

SIGMA

All-Weather Long-Range PTZ Camera

INFINITI ELECTRO-OPTICS

The Sigma is a customizable multi-sensor PTZ system that boasts an extreme long-range HD visible camera in options up to 2075mm. Paired with up to 5000m of ZLID illumination or a day/night thermal imaging camera up to 1400mm, this camera system provides ultimate nighttime surveillance performance. Combining these multiple sensors allows for accurate detection, recognition, and identification of potential threats. The housing is a rugged IP66 construction using a 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 135X
- › Visible/NIR Field of View Options from 62° to 0.15°
- › 12 μ m 640x512 VOx Uncooled Thermal Imager or Optional SD or HD Cooled Thermal Imager
- › Long-Range Thermal Germanium Lens Options available from 230mm to 1400mm
- › Dynamic Image Contrast Enhancement (DICE) for a Clear Thermal Image
- › Up to 30+km Human Detection and 60+km Vehicle Detection with Thermal (using Johnson Criteria DRI standards)*
- › Self-Locking Worm Drive with 0.01°-30°/sec Pan Speed and 0.01°-15°/sec Tilt Speed
- › Micro-Step Technology for Quick, Accurate Pan/Tilt Control
- › IP66 Military-Grade Design with Military Cable Connectors

33X ZOOM

38X ZOOM

49X ZOOM

95X ZOOM

135X ZOOM

18mm-435 Ge ZOOM

65mm-1000 Ge ZOOM

26mm-230 Ge ZOOM

31mm-310 Ge ZOOM

115mm-1200 Ge ZOOM

70mm-1400 Ge ZOOM

ZLID™

PTZ

IP66

Multiple Zoom Lens Options up to 2075mm

Uncooled Thermal Zoom up to 310mm

Optional Cooled Thermal up to 1400mm Zoom

Optional IR Illumination up to 4km

PTZ Controls

Waterproof with Military Connectors

THE SIGMA'S Visible/NIR HD Zoom Camera



VIS/NIR Optical Camera

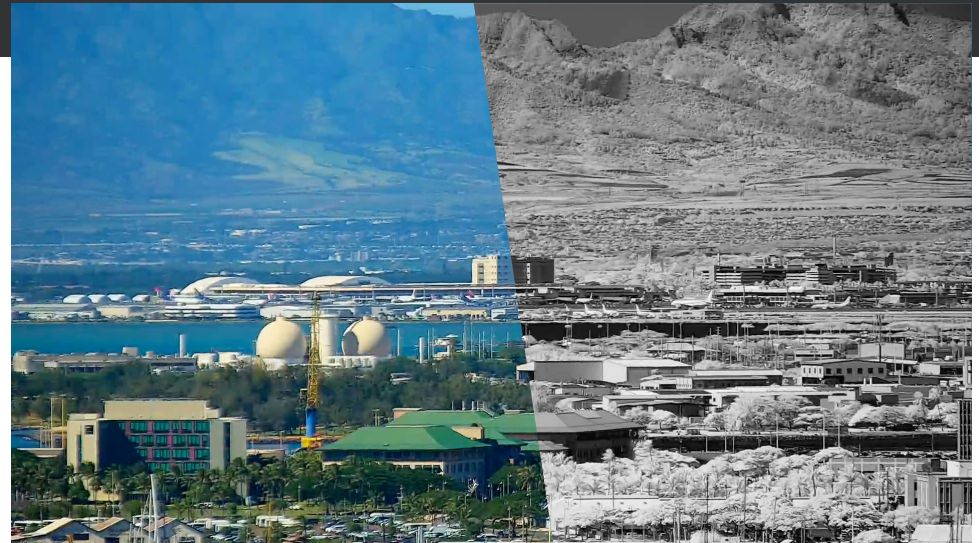
Infiniti's VIS/NIR zoom cameras utilize the visible and near-infrared bands of light to provide high-quality images optimized for long-range surveillance. They are designed to provide industry-leading performance and quality, with image resolutions ranging from HD 2MP (1080p) to UltraHD 4K/8MP.

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 Sigma's precision engineered IR-corrected zoom lenses offer a wide range of focal lengths with zoom factors from 33X up to 135X 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 SIGMA'S ZLID™ & Thermal Technologies



ZLID Image



Thermal Image

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

An optional thermal imager lets you see further than any other night vision technology. Unlike traditional visible cameras, thermal imaging uses heat rather than light to see objects. Humans, animals, and vehicles are hot in contrast to most backgrounds, making trespassers hiding in shadows or bushes easy to spot. Thermal images are also unaffected by bright light and have the ability to see through atmospheric obstructions such as smoke, dust, and light fog. This makes it an ideal technology for many applications, including surveillance and security, search and rescue, fire, marine and land navigation, wide area situational assessment and much more.

12μm VOx Thermal Imager

The Sigma utilizes a cutting-edge 12μm VOx uncooled sensor, giving the camera a narrower field of view without changing the lens. The smaller 12μm pixel pitch achieves a 40% further range than 17μm sensors or 200% further range than older 25μm sensors. The high sensitivity sensor detects differences in temperature as small as ±0.05°C, and its no-maintenance VOx design, unlike ASI and other thermal cores, is self healing and resistant to solar damage.

Germanium Lenses

Our germanium optics boast industry-leading aperture sizes. These larger apertures allow more thermal energy to reach the sensor, reducing image noise and further increasing clarity and performance.

Human DRI:

50mm Ge lens ■ 1979m
■ 660m
■ 330m

75mm Ge lens ■ 2969m
■ 990m
■ 495m

120mm Ge lens ■ 4750m
■ 1583m
■ 792m

Vehicle DRI:

50mm Ge lens ■ 4583m
■ 1528m
■ 764m


75mm Ge lens ■ 6875m
■ 2292m
■ 1146m

120mm Ge lens ■ 11000m
■ 3667m
■ 1833m

■ **DETECTION***
■ **RECOGNITION***
■ **IDENTIFICATION***

*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

Visible/NIR Camera Options

		2075-LSM-NX	1000-LSM-NX	4M-95X-ZM-NX	95X-ZM-NX	8M-49X(-NX)	38X	4M-49X(-NX)
Output Resolution		2MP/1080p @ 60fps (1920x1080)	2MP/1080p @ 60fps (1920x1080)	4MP/1440p @ 60fps (2560x1440)	2MP/1080p @ 60fps (1920x1080)	4K @ 30fps (3840x2160)	2MP @ 30fps (1920x1080)	4MP/1080p @ 60fps (2560x1440)
Pixels Per Meter @ 1km		714ppm	344ppm	338ppm	270ppm	145ppm	93ppm	97ppm
Simulated FOV @ 1km								
DORI	D: 25ppm	28,559m Detection	13,763m Detection	13,549m Detection	9,970m Detection	6,739m Detection	4,335m Detection	4,492m Detection
	O: 62ppm	11,516m Observation	5,550m Observation	5,463m Observation	4,020m Observation	2,717m Observation	1,748m Observation	1,811m Observation
	R: 125ppm	5,712m Recognition	2,753m Recognition	2,710m Recognition	1,994m Recognition	1,348m Recognition	867m Recognition	898m Recognition
	I: 250ppm	2,856m Identification	1,376m Identification	1,355m Identification	997m Identification	674m Identification	434m Identification	449m Identification
Image Sensor		1/2.8" 2.1 Megapixel CMOS	1/2.8" 2.1 Megapixel CMOS	1/1.8" 4.1 Megapixel CMOS	1/1.9" 2.4 Megapixel CMOS	1/1.8" 8.4 Megapixel CMOS	1/2.8" 2.4 Megapixel CMOS	1/1.8" 4.1 Megapixel CMOS
Lens	Focal Length	15.4-2075mm (with IZE doubler)	30-1000mm	95X 10-950mm	10-950mm	7.2-272mm f/1.4-4.5	7.2-270mm f/1.6-6.0	7.2-272mm f/1.4-4.5
	Optical Zoom	135X Zoom	33X Zoom	95X Zoom	95X Zoom	49X Zoom	38X Zoom	49X Zoom
	Angle of View	19.3°-0.15° Horizontal	10.6°-0.32° Horizontal	38°-0.4° Horizontal	37°-0.41° Horizontal	59°-1.8° Horizontal	43°-1.2° Horizontal	62°-1.6° Horizontal
	Focus	Auto / Manual	Auto / Manual	Auto/Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto/Manual
S/N Ratio		≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB
Minimum Illumination		Color: 0.003 Lux @ f/1.2 (1/3s); 0.03 Lux @ f/1.2 (1/30s) B&W: 0.0009 Lux @ f/1.2 (1/3s); 0.01 Lux @ f/1.2 (1/30s)		Color: 0.02 Lux @ f/2.1; B&W: 0.001 Lux @ f/2.1	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
Optical Fog Filter (NIR)		Yes	Yes	Yes	Yes	Optional	No	Optional
Video Network	Compression	H.265/H.265 Ultrastream/H.264/H.264 Ultrastream/ MJPEG			H.265/H.264/MJPEG			
	Protocol	ONVIF, HTTP, RTSP, RTP, TCP, UDP						
EIS		Electronic Image Stabilization (On/Off)						
Image Enhancements		White Balance, 2D/3D DNR, BLC, HLC, and Digital Defog			White Balance, 100dB WDR, 2D/3D DNR, BLC, HLC, Digital Defog			
Digital Zoom		16x Digital Zoom			4x Digital Zoom			
Edge Storage		Supports MicroSD Card up to 128GB			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.

ZLID™ Illumination Options

	500m IR LED	1000m ZLID	1500m ZLID	2000m ZLID	3000m ZLID	4000m ZLID	5000m ZLID
Illumination Distance	500m	1000m	1500m	2000m	3000m	4000m	5000m
Wavelength	808nm	808nm	940nm	808nm	808nm	808nm	808nm
NOHD	0m	50m	41m	226m	238m	266m	376m

Thermal Camera Options

SD Thermal Camera Options

	26–230mm (-230TIZ)	31–310mm (-310TIZ)	18–435mm (-435CTZ)	38–875mm (-875CTZ)	46–1075mm (-1075CTZ)	70–1400mm (-1400CTZ)
Image Sensor	Uncooled VOx Microbolometer, 30Hz or 9Hz upon request		High Sensitivity Cooled InSb or MCT, 30Hz			
Resolution	640×512/640×480 pixels (384×288 optional)		640×480 pixels (NTSC) / 640×512 pixels (PAL)			
Pixel Pitch	12µm (40% further range than 17µm sensors)		15µm			
Lens	26–230mm Motorized Zoom	31–310mm Motorized Zoom	18–435mm Motorized Zoom	38–875mm Motorized Zoom	46–1075mm Motorized Zoom	70–1400mm Motorized Zoom
Focus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus
Field of View	16.8°–1.9° Horizontal FOV	14.1°–1.4° Horizontal FOV	29.9°–1.3° Horizontal FOV	14°–0.65° Horizontal FOV	11.9°–0.5° Horizontal FOV	7.8°–0.39° Horizontal FOV
Pixels Per Meter @ 1km	19ppm	26ppm	29ppm	58ppm	72ppm	93ppm
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)			
Thermal Sensitivity	50mK		20–25mK			
Cooler Lifetime	No cooler required		10,000 Hour Rated MTBF (20,000 hours optional)			
Image Display Modes	White Hot, other color palettes available upon request					

HD Thermal Camera Options

	18–415mm HD (-415CTZ-HD)	65–1000mm HD (-1000CTZ-HD)	115–1200mm HD (-1200CTZ-HD)
Image Sensor	High Sensitivity Cooled X-Hot Sensor, 30Hz		
Resolution	1280×1024 pixels		
Pixel Pitch	10µm (50% further range than 15µm sensors)		
Lens	18–415mm Motorized Zoom	65–1000mm f4.0 Motorized Zoom	115–1200mm f4.0 Motorized Zoom
Focus	Motorized Autofocus	Motorized Autofocus	Motorized Autofocus
Field of View	39.1°–1.8° Horizontal FOV	11°–0.73° Horizontal FOV	7.3°–0.61° Horizontal FOV
Pixels Per Meter @ 1km	41ppm	100ppm	120ppm
Image Optimizations	Digital Image Contrast Enhancement (DICE)		
Digital Zoom	Yes		
Spectral Range	3,600–4,200nm (MWIR)		
Thermal Sensitivity	<25mK		
Cooler Lifetime	20,000+ Hour Rated MTBF		

Other Specifications

Pan/Tilt Mechanical

Drive System	Self-Locking Worm Gear with Servo Motors
Pan Angle & Speed	Endless 360° Continuous Rotation, 0.01° to 30°/s
Tilt Angle & Speed	-90° to +90° (full ±90° requires pedestal; tilt range needed determines the size of the pedestal), 0.01° to 15°/s
Proportional Pan/Tilt	Auto adjusts pan/tilt speed based on zoom level
Accuracy	0.01°
Backlash	Low

Physical

Construction	High Strength Aluminum Alloy with Anti-Corrosion Finish
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Environmental

Operational Temperature	-20°C to +45°C with heaters, up to +65°C optional; <90% Relative Humidity
Environmental	IP66 Weatherproof Housing

Electrical

Input Voltage	24VDC
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Optional Features: 3km or 5km White Light Spotlight for sniper suppression, Vibration Mount for vehicle mounting, LRF (Laser Rangefinder), Wide-Angle 4K Spotter Camera, Reflective Paint or Customized Paint Finish, Joystick (Pelco-D or IP 3-axis joysticks), Wireless Analog or IP Radios P2P or mesh