

DATA SHEET

Video Surveillance Division

Security Camera

Hammerhead II Series



One Form factor 26 models



Features

- ✦ **Image Stabilization**
The 2MP 30x zoom model features image stabilization to minimize the appearance of shaky images caused by low-frequency vibration.
- ✦ **Detection Distance**
Thermal camera detects humans out to 1700 meters in all lighting conditions and vehicles out to 5100 meters. Optical camera detects humans out to 4000 meters in daytime lighting.
- ✦ **No blind spots**
Continuous 360° Pan Rotation and 180° tilt provides unhindered directional tasking.
- ✦ **Weather Resistant**
IP66 compliant weather resistant design facilitates installation in the most remote security applications, under the harshest environmental conditions.
- ✦ **Low Wattage Draw**
Dual input voltage 24VDC/24VAC and substantially lower wattage draw than other cameras, the HAMMERHEAD II is uniquely positioned to accommodate off-grid solar or generator powered remote applications.
- ✦ **Energy efficient**
Un-cooled radiant heat focal plane array allows the lowest possible power consumption.
- ✦ **Tough Construction**
Designed to be vehicle mountable, the NITOR boasts a heavy duty aluminum housing, scratch resistant mineral glass lens, and industrial grade motor assembly.
- ✦ **Standardized housing**
The HAMMERHEAD II Thermal/Optical vandal resistant housing is the first camera made which can be supplied with 36x optical camera, 2.0MP and a thermal imager, LED IR infrared illuminator or LASER illuminator utilizing a low voltage power supply.

Part of the "Hammerhead II" Family of High Performance Cameras.



Hammerhead II

Series



...From Patronus Labs

Overview

Patronus Labs offers an exclusive combination thermal / optical camera solution. The HAMMERHEAD II camera enables passive infrared Detection day and night out to 1700 for humans and 5100 meters for vehicles. Longer range thermal optics available in the HAMMERHEAD II-LR models. The thermal imager displays in white hot, black hot or the color spectrum with high contrast to easily identify targets with in the field of view. The optical camera options include analog NTSC/PAL 36x optical and 12x digital zoom from a Sony block camera or IP Cameras with 2.0 Mega-Pixels with 20x or 30x zoom for High-Definition Television quality video.

The 2MP 30x zoom model offers built-in low-frequency image stabilization for vehicle mast, tower installations.

Night operations are no problem for the HAMMREHEAD II. Thermal imagers see variation in temperature day and night in the same manner. LED Infrared illuminators offer night visibility up to 100 meters and Variable Beam Dispersion Lasers support up to 500 meter night visibility.

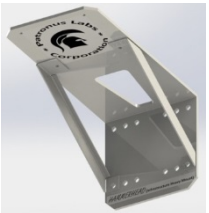
PRODUCT IDENTIFICATION CHART		
Division	Category	
Access Control	Camera, Board	IR Illuminator
Computer Components	Camera Bullet	JoyStick
Fixed Platform	Camera, Dome	Lens, Board
Housings/Mnts/Enclosures	Camera, Mini	Lens, C/CS Mount
Mobile Platform	Cam, Professional	Recorder, Embedded
Power Gen./Storage	Camera, Specialty	Recorder, Mobile
Tools/Equipment	Cam, Speed dome	Recorder, Network
Video Surveillance	Decoder	Recorder, PC-Based
Wire/Cables/Connectors	Encoder	Software
Wireless Equipment	Encoder/Recorder	

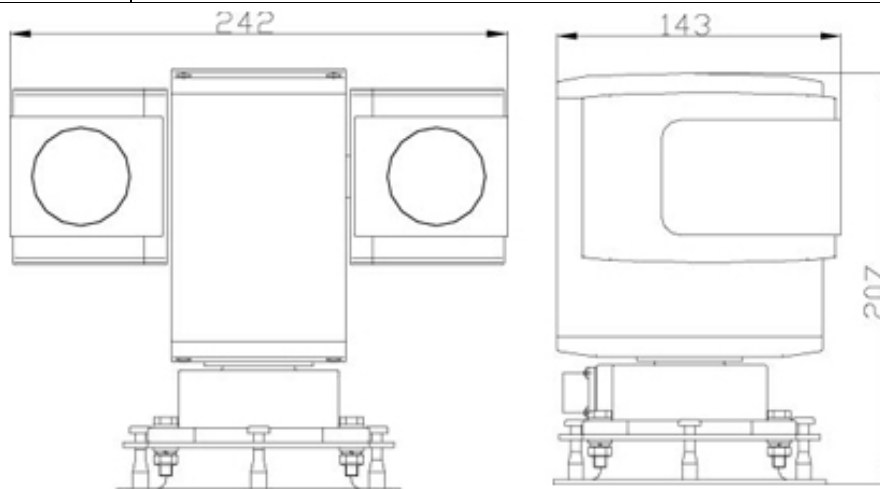


Models

Stock Number	Description
VSCS0874	36x Sony 550TVL, 100M LED IR
VSCS0875	36x Sony 550TVL, 500M Laser IR
VSCS0878	20x, 2.0MP IP Camera, 100M LED IR
VSCS0879	20x, 2.0MP IP Camera, 500M Laser IR
VSCS1335	30x, 2.0MP IP Camera, 500M Laser IR
VSCS0880	36x Sony 550TVL, FLIR Thermal 320x240, 9mm, 9Hz
VSCS0881	36x Sony 550TVL, FLIR Thermal 320x240, 9mm, 30Hz
VSCS0882	36x Sony 550TVL, FLIR Thermal 320x240, 19mm, 9Hz
VSCS0883	36x Sony 550TVL, FLIR Thermal 320x240, 19mm, 30Hz
VSCS0884	36x Sony 550TVL, FLIR Thermal 320x240, 25mm, 9Hz
VSCS0885	36x Sony 550TVL, FLIR Thermal 320x240, 25mm, 30Hz
VSCS0886	36x Sony 550TVL, FLIR Thermal 320x240, 35mm, 9Hz
VSCS0887	36x Sony 550TVL, FLIR Thermal 320x240, 35mm, 30Hz
VSCS0888	36x Sony 550TVL, FLIR Thermal 320x240, 50mm, 9Hz
VSCS0889	36x Sony 550TVL, FLIR Thermal 320x240, 50mm, 30Hz
VSCS0890	36x Sony 550TVL, FLIR Thermal 640x480, 9mm, 9Hz
VSCS0891	36x Sony 550TVL, FLIR Thermal 640x480, 9mm, 30Hz
VSCS0892	36x Sony 550TVL, FLIR Thermal 640x480, 19mm, 9Hz
VSCS0893	36x Sony 550TVL, FLIR Thermal 640x480, 19mm, 30Hz
VSCS0894	36x Sony 550TVL, FLIR Thermal 640x480, 25mm, 9Hz
VSCS0895	36x Sony 550TVL, FLIR Thermal 640x480, 25mm, 30Hz
VSCS0896	36x Sony 550TVL, FLIR Thermal 640x480, 35mm, 9Hz
VSCS0897	36x Sony 550TVL, FLIR Thermal 640x480, 35mm, 30Hz
VSCS0898	36x Sony 550TVL, FLIR Thermal 640x480, 50mm, 9Hz
VSCS0899	36x Sony 550TVL, FLIR Thermal 640x480, 50mm, 30Hz

Accessories

HMBM0726	Infrastructure Heavy Mount	
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Specifications

Analog Camera	
Optical Camera	SONY FCB-EX1020
Angle of View	H:57.8°~ 1.7°
Backlight Compensation	BLC / HLC / WDR
Day/Night	Auto(ICR) / Color / B/W
Effective Pixels	440,000 pixels (PAL) / 380,000 pixels(NTSC)
Electronic Shutter Speed	1/1 sec to 1/10,000 sec, 22 steps
Focus Control	Auto/Manual
Focal Length	3.4mm ~ 122.4mm
Gain Control	Auto / Manual
Horizontal Resolution	550TVL(color), 570TVL(B/W)
Image Sensor	1/4-type EXview HAD CCD
Image Stabilization	Electronic Image Stabilizer (EIS)
Max Aperture	F1.6 ~ F4.5
Min. Illumination	0.65 lux (F1.35, 50IRE)
Noise Reduction	2D/3D
Privacy Masking	Up to 24 areas
Scanning System	Interlace Scan
S/N Ratio	More than 50 dB
Video Output	BNC(1.0Vp-p/75), PAL / NTSC
White Balance	Auto, ATW, Indoor, Outdoor, Manual
Zoom	36X optical/12X digital

IP Camera	
Backlight Compensation	ON/OFF
Bit Rate	1Mbps~10Mbps
Compression	H.264
Day/Night	Auto(ICR) / Color / B/W
Effective Pixels	1920(H) x 1080(V), 2.0 Megapixels
Electronic Shutter Speed	1/1~1/10000s
Ethernet	RJ-45 (10/100Base-T)
Frame Rate - Main Stream	1080P/720P(1 ~ 25/30fps)
Frame Rate - Sub Stream	D1/CIF(1 ~ 25/30fps)
Focal Length	4.7mm ~ 94mm
Focus Control	Auto / Manual Auto / Manual
Gain Control	Auto/Manual
Image Sensor	1/2.8" Exmor CMOS
Image Stabilization	No
Imager	SONY FCB-EH6300
Max Aperture	F1.6 ~ F3.5
Min. Illumination	High Sensitivity: 0.5lx(F1.6, ICR off)/0.095lx(f1.6, ICR on); Normal Sensitivity1.7lx(F1.6, ICR off)/0.3lx(f1.6, ICR on)
Noise Reduction	Yes(On/Off)
ONVIF	ONVIF Ver. 2.2
Privacy Masking	ON/OFF, 24 zones
Protocol	TCP/IP,HTTP,DHCP,DNS,RTP/RTSP, PPPoE, DDNS
Resolution	1080P(1920x1080) / 720P(1280x720) / D1(704x576/704x480) / CIF(352x288/352x240)
Scanning System	Progressive
Stable Zoom	No
S/N Ratio	More than 50dB
User Access	Maximum 5 users
Wide Dynamic Range	Auto/Manual
White Balance	Auto, ATW, Indoor, Outdoor Auto, Sodium Vapor Lamp (fix/auto), One-push, Manual
Zoom	20x optical/12x digital zoom



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Video Surveillance Division

Security Camera

Thermal Camera		
Model	Tau 2 336	Tau 2 640
Analog Video	Field-switchable between NTSC and PAL	
FFC Duration	<0.5 sec	
Frame Rate-Fast	30/60Hz (NTSC); 25Hz/50Hz (PAL)-Export Controlled	
Frame Rate-Slow	<9Hz option for export (factory set); 7.5fps (NTSC), 8.3fps (PAL)	
Humidity	5 - 95% non-condensing	
Image Control	Invert, revert, continuous digital zoom, dynamic zoom & pan, digital zoom presets, polarity, false color or monochrome, isotherms, AGC, second generation digital detail enhancement (DDE), image optimization (BPR, NUC & AGC'd video),Active Contrast Enhancement (ACE, Information Based Histogram Equalization (IBHEQ), Smart Scene Optimization (SSO), settable splash screens	
Imager Type	Uncooled LWIR Thermal Imager	
Operational Altitude	+40,000 feet	
Performance	<50 mK @ f/1.0	
Pixel Size	17 µm (Tau 2 640, 336);	
Power Dissipation	~ 1.0 W	<1.3W
Resolution	336 x 256 VOx Microbolometer	640 x 512 VOx Microbolometer
ROHS, REACH, and WEEE	Compliant	
Scene Temp Range	High gain: -40°C to +160°; Low gain: -40°C to +550°	
Shock	200 g shock pulse with 11 msec sawtooth	
Spectral Band	7.5 - 13.5 µm	
Temperature Shock	5°/min	
Time to Image	<4 seconds	<5 seconds
Vibration	4.3 g 3 axes, 8 hours each	

Thermal Lenses		9mm	19mm	25mm	35mm	50mm
F-stop	Tau 2 336	f/1.25	f/1.25	f/1.1	f/1.2	f/1.2
	Tau 2 640	f/1.4				
FOV (h x v)	Tau 2 336	35° x 27°	17° x 13°	13° x 10°	9.3° x 7.1°	6.5° x 5.0°
	Tau 2 640	69° x 56°	32° x 26°	25° x 20°	18° x 14°	12.4° x 9.9°
iFOV (mrads)	Tau 2 336	1.889	0.895	0.68	0.486	0.34
	Tau 2 640	1.889	0.895	0.68	0.486	0.34
Minimum Focus Distance ⁴	Tau 2 336 & Tau 2 640	3 cm	16 cm	30 cm	60 cm	1.5 m

Detection, Recognition, Identification (DRI), Typical/Best Conditions (range in meters)

Tau 2 336 - Man	Detection	D = 205/230	D = 450/490	D = 590/650	D = 800/880	D = 1125/1280
	Recognition	R = 52/57	R = 112/124	R = 148/165	R = 200/225	R = 290/320
	Identification	I = 26/28	I = 56/62	I = 75/85	I = 105/112	I = 145/160
Tau 2 336 - Vehicle	Detection	D = 590/700	D = 1,280/1500	D = 1650/1950	D = 2250/2700	D = 3100/3800
	Recognition	R = 150/175	R = 330/375	R = 430/500	R = 590/680	R = 810/970
	Identification	I = 74/88	I = 165/190	I = 215/250	I = 290/340	I = 415/490
Tau 2 640 - Man	Detection	D = 250/285	D = 570/640	D = 820/930	D = 1140/1280	D = 1500/1700
	Recognition	R = 63/71	R = 144/160	R = 210/230	R = 280/320	R = 380/430
	Identification	I = 31 / 36	I = 72/80	I = 104/116	I = 142/160	I = 190/215
Tau 2 640 - Vehicle	Detection	D = 720/880	D = 1,550/1950	D = 2200/2800	D = 3000/3850	D = 3900/5100
	Recognition	R = 175/220	R = 400/500	R = 580/710	R = 800/950	R = 1060/1320
	Identification	I = 88/108	I = 200/250	I = 290/360	I = 200/295	I = 540/660

IR Illuminators

	LED	Laser
Illumination Distance	100m	500m
Emission angle	10°	2-40°
Power Consumption	10W	3W
Wave Length	850nm	808nm



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PTZ	
Angles Display	Support
Application	Vehicle load/indoor/outdoor
Auto Cruise	Up to 8 groups, based on OSD function, configurable dwell time
Auto Scan	Up to 8 lines, based on OSD function, configurable speed
Baud rate	2400, 4800, 9600, 19200 bps
Communication	RS485
Cruising Track	8, each with 10 preset positions
Dimensions	242(L) x 143(W)x207(H) mm
Guard Location	Call preset, cruising track or auto scan if there is no command in a period of time
Material	Rare earth material
Night Vision Range	500m with laser illuminator
OSD menu	Chinese/English
Pan Rotation Range	0° ~ 360° continuous
Pan Speed	0.1° ~ 80° /s
Power Consumption	≤30W
Power Failure Recovery	Recover to previous PTZ and lens status after power failure
Power Supply	24VDC/24VAC
Preset	Up to 128
Preset	80
Protocol	Pelco P/D, self-adaptive
Relay AUX Output	2 groups
Repeatability	≤0.5°
Surge Protection	Built-in Lightning and Surge Protection
Tilt Rotation Range	Double load, -90° ~ +90°
Tilt Speed	0.1° ~ 40° /s
Working Temperature	-35°C ~ 65°C
Working Humidity	≤90% RH (No condensing, no heating)
Protection Level	IP66
Waterproof	IP66
Weight	4.9kgs
Wiper	Supported (optional)

DDE – Digital Detail Enhancement



ACE – Active Contrast Enhancement



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Tau 2 640

Mailbox and man at center of image are 49m from camera

Tau 640 9mm f/1.25

Tau 640 19mm f/1.25



Tau 640 25mm f/1.1

Tau 640 35mm f/1.2



Tau 640 50mm f/1.2



IMPORTANT EXPORT INFORMATION

The International Traffic in Arms Regulations (ITAR) details the regulations governing the export of defense related materials and technologies. The U.S. Munitions List (USML) categorizes goods and technologies governed by the ITAR.

FLIR's 640x512 thermal imaging products and related technical data and information are controlled for export purposes to the ITAR. Data provided on this datasheet has been approved for public release, and is not export-controlled. It is a violation of the ITAR to export or re-export technical data pertaining to FLIR's 640x512 thermal imaging products (other than data approved for public release) without first receiving authorization to do so from the U.S. Department of State. This restriction does not apply to the "slow video" versions of FLIR's 640x512 thermal imaging products that operate at frame rates of less than 9Hz.

Due to the export status of FLIR's 640x512 thermal imaging products, any purchase, receipt, and/or use of any related technical data (other than data approved for public release) is contingent upon an agreement to abide by all export laws and regulations of the United States, including, without limitation, the ITAR. Further, it must be acknowledged that export or re-export of technical data related to FLIR's 640x512 thermal imaging products (other than data approved for public release) is not allowed without the requisite authorization from the Directorate of Defense Trade Controls of the Department of State.

In addition, § 122.1 of the ITAR states that "Any person in the U.S. who engages in the business of either manufacturing or exporting defense articles or furnishing defense services is required to be registered with the Directorate of Defense Trade Controls (DDTC)." It is the responsibility of any organization that buys, receives, or sells for export purposes and/or uses a FLIR 640x512 thermal imaging product in a manufacturing process to register with DDTC in such cases.

Violations of the ITAR are extremely serious and can result in fines, debarment, and criminal sanctions. Please direct any questions or concerns regarding the export to 818-232-7726.

Again, ITAR compliance for FLIR's 640x512 thermal imaging products applies to the full-rate (30Hz & 25Hz) versions of the camera, and does NOT apply to the "slow video" versions that operate at frame rates of less than 9Hz.

