EXCELLENCE IN NIGHT VISION

NightHawk evo

FIXED and PAN-TILT NIGHT CAMERA FOR MILITARY and HIGH SPEED APPLICATION

www.starlightitalia.com
“SEEING WITHOUT BEING SEEN”

In such a way the slogan reads itself primarily with special law enforcement units and military commandos. For decades mankind tried to achieve this goal by means of modern technology. The better this succeeded, the more complex became the technology of night vision devices. For the actual initiator of this type of equipment - the military - the costs of development and production only played a subordinated role. It is to be noted in the following that the night vision technology represents high-level technology and the devices were designed primarily for military purposes. Therefore application within the scientific or civilian range is sometimes limited or even forbidden by law. However, if in the past night vision were exclusively reserved for the military, today some Night Vision Devices are also available for civilian users e.g. security companies, hunters, marine crew members.

LOW LIGHT, ELECTROMAGNETIC RADIATION

Whether radio, microwaves, light, x-ray or gamma radiation - these are all manifestations of electromagnetic radiation. They only differ by the wavelength (frequency). This is also the key to the different characteristics concerning their diffraction and reflection. For example long radio waves follow the Earth’s curvature, while short microwaves spread straight-lined (e.g. communication earth-satellite-earth). The more highly the frequency of a wave, the more highly also the energy is.

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The human eye can detect only a small part of the electromagnetic spectrum. Between 380 and 780 nanometers wavelength (1 nm = 1,000,000,000ths part of a meter) we see this radiation as light of different colouring. Below 400 nm is the ultraviolet range, above 750 nm is the invisible infrared (IR) range.

Important low light-sources are:

- **MOON** full moon approx. 0.01 lux, new moon approx. 0.001 lux
- **STARS** with cloudless sky approx. 0.0001 lux
- **ARTIFICIAL LIGHT EMISSIONS** and their reflection at the clouds, e.g. cities or motorways

KEYWORD: IMAGE INTENSIFIER

The actual history of opto-electronic Night Vision Devices (NVDs) began with the development of the first image intensifier tube in the 30’s of the last century. Since then every step in technology is associated with the notion of light amplification improvement. In World War 2 some few special forces already used first Night Vision Devices which utilized image intensifier tubes (Zero Generation). The human eye can’t detect objects in environments with very low light level. Similar to the term ‘photomultiplier’ the operational basics of an image intensifier tube makes attentive to the physical working principle, the ‘multiplication’ or ’amplification’ of the existing ‘low light’. The night vision device functions like ‘correction eyeglasses’, by catching the low light radiation even present in the natural environment, amplifying / converting it electronically and delivering it as strong light within the visible spectral range to generate a clear and optimal image of the surrounding dark environment.
**System Features**

- Sensor: Camera high speed appl.
- Technology: Image Intensification Supergeneration
- Light Intensifier Tube: 350-1000 nm
- Spectral Range: HD 720 TV Lines
- Resolution: 40° x 40°
- Field of view: Auto from 5 mt. to ∞
- Focus: Fourth Generation
- Digital Filter: SVIV DSP engine
- Image Stabilization: DIS (Digital Stabilization)
- Flash proof: Yes (LIF)
- Laser proof: Yes (LIF)
- Preferred embodiment: With 12" HD LED High Bright Monitor

**System Specifications**

- Power: 5W
- Voltage: 12-24V DC
- Weight: 2.3 Kg
- Height: 15 cm
- Width: 17 cm
- Length: 22 cm
- Operating Temperature: -45° +60°
- Weather Resistance: Carbon Fiber + AISI 316 Stainless Steel

**Optional**

- Pan-Tilt Motion: Speed min. 30°/s
- Video Encoder: From Analog to IP video
  - Allowed Protocol: TCP/ IP DHCP, ICMP, ARP, UPnP, DNS, DDNS, PPPoE

**NightHawk TECHNOLOGY**

Light Amplification:
Past, Present, Future of Night Vision
Never Alone With Dual Vision
Ultra Color + Military Vision

NightHawk switch automatically in two different modes depending on light environment level:

- **UltraColor mode**
  It is the feature allows to obtain crisp and clear color images in daylight as up to very low light levels such as after the sunset or at night near the coast or the harbour.

  Crisp and clear images with Ultra Color Super Vision at low light level conditions

- **Light intensifier mode:**
  When the light level is very low, for example in complete darkness conditions, away from the coast and from light sources, NightHawk automatically switch on light intensifier mode allows a clear and well defined green/black high level military vision.

  Military Vision with light intensifier mode in the complete darkness
NightHawk
REALTIME AND RECORDING FEATURES

NightHawk basic feature allows up to 2000 black/white pictures on a special formatted sd card, already installed in control box, by a simple click on **camera** button on joystick pad. Later, these pictures can be reviewed directly by activating the **Fn** button on the joystick pad and scrolling by the arrows button to the right and to the left.

**SPECIAL OPERATIONS FEATURES**

With adoption of **X1R9** special digital recording unit is possible to obtain a high quality professional continous or screenshot recording features, designed to withstand to severe G Force level during high speed operations. Moreover it is possible to obtain, in addition, GPS tracking tex on video flux on live or recordings with the adoption of special **HTF GPS** module.
High Speed in the Night:
High Safety Grade

INDICATIVE TECHNICAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful diameter</td>
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<td>Nominal operating voltage, V</td>
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<td>- at 850 nm, mA/W</td>
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<tr>
<td>Mean Time To Failure hours min</td>
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<td>Modulation Transfer function</td>
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<tr>
<td>Operating Temperature °C min/max</td>
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</tbody>
</table>

Nighthawk
a window on the night

- User Friendly
- Easy to Install
- Power supply: 12 - 24 Vdc 10 w

LIF used for laser proof features
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ARCHITECTURE

NightHawk

- 12" LED monitor (IP 67)
- OPTIONAL
  - Multiple monitors
- OPTIONAL
  - 15"/19" monitor
- OPTIONAL
  - LIF light interference filter for laserproof feature
- OPTIONAL
  - On Screen Display (OSD)
- OPTIONAL
  - Pan/Tilt Motor
- OPTIONAL
  - Motion Kit
- OPTIONAL
  - Recording Kit
- OPTIONAL
  - HTF GPS module
Reference

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FOR MILITARY and HIGH SPEED APPLICATION

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