Fixed Thermal/Optical Camera
The Viper Series

Key Features

- Dual sensor optical and thermal integrated system
- High resolution day night 37X optical zoom CCD camera
- Thermal camera for 2.9km human and 8.8km vehicle detection
- Rugged IP 66/NEMA 4X weather-proof/vandal proof housing
- Extreme heater/blower for operation in -45°C to 60°C
- User defined WDR, HLC, BLC, AWB, etc. via OSD
- Integrated mechanical infrared cut filter for absolute clarity
- Digital Detail Enhancement (DDE) for high-contrast images
- Long range and wide area situational awareness
- Uncooled VOX thermal imager for long life and high ROI
- Can be mounted on vehicles or buildings to suit any application
- Multi-protocol communications for integration with 3rd party systems

Overview

The Viper

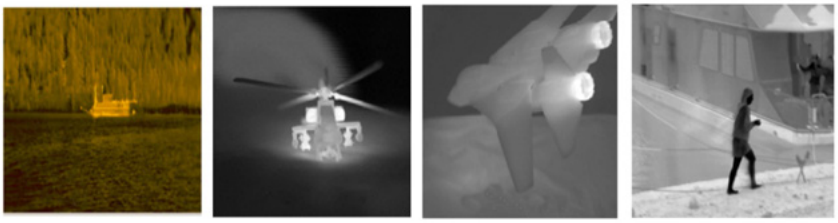
The VPR-37X-TI is an integrated dual-sensor system that boasts a 37X ultra-high resolution color CCD and a highly tuned thermal imager for true 24/7 performance. Integrating these two sensors provides unparalleled performance resulting in accurate detection, recognition, and identification of intruders. All of this is integrated into a rugged IP 66 housing constructed of strengthened aluminum alloy. This internal heater/blower and wiper allows the Viper to withstand the harshest climates and the most brutal assaults, making it ideal for perimeter security, homeland defense, and coastal protection.

Thermal Imaging

The Viper incorporates the latest thermal VOX core with a pixel size of 17UM to render images that are over 30% sharper than standard 25UM sensors and proprietary noise reduction for high contrast images resulting in greater distance and clarity over traditional thermal imagers. The VOX thermal core is immune to the damage caused by direct sunlight and parasitic light that plagues many thermal cores leading to expensive repairs and down time. The Viper thermal has a variety of imaging modes such as heat variance, false color hot and cold, and spot highlights allowing an integrator to optimize the performance of the camera in any application. This makes it an industry leading thermal camera in both performance and features.

Optical Day/Night Camera

The VPR-37X-TI has 5mm optically pure, flat tempered glass eliminating distortion and blurring to further enhance image clarity, even when zoomed in. The OSD allows you to program the Wide Dynamic Range (WDR), backlight compensation, privacy zones, and virtually every aspect of the camera allowing it to be installed in any application. All these features allow the Viper to capture minute details at great distances.



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Optical Camera

Wide Dynamic Range

The VPR-37X-TI optical camera incorporates advanced backlight compensation technology that dramatically improves dynamic range by 128 times, resulting in accurate reproduction in extreme high-contrast lighting environments. The camera captures the same image twice; first with a normal shutter speed and then with a high shutter speed. The dark areas captured at normal shutter speed and the bright areas captured at high shutter speed are then blended into one image, using an advanced DSP LSI, producing superb images.

Automatic AE Response

The VPR-37X-TI is equipped with a slow AE response function that automatically slows the rate at which camera exposure levels change. This rate can be set up to 32 times slower than when full-auto AE or priority (shutter/iris) modes are selected. This allows for monitoring areas in which lighting conditions change abruptly. For example, if the camera is used to monitor a flow of night time traffic and vehicle headlights are pointed directly towards it, the camera's exposure level is reduced slowly. This gives the ability to identify important details that are often overexposed by the headlights, such as the car's license plate or the driver's face.

Auto MICF (IR Filter)

Mechanical IR Cut Filter (MICF) delivers optimal images in both day and night shooting applications. At a set level of darkness the IR cut filter is automatically disabled (ICR ON) and the infrared sensitivity is increased. At a set level of brightness the filter is automatically enabled (ICR OFF). The IR cut filter automatically activates depending on the ambient light allowing the capture of images in a variety of lighting conditions.

High-Resolution Images

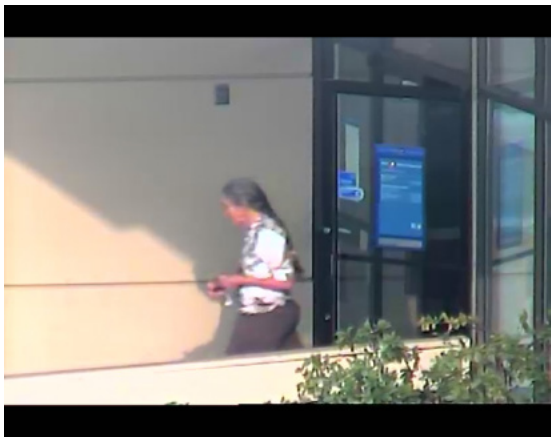
Combining a newly developed DSP with a 1/4" EX-View HAD CCD, this camera achieves a high horizontal resolution of 600TVL and outputs amazingly clear and detail-rich images with accurate color reproduction. Not only does this camera offer high resolution, it also has a 37X 3.5mm-129.5mm optical motorized IR corrected zoom lens with an additional 12X of digital zoom for a total zoom of 444X.

Multi-Line On Screen Display

Up to eleven lines with 20 characters per line can be displayed on the monitoring screen using VISCA commands. Users can freely display captions on the screen such as monitoring location, camera name, and alarm messages providing operators with a user friendly interface.

1X

37X



A comparison of a 37X camera zoomed in fully and zoomed out. The zoomed in image is a door of the bank located just above the middle of the 1X image. The 37X imager provides detail in mission critical applications where details are a must have. One zoom module on a pan-tilt can effectively replace many different cameras, making it not only cost effective but also more efficient.

Thermal Camera

Viper Thermal

The thermal detector Focal Plane Array (FPA) is based on a FLIR VOX core that comes in 2 resolutions, a 336x240 and a 640x480, with sensitivity of 50MK at f/1.0. Not only does the thermal range boast an impressive core, it also comes with a variety of precision engineered germanium lenses ranging from 9mm to 150mm for razor sharp images that maintain a low f-stop for real-time performance without lag and latency.

Feature Packed

To further enhance image clarity the Viper has FLIR priority noise reduction, to increase contrast, and 2X and 4X digital zoom to enhance even the most minute details. The cores have integrated solar protection and self heal from damage caused by direct sunlight. The Viper thermal has a variety of image enhancements such as BPR, NUC, and AGC'd.

Thermal Imaging

Thermal cameras, unlike traditional visible cameras, use heat rather than light to see an object, giving them a huge advantage over other imaging technologies. Using minute differences in Infrared Radiation (IR) they produce a high contrast thermal image in complete darkness. It is unaffected by bright light and has the ability to see through obstructions such as smoke, dust, and light fog. This makes thermal ideal for a number of applications including but not limited to surveillance & security, search and rescue, fire, marine and land navigation, machine vision, and wide area situational assessment.

See It All

Everything above absolute zero (-273°C) emits thermal IR radiation. The Viper thermal camera converts this into a digital image that can be displayed, distributed, and recorded. Humans, animals, and vehicles are very hot in contrast to a background and trespassers hiding in shadows or bushes are easily spotted.

Extreme Long Range Detection

The Viper is a Long-Wave Infrared (LWIR) camera which means it operates on 7-14UM (7000nm-14000nm) wavelengths where terrestrial temperature targets emit most of their infrared energy. It has unparalleled performance and is able to detect humans at 2.9km and vehicles at 8.8km with just a 100mm lens allowing one camera to replace many traditional cameras. While the Viper is a significant investment, its superior range and performance allows it to replace and outperform other solutions, making it a viable option for a variety of applications.

Thermal Advantages Over Optical

Ascendent's thermal cameras let you see further than any other night vision technology. All CCTV cameras require light which means using either expensive image intensifiers, which produce blurry lagging video, or the cameras have to be illuminated using LED arrays that are only effective for about 200m. Furthermore, LEDs only illuminate a small portion of the cameras FOV where a thermal image can see everything, day or night. Even during the day there are situations where thermal is better as CCTV cameras can be rendered useless by direct/reflected sunlight or areas where contrast is poor.

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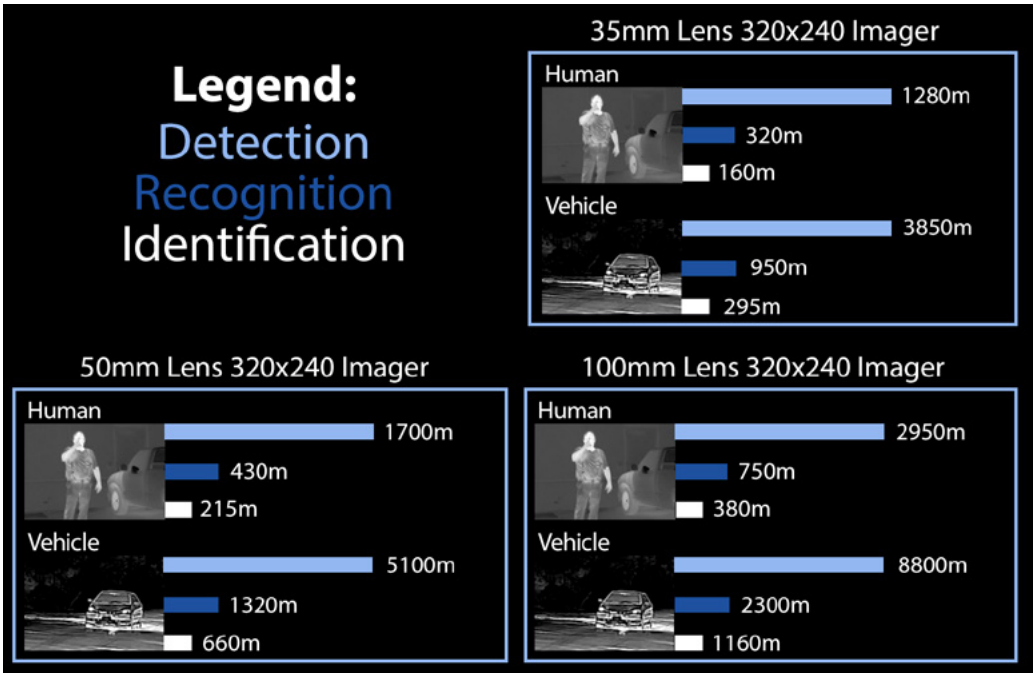
Intuitive and User Friendly

The VPR-37X-TI is compromised of military grade, precision engineered components and manufactured using unique processes to offer absolute performance. Although the VPR-37X-TI is an extremely sophisticated piece of equipment, it is operated by an intuitive, user friendly interface with multiple control options such as touch screen and mouse. Additionally, the optional Image Stabilizer (IS) and fog filter helps eliminate the effects of vibration and waves giving the Viper similar performance of a gyro-stabilized system at a fraction of the cost.



Video Analytics (optional)

Ascendent Video Analytics (AVA) can also be used on existing cameras to turn it into an intelligent, information-gathering device. Systems equipped in this way can perform intelligent analysis of motion with application areas including intrusion detection, vehicle monitoring, abandoned-object detection, people counting, and loitering detection, as well as camera tampering and failure detection. Ascendent is thereby able to provide very sophisticated video analytics that upgraded existing cameras into intelligent homogenous security solutions that operate automatically and autonomously.

Remote Connectivity (optional)

View all of your cameras instantly and remotely, and control them through the internet in real-time from anywhere in the world using Ascendent Remote Management Software (ARMS) on your laptop, iPhone, or Android device. Internet is often limited to low bandwidth satellites which is why our DVRs and IP cameras can record at one resolution, stream at another, and have integrated VBR and CBR to manage the amount of data and bandwidth used by each camera individually to ensure smooth operation on any network. All of Ascendent's IP cameras/servers come with our X4 or X5 video management platform.

Optional Accessories

Intruder Detection

IP Pro Video Server

Image Stabilizer

IP65-66 Marine Display

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PTZ Thermal/Optical Camera
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Specifications subject to change without notice

Optical Assembly (37X)	
Image Sensor	1/4" Ex-View HAD II CCD
Resolution	600TVL (day) / 700TVL (night)
Frame Rate (FPS)	30FPS
Lens	3.5mm-129.5mm IR corrected continuous zoom lens
Minimum Illumination (Sens-Up)	Color 0.05 Lux / BW 0.0008 Lux
Shutter Speed	Auto: 1/50 - 1/10,000 SEC
Zoom	37X optical, 12X digital, 444X total
Filter	Dual MICF: (Mechanical IR Cut Filter)
336 V2 FLIR Thermal Imager (640 Optional)	
Lens	9mm, 13mm, 19mm, 35mm, 50mm, 100mm, and 150mm Germanium lens
Image Sensor	FPA, uncooled Vanadium Oxide micro-bolometer (cooled core available)
	7.5Hz NTSC, 8.3Hz PAL CMOS 8-14 Bit (2nd Generation)
Picture Elements	324(H) x 256(V) pixels (640x480 optional with 8X zoom)
Scene Temperature	-40°C to +160°C (High and Low Gain)
Pixel Pitch	17µm (32% sharper image over 25µm sensors) FLIR's proprietary noise reduction
Image Optimizations	BPR, NUC, & AGC'd user configurability via SDK, GUI
Digital Zoom	2X & 4X dynamic zoom/pan with dyanamic range switching
Thermal Sensitivity/Response	36 mk @ f1.0 / 85mk @ f1.6 | 7.5-14 micron
Image Display Modes	White hot, black hot, false color, and color & monochrome palettes (LUTs)
Communication	Network or USB
Physical	
Construction	High strength aluminum alloy
Standard Colors	White (others optional)
Weight	3.0KG
Viewing Window	Flat glass (optical) & Germanium glass (thermal) optional bullet proof
Environmental	
Operational Temperature	-45°C to +60°C
Environmental	IP 66, NEMA 4X outdoor weather ring
Electrical	
Input Voltage	12VDC or 24VAC
Power Consumption	Max 16W (heater on), 8W (without heater)
Available Options	
Wiper	Optional for optical camera
IP-Pro Server (with X4/X5 software)	Converts camera into IP camera to distribute video over wireless networks
Image Stabilization	Available
Thermal Zoom	2X or 4X Thermal Zoom
Video Analytics	Virtual fence, object classification, trip wire, abandoned object, etc