

# Military Grade PTZ Camera System



The Viper is a revolutionary multi sensor PTZ camera boasting a long-range 128X visible day/night camera, long-range 50+km thermal infrared zoom, and optional ZLID NIR illumination with LRF. This multi-sensor payload enables the Viper to provide high resolution imaging in virtually any environment from heavy fog to complete darkness. Designed for weapons systems pointing and accuracy, the pan/tilt unit and enclosure meets and exceeds MIL-STD-810F military ratings for shock, vibration, temperature and dust/water ingress. This makes it the ultimate long range camera system for 24/7 situational awareness and long-range recognition and identification of targets.

## Key Features:

- › Ultra Long Range HD military-grade EO/IR PTZ surveillance system
- › Day/Night 1080p HD IP ONVIF 1/2.8" or 1/1.8" CMOS sensor
- › 32-2050mm Zoom Lens (with 2x doubler)
- › 128X (with optional motorized doubler) zoom range for an incredible 19°-0.15° field of view (on 1/2.8" sensor)
- › Auto focus & motorized fog/parasitic light filter with auto temperature optimization
- › Image enhancements: WDR, HLC, VLC, ROI, EIS, 3DNR, Fog/Haze, ABF
- › 1280×720 10µm, 30Hz real-time MCT cooled thermal imager with HD-SDI
- › 10µm pixel pitch provides 50% more pixels on target than 15µm sensors
- › 100-1200mm *f*/4 autofocus germanium thermal lens (7.3-0.61° HFOV)
- › 25,000+ hour rated rotary stirling cycle cooler
- › Up to 30km of human detection and 55km of vehicle detection (DRI)
- › MIL-STD-810F rated, -50°-+65°C and IP66/67 sealed enclosure with anti-corrosion UV stabilized finish
- › Nitrogen pressurized thermal enclosure
- › Elliptical Synchronous Drive, gyro-stabilized heavy duty pan/tilt
- › Endless 360° rotation pan/tilt with speeds up to 50°/s and 0.00026° resolution with zero backlash
- › 1550nm 20km rated LRF with 6ppm continuous measuring rate

**1080p**  
FULL HD

2MP Sensor

**128X**  
ZOOM

16-2050mm  
Zoom Lens

**ZLID**

3km Zoom  
Laser IR Diode

**COOLED MCT THERMAL**

HD Cooled  
Thermal

**10X**  
Ge ZOOM

Thermal  
Zoom Lens

**DICE**

Thermal Image  
Enhancement

**PTZ**

PTZ Controls

# THE VIPER'S HD Visible Camera with ZLID



## Visible/NIR Optical HD Camera

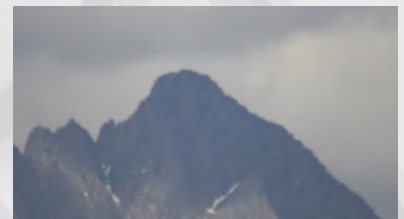
The Viper's visible camera was designed and optimized for long range surveillance. It uses a 1/2.8" progressive scan CMOS sensor with an HD resolution of 1920x1080 and a fantastic signal to noise ratio of 55dB. The 1/2.8" sensor has excellent spectral sensitivity for both visible and NIR wavelengths and features an automatic IR cut filter, making it a true day/night camera providing clear color images by day and black and white images at night. The 1/2.8" sensor provides the best balance between light sensitivity and maximum zoom, making it particularly suited for long range surveillance. The Viper also integrates the latest technology in real-time image processing such as BLC, HLC, DWDR, EIS, ROI, 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 128X Zoom Lens

The Viper comes equipped with a precision engineered 16-1025mm IR-corrected continuous zoom lens with motorized HD doubler, offering an incredible 128X zoom range from 19° through to a very narrow 0.15° FOV when paired with the 1/2.8" sensor. That's equivalent to a "full-frame" DSLR camera using a 13,500mm 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 1-5km IR ZLID Laser Illumination

Many laser illuminators overexpose the center of the screen and leave the edges dark. Our laser has an adjustable 0.5° to 19.5° angle of view, and Infiniti's ZLID (Zoom Laser IR Diode) technology synchronizes 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.



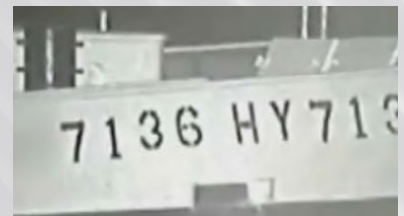
no Fog Filter



with Fog Filter



See through windows with ZLID



Ship at night with ZLID

# THE VIPER'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 midwave infrared mercury cadmium telluride (MCT) detector, producing ultra-sharp thermal images of 1280x720 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, and leading germanium optics, this camera offers extreme long-range performance and excellent image quality.



## HD MCT Cooled Thermal Imager

The Viper contains a high definition 10µm cooled MCT sensor with a resolution of 1280x720, HD-SDI video out. The rotary stirling cycle cooler boasts an ultra-long of 25,000+ hour lifetime. The cooled sensor is able to detect differences in temperature as small as ±0.025°C, providing more detail for tracking of targets at extreme ranges in total darkness and through most obscurants.



## 10X Continuous Zoom Germanium Lens

The cooled MCT thermal core is paired with a precision-engineered f/4.0 germanium zoom lens allowing you to view targets with a 10X optical zoom range from 115mm to 1200mm. This allows for long-range detection of thermal targets by offering anything from a 7.3° to 0.61° field of view. These lenses also feature auto focus capabilities, delivering crisp, clear images even when adjusting zoom, ensuring 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 Viper is a Mid-Wave Infrared (MWIR) thermal camera, responding to wavelengths from 3,700nm-4,800nm. Using the built-in image enhancements such as defective pixel replacement, gaussian noise reduction filter, and automatic gain control (AGC), this system is capable of detecting vehicles up to 50km away.\* While thermal is a significant investment, its superior range and performance allows it to replace and outperform all other solutions, making it a viable option for many applications.

## DRI Ranges:

**30km**  
Human Detection\*

**50km**  
Vehicle Detection\*

\*DRI detection ratings are based on industry-wide standards (Johnson's Criteria) that should be fully understood for proper expectations. For more information, please see our whitepaper about understanding DRI measurements.

# THE VIPER'S Other Features

## Elliptical Synchronous Drive P/T Positioner

The Viper has a weapons systems grade positioner designed for military applications and is able to withstand shock and vibration for use on tanks and navy vessels. The pan tilt implements an Elliptical Synchronous Drive for high torque to handle large payloads while providing micro steps as precise as 0.00026° for smooth manual control or 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 unparalleled stabilization on tanks, humvees, assault vehicles and more.

## Intuitive And User Friendly

While the Viper is an extremely sophisticated multi-sensor system it is also a user friendly plug-and-play solution controllable by touch screen, mouse, VMS systems, DVR/NVR or 3-axis joystick. This allows the Viper to be operated by any individual with little or no training and ensures compatibility with new and existing equipment.

## Rugged And Robust

The Viper is comprised of military grade, precision engineered components and manufactured using unique processes to offer absolute performance. It uses a military style connector to supply power, video, and communication over a single cable and does not require a junction box or external electronics of any kind, increasing reliability and the amount of time required to install the system. The entire system is designed for the most demanding mobile applications. It is MIL-STD-810F/G tested and certified and is sealed to a minimum of IP66/67 making it water and dust proof. Its internal heater/blower allows it operate in conditions from -40°C to +60°C and both the pan/tilt and enclosure use a tough anti corrosion finish for continued operation in the most brutal and harsh climatic conditions.

## Remote Connectivity

The Viper's visible camera is an IP system that allows you to instantly and remotely connect, and control it through the internet in real-time from anywhere in the world using Ascendent Remote Management Software (ARMS) on your laptop, iPhone, or Android device. For remote or mobile applications Internet bandwidth is often limited, which why our DVRs, NVRs and IP cameras can record at one resolution and stream at another. Our web client also allows you to change your settings, update firmware and activate image enhancements in real time even including backfocus lens adjustment.



Gyro Stabilized



Voltage Regulation



Military Connectors



Military Grade & IP66



Radar Integration

## OPTIONAL ACCESSORIES:



Spotlight



LRF (up to 20km range)



Quick Clip Connectors



Rapid Deployment Kit

# THE VIPER'S Specifications



Optical Assembly	1/2.8" HD Sensor	Optional Starlight Sensor
Image Sensor	1/2.8" Progressive Scan CMOS	1/1.8" Progressive Scan Exmor CMOS
Max Resolution	1920x1080 pixels	
Lens (12-bit Rapid Auto Focus)	16mm-1025mm (2050mm with doubler) HD Zoom Lens	
Angle of View	19.3° - 0.15° Horizontal FOV	25.29° - 0.2° Horizontal FOV
Minimum Illumination @ f/1.2	0.02 Lux (Color), 0.005 Lux (B&W)	0.002 Lux (Color), 0.0002 Lux (B&W)
Fog/Haze Filter	Motorized	
Backlight Compensation	BLC/HLC/DWDR (Digital WDR)	
IP Protocol	ONVIF, PSIA/GCI, HTTP, etc.	
<b>IR Illuminator (optional)</b>		
ZLID	Zoom Laser Infrared Diode	
Distance	3km (at max power), 170m NOHD	
Angle	0.2° - 19.5°	
Wavelength	808nm (940nm Stealth optional)	
LRF (optional)	Turns off laser if object is detected within NOHD distance	
<b>Thermal Imager</b>		
Lens (Motorized Focus)	115-1200mm Auto Focus Zoom Lens (±3%)	
Image Sensor	High Sensitivity Cooled MCT	
Array Format	1280x720	
Pixel Pitch	10µm	
Thermal Sensitivity (Room Temp. @ f/1.0)	< 25 mk	
Field Of View	7.3°-0.61° HFOV (±3%)	
DRI Detection Rating**	30km for human, 55km for vehicle	
Image Enhancement	Digital Image Contrast Enhancement (DICE) and Digital Zoom	
Cooler Lifetime	25,000+ hour rated Rotary Stirling Cycle Cooler	
Video Out	HD-SDI	
<b>Pan/Tilt Mechanical</b>		
Drive Unit	Elliptical Synchronous Drive	
Pan Angle & Speed	360° Continuous Pan, up to 70°/s,	
Tilt Angle & Speed	+90° to -90°, up to 70°/s	
Resolution	0.00026°	
Backlash	None	
Gyro Stabilization	1 degree, 0.5 degree and 0.25 degree options	
Absolute Positioning	Yes	
<b>Environmental</b>		
Operational Temperature	-40°C-+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/AC	
Power Consumption	< 600W	

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

**Optional Features:** Wiper and nano coating for visible camera, 1/2.8" or 1/1.9" HD starlight sensor: no price change, ZLID IR Laser for 2.5-3.5 km of IR illumination that syncs with zoom, Motorized doubler for zoom lens, Tool-Free Quick Clip Connectors for visible or thermal cameras, Integrated cooler for cooled thermal enclosure to reduce load on MWIR cooler (field replaceable), Upgrade to SFC (Suspended Flex Cooler) rated at 25,000+ hours (will have more details shortly), Lvl 2 Gyro with DMC and GPS, Thermal stealthing finish to hide heat signature