

Visible/NIR HD Zoom Camera

inView

VIS/NIR Optical Camera

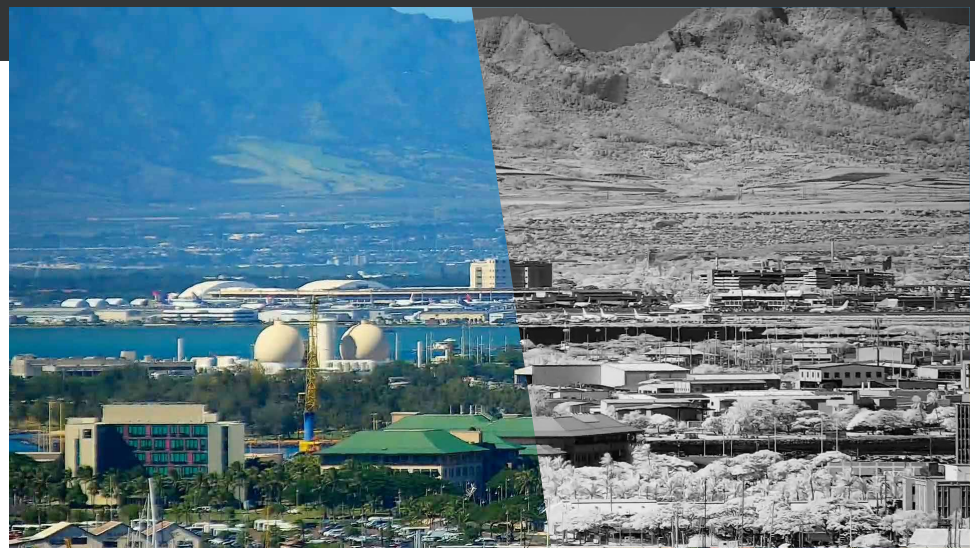
Infiniti's VIS/NIR zoom cameras utilize the visible and near-infrared bands of light to provide high-quality images optimized for long-range surveillance. They are designed to provide industry-leading performance and quality, with image resolutions ranging from HD 2MP (1080p) to UltraHD 4K/8MP.

Sensors

The Sony progressive scan CMOS sensors offer excellent spectral sensitivity for both visible and NIR wavelengths. We use various sensor sizes depending on the application. Our 1/2.8" sensor is often selected for maximum range as the smaller sensor maximizes the long-range zoom capabilities of the camera, while still offering good low-light performance. Our 1/2" and larger sensors offer even better low-light performance and increase the effectiveness of our ZLID™ illumination.

Continuous Zoom Lenses

The Sentry's precision engineered IR-corrected zoom lenses offer a wide range of focal lengths with zoom factors from 33X up to 95X optical zoom. Infiniti's zoom optics are built with the highest quality Japanese fluorite ELD low dispersion glass, and the integrated rapid auto focus allows long-range surveillance of targets without operator intervention.



Standard Color Visible Image
(Optical Fog Filter Disabled)

NIR Image
(Optical Fog Filter Enabled)

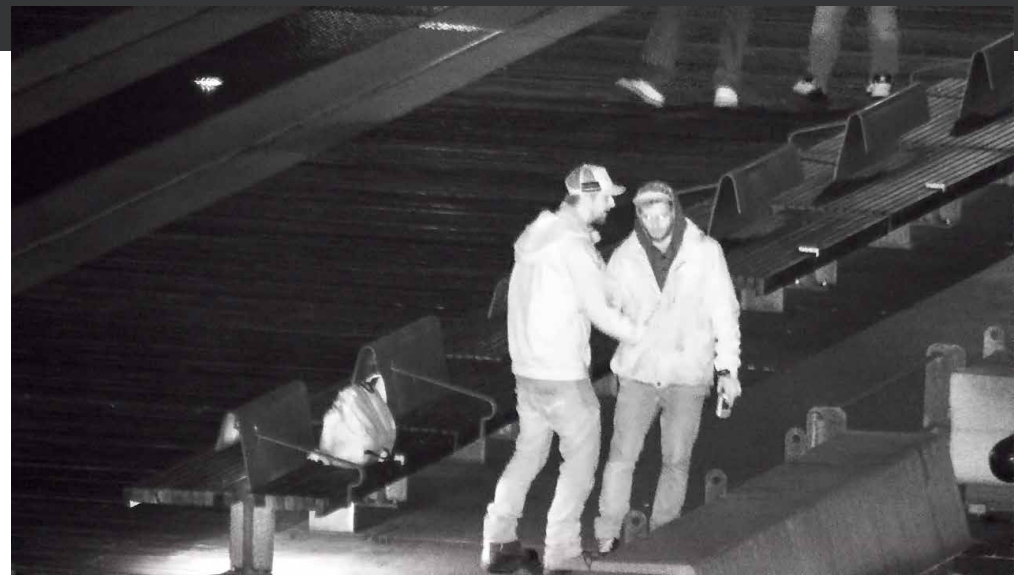
Optical Fog Filter (NIR Only Mode)

While all of our sensors offer a nighttime NIR+visible mode for optimized sensitivity in low light, the cameras equipped with our NIR bandpass filter (also referred to as a "fog filter") allow users to isolate the NIR (near-infrared) wavelength of light during the day for clearer long-range daytime imaging.

Long-range imaging needs to see through large amounts of atmosphere which often contains particulates like smoke, haze/fog, and other atmospheric distortions. Cutting out the visible wavelength and isolating the NIR can mitigate the effects of smoke, haze and light fog, producing an image with better contrast and less distortion. Our Optical Fog Filter lenses incorporate a motorized filter that is used with the camera's monochrome mode and de-haze image processing to see through smoke, smog and haze, it is available on our -NX models.

THE SENTRY'S

ZLID™ & Thermal Technologies



See in the Dark with ZLID™

IR illumination allows for detailed video when there isn't enough natural light, however common IR LED illuminators have very limited ranges. For long-range illumination, a laser is needed. Many laser illuminators overexpose the center of the screen and leave the edges dark. Infiniti's ZLID (Zoom Laser IR Diode) technology synchronizes the IR intensity and area illumination with the zoom lens for outstanding active IR performance, eliminating over-exposure, washout, and hot-spots for clear images in complete darkness.

See Further with Thermal

The Sentry boasts industry-leading thermal cameras with uncooled LWIR and cooled MWIR options from resolution of 384×288 up to 1280×1024 HD to ensure mission success.

Thermal cameras, unlike traditional visible cameras, use heat rather than light to see objects. Humans, animals, and vehicles are all quite hot in contrast to most surroundings, making intruders hiding in shadows or bushes easy to spot. Thermal images are also unaffected by bright lights and can see through atmospheric obstructions such as smoke, dust, and light fog. This makes thermal imaging an ideal technology for many applications including surveillance and security, search and rescue, fire fighting, marine and land navigation, wide area situational assessment, and much more.

Thermal Image

THE SENTRY'S

Thermal Imaging Options: Cooled vs Uncooled

Uncooled Long Wave Infrared (LWIR)

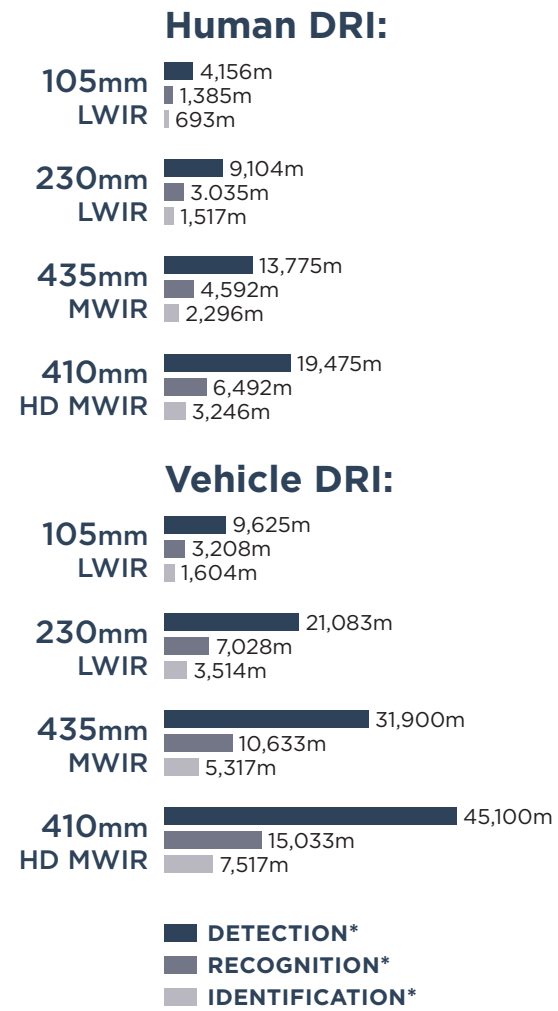
Infiniti uses a cutting-edge 12µm LWIR VOx uncooled thermal sensor with resolutions of 384×288 up to 1024×768 HD. The 12µm pixel pitch gives the camera a narrower field of view without changing the lens. This means we are able to achieve 40% further range than 17µm and 25% further range than 15µm sensors while delivering a sensitivity of 0.05°C.

The Sentry pairs these sensors with precision-engineered continuous zoom germanium lenses such as the 9X zoom 26–230mm (16.8°–1.9° HFOV), 5X zoom 32–155mm (13.7°–2.8° HFOV) and 5X zoom 22–105mm (9.8°–4.2° HFOV) to provide both long-range and wide-angle views. These lenses have a large aperture of f/1.0–f/1.3 compared to the standard f/1.5–f/1.6 which allows up to 2.3 times more heat to reach the sensor. This results in higher sensitivity, sharper images, and longer range making it the most cost-effective long-range imaging solution.

Cooled Mid-Wave Infrared (MWIR)

The Sentry also offers three cooled thermal sensor options which utilize either a 15µm InSb or 10µm X-Hot sensor which is 400% higher resolution and provides 50% longer range than traditional 15µm sensors. This means a 400mm lens on our X-Hot sensor is equivalent to a 600mm lens on a traditional 15µm sensor allowing it to provide a narrower angle for more detail at long distances. MWIR sensors use integrated cyro-coolers to cool the sensors down to -196°C (InSb) and -123°C (X-Hot). This exponentially increases the sensitivity of the thermal camera allowing it to use smaller and more powerful lenses than uncooled LWIR cameras.

The Sentry can be paired with a 24X zoom f/5.5 18–435mm (30°–1.3° HFOV) zoom lens using the 640×480 InSb sensor, while the 1280×1024 HD X-Hot sensor can be paired with a 22X zoom f/4.0 18–410mm (39°–1.8° HFOV) lens. This makes the Sentry capable of a vehicle detection rating of over 35km for vehicles, and 20km human detection based on DRI ratings in ideal conditions.



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Visible Camera Options

inView

		1000-NX	95X-NX	8M-49X(-NX)	38X	4M-49X(-NX)	8M-30X	49X(-NX)	36X(-NX)
Output Resolution		2MP/1080p @ 30 or 60fps (1920×1080)	2MP/1080p @ 60fps (1920×1080)	4K @ 30fps (3840×2160)	2MP @ 30fps (1920×1080)	4MP/1080p @ 60fps (2560×1440)	8MP/4K @ 30fps (3840×2160)	2MP/1080p @ 30fps (1920×1080)	2MP/1080p @ 30fps (1920×1080)
Pixels Per Meter @ 1km		344ppm	253ppm	136ppm	93ppm	91ppm	90ppm	73ppm	58ppm
Simulated FOV @ 1km									
DORI	D: 25ppm	13,763m Detection	10,133m Detection	5,440m Detection	4,335m Detection	3,627m Detection	3,600m Detection	2,901m Detection	2,325m Detection
	O: 62ppm	5,550m Observation	4.086m Observation	2,194m Observation	1,748m Observation	1,462m Observation	1,452m Observation	1,170m Observation	938m Observation
	R: 125ppm	2,573m Recognition	2,027m Recognition	1,088m Recognition	867m Recognition	725m Recognition	720m Recognition	580m Recognition	465m Recognition
	I: 250ppm	1,376m Identification	1,013m Identification	544m Identification	434m Identification	363m Identification	360m Identification	290m Identification	233m Identification
Image Sensor		2.1 Megapixel 1/2.8" CMOS	2.4 Megapixel 1/2" W CMOS	8.4 Megapixel 1/1.8" W CMOS	2.4 Megapixel 1/2.8" CMOS	4.1 Megapixel 1/1.8" W CMOS	12.4 Megapixel 1/1.8" W CMOS	2.1 Megapixel 1/2" W CMOS	2.1 Megapixel 1/2" W CMOS
Lens	Focal Length	30–1000mm	10–950mm	5.6–272mm f/1.4–4.5	7.2–270mm f/1.6–6.0	5.6–272mm f/1.4–4.5	6–180mm f/1.5–4.3	5.6–272mm f/1.4–4.5	6–218mm f/1.5–4.8
	Optical Zoom	33X Zoom	95X Zoom	49X Zoom	38X Zoom	49X Zoom	30X Zoom	49X Zoom	36X Zoom
	Angle of View	10.6°–0.32° Horiz.	39.6°–0.43° Horiz.	75°–1.62° Horizontal	43.5°–1.18° Horizontal	75°–1.62° Horizontal	65.2°–2.44° Horiz.	71.5°–1.52° Horizontal	61.9°–1.89° Horizontal
	Focus	Auto/Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto/Manual	Auto/Manual	Auto/Manual	Auto/Manual
S/N Ratio		≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB
Minimum Illumination		Color: 0.03 Lux @ f/1.2; B&W: 0.01 Lux @ f/1.2	Color: 0.02 Lux @ f/2.0; B&W: 0.001 Lux @ f/2.0	Color: 0.1 Lux @ f/1.4; B&W: 0.01 Lux @ f/1.4	Color: 0.005 Lux @ f/1.6; B&W: 0.0005 Lux @ f/1.6	Color: 0.001 Lux	Color: 0.1 Lux; B&W: 0.01 Lux	Color: 0.001 Lux	Color: 0.001 Lux; B&W: 0.0001 Lux
Optical Fog Filter (NIR)		Yes	Yes	Optional	No	Optional	No	Optional	Optional
NDAA Compliant		Yes	No	Yes	No	No	No	No	No
Video Network	Compression	H.265/H.264/MJPEG							
	Protocol	ONVIF, HTTP, RTSP, RTP, TCP, UDP							
EIS		Electronic Image Stabilization (On/Off)							
Image Enhancements		White Balance, 100dB WDR (32X option is 120dB with optional 150dB), 2D/3D DNR, BLC, HLC, Digital Defog							
Digital Zoom		4x Digital Zoom (32X option has 32x Digital Zoom)							
Edge Storage		Supports MicroSD Card up to 256GB							

*Lens measurements and angle of view are accurate to ±10% due to back focus distances, sensor sizes, lens manufacturing, etc.

LED & ZLID™ Illumination Options

	150m White LED	500m IR LED	750m ZLID	1000m ZLID	1500m ZLID	2000m ZLID	3000m ZLID
Illumination Distance	150m	500m	750m	1000m	1500m	2000m	3000m
Wavelength	White Light	808nm	808nm	808nm	940nm	808nm	808nm
NOHD	0m	0m	26m	50m	41m	226m	238m

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Thermal Camera Options

	26–230mm (-230TIZ)	32–155mm (-155TIZ)	20–105mm (-105TIZ)	18–435mm (-435CTZ)	30–430mm (-430CTZ)	18–410mm HD (-410CTZ-HD)
Image Sensor	Uncooled Vanadium Oxide (VOx) Microbolometer, 30Hz or 9Hz upon request			High Sensitivity Cooled, 30Hz	High Sensitivity Cooled X-Hot Sensor, 30Hz	
Resolution	640×512/640×480 pixels (384×288 optional)			640×480 pixels	640×480 pixels	1280×1024 pixels
Pixel Pitch	12µm (Over 200% further range than 25µm sensors, 40% further range than 17µm sensors)			15µm	10µm (50% further range than 15µm sensors)	
Lens	26–230mm Motorized Zoom	32–155mm Motorized Zoom	20–105mm Motorized Zoom	18-435mm Motorized Zoom	30–430mm Motorized Zoom	18-410mm Motorized Zoom
Focus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus
Field of View	16.8°–1.9° Horizontal FOV	13.7°–2.8° Horizontal FOV	21.7°–4.2° Horizontal FOV	29.9°–1.3° Horizontal FOV	12.2–0.85° Horizontal FOV	39.1°–1.8° Horizontal FOV
Pixels Per Meter @ 1km	19ppm	13ppm	9ppm	29ppm	43ppm	41ppm
Image Optimizations	DICE, BPR, NUC, & AGC user configurable via SDK, GUI					
Digital Zoom	2X & 4X dynamic zoom/pan with range switching					
Spectral Range	LWIR (7,000–14,000nm)			MWIR (3,000–5,000nm)		MWIR (3,600–4,200nm)
Thermal Sensitivity	50mK			< 25mK		
Cooler Lifetime	No cooler required			10,000 Hour Rated MTBF (20,000 hours optional)		20,000+ Hour Rated MTBF
Image Display Modes	White Hot, other color palettes available upon request					

Additional System Specifications

Pan/Tilt Mechanical	
Pan Angle & Speed	Endless 360° Continuous Rotation, 0.01° to 60°/s
Tilt Angle & Speed	-45° to +45° (±90° with pedestal), 0.01° to 30°/s
Proportional Pan/Tilt	Auto adjusts pan/tilt speed based on zoom level
Physical	
Construction	High Strength Aluminum Alloy
Environmental	
Operational Temperature	-20°C to +60°C, <90% Relative Humidity
Environmental	IP66 Weatherproof Housing
Electrical	
Input Voltage	24VAC or 24VDC (optional)
Power Consumption	40W to 350W, depending on configuration and heater

Optional Features: LRF (Laser Rangefinder), Wide-Angle 4K Spotter Camera, Reflective Paint or Customized Paint Finish, Joystick (Pelco-D or IP 3-axis joysticks), Solar Power, Wireless Analog or IP Radios P2P or mesh

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Additional Images