SENTRY

Rugged, Dual-Sensor PTZ System

The Sentry is a modular multi-sensor PTZ that can be configured with our long-range visible, ZLID™, and thermal camera options. These include our 4K/8 Megapixel 20–1225mm 61X zoom day/night camera, thermal imaging cameras up to 460mm, and up to 4km of ZLID™ illumination.

Combining these multiple sensors allows for accurate detection, recognition, and identification of potential threats. Active deterrence measures such as LRADs, spotlights, and laser dazzlers can also be integrated to ensure threats are not just detected, but mitigated.

The Sentry's strengthened aluminum construction and rugged IP66 housings use anti-corrosive coatings, allowing it to withstand the harshest climates for dependable perimeter security, mobile/marine vessels, homeland defense, and coastal protection.

Key Features:

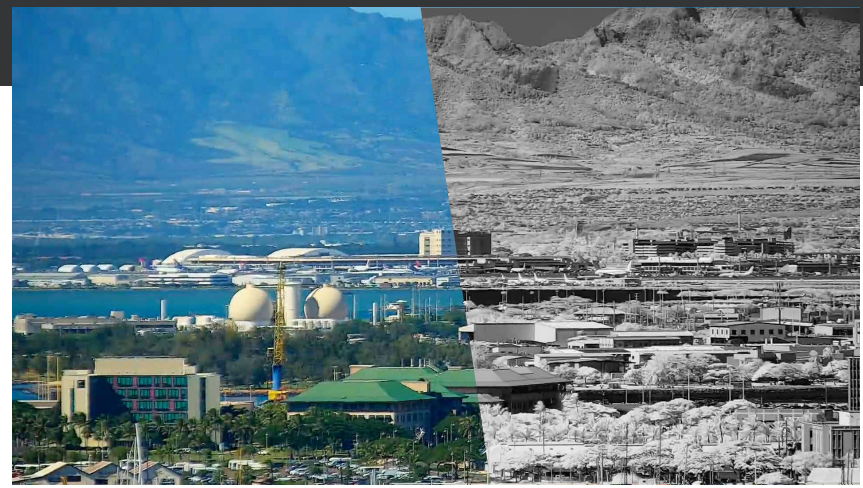
- Multi-Sensor Visible and Thermal Integrated PTZ System
- HD or UHD Progressive Scan CMOS Day/Night IP Camera
- Long-Range Visible Zoom Options from 36X to 95X
- Visible/NIR Field of View Options from 75° to 0.36°
- 12µm 640×512 VOx Uncooled Thermal Imager or Optional SD or 1280×1024 HD Cooled Thermal Imager
- Uncooled VOx Thermal Imaging Options up to 230mm
- SD and HD Cooled Thermal Options up to 460mm
- Up to 21km Human Detection and 52km Vehicle Detection with Thermal (using Johnson Criteria DRI standards)*
- Endless 360° Pan, up to ±90° Tilt, pan speeds up to 60°/s
- IP66 Military-Grade Design with Military Cable Connectors
- Designed for Fixed, Marine or Mobile Applications



THE SENTRY'S

Visible/NIR HD Zoom Camera

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Standard Color Visible Image
(Optical Fog Filter Disabled)

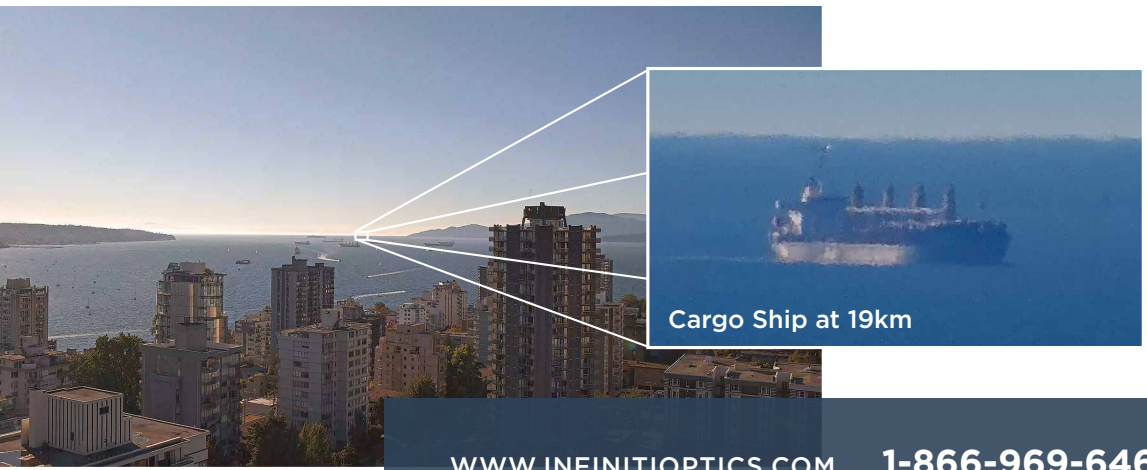
NIR Image
(Optical Fog Filter Enabled)

VIS/NIR Optical Camera

Infiniti's VIS/NIR zoom cameras utilize high-end CMOS sensors to offer excellent spectral sensitivity in the visible and near-infrared wavelengths 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 2MP (1080p HD) to 8MP (4K UHD). Precision engineered IR-corrected continuous zoom lens options offer a range of focal lengths with up to 95X optical zoom and integrated rapid autofocus to allow for long-range surveillance of targets without operator intervention.

Wide Angle Spotters

The Sentry PTZ can also support our optional wide angle spotter cameras for both visible and thermal. By integrating a second sensor with a wide angle lens, operators can maintain wide area situational awareness while simultaneously achieving detailed surveillance of targets at extreme long ranges.



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.

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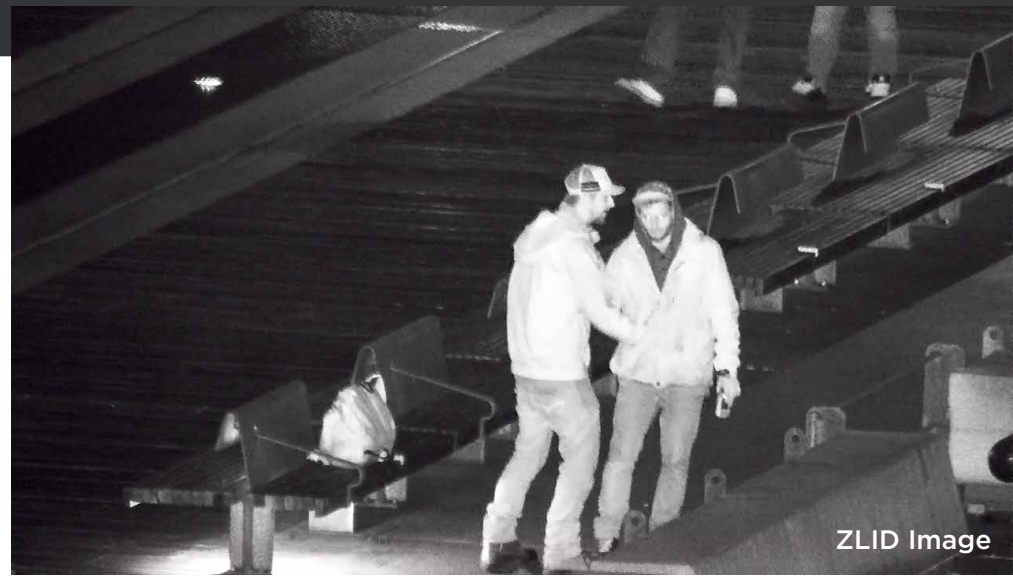
THE SENTRY'S

Night Vision Technologies

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See in the Dark with ZLID™

IR (infrared) illumination allows for detailed video when there isn't enough natural light, however typical IR LED illuminators have very limited ranges. For longer 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.



ZLID Image

See Further with Thermal

Thermal cameras use naturally emitted heat to create their image. This means that no light source is needed, and thermal imaging performance works just as effectively in bright daylight as it does in complete darkness. Additionally, since humans, animals, and vehicles are usually warmer than their surroundings, thermal imaging renders these objects much brighter which makes them easy to spot, even when hiding in the shadows. Thermal images are also unaffected by headlights or spotlights 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.

The Sentry boasts industry-leading thermal cameras with uncooled LWIR and cooled MWIR resolution options of either 640×512 SD or 1280×1024 HD to ensure mission success.



Thermal Image

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THE SENTRY'S

Thermal Imaging Options: Cooled vs Uncooled

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Uncooled Long Wave Infrared (LWIR)

Infiniti uses cutting-edge 12µm LWIR VOx uncooled thermal sensors with resolutions up to 1280×1024 HD. The 12µm pixel pitch provides a narrower field of view without changing the lens, allowing it to achieve 40% further range than 17µm sensors.

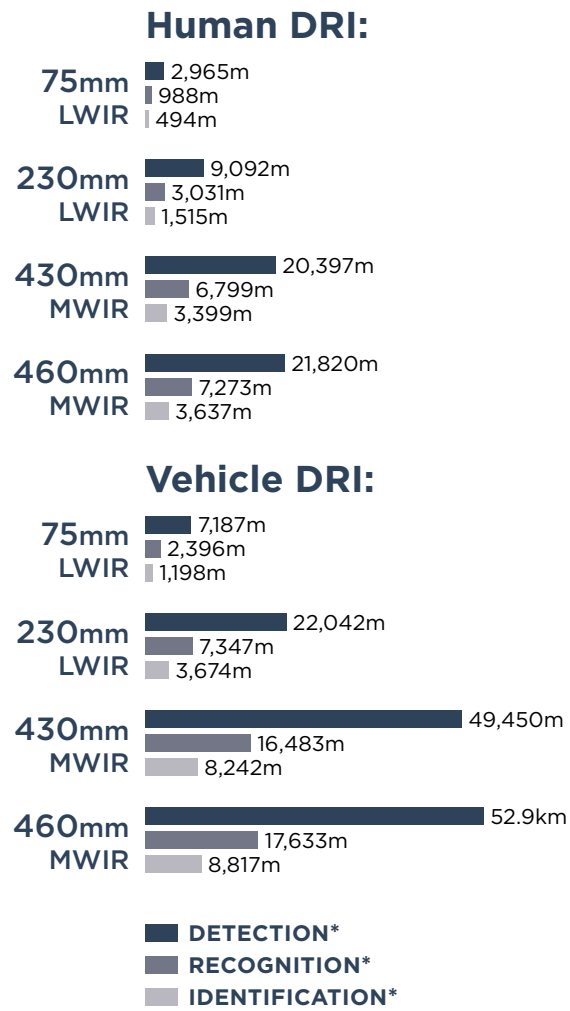
These sensors are paired with large aperture lenses of *f*/1.0–*f*/1.3, compared to the standard *f*/1.5–*f*/1.6, allowing up to 2.3 times more heat to reach the sensor. This results in higher sensitivity, sharper images, and longer ranges, making LWIR one of the most cost-effective long-range imaging solutions.

Cooled Mid-Wave Infrared (MWIR)

Infiniti offers cooled thermal in SD or HD options. Our 10µm pixel pitch sensors provide 50% longer range than traditional 15µm MWIR sensor offerings that are standard in the industry. This means a 400mm lens on our 10µm sensor is equivalent to a 600mm lens on a traditional 15µm sensor allowing it to provide a narrower angle (further zoom) for more detail at long distances.

MWIR sensors use integrated cryo-coolers to cool the sensors down to −196°C (InSb) or −123°C (X-Hot). This exponentially increases the sensitivity of the thermal camera, allowing MWIR cameras to use smaller and more powerful lenses than uncooled LWIR cameras, but the cryo-coolers require regular maintenance based on their usage. Because of the higher temperatures that our X-Hot sensors run at, our cryo-coolers don't need to work as hard and thus require maintenance less frequently.

Our new **Thermally Compensated Optics (TCO)** technology maintains MTF, back focal distance, and effective focal length across a wide range of operating temperatures. This TCO technology effectively mitigates challenges posed by thermal expansion. Paired with our HD X-Hot MWIR thermal cores, Infiniti's systems provide high contrast and ultra long distance infrared imaging for mission-critical applications such as threat detection, surveillance, auto-tracking and targeting, with lens options capable of detection ratings* over 50km (based on DRI ratings in ideal conditions).



*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

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Visible Camera Options

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		8M-61X-OS	8M-95X	8M-53X (-OS)	4M-53X (-OS)	8M-49X	8M-36X	3M-49X	4M-36X
Simulated FOV @ 1km									
Pixels Per Meter @ 1km		612ppm	508ppm	400ppm	274ppm	136ppm	109ppm	78ppm	75ppm
DORI	D: 25ppm	24,500m Detection	20,300m Detection	16,000m Detection	10,944m Detection	5,440m Detection	4,360m Detection	3,103m Detection	2,982m Detection
	O: 62ppm	9,879m Observation	8,185m Observation	6,452m Observation	4,413m Observation	2,194m Observation	1,758m Observation	1,251m Observation	1,202m Observation
	R: 125ppm	4,900m Recognition	4,060m Recognition	3,200m Recognition	2,189m Recognition	1,088m Recognition	872m Recognition	621m Recognition	596m Recognition
	I: 250ppm	2,450m Identification	2,030m Identification	1,600m Identification	1,094m Identification	544m Identification	436m Identification	310m Identification	298m Identification
Output Resolution		8MP/4K @ 30fps (3840×2160)	8MP/4K @ 30fps (3840×2160)	8MP/4K @ 30fps (3840×2160)	4MP @ 30fps (2688×1520)	8MP/4K @ 30fps (3840×2160)	8MP/4K @ 30fps (3840×2160)	3MP @ 55fps (2048×1536)	4MP @ 60fps (2688×1520)
Image Sensor		8.4 Megapixel 1/1.8" W CMOS	8.4 Megapixel 1/1.8" W CMOS	8.4 Megapixel 1/1.8" W CMOS	4.1 Megapixel 1/1.7" W CMOS	8.4 Megapixel 1/1.8" W CMOS	8.4 Megapixel 1/1.8" W CMOS	3.2 Megapixel 1/1.8" CMOS w/GS††	4.5 Megapixel 1/1.7" W CMOS
Lens*	Focal Length	20–1225mm	10.6–1015mm	15–800mm	15–800mm	5.6–272mm	6–218mm	5.6–272mm	6–218mm
	Optical Zoom	61X Optical Zoom × 16X Digital	95X Optical Zoom × 16X Digital	53X Optical Zoom × 16X Digital	53X Optical Zoom × 16X Digital	49X Optical Zoom × 16X Digital	36X Optical Zoom × 16X Digital	49X Optical Zoom × 16X Digital	36X Optical Zoom × 16X Digital
	Angle of View	21°–0.36° Horizontal	42°–0.43° Horizontal	28°–0.55° Horizontal	29°–0.56° Horizontal	75°–1.62° Horizontal	65.2°–2° Horizontal	71.4°–1.51° Horizontal	66.4°–2.1° Horizontal
	1080p Equiv.†	122X, 0.18° HFOV	190X, 0.22° HFOV	106X, 0.28° HFOV	74X, 0.4° HFOV	98X, 0.81° HFOV	72X, 1.01° HFOV	52X, 1.42° HFOV	50X, 1.48° HFOV
	Focus	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto/Manual	Auto/Manual	Auto/Manual
Minimum Illumination (Color / Black & White)		0.1 Lux /0.01 Lux @ ƒ/2.1	0.1 Lux / 0.01 Lux @ ƒ/2.1	0.1 Lux / 0.01 Lux @ ƒ/1.5	0.05 Lux / 0.005 Lux @ ƒ/2.8	0.05 Lux / 0.005 Lux @ ƒ/1.4	0.1 Lux / 0.01 Lux @ ƒ/1.5	0.005 / 0.001 Lux @ ƒ/1.4	0.005 / 0.0005 Lux @ ƒ/1.5
Optical Fog Filter (NIR)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Heatwave Mitigation		Yes	Yes	Yes	Yes	No	No	No	No
NDAA Compliant		Yes	No	Yes	No	Yes	Yes	No	Yes
Video Network	Compression	H.265/H.264/MJPEG							
	Protocol	ONVIF, HTTP, RTSP, RTP, TCP, UDP							
Image Stabilization		Optical & EIS	Electronic (EIS)	EIS, Optional Optical Stabilization		Electronic Image Stabilization (EIS)			
Image Enhancements		White Balance, WDR, 2D/3D DNR, BLC, HLC, Digital Defog							
Edge Storage		Supports MicroSD Card up to 256GB							

*Lens measurements, angle of view and PPM/DORI numbers are accurate to ±10% due to back focus distances, sensor sizes, lens manufacturing, etc. †Zoom ratio and FOV equivalent if zooming into a 1080p crop of the video output. ††Global shutter.

LED & ZLID™ Illumination Options

	500m IR LED	750m ZLID		1km ZLID		1.5km ZLID		2km ZLID		3km ZLID		4km ZLID	
Illumination Distance	500m	750m		1000m		1500m		2000m		3000m		4000m	
Wavelength	808nm	808nm	940nm	808nm	940nm	808nm	940nm	808nm	940nm	808nm	940nm	808nm	940nm
NOHD	0m (eye safe)	13m	9.6m	50m	36.6m	56.4m	40.8m	69m	51m	238m	175m	266m	196m

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Thermal Camera Options

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Uncooled Thermal Camera Options

		26–75mm (-75TIZ)			32–155mm (-155TIZ)			34–185mm (-185TIZ)			26–230mm (-230TIZ)		
Image Sensor		Uncooled Vanadium Oxide (VOx) Microbolometer, 30Hz											
Resolution		640×480/640×512 pixels† or 1280×1024 pixels											
Pixel Pitch		12µm (over twice the range of 25µm sensors, 40% further range than 17µm sensors)											
Lens (Motorized Zoom)		26–75mm *f*/1.0			32–155mm *f*/1.2			34–185mm *f*/1.2			26–230mm *f*/1.3		
Focus		Motorized Autofocus			Motorized Autofocus			Motorized Autofocus			Motorized Autofocus		
Field of View	640×480/512†	16.8–5.86° Horizontal FOV			13.7–2.84° Horizontal FOV			12.9–2.38° Horizontal FOV			16.8–1.91° Horizontal FOV		
	1280×1024	32.9–11.7° Horizontal FOV			27.0–5.67° Horizontal FOV			25.5–4.75° Horizontal FOV			32.9–3.82° Horizontal FOV		
Pixels Per Meter @ 1km		6.25ppm			12.9ppm			15.4ppm			19.2ppm		
Human DRI Ratings*		2.9 km	988 m	494 m	6.1 km	2.0 km	1.0 km	7.3 km	2.4 km	1.2 km	9.0 km	3.0 km	1.5 km
Vehicle DRI Ratings*		7.1 km	2.3 km	1.2 km	14.8 km	4.9 km	2.4 km	17.7 km	5.9 km	2.9 km	22.0 km	7.3 km	3.6 km
Image Optimizations		DICE, BPR, NUC, & AGC user configurable via API											
Digital Zoom		2X & 4X dynamic zoom/pan with range switching											
Spectral Range		LWIR (8,000–14,000nm)											
Thermal Sensitivity		20–35mK											
Cooler Lifetime		No cooler required											
Image Display Modes		White Hot, other color palettes available upon request											

Cooled Thermal Camera Options

	15–235mm (-235CTZ)			30–430mm (-430CTZ)			18–230mm (-230CTZ-HD)			16–305mm (-305CTZ-HD)			33–430mm HD (-430CTZ-HD)			30–460mm HD (-460CTZ-HD)		
Image Sensor	High-Sensitivity Cooled X-Hot Detector, 30Hz						High Sensitivity Cooled InSb or X-Hot Sensor, 30Hz											
Resolution	640×480/640×512 pixels†						1280×1024 pixels											
Pixel Pitch	10µm (50% further range than 15µm sensors)						10µm (50% further range than 15µm sensors)											
Lens (Motorized Zoom)	15–235mm *f*/3.6			30–430mm *f*/3.6			18–230mm *f*/4.0 w/TCO			16–305mm *f*/4.0 w/TCO			33–430mm *f*/4.0 w/TCO			30–460mm *f*/4.0 w/TCO		
Focus	Motorized Autofocus			Motorized Autofocus			Motorized Autofocus			Motorized Autofocus			Motorized Autofocus			Motorized Autofocus		
Field of View	24.1–1.56° Horizontal FOV			12.2–0.85° Horizontal FOV			39.1–3.19° Horizontal FOV			43.6–2.4° Horizontal FOV			21.9–1.71° Horizontal FOV			24.1–1.59° Horizontal FOV		
Pixels Per Meter @ 1km	23.5ppm			43ppm			23ppm			30ppm			43ppm			46ppm		
Human DRI Ratings*	11.1 km	3.7 km	1.8 km	20.3 km	6.8 km	3.4 km	10.9 km	3.6 km	1.8 km	14.4 km	4.8 km	2.4 km	20.4 km	6.8 km	3.4 km	21.8 km	7.2 km	3.6 km
Vehicle DRI Ratings*	27.0 km	9.0 km	4.5 km	49.4 km	16.4 km	8.2 km	26.4 km	8.8 km	4.4 km	35.0 km	11.7 km	5.8 km	49.4 km	16.4 km	8.2 km	52.9 km	17.6 km	8.8 km
Digital Zoom	4X Digital Zoom (16X optional)																	
Spectral Range	3,000–5,000nm (MWIR)																	
Thermal Sensitivity	20–25mK																	
Cooler Lifetime (@23°C)	20,000 Hour Rated MTBF (InSb) / 30,000 Hour Rated MTBF (X-Hot)																	

* D R I While DRI ratings are based on the industry-standard Johnson Criteria, they represent theoretical maximums under ideal conditions that typically exceed real-world performance. Additionally, a "Detection" rating means that a target will appear only as a tiny speck of pixels, rather than as a clearly defined or recognizable object. For more info, please see our whitepaper about understanding DRI at: www.infinitioptics.com/dri

Focal lengths and FOVs are within ±5%.

†Output resolution depends on system configuration.

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Other Specifications

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Pan/Tilt Mechanical	
Pan Angle & Speed	Endless 360° Continuous Rotation, 0.1° to 60°/s (speeds may differ depending on configuration)
Tilt Angle & Speed	-45° to +45° (full ±90° optional, requires pedestal; required tilt range will determine the size of the pedestal), 0.1° to 30°/s (speeds may differ depending on configuration)
Proportional Pan/Tilt	Auto adjusts pan/tilt speed based on zoom level
Octagon Enabled	Infiniti's Octagon platform provides a unified API for integration with third-party C2/VMS software, radar slew-to-cue, and our network-based PTZ control accessories.
Physical	
Construction	High Strength Aluminum Alloy
Environmental	
Operational Temperature	-20°C to +60°C (-40°C optional), <90% Relative Humidity
Environmental	IP66 Weatherproof Housing
Electrical	
Input Voltage	48VDC (24V 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

Specifications subject to change due to global supply chain constraints and material availability.



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Additional Images

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