STARLIGHT
ITALIA

EXCELLENCE IN NIGHT VISION

STARLIGHT

NightHawk evo

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

www.starlightitalia.com

Technological Background

"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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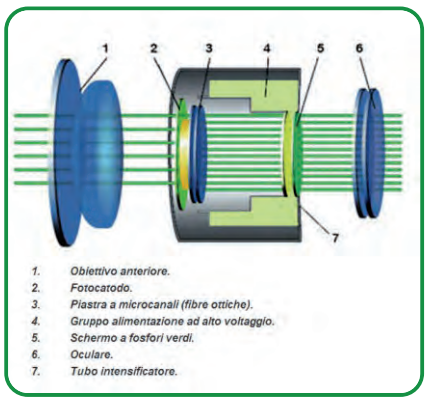
The human eye can detect only a small part of the electromagnetic spectrum. Between 380 and 780 nanometers wavelength (1 nm = 1.000.000.000ths part of a meter) we see this radiation as light of different colouring. Below 400 nm is the ultraviolet range, above 750 nm is the invisible infrared (IR) range.
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

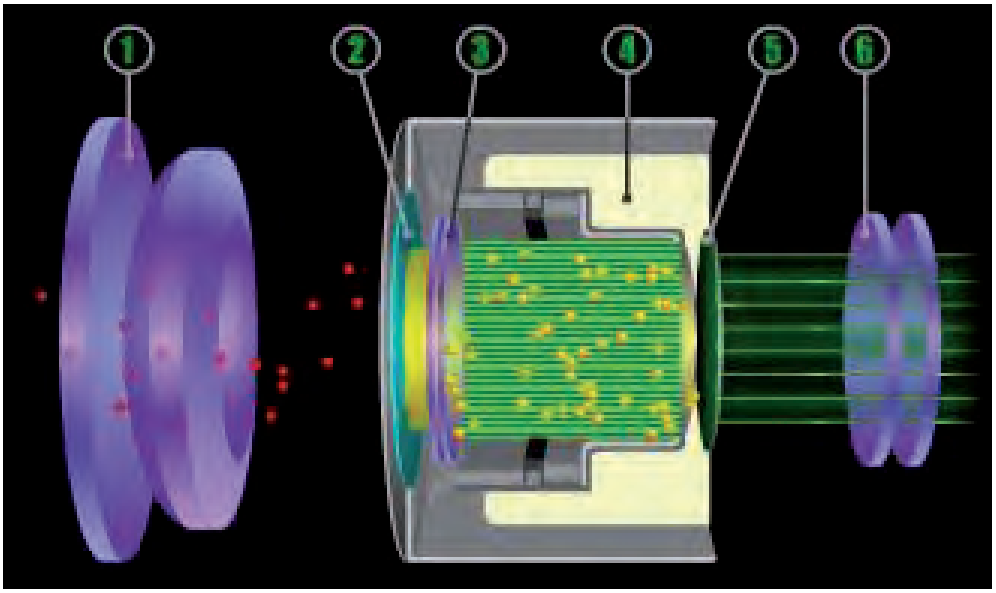
The actual history of opto-electronic Night Vision Devices (NVDs) began with the development of the first image intensifier tube in the 30's of the last century. Since then every step in technology is associated with the notion of light amplification improvement. In World War 2 some few special forces already used first Night Vision Devices which utilized image intensifier tubes (Zero Generation). The human eye can't detect objects in enviroments 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 enviroment, 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 enviroment.



1. Obiettivo anteriore.
2. Fotocatodo.
3. Piastra a microcanali (fibre ottiche).
4. Gruppo alimentazione ad alto voltaggio.
5. Schermo a fosfori verdi.
6. Oculare.
7. Tubo intensificatore.

NightHawk TECHNOLOGY

Light Amplification:
Past, Present, Future of Night Vision



System Features

Sensor:	Camera high speed appl.
Technology:	Image Intensification
Light Intensifier Tube:	Supergeneration
Spectral Range:	350-1000 nm
Resolution:	HD 720 TV Lines
Field of view	40° x 40°
Focus:	Auto from 5 mt. to ∞
Digital Filter:	Fourth Generation SV-IV 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
Lenght:	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
FULL AUTOMATIC DAY/NIGHT FEATURES

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 contitions

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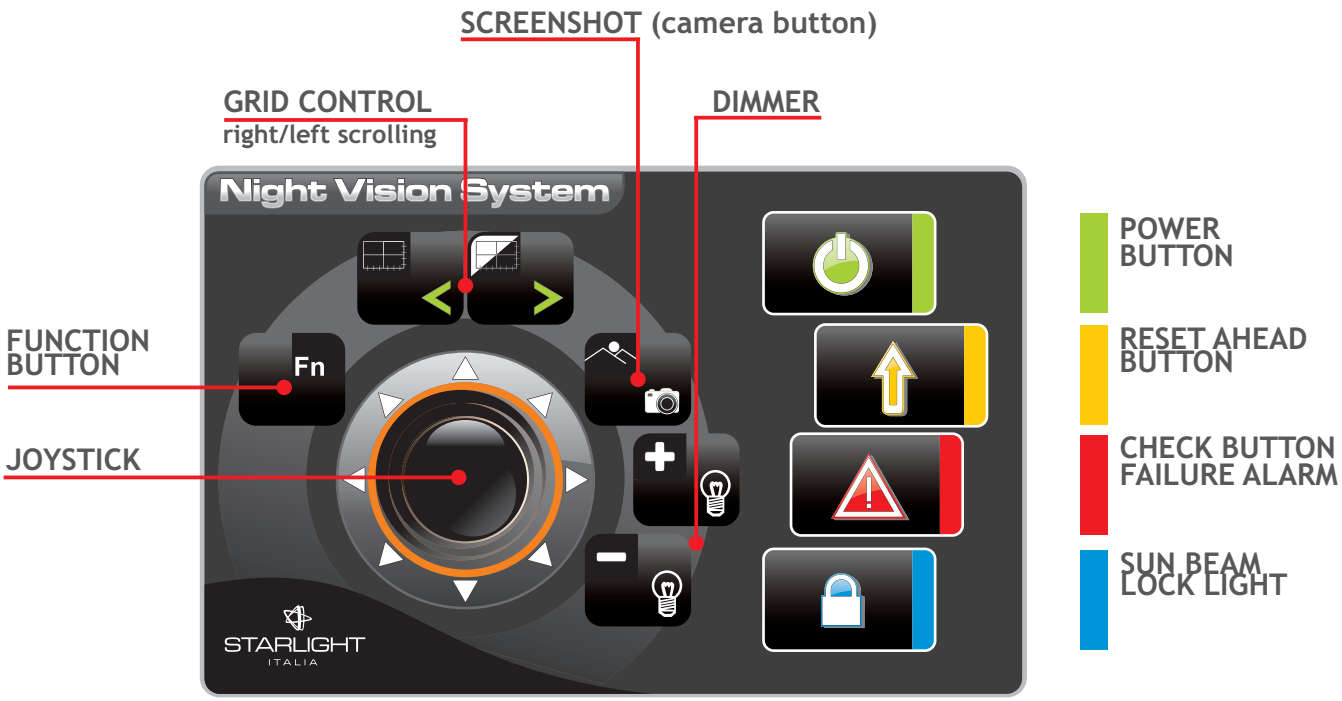
- **Light intensifier mode:**
  When the light level is very low, for example in complete darkness conditions, away from the coast and from light sources, NightHawk automatically switch on light intensifier mode allows a clear and well definied green/black high level military vision.

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 an be reviewed directly by activating the **Fn** button on the joystick pad and scrolling by the arroes 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 screeshot recording features.
designed to withstand to severe G Force level during high speed operations.
Moreover it is possible to obtain, in addition, GPS traking tex on video flux on live or recordings with the adoption of special **HTF GPS** module.

X1R9 Four channel DVR Anti-shock module.

HTF GPS module

NightHawk TECHNOLOGY

High Speed in the Night:
High Safety Grade

INDICATIVE TECHNICAL DATA

Useful diameter	17.5
Nominal operationg voltage , V	3±0.5
Supply current , mA max	22
Photocathode sensitivity:	
-white light , µm/lm	800
-at 850 nm, mA/W	50
Resolution lp/mm , min	60
Luminous gain at 100 µlx	22000÷30000
Signal to Noise Ratio min	22
Max.Output Brightness at 10lx cd/m 2	4 - 8
Mean Time To Failure hours min	10000
Modulation Transfer function	
2.5 lp/mm	0.8 8
7.5 lp/mm	0. 6 5
15 lp/mm	0. 4 8
Shock Acceleration m/s 2	5000
Operating Temperature C° min/max	-50/+50

Nighthawk
a window on the night

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

LIF used for laser proof features

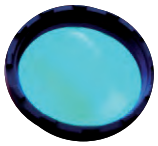
NightHawk ARCHITECTURE

12" LED monitor (IP 67)

OPTIONAL

Multiple monitors

OPTIONAL



LIF
light interferance filter
for laserproof feature

FIXED CAMERA

OPTIONAL

15"/19" monitor

OPTIONAL

On Sceen Display (OSD)

OPTIONAL

Pan-Tilt Motor

Control Panel

MOTION KIT

OPTIONAL

HTF GPS module

RECORDING KIT

Reference