

# Military Grade PTZ Camera System



The Vega is a revolutionary multi-sensor PTZ camera boasting a our long-range 135X 2075mm visible day/night camera, long-range 1400mm thermal infrared zoom, and optional ZLID NIR illumination with LRF. This multi-sensor payload enables the Vega to provide excellent imaging in virtually any environment from smoke and fog to complete darkness. Designed for accurate positioning of weapons systems, the pan/tilt unit meets and exceeds MIL-STD-810F military ratings for shock, vibration, temperature and dust/water ingress. This makes the Vega the ultimate long-range camera system for 24/7 situational awareness and long-range detection, recognition and identification of targets.

## Key Features:

- › Ultra Long-Range Military Grade Multi-Sensor PTZ Surveillance System
- › Day/Night 1080p HD IP ONVIF 1/1.8" Starlight CMOS Sensor
- › 15.4-2075mm HD IR-Corrected Zoom Lens with Motorized HD IR Doubler
- › 26°-0.2° Horizontal Field of View Results in a 135X Zoom Range
- › Autofocus, Motorized Fog/Parasitic Light Filter & Temperature Calibration
- › Image Enhancements: WDR, HLC, EIS, 3DNR, Fog/Haze Reduction
- › 640×480 15µm InSb Cooled Thermal Imager with DICE
- › 70-1400mm  $f/5.5$  Continuous Zoom Auto-Focus Thermal Lens
- › 7.8-0.39° Horizontal Field of View for a 20X Thermal Zoom Range
- › Up to 27km of Human Detection and 50+km of Vehicle Detection\*
- › 20,000+ Hour Lifetime Cryogenic Cooler
- › MIL-STD-810F, -50°-+65°C and IP66/67 with Anti-Corrosion Finish
- › Elliptical Synchronous Drive, Gyro-Stabilized Heavy Duty Pan/Tilt
- › Endless 360° Rotation Pan/Tilt with Speeds from 0.001-40°/s and Up to 0.00036° Resolution with Zero Backlash
- › Optional 1535nm 23km Rated LRF with 50-250mm Range Accuracy using InGaAs Detector

**1080p**  
FULL HD  
2MP Sensor

**135X**  
ZOOM  
15.4-2075mm  
Zoom Lens

**ZLID**  
Optional Zoom  
Laser IR Diode

**InSb**  
THERMAL  
Cooled  
Thermal

**20X**  
Ge ZOOM  
Thermal  
Zoom Lens

**DICE**  
Thermal Image  
Enhancement

**PTZ**  
PTZ Controls

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

# HD Visible Camera with ZLID



## Visible/NIR Optical HD Camera

The Vega's visible camera was designed and optimized for long range surveillance. It uses a 1/1.8" progressive scan CMOS sensor with an HD resolution of 1920x1080 and a fantastic signal to noise ratio of 55dB. The 1/1.8" sensor has excellent spectral sensitivity for both visible and NIR wavelengths and features an automatic IR cut filter, making it a true day/night camera providing clear color images by day and high sensitivity black and white images at night. The 1/1.8" sensor provides excellent "Starlight" low light sensitivity to get the most out of the lower light levels that are an unavoidable reality with long-range lenses. The Viper also integrates the latest technology in real-time image processing such as BLC, HLC, WDR, EIS, 3D DNR, ABF, Defog/Haze etc. Each of these image enhancements can be automatic or user-defined and calibrated based on the application requirements. Since the camera is native IP, all of these settings can be changed and configured remotely, along with remote PTZ and zoom control.

## Long Range 135X Zoom Lens

The Vega comes equipped with a precision engineered 15.5-2075mm IR-corrected zoom lens with motorized HD doubler, offering an incredible 135X zoom range from 26° through to a very narrow 0.2° FOV when paired with the 1/1.8" sensor. That's equivalent to a "full-frame" DSLR camera using a 10,000mm lens. 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 recognition and identification of targets without operator intervention. The lens also incorporates a motorized fog filter that is used with the camera's monochrome mode and de-haze image processing to see through fog, smoke, smog and haze that render standard optical cameras unusable. Infiniti's HD Zoom camera is a perfect synergy between precision craftsmanship, state of the art sensor hardware and the latest image processing for unparalleled range and performance.

## Optional ZLID Laser Illumination

IR illumination allows for detailed video when there isn't enough natural light, however for long-range IR 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.



Fog Filter (Visible Cut) Disabled



Fog Filter (Visible Cut) Enabled



See through windows with ZLID



Ship at night with ZLID

# THE VEGA'S Thermal Imager



## See It All

Infiniti's cooled thermal cameras let you see further than any other night vision technology, using heat rather than light to see objects. This cooled thermal imaging camera is equipped with a Mid-Wave Infrared (MWIR), cooled Indium Antimonide (InSb) detector, producing ultra-sharp thermal images of 640×480 pixels. This will satisfy users that want to see the smallest of details and demand the best possible image quality. It allows the user to see more detail and detect smaller objects from a further distance. Coupled with a high sensitivity sensor, and leading germanium optics, this camera offers extreme long-range performance and excellent image quality.



## Cooled InSb Thermal Imager

The Vega contains a high sensitivity 15μm cooled InSb sensor with a resolution of 640×480 and an ultra-long cooler lifetime of 20,000 hours MTBF. The cooled sensor is able to detect differences in temperature as small as ±0.02°C. This provides more detail for tracking of targets at extreme ranges in total darkness and through most obscurants.



## 20X Continuous Zoom Germanium Lens

The cooled InSb thermal core is paired with a precision-engineered f/5.5 germanium zoom lens allowing you to view targets with a 20X optical zoom range from 70mm to 1400mm. This allows for excellent detection of thermal targets by offering anything from a 7.8° to 0.39° horizontal field of view. These lenses also feature auto focus capabilities, delivering crisp, clear images even when adjusting zoom. This ensures optimal performance and situational awareness in the wide field of view and crisp details in the narrow field of view.



## Extreme Long Range Detection

The Vega is a Mid-Wave Infrared (MWIR) thermal camera which means it operates on 3,600nm–4,900nm wavelengths where terrestrial temperature targets emit most of their infrared energy. Using the built-in Dynamic Image Contrast Enhancement (DICE) for increased contrast and image clarity, the Vega can detect vehicles over 50km away.\* While thermal is a significant investment, it outperforms all other long-range detection solutions, making it the best option for many applications such as perimeter security, border enforcement and coastal surveillance.

### DRI Ranges:

**27** km  
Human Detection\*

**50+** km  
Vehicle Detection\*

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

# THE VEGA'S Other Features

## Low Backlash Military-Grade Positioner

The Vega uses a weapons-grade positioner designed for military applications and is ruggedized to withstand shock and vibration for use on tanks and navy vessels. This pan/tilt delivers high torque to handle large payloads up to 100kg with achievable speeds from 0.001°/sec to 40°/sec and an accuracy of 0.02°. It features smooth manual control with configurable acceleration and optional GPS positioning for automatic slew-to-cue tracking when used with Video Analytics, VTMS systems, Radar, AIS and weapon systems. The integrated multi-axis gyro stabilization uses a high-rate MEMS gyro in combination with the pan/tilt to mechanically stabilize the payload, reducing the effects of vibration, oscillation, pitch and roll for operation on tanks, vessels, masts and assault vehicles.

## Rugged And Robust

The Vega is comprised of military grade, precision engineered components and manufactured using unique processes to offer absolute performance. It uses military-style connectors to supply power, video, and communication over a single cable, increasing reliability and the amount of time required to install the system. The pan/tilt is MIL-STD-810F/G tested and is sealed to a minimum of IP66/67 making it water and dust proof. It is able to withstand temperatures from -50°C to +65°C and uses a tough anti-corrosion finish for operation in the most brutal and harsh climatic conditions.

## Remote Connectivity and User Friendly

The Vega can be viewed remotely in real-time from anywhere in the world on a PC using Infiniti's VMS or web client, or on your mobile device with our iPhone or Android apps. It is also controllable by touch screen, mouse, VMS systems, DVR/NVR or PTZ joystick.

## Octagon Platform

The Octagon Platform HTTP API is an IP interface for accessing Ascendent and Infiniti Octagon platform devices. This API acts as a unified point-of-contact for client software and services to access the sensors and devices within a system. The goal is to provide consistent, logical, and reliable connectivity to our web server(s) that exposes deep integration capabilities while simplifying interactions with our multi-faceted architecture.

Communication is also available via Serial, using the industry-standard protocol Pelco-D. This performs regular PTZ operation of the devices with the standard command set. It exposes advanced and peripheral functionality via a list of 'Special Function Presets', for any commands not available natively in the Pelco-D specification.



Gyro  
Stabilized



Voltage  
Regulation



Military  
Connectors



Military Grade  
& IP66



Radar  
Integration

## OPTIONAL UPGRADES:



Video PTZ Controller



LRF (up to 20km range)



90° Wide Angle 8MP  
UHD Spotter Camera for  
Situational Awareness



Spotlight

# VEGA-2075-1400CTZ-GS

## Specifications



Optical Assembly	1/1.8" HD Starlight Sensor		Optional 1/2.8" Sensor	
Image Sensor	1/1.8" Progressive Scan Exmor CMOS		1/2.8" Progressive Scan CMOS	
Max Resolution	1920×1080 pixels			
Minimum Illumination @ f/1.2	0.002 Lux (Color), 0.0002 Lux (B&W)		0.02 Lux (Color), 0.005 Lux (B&W)	
Lens	15.4mm-1037.5mm (30.8-2075mm with doubler on) Auto Focus			
Zoom Factor	135X with motorized doubler			
Field of View (±7%)	26° - 0.2° Horizontal FOV		19.3° - 0.15° Horizontal FOV	
Fog/Haze Filter	Motorized			
Automatic Temperature Optimaztion	Adjusts the lens elements to mitigate the effects of thermal expansion			
Backlight Compensation	BLC / HLC / WDR (120dB)		BLC / HLC / WDR (140dB)	
IP Protocol	ONVIF			
Compression	H.264 / H.265 (Smart Codecs)			
<b>ZLID Illuminator (optional)</b>				
Illumination Distance	1-5km Zoom Laser Infrared Diode			
<b>LRF (optional)</b>				
LRF Type	750μJ InGaAs APD Erbium-Glass Pulsed Laser			
Accuracy	50-250mm			
Range	23km (see LRF ratings)			
Fusion Board for Geo-Location	3-Axis MEMS Gyroscope, Accelerometer and DMC			
<b>Thermal Camera Assembly</b>				
	<b>1400mm Lens</b>	<b>Optional 435mm</b>	<b>Optional 875mm</b>	<b>Optional 1075mm</b>
Image Sensor	High Sensitivity Cooled InSb			
Array Format	640×480 pixels (NTSC) / 640×512 pixels (PAL)			
Pixel Pitch	15μm			
Germanium Zoom Lens	70-1400mm Zoom (20X), f/5.5	18-435mm Zoom (24X), f/5.5	38-875mm Zoom (22X), f/5.5	46-1075mm Zoom (23X), f/5.5
Field of View (±7%)	7.8° - 0.39° HFOV	29°-1.3°HFOV	14°-0.65° HFOV	11.9° - 0.5° HFOV
Image Optimizations	Dynamic Image Contrast Enhancement (DICE) and Digital Zoom			
Thermal Sensitivity	20-25mK			
Cooler Lifetime	10,000 hours MTBF (20,000 hours optional)			
<b>Pan/Tilt Positioner</b>				
	<b>with 1400mm Thermal System</b>		<b>with Smaller Thermal System</b>	
Drive Unit	Elliptical Synchronous Drive, Low to Zero Backlash			
Pan Angle & Speed	Endless 360° 0.001°/s - 40°/s		Endless 360° 0.001°/s - 60°/s	
Tilt Angle & Speed	+45° to -45°, 0.001 - 40°/s (up to +90° to -90° optional)		+65° to -65°, 0.001 - 60°/s (+90° to -90° optional)	
Encoder Resolution	0.00036° Magnetic Encoder absolute positioning			
Accuracy	0.02°			
Gyro Stabilization	0.15° (with Balanced Payload, higher precision optional)			
<b>Environmental</b>				
Operational Temperature	-50°C to +65°C (with heater, -20°C without heater), Humidity: 90%±3% RH			
Environmental	Designed to meet or exceed MIL-STD-810F, EMI MIL-STD-461E, IP66/67			
<b>Electrical</b>				
Input Voltage	48V DC			
Power Consumption	500W Max (Before cooling options)			

\*Specifications subject to change. \*\*Approximate maximum detection rating under ideal conditions based on Johnson's Criteria (2 pixels of detection).

Optional Features: Thermal Enclosure Cooling, Wiper and Washer for Visible, Anodized Enclosure, Wide-Angle Thermal Spotter Camera, Wide-Angle 4K Visible Spotter Camera, or Military GPS

